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S6X/February 1999**

Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
 - Increase the separation between the equipment and the receiver.
 - Connect the equipment onto an outlet on a circuit different from that to which the receiver is connected.
 - Consult the dealer or an experienced radio/TV technician for help.
- Shielded interconnect cables and shielded AC power cable must be employed with this equipment to insure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system's manufacturer could void the user's authority to operate the equipment.

Declaration of Conformity

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

Canadian Department of Communications

This class B digital apparatus meets all requirements of the Canadian Interference-causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

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Chapter 1

Introduction

This mainboard provides very high performance as it supports all of Intel's Slot-1 processors including the **Pentium-III**, the **Pentium-II**, and the **SEPP (Single Edge Processor Package) Celeron**. Pentium-III processors run at clock rates of 450 and 500. Pentium-II processors run from 266 MHz through to 450 MHz, and the SEPP Celerons run from 266 up to 433 MHz.

The mainboard is highly integrated and includes a built-in **AGP Graphics Accelerator**, a built-in **PCI 3D Sound System**, and a built-in **10/100 BaseT Network Adapter**. A **V.90 Fax/modem Module** is an accessory. In addition, the mainboard has a full set of **ATX I/O Ports** including a serial port, two PS/2 ports, a parallel port and two USB ports.

The mainboard supports **CPU Plug & Play** through firmware. The board adheres to the **Micro-ATX Form Factor** and it can be installed in a micro-ATX case with a micro-ATX power supply. Because of its Slot-1 support and high level of integration, this mainboard delivers very high performance and a rich set of features for a minimum cost.

Key Features

This key features of this mainboard include:

Slot-1 Processor Support

- ◆ **Pentium-III** support for 450 MHz and 500 MHz clock rates
- ◆ **Pentium-II** support for 266 MHz to 450 MHz clock rates
- ◆ **SEPP Celeron** support for 266 MHz to 433 MHz clock rates
- ◆ Support for 66 MHz and 100 MHz FSB (Front Side Bus)
- ◆ All processors configured by **CPU Plug & Play**

Memory Support

- ◆ Three DIMM slots for 3V **SDRAM** 168-pin memory modules
- ◆ Support for 66 MHz and 100 MHz memory bus
- ◆ Supports 1-bit ECC (Error Correction Code)
- ◆ Maximum installed memory can be 3 x 256 MB = 768 MB

Expansion Slots

- ◆ One 32-bit PCI slot
- ◆ One 8/16-bit ISA slot

Onboard IDE channels

- ◆ Primary and Secondary PCI IDE channels
- ◆ Support for PIO (programmable input/output) modes
- ◆ Support for Bus mastering and UltraDMA 33/66 modes

Power Supply and Power Management

- ◆ Provides ATX power connector
- ◆ Support for Power button/Suspend Switch, and **Keyboard Power On/Off** (needs Win98 keyboard)
- ◆ Supports Wake on Modem, Wake on LAN and Wake on Alarm

Built-in Graphics System

- ◆ Onboard 64-bit 3D **AGP Graphics Accelerator**
- ◆ Complies with AGP Ver. 2.0 spec with built-in 8-way/16 entry set-associative GART cache for AGP master
- ◆ Shared memory architecture allows a maximum of 8 MB main memory to act as frame buffer
- ◆ Supports high resolutions up to 1600 x 1200 pixels

Sound System

- ◆ Meets PC98 audio specification
- ◆ Full duplex playback and recording with built-in 16-bit CODEC
- ◆ HRTF 3D professional audio supports both Direct Sound 3D® and A3D® interfaces plus support for **4-channel speakers**
- ◆ Drivers support Windows 3.1/95/98/NT 4.0
- ◆ Built-in 32 ohm earphone buffer and 3D surround
- ◆ Provides MPU-401 Game/MIDI port and legacy Sound Blaster 16 support
- ◆ Downloadable Wave-table Synthesizer supports Direct Music®
- ◆ Digital Audio Interface with **24-bit stereo**, 44KHz sampling rate 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 I/O Ports

- ◆ Provides **PC99 Color Connector** for easy identification of peripheral devices
- ◆ Floppy disk drive port with 1Mb/s transfer rate
- ◆ Two serial ports with 16550-compatible fast UART
- ◆ One parallel port with support for ECP and EPP
- ◆ Two USB ports & two PS/2 ports
- ◆ One infrared port

Hardware Monitoring

- ◆ Built-in hardware monitoring for CPU temperature and fan speeds
- ◆ Supports Intel's LANDesk Client Manager (LDCM)

Built-in LAN Adapter

- ◆ Onboard **10/100M LAN Adapter**
- ◆ LAN controller integrates Fast Ethernet MAC and PHY compliant with IEEE802.3u 10BASE-TX, 10BASE-T and ANSI X3212 TP-PMD standards
- ◆ Compliant with ACPI 1.0 and the Network Device Class Power Management 1.0
- ◆ High Performance provided by 100 Mbps clock generator and data recovery circuit for 100 Mbps receiver

Fax/modem Module

- ◆ **56 Kbps Fax/modem 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 115200 compatible Virtual UART
- ◆ Requires 16 MB RAM and WIN 95/98/NT

Onboard Flash ROM

- ◆ Provides plug and play function for automatic CPU and board configuration
- ◆ Supports plug and play configuration of peripheral devices and expansion cards
- ◆ Built-in virus protection using Trend's **ChipAway Virus** which ensures that the entire boot process is virus protected.

Bundled Software

- ◆ **AMI Desktop Client Manager** supports hardware monitoring on stand alone systems or over a network
- ◆ **PC-Cillin** provides automatic virus protection under Windows 95/98

Dimensions

- ◆ Micro-ATX form factor (24.4cm x 19cm)

Package Contents

Your mainboard package ships with the following items:

- Mainboard
- LAN module extension bracket
- Slot-1 cartridge holder
- This User's guide
- IDE cable
- 56 Kbps Fax/modem module
- Floppy diskette drive cable
- Support software CD-ROM

Optional Accessories

You can purchase the following optional accessories for this mainboard.

