Contents

Introduction 1

The MS-6309 ATX mainboard is a high-performance computer mainboard based on VIA® VT82C694X chipset. The MS-6309 is designed for the Intel® Celeron™ or Coppermine(FC-PGA) processor for inexpensive business/personal desktop markets.

The Apollo Pro133A (VT82C694X) is a Socket-370 system logic north bridge with the addition of 133 MHz capability for both the CPU and SDRAM interfaces. Apollo Pro133A may be used to implement both desktop and notebook personal computer systems from 66MHz to 133MHz based on Socket-370. The primary features of the Apollo Pro133A-North Bridge are: Socket-370 CPU (Front Side Bus) Interface (66 / 100 / 133MHz), DRAM Memory Interface (66 / 100 / 133MHz), AGP Bus Interface (66MHz), PCI Bus Interface (33MHz), Mobile Power Management.

The VT82C686B PSIPC (PCI Super-I/O Integrated Peripheral Controller) is a high integration, high performance, power-efficient, and high compatibility device that supports Intel and non-Intel based processor to PCI bus bridge functionality to make a complete Microsoft PC99-compliant PCI/ISA system.

This chapter includes the following topics:

Mainboard Specification

CPU

- Support Socket 370 for Intel® Pentium® III (FC-PGA)/Celeron™ (FC-PGA) processor.
- Support 500MHZ, 553MHz, 600MHz,...1.1GHz.

Chipset

- VIA® 694X chipset. (510 BGA)
  - Support 66/100/133MHz FSB
  - AGP 4x/2x and PCI plus Advanced ECC Memory Controller
  - Support PC100/133 SDRAM, VCM technology
- VIA® VT82C686B chipset. (352 BGA)
  - Advanced Power Management Features
  - Integrated Super I/O (FDC, LPT, COM 1/2, and IR)
  - DirectSound AC97 Audio
  - Dual bus Master IDE Ultra DMA33/66/100
  - ACPI

Clock Generator

- 66.6MHz, 100MHz and133MHz clocks are supported.

Main Memory

- Support six memory banks using three 168-pin unbuffered DIMM.
- Support a maximum memory size of 1.5GB (32M x 8).
- Support ECC (1-bit Error Code Correct) function.
- Support 3.3v SDRAM DIMM.

Slots

- One AGP (Accelerated Graphics Port) slot.
  - AGP specification compliant
  - AGP 66MHz 3.3v/1.5v for 2x/4x device support
- One AMR (Audio Modem Riser) slot.
- Five 32-bit Master PCI Bus slots and one 16-bit ISA bus slots.
- Supports 3.3v/5v PCI bus Interface.

On-Board IDE

- An IDE controller on the VIA® VT82C686B Chipset provides IDE HDD/

CD-ROM with PIO, Bus Master and Ultra DMA 33/66/100 operation modes.

- Can connect up to four IDE devices.

On-Board Peripherals

- On-Board Peripherals include:
  - 1 floppy port supports 2 FDD with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes.
  - 2 serial ports (COMA + COMB)
  - 1 parallel port supports SPP/EPP/ECP mode
  - 4 USB ports
  - 1 IrDA/HP connector for SIR.

Audio

- Chip Integrated (Software Audio)
  -AC'97 Compliant
- Creative CT5880 Hardware Audio (optional)
  - If Creative CT5880 Hardware audio is onboard. Then, only 4 PCI slot will be master slot. The remaining 1 slot (PCI Slot 5) will be slave slot.

BIOS

- The mainboard BIOS provides "Plug & Play" BIOS which detects the peripheral devices and expansion cards of the board automatically.
- The mainboard provides a Desktop Management Interface(DMI) function which records your mainboard specifications.

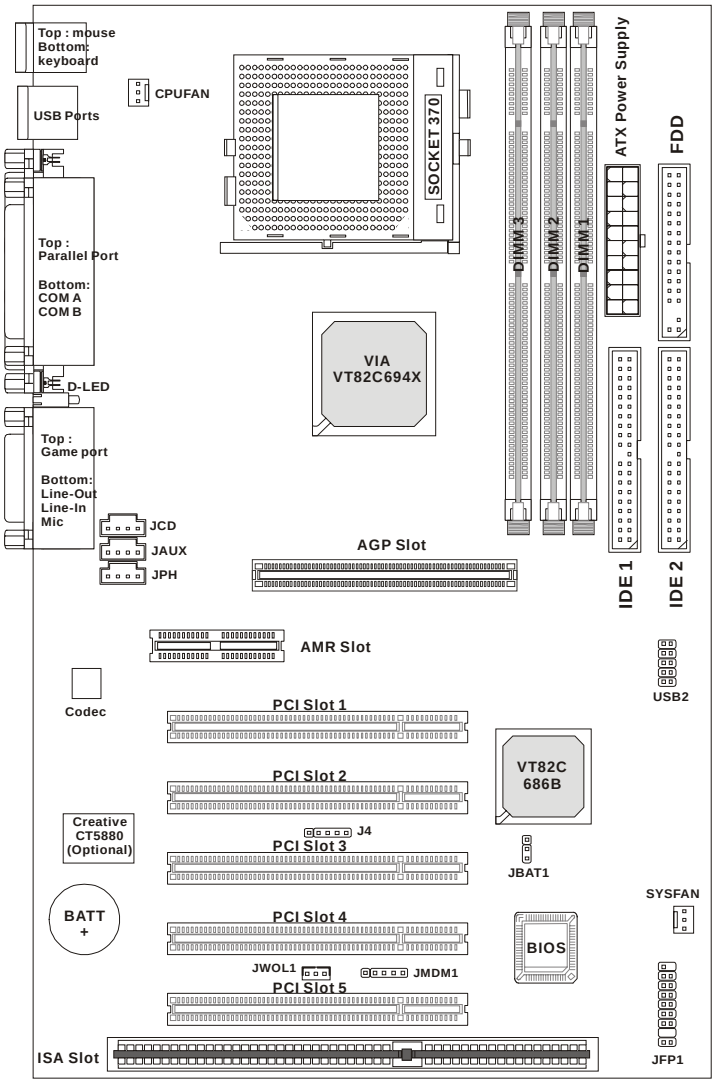
Dimension

- ATX Form Factor : 30.5cm (L) x 19.2cm (W) x 4 layers PCB

Mounting

- 6 mounting holes.

Mainboard Layout



MS-6309 ATX Mainboard

Quick Components Guide

Component	Function	Reference
DIMM1~3	Installing SDRAM modules	See p. 2-4~2-5
Socket 370	Installing CPU	See p. 2-2
CPUFAN	Connecting to CPUFAN	See p. 2-18
SYSFAN	Connecting to SYSTEM FAN	See p. 2-18
ATX Power Supply	Installing power supply	See p. 2-6
IDE1& IDE2	Connecting to IDE hard disk drive	See p.2-12
FDD1	Connecting to floppy disk drive	See p.2-11
USB2	Connecting to USB interface	See p. 2-19
PCI Slot 1~5	Installing PCI expansion cards	See p. 2-21
AGP Slot	Installing AGP card	See p. 2-21
AMR Slot	Installing AMR riser card	See p. 2-21
ISA Slot	Installing ISA expansion card	See p. 2-22
JMDM1	Connecting to modem module	See p. 2-15
JWOL1	Connecting to LAN card	See p. 2-15
JBAT1	Clearing CMOS data	See p. 2-20
JFP1	Connecting to case	See p. 2-13
J4	Connecting to IR module	See p. 2-16

Key Features

- ATX Form Factor
- CPU: Socket 370 for Intel® Pentium® III (FC-PGA)/Celeron™ (FC-PGA) Processors
- Memory: 3 PC100/PC133 SDRAM DIMMs
- Vi/o & Vcore Adjustable
- Slot: 1 AGP slot, 1 AMR slot, 5 PCI slots, 1 ISA slot
- I/O: 2 serial ports, 1 parallel port, 4 USB ports, 1 floppy port, 1 IrDA connector, 1 Audio/Game port
- Audio: Chip integrated
- LAN Wake up Function
- Modem (Internal) Ring Wake up Function
- D-LED™ -- 4 LEDs embedded in the mainboard
- T.O.P. Tech™ -- Thermal Overheat Protection Technology
- PC Alert™ III system hardware monitor
- Fuzzy Logic™ III overclocking utility

MSI Special Features

T.O.P Tech™

The T.O.P Tech™ is a extended sensing device that can 100% accurately detect the CPU's temeprature. You can find out the temperature on BIOS setup menu. The PC Alert™ also provides the information.

CPU temperaure on Setup menu

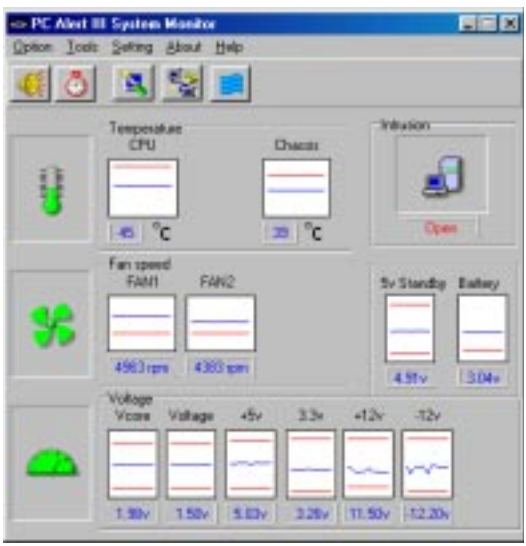
```
        AMIBIOS SETUP - Hardware Monitor Setup
   (C) 1999 American Megatrends, Inc. All Rights Reserved

ClkGen Spread Spectrum          :Enabled
CPU Host/PCI Clock (MHz)        :Auto
CPU Ratio Selection             :3.0X
CPU Vcore Selection             :Auto
       -= System Monitor =-
Current CPU Temperature         :45ºC/113ºF
Current System Temperature      :32ºC/89ºF
Current CPU Fan Speed           :5200 RPM
Current Chassis Fan Speed       :0 RPM
       Vcore                    :2.112V
       +2.500V                  :2.575V
       +3.300V                  :3.373V
       +5.000V                  :4.946V
       +12.000V                 :11.986V

                                ESC:Exit        ↑↓→←:Select Item
                                F1 :Help        PU/PD/+/-:Modify
                                F5 :Old Values  (Shift)F2:Color
                                F6 :Load BIOS Defaults
                                F7 :Load Setup Defauls
```

PC Alert™ III

The PC Alert™ III is an utility you can find in the CD-ROM disk. The utility is just like your PC doctor that can detect the following PC hardware status during real time operation:

* monitor CPU & system temperatures
* monitor fan speed(s)
* monitor system voltage
* monitor chassis intrusion

If one of the items above is abnormal, the program main screen will be immediately shown on the screen, with the abnormal item highlighted in red. This will continue to be shown,until user disables the warning.



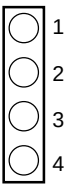
Note: *Items shown on PC Alert III vary depending on your system's status.*

Features:

- Network Management
  - Monitoring & remote control
- Basic System Utilities
  - Scandisk & Defragment to maintain your HDD
- 3D Graphics Design
  - Enables a more friendly user interface
- Sofware Utilities
  - SoftCooler Optimized Cooling

D-LED™

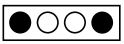
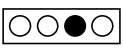
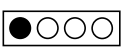
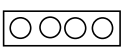
The D-LED™ uses graphic signal display to help users understand their system. Four LEDs embedded in the mainboard provide up to 16 combinations of signals to debug the system. The 4 LEDs can debug all problems that fail the system, such as VGA, RAM or other failures. This special feature is very useful for the overclocking users. These users can use the feature to detect if there are any problems or failures.



Diagnostic LED

● **Red** ○ **Green**

D-LED	Description
1 2 3 4 ●●●●	System Power ON - The D-LED will hang here if the processor is damaged or not installed properly.
○●●●	Early Chipset Initialization
●○●●	Memory Detection Test - Testing onboard memory size. The D-LED will hang if the memory module is damaged or not installed properly.
○○●●	Decompressing BIOS image to RAM for fast booting.
●●○●	Initializing Keyboard Controller.
○●○●	Testing VGA BIOS - This will start writing VGA sign-on message to the screen.

