

MI7VGA
Socket 370 Apollo Pro
Micro ATX Motherboard

User's Manual

Version 1.0

Copyright Notice

This publication is protected by copyright and all rights are reserved. No part of it may be reproduced or transmitted by any means or in any form, without prior consent of the original manufacturer.

The information in this document has been carefully checked and is believed to be accurate. However, the original manufacturer assumes no responsibility for any inaccuracies that may appear in this manual. In no event will the original manufacturer be liable for direct, indirect, special, exemplary, incidental, incidental or consequential damages resulting from any defect or omission in this manual, even if advised of possibility of such damages. The material contained herein is for informational purposes only.

Acknowledgments

Award is a registered trademark of Award Software International, Inc.

PS/2 is a trademarks of International Business Machines Corporation.

Intel and Celeron are registered trademarks of Intel Corporation.

Apollo Pro is a trademark of VIA Technologies.

Microsoft Windows is a registered trademark of Microsoft Corporation.

All other product names or trademarks are properties of their respective owners.

Contents

Chapter 1 Introduction.....	1
Chapter 2 Specifications.....	3
Chapter 3 Hardware Description.....	5
3.1 Processor.....	7
3.2 L2 Cache.....	7
3.3 Main Memory.....	7
3.4 BIOS.....	9
3.5 Onboard AGP Slot.....	9
3.6 Hardware Monitoring.....	9
3.7 Onboard Multi-I/O.....	9
3.8 Interrupt Request (IRQ) Lines.....	10
3.9 Onboard PCI-IDE.....	10
3.10 DMA Channels.....	10
3.11 I/O Port Address Map.....	11
3.12 Onboard Audio.....	11
Chapter 4 Configuring the Motherboard.....	13
4.1 CPU Frequency Setting.....	15
4.2 Clear CMOS Select: JP5.....	15
4.3 JP3: SDRAM Clock Select.....	16
4.4 CPU Host Frequency Force Selector: JP4.....	16
Chapter 5 Installation.....	17
5.1 I/O Connectors.....	19
5.2 J1: PS/2 Keyboard and PS/2 Mouse Connectors.....	19
5.3 J2: USB Connector.....	20
5.4 J3, J5: Serial Ports.....	20
5.5 J4: Parallel Port Connector.....	21
5.6 J6, J7, J8, J9: Line Out, Line In, Mic In, Game Port.....	21
5.7 IDE1, IDE2: EIDE Connectors.....	22
5.8 J10: CPU Fan Power Connector.....	23
5.9 J11: Floppy Drive Connector.....	23
5.10 J12: Wake on LAN Connector.....	24
5.11 J13: ATX Power Supply Connector.....	24
5.12 J14: AGP Fan Power Connector.....	24
5.13 J16: Auxiliary Audio In Connectors.....	25

5.15 J19: IrDA Connector.....	25
5.16 J21: Chassis Fan Power Connector.....	26
5.17 J22: Front Bezel Connectors.....	26
Chapter 6 BIOS Configuration.....	29
6.1 BIOS Introduction.....	32
6.2 BIOS Setup.....	32
6.3 Standard CMOS Setup.....	34
6.4 BIOS Features Setup.....	37
6.5 Chipset Features Setup.....	40
6.6 Power Management Setup.....	42
6.7 PNP/PCI Configuration.....	45
6.8 Load BIOS Defaults.....	47
6.9 Load Setup Defaults.....	47
6.10 CPU Features Setup.....	48
6.11 Integrated Peripherals.....	50
6.12 Supervisor / User Password.....	52
6.13 IDE HDD Auto Detection.....	53
6.14 Save & Exit Setup.....	54
6.15 Exit Without Saving.....	54
Chapter 7 VIA Drivers Installation Guide.....	55
7.1 4-in-1 Drivers Installation.....	55
7.2 Audio Drivers Installation.....	62
Audio Driver Installation for Windows 95.....	62
Audio Driver Installation for Windows 98.....	66
Audio Driver Installation for Windows NT 4.0.....	69
7.3 DirectX Driver Installation.....	72
Appendix.....	75
A. Additions & Errata.....	75

Chapter 1 Introduction

This manual is designed to give you information on the MI7VGA motherboard. It is divided into the following sections:

- **Introduction**
- **Specifications**
- **Hardware Description**
- **Configuring the Motherboard**
- **Installation**
- **BIOS Configuration**
- **VIA Drivers Installation Guide**

Checklist

Please check that your package is complete and contains the items below. If you discover damaged or missing items, please contact your dealer.

- The MI7VGA Motherboard
- 1 IDE ribbon cable
- 1 floppy ribbon cable
- 1 CD containing PCI IRQ Routing Miniport driver, VXD (GART) driver, Bus Master IDE driver and utilities.

This page was intentionally left blank.

Chapter 2 Specifications

The MI7VGA is a high-performance Micro ATX Apollo Pro motherboard with a Socket 370 connector for Intel Celeron processors. The VT82C686A chip that comes with the Apollo Pro chipset has built-in multi I/O, audio and hardware monitoring functions. The motherboard offers flexibility in terms of CPU frequency and main memory type and size. The main features of the motherboard consist of the following:

CPU Socket

Socket 370

Processor

Intel Celeron

300/333/350/366/400/433/450/466/500MHz CPU frequency

Bus Speed

66/100MHz

L2 Cache

CPU integrated L2 cache

Main Memory

Three 168-pin DIMM sockets

Memory types: Extended Data Output (EDO) DRAM, SDRAM (Synchronous DRAM)

Memory size: 8MB, 16MB, 32MB, 64MB, 128MB

Chipset

VIA's Apollo Pro chipset (VT82C691 + VT82C686A) with built-in PCI-IDE

Super I/O

Built-in VIA's VT82C686A chip

- Two 16550 UART compatible serial ports
- One parallel port (ECP/EPP compatible)
- One floppy controller (2.88MB compatible)
- One IrDA port

PCI Bus Master IDE Controller

The onboard VIA chipset's PCI Bus Master IDE controller with two connectors for up to four IDE devices in two channels, supporting enhanced IDE devices such as tape backup and CD-ROM drives, PIO Mode 3/4 and Bus Mastering Ultra DMA/66 / Ultra DMA/33.

Note: A UDMA66 cable should be used for UDMA66 interface. Under Windows NT 4.0, you need to install Windows NT Service Pack 4.)

BIOS

Award BIOS with ISA Plug and Play (PnP) extension, DMI, bootable CD-ROM and power-management features. The BIOS is Y2K (Year 2000) compliant.

Mouse Connector

PS/2 type

Keyboard Connector

PS/2 type

USB Connector

2 ports on board

Win95-shut-off

Allows shut-off control from within Windows 95

Onboard Audio

Built-in VIA's VT82C686A

The onboard audio is fully compatible with Sound Blaster Pro compliant with Intel PC97 specifications.

Onboard AGP Slot

The AGP (Accelerated Graphics Port) slot supports AGP compliant VGA cards to achieve rich 3D and video graphics display. AGP is a platform bus specification that enables 3D graphics capabilities including support for z-buffering, alpha blending and faster texture mapping.

Expansion Slots

Three 32-bit PCI slots

One 16-bit ISA slots

One AGP slot

Form Factor

Micro ATX, 9.65" x 7.48 (24.5cm x 19cm)

Chapter 3 Hardware Description

This chapter briefly describes each of the major features of the MI7VGA motherboard. The layout of the board in Figure 1 shows the location of the key components. The topics covered in this chapter are as follows:

3.1 Processor.....	7
3.2 L2 Cache.....	7
3.3 Main Memory.....	7
3.4 BIOS.....	9
3.5 Onboard AGP Slot.....	9
3.6 Hardware Monitoring.....	9
3.7 Onboard Multi-I/O.....	9
3.8 Interrupt Request (IRQ) Lines.....	10
3.9 Onboard PCI-IDE.....	10
3.10 DMA Channels.....	10
3.11 I/O Port Address Map.....	11
3.12 Onboard Audio.....	11

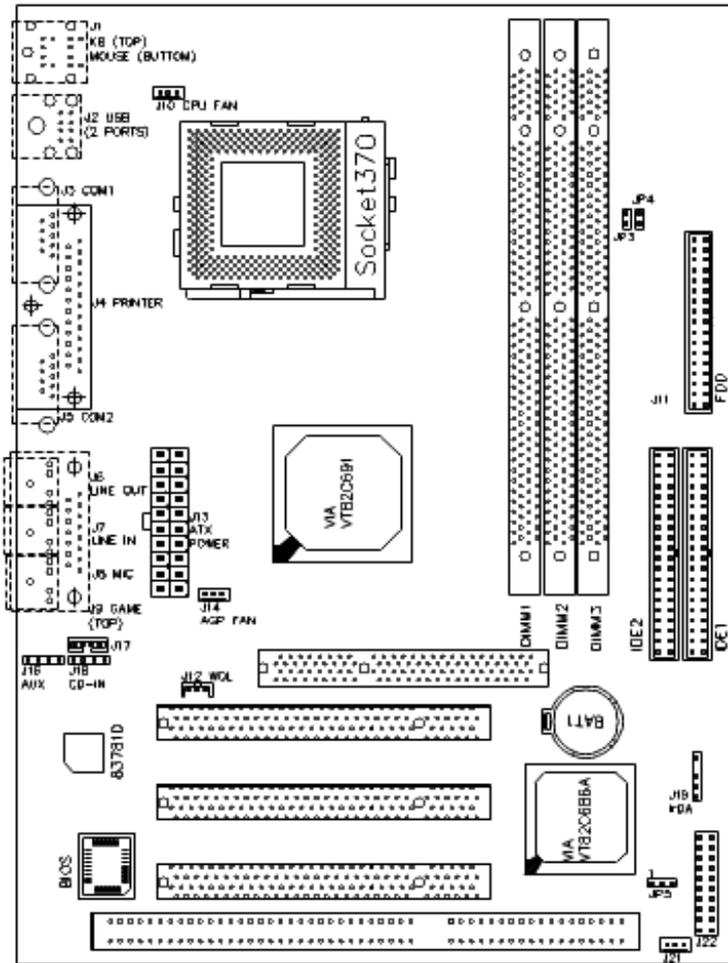


Figure 1: Layout of the MI7VGA Motherboard

3.1 Processor

The MI7VGA motherboard is designed to take an Intel Celeron processor running 300/333/350/366/400/433/450/466/500MHz.

3.2 L2 Cache

The L2 cache is integrated in the processor.

3.3 Main Memory

The MI7VGA motherboard supports three 168-pin DIMM (Dual In-line Memory Module) sockets to form a memory configuration from 8MB to 384MB. DIMM modules can be 8MB, 16MB, 32MB, 64M and 128MB in SDRAM. In populating the DIMM sockets, any socket can be populated first. Refer to the following table on how to do the memory configuration.

NOTE: Use SDRAM modules with PC100 specification when running 100MHz CPU bus speed. With 66MHz CPU bus speed, SDRAM modules with PC66 or PC100 specification can be used.

(DIMM1)	(DIMM2)	(DIMM3)	Total Memory
8MB	-----	-----	8MB
16MB	-----	-----	16MB
32MB	-----	-----	32MB
64MB	-----	-----	64MB
128MB	-----	-----	128MB
8MB	8MB	-----	16MB
16MB	8MB	-----	24MB
32MB	8MB	-----	40MB
64MB	8MB	-----	72MB
128MB	8MB	-----	136MB
8MB	8MB	8MB	24MB
16MB	8MB	8MB	32MB
32MB	8MB	8MB	48MB
64MB	8MB	8MB	80MB
128MB	8MB	8MB	144MB
16MB	16MB	-----	32MB
32MB	16MB	-----	48MB

64MB	16MB	-----	80MB
128MB	16MB	-----	144MB
16MB	16MB	8MB	40MB
32MB	16MB	8MB	56MB
64MB	16MB	8MB	88MB
128MB	16MB	8MB	152MB
16MB	16MB	16MB	48MB
32MB	16MB	16MB	64MB
64MB	16MB	16MB	96MB
128MB	16MB	16MB	160MB
32MB	32MB	-----	64MB
64MB	32MB	-----	96MB
128MB	32MB	-----	160MB
32MB	32MB	8MB	72MB
64MB	32MB	8MB	104MB
128MB	32MB	8MB	168MB
32MB	32MB	16MB	80MB
64MB	32MB	16MB	112MB
128MB	32MB	16MB	176MB
32MB	32MB	32MB	96MB
64MB	32MB	32MB	128MB
128MB	32MB	32MB	192MB
64MB	64MB	-----	128MB
128MB	64MB	-----	192MB
64MB	64MB	8MB	136MB
128MB	64MB	8MB	200MB
64MB	64MB	16MB	144MB
128MB	64MB	16MB	208MB
64MB	64MB	32MB	160MB
128MB	64MB	32MB	224MB
64MB	64MB	64MB	192MB
128MB	64MB	64MB	256MB
128MB	128MB	128MB	384MB

3.4 BIOS

The BIOS on the MI7VGA motherboard provides the standard BIOS functions plus the following additional features:

1. ISA Plug and Play (PnP) Extension

Unlike PCI cards that are Plug and Play, ISA cards require setting jumpers to resolve hardware conflicts. To make a computer system PnP, an ISA PnP standard is established and supported by new operating systems, such as Windows 95. Under Windows 95, the motherboard BIOS must have an ISA PnP extension to support new ISA PnP cards.

2. Power Management

The power management feature provides power savings by slowing down the CPU clock, turning off the monitor screen and stopping the HDD spindle motor. The BIOS fully conforms to ACPI (Advanced Configuration and Power Interface) specification.

3.5 Onboard AGP Slot

The AGP (Accelerated Graphics Port) slot supports AGP compliant VGA cards to achieve rich 3D and video graphics display. AGP is a platform bus specification that enables 3D graphics capabilities including support for z-buffering, alpha blending and faster texture mapping.

3.6 Hardware Monitoring

The VIA VT82C686A chip has a built-in hardware status monitoring function that monitor several hardware parameters including power supply voltages, fan speeds, and temperatures, which are very important for a high-end computer system to work stable and properly. This function is used together with the optional Intel LANDesk Client Manager utility.