- Digital Audio extension bracket
- Internal SPDIF/In cable
- COM2 cable/bracket

Static Electricity Precautions

1. Components on this mainboard can be damaged by static electricity. Take the following precautions when unpacking the mainboard and installing it in a system.
2. Keep the mainboard, and other components, in their original static-proof packaging until you are ready to install them.
3. During an installation, wear a grounded wrist strap if possible. If you don't have a wrist strap, frequently discharge any static electricity by touching the bare metal of the system chassis.
4. Handle the mainboard carefully by the edges. Avoid touching the components unless it is absolutely necessary. During the installation lay the mainboard on top of the static-proof packaging with the component side facing upwards.
5. Inspect the mainboard for any damage caused during transit. Ensure that all the components that are plugged into sockets are correctly seated.
6. If you suspect that the mainboard has been damaged, do not apply power to the system. Contact your mainboard vendor and report the damage.

Chapter 2

Mainboard Installation

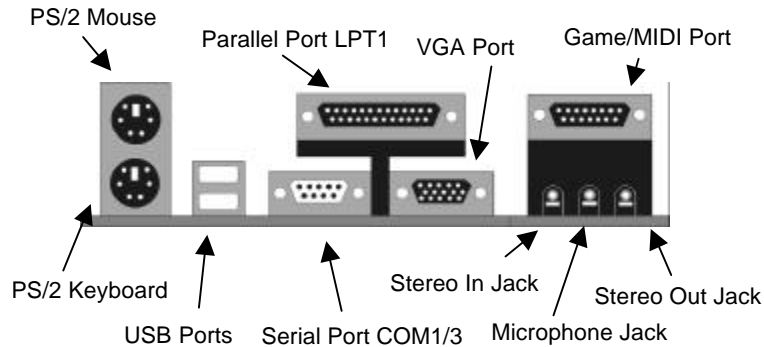
To install this mainboard into your system, follow the procedures in this chapter:

- ❑ Identify the mainboard components
- ❑ Install the correct processor
- ❑ Install one or more memory modules
- ❑ Verify that any jumpers or switches are at the correct setting
- ❑ Install the mainboard in the system chassis
- ❑ Install any extension brackets or cables to the mainboard headers
- ❑ Install any other devices and make the appropriate connections to the mainboard headers.

***Note:** Before installing the mainboard, you must ensure that jumper J12 is set to the Normal setting. See this chapter for information on locating J12 and changing the jumper setting.*

I/O Ports

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



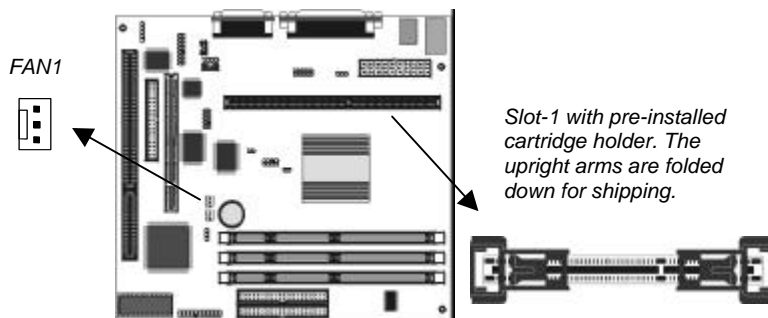
Install the Processor

This mainboard is designed for any Intel Slot-1 processor cartridge including the Pentium-III, the Pentium-II, and the SEPP Celeron. The table below shows the processor cartridges that can be installed currently. New Slot-1 cartridges may be released after this manual is printed.

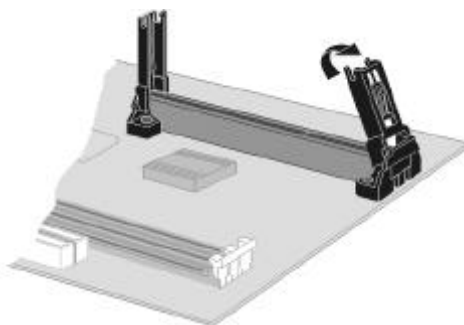
Processor Cartridge	Clock Rate MHz	System Bus MHz
Pentium-III	500	100
Pentium-III	450	100
Pentium-II	450	100
Pentium-II	400	100
Pentium-II	350	100
Pentium-II	333	66
Pentium-II	300	66
Pentium-II	266	66
Pentium-II	233	66
SEPP Celeron	400	66
SEPP Celeron	366	66
SEPP Celeron	333	66
SEPP Celeron	300A	66
SEPP Celeron	300	66
SEPP Celeron	266	66

Chapter 2

1. Locate the Slot-1 on the mainboard.



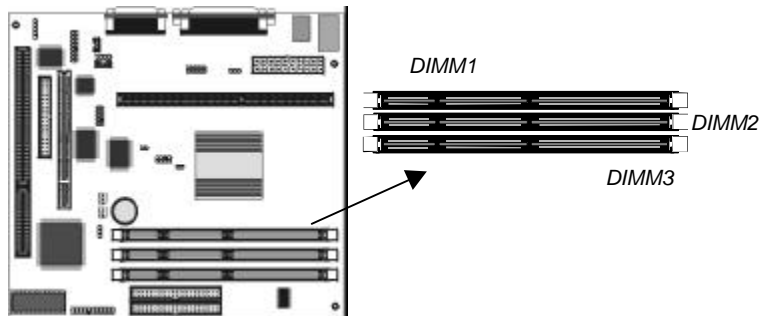
2. The Slot-1 is installed with a cartridge holder. The upright struts of the cartridge holder are folded down for shipping. Pull the struts upwards so that they are in the upright position.



3. Insert the processor cartridge into the cartridge holder. Follow the instructions given with your processor cartridge. The edge connector on the cartridge has a notch so that it only fits into the Slot-1 in the correct way.
4. Locate the cooling fan power supply FAN1. Connect the cable from the processor cartridge cooling fan to FAN1.
5. On this mainboard, you can configure the processor by entering the correct settings in the BIOS setup utility.

Install Memory

The mainboard has three DIMM slots which can be installed with memory modules. You must install at least one memory module in order to use the mainboard. You must install the first memory module into DIMM1 so that it can share memory with the onboard VGA system.



For this mainboard, you must use 168-pin, 3.3V memory modules installed with SDRAM memory chips. If you are using a processor that runs on a 100 MHz system bus, you must use memory that operates on a 100 MHz memory bus (PC-100 memory). If you are using a processor that runs on a 66 MHz system bus, you must use memory that operates on a 66 MHz memory bus.

