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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 has a **slot-1** processor socket for an **Intel processor cartridge**, and it also has a **socket-370** for an **Intel PPGA (Plastic Pin Grid Array) Celeron** processor. You can install either one of these processors according to the power and performance requirements that you need from your system.

Note that you cannot install two processors on this mainboard.

Slot-1 processors include the **SEPP (Single Edge Processor Package) Celeron, the Pentium-II, the Pentium-III, and Coppermine**-type. Clock rates run as high as **750 MHz**. Socket-370 processors are the **PPGA Celeron, FCPGA Coppermine** and **PPGA Cyrix Joshua** which runs at clock rates up to **750 MHz**. The mainboard supports a system bus of **66 MHz, 100 MHz** or **133 MHz**.

The mainboard uses the VIA Apollo Pro chipset which provides **CPU Plug & Play** through firmware. The mainboard is highly integrated and includes a built-in **PCI 3D Sound System**. A **V.90 Fax/Modem DAA module** is also shipped with the mainboard. In addition, the mainboard has a full set of **I/O Ports** including two serial ports, one PS/2 ports, a parallel port and two USB ports.

This mainboard has all the features you need to develop a powerful multimedia workstation with built-in communications. The board is **micro-ATX sized** and it can be installed in an **ATX**.

Key Features

The key features of this mainboard include:

Processor Support

- ◆ All kinds of Slot-1 **Pentium-III** CPUs
- ◆ **FCPGA Coppermine** provides Pentium-III performance with integrated level 1 and 256K level 2 cache memory run from 500 MHz to 750 MHz
- ◆ **Pentium-II** support for 233 MHz to 450 MHz clock rates
- ◆ **SEPP Celeron** support for 266 MHz to 433 MHz clock rates
- ◆ **PPGA Celeron** provides Pentium-II performance with integrated level 1 and level 2 cache memory run from 300 MHz to 533 MHz
- ◆ **PPGA Cyrix Joshua** provides 256K level 2 cache memory
- ◆ Support for 66 MHz, 100 MHz and **133 MHz** FSB (Front Side Bus)
- ◆ All processors configured by **CPU Plug & Play**

Memory Support

- ◆ Three DIMM slots for SDRAM 168-pin memory modules
- ◆ Support for 66 MHz, 100 MHz & 133 MHz memory bus
- ◆ Maximum installed memory can be 3 x 256 MB = 768 MB

Expansion Slots

- ◆ One AGP Slot
- ◆ Three 32-bit PCI slots
- ◆ 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

- ◆ Dual connector for either AT or ATX power supply
- ◆ Support for Green PC standard, suspend switch, keyboard power on/off
- ◆ Supports Wake on Modem, Wake on LAN (WOL) connector and Wake on Alarm

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® compatible interface plus support for **4-channel speakers**
- ◆ Drivers support DOS/Windows 95/98/2000/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®
- ◆ Supports Digital Audio Interface (SPDIF In/Out) with **24-bit stereo**, 44KHz sampling rate and measured **120dB** audio quality
- ◆ Optional optic fibre interface which enables communication with MiniDisk or high-end audio systems
- ◆ 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

- ◆ 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, a PS/2 mouse port and an infrared port (optional)

Hardware Monitoring

- ◆ Built-in hardware monitoring for CPU/system temperatures, fan speeds and mainboard voltages
- ◆ Supports AMI's Desktop Client Manager (ADCM)

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 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 ChipAwayVirus** 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
- ◆ **SuperVoice** is Fax/Modem software with support for data and voice transmission
- ◆ **MediaRing Talk** is an internet phone application
- ◆ **Gamut** provides professional audio applications included MP3 encoding/playback
- ◆ **S-YXG50** is a music synthesizer software to play back MIDI files
- ◆ **WordPerfect Suite 8** is a windows version office application (optional)
- ◆ **WinDVD** is a DVD playback application (optional)

Dimensions

- ◆ Micro-ATX form factor (24.4cm x 22cm)

Package Contents

Your mainboard package ships with the following items:

- Mainboard
- This User's guide
- IDE cable
- Floppy diskette drive cable
- V.90 Fax/Modem DAA module
- Support software CD-ROM

Optional Accessories

You can purchase the following optional accessories for this mainboard.

- Optic module extension 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:

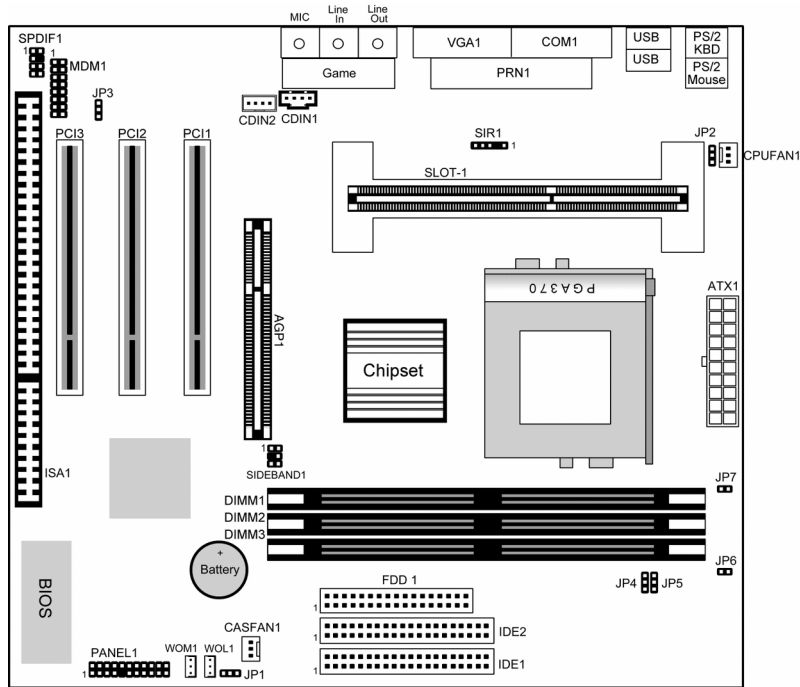
- ❑ Identify the mainboard components
- ❑ Install the correct processor
- ❑ Install one or more memory modules
- ❑ Verify that any jumpers or switches are at the correct setting
- ❑ Install the mainboard in the system chassis
- ❑ Install any extension cables to the mainboard headers
- ❑ Install any other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