3.7 Onboard Multi-I/O

The multi-I/O function is built in the VIA VT82C686A chip supports a keyboard controller, two serial ports, one parallel port, one floppy controller and one IrDA port. The serial ports are 16550 UART compatible. The parallel port features high-speed EPP/ECP mode. The floppy controller supports up to 2.88MB format.

3.8 Interrupt Request (IRQ) Lines

There are a total of 15 IRQ lines available on the motherboard. Peripheral devices use an interrupt request to notify the CPU for the service required. The following table shows the IRQ lines used by the devices on the motherboard:

<u>Level</u>	<u>Function</u>
IRQ0	System Timer Output
IRQ1	Keyboard
IRQ2	Interrupt Cascade
IRQ8	Real Time Clock
IRQ9	Software Redirected to Int 0Ah
IRQ10	Reserved
IRQ11	Reserved
IRQ12	Reserved
IRQ13	Co-Processor
IRQ14	Primary IDE
IRQ15	Secondary IDE
IRQ3	INTERRUPT
IRQ4	Serial Port #1
IRQ5	INTERRUPT
IRQ6	Floppy Disk Controller
IRQ7	Parallel Port #1

3.9 Onboard PCI-IDE

The VIA VT82C686A chip built-in's PCI-IDE controller supports PIO mode 3/4 and bus mastering Ultra DMA/66 / Ultra DMA/33. The peak transfer rate of PIO mode 3/4 can be as high as 17MB/sec. Using HDDs that support Ultra DMA/66, the peak transfer rate can reach 66MB/sec. There are two IDE connectors - primary IDE and secondary IDE. With two devices per connector, up to four IDE devices can be supported.

3.10 DMA Channels

There are seven DMA channels available on the motherboard; only DMA2 is used by the floppy controller. In the case that ECP mode on the parallel port is utilized, DMA1 or DMA3 will be used.

3.11 I/O Port Address Map

Each peripheral device in the system is assigned a set of I/O port addresses, which also becomes the identity of the device. There is a total of 1K port address space available. The following table lists the I/O port addresses used on the motherboard.

Address	Device Description
000h - 01Fh	DMA Controller #1
020h - 03Fh	Interrupt Controller #1
040h - 05Fh	Timer
060h - 06Fh	Keyboard Controller
070h - 07Fh	Real Time Clock,, NMI
080h - 09Fh	DMA Page Register
0A0h - 0BFh	Interrupt Controller #2
0C0h - 0DFh	DMA Controller #2
0F0h	Clear Math Coprocessor Busy Signal
0F1h	Reset Math Coprocessor
1F0h - 1F7h	IDE Interface
2F8h - 2FFh	Serial Port #2(COM2)
378h - 3FFh	Parallel Port #1(LPT1)
3F0h - 3F7h	Floppy Disk Controller
3F8h - 3FFh	Serial Port #1(COM1)

3.12 Onboard Audio

The onboard audio is embedded in the VT82C686A chip. It is SoundBlaster Pro compatible and compliant with Standard v1.0 or v2.0 AC97 interface. It features hardware assisted FM synthesis for legacy compatibility and direct two game ports and one MIDI port interface.

This page was intentionally left blank.

Chapter 4 Configuring the Motherboard

The following sections describe the necessary procedures and proper jumper settings to configure the MI7VGA motherboard. For the locations of the jumpers, refer to Figure 2.

4.1 CPU Frequency Setting.....	15
4.2 Clear CMOS Select: JP5.....	15
4.3 JP3: SDRAM Clock Select.....	16
4.4 CPU Host Frequency Force Selector: JP4.....	16

The following examples show the conventions used in this chapter.

	Jumper Open
	Jumper Closed/Short

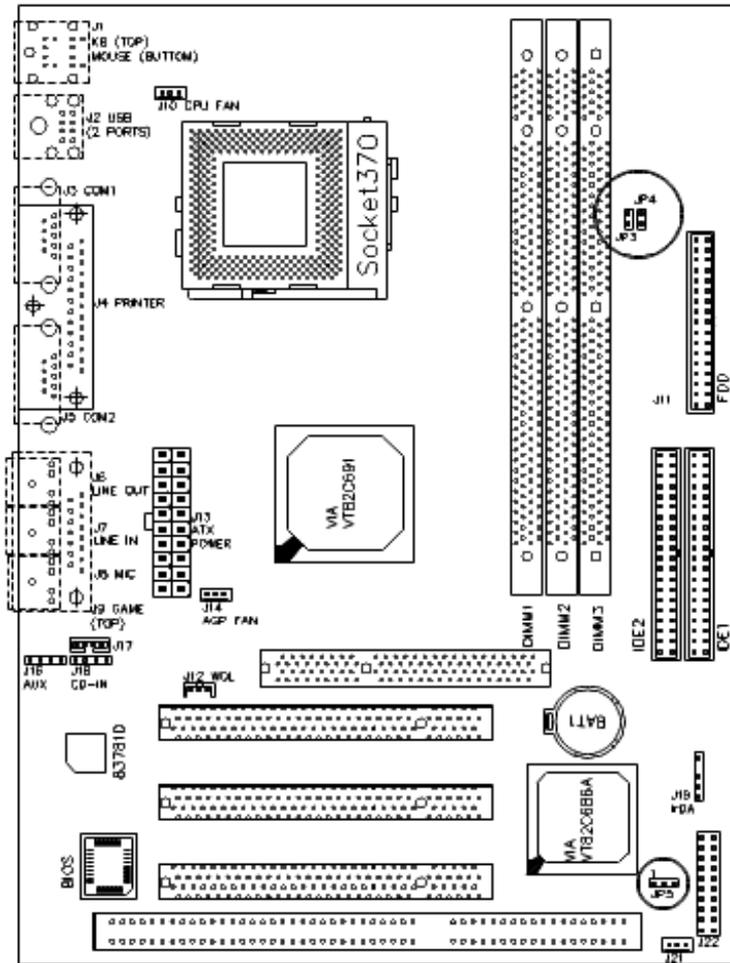


Figure 2: Jumper Location on the MI7VGA

4.1 CPU Frequency Setting

The MI7VGA uses jumper-free technology in configuring the processor on the motherboard. The system automatically detects the CPU bus speed, 66MHz or 100MHz and sets the multiplier, or ratio, to 3X. However, the bus speed can also be configured through the BIOS if the processor supports this feature. The BIOS (under CPU Features Setup) allows users to change the CPU bus speed multiplier (3X, 3.5X, 4X, 4.5X, 5X, 5.5X, 6X, 6.5X, 7X, 7.5X, 8X) to set the correct or desired CPU frequency. *The CPU bus speed multiplier will remain unchanged if the CPU installed supports a fixed (only one) bus speed multiplier.*

IMPORTANT NOTE: It is possible that the system will not boot if the CPU has been changed. When this happens, turn off the computer by pressing the power button and turn it on again by pressing the **Insert** key and the power button simultaneously. (*Note to press the **Insert** key until an image appears on the screen.*) When the system is turned on, press the **Delete** key to enter BIOS Setup and configure the CPU speed.

4.2 Clear CMOS Select: JP5

Use JP5, a 3-pin header, to clear the contents of the CMOS RAM. Do not clear the CMOS RAM unless it is absolutely necessary. You will lose your password, etc.

JP5	Jumper Setting	Function
 1 2 3	pin 1-2: short	Normal
 1 2 3	pin 2-3: short	Clear CMOS

NOTE: *To clear CMOS, the power connector should be disconnected from the motherboard.*

4.3 JP3: SDRAM Clock Select

Use JP3 to set the SDRAM clock. If the SDRAM on board is PC-66 compatible (instead of PC-100), while your CPU bus speed is 100MHz, you have to short JP3. Failing to do so could lead to an unstable system.

JP3 Setting	Function
Open	Run CPU Clock
Short	Run AGP Clock

4.4 CPU Host Frequency Force Selector: JP4

The MI7VGA is able to detect the host frequency (66MHz or 100MHz) of the installed CPU. The JP4 jumper, however, can be set to **OPEN** to override the detection and force the host frequency to run at 100MHz.

JP4	Function	JP4	Function
 SHORT	Host Frequency Auto-detect (default)	 OPEN	Host Frequency set to 100MHz

NOTE: When JP4 is set to OPEN, the system may not boot or become unstable. In such cases, return the jumper to configure JP4 as 'SHORT'.

Chapter 5 Installation

This chapter describes the interface that the MI7VGA provides for creating a working system. Refer to Figure 3 for the location of the connectors.

The following items are covered in this chapter:

5.1 I/O Connectors.....	19
5.2 J1: PS/2 Keyboard and PS/2 Mouse Connectors.....	19
5.3 J2: USB Connector.....	20
5.4 J3, J5: Serial Ports.....	20
5.5 J4: Parallel Port Connector.....	21
5.6 J6, J7, J8, J9: Line Out, Line In, Mic In, Game Port.....	21
5.7 IDE1, IDE2: EIDE Connectors.....	22
5.8 J10: CPU Fan Power Connector.....	23
5.9 J11: Floppy Drive Connector.....	23
5.10 J12: Wake on LAN Connector.....	24
5.11 J13: ATX Power Supply Connector.....	24
5.12 J14: AGP Fan Power Connector.....	24
5.13 J16: Auxiliary Audio In Connectors.....	25
5.15 J19: IrDA Connector.....	25
5.16 J21: Chassis Fan Power Connector.....	26
5.17 J22: Front Bezel Connectors.....	26

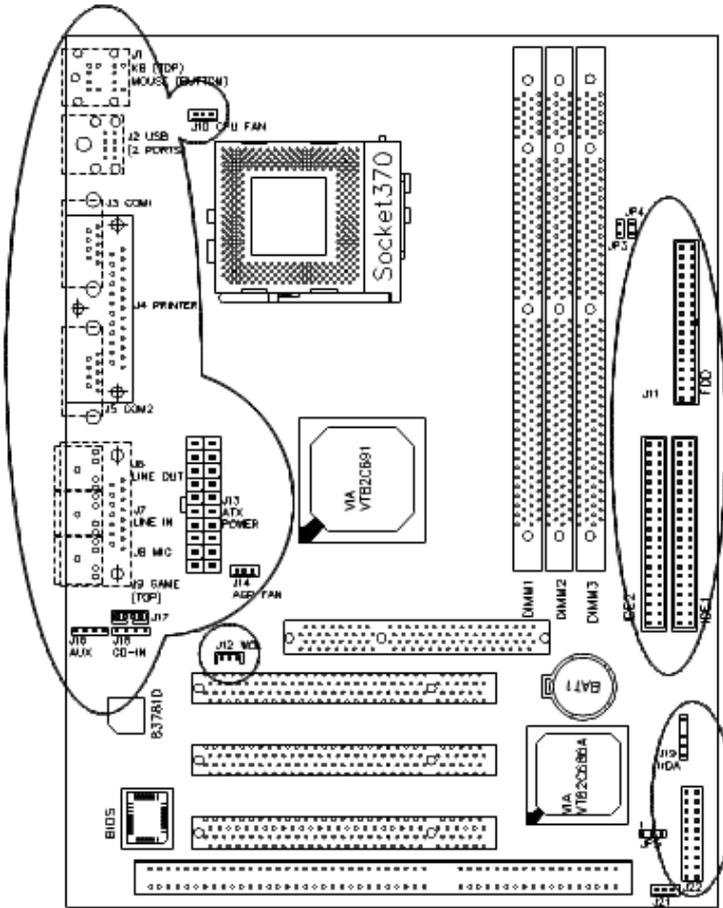


Figure 3: Connector Location on the MI7VGA

5.1 I/O Connectors

The I/O connectors connect the MI7VGA to the most common peripherals. To attach cables to these connectors, carefully align Pin 1 of the cables to that of the connectors. Refer to Figure 4 for the location and orientation of the connectors.

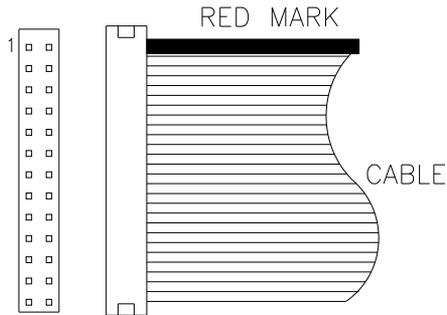
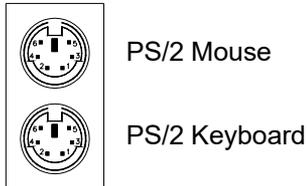


Figure 4: Orientation of the I/O Connector

5.2 J1: PS/2 Keyboard and PS/2 Mouse Connectors

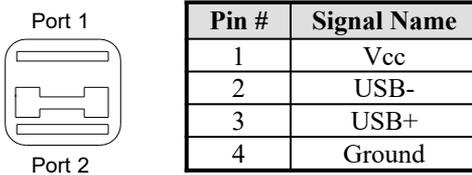


Below are the pin-out assignments of the connectors.

Signal Name	Keyboard	Mouse	Signal Name
Keyboard data	1	1	Mouse data
N.C.	2	2	N.C.
GND	3	3	GND
5V	4	4	5V
Keyboard clock	5	5	Mouse clock
N.C.	6	6	N.C.

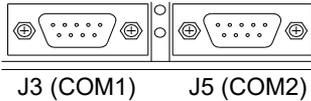
5.3 J2: USB Connector

J2 is the standard USB external connector consisting of two ports. USB support allows connections of up to 64 plug and play external peripherals per channel. The following table shows the pin outs of these ports.



5.4 J3, J5: Serial Ports

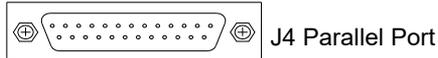
The onboard serial ports of the MI7VGA, J3 and J5, are two DB-9 external connectors. The following table shows the pin-out assignments of these connectors.



Signal Name	Pin #	Pin #	Signal Name
DCD, Data carrier detect	1	6	DSR, Data set ready
RXD, Receive data	2	7	RTS, Request to send
TXD, Transmit data	3	8	CTS, Clear to send
DTR, Data terminal ready	4	9	RI, Ring indicator
GND, ground	5	10	Not Used

5.5 J4: Parallel Port Connector

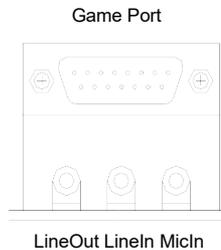
J4 is a DB-25 external connector as seen in the previous figure. The following table describes the pin-out assignments of this connector.