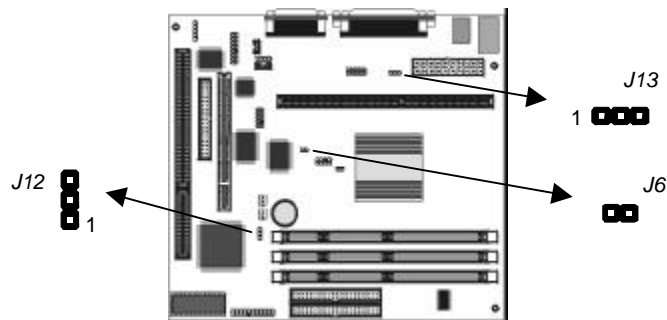
You can install any size of memory module from 16 MB up to 256 MB, so the maximum memory size is $3 \times 256 \text{ MB} = 768 \text{ MB}$.

The edge connectors on the memory modules have cut outs, which coincide with struts in the DIMM slots, so the memory modules can only be installed in the correct way.

On the DIMM slot, pull the locking latches at either end of the slots outwards. Position the memory module correctly and insert it into the DIMM slot. Press the module down into the slot so that the locking latches lever inwards and lock the module in place.

Set the Jumpers

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 J12: 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 Memory	Short Pins 2-3
Normal Operation	Short Pins 1-2

Jumper J13: 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: Make sure that the system can provide 1A on +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 J6: Set SPDIF Output Voltage

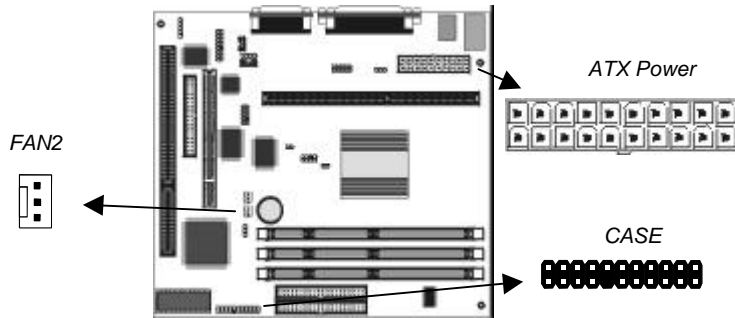
Use this jumper to select the output voltage of the digital audio SPDIF connector on this mainboard. Select either 0.5 volts or 5 volts according to the devices that you have connected to the SPDIF connector.

Function	Jumper Setting
5V SPDIF Output	Short Pins 1-2
0.5V SPDIF Output	Open Pins 1-2

Install the Mainboard

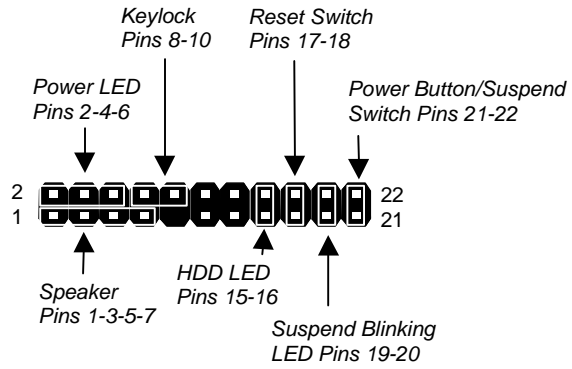
Install the mainboard into the system chassis. This mainboard uses the micro-ATX format with a twin-tier of I/O ports. Special micro-ATX cases are available with a reduced number of expansion slots and a smaller power supply unit. Ensure that your case has an I/O template that can be used by this mainboard.

Install the mainboard into the unit case. Follow the instructions provided by the case manufacturer using the screws and mounting points provided in the chassis.



Connect the power cable from the power supply unit to the power connector ATX Power on the mainboard. If the system chassis is installed with a cooling fan, connect the cable from the cooling fan to the chassis fan power connector on the mainboard FAN2.

Connect the case switches and indicator LEDs to the bank of switch and LED connectors CASE. See the illustration below for a guide to the pin functions of the CASE connector.



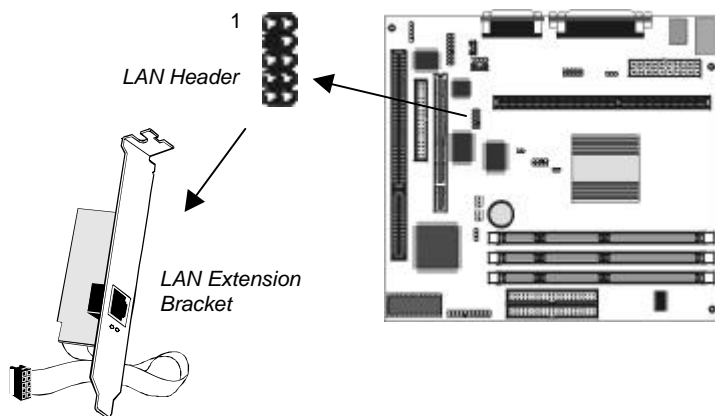
Install the Extension Brackets

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

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

LAN Adapter Extension Bracket

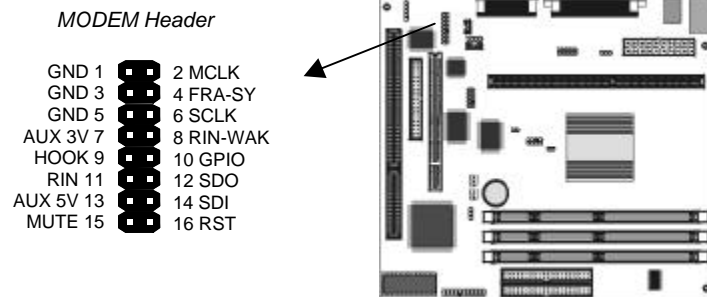
This bracket supports an RJ45 network connector and connects to the built in LAN header on the mainboard.