***Note:** Before installing the mainboard, you must ensure that the Clear CMOS jumper JP1 is set to the Normal setting. See this chapter for information locating JP1 and changing the jumper setting.*

***Note:** Please do not use the AC power cord to connect the system case to a power outlet until you have completely installed the mainboard and components. In some circumstances, the power management of the system might damage components and create unsafe conditions by allowing power to flow before the installation is complete,*

Mainboard Components

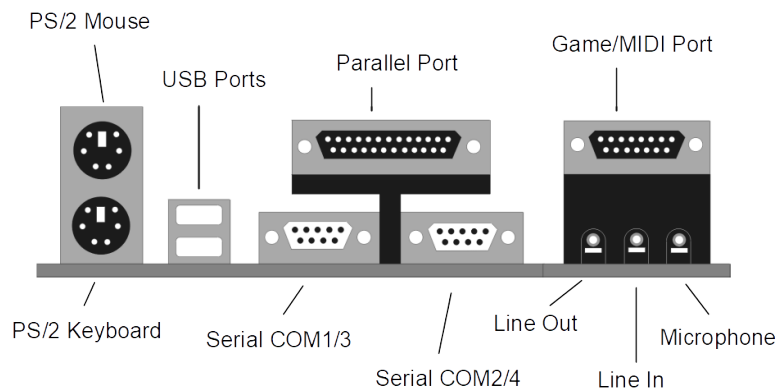
Use the diagram below to identify the major components on your mainboard.



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

I/O Ports

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



Install the Processor

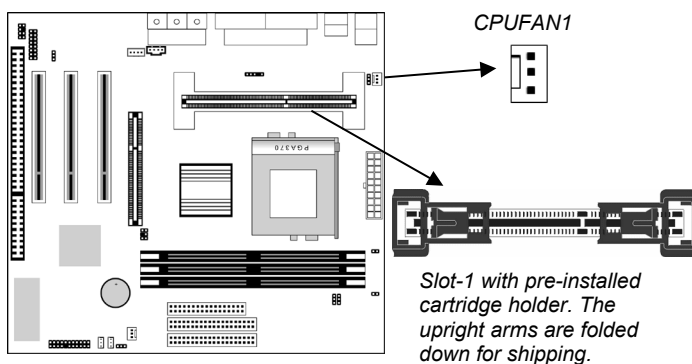
This mainboard has a Slot-1 that can be installed with any Slot-1 processor cartridge including the Pentium-II, Pentium-III and the SEPP Celeron. It also has a Socket-370 that can be installed with the FCPGA Coppermine, Celeron and Cyrix Joshua processor them are shipped in a PPGA (Plastic Pin Grid Array) package.

To ensure reliability, ensure that your PPGA processor has a heatsink/cooling fan assembly.

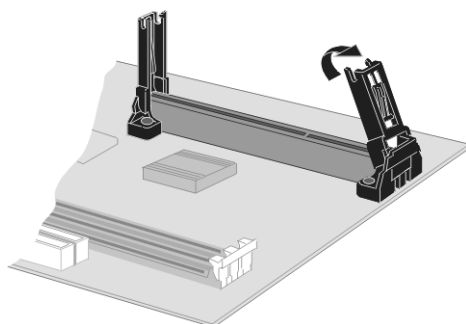
You can install a Slot-1 or a PPGA processor. You cannot install a PPGA and a Slot-1 processor cartridge together. Take care that you do not try to install a Socket-7 processor into the Socket-370. A Socket-7 processor such as the Pentium-MMX, or the AMD K5/K6 does not fit in the socket-370.

Installing a Slot-1 Processor Cartridge

1. Locate Slot-1 and CPUFAN1 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.

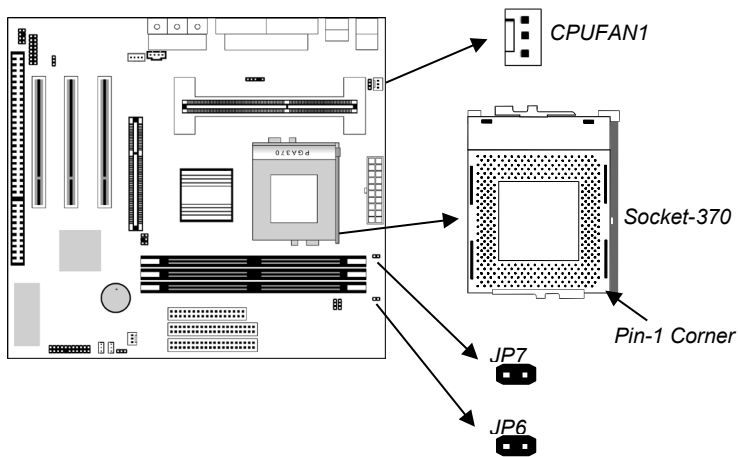


3. Insert the processor cartridge into the cartridge holder. Follow the instructions given with your processor cartridge. The edge connector on the cartridge has a notch so that it only fits into the Slot-1 in the correct way.
4. Locate the cooling fan power supply CPUFAN1. Connect the cable from the processor cartridge cooling fan to CPUFAN1.
5. On this mainboard, you can configure the processor by entering the correct settings in the BIOS setup utility.

Installing a Socket-370 Processor

The FCPGA Coppermine, Celeron or Cyrix Joshua processor install into the ZIF (Zero Insertion Force) Socket-370 on the board.

1. Locate the Socket-370, CPUFAN1, JP6 and JP7. Pull the locking lever out from the socket and swing it to the upright position.