	Processor Initialization - This will show information regarding the processor (like brand name, system bus, etc…)
	Testing RTC (Real Time Clock)
	Initializing Video Interface - This will start detecting CPU clock, checking type of video onboard. Then, detect and initialize the video adapter.
	BIOS Sign On - This will start showing information about logo, processor brand name, etc….
	Testing Base and Extended Memory - Testing base memory from 240K to 640K and extended memory above 1MB using various patterns.
	Assign Resources to all ISA.
	Initializing Hard Drive Controller - This will initialize IDE drive and controller.
	Initializing Floppy Drive Controller - This will initializing Floppy Drive and controller.
	Boot Attempt - This will set low stack and boot via INT 19h.
	Operating System Booting

Fuzzy Logic™ III

The Fuzzy Logic™ III utility allows users to overclock the CPU FSB (Front Side Bus) frequency in the Windows environment. Select the CPU frequency you prefer and click "Go" to apply the frequency or click "Save" allowing the system to run at the specified frequency each time when the system is powered on.

Features:

- Display Current System Status
  - CPU Fan
  - CPU Temp.
  - Vcore
  - Vio
  - Memory Clock
  - CPU Clock
  - AGP Clock
  - PCI Clock
- Adjust CPU FSB Frequency

2 Hardware Setup

This chapter provides you with the information about hardware setup procedures. While doing the installation, be careful in holding the components and follow the installation procedures. For some components, if you install in the wrong orientation, the components will not work properly.

Use a grounded wrist strap before handling computer components. Static electricity may damage the components.

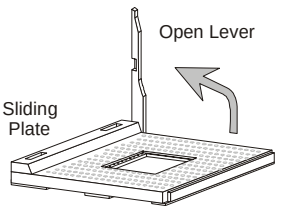
This chapter contains the following topics:

Central Processing Unit: CPU

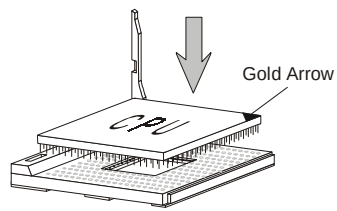
The mainboard supports Intel® Celeron™/Pentium III (FC-PGA) processor. The mainboard uses a CPU socket called Socket 370 for easy CPU installation. Make sure the CPU has a Heat Sink and a cooling fan attached on top to prevent overheating. If you do not find the Heat Sink and cooling fan, contact your dealer to purchase and install them before turning on the computer.

CPU Installation Procedures

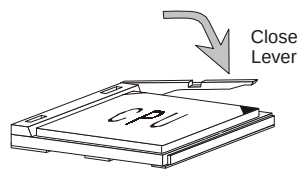
1. Pull the lever sideways away from the socket. Then, raise the lever up to a 90-degree angle.



2. Look for the gold arrow. The gold arrow should point towards the end of lever. The CPU will only fit in the correct orientation.



3. Hold the CPU down firmly, and then close the lever to complete the installation.



WARNING!

Overheating will seriously damage the CPU and system, always make sure the cooling fan can work properly to protect the CPU from overheating.

CPU Core Speed Derivation Procedure

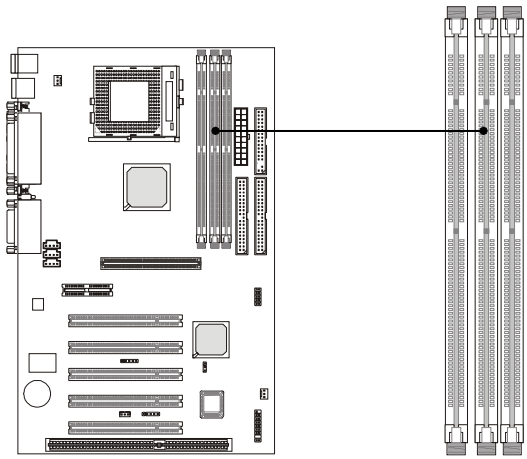
If	CPU Clock	=	100MHz
	Core/Bus ratio	=	7
then	CPU core speed	=	Host Clock x Core/Bus ratio
		=	100MHz x 7
		=	700MHz

Overclocking

This motherboard is designed to support overclocking . However, please make sure your components are able to tolerate such abnormal setting, while doing overclocking. Any attempt to operate beyond product specifications is not recommended. ***We do not guarantee the damages or risks caused by inadequate operation or beyond product specifications.***

Memory Installation

The mainboard provides 3 sockets for 168-pin, 3.3V **unbuffered** SDRAM DIMM with 6 memory banks. To operate properly, at least one DIMM module must be installed. The mainboard supports Table Free memory, so memory can be installed on DIMM1, DIMM 2 or DIMM 3 in any order.



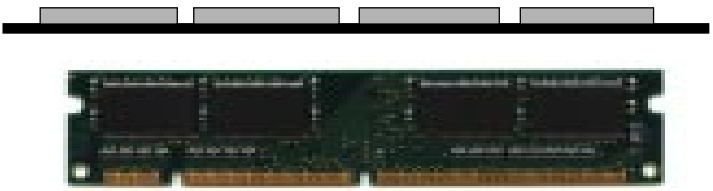
SDRAM DIMM Slots (DIMM 1~3)

The SDRAM Addressing & Size

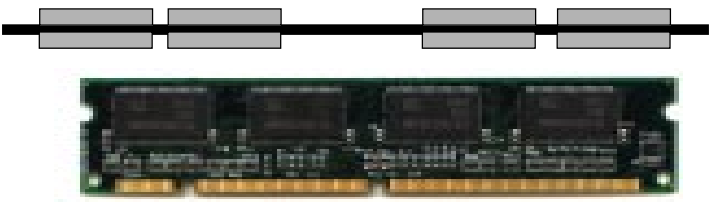
DRAM Tech.	DRAM Density & Width	DRAM Addressing	Address Size		MB/DIMM	
			Row	Column	Single no. Side(S) pcs.	Double no. Side(D) pcs.
16M	1Mx16	ASYM	11	8	8MBx4	16MBx8
	2Mx8	ASYM	11	9	16MBx8	32MBx16
64M	2Mx32	ASYM	11	9	32MBx2	64MBx4
	2Mx32	ASYM	12	8	16MBx2	32MBx4
	4Mx16	ASYM	11	10	32MB	64MB
	4Mx16	ASYM	13	8	32MB	64MB
	8Mx8	ASYM	13	9	64MB	128MB
64M	2Mx32	ASYM	11	8	16MB	32MB
	4Mx16	ASYM	12	8	---	---
	8Mx8	ASYM	12	9	---	---

Module Installation Procedures

You can install single sided or double sided 168-pin DIMMs into DIMM slots according to your needs.



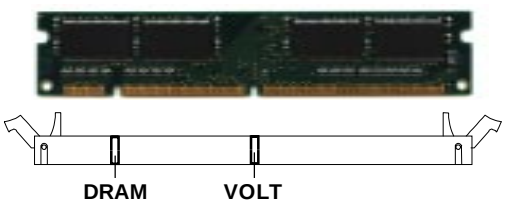
Single Sided DIMM



Double Sided DIMM

1. The DIMM slot has 2 Notch Keys "VOLT and DRAM", so the DIMM memory module can only fit in one direction.

2. Insert the DIMM memory module vertically into the DIMM slot. Then push it in.



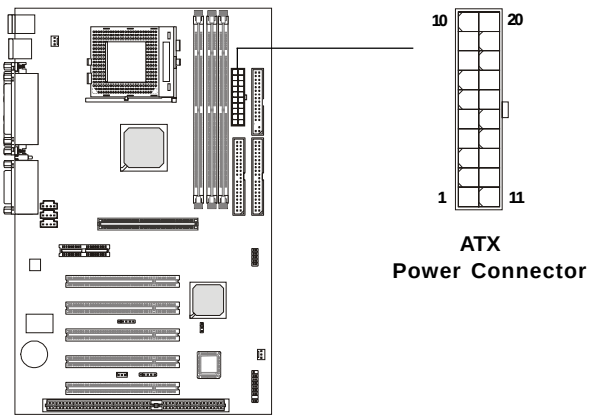
3. The plastic clips at sides of the DIMM slot will automatically close.

Power Supply

The mainboard supports ATX power supply for the power system. Before inserting the power supply connector, always make sure that all components are installed properly to ensure that no damage will be caused.

ATX 20-Pin Power Supply

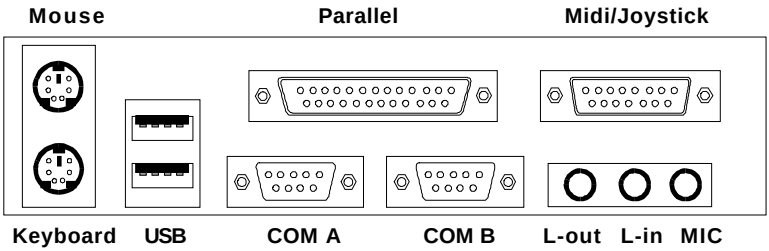
This connector allows you to connect to an ATX power supply. To connect to the ATX power supply, make sure the plug of the power supply is inserted in the proper orientation and the pins are aligned. Then push down the power supply firmly into the connector. The power connector supports **instant power on** function which means that system will boot up immediately when the power supply connector is inserted on the board.



PIN	SIGNAL	PIN	SIGNAL
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	PS_ON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW_OK	18	-5V
9	5V_SB	19	5V
10	12V	20	5V

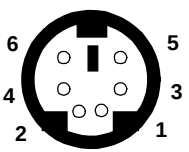
Back Panel

The Back Panel provides the following connectors:



Mouse Connector

The mainboard provides a standard PS/2® mouse mini DIN connector for attaching a PS/2® mouse. You can plug a PS/2® mouse directly into this connector.



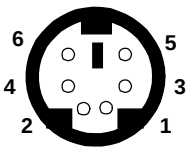
PS/2 Mouse (6-pin Female)

Pin Definition

PIN	SIGNAL	DESCRIPTION
1	Mouse DATA	Mouse DATA
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Mouse Clock	Mouse clock
6	NC	No connection

Keyboard Connector

The mainboard provides a standard PS/2® keyboard mini DIN connector for attaching a PS/2® keyboard. You can plug a PS/2® keyboard directly into this connector.



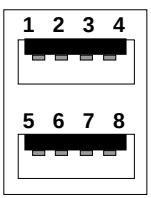
PS/2 Keyboard (6-pin Female)

Pin Definition

PIN	SIGNAL	DESCRIPTION
1	Keyboard DATA	Keyboard DATA
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Keyboard Clock	Keyboard clock
6	NC	No connection

USB Connectors

The mainboard provides a UHCI (Universal Host Controller Interface) Universal Serial Bus root for attaching USB devices such as keyboard, mouse or other USB-compatible devices. You can plug the USB device directly into ths connector.



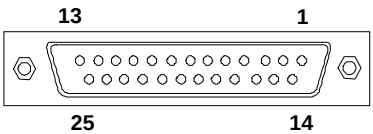
USB Ports

USB Port Description

PIN	SIGNAL	DESCRIPTION
1	VCC	+5V
2	-Data 0	Negative Data Channel 0
3	+Data0	Positive Data Channel 0
4	GND	Ground
5	VCC	+5V
6	-Data 1	Negative Data Channel 1
7	+Data 1	Positive Data Channel 1
8	GND	Ground

Parallel Port Connector

The mainboard provides a 25-pin female centronic connector for LPT. A parallel port is a standard printer port that supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP) mode.

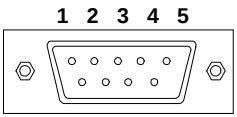


Pin Definition

PIN	SIGNAL	DESCRIPTION
1	STROBE	Strobe
2	DATA0	Data0
3	DATA1	Data1
4	DATA2	Data2
5	DATA3	Data3
6	DATA4	Data4
7	DATA5	Data5
8	DATA6	Data6
9	DATA7	Data7
10	ACK#	Acknowledge
11	BUSY	Busy
12	PE	Paper End
13	SELECT	Select
14	AUTO FEED#	Automatic Feed
15	ERR#	Error
16	INIT#	Initialize Printer
17	SLIN#	Select In
18	GND	Ground
19	GND	Ground
20	GND	Ground
21	GND	Ground
22	GND	Ground
23	GND	Ground
24	GND	Ground
25	GND	Ground1

Serial Port Connector: COM A & COM B

The mainboard has two 9-pin male DIN connectors for serial port COM A and COM B. You can attach a serial mouse or other serial devices.