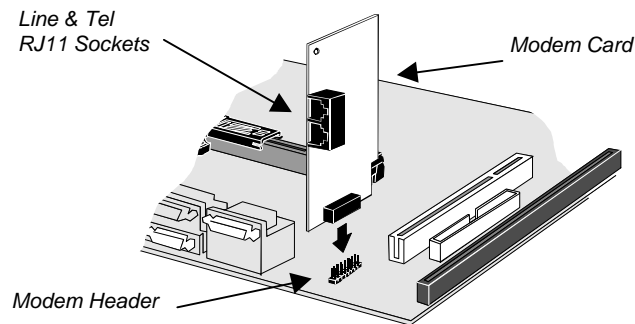
1. On the mainboard, locate the LAN header for this bracket.
2. Plug the cable from the bracket into the LAN header.
3. In the system chassis, remove a blanking plate from one of the expansion slots and install the extension bracket in the slot. Use the screw that held the blanking plate in place to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

Fax/modem Module

The fax/modem module plugs directly into the mainboard adjacent to an expansion slot in the system chassis. When you remove the blanking plate from the system chassis, you can access the LINE and TEL RJ11 connectors on the metal edge of the Fax/modem card.



1. Locate the MODEM header on the mainboard.
2. Plug the fax/modem card into the MODEM header.
3. Remove the blanking plate adjacent to the fax/modem card.

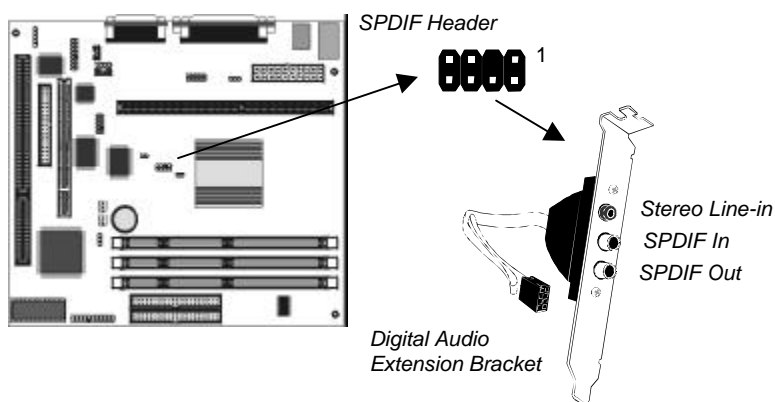


Optional Extension Brackets

For this mainboard, you can also obtain a Fax/modem Card and an SPDIF digital audio extension bracket. Install these by following the steps below.

Digital Audio Extension Bracket

This bracket has two RCA jacks for digital audio in and digital audio out, and an auxiliary jack for a Stereo Line-in device.

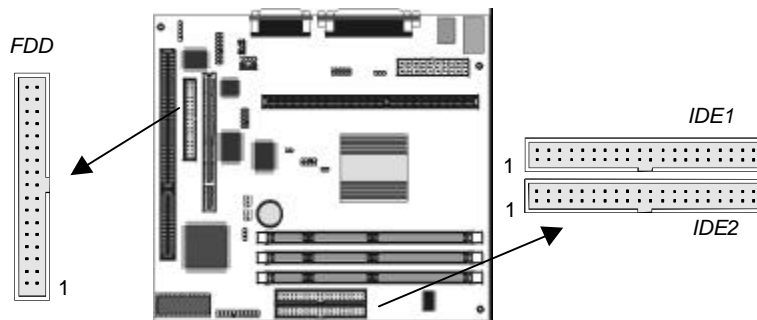


1. On the mainboard, locate the SPDIF header for this bracket.
2. Plug the cable from the bracket into the SPDIF header.
3. In the system chassis, remove a blanking plate from one of the expansion slots and install the extension bracket in the slot. Use the screw that held the blanking plate in place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

Note: If you install the Digital Audio Extension Bracket, you cannot use the Internal SPDIF/In header (See Internal Sound Connections later in this chapter).

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 supply power from the system power unit. Use the cable provided to connect the drives to the floppy disk drive header FDD.

IDE Devices

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

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 for Master or Slave.

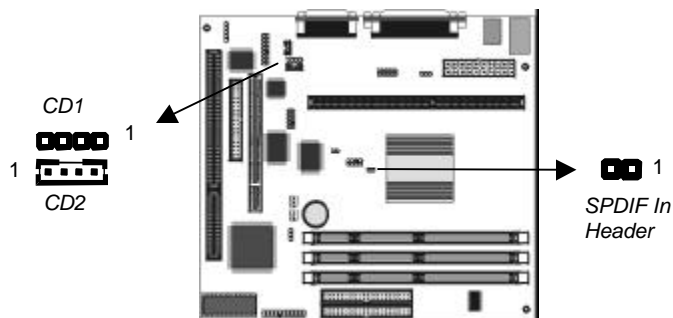
Install the device(s) and supply power from the system power unit. Use the cable provided to connect the device(s) to the Primary IDE channel connector IDE1 on the mainboard.

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 IDE 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 a DVD drive, you can connect the sound output of the drive to the built-in sound system.

On the mainboard, locate the two 4-pin connectors for CD1 and CD2. There are two kinds of connector because different brands of CD-ROM drive have different kinds of cable connectors on their audio output cable. Connect the cable to the appropriate connector.



Digital Audio Connection

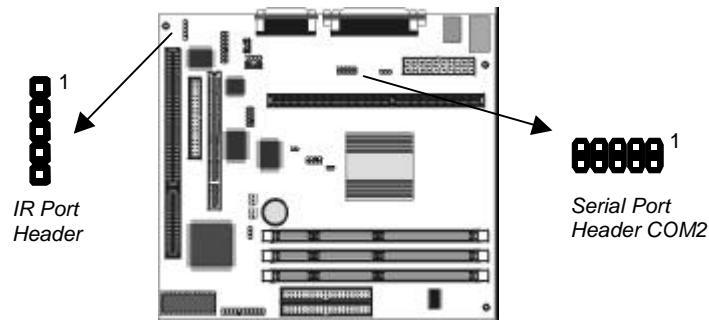
If your CD-ROM or DVD drive has 24-bit digital audio output, and your system is equipped to output sound through the SPDIF digital audio connector, you can use an optional internal digital audio cable to connect the digital output from the drive to the digital audio input connector on the mainboard.

Note: Do not use the Digital Audio In header, If you have already installed the optional Digital Audio Extension Bracket.

Second Serial Port or Infrared Port

You can install the mainboard with an optional second serial port or an optional infrared port. You can purchase these options from third-party vendors.