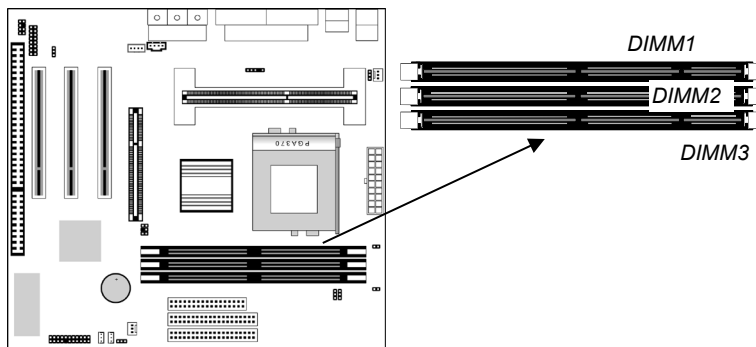
2. On the Coppermine/Celeron/Joshua processor, identify the pin-1 corner by noting that it has a slight bevel.
3. On the Socket-370, identify the pin-1 corner. The pin-1 corner is on the same side as the locking lever, closest to the top of the lever when it is in the locked position.
4. Match the pin-1 corners and insert the Celeron/Joshua 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 locks the Celeron/Joshua processor in the socket.
6. Locate the jumpers JP6 and JP7. Use these two jumpers to select installed a Intel processor or a Cyrix Joshua processor. The jumper settings are listed below.

Function	JP6 Setting	JP7 Setting
Select Intel processor	Open pins 1-2	Open pins 1-2
Select Joshua processor	Short pins 1-2	Short pins 1-2

7. If the processor is installed with a cooling fan assembly, connect the cable from the fan to the CPU fan power connector CPUFAN1.

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.

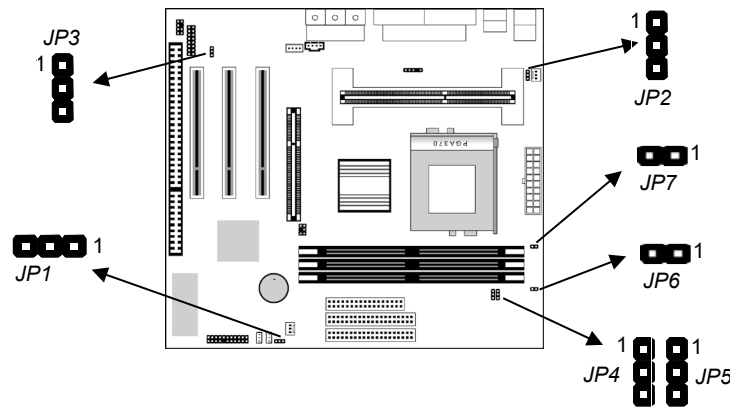


For this mainboard, you must use 168-pin, 3.3V memory modules installed with SDRAM memory chips. If you are using a processor cartridge that runs on a 66/100 MHz system bus, you must use memory that operates on a 66/100 MHz memory bus. If you are using a processor cartridge that runs on a 133 MHz system bus, you can use memory that operates on a 100 or 133 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 that 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: 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

Jumper JP2: Keyboard Power On Selector

You can use hot keys on your keyboard as a power on/off switch for the system. Use this jumper to turn this feature on or off. If you enable this property, you need to define the hot keys using the BIOS setup utility.

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

Note: Make sure that the system can provide 1A on +5VSB (+5V Standby) signal before using the Keyboard Power On function.

Jumper JP3: Onboard Audio System Enable/disable

Use this 3-pin jumper to enable or disable the onboard sound system.

JP1A: Function	Jumper Setting
Enable Audio System	Short Pins 1-2
Disable Audio System	Short Pins 2-3

Jumper JP4: Set System Bus 100 MHz Forced

Use this jumper to set the system bus frequency. In the normal setting, the system will automatically select the correct frequency according to the kind of processor installed. In the Force 100 MHz setting, the system will use a 100 MHz system bus even if the processor is designed to operate with a 66 or 133 MHz bus.

Function	Jumper Setting
Normal Operation	Short Pins 1-2
Force 100 MHz	Short Pins 2-3

Jumper JP5: Set System Bus 133 MHz Forced

Use this jumper to set the system bus frequency. In the normal setting, the system will automatically select the correct frequency according to the kind of processor installed. In the Force 133 MHz setting, the system will use a 133 MHz system bus even if the processor is designed to operate with a 66 or 100 MHz bus.

Function	Jumper Setting
Normal Operation	Short Pins 1-2
Force 133 MHz	Short Pins 2-3

Jumper JP6, JP7: Select Processor Type for Socket-370

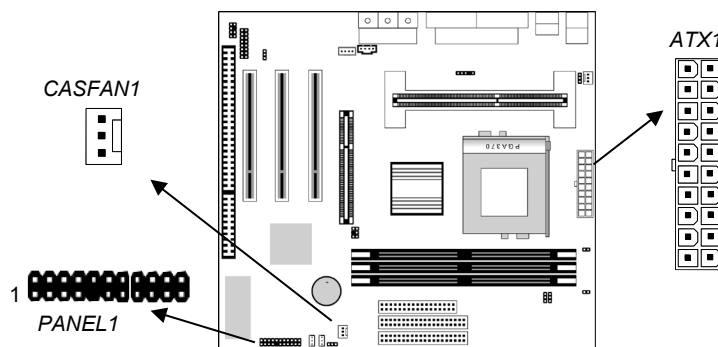
Use these 2-pin jumpers to select the processor type you are using in the Socket-370 socket. If the pins are open, the Socket-370 is set for use with the Intel processor. If the pins are shorted, the Socket-370 is set for use with the Cyrix Joshua processor.

Function	Jumper Setting
Intel processor	Open pins 1-2
Cyrix Joshua	Short pins 1-2

Install the Mainboard

Install the mainboard into the system chassis. This mainboard uses the ATX format with a twin-tier of I/O ports. Ensure that your case has an I/O template that can be used by this mainboard.