Signal Name	Pin #	Pin #	Signal Name
Line printer strobe	1	14	AutoFeed
PD0, parallel data 0	2	15	Error
PD1, parallel data 1	3	16	Initialize
PD2, parallel data 2	4	17	Select
PD3, parallel data 3	5	18	Ground
PD4, parallel data 4	6	19	Ground
PD5, parallel data 5	7	20	Ground
PD6, parallel data 6	8	21	Ground
PD7, parallel data 7	9	22	Ground
ACK, acknowledge	10	23	Ground
Busy	11	24	Ground
Paper empty	12	25	Ground
Select	13	N/A	N/A

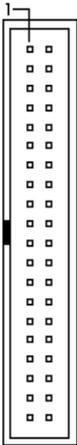
5.6 J6, J7, J8, J9: Line Out, Line In, Mic In, Game Port

J6, J7, J8 and J9 are the connectors for audio line out, audio line in, microphone and game port respectively.



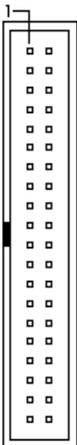
5.7 IDE1, IDE2: EIDE Connectors

IDE1: Primary IDE Connector



Signal Name	Pin #	Pin #	Signal Name
Reset IDE	1	2	Ground
Host data 7	3	4	Host data 8
Host data 6	5	6	Host data 9
Host data 5	7	8	Host data 10
Host data 4	9	10	Host data 11
Host data 3	11	12	Host data 12
Host data 2	13	14	Host data 13
Host data 1	15	16	Host data 14
Host data 0	17	18	Host data 15
Ground	19	20	Key
DRQ0	21	22	Ground
Host IOW	23	24	Ground
Host IOR	25	26	Ground
IOCHRDY	27	28	Host ALE
DACK0	29	30	Ground
IRQ14	31	32	No connect
Address 1	33	34	No connect
Address 0	35	36	Address 2
Chip select 0	37	38	Chip select 1
Activity	39	40	Ground

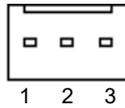
IDE2: Secondary IDE Connector



Signal Name	Pin #	Pin #	Signal Name
Reset IDE	1	2	Ground
Host data 7	3	4	Host data 8
Host data 6	5	6	Host data 9
Host data 5	7	8	Host data 10
Host data 4	9	10	Host data 11
Host data 3	11	12	Host data 12
Host data 2	13	14	Host data 13
Host data 1	15	16	Host data 14
Host data 0	17	18	Host data 15
Ground	19	20	Key
DRQ0	21	22	Ground
Host IOW	23	24	Ground
Host IOR	25	26	Ground
IOCHRDY	27	28	Host ALE
DACK1	29	30	Ground
MIRQ0	31	32	No connect
Address 1	33	34	No connect
Address 0	35	36	Address 2
Chip select 0	37	38	Chip select 1
Activity	39	40	Ground

5.8 J10: CPU Fan Power Connector

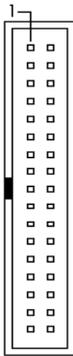
J10 CPU fan power connector is a 3-pin header supporting a 12V fan.



Pin #	Signal Name
1	Rotation
2	+12V
3	Ground

5.9 J11: Floppy Drive Connector

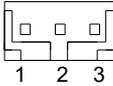
J11 of the MI7VGA is a 34-pin header and will support up to 2.88MB floppy drives. The following table shows its pin-out assignments.



Signal Name	Pin #	Pin #	Signal Name
Ground	1	2	RM/LC
Ground	3	4	No connect
Ground	5	6	No connect
Ground	7	8	Index
Ground	9	10	Motor enable 0
Ground	11	12	Drive select 1
Ground	13	14	Drive select 0
Ground	15	16	Motor enable 1
Ground	17	18	Direction
Ground	19	20	Step
Ground	21	22	Write data
Ground	23	24	Write gate
Ground	25	26	Track 00
Ground	27	28	Write protect
Ground	29	30	Read data
Ground	31	32	Side 1 select
Ground	33	34	Diskette change

5.10 J12: Wake on LAN Connector

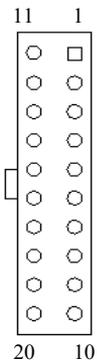
J12 is a 3-pin header for the Wake on LAN function on the motherboard. The following table shows the pin out assignments of this connector. Wake on LAN will function properly only with an ATX power supply with 5VSB that has 800mA.



Pin #	Signal Name
1	+5VSB
2	Ground
3	Wake on LAN

5.11 J13: ATX Power Supply Connector

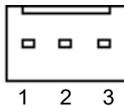
J13 is a 20-pin ATX power supply connector. Refer to the following table for the pin out assignments.



Signal Name	Pin #	Pin #	Signal Name
3.3V	11	1	3.3V
-12V	12	2	3.3V
Ground	13	3	Ground
PS-ON	14	4	+5V
Ground	15	5	Ground
Ground	16	6	+5V
Ground	17	7	Ground
-5V	18	8	Power good
+5V	19	9	5VSB
+5V	20	10	+12V

5.12 J14: AGP Fan Power Connector

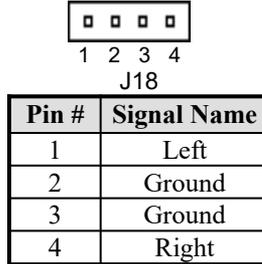
J14 Chassis fan power connector is a 3-pin header supporting a 12V fan.



Pin #	Signal Name
1	N.C.
2	+12V
3	Ground

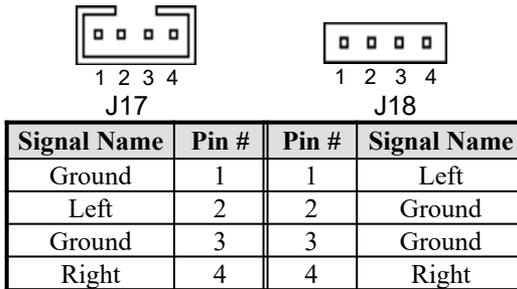
5.13 J16: Auxiliary Audio In Connectors

J16 is the onboard 4-pin auxiliary audio in connector. Below are their pin assignments.



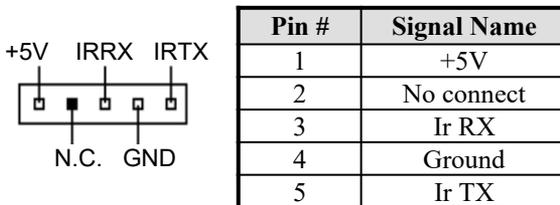
5.14 J17, J18: CD-ROM Audio In Connectors

J17 and J18 are the onboard CD-ROM audio in connectors. Below are their pin assignments.



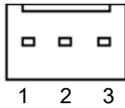
5.15 J19: IrDA Connector

This connector is used for an IrDA connector that supports infrared wireless communication.



5.16 J21: Chassis Fan Power Connector

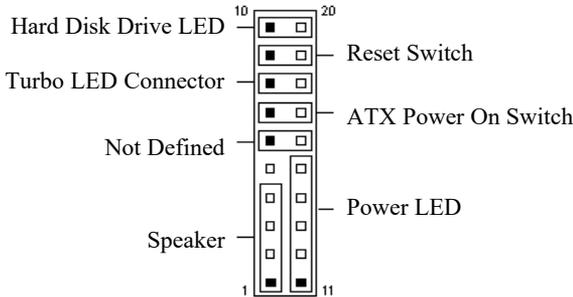
J21 chassis fan power connector is a 3-pin header supporting a 12V fan.



Pin #	Signal Name
1	Rotation
2	+12V
3	Ground

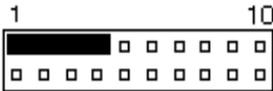
5.17 J22: Front Bezel Connectors

The front bezel of the case has a control panel which provides light indication of the computer activities and switches to change the computer status. J22 is a 20-pin header that provides interfaces for the following functions.



Speaker: Pins 1 - 4

This connector provides an interface to a speaker for audio tone generation. An 8-ohm speaker is recommended.



Pin #	Signal Name
1	Speaker out
2	No connect
3	Ground
4	+5V

Power LED: Pins 11 - 15

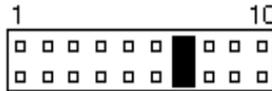
The power LED indicates the status of the main power switch.



Pin #	Signal Name
11	Power LED
12	No connect
13	Ground
14	No connect
15	Ground

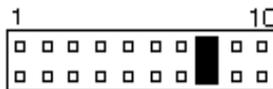
ATX Power ON Switch: Pins 7 and 17

This 2-pin connector is an “ATX Power Supply On/Off Switch” on the motherboard that connects to the power switch on the case. When pressed, the power switch will force the motherboard to power on. When pressed again, it will force the motherboard to power off.



Turbo LED Connector: Pins 8 and 18

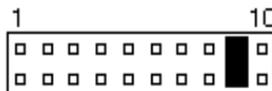
There is no turbo/deturbo function on the motherboard. The Turbo LED on the control panel will always be On when attached to this connector.



Pin #	Signal Name
8	5V
18	Ground

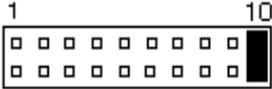
Reset Switch: Pins 9 and 19

The reset switch allows the user to reset the system without turning the main power switch off and then on again. Orientation is not required when making a connection to this header.



Hard Disk Drive LED Connector: Pins 10 and 20

This connector connects to the hard drive activity LED on control panel. This LED will flash when the HDD is being accessed.



Pin #	Signal Name
10	HDD LED
20	5V

Chapter 6 BIOS Configuration

This chapter describes the different settings available in the Award BIOS. The topics covered in this chapter are as follows:

6.1 BIOS Introduction.....	32
6.2 BIOS Setup.....	32
6.3 Standard CMOS Setup.....	34
Date.....	34
Time.....	35
Primary HDDs / Secondary HDDs.....	35
Drive A / Drive B.....	36
Video.....	36
Halt On.....	36
6.4 BIOS Features Setup.....	37
Virus Warning.....	37
CPU Internal Cache / External Cache.....	37
Quick Power On Self Test.....	38
Boot Sequence.....	38
Swap Floppy Drive.....	38
Boot Up Floppy Seek.....	38
Boot Up NumLock Status.....	38
Gate A20 Option.....	38
Memory Parity / ECC Check.....	38
Typematic Rate Setting.....	38
Typematic Rate (Chars/Sec).....	39
Typematic Delay (Msec).....	39
Security Option.....	39
PCI/VGA Palette Snoop.....	39
OS Select for DRAM > 64MB.....	39
Video BIOS Shadow.....	39
C8000 - CBFFF Shadow/DC000 - DFFFF Shadow.....	39
6.5 Chipset Features Setup.....	40
DRAM Timing.....	40
SDRAM Cycle Length.....	40
Memory Hole at 15MB Addr.....	40
Read Around Write.....	40
Concurrent PCI/Host.....	41
Video RAM Cacheable.....	41
AGP Aperture Size.....	41

OnChip USB.....	41
USB Keyboard Support.....	41
OnChip Sound.....	41
Auto Detect DIMM/PCI Clk.....	41
Spread Spectrum.....	41
6.6 Power Management Setup.....	42
ACPI Function.....	42
Power Management.....	42
PM Control by APM.....	43
Video Off Method.....	43
PWRON After PW-Fail.....	43
Soft-Off by PWRBTN.....	43
HDD Power Down.....	43
Doze Mode.....	43
Suspend Mode.....	43
PM Events.....	44
6.7 PNP/PCI Configuration.....	45
PNP OS Installed.....	45
Resources Controlled by.....	45
Reset Configuration Data.....	45
IRQ3/4/5/7/9/10/11/12/14/15, DMA0/1/3/5/6/7 assigned to.....	45
CPU to PCI Write Buffer.....	46
PCI Dynamic Bursting.....	46
PCI Master 0 WS Write.....	46
PCI Delay Transaction.....	46
PCI#2 Access #1 Retry.....	46
AGP Master 1 WS Write.....	46
AGP Master 1 WS Read.....	46
PCI IRQ Activated by.....	46
Assign IRQ for USB/VGA.....	46
6.8 Load BIOS Defaults.....	47
6.9 Load Setup Defaults.....	47
6.10 CPU Features Setup.....	48
CPU Speed, CPU Clock Multiplier, CPU Bus Speed.....	48
Current CPU / System Temp.....	49
Current CPU Fan / Chassis Fan Speed.....	49
VCORE/VCC3/2.5V/+12V/+5V.....	49
6.10 Integrated Peripherals.....	50
OnChip IDE Channel0/1.....	50

IDE Prefetch Mode.....	50
IDE HDD Block Mode.....	50
Primary/Secondary Master/Slave PIO.....	50
Primary/Secondary Master/Slave UDMA.....	51
Init AGP Display First.....	51
Onboard FDD Controller.....	51
Onboard Serial/Parallel Port.....	51
UART 2 Mode.....	51
Parallel Port Mode.....	51
Onboard Legacy Audio.....	51
6.11 Supervisor / User Password.....	52
6.12 IDE HDD Auto Detection.....	53
6.13 Save & Exit Setup.....	54
6.14 Exit Without Saving.....	54

6.1 BIOS Introduction

The Award BIOS (Basic Input/Output System) installed in your computer system's ROM supports Intel Celeron processors. The BIOS provides critical low-level support for a standard device such as disk drives, serial and parallel ports. It also adds virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

6.2 BIOS Setup

The Award BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn on the computer, the Award BIOS is immediately activated. Pressing the key immediately allows you to enter the Setup utility. If you are a little bit late pressing the key, POST(Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system Off and back On again. The following message will appear on the screen:

```
Press <DEL> to Enter Setup
```

In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.

ROM PCI/ISA BIOS
 CMOS SETUP UTILITY
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	HDD LOW LEVEL FORMAT
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Time, Date, Hard Disk Type	

The section below the setup items of the Main Menu displays the control keys for this menu. At the bottom of the Main Menu just below the control keys section, there is another section which displays information on the currently highlighted item in the list.