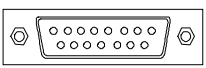
9-Pin Male DIN Connectors

Pin Definition

PIN	SIGNAL	DESCRIPTION
1	DCD	Data Carry Detect
2	SIN	Serial In or Receive Data
3	SOUT	Serial Out or Transmit Data
4	DTR	Data Terminal Ready)
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicate

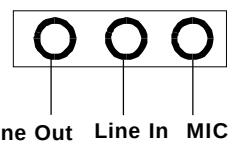
Joystick/Midi Connectors

You can connect a joystick or game pad to this connector.



Audio Port Connectors

Line Out is to connect speakers or headphones. ***Line In*** is a connector for external CD player, Tape player or other audio devices. ***Mic*** is used to connect to a microphone.

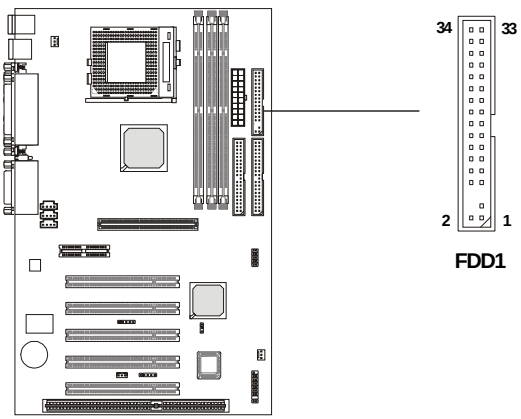


Connectors

The mainboard provides connectors to connect to FDD, IDE HDD, case, modem, LAN, USB Ports, IR module and CPU/System FAN.

Floppy Disk Drive Connector: FDD1

The mainboard provides a standard floppy disk drive connector that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types.

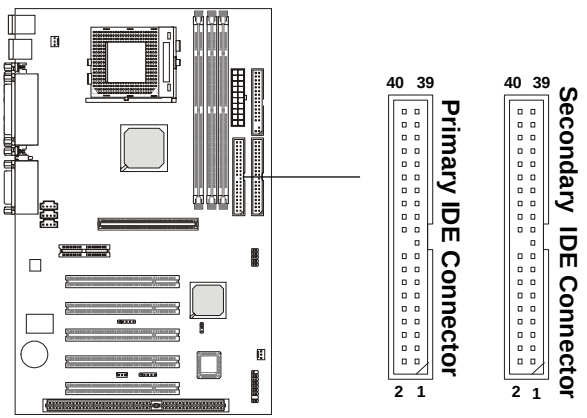


Hard Disk Connectors: IDE1 & IDE2

The mainboard uses an IDE controller on the VIA® VT82C686B chipset that provides PIO mode 0-4, Bus Master, and Ultra DMA 33/66/100 modes. It has two HDD connectors IDE1 (Primary) and IDE2 (Secondary). You can connect up to four hard disk drives, CD-ROM or 120MB Floppy to IDE1 and IDE2.

IDE1 (Primary IDE Connector)
- The first hard disk drive should always be connected to IDE1. You can connect a Master and a Slave drive to IDE1.

IDE2 (Secondary IDE Connector)
- You can connect a Master and a Slave drive to IDE2.

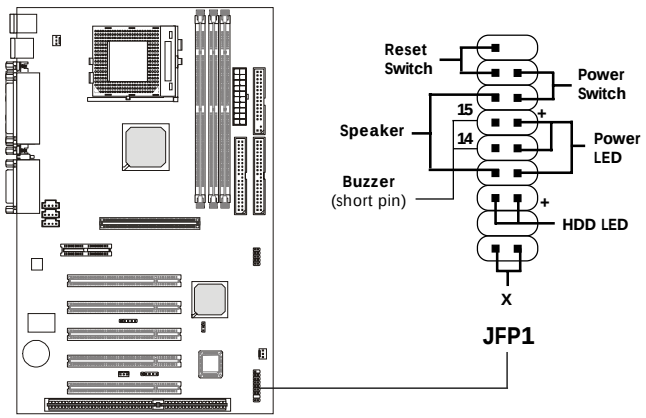


TIP:

If you install two hard disks on cable, you must configure the second drive to Slave mode by setting its jumper. Refer to the hard disk documentation supplied by hard disk vendors for jumper setting instructions.

Case Connector: JFP1

The case connector block JFP1 allows you to connect to the Power Switch, Reset Swtich, Speaker, Power LED, and HDD LED on the case.



Power Switch

Connect to a 2-pin push button switch.

Reset Switch

Reset switch is used to reboot the system rather than turning the power ON/ OFF. Avoid rebooting while the HDD is working. You can connect the Reset switch from the system case to this pin.

Power LED

The Power LED is lit while the system power is on. There are three types of LEDs you can connect from the system case to the pin:

2-pin single color power LED: Connected to pin 5 & 6. When the system enters the suspend/sleep mode, the 2-pin power LED blinks.

2-pin dual color power LED: Connected to pin 5 & 6. The 2-pin

power LED changes its color to indicate different system states:
GREEN color indicates full-on mode.
ORANGE color indicates suspend/sleep mode.

3-pin dual color power LED: Connected to pin 4, 5 & 6. The 3-pin power LED changes its color to indicate different system states:
GREEN color indicates full-on mode.
ORANGE color indicates suspend/sleep mode.

Speaker

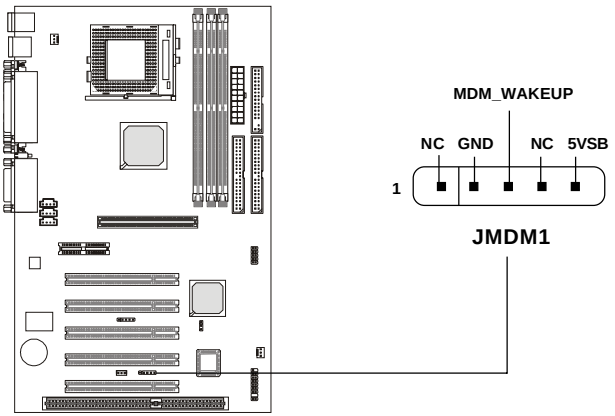
Speaker from the system case is connected to this pin.
If on-board Buzzer is available, then:
Short pin 14-15: On-board Buzzer Enabled.
Open pin 14-15: On-board Buzzer Disabled.

HDD LED

HDD LED shows the activity of a hard disk drive connected to the IDE1 or IDE2 connector. Avoid turning the power off while the HDD is working. You can connect the HDD LED from the system case to this pin.

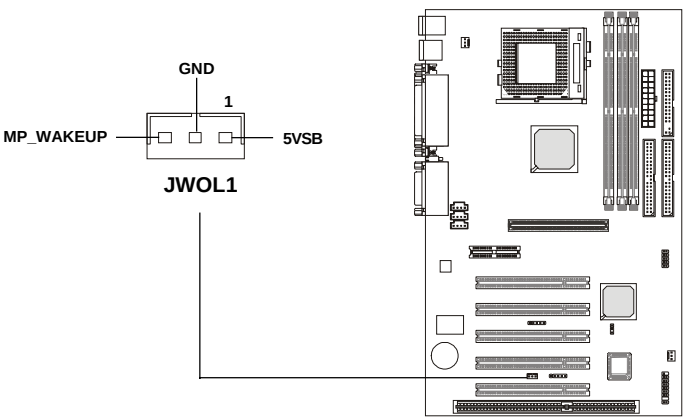
Wake On Ring Connector: JMDM1

This connector allows you to connect to a modem card with Wake On Ring function. The connector will power up the system when a signal is received through the modem card.



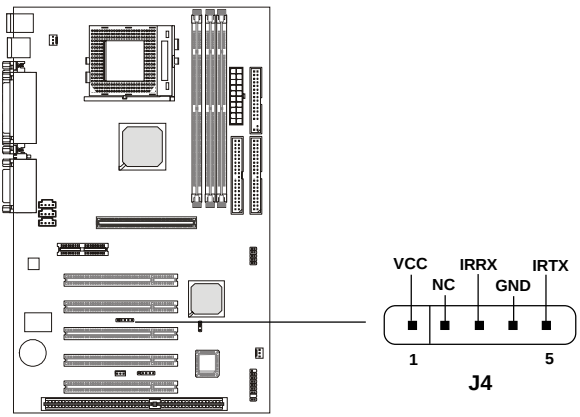
Wake On LAN Connector: JWOL1

This connector allows you to connect to a LAN card with Wake On LAN function. You can wake up the computer via remote control through a local area network.



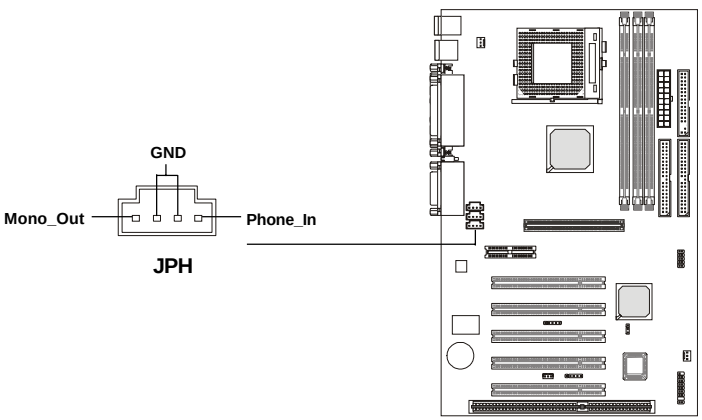
IrDA Infrared Module Connector: J4

This connector allows you to connect to an IrDA Infrared module. You must configure the setting through the BIOS setup to use the IR function.



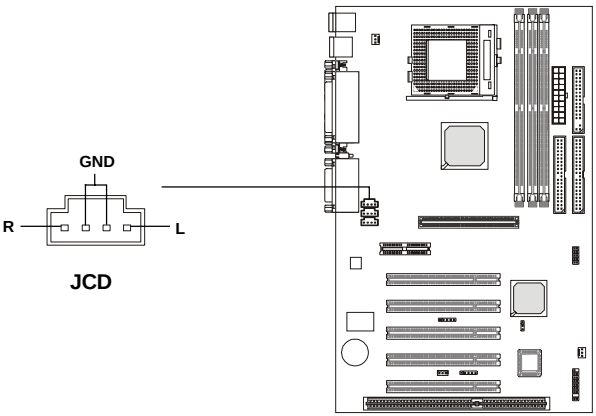
Modem-In Connector: JPH

The connector is for modem with internal audio connector.



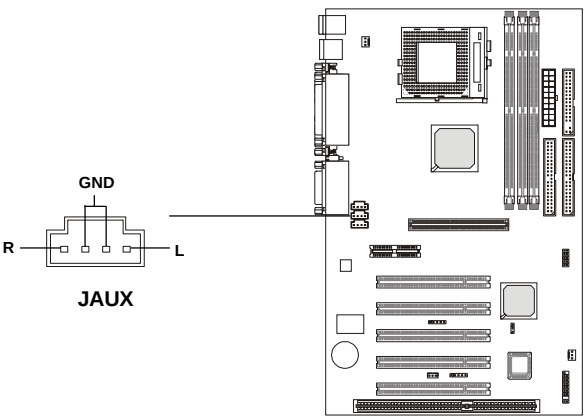
CD-In Connector: JCD

The connector is for CD-ROM audio connector.



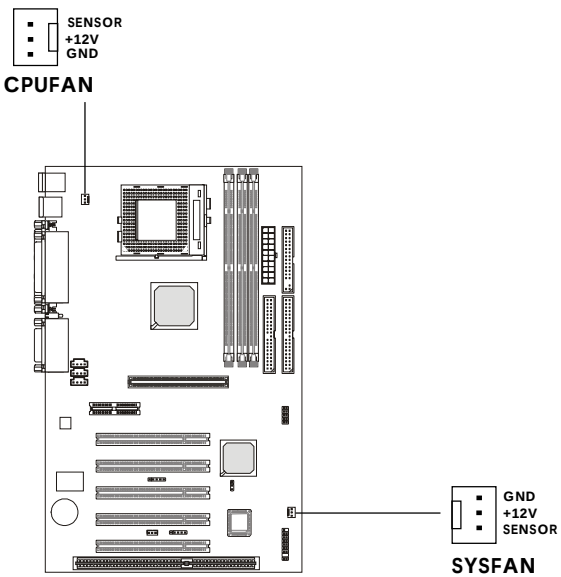
Aux Line-In Connector: JAUX

The connector is for DVD add-on card with Line-in connector.