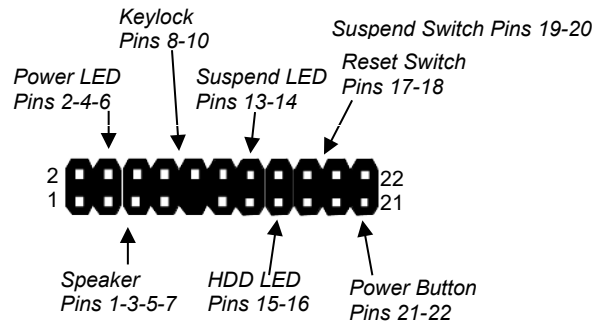
Install the mainboard into the unit case. Follow the instructions provided by the case manufacturer using the screws and mounting points provided in the chassis.



Connect the power cable from the ATX power supply unit to the power connector ATX1 on the mainboard.

If the case that you are using has chassis and/or system power supply cooling fan, connect the power cable from the fan to the onboard chassis/system cooling fan power supply CASFAN1.

Connect the case switches and indicator LEDs to the bank of switch and LED connectors PANEL1. See the illustration below for a guide to the pin functions of the PANEL1 case connector.



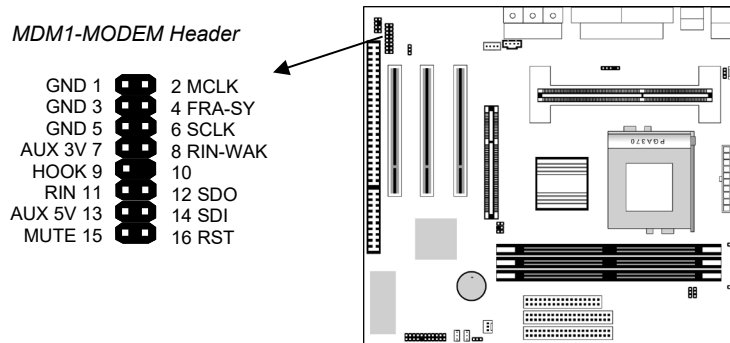
Install the Extension Brackets

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.

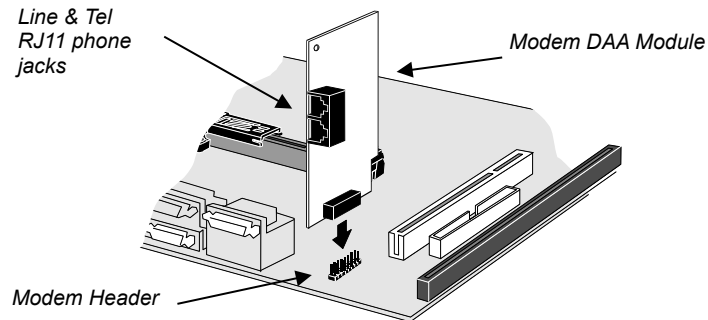
Note: All the ribbon cables used on the extension brackets carry a red stripe on the pin-1 side of the cable.

Fax/Modem DAA Module

The Fax/Modem DAA 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 phone jacks on the metal edge of the Fax/Modem DAA module.



1. Locate the MDM1 modem header on the mainboard.
2. Plug the Fax/Modem DAA module into the MDM1 header.
3. Remove the blanking plate adjacent to the DAA module.

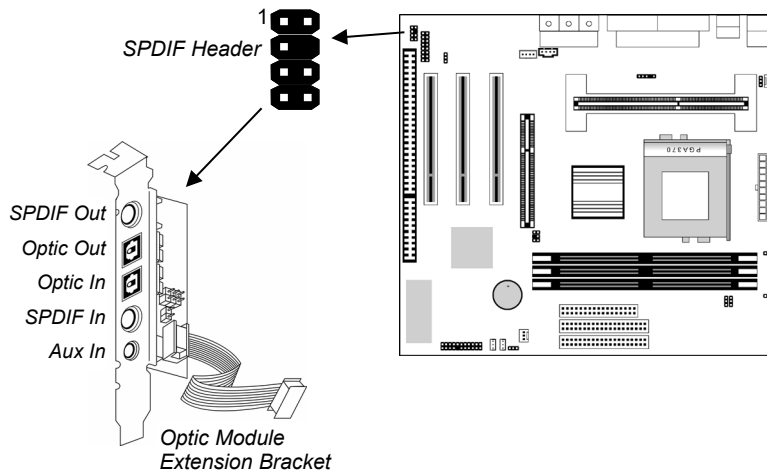


Optional Extension Brackets

For this mainboard, you can also obtain a SPDIF digital audio extension bracket. Install the bracket by following the steps below.

Optic Module 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. It also provides a pair of optic fiber interface which enables the communication with MiniDisk or high-end audio systems.



Chapter 2

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.

Internal Digital Audio

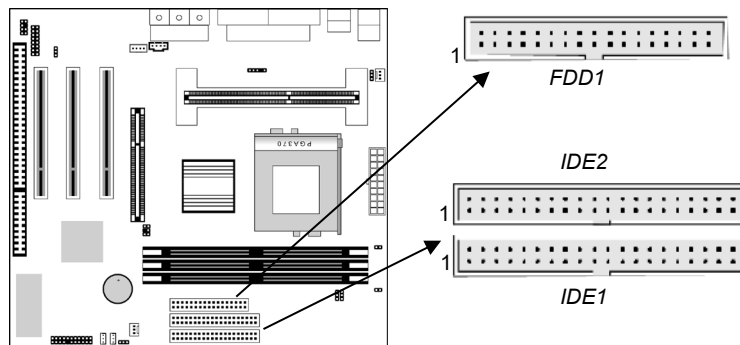
Perhaps you have an optional internal digital audio cable, you can also use it to connect the digital audio output connector of a CD-ROM or DVD drive to the pins 5-6 of SPDIF1.

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 FDD1.