NOTE: If your computer cannot boot after making and saving system changes with Setup, the Award BIOS supports an override to the CMOS settings that resets your system to its default.

We strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your system manufacturer to provide the absolute maximum performance and reliability.

6.3 Standard CMOS Setup

“Standard CMOS Setup” choice allows you to record some basic hardware configurations in your computer system and set the system clock and error handling. If the motherboard is already installed in a working system, you will not need to select this option. You will need to run the Standard CMOS option, however, if you change your system hardware configurations, the onboard battery fails, or the configuration stored in the CMOS memory was lost or damaged.

ROM PCI/ISA BIOS
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Wed, Mar 4 1998								
Time (hh:mm:ss) : 00 : 00 : 00								
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	Auto	0	0	0	0	0	0	Auto
Primary Slave	Auto	0	0	0	0	0	0	Auto
Secondary Master	Auto	0	0	0	0	0	0	Auto
Secondary Slave	Auto	0	0	0	0	0	0	Auto
Drive A	: 1.44M, 3.5in				Base Memory		:	640K
Drive B	: None				Extended Memory		:	15360K
					Other Memory		:	384K
Video	: EGA / VGA				Total Memory		:	16384K
Halt On	: All Errors							
ESC : Quit			↑ ↓ → ← : Select			Item PU / PD / + / - : Modify		
F1 : Help			(Shift) F2 : Change Color					

At the bottom of the menu are the control keys for use on this menu. If you need any help in each item field, you can press the <F1> key. It will display the relevant information to help you. The memory display at the lower right-hand side of the menu is read-only. It will adjust automatically according to the memory changed. The following describes each item of this menu.

Date

The date format is:

Day : Sun to Sat
Month : 1 to 12
Date : 1 to 31
Year : 1994 to 2079

To set the date, highlight the “Date” field and use the PageUp/ PageDown or +/- keys to set the current time.

Time

The time format is: **Hour : 00 to 23**
Minute : 00 to 59
Second : 00 to 59

To set the time, highlight the “Time” field and use the <PgUp>/<PgDn> or +/- keys to set the current time.

Primary HDDs / Secondary HDDs

The onboard PCI IDE connectors provide Primary and Secondary channels for connecting up to four IDE hard disks or other IDE devices. Each channel can support up to two hard disks; the first is the “Master” and the second is the “Slave”.

To enter the specifications for a hard disk drive, you must select first a “Type”. There are 45 predefined types and 4 user definable types are for Enhanced IDE BIOS. Type 1 to 45 are predefined. Type “User” is user-definable. For the Primary Master/Slave as well as Secondary Master/Slave, you can select “Auto” under the TYPE and MODE fields. This will enable auto detection of your IDE drives and CD-ROM drive during POST.

Press <PgUp>/<PgDn> to select a numbered hard disk type or type the number and press the <Enter> key. The hard disk will not work properly if you enter incorrect information for this field. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually. If you select Type User, related information is asked to be entered to the following items.

CYLS : Number of cylinders
HEAD : Number of read/write heads
PRECOMP : Write precompensation
LANDZ : Landing zone
SECTOR : Number of sectors
SIZE : Automatically adjust according to the configuration
MODE (for IDE HDD only) : Auto
 Normal (HD < 528MB)
 Large (for MS-DOS only)
 LBA (HD > 528MB and
 supports Logical Block
 Addressing)

NOTE: *The specifications of your drive must match with the drive table. The hard disk will not work properly if you enter incorrect information in these fields. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.*

Drive A / Drive B

These fields identify the types of floppy disk drive A or drive B that has been installed in the computer. The available specifications are:

360KB	1.	2MB	720KB	1.	44M	2.	88M
5.25 in.		5.25 in.	3.5 in.		B		B
					3.5 in.		3.5 in.

Video

This field selects the type of video display card installed in your system. You can choose the following video display cards:

EGA/VGA	For EGA, VGA, SEGA, SVGA or PGA monitor adapters. (default)
CGA 40	Power up in 40 column mode.
CGA 80	Power up in 80 column mode.
MONO	For Hercules or MDA adapters.

Halt On

This field determines whether or not the system will halt if an error is detected during power up.

No errors	The system boot will not be halted for any error that may be detected.
All errors	Whenever the BIOS detects a non-fatal error, the system will stop and you will be prompted.
All, But Keyboard	The system boot will not be halted for a keyboard error; it will stop for all other errors.
All, But Diskette	The system boot will not be halted for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not be halted for a keyboard or disk error; it will stop for all others.

6.4 BIOS Features Setup

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

ROM / PCI ISA BIOS
 BIOS FEATURES SETUP
 AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000-CFFFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	D0000-D3FFF Shadow	: Disabled
Boot Sequence	: A, C, SCSI	D4000-D7FFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	D8000-DBFFF Shadow	: Disabled
Boot Up Floppy Seek	: Enabled	DC000-DFFF Shadow	: Disabled
Boot Up Numlock Status	: On		
Gate A20 Option	: Fast		
Typematic Rate Setting	: Disabled		
Memory Parity ECC Checking	: Disabled		
Typematic Rate (chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup	ESC : Quit	↑ ↓ → ← : Select Item
PCI /VGA Palette Snoop	: Disabled	F1 : Help	PU/PD/+/- : Modify
OS Select For DRAM>64MB	: Non-OS2	F5 : Old Values	(Shift) F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

Virus Warning

This item protects the boot sector and partition table of your hard disk against accidental modifications. If an attempt is made, the BIOS will halt the system and display a warning message. If this occurs, you can either allow the operation to continue or run an anti-virus program to locate and remove the problem.

NOTE: Many disk diagnostic programs, which attempt to access the boot sector table, can cause the virus warning. If you will run such a program, disable the Virus Warning feature.

CPU Internal Cache / External Cache

Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type on up contain internal cache memory, and most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU. These items allow you to enable (speed up memory access) or disable the cache function. By default, these items are **Enabled**.

Quick Power On Self Test

When enabled, this field speeds up the Power On Self Test (POST) after the system is turned on. If it is set to *Enabled*, BIOS will skip some items.

Boot Sequence

This field determines the drive that the system searches first for an operating system. The default value is *A, C, SCSI*. The options are :

A, C, SCSI	D, A, SCSI	SCSI, C, A
C, A, SCSI	E, A, SCSI	C only
C, CDROM, A	F, A, SCSI	LS/ZIP, C
CDROM, C, A	SCSI, A, C	

Swap Floppy Drive

This item allows you to determine whether or not to enable Swap Floppy Drive. When enabled, the BIOS swaps floppy drive assignments so that Drive A becomes Drive B, and Drive B becomes Drive A. By default, this field is set to *Disabled*.

Boot Up Floppy Seek

When enabled, the BIOS will seek whether or not the floppy drive installed has 40 or 80 tracks. 360K type has 40 tracks while 760K, 1.2M and 1.44M all have 80 tracks. By default, this field is set to *Enabled*.

Boot Up NumLock Status

This allows you to activate the NumLock function after you power up the system. By default, the system boots up with *NumLock* On.

Gate A20 Option

This field allows you to select how Gate A20 is worked. Gate A20 is a device used to address memory above 1 MB. The default setting is *Fast*.

Memory Parity / ECC Check

When enabled, this allows ECC checking of the CPU's L2 cache. By default, this field is *Disabled*.

Typematic Rate Setting

When disabled, continually holding down a key on your keyboard will generate only one instance. When enabled, you can set the two typematic controls listed next. By default, this field is set to *Disabled*.

Typematic Rate (Chars/Sec)

When the typematic rate is enabled, the system registers repeated keystrokes speeds. Settings are from 6 to 30 characters per second.

Typematic Delay (Msec)

When the typematic rate is enabled, this item allows you to set the time interval for displaying the first and second characters. By default, this item is set to *250msec*.

Security Option

This field allows you to limit access to the System and Setup. The default value is *Setup*. When you select *System*, the system prompts for the User Password every time you boot up. When you select *Setup*, the system always boots up and prompts for the Supervisor Password only when the Setup utility is called up.

PCI/VGA Palette Snoop

Some non-standard VGA display cards may not show colors properly. This field allows you to set whether or not MPEG ISA/VESA VGA Cards can work with PCI/VGA. When this field is enabled, a PCI/VGA can work with an MPEG ISA/VESA VGA card. When this field is disabled, a PCI/VGA cannot work with an MPEG ISA/VESA Card.

OS Select for DRAM > 64MB

This option allows the system to access greater than 64MB of DRAM memory when used with OS/2 that depends on certain BIOS calls to access memory. The default setting is *Non-OS/2*.

Video BIOS Shadow

This item allows you to change the Video BIOS location from ROM to RAM. Video Shadow will increase the video speed.

C8000 - CBFFF Shadow/DC000 - DFFFF Shadow

Shadowing a ROM reduces the memory available between 640KB to 1024KB. These fields determine whether or not optional ROM will be copied to RAM.

6.5 Chipset Features Setup

This Setup menu controls the configuration of the motherboard chipset.

ROM PCI/ISA BIOS CHIPSET FEATURES SETUP AWARD SOFTWARE INC.			
Bank 0/1 DRAM Timing	: SDRAM 8ns	Auto Detect DIMM/PCI Clk	: Disabled
Bank 2/3 DRAM Timing	: SDRAM 8ns	Spread Spectrum	: Disabled
Bank 4/5 DRAM Timing	: SDRAM 8ns		
SDRAM Cycle Length	: 2		
Memory Hole At 15MB Addr	: Disabled		
Read Around Write	: Disabled		
Concurrent PCI/Host	: Disabled		
Video RAM Cacheable	: Enabled		
AGP Aperture Size (MB)	: 64M		
OnChip USB	: Enabled		
USB Keyboard Support	: Disabled		
OnChip Sound	: Enabled		
		ESC : Quit	↑ ↓ → ← : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift) F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

DRAM Timing

The DRAM timing is controlled by the DRAM Timing Registers. The timing type is dependent on the system design. Slower rates may be required in some system designs to support loose layouts or slower memory.

SDRAM Cycle Length

This field sets the SDRAM cycle length to either 2 or 3. The default setting is 2.

Memory Hole at 15MB Addr.

In order to improve performance, certain space in memory can be reserved for ISA cards. This field allows you to reserve 15MB to 16MB memory address space to ISA expansion cards. This makes memory from 15MB and up unavailable to the system. Expansion cards can only access memory up to 16MB. By default, this field is set to *Disabled*.

Read Around Write

DRAM optimization feature: If a memory read is addressed to a location whose latest write is being held in a buffer before being written to memory, the read is satisfied through the buffer contents, and the read is not sent to the DRAM. The default setting is *Disabled*.

Concurrent PCI/Host

This field enables or disables the concurrent PCI/Host. The default setting is *Disabled*.

Video RAM Cacheable

Selecting *Enabled* allows caching of the video BIOS ROM at C0000h to C7FFFh, resulting in better video performance. However, if any program writes to this memory area, a memory access error may result.

AGP Aperture Size

The field sets aperture size of the graphics. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. The options available are 4, 8, 16, 32, 64, 128M and 256. The default setting is *64M*.

OnChip USB

This field allows you either to enable or disable the USB function. By default, this field is set to *Disabled*.

USB Keyboard Support

Enable this field if your system supports a USB keyboard.

OnChip Sound

This field allows you either to enable or disable the on board sound function of the motherboard. By default, this field is set to *Enabled*.

Auto Detect DIMM/PCI Clk

When enabled, the system automatically shuts off clocks of unused DIMM/PCI slots. The default setting is *Disabled*. This field is for CE Testing use only.

Spread Spectrum

This field sets the value of the spread spectrum. Options are Disabled, 1.8% (CNTR), 0.6% (CNTR), 1.8% (DOWN), and 0.6% (DOWN). The default setting is *Disabled*. This field is for CE Testing use only.

6.6 Power Management Setup

The Power Management Setup allows you to save energy of your system effectively. It will shut down the hard disk and turn off video display after a period of inactivity.

ROM PCI/ISA BIOS
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

ACPI Function	: Enabled	Primary INTR	: ON
Power Management	: User Define	IRQ3 (COM2)	: Primary
PM Control by APM	: Yes	IRQ4 (COM1)	: Primary
Video Off Option	: Suspend -> Off	IRQ5 (LPT 2)	: Primary
Video Off Method	: V/H SYNC +Blank	IRQ6 (Floppy Disk)	: Primary
Soft-Off by PWRBTN	: Instant-Off	IRQ7 (LPT 1)	: Primary
PWRON After PW-Fail	: Off	IRQ8 (RTC Alarm)	: Disabled
** PM Timers **		IRQ9 (IRQ2 Redir)	: Secondary
HDD Power Down	: Disabled	IRQ10 (Reserved)	: Secondary
Doze Mode	: Disabled	IRQ11 (Reserved)	: Secondary
Suspend Mode	: Disabled	IRQ12 (PS/2 Mouse)	: Primary
** PM Events **		IRQ13 (Coprocessor)	: Primary
VGA	: OFF	IRQ14 (Hard Disk)	: Primary
LPT & COM	: LPT / COM	IRQ15 (Reserved)	: Primary
HDD & FDD	: ON		
DMA / master	: OFF	ESC : Quit	↑ ↓ → ← : Select Item
PWR-ON By Modem/LAN	: Disabled	F1 : Help	PU/PD/+/- : Modify
RTC Alarm Resume	: Disabled	F5 : Old Values	(Shift) F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

ACPI Function

This field allows you to enabled or disable the ACPI function on the motherboard. By default, this field is set to **Disabled**.

Power Management

This field allows you to select the type of power saving management modes. There are four selections for Power Management.

Min. Power Saving	Minimum power management
Max. Power Saving	Maximum power management.
User Define	Each of the ranges are from 1 min. to 1hr. Except for HDD Power Down which ranges from 1 min. to 15 min. (Default)

NOTE: In order to enable the CPU overheat protection feature, the Power Management field should not be set to Disabled.

PM Control by APM

This field allows you to use the Advanced Power Management device to enhance the Max. Power Saving mode and stop the CPU's internal clock. If the Max. Power Saving is not enabled, this will be preset to NO.