Fan Power Connectors: CPUFAN/SYSFAN

The CPUFAN (processor fan) and SYSFAN (system fan) support system cooling fan with +12V. It supports three-pin head connector. When connecting the wire to the connectors, always take note that the red wire is the positive and should be connected to the +12V, the black wire is Ground and should be connected to GND. If the mainboard has a System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.

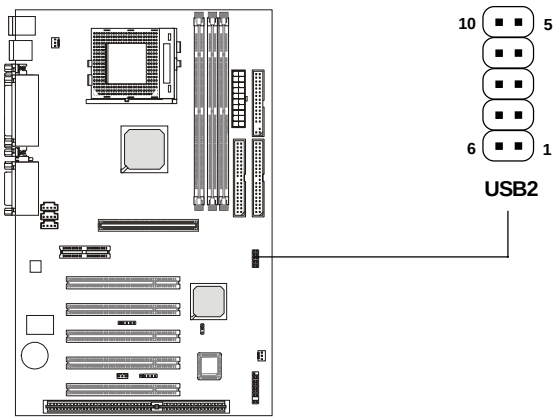


Note:

1. Always consult the vendor for proper CPU cooling fan.
2. CPU Fan supports the fan control. You can install the PC Alert utility that will automatically control the CPU Fan speed according to the actual CPU temeperature.

USB Front Connector: USB2

The mainboard provides one front USB (Universal Serial Bus) pin header that allows you to connect optional USB ports for front panel.



USB2 Pin Definition

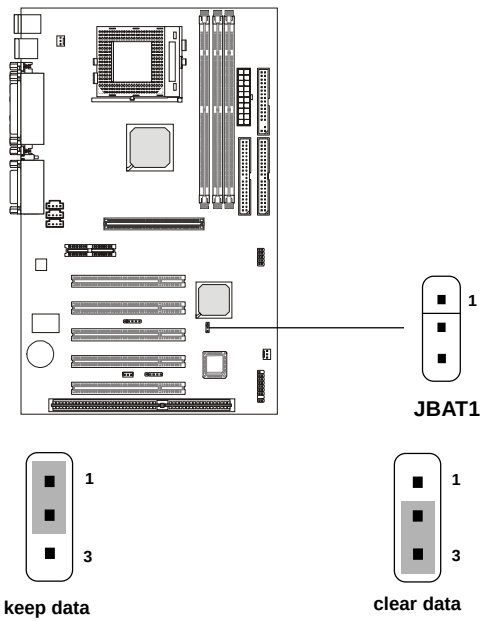
Pin	Description	Pin	Description
1	VCC	6	GND
2	USB1-	7	GND
3	USB1+	8	USB0+
4	GND	9	USB0-
5	GND	10	VCC

Jumpers

The motherboard provides one jumper for you to set the computer's function. This section will explain how to change your motherboard's function through the use of the jumper.

Clear CMOS Jumper: JBAT1

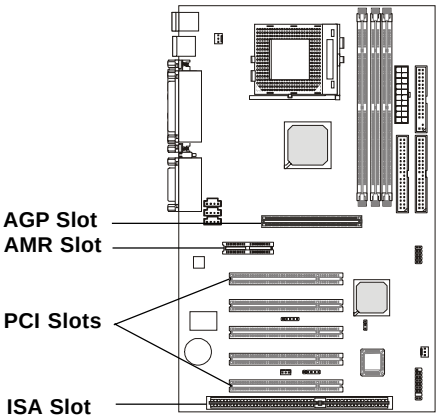
There is a CMOS RAM on board that has a power supply from external battery to keep the data of system configuration. With the CMOS RAM, the system can automatically boot OS every time it is turned on. That battery has long life time for at least 5 years. If you want to clear the system configuration, use the JBAT1 (Clear CMOS Jumper) to clear data. Follow the instructions below to clear the data:



WARNING! *You can clear CMOS by shorting 2-3 pin while the system is off. Then return to 1-2 pin position. Avoid clearing the CMOS while the system is on; it will damage the mainboard.*

Slots

The motherboard provides five 32-bit Master PCI Bus Slots, one AGP, one AMR and one ISA slot.



AGP (Accelerated Graphics Port) Slot

The AGP slot allows you to insert the AGP graphics card. AGP is an interface specification designed for the throughput demands of 3D graphics. It introduces a 66MHz, 32-bit channel for the graphics controller to directly access main memory and provides three levels of throughputs: 1x (266Mbps), 2x (533Mbps) and 4x (1.07Gbps).

AMR (Audio Modem Riser) Slot

AMR is an Intel specification that lets manufacturers create motherboards without analog I/O functions (codecs). These functions that are required for audio and/or modem operation are placed on a separate AMR card. You can install any AMR card with audio and/or modem codec chip on the AMR slot.

PCI Slots

Five PCI slots allow you to insert the expansion cards to meet your needs. When adding or removing expansion cards, make sure that you unplug

the power supply first. Meanwhile, read the documentation for the expansion card to make any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.

ISA Slot

The slot allows you to install ISA expansion card.

PCI Interrupt Request Routing

The IRQ, abbreviation of interrupt request line and pronounced I-R-Q, are hardware lines over which devices can send interrupt signals to the microprocessor. The "AGP/PCI/USB/AC97" IRQ pins are typically connected to the PCI bus INTA#-INTD# pins as follows:

	Order 1	Order 2	Order 3	Order 4
AGP	INT A#	INT B#	INT C#	INT D#
PCI Slot 1	INT A#	INT B#	INT C#	INT D#
PCI Slot 2	INT B#	INT C#	INT D#	INT A#
PCI Slot 3	INT C#	INT D#	INT A#	INT B#
PCI Slot 4	INT D#	INT A#	INT B#	INT C#
PCI Slot 5	INT B#	INT C#	INT D#	INT A#
USB-1	INT D#	INT A#	INT B#	INT C#
USB-2	INT D#	INT A#	INT B#	INT C#
AC97	INT C#	INT D#	INT A#	INT B#

AGP & PCI Slot 1 shared.
PCI Slot 2 & PCI Slot 5 shared.
PCI Slot 3 & AC97 codec shared.
PCI Slot 4 & USB-1/USB-2 shared.

PCI Slot 1~5: Bus Master.

AMI® BIOS Setup 3

The mainboard uses AMI® BIOS ROM that provides a Setup utility for users to modify the basic system configuration. The information is stored in a battery-backed CMOS RAM so it retains the Setup information when the power is turned off.

This chapter provides you with the overview of the BIOS Setup program. It contains the following topics:

Entering Setup

Enter the AMI® setup Program's Main Menu as follows:

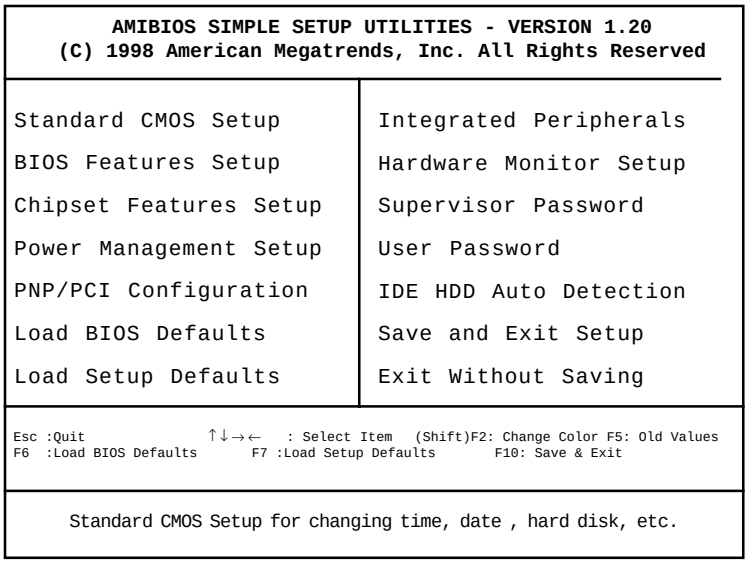
1. Turn on or reboot the system. The following screen appears with a series of diagnostic check.

```
AMIBIOS (C) 1999 American Megatrends Inc.
A6309 VXXX XXXXXX

Hit <DEL> if you want to run setup









(C) American Megatrends Inc.
61-XXXX-001169-00111111-071592-i82440FX-H
```

2. When the "Hit <DEL>" message appears, press <DEL> key to enter the BIOS setup screen.

3. After pressing <DEL> key, the BIOS setup screen will appear.

Note: *If you don't want to modify CMOS original setting, then don't press any key during the system boot.*



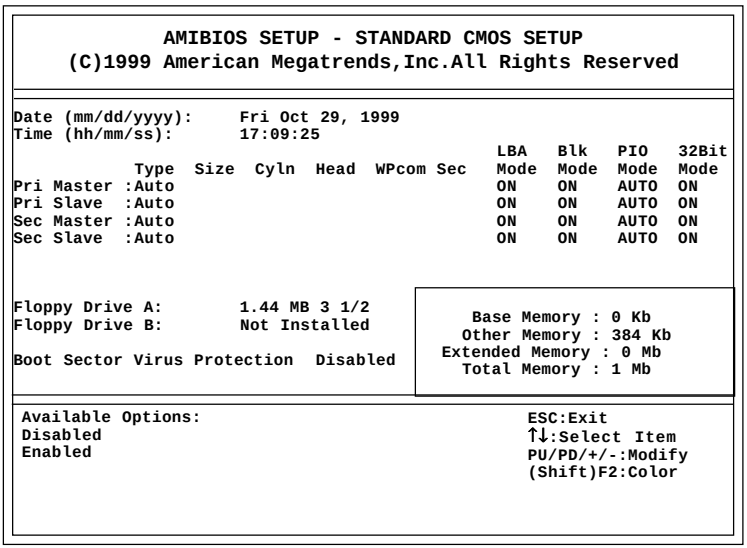
4. Use the <Up> and <Down> key to move the highlight scroll up or down.

5. Use the <ENTER> key to select the option.

6. To exit, press <ESC>. To save and exit, press <F10>.

Standard CMOS Setup

1. Press <ENTER> on “Standard CMOS Setup” of the main menu screen .

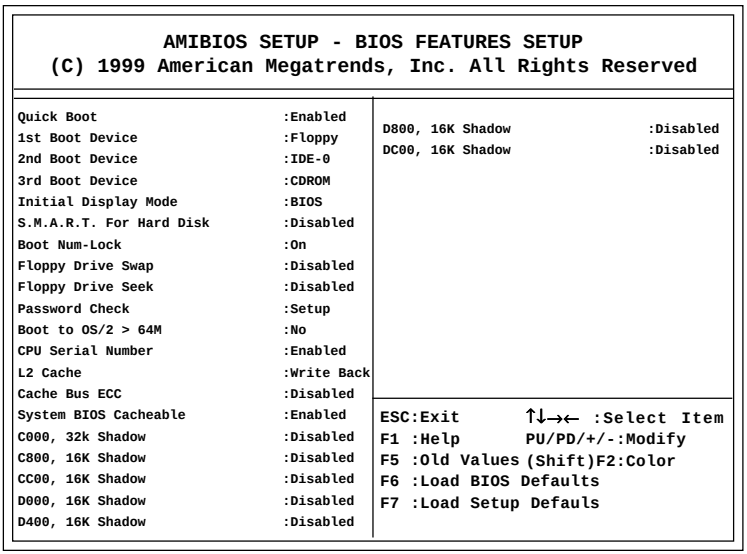


2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.

3. After you have finished with the Standard CMOS Setup, press <ESC> to go back to the main menu.

BIOS Features Setup

1. Press <ENTER> on “BIOS Features Setup” of the main menu screen.



2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.