IDE Devices

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

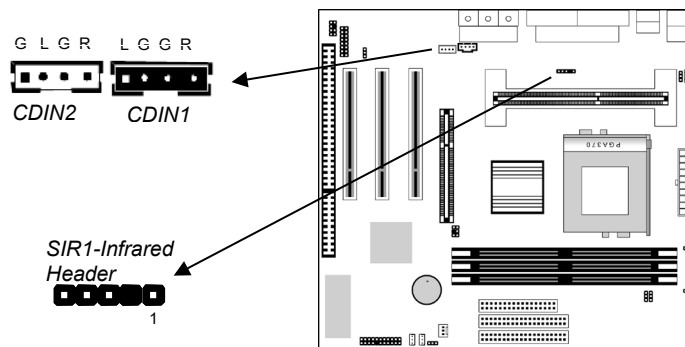
The mainboard ships with an IDE cable that can support one or two IDE devices. If you connect two devices to a single cable, you must configure one of the drives as Master and one of the drives as Slave. The documentation of the IDE device will tell you how to configure for Master or Slave.

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 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 a DVD drive, you can connect the sound output of the drive to the built-in sound system. You can connect the analog audio output to the analog connectors CDIN1 or CDIN2.



On the mainboard, locate the two 4-pin connectors for CDIN1 and CDIN2. The illustration shows the ground pins (G) and the pins for the left (L) and right (R) audio channels. There are two kinds of connector because different brands of CD-ROM/DVD drives have

different kinds of cable connectors on their audio output cable. Connect the cable to the appropriate connector.

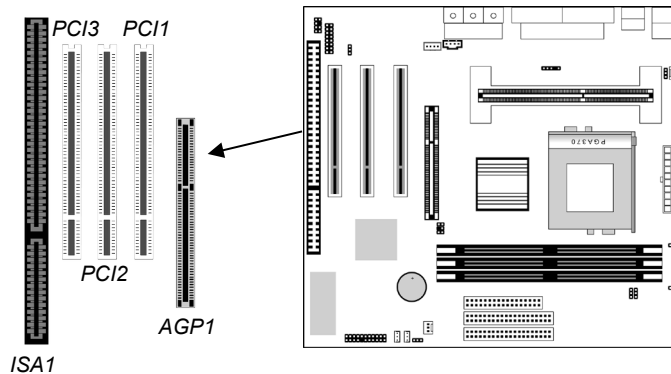
Infrared Port

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

1. On the mainboard locate the infrared port header SIR1.
2. Connect the cable from the infrared port to the infrared header SIR1 and then secure the infrared port to an appropriate place in the system chassis.

Expansion Slots

This mainboard has one AGP slot, three 32-bit PCI expansion slots, and one 8/16-bit ISA slot. The third PCI slot (PCI3) is shared with the ISA slot (ISA1). This means that you can use either one of these slots, but you cannot use both slots at the same time.



Follow the steps below to install an add-in card into one of the slots.

1. Determine which slot you need to use. The table below shows the functions of the slots.

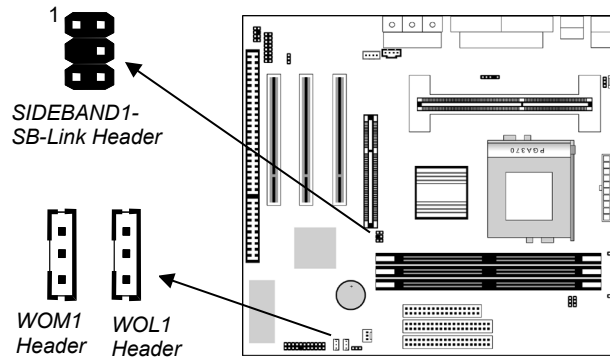
AGP	AGP stands for Accelerated Graphics Port. Use this slot to install a graphics adapter which has an AGP edge connector.
-----	--

PCI	PCI stands for Peripheral Components Interconnect. Use this slot to install current add-in cards which have a 32-bit PCI edge connector.
ISA	ISA stands for Industry Standard Architecture. Use this slot to install older, legacy add-in cards which have an 8/16-bit ISA edge connector.

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

Add-In Card Options

This mainboard has a Wake On LAN and a Wake On Modem connectors that can be used by an installed network adapter and an installed modem adapter. It also has a SB-Link connector that can be used by an installed PCI Sound Blaster audio card.



Wake On LAN (WOL)

You can configure your system so that it powers down by software and can be resumed by alarms. If you have installed a LAN adapter expansion card, connect the card to the Wake On LAN header

Chapter 2

WOL1. This allows incoming traffic to resume the system from a software power down. You need to enable this feature in the system setup utility.

Wake On Modem (WOM)

If you have installed a fax/modem card, connect the fax/modem to the Wake On Modem header WOM1. You can then use the setup utility to program your computer to resume from a power saving mode whenever there is an incoming call to the fax/modem.

SB-Link

If you have disabled the built-in sound system and installed a PCI Sound Blaster audio card, you can connect the card to the SIDEBAND1 header on the mainboard. The SB-Link circuit solves some problems that can occur when you try to play some older computer games which run in the DOS real-mode environment.

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	F1<->: 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									
©1998 American Megatrends, Inc. All Rights Reserved									
Date (mm/dd/yy) : Tue Dec 14, 1999									
Time (hh/mm/ss) : 14:26:53									
	Type	Size	Cyln	Head	WPcom	Sec Mode	LBA Blk Mode	PIO Mode	32Bit Mode
Pri Master	: Auto								On
Pri Slave	: Not Installed								
Sec Master	: Not Installed								
Sec Slave	: Not Installed								
Floppy Drive A : 1.44MB 3 1/2"							Base Memory : 640 Kb		
Floppy Drive B : Not Installed							Other Memory : 384 Kb		
							Extended Memory : 63 Mb		
							Total Memory : 64 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	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>FLOPTICAL</i> .
Pri Slave	
Sec Master	
Sec Slave	
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.