Video Off After

This field specifies the mode after which the Video Off feature is enabled. The options are *Doze*, *Standby*, *Suspend*, and *N/A*.

Video Off Method

This field defines the Video Off features. There are three options.

V/H SYNC + Blank	Default setting, blank the screen and turn off vertical and horizontal scanning.
DPMS	Allows the BIOS to control the video display card if it supports the DPMS feature.
Blank Screen	This option only writes blanks to the video buffer.

PWRON After PW-Fail

In case of power failure, the system can be configured to power on or to remain off when the power returns. These two settings are *Former-Sts* and *Off* respectively. The default setting for this field is *Off*.

Soft-Off by PWRBTN

This field defines the power-off mode when using an ATX power supply. The *Instant Off* mode allows powering off immediately upon pressing the power button. In the *Delay 4 Sec* mode, the system powers off when the power button is pressed for more than four seconds or enters the suspend mode when pressed for less than 4 seconds. The default value is *Instant Off*.

HDD Power Down

When enabled, and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

Doze Mode

When enabled, and after the set time of system inactivity, the CPU clock will run at a slower speed while all other devices still operate at full speed.

Suspend Mode

When enabled, and after the set time of system inactivity, all devices except the CPU will be shut off.

PM Events

The VGA, LPT & COM, HDD & FDD, DMA /master, GPI Resume, PWR-ON By Modem/LAN, RTC Alarm Resume and Primary INTR section are I/O events which can prevent the system from entering a power saving mode or can awaken the system from such a mode. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service. The default value is *Off*. When set On, activity will neither prevent the system from going into a power management mode nor awaken it. The IRQ section sets the wake-up call of the system. If activity is detected from any enabled IRQ channels in the left-hand group, the system wakes up from suspended mode.

6.7 PNP/PCI Configuration

This option configures the PCI bus system. All PCI bus systems on the system use INT#, thus all installed PCI cards must be set to this value.

ROM PCI/ISA BIOS
PNP/PCI CONFIGURATION
AWARD SOFTWARE INC.

PNP OS Installed	: No	CPU to PCI Write Buffer	: Enabled
Resources Controlled by	: Manual	PCI Dynamic Bursting	: Enabled
Reset Configuration Data	: Disabled	PCI Master 0 WS Write	: Disabled
		PCI Delay Transaction	: Enabled
IRQ-3 assigned to	: Legacy ISA	PCI#2 Access #1 Retry	: Disabled
IRQ-4 assigned to	: Legacy ISA	AGP Master 1 WS Write	: Enabled
IRQ-5 assigned to	: Legacy ISA	AGP Master 1 WS Read	: Enabled
IRQ-7 assigned to	: Legacy ISA		
IRQ-9 assigned to	: PCI/ISA PnP	PCI IRQ Activated By	: Level
IRQ-10 assigned to	: PCI/ISA PnP	Assign IRQ For USB	: Enabled
IRQ-11 assigned to	: PCI/ISA PnP	Assign IRQ For VGA	: Enabled
IRQ-12 assigned to	: PCI/ISA PnP		
IRQ-14 assigned to	: PCI/ISA PnP		
IRQ-15 assigned to	: PCI/ISA PnP		
DMA-0 assigned to	: PCI/ISA PnP		
DMA-1 assigned to	: PCI/ISA PnP	ESC : Quit	↑ ↓ ← : Select Item
DMA-3 assigned to	: PCI/ISA PnP	F1 : Help	PU/PD/+/- : Modify
DMA-5 assigned to	: PCI/ISA PnP	F5 : Old Values	(Shift) F2 : Color
DMA-6 assigned to	: PCI/ISA PnP	F6 : Load BIOS Defaults	
DMA-7 assigned to	: PCI/ISA PnP	F7 : Load Setup Defaults	

PNP OS Installed

This field allows you to specify if the operating system installed in your system is plug and play aware.

NOTE: *Operating systems such as DOS, OS/2, and Windows 3.x do not use PnP.*

Resources Controlled by

This PnP BIOS can configure all of the boot and compatible devices automatically. However, this capability needs you to use a PnP operating system such as Windows 95. The default value is **Manual**.

Reset Configuration Data

This field allows you to determine whether to reset the configuration data or not. The default value is **Disabled**.

IRQ3/4/5/7/9/10/11/12/14/15, DMA0/1/3/5/6/7 assigned to

These fields allow you to determine the IRQ/DMA assigned to the ISA bus and is not available to any PCI slot.

CPU to PCI Write Buffer

When enabled, this option increase the efficiency of the PCI bus to and speed up the execution in the processor. By default, this field is set to *Enabled*.

PCI Dynamic Bursting

When enabled, this option combines several PCI cycles into one. By default, this field is set to *Enabled*.

PCI Master 0 WS Write

When enabled, this option increases the write cycle speed. By default, this field is set to *Disabled*.

PCI Delay Transaction

When enabled, this option delays PCI data transaction. By default, this field is set to *Enabled*.

PCI#2 Access #1 Retry

This item enables PC#2 Access #1 attempts. By default, this field is set to *Disabled*.

AGP Master 1 WS Write

When enabled, writes to the AGP bus are executed with 1 wait states. By default, this field is set to *Enabled*.

AGP Master 1 WS Read

When enabled, reads to the AGP bus are executed with 1 wait states. By default, this field is set to *Enabled*.

PCI IRQ Activated by

This field allows you to select the method by which the PCI bus recognizes that an IRQ service is being requested by a device. The default value is *Level*.

Assign IRQ for USB/VGA

These fields allow you to enable or disable the IRQ for USB and VGA. By default, these fields are enabled.

6.8 Load BIOS Defaults

This option allows you to load the troubleshooting default values permanently stored in the BIOS ROM. These default settings are non-optimal and disable all high-performance features.

ROM PCI/ISA BIOS
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP BIOS FEATURES SETUP CHIPSET FEATURES SETUP POWER MANAGE... PNP/PCI CONF... LOAD BIOS DE... LOAD SETUP D...	CPU FEATURES SETUP INTEGRATED PERIPHERALS SUPERVISOR PASSWORD ...TECTION ...UP ...AVING
Load BIOS Defaults (Y/N)? N	
ESC : Quit F10 : Save & Exit Setup	↑ ↓ → ← : Select Item (Shift) F2 : Change Color
Load BIOS Defaults except Standard CMOS Setup	

To load BIOS defaults value to CMOS SRAM, enter “Y”. If not, enter “N”.

6.9 Load Setup Defaults

This option allows you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.

ROM PCI/ISA BIOS
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP BIOS FEATURES SETUP CHIPSET FEATURES SETUP POWER MANAGE... PNP/PCI CONF... LOAD BIOS DE... LOAD SETUP DE...	CPU FEATURES SETUP INTEGRATED PERIPHERALS SUPERVISOR PASSWORD ...TECTION ...UP ...AVING
Load Setup Defaults (Y/N)? N	
ESC : Quit F10 : Save & Exit Setup	↑ ↓ → ← : Select Item (Shift) F2 : Change Color
Load BIOS Defaults except Standard CMOS Setup	

To load SETUP defaults value to CMOS SRAM, enter “Y”. If not, enter “N”.

6.10 CPU Features Setup

This Setup menu controls the configuration pertaining to the CPU and system temperature.

ROM PCI/ISA BIOS CPU SPEED SETTING AWARD SOFTWARE INC.	
CPU Speed : Manual	:
CPU Clock Multiplier : X 5.5	:
CPU Bus Speed : 66 MHz	:
Current CPU Temp. : 41°C/ 105°F	:
Current System Temp. : 34°C/ 93°F	:
Current CPU Fan Speed : 2789 RPM	:
Current Chassis Fan Speed : 2045 RPM	:
VCCORE : 2.06 V 2.5V : 2.56 V	:
VCC3 : 3.41 V +5 V : 5.27 V	:
+12 V : 12.46 V	:
ESC : Quit ↑ ↓ → ← : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift) F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults	

CPU Speed, CPU Clock Multiplier, CPU Bus Speed

The MI7VGA motherboard allows users to set the CPU speed through the BIOS. The parameters in setting the CPU speed include *CPU Clock Multiplier* (X3, X3.5, X4, X4.5, X5, X5.5, X6.5, X7, X7.5, X8) and *CPU Clock* (66MHz, 68MHz, 75MHz, 83MHz or 100MHz, 112MHz, 124MHz, 133MHz).

In the initial setup, the system automatically detects the base Frequency of the CPU (66MHz or 100MHz). Press the ↑ and ↓ keys to change the CPU speed or press the PageUp or PageDown key to see the selections for CPU Clock Multiplier and CPU Bus Speed.

CPU speed configuration examples:

A. CPU-frequency auto-detect

CPU Speed	: 300MHz (100x3)
-----------	------------------

Parameters:
 CPU Clock Multiplier = 3 ~ 8
 CPU Bus Speed = 100MHz (fixed)

CPU Speed	: 333MHz (66x5)
-----------	-----------------

Parameters:
 CPU Clock Multiplier = 3 ~ 8
 CPU Bus Speed = 66MHz (fixed)

B. Manual

CPU Speed	Manual
CPU Clock Multiplier	: X 3
CPU Bus Speed	: 100/33 MHz

Parameters:

CPU Clock Multiplier = 3/3.5/4/4.5/5/5.5/6.5
7/7.5/8

CPU Bus Speed = 100MHz, 112MHz,
124MHz, 133MHz

CPU Speed	Manual
CPU Clock Multiplier	: X 3.5
CPU Bus Speed	: 66/33 MHz

Parameters:

CPU Clock Multiplier = 3/3.5/4/4.5/5/5.5/6.5
7/7.5/8

CPU Bus Speed = 66MHz, 75MHz,
83MHz

NOTE: *Overclocking could cause the system not to boot. When this happens, turn off the computer by pressing the power button and turn it on again by pressing the **Insert** key and the power button simultaneously. Then press the **Delete** key to enter BIOS Setup and configure the CPU speed.*

Current CPU / System Temp.

These read-only fields reflect the functions of the hardware thermal sensor that monitors the chip blocks and system temperatures to ensure the system is stable.

Current CPU Fan / Chassis Fan Speed

These read-only fields show the current speeds in RPM (revolution per minute) for the CPU fan and chassis fan as monitored by the hardware monitoring IC.

VCORE/VCC3/2.5V/+12V/+5V

These read-only fields show the current voltages in the voltage regulators and power supply as monitored by the hardware monitoring IC.

6.11 Integrated Peripherals

This option sets your hard disk configuration, mode and port.

ROM PCI/ISA BIOS
INTEGRATED PERIPHERALS
AWARD SOFTWARE INC.

On-Chip IDE Channel 0	: Enabled	Onboard Parallel Port	: 378/IRQ7
On-Chip IDE Channel 1	: Enabled	Parallel Port Mode	: Normal
IDE Prefetch Mode	: Disabled		
IDE HDD Block Mode	: Enabled		
Primary Master PIO	: Auto	Onboard legacy Audio	: Enabled
Primary Slave PIO	: Auto	Sound Blaster	: Enabled
Secondary Master PIO	: Auto	SB I/O Base Address	: 220H
Secondary Slave PIO	: Auto	SB IRQ Select	: IRQ 5
Primary Master UDMA	: Auto	SB DMA Select	: DMA 1
Primary Slave UDMA	: Auto	MPU-401	: Enabled
Secondary Master UDMA	: Auto	MPU-401 I/O Address	: 330-333H
Secondary Slave UDMA	: Auto	FM Port (388-38BH)	: Enabled
Init AGP Display First	: AGP	Game Port (200-270H)	: Enabled
Onboard FDD Controller	: Enabled	Parallel Port Mode	: Normal
Onboard Serial Port 1	: 3F8/IRQ4	F1 : Help	PU/PD/+/- : Modify
Onboard Serial Port 2	: 2F8/IRQ3	F5 : Old Values	(Shift) F2 : Color
UART 2 Mode	: Standard	F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

OnChip IDE Channel0/1

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately.

IDE Prefetch Mode

This field allows your hard disk controller to use prefetch mode to transfer data to increase the performance.

IDE HDD Block Mode

This field allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive.

Primary/Secondary Master/Slave PIO

These fields allow your system hard disk controller to work faster. Rather than have the BIOS issue a series of commands that transfer to or from the disk drive, PIO (Programmed Input/Output) allows the BIOS to communicate with the controller and CPU directly.

The system supports five modes, numbered from 0 (default) to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode.

Primary/Secondary Master/Slave UDMA

These fields allow your system to improve disk I/O throughput to 33Mb/sec with the Ultra DMA/33 feature. The options are *Auto* and *Disabled*.

Init AGP Display First

This field allows the system to initialize first the VGA card in the AGP slot on the motherboard when system is turned on.

Onboard FDD Controller

Select *Enabled* if your system has a floppy disk controller (FDC) installed on the motherboard and you wish to use it. If you install an add-in FDC or the system has no floppy drive, select *Disabled* in this field. This option allows you to select the onboard FDD port.

Onboard Serial/Parallel Port

These fields allow you to select the onboard serial and parallel ports and their addresses. The default values for these ports are:

Serial Port 1	3F8/IRQ4
Serial Port 2	2F8/IRQ3
Parallel Port	378H/IRQ7

UART 2 Mode

This field determines the UART 2 mode in your computer. The default value is *Standard*.

Parallel Port Mode

This field allows you to determine parallel port mode function.

SPP	Normal Printer Port
EPP	Enhanced Parallel Port
ECP	Extended Capabilities Port

Onboard Legacy Audio

When this field is enabled, other options of the on board audio in this setup can be configured. These options included Sound Blaster, SB I/O Base Address, SB IRQ Select, SB DMA Select, MPU-401, MPU-401 I/O Address, FM Port (388-38BH) and Game Port.

6.12 Supervisor / User Password

These two options set the system password. Supervisor Password sets a password that will be used to protect the system and Setup utility. User Password sets a password that will be used exclusively on the system. To specify a password, highlight the type you want and press <Enter>. The Enter Password: message prompts on the screen. Type the password, up to eight characters in length, and press <Enter>. The system confirms your password by asking you to type it again. After setting a password, the screen automatically returns to the main screen.