3. After you have finished with the BIOS Features Setup, press <ESC> to go back to the main menu.

Description of the item on screen follows:

Quick Boot

Set this option to Enabled to permit AMI® BIOS to boot within 5 seconds. This option replaces the old ABOVE 1 MB Memory Test option. The Setup default setting is Enabled. The BIOS default setting is Disabled.

1st Boot Device/2nd Boot Device/3rd Boot Device

This option sets the sequence of boot drives.

The settings are:

Disabled	Disable this sequence
IDE-0	The system will boot from the first HDD.
IDE-1	The system will boot from the Second HDD.
IDE-2	The system will boot from the Third HDD.
IDE-3	The system will boot from the Fourth HDD.
Floppy	The system will boot from Floppy.
ZIP A:/LS120	The system will boot from LS-120 (120M Floppy).
Atapi ZIP C:	The system will boot from the ZIP.
CDROM	The system will boot from the CD-ROM
SCSI	The system will boot from the SCSI.
Network	The system will boot from the Network drive.

Initial Display Mode

This option sets the device boot, if all the Four Boot Devices failed.

S.M.A.R.T. for Hard Disks

This option sets the SMART Function for the hard disk. The hard disk need to have SMART function for this feature to work.

Boot up Num Lock

When this option is set to Off, AMI® BIOS turns off the Num Lock key when the system is powered on. The end user can then use the arrow keys on both the numeric keypad and the keyboard. The settings are On or Off. The Setup default and BIOS default setting are On.

Floppy Drive Swap

Set this option to Enabled to specify that floppy drives A: and B: are swapped. The setting are Enabled and Disabled. The Setup and BIOS default settings are Disabled.

Floppy Drive Seek

When this option is set to Enabled, AMI® BIOS performs a Seek command on floppy drive A: before booting the system. The settings are Enabled and Disabled. The Setup and BIOS default settings are Disabled.

Password Check

This option specifies the type of AMI® BIOS password protection that is implemented. The Setup and BIOS default settings are Setup.

Boot To OS/2® > 64MB

Set this option to Enabled to permit the BIOS to run properly, if OS/2® is to be used with > 64MB of DRAM. The settings are Enabled or Disabled. The Setup and BIOS default settings are Disabled.

L2 CacheECC

This option enables the Level 2 Cache memory ECC(Error Check Correction).

System BIOS Cacheable

AMI® BIOS always copies the system BIOS from ROM to RAM for faster execution. Set this option to Enabled to permit the contents of the F0000h RAM memory segment to be written to and read from cache memory. The settings are Enabled or Disabled. The Setup default setting is Enabled. The BIOS default setting is Disabled.

C000, 32K Shadow

These options specify how the contents of the video ROM are handled. The settings are:

Disabled - the Video ROM is not copied to RAM.

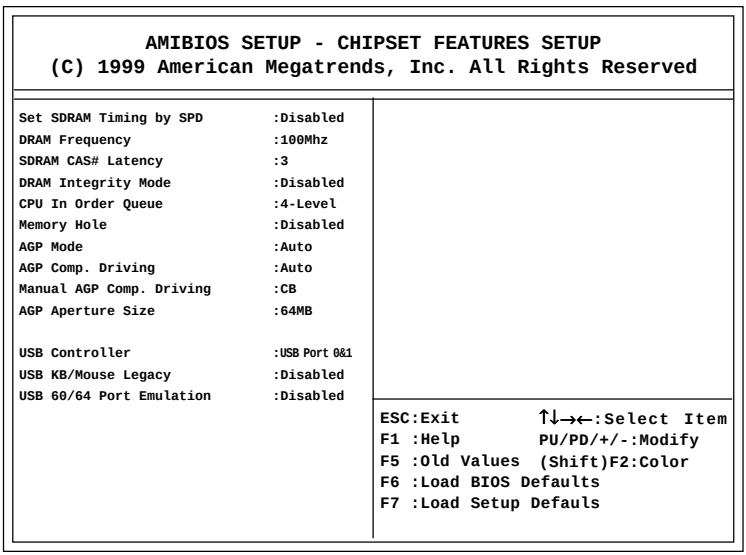
Cached - the contents of the video ROM from C0000h - C7FFFh are not only copied from ROM to RAM; it can also be written to or read from cache memory.

Enabled - the Contents of the video ROM from C0000h - C7FFFh are copied(shadowed) from ROM to RAM for faster execution.

The Setup and BIOS default setting is Enabled.

Chipset Features Setup

1. Press <ENTER> on “Chipset Features Setup” of the main menu screen.



2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.

3. After you have finished with the Chipset Features Setup, press <ESC> to go back to the main menu.

Description of the item on screen follows:

Set SDRAM Timing By SPD

Choose Enabled, will automatically configure the DRAM Timing depending on the "DRAM Speed" selection. Choose Disabled, to customize the setup.

DRAM Frequency

This item specify the DRAM frequency of the system.
The settings are:

66MHz FSB Processor	66/100MHz DRAM Frequency
100MHz FSB Processor	66/100/133MHz DRAM Frequency
133MHz FSB Processor	100/133MHz DRAM Frequency

SDRAM CAS# Latency

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. The settings are: 2 and 3.

DRAM Integrity Mode

This item will automatically detect your DIMM for ECC. The Setup and BIOS default setting is Disabled.

Memory Hole

This option allows the end user to specify the location of a memory hole (15MB-16MB). The cycle matching the selected memory hole will be passed to the ISA bus.

AGP Aperture Size

This option determines the effective size of the graphics aperture used in the particular MCM configuration. The AGP aperture is memory - mapped, while graphics data structure can reside in a graphics aperture. The aperture range should be programmed as not cacheable in the processor cache,accesses with the aperture range are forwarded to the main memory, then MCM will translate the original issued address via a translation table

that is maintained on the main memory. The option allows the selection of an aperture size of 4MB,8MB,16MB,32MB,64MB,128MB and 256MB.

USB Controller

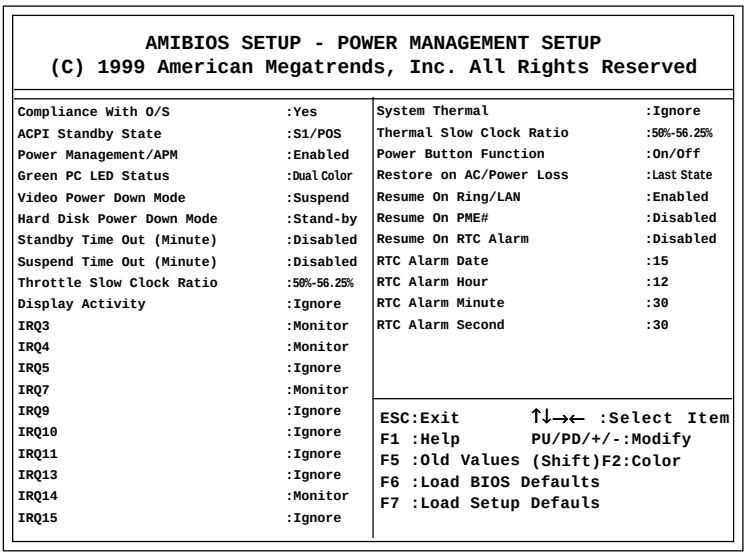
Set this option to Enabled or Disabled the on-chip USB controller. The settings are USB Port 0 & 1, USB Port 2 & 3 or All USB Port. The Setting and BIOS default setting is USB Port 0 & 1.

USB KB/Mouse Legacy Support

Set this option to Enabled or Disabled USB Mouse & keyboard on DOS Mode. The default setting is Disabled.

Power Management Setup

1. Press <ENTER> on “Power Management Setup” of the main menu screen.



AMIBIOS SETUP - POWER MANAGEMENT SETUP
(C) 1999 American Megatrends, Inc. All Rights Reserved

Compliance With O/S	:Yes	System Thermal	:Ignore
ACPI Standby State	:S1/POS	Thermal Slow Clock Ratio	:50%-56.25%
Power Management/APM	:Enabled	Power Button Function	:On/Off
Green PC LED Status	:Dual Color	Restore on AC/Power Loss	:Last State
Video Power Down Mode	:Suspend	Resume On Ring/LAN	:Enabled
Hard Disk Power Down Mode	:Stand-by	Resume On PME#	:Disabled
Standby Time Out (Minute)	:Disabled	Resume On RTC Alarm	:Disabled
Suspend Time Out (Minute)	:Disabled	RTC Alarm Date	:15
Throttle Slow Clock Ratio	:50%-56.25%	RTC Alarm Hour	:12
Display Activity	:Ignore	RTC Alarm Minute	:30
IRQ3	:Monitor	RTC Alarm Second	:30
IRQ4	:Monitor		
IRQ5	:Ignore		
IRQ7	:Monitor		
IRQ9	:Ignore	ESC:Exit ↑↓→← :Select Item	
IRQ10	:Ignore	F1 :Help PU/PD/+/-:Modify	
IRQ11	:Ignore	F5 :Old Values (Shift)F2:Color	
IRQ13	:Ignore	F6 :Load BIOS Defaults	
IRQ14	:Monitor	F7 :Load Setup Defauls	
IRQ15	:Ignore		

2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.

3. After you have finished with the Power Management Setup, press <ESC> to go back to the main menu.

Description of the item on screen follows:

Compliance With O/S

Set this option to Yes if the operating system supports ACPI. If the setting is No, the operating system supports APM.

ACPI Standby State

This item will set which ACPI standby type will be used.

Power Management/APM

Set this option to enable the chipset's power management features and APM(Advanced Power Management). The settings are Enabled, Inst-On(instant-on) or Disabled. The Setup default setting is Enabled. The BIOS Default is Disabled

Green PC Monitor Power State

This option specifies the power state that the green PC-compliant video monitor enters when AMI® BIOS places it in a power savings state after the specified period of display inactivity has expired. The settings are Off, Standby, Suspend. The Setup and BIOS default setting is Standby.

Video Power Down Mode

This option specifies the power conserving state that the VESA VGA video subsystem enters after the specified period of display inactivity has expired. The settings are Disabled, Standby or Suspend. The default setting is Standby.

Hard Disk Power Down Mode

This option specifies the power conserving state that the hard disk drive enters after the specified period of hard drive inactivity has expired. The settings are Disabled, Standby or Suspend. The Setup and BIOS default setting is Standby.

Standby TimeOut (Minute)

This option defines the continuous idle time before the system enters STANDBY mode. If any item defined in the options of "Power Down and Resume events" is enabled & active, STANDBY timer will be reloaded. When the system has entered Standby mode, any of the items that are enabled in "Wake Up Events of Doze and Standby" will trigger the system to wake up. The settings are Disabled, 1 min, 2 min, 3 min, 4 min, 5 min, 6 min, 7 min, 8 min, 9 min, 10 min, 11 min, 12 min, 13 min, 14 min or 15 min. The default settings is Disabled.

Suspend Time Out (Minute)

This option specifies the length of a period of system inactivity while in Suspend state. When this length of time expires, the computer enters Suspend power state. The settings are Disabled, 1 min, 2 min, 4 min, 8 min, 10 min, 20 min, 30 min, 40 min, 50 min or 60 min. The default setting is Disabled.

Throttle Slow Clock Ratio

This option specifies the speed at which the system clock runs in power saving states. The settings are expressed as ratio between the normal CPU clock speed and the CPU clock speed when the computer is in the power-conserving state.

Display Activity/IRQ 3/IRQ 4/IRQ 5/IRQ 7/IRQ 9/IRQ1 0/ IRQ 11/IRQ 13/IRQ 14/IRQ 15/System Thermal

When set to Monitor, these options enable event monitoring on the specified hardware interrupt request line. If set to Monitor and the computer is in a power saving state, AMI® BIOS watches for activity on the specified IRQ line. The computer enters the full on power state if any activity occurs.

AMI® BIOS reloads the Standby and Suspend timeout timers if activity occurs on the specified IRQ line.

Thermal Slow Clock Ratio

When set to Monitor, then you can choose the throttle ratio. This option is connected with the **CPU Critical Temperature** Option.

Power Button Function

During Suspend, if you push the switch once, the system goes into suspend mode and if you push it more than 4 seconds, the system will be turned off. During On/Off, the system will turn off once you push the switch.