AMBIOS SETUP – ADVANCED CMOS SETUP ©1998 American Megatrends, Inc. All Rights Reserved			
Quick Boot	Enabled	Video, 32k Shadow	Enabled
1 st Boot Device	IDE-0	C800, 16k Shadow	Disabled
2 nd Boot Device	Floppy	CC00, 16k Shadow	Disabled
3 rd Boot Device	CDROM	D000, 16k Shadow	Disabled
Try Other Boot Devices	Yes	D400, 16k Shadow	Disabled
S.M.A.R.T. Capability	Disabled	D800, 16k Shadow	Disabled
BootUp Num-Lock	On	DC00, 16k Shadow	Disabled
Floppy Drive Swap	Disabled		
Floppy Drive Seek	Disabled		
Password Check	Setup		
Boot To OS/2 Over 64MB	No		
Internal 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	

Quick Boot	If you enable this item, the system starts up more quickly by elimination of some of the power on test routines.
1st 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.
2nd Boot Device	
3rd Boot Device	
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 three locations.
S.M.A.R.T. Capability	Enable this item if your hard disk(s) supports SMART (Self-Monitoring, Analysis and Reporting Technology).
BootUp Num-Lock	This item determines if the Num Lock key is active or inactive at system start-up time.
Floppy Drive Swap	If you have two diskette drives installed and you enable this item, drive A becomes drive B and drive B becomes drive A.

Floppy Drive Seek	If you enable this item, your system will check the diskette drives at start up time. Disable this item unless you are using an old 360K diskette drive.
Password Check	If you have installed a password on your system, 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 the processors that can be installed on this board have internal 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.
Video, 32k Shadow	If you enable this item, 32k of the video BIOS is cached to main memory for faster execution.
XXXX, 16k Shadow	These items allow 16k segments of the BIOS of other devices to be cached to main memory for faster execution.

Advanced Chipset Setup Page

This page lets you set some of the timing parameters for the system.

AMIBIOS SETUP – ADVANCED CHIPSET SETUP	
©1998 American Megatrends, Inc. All Rights Reserved	
Trend ChipAway Virus	Enabled
Bank 0/1 DRAM Timing	Normal
Bank 2/3 DRAM Timing	Normal
Bank 4/5 DRAM Timing	Normal
SDRAM CAS# Latency	3
DRAM Integrity Mode	Disabled
AGP Aperture Size	64MB
I/O Recovery Time	Disabled
PCI 2.1 Compliance	Enabled
VGA Frame Buffer USWC	Disabled
PCI Frame Buffer USWC	Disabled
USB Function	Disabled
USB Function for DOS	Disabled
Keyboard PowerOn Function	Disabled
Ultra DMA Support	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.
Bank 0/1 2/3 4/5 DRAM Timing	These three items set the timing parameters for the memory that you have installed. Leave these items at the default values.
SDRAM CAS# Latency	This item determines the operation of the main memory CAS (column address strobe). We recommend that you leave this item at the default value.
DRAM Integrity Mode	Use this item to define the kind of error correction supported by the memory that you have installed.
AGP Aperture Size	This item defines an AGP for the graphics. Leave this item at the default value 64MB.
I/O Recovery Time	Use this item to enable or disable the Recovery timing for legacy ISA expansion cards. Leave this item at the default value.
PCI 2.1 Compliance	Enable this item to support compliance with the PCI specification version 2.1

VGA/PCI Frame Buffer USWC	These items set the VGA/PCI frame buffer for USWC. USWC (Uncacheable, Speculative Write Combining) is a cache memory technology. Leave these items at the default value.
USB Function	Enable this item if you plan on using the USB (Universal Serial Bus) ports integrated on this mainboard.
USB Function for DOS	Enable this item if you plan on using the USB ports while working in the DOS environment.
Keyboard Power On Function	Your system can enter a software power down. If you enable this item, you can resume the system by pressing hot keys on the keyboard. You must be using an ATX power supply and enable jumper JP2 in order to use this feature.
Ultra DMA Support	Enable this item if your IDE hard disk drives support Ultra DMA

Power Management Setup Page

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

AMIBIOS SETUP – POWER MANAGEMENT SETUP ©1998 American Megatrends, Inc. All Rights Reserved		
Power Management/APM	Disabled	
Green Monitor Power State	Suspend	
Video Power Down Mode	Stand By	
Hard Disk Power Down Mode	Suspend	
Standby Time Out (Minute)	Disabled	
Suspend Time Out (Minute)	Disabled	
Display Activity	Ignore	
Serial port 1	Monitor	
Serial port 2	Monitor	
Parallel port	Monitor	
Floppy disk	Monitor	
Primary master IDE	Monitor	
Secondary master IDE	Ignore	
Ring Resume From Soft Off	Disabled	
LAN Resume From Soft Off	Disabled	
RTC Alarm Power On	Disabled	ESC : Quit ↑↓←→ : Select Item
RTC Alarm Date	15	F1 : Help PU/PD/+/- : Modify
RTC Alarm Hour	12	F5 : Old Values (Shift)F2 : Color
RTC Alarm Minute	30	F6 : Load Optimal values
RTC Alarm Second	30	F7 : Load Best performance values

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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.
Green Monitor Power State	This item defines which power-saving mode is required to trigger the power management operations of a green monitor.
Video Power Down Mode	This item defines which power-saving mode is required to power down the monitor.
Hard Disk Power Down Mode	This item defines which power-saving mode is required to power down the hard disk drive.
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.
Display Activity	If you set this item to Monitor, any activity on the display will reset the timers for the power-saving timeouts.
Serial Port 1	If you set this item to Monitor, any activity on the serial port 1 will reset the timers for the power-saving timeouts.
Serial Port 2	If you set this item to Monitor, any activity on the serial port 2 will reset the timers for the power-saving timeouts.
Parallel port	If you set this item to Monitor, any activity on the parallel port will reset the timers for the power-saving timeouts.
Primary master IDE	If you set these items to Monitor, any activity on devices on the primary IDE channel will reset the timers for the power-saving timeouts.
Secondary master IDE	If you set these items to Monitor, any activity on devices on the primary IDE channel will reset the timers for the power-saving timeouts.
Ring Resume From Soft Off	If you enable this item, incoming calls to the fax/modem can resume the system from a power-saving mode or a software power down.