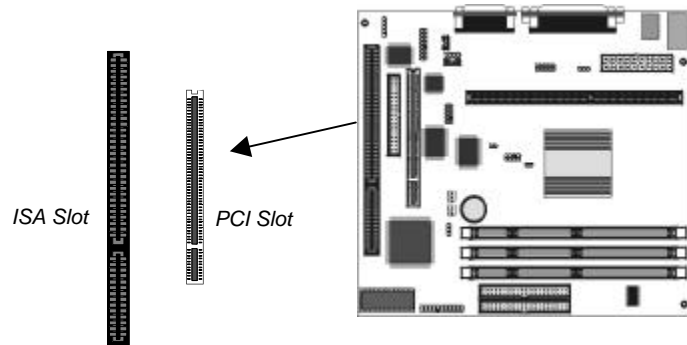
Note: The second serial port and the infrared port share limited system resources. If you install both these options, you cannot use them both at the same time. You can select which option to make active using the BIOS setup utility.



1. On the mainboard locate the second serial port header COM2 and the infrared port header IR.
2. If you are adding a second serial port, connect the ribbon cable from the port to the header COM2, and then secure the port to an appropriate place in your system chassis.
3. If you are adding an infrared port, connect the ribbon cable from the port to the header IR and then secure the port to an appropriate place in your system chassis.

Expansion Slots

This mainboard has one PCI 32-bit expansion slot and one 8/16-bit ISA slot.



Installing an Expansion Card

1. Locate the PCI or ISA slot on the mainboard.
2. Remove the blanking plate from the appropriate expansion slot on the system chassis.
3. Install the edge connector of the expansion card into the slot and press it quite firmly down so that it is seated correctly.
4. Secure the bracket of the expansion card into the expansion slot in the system chassis using the screw that held the blanking plate in place.

Chapter 3

BIOS Setup

Introduction

The BIOS setup utility stores information about your computer such as the date and time, the kind of hardware you have installed, and so on. Your computer uses this information to initialize all the components at boot up time, and make sure that everything runs smoothly.

If the information in the setup utility is incorrect, it may cause your 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 area that is used to store the setup information, or you can hold down the **End** key while you reboot your computer. Holding down the **End** key also clears the setup information.

You can run the setup utility and manually make changes to the setup utility. You might need to do this to configure some of the hardware that you add to the mainboard, such as the CPU, the memory, disk drive, etc.

Running the Setup Utility

Each time your computer starts, before the operating system is booted, a message appears on the screen that prompts “Hit if you want to run SETUP”. When you see this message, press the **Delete** key and the Mainmenu page of the setup utility appears on your monitor.

AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.19 (C)1998 American Megatrends, Inc. All Rights Reserved			
Standard CMOS Setup		Peripheral Setup	
Advanced CMOS Setup		H/W Monitor & CPU PnP Setup	
Advanced Chipset Setup		Change Supervisor Password	
Power Management Setup		Auto-Detect Hard Disks	
PCI / Plug and Play Setup		Save Settings and Exit	
Load Optimal Settings		Exit Without Saving	
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
Standard CMOS setup for changing time, date, hard disk type, etc.			

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

Some of the options on the Mainmenu 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 Mainmenu 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.

AMIBIOS SETUP - STANDARD CMOS SETUP										
(C)1998 American Megatrends, Inc. All Rights Reserved										
Date (mm/dd/yyyy): Thu Feb 11, 1999										
Time (hh/mm/ss) : 13:52:17										
	Type	Size	Cyln	Head	WPcom	Sec	LBA	Blk	P10	32Bit
Pri Master :	Not Installed									
Pri Slave :	Not Installed									
Sec Master :	Not Installed									
Sec Slave :	Not Installed									
Floppy Drive A: Not Installed					Base Memory : 0 Kb					
Floppy Drive B: Not Installed					Other Memory : 384 Kb					
					Extended Memory : 0 Mb					
					Total Memory : 1 Mb					
Month: Jan - Dec					ESC : Exit					
Day: 01 - 31					↑↓ : Select Item					
Year: 1901 - 2099					PU/PD/+/- : Modify					
					(Shift)F2 : Color					

Date & Time	Use these items to install your system with the correct date and time
Pri Master Pri Slave Sec Master Sec Slave	Use these items to configure devices on the primary and secondary IDE channels. To configure a 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>ARMD</i> .
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 CMOS 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 CMOS SETUP (C)1998 American Megatrends, Inc. All Rights Reserved			
Quick Boot	Enabled	D400,16k Shadow	Disabled
1st Boot Device	IDE-0	D800,16k Shadow	Disabled
2nd Boot Device	Floppy	DC00,16k Shadow	Disabled
3rd Boot Device	CDROM		
Try Other Boot Devices	Yes		
OnboardLan CardBootROM	Disabled		
S.M.A.R.T. for Hard Disks	Disabled		
BootUp Num-Lock	On		
Floppy Drive Swap	Disabled		
Floppy Drive Seek	Disabled		
PS/2 Mouse Support	Enabled		
Primary Display	Absent		
Password Check	Setup		
Boot To OS/2 Over 64MB	No		
Internal Cache	Reserved		
System BIOS Cacheable	Disabled		
C000,32k Shadow	Enabled		
C800,16k Shadow	Disabled		
CC00,16k Shadow	Disabled		
D000,16k Shadow	Disabled		
		ESC : Quit	↑↓↔ : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values (Shift)	F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

Quick Boot	If you enable this item, the system start-up time is a little quicker.
1st Boot Device 2nd Boot Device 3rd Boot Device	Use these three items to determine the order and priority that your computer follows to load an operating system at start-up time.
Onboard Lan Card Boot ROM	Enable this item if you want to remote boot from a server through the onboard LAN card. You must also set the 1st Boot Device to Network.
Try Other Boot Devices	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 three locations.
S.M.A.R.T. for Hard Disks	Enable this item if your hard disk(s) supports SMART (Self-Monitoring, Analysis and Reporting Technology).
BootUp Num- Lock	Use this item to determine if your system starts up with the Num Lock key active or not.
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 the diskette drives at start up time. Disable this item unless you are using an old 360K diskette drive.
PS/2 Mouse Support	Enable this item if you are using a mouse or trackball with a PS/2 interface.
Password Check	If you have installed a password, use this item to determine if the password is required to enter the setup utility (<i>Setup</i>) or required at start-up time and to enter the setup utility (<i>Always</i>).
Boot to OS/2 Over 64MB	Enable this item if you are booting the OS/2 operating system and you have more than 64MB of memory installed.
Internal Cache	Leave this item enabled since all slot-1 processors have internal cache memory.
System BIOS Cacheable	If you enable this item, a segment of the BIOS will be cached to memory for faster execution.
COOO, 32K Shadow, etc.	Use these items to copy other segments of system or video ROM, or other ROMs into main memory.