Restore on AC/Power Loss

The settings are power on, power off or last state. During power on, after every AC power loss, the system will be turned on. During last status, after every AC power off, whatever the system status, it will be the same when the AC power returns. During power off, after every AC power loss, the system will remain shut down.

Resume On Ring/LAN

During Disabled, the system will ignore any incoming call from the modem/LAN network card. During Enabled, the system will boot up if there's an incoming call from the modem/LAN network card.

Note: If you have change the setting, you must let the system boot up until it goes to the operating system. Then, power off the system. This function will work the next time you power on.

Resume On PME#

During Disabled, the system will ignore any event on PME (Power Management Event). During Enabled, the system wull boot up if there's an event on PME. The default setting is Disabled.

Resume On RTC Alarm

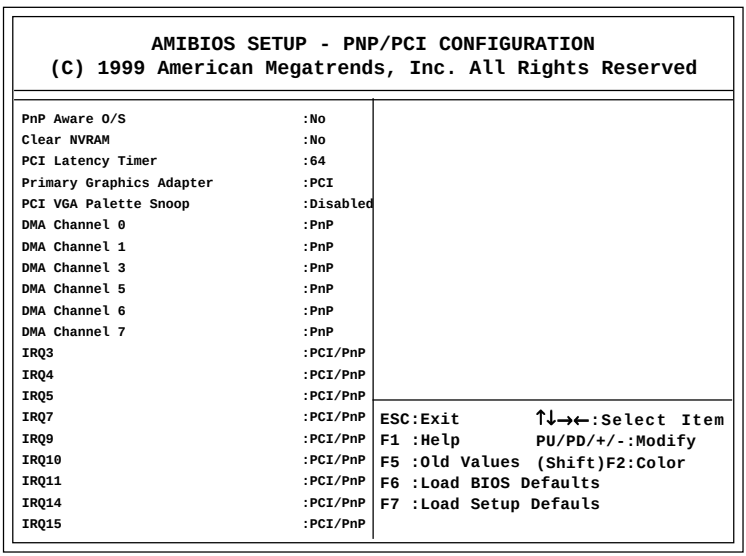
This function is for setting the Date, Hour, Minute, and Second for your computer to boot up. During Disabled, you cannot use this function. During Enabled, Choose the Date, Hour, Minute, and Second:

RTC Alarm Date	Choose which day the system will boot up.
RTC Alarm Hour	Choose which hour the system will boot up.
RTC Alarm Minute	Choose which minute the system will boot up.
RTC Alarm Second	Choose which second the system will boot up.

Note: If you have change the setting, you must let the system boot up until it goes to the operating system. Then, power off the system. This function will work the next time you power on.

PNP/PCI Configuration

1. Press <ENTER> on “PNP/PCI Configuration” of the main menu screen.



2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.

3. After you have finished with the PNP/PCI Configuration, press <ESC> to go back to the main menu.

Description of the item on screen follows:

Plug and Play Aware O/S

Set this option to Yes if the operating system in this computer is aware of and follows the Plug and Play specification. The settings are Yes or No. The default setting No.

Clear NVRAM

During Yes, this will clear NVRAM data on every boot.

PCI Latency Timer

This option specifies the latency timings (in PCI clocks) for all PCI devices on the PCI bus. The settings are 32, 64, 96, 128, 160, 192, 224 or 248. The Setup and BIOS default settings is 64.

Primary Graphics Adapter

This option is for selecting which VGA card is to be your primary display graphics adapter.

PCI VGA Palette Snoop

When this option is set to Enabled, multiple VGA devices operating on different buses can handle data from the CPU on each set of palette registers on every video device. Bit 5 of the command register in the PCI device configuration space is the VGA Palette Snoop bit (0 is disabled). For example, if there are two VGA devices in the computer (one PCI and ISA) and the Bit settings are:

Disabled - Data read and written by the CPU is only directed to the PCI VGA device's palette registers.

Enabled - Data read and written by the CPU is directed to both the PCI VGA device's palette registers and the ISA VGA device palette registers, permitting the palette registers of both devices to be identical.

This option must be set to Enabled if an ISA adapter card requires VGA palette snooping. The settings are Enabled or Disabled. The default setting is Disabled.

DMA Channel 0/1/3/5/6/7

These options specify the bus that the specified DMA channel is used. These options allow you to reserve DMAs for legacy ISA adapter cards.

These options determine if AMI® BIOS should remove a DMA from the available DMAs passed to devices that are configurable by the system BIOS. The available DMA pool is determined by reading the ESCD NVRAM. If more DMAs must be removed from the pool, the end user can use these options to reserve the DMA by assigning an ISA/EISA setting to it.

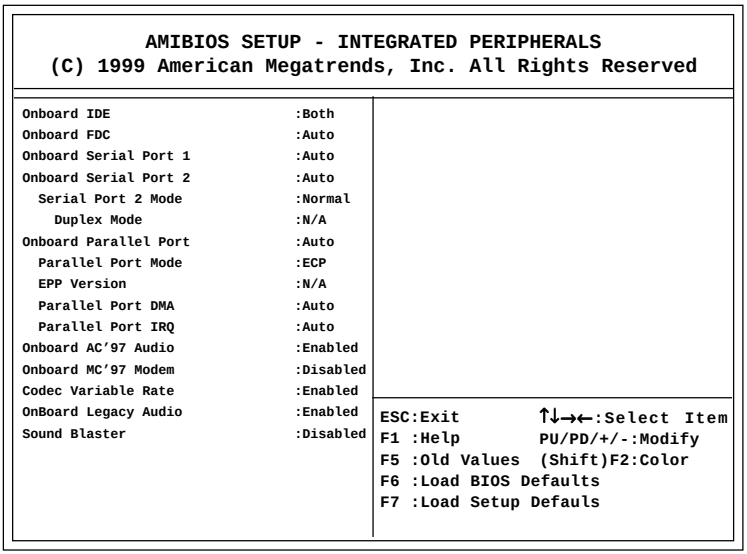
IRQ3/IRQ4/IRQ5/RQ7/IRQ9/IRQ10/IRQ11/IRQ14/IRQ15

These options specify the bus that the specified IRQ line is used on. These options allow you to reserve IRQs for legacy ISA adapter cards.

These options determine if AMI® BIOS should remove an IRQ from the pool of available IRQs passed to devices that are configurable by the system BIOS. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the pool, the end user can use these options to reserve the IRQ by assigning an ISA/EISA setting to it. Onboard I/O is configured by AMI® BIOS. All IRQs used by onboard I/O are configured as PCI/PnP. If all IRQs are set to ISA/EISA and IRQ14 and 15 are allocated to the onboard PCI IDE, IRQ9 will still be available for PCI and PnP devices, because at least one IRQ must be available for PCI and PnP devices. The settings are ISA/EISA or PCI/PnP. The default setting is PCI/PnP.

Integrated Peripherals

1. Press <ENTER> on “Integrated Peripherals” of the main menu screen.



2. Use <up> and <down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.

3. After you have finished with the Integrated Peripherals, press <ESC> to go back to the main menu.

Description of the item on screen follows:

Onboard FDC

Choose Auto, for the BIOS to automatically detect the device

If the ISA add-on card has	Onboard FDC to be set at
FDC exist	Disabled
none FDC exist	Enabled

Choose Enabled, Enabling onboard FDC.
Choose Disabled, Disabling onboard FDC.
The Setup and BIOS default setting is Auto.

Onboard Serial Port 1/Onboard Serial Port 2

Choose 3F8, for the BIOS to automatically detect the device.

If the ISA add-on card has				Onboard Serial port to be set at			
COM1 (I/O:3F8H)	COM2 (I/O:3F8H)	COM3 (I/O:3E8H)	COM4 (I/O:2E8H)	PORT1	IRQ ASSIGNED	PORT2	IRQ ASSIGNED
✓	✓	✓	✓	DISABLED	X	DISABLED	X
✓	✓	X	X	COM3	4	COM4	3
X	X	✓	✓	COM1	4	COM2	3
✓	X	X	✓	COM2	3	COM3	4
X	✓	✓	X	COM1	4	COM4	3
✓	✓	✓	X	COM4	3	DISABLED	X
✓	✓	X	✓	COM3	4	DISABLED	X
✓	X	✓	✓	COM2	3	DISABLED	X
X	✓	✓	✓	COM1	4	DISABLED	X
X	X	X	X	COM1	4	COM2	3
✓	X	X	X	COM2	3	COM3	4
X	✓	X	X	COM1	4	COM3	4
X	X	✓	X	COM1	4	COM2	3
X	X	X	✓	COM1	4	COM2	3

Note: *If the onboard serial port interrupt and ISA add-on card interrupt are in conflict, the serial port will not work properly. Please disable one of the devices.*

Serial Port2 Mode

This item allows the user to determine which InfraRed (IR) function of the onboard I/O chip. The settings are Normal, IRDA and ASK IR. The default setting is Normal.

Onboard Parallel Port

Choose Auto, the BIOS automatically assigned onboard parallel port to the available parallel port or disabled.

If the ISA add-on card has			Onboard parallel port to be set as	
LPT1 I/O:378H	LPT2 I/O:278H	LPT3 I/O:3BCH	PORT ASSIGNED	IRQ ASSIGNED
✓	✓	✓	Disabled	X
✓	✓	X	LPT3	5
✓	X	✓	LPT2	5
X	✓	✓	LPT1	7
✓	X	X	LPT2	5
X	✓	X	LPT1	7
X	X	✓	LPT1	7
X	X	X	LPT1	7

Note: *If the onboard parallel port interrupt and ISA add-on card interrupt are in conflict, the parallel port will not work properly. Please disable one of the devices.*

Parallel Port Mode

This option allows user to choose the operating mode of the onboard parallel port. The settings are Normal, SPP/EPP or ECP mode.

EPP Version

This option is for setting which EPP version will be used. The settings are 1.7 and 1.9.

Parallel Port IRQ

If the onboard parallel mode is not on auto mode, the user can select the interrupt line for onboard parallel port. We suggest that the user select the interrupt for the onboard parallel port as shown below:

Onboard parallel port set at	Parallel Port IRQ
LPT1(378H)	7
LPT2(278H)	5
LPT3(3BCH)	5

Parallel Port DMA

This option allows user to choose DMA channel 1 to 3 for the onboard parallel port on ECP mode.

Onboard IDE

Set this option to enable or disable on board IDE controller.

Onboard AC'97 Audio

This item allows you to decide to enable/disable the VIA chipset family to support AC97Audio. The settings are Enabled, Disabled.

Onboard MC'97 Modem

This item allows you to decide to enable/disable the VIA chipset family to support MC97 Modem. The settings are Enabled, Disabled.

OnBoard Legacy Audio

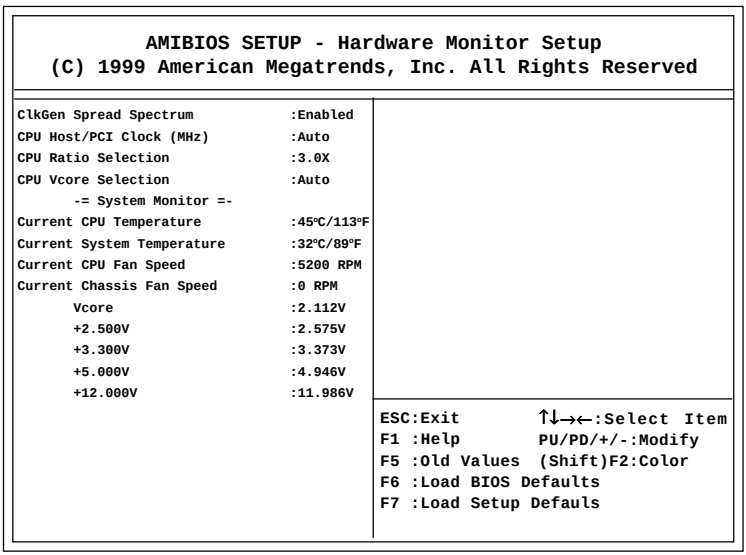
This item allows you to decide to enable/disable the VIA chipset family to support onboard legacy audio. The settings are Enabled, Disabled.