LAN Resume From Soft Off	If you enable this item, network traffic to the LAN adapter can resume the system from a power-saving mode or a software power down.
RTC Alarm Power On	If you enable this item you can set an alarm on the system realtime clock that will resume the system from a power-saving mode or a software power down.
RTC Alarm Date / Hour / Minute / Second	If you have enabled the RTC Alarm Power on, use these items to set the time and date 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	IRQ14	PCI/PnP
Primary Graphics Adapter	AGP	IRQ15	PCI/PnP
PCI UGA Palette Snoop	Disabled		
Assign IRQ for UGA	Yes		
PCI Slot1 IRQ Priority	Auto		
PCI Slot2 IRQ Priority	Auto		
PCI Slot3 IRQ Priority	Auto		
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		
IRQ11	PCI/PnP		
		ESC : Quit	F11↔ : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values (Shift)	F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

Plug and Play Aware O/S	Enable this item if you are using an O/S that supports Plug and Play such as Windows 95 or 98.
Primary Graphics Adapter	Use this item to define if your primary graphics adapter is installed in a PCI slot or on an AGP bus.

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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.
Assign IRQ for VGA	If this item is enabled, an IRQ will be assigned to the VGA graphics system. We recommend that you set this value to No.
PCI Slot X IRQ Priority	You may install expansion cards in the PCI slots that require the use of an Interrupt Request Line. Use these items to determine which slot has priority when the plug and play OS/BIOS is dynamically allocating IRQs to competing demands from the expansion cards.
DMA Channel X	If you set this to PnP, the system will dynamically allocate DMA channels as they are required. If you set a DMA channel to ISA/EISA, it will be reserved for a non-plug and play ISA or EISA device.
IRQ X	If you set this to PCI/PnP, the system will dynamically allocate IRQs as they are required. If you set an IRQ to ISA/EISA, it will be reserved for a non-plug and play ISA or EISA device.

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.

AMBIOS SETUP – PERIPHERAL SETUP	
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OnBoard FDC	Enabled
OnBoard Sound/Modem	Enabled
OnBoard Serial Port1	3F8h/COM1
OnBoard Serial Port2	2F8h/COM2
IR I/O pin Select	IRRX/IRTX
Serial PortB Mode	Normal
IRDA Protocol	N/A
OnBoard Parallel Port	378h
Parallel Port Mode	ECP
EPP Version	N/A
Parallel Port IRQ	Auto
Parallel Port DMA	Auto
OnBoard IDE	Both
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 Sound/Modem	Use this item to enable or disable the onboard sound/modem chip.
Onboard Serial PortA	Use this item to enable or disable the onboard serial port COM1/3, and to assign a port address
Onboard Serial PortB	Use this item to enable or disable the onboard serial port COM2/4, and to assign a port address
IR I/O pin Select	Use this item to define the infrared or I/O (IRRX/IRTX or SINB/SOUTB) for the installed device.
Serial PortB Mode	Use this item to allocate the resources of the second serial port. Under Normal, the resources are allocated to the onboard serial port. Under ASKIR or IrDA, the resources are allocated to the onboard IR port,
IRDA Protocol	Use this item to define the protocol for an infrared port if the infrared port is IRDA mode.

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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 Bi-Dir.
EPP Version	Use this item to define the EPP version if the parallel port is EPP mode.
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.

Hardware Monitor & CPU PnP Setup Page

This page lets you set the parameters for hardware monitoring and manually or automatically configure the mainboard for the CPU.

AMIBIOS SETUP – H/W Monitor CPU PnP SETUP	
©1998 American Megatrends, Inc. All Rights Reserved	
CPU Speed (MHz)	300(100x3)
CPU/SDRAM Freq.	100/66
CPU Temperature	125°C/257°F
System Temperature	125°C/257°F
CPU Fan Speed	
Chassis Fan Speed	
Vcc	5.000 V
Vcc3	3.300 V
Vcore	2.000 V
+12V	12.000 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 Speed	Use this item to set the internal clock speed of your CPU.
------------------	--

CPU/SDRAM Freq.	Use this item to set the frequency of your CPU and SDRAM.
CPU / System Temperature	Use these items to monitor the threshold temperature for the CPU and system.
FAN Speeds, voltages	Use these items to monitor the parameters for the fan speeds and the mainboard voltages.

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 included in the mainboard package contains all the drivers and utilities as needed to use our products. Below you can find a brief description of each software program, and the right location for your mainboard. More information on each individual software might be available in a README file, located in the same directory as the software.

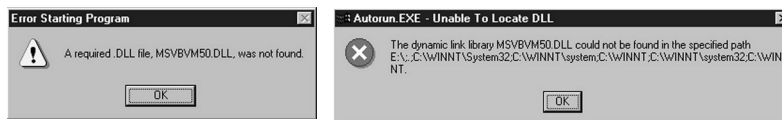
If the operating system used in your system is Windows 98, it will automatically install all the drivers and utilities for your board. See the Auto-Installing Under Windows 98 section.

Installing the Drivers

The software on the support CD-ROM is for Windows 95/NT/2000 and Windows 98, but the automatic installation is now for Win98 only. If your operating system is not Windows 98, you have to manually install for your drivers.

Installing Under Windows 95/NT/2000

1. In order to run the software put the support software CD-ROM in the CD-ROM drive.
2. If your operating system is Windows 95/NT, the system might get an error message as one of two pictures below from the PnP function.



Don't care the message, and click the **OK** button to exit. You don't really need the file to install the drivers.

If your operating system is Windows 2000, exit the Auto Set Up window and go on.

3. Use either My Computer or Windows Explorer to look at the directory structure. You must use the Open command. Double-clicking on the drive icon will not work.
4. 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/NT 4.0.