To disable a password, just press the <Enter> key when you are prompted to enter the password. A message will confirm the password to be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

ROM PCI/ISA BIOS CMOS SETUP UTILITY AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP BIOS FEATURES SETUP CHIPSET FEATURES SETUP POWER MANAGE... PNP/PCI CONF... LOAD BIOS DEF... LOAD SETUP D...	CPU FEATURES SETUP INTEGRATED PERIPHERALS SUPERVISOR PASSWORD
Enter Password:	
ESC : Quit F10 : Save & Exit Setup	↑ ↓ → ← : Select Item (Shift) F2 : Change Color
Change / Set / Disable Password	

6.13 IDE HDD Auto Detection

This option detects the parameters of an IDE hard disk drive, and automatically enters them into the Standard CMOS Setup screen.

ROM PCI/ISA BIOS
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master:								
Select Primary Master Option (N=SKIP) : N								
OPTIONS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
1 (Y)	0	0	0	0	0	0	0	NORMAL
NOTE: Some OSes (like SCO-UNIX) must use "NORMAL" for installation								
ESC: SKIP								

Up to four IDE drives can be detected, with parameters for each appearing in sequence inside a box. To accept the displayed entries, press the “Y” key; to skip to the next drive, press the “N” key. If you accept the values, the parameters will appear listed beside the drive letter on the screen.

6.14 Save & Exit Setup

This option allows you to determine whether or not to accept the modifications. If you type “Y”, you will quit the setup utility and save all changes into the CMOS memory. If you type “N”, you will return to Setup utility.

ROM PCI/ISA BIOS
 CMOS SETUP UTILITY
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	CPU FEATURES SETUP
BIOS FEATURES SETUP	INTEGRATED PERIPHERALS
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGE	LOAD BIOS DEF
PNP/PCI CONF	LOAD SETUP DEF
LOAD BIOS DEF	LOAD SETUP DEF
LOAD SETUP DEF	EXIT WITHOUT SAVING
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Save Data to CMOS & Exit Setup	

Save to CMOS and Exit(Y/N)? N

6.15 Exit Without Saving

Select this option to exit the Setup utility without saving the changes you have made in this session. Typing “Y” will quit the Setup utility without saving the modifications. Typing “N” will return you to Setup utility.

ROM PCI/ISA BIOS
 CMOS SETUP UTILITY
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	CPU FEATURES SETUP
BIOS FEATURES SETUP	INTEGRATED PERIPHERALS
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGE	LOAD BIOS DEF
PNP/PCI CONF	LOAD SETUP DEF
LOAD BIOS DEF	LOAD SETUP DEF
LOAD SETUP DEF	EXIT WITHOUT SAVING
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Abandon all Data & Exit Setup	

Quit Without Saving (Y/N)? N

Chapter 7 VIA Drivers Installation Guide

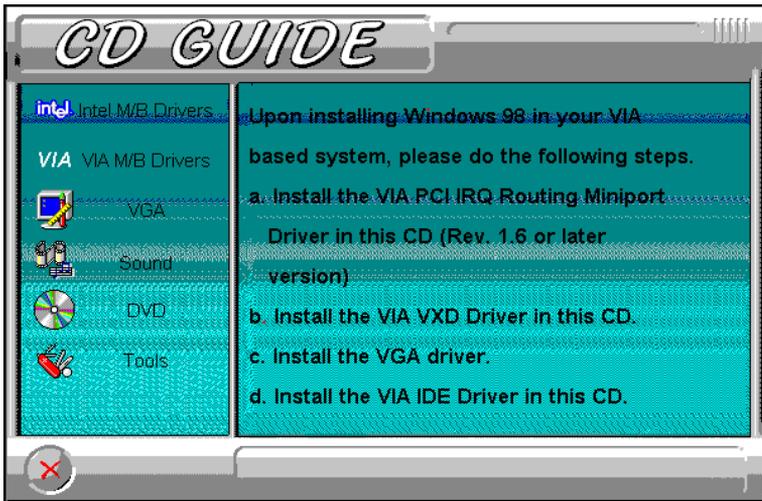
This chapter describes the installation procedure for the drivers from VIA including IDE bus master, AGP VXD, PCI IRQ Routing Miniport, VIA Chipset Function Registry, audio and VGA functions.

NOTE: *If you are using Windows 95, please install USB supplement to OSR2 from the original Windows 95 CD or download it from Microsoft's web site after you have installed Windows 95 (even before you have started to install the drivers mentioned in this chapter.)*

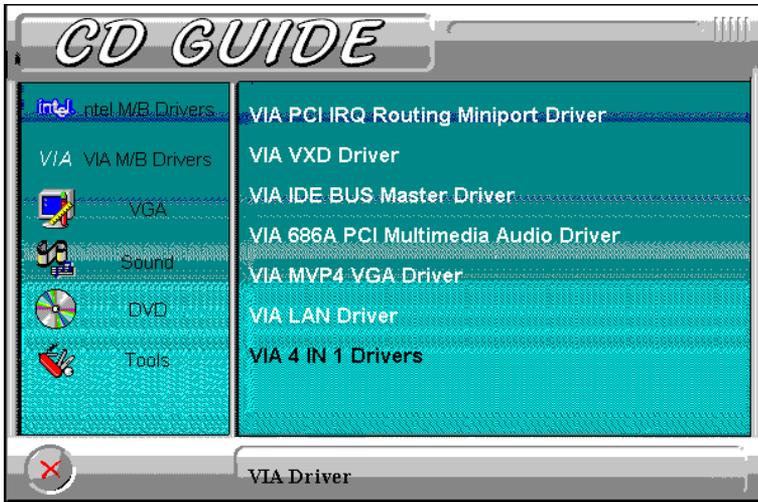
Please follow the steps in the following sections.

7.1 4-in-1 Drivers Installation

1. Insert driver CD disc to CD-ROM. The CD-ROM autoruns and display the window below. Click **VIA M/B drivers**.



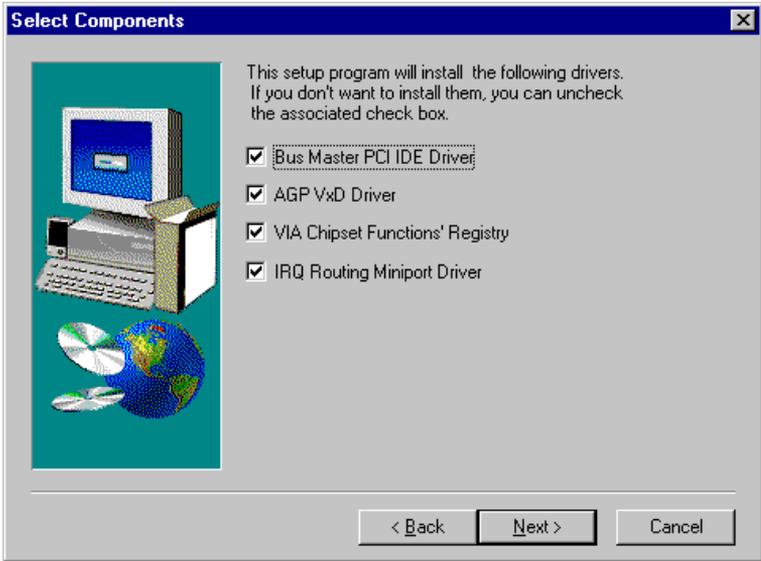
2. Click **VIA 4 in 1 drivers**.



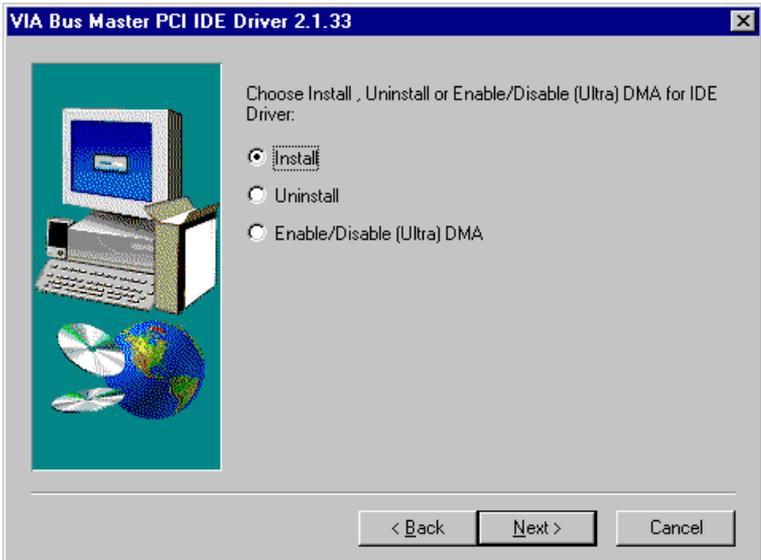
3. Click **Next**.



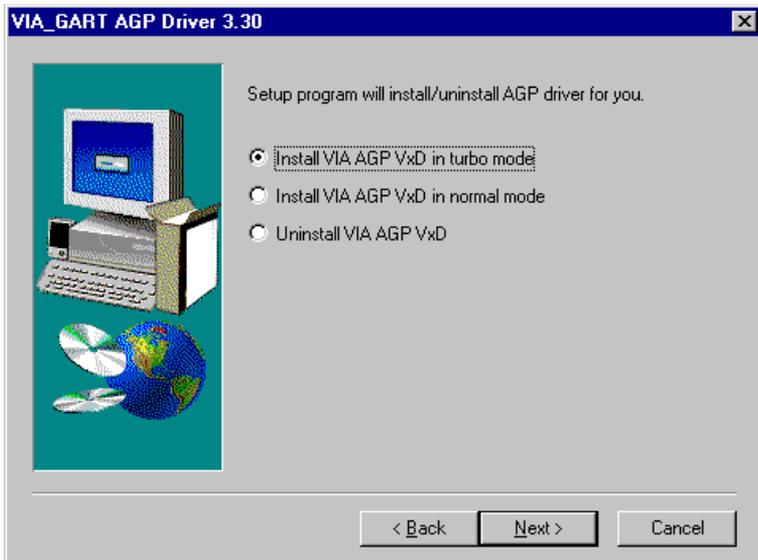
- In Windows 98 system, we recommend you install 4 drivers. In Windows 95 system, we recommend you de-select IRQ Routing Miniport driver. Click **Next**.



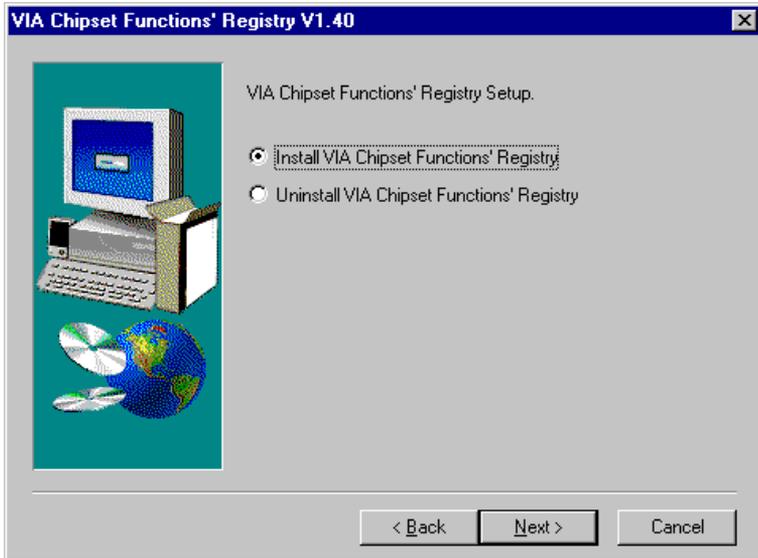
- Click **Next**.



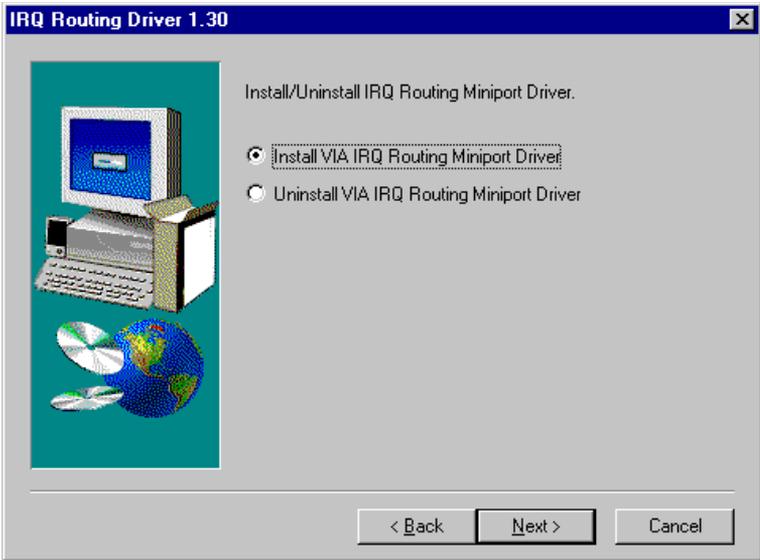
6. Click **Next**.



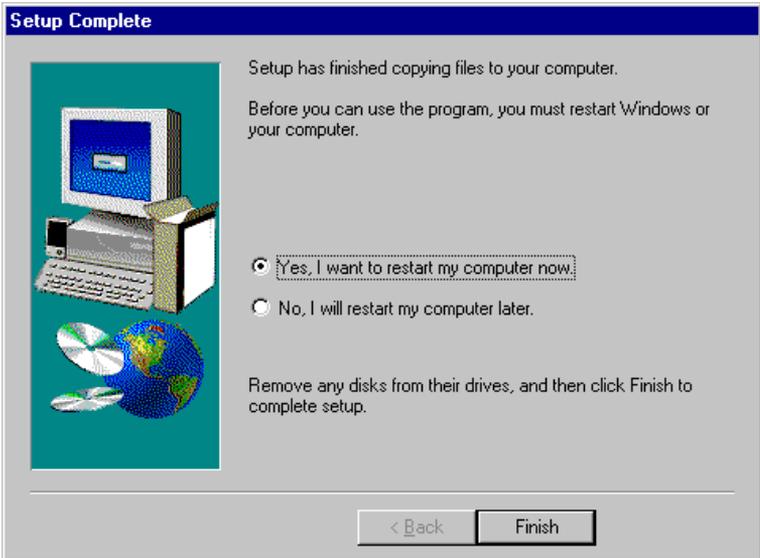
7. Click **Next**.