Sound Blaster

This item allows you to decide to enable/disable the VIA chipset family to support sound blaster. The settings are Enabled, Disabled.

Hardware Monitor Setup

1. Press <ENTER> on “Hardware Monitor Setup” of the main menu screen.



2. Use <up> and <down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.

3. After you have finished with the Peripheral Setup, press <ESC> to go back to the main menu.

Description of the item on screen follows:

ClkGen Spread Spectrum

This item allows you to select the clock generator Spread Spectrum function. When overclocking the processor, always set this item to Disabled. The default setting is Enabled.

CPU Host/PCI Clock (Mhz)

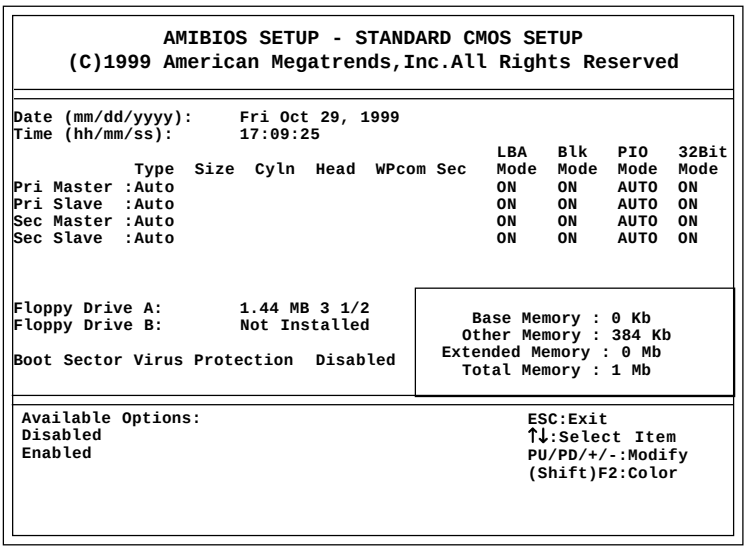
Check your processor and set this function accordingly. If you set this to Manual, you can set the CPU Host Clock accordingly.
CPU Frequencies are: 66.8, 79, 85, 87.5, 90, 92.5, 100, 110, 115, 120, 124, 129, 133, 138.

CPU Voltage Selection

Check your processor and set this function accordingly.

IDE HDD AUTO Detection

You can use this utility to automatically detect the characteristics of most hard drives.



Supervisor/User Password

This Main Menu item lets you configure the system so that a password is required each time the system boots or an attempt is made to enter the Setup program. Supervisor Password allows you to change all CMOS settings but the User Password setting doesn't have this function. The way to set up the passwords for both Supervisor and User are as follow:

1. Choose "Supervisor/User Password" in the Main Menu and press <Enter>. The following message appears:

   "Enter New Supervisor/User Password:"

2. The first time you run this option, enter your password up to 6 characters only and press <Enter>. The screen will not display the entered characters. For no password, just press <Enter>.

3. After you enter the password, the following message appears prompting you to confirm the password:

   "Retype New Supervisor/User Password:"

4. Enter exactly the same password you just typed in to confirm the password and press <Enter>.

5. Move the cursor to Save and Exit Setup to save the password.

6. If you need to delete the password you entered before, choose the Supervisor/User Password and press <Enter>. It will delete the password that you had before.

7. Move the cursor to Save and Exit Setup to save the option you did. Otherwise, the old password will still be there when you turn on your machine next time.

AWARD® BIOS Setup 4

The mainboard uses AWARD® BIOS ROM that provides a Setup utility for users to modify the basic system configuration. The information is stored in a battery-backed CMOS RAM so it retains the Setup information when the power is turned off.

This chapter provides you with the overview of the BIOS Setup program. It contains the following topics:

Entering Setup

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <DEL> key to enter Setup.

```
Hit DEL if you want to run SETUP
```

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

Control Keys

<↑>	Move to the previous item
<↓>	Move to the next item
<← >	Move to the item in the left hand
<→>	Move to the item in the right hand
<Enter>	Select the item
<Esc>	Jumps to the Exit menu or returns to the main menu from a submenu
<+/PU>	Increase the numeric value or make changes
<-/PD>	Decrease the numeric value or make changes
<F1>	General help, only for Status Page Setup Menu and Option Page Setup Menu
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F6>	Load the default CMOS value from Fail-Safe default table, only for Option Page Setup Menu
<F7>	Load Optimized defaults
<F10>	Save all the CMOS changes and exit

Getting Help

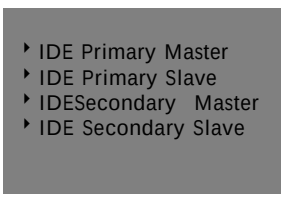
After entering the Setup utility, the first screen you see is the Main Menu.

Main Menu

The main menu displays the setup categories the BIOS supplies. You can use the arrow keys (↑↓) to select the item. The on-line description for the selected setup category is displayed on the bottom of the screen.

Sub-Menu

If you find a right pointer symbol appears to the left of certain fields (as shown below), that means a sub-menu containing additional options for the field can be launched from this field. To enter the sub-menu, highlight the field and perss <Enter>. Then you can use control keys to move between and change the settings of the sub-menu. To return to the main menu, press <Esc>.

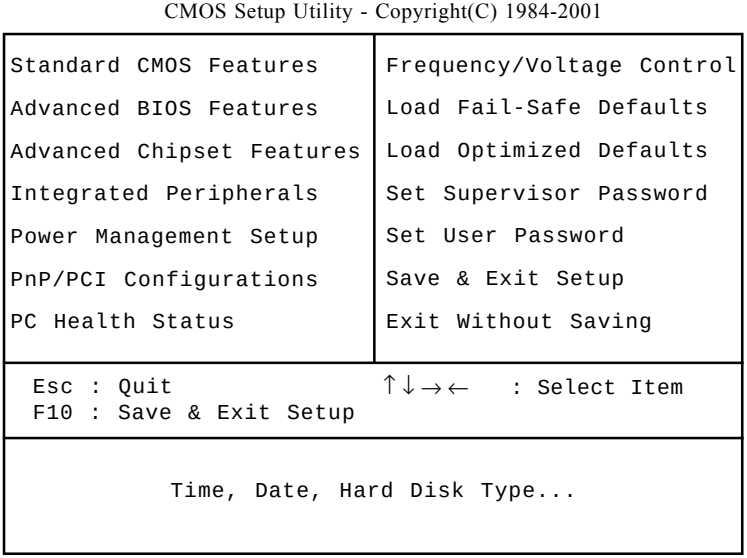


General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

The Main Menu

Once you enter Award® BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from ten setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.



Standard CMOS Setup

Use this Menu for basic system configurations.

Advanced BIOS Features

Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Setup

Use this menu to specify your settings for power management.

PnP/PCI Configuration

This entry appears if your system supports PnP/PCI.

PC Health Status

This entry shows your PC health status.

Frequency/Voltage

Use this menu to specify your settings for frequency/voltage control.

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations.

Supervisor/User Password

Use this menu to set User and Supervisor Passwords.

Save & Exit Setup

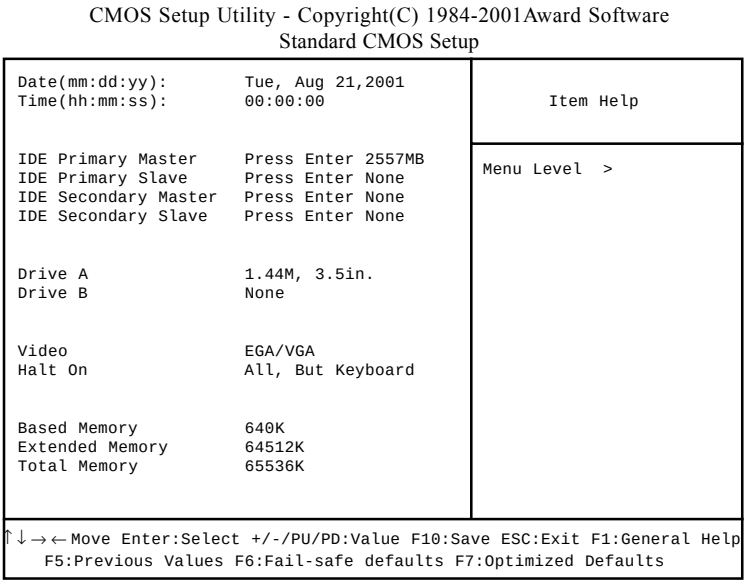
Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

Standard CMOS Setup

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.



Date

The date format is <day><month> <date> <year>.

Day	Day of the week, from Sun to Sat, determined by BIOS. Read-only.
month	The month from Jan. through Dec.
date	The date from 1 to 31 can be keyed by numeric function keys.
year	The year, depends on the year of the BIOS

Time

The time format is <hour> <minute> <second>.

PrimaryMaster/PrimarySlave
SecondaryMaster/Secondary Slave

Press PgUp/<+> or PgDn/<-> to select Manual, None, Auto type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Manual to define your own drive type manually.

If you select Manual, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

If the controller of HDD interface is SCSI, the selection shall be "None".
If the controller of HDD interface is CD-ROM, the selection shall be "None".

Access Mode	The settings are Auto, Normal, Large,LBA.
Cylinder	number of cylinders
Head	number of heads
Precomp	write precom
Landing Zone	landing zone
Sector	number of sectors

Advanced BIOS Features

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Advanced BIOS Features

Anti-Virus Protection	Disabled	Item Help
CPU Internal Cache	Enabled	
External Cache	Enabled	
CPU L2 Cache ECC Checking	Enabled	
Processor Number Feature	Enabled	Menu Level >
Quick Power On Self Test	Disabled	
First Boot device	Floppy	
Second Boot device	HDD-0	
Third Boot device	LS120	
Boot other device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Enabled	
Boot Up Numlock Status	On	
Gate A20 Option	Fast	
Typematic Rate Setting	Disabled	
Typematic Rate (Chars/Sec)	6	
Typematic Delay (Msec)	250	
Security Option	Setup	
OS Select for DRAM > 64MB	Non-OS2	

↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

Anti-Virus Protection

Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write date into this area, BIOS will show a warning message on screen and alarm beep.

Disabled	No warning message to appear when anything attempts to access the boot sector or hard disk partition table.
Enable	Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector of hard disk partition table.

CPU Internal Cache

Enabled	Enable cache
Disabled	Disable cache

Note: The internal cache is built in the processor.

External Cache

Choose Enabled or Disabled. This option enables the level 2 cache memory.

CPU L2 Cache ECC Checking

Choose Enabled or Disabled. This option enables the level 2 cache memory ECC(error check correction).

Processor Number Feature

This option is for Pentium® III processor. During Enabled, this will check the CPU Serial number. Disabled this option if you don't want the system to know the Serial number.

Quick Power On Self Test

This category speeds up Power On Self Test (POST) after you power on the computer. If this is set to Enabled, BIOS will shorten or skip some check items during POST.

Enabled	Enable quick POST
Disabled	Normal POST

First/Second/Third/Other Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The settings are Floppy, LS/ZIP, HDD-0/HDD-1/HDD-2/HDD-3, SCSI, CDROM, LAN, and Disabled.

Swap Floppy Drive

Switches the FDD between being designated as A and B.

Boot Up Floppy Seek

During POST, BIOS will determine if the FDD installed is 40 or 80 tracks. 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks.

Boot Up NumLock Status

On	Keypad is numeric keys.
Off	Keypad is arrow keys.

Gate A20 Option

Normal	The A20 signal is controlled by keyboard controller or chipset hardware.
Fast	The A20 signal is controlled by port 92 or chipset specific method.

Typematic Rate Setting

Key strokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected. The settings are: Enabled/Disabled.

Typematic Rate (Chars/Sec)

Sets the number of times a second to repeat a key stroke when you hold the key down. The settings are: 6, 8, 10, 12, 15, 20, 24, 30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke The settings are: 250, 500, 750, 1000.

Security Option

This category allows you to limit access to the system and Setup, or just to Setup.

System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

OS Selection for DRAM > 64MB

Allows OS2® to be used with > 64 MB of DRAM. Settings are Non-OS/2 and OS2. Set to OS/2 if using more than 64MB and running OS/2®.