- ◆ Windows 95/ NT 4.0 – D:\IDE\M769VMRT\SETUP.EXE

Sound Driver and Applications

The Sound driver allows the system to generate optimal sound effects. This driver is available for:

- ◆ DOS & Windows 3.x – D:\SOUND\DRIVER\8738AM\DOS-W31
- ◆ Windows 95 – D:\SOUND\DRIVER\8738AM\W95-98
- ◆ Windows NT – D:\SOUND\DRIVER\8738AM\NT40

There are also two Audio applications available for:

- ◆ Windows 95/NT - D:\SOUND\GAMUT\AUDIO PLAYER
- ◆ Windows 95/NT - D:\Yamaha-XG\S-YXG50\

Modem Driver and Applications

The Modem driver is required by the onboard modem module. SuperVoice is a suite of modem applications for data and voice transmissions. MediaRing Talk provides an inter-net telephone for the onboard modem.

D:\MODEM\8738\WIN9X

D:\MODEM\SUPERVOICE

D:\MODEM\MEDIARING TALK

USB Driver

The USB Driver allows the system to recognize the USB ports on the mainboard. You need to install this driver only 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

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 updates of the BIOS setup available for your mainboard from the web-site.

- ◆ D:\UTILITY\AMIFL815a.EXE

PC-Cillin Software

The PC-Cillin software program provides anti-virus protection.

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

ADCM Software

The AMI Desktop Client Manager application provides hardware monitoring for stand-alone or networked workstations

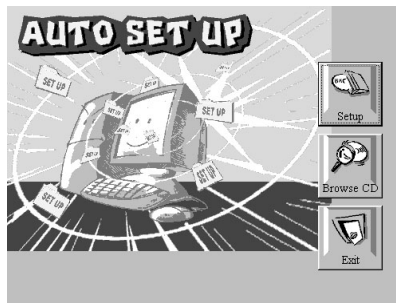
D:\AMIADCM\WIN95&98\SETUP.EXE

Auto-Installing Under Windows 98

During the installation under Win98 OS, the setup program will automatically find out and match the proper drivers for the hardware of your system. However, Windows might not be able to detect some of your new hardware.

Please follow the steps listed below to install drivers and applications for your system.

1. Put the support CD into CD-ROM drive.
2. The setup window will appear as below.

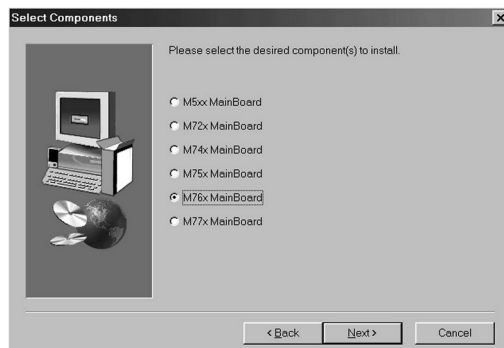


3. Click **Setup** button to continue.

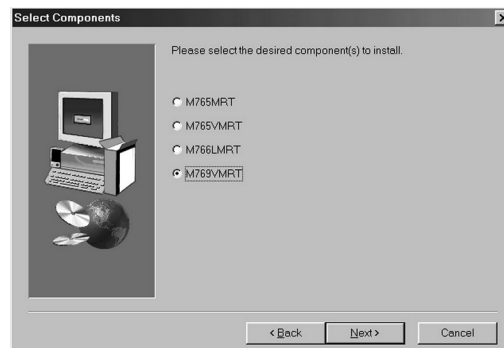


4. Click **Next** button to continue.

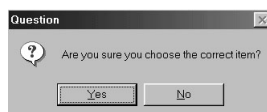
5. The model type window appears, select **M76x MainBoard** option and click **Next** button to continue.



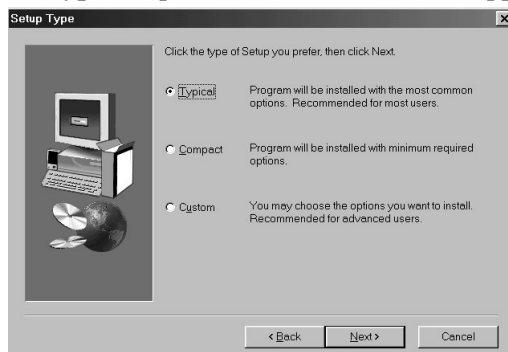
6. The M76x mainboard window appears, select **M769VMRT** option and click **Next** button to continue.



7. Then, a dialog box appears as below, click **Yes** button to confirm it.



8. Select the **Typical** option to install drivers and applications.



9. Click **Next** button to continue.
10. The system will automatically install all mainboard's drivers, sound and modem applications. It will restart the system few times until the installation is completed.

Other Install Options

There are three installation options, Typical, Compact and Custom. They are defined as follows and install the software in sequence:

Typical:

Devices drivers – Sound, Modem

Utility software – Gamut, SuperVoice, Audio Rack

Compact:

Devices drivers – Sound, Modem

Custom:

Allows you to select options from another window. When you select **Custom** and click on the **Next** button, the following window appears. Select which items you want to install by clicking on them and then click on the **Next** button to proceed with the installation

There are some utilities that you have to manually install if you need, check to the above section.

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.
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 Pro manual in the CD which ships with this mainboard.

The Four Speakers System

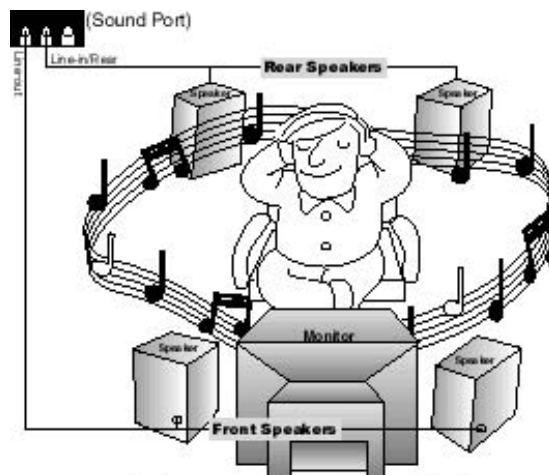
The onboard PCI Sound Pro audio system supports 2 wave channels (front/rear) known as the 4 speaker system. If you are running applications which use the DirectSound® 3D or A3D® audio interface, your system can simulate realistic 3D sound through a 4 speaker setup. Follow the steps below to install a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