Advanced Chipset Setup Page

This page sets some of the timing parameters for your system. Before making changes to this page, you must ensure that your hardware supports the new values.

AMIBIOS SETUP - ADVANCED CHIPSET SETUP (C)1998 American Megatrends, Inc. All Rights Reserved	
Trend ChipVirus	Enabled
Share Memory Size	Disabled
DRAM Auto Configuration	Automatic
SDRAM Speed	8ns
RAS# Pulse When Refresh	6T
RAS# precharge time	3T
RAS to CAS Delay	3T
Refresh Queue Depth	4
SDRAM CAS Latency	3T
Graphic Win Size	64M
UGA Frame Buffer USUC	Enabled
16Bit I/O Recovery Time	3 BUSCLK
8Bit I/O Recovery Time	5 BUSCLK
ISA Bus Clock	PCICLK/4
USB Function	Disabled
USB Function for DOS	Disabled
Keyboard Power On	Disabled

ESC : Quit	F4++ : Select Item
F1 : Help	FU/PD/*/- : Modify
F5 : Old Values (Shift)	F2 : Color
F6 : Load BIOS Defaults	
F7 : Load Setup Defaults	

Trend ChipAway Virus	Leave this item enabled so that the system has some built-in protection from viruses.
Share Memory Size	This item disabled. On this mainboard, the shared video memory is fixed at 8 MB.
DRAM Auto Configuration	When this item is set to Automatic, the BIOS will automatically configure some of the DRAM timing items below. If it is set to Manual, you must insert the DRAM timing values manually.
SDRAM Speed (ns)	This item sets the speed for SDRAM. It is set to 8ns as a default. Set a slower speed if you memory errors are making your system unreliable.
RAS# Pulse When Refresh/precharge time/RAS to CAS delay	These items are set automatically if you have enabled the item <i>DRAM Auto Configuration</i> . They set the timing for the Row Address Strobe and Column Address Strobe.
Refresh Queue Depth	This item sets the queue depth for the memory refresh. Leave this item at the default value.
SDRAM CAS Latency	This item sets the timing for the Column Address Strobe for SDRAM. Select 2 timer ticks for better performance or 3 timer ticks for reliability.
Graphic Win Size	Leave this item at the default value of 64M.
VGA Frame Buffer USWC	USWC (Uncacheable, Speculative Write Combining) is a cache memory technology. Leave this item at the default value.
8bit I/O Recovery Time 16bit I/O Recovery Time	These two items set the recovery timing for devices on the ISA bus so that they can function alongside the much faster PCI bus. Leave this item at the default value.
ISA Bus Clock	Use this item to set the speed of the ISA Bus clock. We recommend that you leave this at the default value.
USB Function	Use this item to enable or disable the USB (Universal Bus Ports) that are integrated on this mainboard.
USB Function for DOS	If you have enabled the USB function, use this item to enable or disable USB when you are working in the DOS environment.

Keyboard Power ON This mainboard supports using keyboard hot keys as a power switch. Use this item to enable or disable the feature.

Power Management Setup Page

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

AMIBIOS SETUP - POWER MANAGEMENT SETUP (C)1998 American Megatrends, Inc. All Rights Reserved			
Power Management/APM	Disabled	Ring On Power On	Disabled
Green Monitor Power State	Standby	RTC Alarm Power On	Disabled
Video Power Down Mode	Suspend	RTC Alarm Date	15
Hard Disk Power Down Mode	Disabled	RTC Alarm Hour	12
Standby Time Out (Minute)	Disabled	RTC Alarm Minute	30
Suspend Time Out (Minute)	Disabled	RTC Alarm Second	30
Slow Clock Ratio	32.5%		
Modem Use IRQ	N/A		
Display Activity	Ignore		
IRQ3	Both		
IRQ4	Both		
IRQ5	Ignore		
IRQ7	Both		
IRQ9	Ignore		
IRQ10	Ignore		
IRQ11	Ignore	ESC : Quit	↑↓↔ : Select Item
IRQ13	Ignore	F1 : Help	PU/PD/+/- : Modify
IRQ14	Ignore	F5 : Old Values (Shift)	F2 : Color
IRQ15	Ignore	F6 : Load BIOS Defaults	
Lan Card Power On (WOL)	Disabled	F7 : Load Setup Defaults	

Power Management/APM Use this item to enable or disable the power management routines. If you enable the power management, you can use the items below to set the power management operation. You can enable the system with APM (Advanced Power Management), ACPI (Advanced Configuration and Power management Interface) or both.

Green Monitor Power State Use this item to determine which power-saving mode is required to power down a green PC-compliant monitor. You can force the monitor to power down in *Stand By* or *Suspend* modes, or you can disable the powerdown.

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Video Power Down Mode	Use this item to determine which power-saving mode is required to power down the graphics sub-system. You can force the graphics to power down in <i>Stand By</i> or <i>Suspend</i> modes, or you can disable the powerdown.
Hard Disk Power Down Mode	Use this item to determine which power-saving mode is required to power down the hard disk drive(s). You can force the graphics to power down in <i>Stand By</i> or <i>Suspend</i> modes, or you can disable the powerdown.
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 the 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 the power-saving suspend mode.
Slow Clock Ratio	Use this item to determine what percentage of time the system will halt the processor clock in power saving mode.
Modem use IRQ	Use this item to assign an interrupt request line to an optional modem.
Display Activity	This item determines the effect of activity on the display. Set it to <i>Ignore</i> , and it has no effect. Set it to <i>Monitor</i> , and it resets the timeout counters. Set it to <i>WakeUp</i> and it resumes the system from a power-saving mode. Set it to <i>Both</i> and it resets the timeouts and resumes the system.
IRQ3-IRQ5	This item determines the effect of activity on the interrupt request lines. Set it to <i>Ignore</i> , and it has no effect. Set it to <i>Monitor</i> , and it resets the timeout counters. Set it to <i>WakeUp</i> and it resumes the system from a power-saving mode. Set it to <i>Both</i> and it resets the timeouts and resumes the system.
Lan Card Power On (WOL)	If you enable this item, incoming traffic to a LAN card can resume the system from a power-saving mode or a software power down. WOL stands for Wake On LAN.