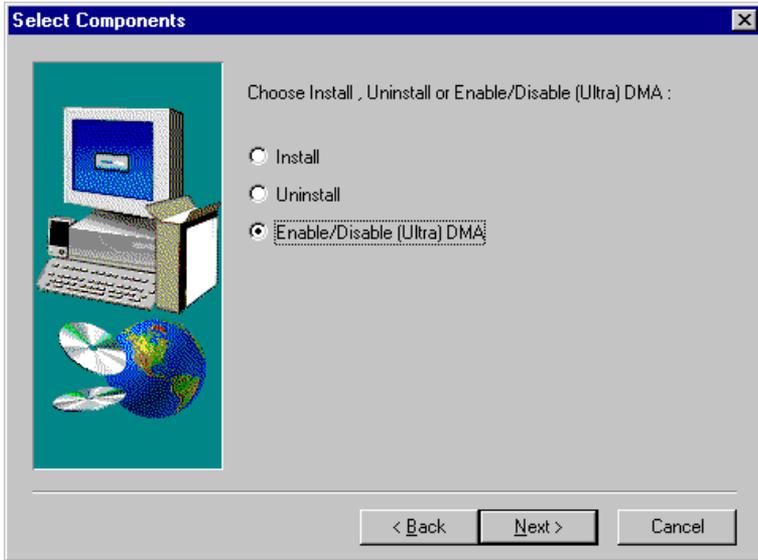
8. If you have install IRQ Routing Miniport driver. Click **Next**.



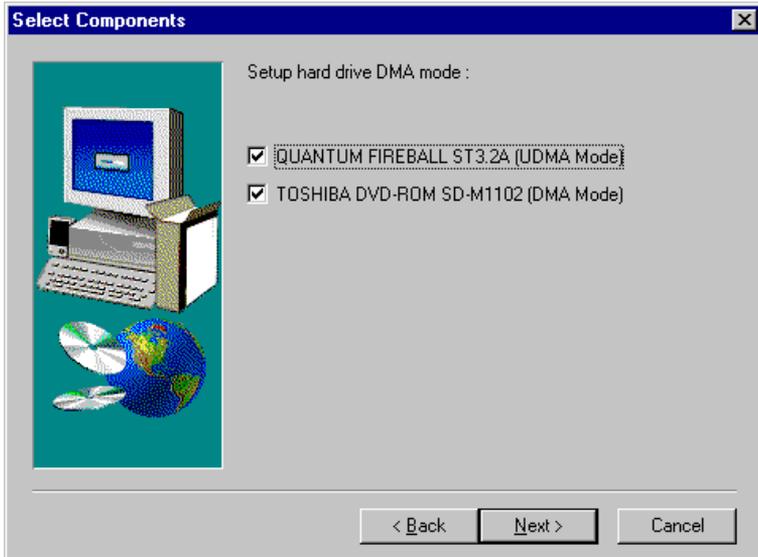
9. Click **Finish** to restart your computer.



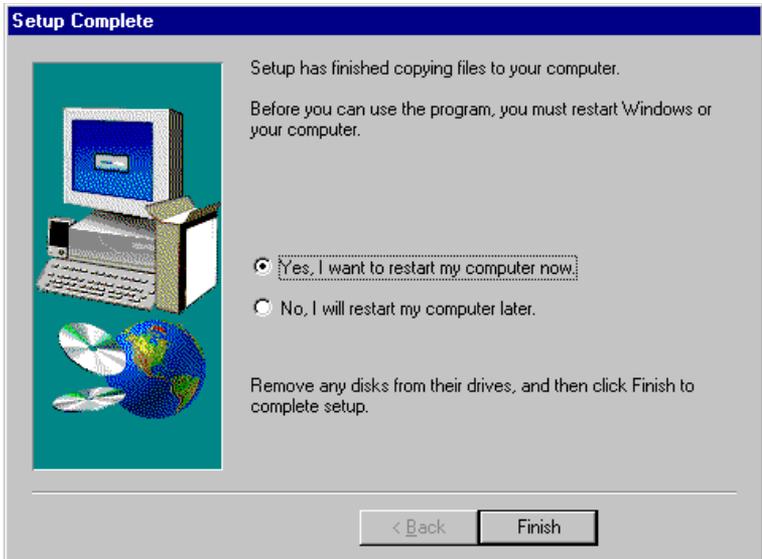
10. To enable/disable HDD or CD-ROM/DVD-ROM DMA mode, when Windows reboot, execute VIA 4 IN 1 Drivers setup program again. When the **select components** window appears, select **Enable/Disable (Ultra) DMA**, then click **Next**.



11. Select or deselect devices, then click **Next**.



12. Click **Finish** to restart your computer.



7.2 Audio Drivers Installation

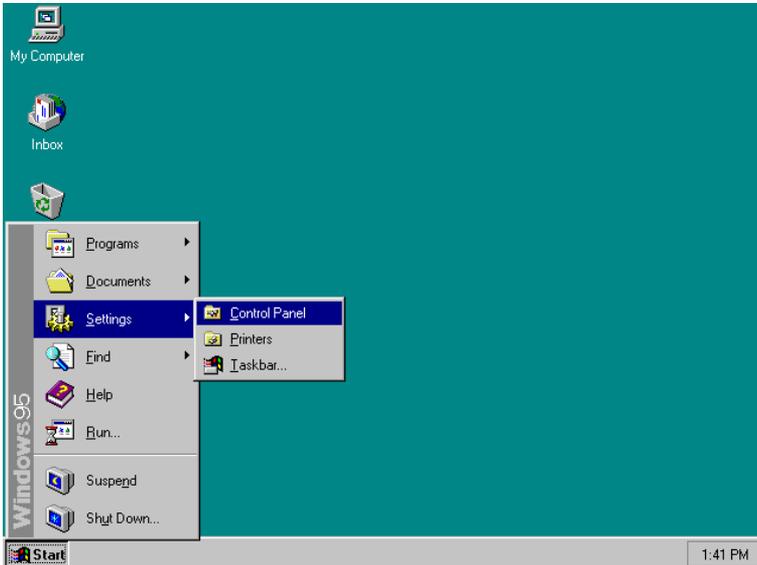
Audio Driver Installation for Windows 95

Before the installation, you have to copy the whole directory containing the VIA 686A PCI multimedia audio driver into your hard disk.

You may do this by doing the following steps.

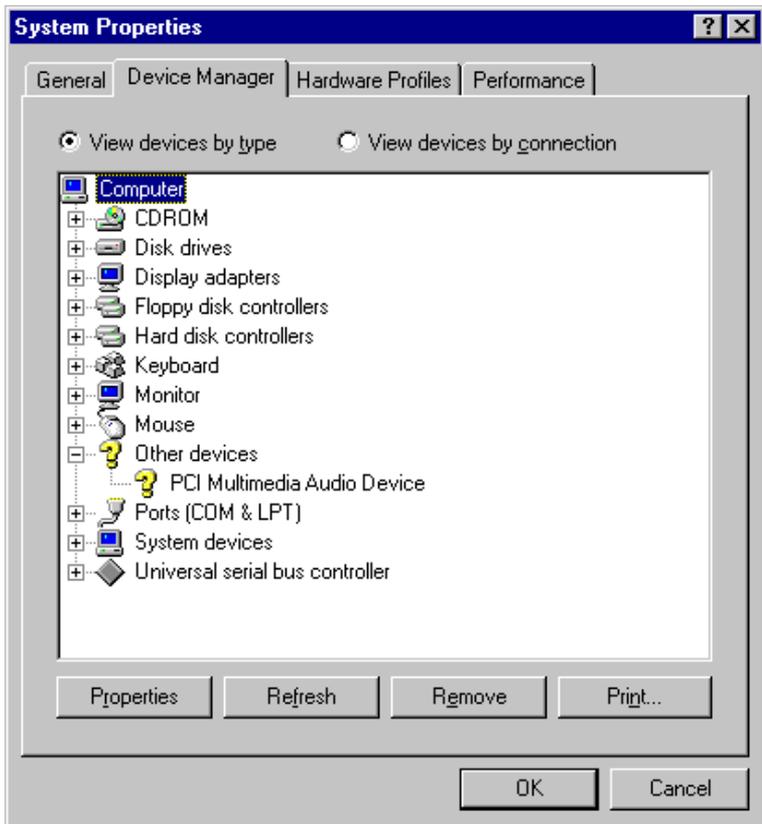
- a. Click **Start** -> **Programs** -> **Windows Explorer**.
- b. Double click the **CD-ROM** drive.
- c. Double click the **VIA** folder
- d. Drag the **Via686A** folder with the right mouse button to your **C:** drive on the left side of the screen.
Release the right mouse button and select **COPY HERE**.

1. Click **Start** -> **Settings** -> **Control Panel**.



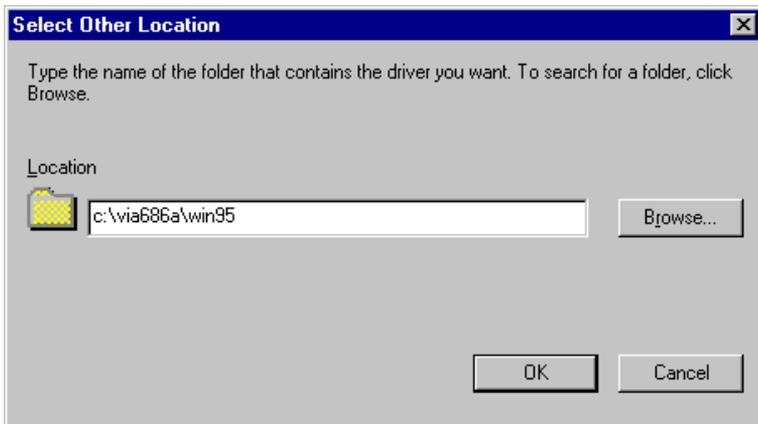
2. Double click **System**.
3. Click **Device Manager**.
4. Expand **Other Devices**.

5. Double click **PCI Multimedia Audio Device**.



6. Click **Driver**.
7. Click **Update Driver**.
8. Click **Next**.
9. Click **Other Locations**.

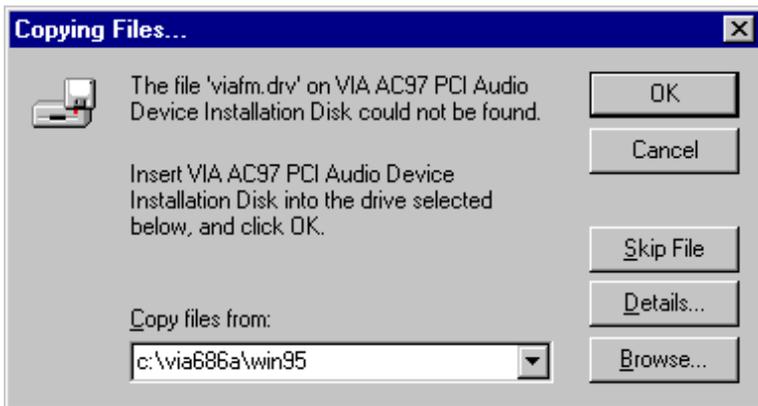
10. Type **C:\VIA686A\Win95**, then press **ENTER**.



11. Click **Finish**.

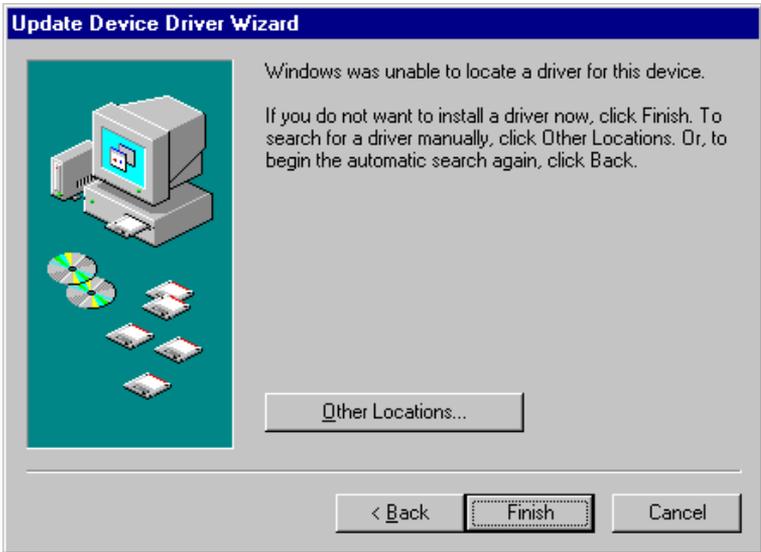
12. Click **OK**.