Ring On Power On	If you enable this item, incoming call to a modem card can resume the system from a power-saving mode or a software power down.
RTC Alarm Power On	If this item is enabled, you can use the items below to set a time and date alarm on the system realtime clock (RTC) that will resume the system from a software power down.
RTC Alarm Date	If you have enabled the RTC alarm, use this item to set the alarm date
RTC Alarm Date / Hour / Minute / Second	If you have enabled the RTC alarm, use these items to set the date and time of the alarm.

PCI / Plug and Play Setup Page

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

AMIBIOS SETUP - PCI / PLUG AND PLAY SETUP (C)1998 American Megatrends, Inc. All Rights Reserved		
Plug and Play Aware O/S	Yes	Reserved Memory Address C8000
Primary Graphics Adapter	PCI	
PCI UGA Palette Snoop	Disabled	
Allocate IRQ to PCI UGA	No	
DMA Channel 0	PnP	
DMA Channel 1	PnP	
DMA Channel 3	PnP	
DMA Channel 5	PnP	
DMA Channel 6	PnP	
DMA Channel 7	PnP	
IRQ3	PCI/PnP	
IRQ4	PCI/PnP	
IRQ5	PCI/PnP	
IRQ7	PCI/PnP	
IRQ9	PCI/PnP	
IRQ10	PCI/PnP	ESC : Quit F4↔ : Select Item
IRQ11	PCI/PnP	F1 : Help PU/PD/+/- : Modify
IRQ14	PCI/PnP	F5 : Old Values (Shift)F2 : Color
IRQ15	PCI/PnP	F6 : Load BIOS Defaults
Reserved Memory Size	Disabled	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 or 98.
Primary Graphics Adapter	Use this item to define if your primary graphics adapter is a PCI card or an AGP card.

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PCI VGA Palette Snoop	When this item is enabled, multiple VGA devices operating on different buses can handle data from the CPU on each set of palette registers on every video device.
Allocate IRQ to PCI VGA	If this item is enabled, an IRQ will be assigned to the PCI VGA graphics system. We recommend that you set this value to No.
DMA Channels 0-7	If you set these items to PnP, the DMA channels will be automatically allocated by the Plug and Play BIOS or operating system. If you set it to ISA/EISA, the channel(s) will be reserved for an installed ISA or EISA expansion card.
IRQ 3-15	If you set these items to PnP, the IRQ lines will be automatically allocated by the Plug and Play BIOS or operating system. If you set it to ISA/EISA, the IRQ lines will be reserved for an installed ISA or EISA expansion card.
Reserved Memory Size	This item lets you reserve a block of memory for any device that requires it.
Reserved Memory Address	This item lets you set the address for any block of memory that has been reserved.

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 is loaded with a set of optimal default values. The optimal 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 is loaded with a set of best-performance default values. The optimal default values are quite demanding and your system might not function properly if you are using slower memory chips or other kinds of low-performance components.

Peripheral Setup Page

This page sets some of the parameters for peripheral devices installed on the system.

AMIBIOS SETUP - PERIPHERAL SETUP	
(C)1998 American Megatrends, Inc. All Rights Reserved	
Onboard FDC	Enabled
Onboard Serial Port1	3F8h/COM1
Onboard Serial Port2	Disabled
Onboard IR Port	Disabled
IR Duplex	Half
Onboard Parallel Port	378h
Parallel Port Mode	Normal
Parallel Port IRQ	?
Parallel Port DMA	M/A
Onboard PCI IDE	Both
Pri. Master Prefetch	Enabled
Pri. Slave Prefetch	Enabled
Sec. Master Prefetch	Enabled
Sec. Slave Prefetch	Enabled
Onboard Sound Card	Enabled
Onboard Lan Card	Enabled
Onboard Modem	Enabled
ESC : Quit F4++ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift) F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults	

Onboard FDC	Use this item to enable or disable the onboard floppy disk drive interface.
Onboard Serial Port1	Use this item to enable or disable the onboard serial port COM1, and to assign a port address.
Onboard Serial Port2	Use this item to enable or disable the onboard serial port COM2, and to assign a port address. You must install an optional serial port extension bracket in order to use this item. This item is disabled as a default.
Onboard IR Port	Use this item to determine the protocol of an IR port if you have installed that option. You can select ASKIR or HPSIR.
IR Duplex	If you have selected an infrared port, use this item to set the infrared port as Duplex or not.
Onboard Parallel Port	Use this item to enable or disable the onboard parallel port LPT1, and to assign a port address
Parallel Port Mode	Use this item to determine the parallel port mode. You can select Normal, ECP (Extended Capabilities Port), EPP (Enhanced Parallel Port), or ECP + EPP.

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Parallel Port IRQ	Use this item to assign an IRQ to the parallel port.
Parallel Port DMA	Use this item to assign a DMA channel to the parallel port.
Onboard IDE	Use this item to enable or disable either of the two onboard IDE channels, Primary or Secondary.
Pri. Master/Slave Sec. Master/Slave Prefetch	Use these items to enable prefetching for any of the master or slave devices on the primary and secondary IDE channels.
Onboard Sound Card	Use this item to enable or disable an onboard sound card.
Onboard Lan Card	Use this item to enable or disable an onboard LAN card.
Onboard Modem	Use this item to enable or disable an onboard modem card.

H/W Monitor & CPU PnP Setup Page

This page sets some of the parameters for the hardware monitoring function of this mainboard. It also sets the parameters for your processor and system bus frequencies.