13. Type **C:\VIA686A\Win95**, then press **ENTER**.



16. When the **Unknown Device** window appears, click **Next**.

17. Click **Other Locations**.



18. Type **C:\VIA686A\Win95**, then press **ENTER**.



19. Click **Finish** to install the VIA Gameport Joystick driver.

20. Put the Windows 95 CD disc into the CD-ROM drive, then click **OK**.

21. Type the correct path name for Windows 95, then press **ENTER**.

22. Click **Close**.

23. Restart Windows 95 for the changes to take effect.

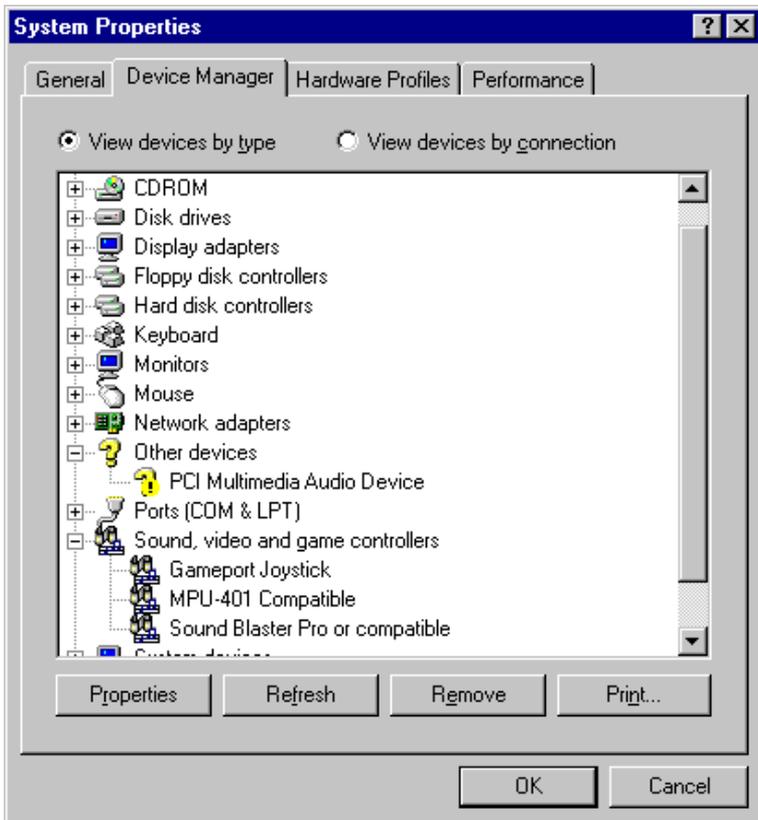
Audio Driver Installation for Windows 98

Before the installation, you have to copy the whole directory containing the VIA 686A PCI multimedia audio driver into your hard disk.

You may do this by doing the following steps.

- a. Click **Start** -> **Programs** -> **Windows Explorer**.
- b. Double click the **CD-ROM** drive.
- c. Double click the **VIA** folder
- d. Drag the **Via686A** folder with the right mouse button to your **C:** drive on the left side of the screen. Release the right mouse button and select **COPY HERE**.

1. Click **Start** -> **Settings** -> **Control Panel**.
2. Double click **System**.
3. Click **Device Manager**.
4. Expand **Sound, Video and Game Controllers**.



5. Remove **Gameport Joystick, MPU-401 Compatible, Sound Blaster Pro or compatible** devices.
6. Double click **PCI Multimedia Audio Device**.
7. Click **Driver**.
8. Click **Update Driver**.
9. Click **Next**.
10. Click **Specify a location**, then type **C:\via686a\win98**. Now press **ENTER**.
11. Click **Next**.
12. Click **Next**.
13. Put the Windows 98 CD disc into the CD-ROM drive, then click **OK**.



14. When the files have been copied, click **Finish**, then click **Close**.



18. Restart Windows 98 for the changes to take effect.

Audio Driver Installation for Windows NT 4.0

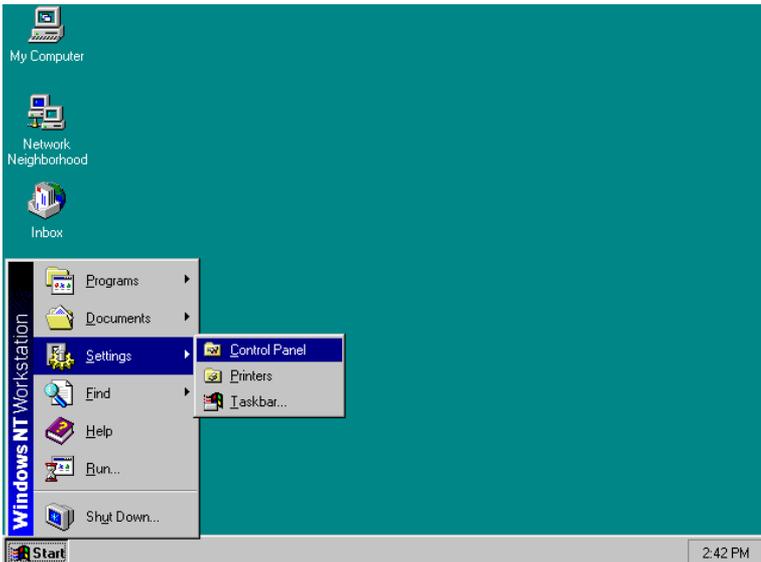
IMPORTANT: You should install the Windows NT 4.0 Service Pack 3 or higher first before installing the VIA 686A PCI multimedia audio device drivers. If you don't have Windows NT 4.0 Service Pack 3 or higher, please contact your software vendor or download it from Microsoft's web site.

Before the installation, you have to copy the whole directory containing the VIA 686A PCI multimedia audio driver into your hard disk.

You may do this by doing the following steps.

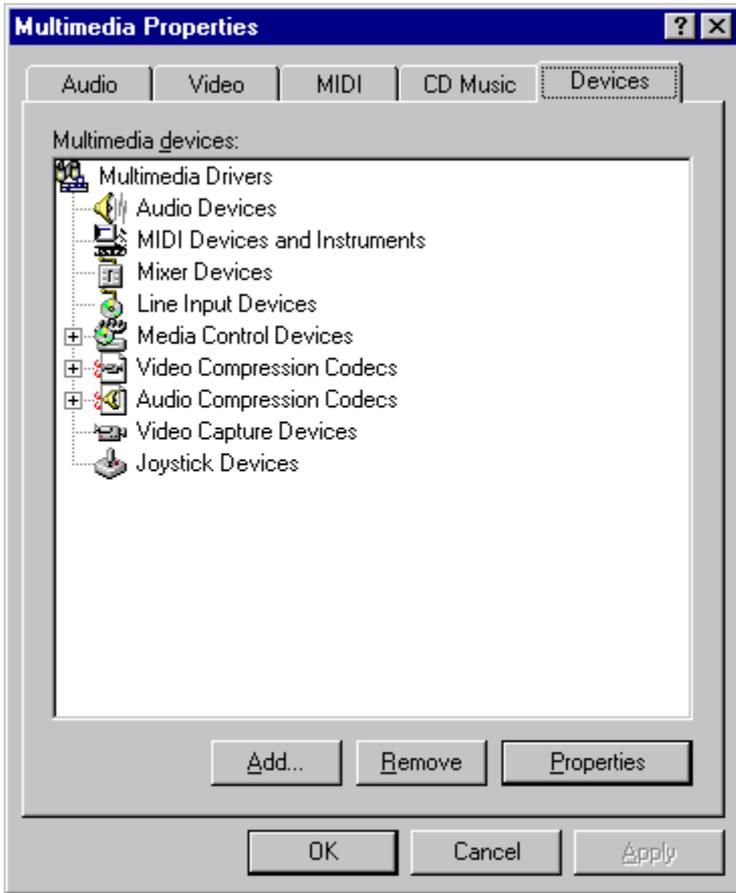
- a. Click **Start** -> **Programs** -> **Windows Explorer**.
- b. Double click the **CD-ROM** drive.
- c. Double click the **VIA** folder
- d. Drag the **Via686A** folder with the right mouse button to your **C:** drive on the left side of the screen. Release the right mouse button and select **COPY HERE**.

1. Click **Start** -> **Settings** -> **Control Panel**.

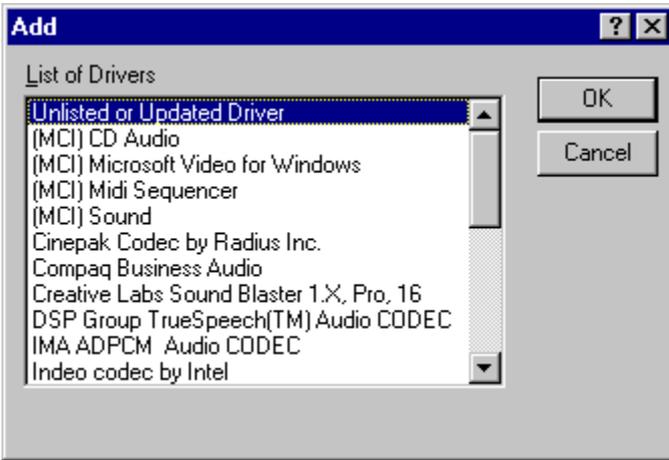


2. Double click **Multimedia**.
3. Click **Devices**.

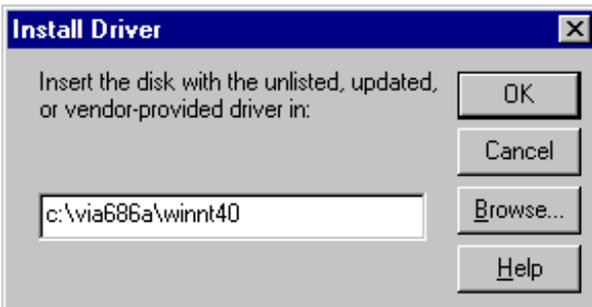
4. Click **Add**.



5. Select **Unlisted or Update Driver**, then click **OK**.



6. Type **c:\via686a\winnt40**, then click **OK**.



7. Click **OK**.

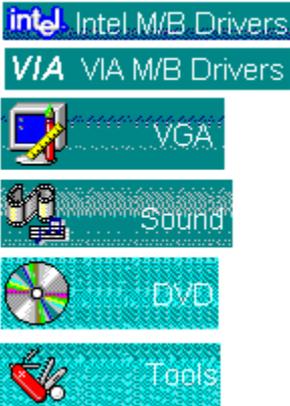


8. Click **Restart Now** to restart Windows NT and for changes to take effect.

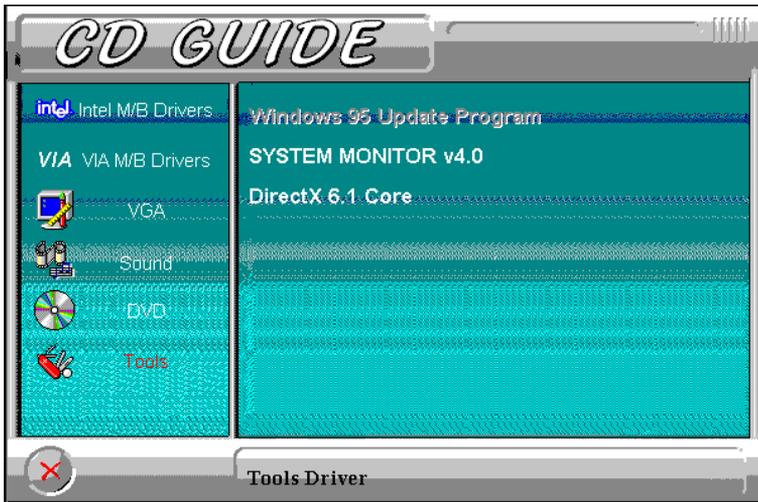
7.3 DirectX Driver Installation

NOTE: The *DirectX Driver Installation* section is used under Windows 95/98. To install the driver, follow the steps below.

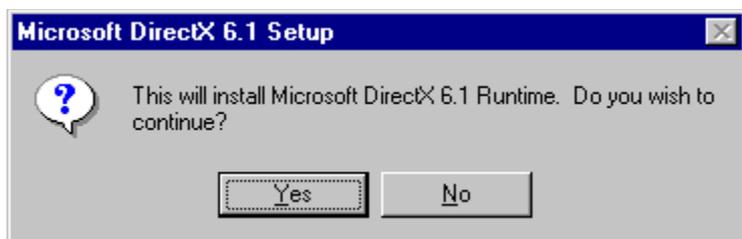
1. Insert the CD disc that is supplied with the motherboard. The CD disc autoruns and displays the following icons on the left side of the screen.



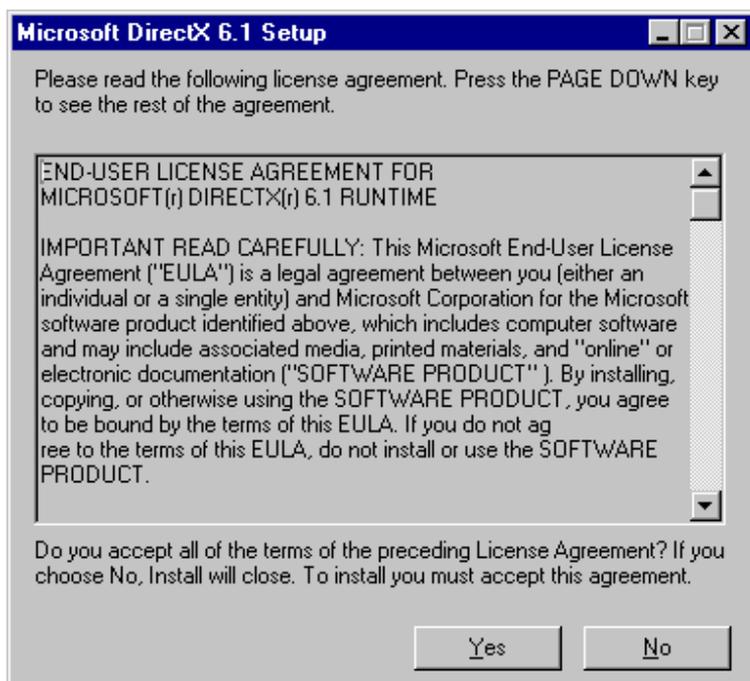
2. Click the **Tools** icon.
3. Click **DirectX 6.1 core**.



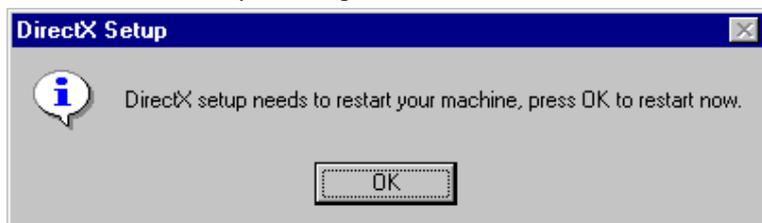
3. Click **Yes**.



4. Click **Yes**.



5. Click **OK** to restart your computer.



Appendix

A. Additions & Errata

The manufacturer sees to it that the most up-to-date and accurate information are contained in this manual. This section would contain page insert(s) of additional information, updates or corrections that the user should know to ensure that proper configuration and setup of the motherboard is made.