AMIBIOS SETUP - H/W Monitor & CPU PnP SETUP	
(C)1998 American Megatrends, Inc. All Rights Reserved	
CPU Speed	233MHZ
CPU Base Frequency	66MHZ
CPU Multiple Factory	X3.5
SDRAM Frequency	66MHZ
System Hardware Monitor	
CPU Temperature	31°C/87°F
System Temperature	31°C/87°F
FAN1 Speed	
FAN2 Speed	
+ 5.000V	5.000 V
+ 3.300V	3.300 V
Vcore	2.000 V
ESC : Quit F1↔ : Select Item	
F1 : Help PU/PD/+/- : Modify	
F5 : Old Values (Shift)F2 : Color	
F6 : Load BIOS Defaults	
F7 : Load Setup Defaults	

CPU Speed	Use this item to set the internal clock speed of your CPU.
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Change Supervisor Password

CPU Base Frequency	Use this item to set the external frequency (system bus) for your CPU
CPU Multiple Factor	Use this item to set a multiple for the system bus frequency. The multiple x system bus = CPU internal clock speed.
SDRAM Frequency	Use this item to set the frequency for the memory bus.
CPU Temperature	Use this item to set the threshold temperature for the CPU. The system will alert you if this temperature is exceeded.
System Temperature	Use this item to set the threshold temperature for the system. The system will alert you if this temperature is exceeded.
FAN1 Speed	Use this item to set the FAN speed for the CPU cooling fan.
FAN2 Speed	Use this item to set the FAN speed for the chassis cooling fan.
+ 5.000V/+ 3.300V/ Vcore	Use these items to set the alarms for the system voltages (3.3V, 5V, etc.). The system will alert you if the voltages fluctuate by more than 10%.

Change Supervisor 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 required at boot time, or when the user enters the setup utility.

Change or Remove the Password

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

Auto-Detect Hard Disks

This item automatically detects and installs any hard disk drives installed on the primary and secondary IDE channel. Most modern drives can be detected. If you are using a very old drive that can't be detected, you can install it manually.

Setup will check for two devices on the primary IDE channel and then two devices on the secondary IDE channel. At each device, the system will flash an N in the dialog box. Press **Enter** to skip the device and proceed to the next device. Press **Y**, then **Enter** to tell the system to auto-detect the device.

Save Settings and Exit

Highlight this item and press **Enter** to save the changes that you have made in the setup utility and exit the setup program. When the Save and Exit dialog box appears, press **Y** to save and exit, or press **N** to return to the setup main menu.

Exit Without Saving Option

Highlight this item and press **Enter** to discard any changes that you have made in the setup utility and exit the setup program. When the Exit Without Saving dialog box appears, press **Y** to discard changes and exit, or press **N** to return to the setup main menu.

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. Below you can find a brief description of each software program, and the right location for your mainboard version. More information on each individual program might be available in a README file, located in the same directory as the software.

In order to run the software, put the support software CD-ROM in the CD-ROM drive, and execute the EXE file name given in the description below.

*Note: The correct path name for each software driver is provided, where **D:** identifies the CD-ROM drive letter – modify if necessary.*

Bus Master IDE Driver

The IDE Bus Master Drivers allows the system to properly manage the IDE channels on the mainboard. You only need to install an IDE driver if you are running Windows 95.

- ◆ Windows 95/98 – D:\IDE\M741LMR\WIN9X\SETUP.EXE
- ◆ Windows NT4.0 – D:\IDE\M741LMR\NT4

USB Driver

The USB Driver allows the system to recognize the USB ports on the mainboard. You need to install this driver if you are running Windows 95.

This driver is available for:

- ◆ Windows 95 – D:\USB\EUSBSUPP\USBSUPP.EXE
- ◆ Windows 95 (Chinese) –
D:\USB\CUSBSUPP\CUSBSUPP.EXE

Video Driver

The video drivers are available for Windows 95/98 and Windows NT. Look for the folders in:

- ◆ D:\VGA\M741LMRVGA

Sound Driver

The Sound driver allows the system to generate optimal sound effects.

This driver is available for:

- ◆ DOS & Windows 3.x –
D:\SOUND\PCISOUNDPRO\DOSDRV
- ◆ Windows 9X – D:\SOUND\PCISOUNDPRO\W95-98\NORMALDRV
- ◆ Windows NT – D:\SOUND\PCISOUNDPRO\NT40\

There is also an Audio Rack application program available for:

- ◆ Windows 95/98 - D:\SOUND\PCISOUNDPRO\W95-98\NORMAL\APP

BIOS Update Utility

The BIOS Update utility allows you to update the BIOS setup file on your mainboard to a newer version. You can download the latest version of the BIOS setup available for your mainboard from the website.

- ◆ D:\UTILITY\AMIFL807.EXE

PC-Cillin Software

The PC-Cillin software program provides anti-virus protection for your system.

This program is available for:

- ◆ DOS – D:\PC-CILLIN\DOS\PCSCAN.EXE
- ◆ Windows 95 – D:\PC-CILLIN\WIN95\DISK1\SETUP.EXE
- ◆ Windows 98 – D:\PC-CILLIN\WIN98\SETUP.EXE

LAN Driver

The LAN driver is required by the onboard LAN card.

D:\LAN\...

Modem Driver

The Modem driver is required by the onboard modem module.

D:\MODEM\DRV

D:\MODEM\SUPERVOICE

ADCM Software

The Ami Desk-Client Management software provides network management services.

This software is available for:

Windows 95/98 – D:\AMI ADCM\WIN95&98\SETUP.EXE

Using the PCI Sound Pro Application

1. Before you install the PCI Sound Pro drivers, make sure your Operating System has been installed, otherwise the PCI Sound Pro 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 Pro 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.

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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 “CM8338 MPU-401” (Win98) or “CM8338/C3DX PCI Audio External MIDI Port” (Win95), and then click “OK” to confirm.
5. For more information, refer to the PCI Sound Pro manual in the CD which ships with this mainboard.

The Four Speakers System

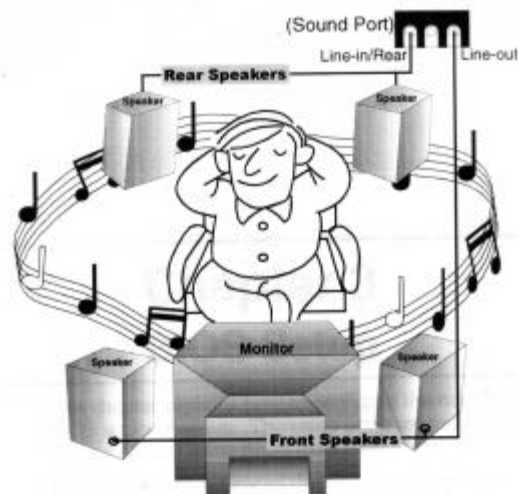
The onboard Sound Pro audio system supports 2 wave channels (front/rear) known as the 4 speaker system. If you are running applications which use the DirectSound® 3D or A3D® audio interface, your system can simulate realistic 3D sound through a 4 speaker setup. Follow the steps below to install a 4-speaker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