Advanced Chipset Features

The Advanced Chipset Features Setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer.

Choose the "ADVANCED CHIPSET FEATURES" from the Main Menu and the following screen will appear.

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Advanced Chipset Features

SDRAM Cycle Length	3	Item Help
DRAM Clock	Host CLK	
Memory Hole	Disabled	
P2C/C2P Concurrency	Enabled	
Fast R-W Turn Around	Disabled	Menu Level >
System BIOS Cacheable	Disabled	
Video RAM Cacheable	Disabled	
AGP Aperture Size	64M	
AGP 4X Mode	Enabled	
CPU to PCI Write Buffer	Enabled	
PCI Dynamic Bursting	Enabled	
PCI Master 0 WS Write	Enabled	
PCI Delay Transaction	Enabled	
PCI#2 Access #1 Retry	Enabled	
AGP Master 1 WS Write	Disabled	
AGP Master 1 WS Read	Disabled	
Memory Parity/ECC Check	Disabled	

↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

Note: Change these settings only if you are familiar with the chipset.

SDRAM Cycle Length

This item allows you to select the SDRAM cycle length. The settings are 2 or 3.

DRAM Clock

The chipset support synchronous and asynchronous mode between the host clock and DIMM clock.

HostCLK	DIMM clock equal to host clock

Memory Hole

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16 MB.

Enabled	Memory hole supported.
Disabled	Memory hole not supported.

P2C/C2P Concurrency

This item allows you to Enable or Disable the PCI to CPU, CPU to PCI concurrency.

Fast R-W Turn Around

This item controls the DRAM timing. It allows the user to Enable or Disable the fast read, write turn around. The settings are Enabled or Disabled.

System BIOS Cacheable

Selecting *Enabled* allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result. The settings are: Enabled and Disabled.

Video RAM Cacheable

Select Enabled allows caching of the video BIOS , resulting in better system performance. However, if any program writes to this memory area, a system error may result. The settings are: Enabled and Disabled.

AGP Aperture Size

Select the size of the Accelerated Graphics Port (AGP) aperture. 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 for

warded to the AGP without any translation.

AGP-4X Mode

This item is used to Enabled or Disabled the AGP support for AGP 4x mode.

CPU to PCI Write Buffer

When this field is Enabled, writes from the CPU to the PCI bus are buffered, to compensate for the differences between the CPU and the PCI bus. When Disabled, the writes are not buffered and the CPU must wait until the write is complete before starting another cycle.

PCI Dynamic Bursting

This item allows you to Enable or Disable the PCI dynamic bursting function. The settings are Enabled or Disabled.

PCI Delay Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1. The settings are Enabled or Disabled.

PCI#2 Access #1 Retry

When Disabled, PCI#2 will not be disconnected until access finishes (default). When Enabled, PCI#2 will be disconnected if ms retries are attempted without success.

AGP Master 1 WS Write

When Enabled, this item writes to the AGP (Accelerated Graphics Port) are executed with one wait states.

AGP Master 1 WS Read

When Enabled, this item read to the AGP (Accelerated Graphics Port) are executed with one wait states.

Memory Parity/ECC Check

This item when Enabled detects the memory parity and Error Checking & Correcting. The settings are Enabled or Disabled.

Integrated Peripherals

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Integrated Peripherals

Onchip IDE Channel0	Enabled	Item Help
Onchip IDE Channel1	Enabled	
IDE Prefetch Mode	Enabled	
Primary Master PIO	Auto	
Primary Slave PIO	Auto	Menu Level >
Secondary Master PIO	Auto	
Secondary Slave PIO	Auto	
Primary Master UDMA	Auto	
Primary Slave UDMA	Auto	
Secondary Master UDMA	Auto	
Secondary Slave UDMA	Auto	
Init Display First	AGP	
Onchip USB	Enabled	
USB Keyboard Support	Disabled	
USB Mouse Support	Disabled	
IDE HDD Block Mode	Enabled	
Onboard FDD Controller	Enabled	
Onboard Serial Port 1	Auto	
Onboard Serial Port 2	Auto	
UART 2 Mode	Standard	
X IR Function Duplex	Half	
X TX,RX inverting enable	No, Yes	
Onboard Parallel Port	378/IRQ7	
Onboard Parallel Mode	Normal	
X ECP Mode Use DMA	3	
X Parallel Port EPP Type	EEP 1.9	
Onchip Sound	Enabled	
Sound Blaster	Disabled	
SB I/O Base Address	22QH	
SB IRQ Select	IRQ 5	
SB DMA Select	DMA1	
MPU-401	Disabled	
MPU-401 I/O Address	330-333H	
Game Port (200-207H)	Enabled	
Onchip Modem	Enabled	

↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

OnChip IDE Channel0/Onchip IDE Channel1

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

IDE Prefetch Mode

This item is used to Enabled or Disabled the IDE Read/Write Prefetch buffer. This buffer is used to store data for faster performances.

Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The settings are: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

Primary/Secondary Master/Slave UDMA

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33 and Ultra DMA/66, select Auto to enable BIOS support. The settings are: Auto, Disabled.

Init Display First

This item allows you to decide to activate whether PCI Slot or AGP Slot. The settings are: PCI Slot, AGP Slot.

Onchip USB

This should be set to Enabled if your system has a USB installed on the system board and you wish to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature.

USB Keyboard Support

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard. The settings are: Enabled, Disabled.

USB Mouse Support

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB mouse. The settings are: Enabled, Disabled.

IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number

of block read/writes per sector the drive can support. The settings are: Enabled, Disabled.

Onboard FDD Controller

Select Enabled if your system has a floppy disk controller (FDD) installed on the system board and you wish to use it. If you install add-on FDC or the system has no floppy drive, select Disabled in this field. The settings are: Enabled and Disabled.

Onboard Serial Port 1/Port 2

Select an address and corresponding interrupt for the first and second serial ports. The settings are: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

UART 2 Mode

This item allows you to select which mode for the Onboard Serial Port 2. The settings are: Standard, HPSIR, ASKIR.

IR Function Duplex

This item allows you to select the IR half/full duplex function.

TX, RX inverting enable

This item allows you to enable the TX, RX inverting which depends on different H/W requirement. This field is not recommended to change its default setting for avoiding any error in your system.

Onboard Parallel Port

There is a built-in parallel port on the on-board Super I/O chipset that provides Standard, ECP, and EPP features. It has the following options:

Disable	
3BCH/IRQ7	Line Printer port 0
278H/IRQ5	Line Printer port 2
378H/IRQ7	Line Printer port 1

Onboard Parallel Mode

SPP : Standard Parallel Port
EPP : Enhanced Parallel Port
ECP : Extended Capability Port

To operate the onboard parallel port as Standard Parallel Port only, choose "SPP." To operate the onboard parallel port in the ECP and SPP modes simultaneously, choose "ECP/SPP." By choosing "ECP", the onboard parallel port will operate in ECP mode only. Choosing "ECP/EPP" will allow the onboard parallel port to support both the ECP and EPP modes simultaneously. The ECP mode has to use the DMA channel, so choose the onboard parallel port with the ECP feature. After selecting it, the following message will appear: "ECP Mode Use DMA" At this time the user can choose between DMA channels 3 or 1. The onboard parallel port is EPP Spec. compliant, so after the user chooses the onboard parallel port with the EPP function, the following message will be displayed on the screen: "EPP Mode Select." At this time either EPP 1.7 spec. or EPP 1.9 spec. can be chosen.

ECP Mode Use DMA

Select a DMA channel for the parallel port for use during ECP mode. The settings are 3 or 1. The default setting is 3.

Parallel Port EPP Type

Select EPP port type 1.7 or 1.9.

OnChip Sound

This item allows you to control the onboard AC 97 modem. The settings are Enabled and Disabled.

OnChip Modem

This item allows you to control the onboard MC 97 modem. The settings are Enabled and Disabled.

Power Management Setup

The Power Management Setup allows you to configure you system to most effectively save energy while operating in a manner consistent with your own style of computer use.

CMOS Setup Utility - Copyright(C) 1984-2001 Award Software
Power Management Setup

IPCA Function	Enabled	Item Help
Power Management	Press Enter	
ACPI Suspend Type	S1(POS)	
PM Control by APM	Yes	Menu Level >
Video Off Option	Suspend->Off	
Video Off Method	V/H SYNC+Blank	
MODEM Use IRQ	3	
Soft-Off by PWRBTN	Instant-Off	
State After Power Failure	Auto	
LED In Suspend	Dual	
Wake Up Events	Press Enter	

↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

IPCA Function

This item allows you to Enabled/Disabled the Advanced Configuration and Power Management (ACPI). The settings are Enabled and Disabled.

Power Management

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

1. HDD Power Down
2. Doze Mode
3. Suspend Mode

There are three selections for Power Management, two of which have fixed mode settings.

Min. Power Saving	Minimum power management. Suspend Mode = 1hr., and HDD Power Down = 15 min.
Max. Power Saving	Maximum power management — Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Defined	Allows you to set each mode individu ally. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

ACPI Suspend Type

This item will set which ACPI suspend type will be used.

S1 (POS)	The S1 sleeping state is low wake-up latency sleeping state. In this state, no system context is lost(CPU or chip set) and hardware maintains all system context.
S3 (STR)	The S3 state is a low wake-up latency sleeping state where all system context is lost expect system memory. CPU, cache, and chipset context are lost in this state. Hardware main tains memory context and restores some CPU and L2 configuration context.

PM Control by APM

No	System BIOS will ignore APM when power managing the system.
Yes	System BIOS will wait for APM's prompt before it enter any PM mode

Note : Enable this for O.S. with APM like Windows® 98, Windows® NT, etc.

Video Off Option

The settings are N/A, Standby, Doze, or Suspend. This option is for choosing the setting in which the monitor will turn off.

N/A	Always turn on.
Doze	During Doze mode, the monitor will be turned off.
Standby	During Standby mode, the monitor will be turned off.
Suspend	During Suspend mode, the monitor will be turned off.

Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Initial display power management signaling.

Modem Use IRQ

This determines the IRQ in which the MODEM can use. The settings are: 3, 4, 5, 7, 9, 10, 11, NA.

Soft-Off by PWR-BTTN

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state. The settings are: Delay 4 Sec, Instant-Off.

State After Power Failure

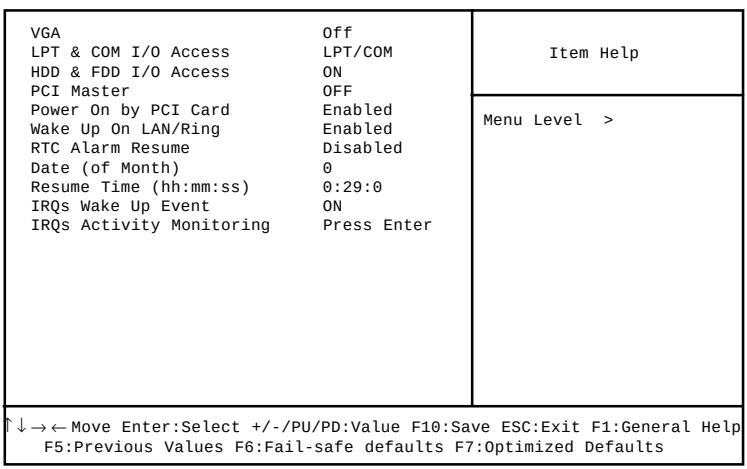
This option will determine how the system will power on after a power failure.

LED In Suspend

This item determines which state the Power LED will use. The settings are Blink, Dual color, and Single color.

Blink	Power LED will blink when the system enters the suspend mode.
Dual Color	Power LED will change its color when the system enters the suspend mode.
Single Color	Power LED will always remain lit.

Wake Up Events



VGA

When Enabled, you can set the VGA to awaken the system.

LPT & COM I/O Access

When On of LPT & COM, any activity from one of the listed system peripheral devices or IRQs wakes up the system

HDD & FDD I/O Access

When On of HDD & FDD, any activity from one of the listed system peripheral devices or IRQs wakes up the system

PCI Master

When On of PCI Master, any activity from one of the listed system peripheral devices or IRQs wakes up the system

Wake Up On LAN/Ring

To use this function, you need a LAN add-on card or Modem which supports power on functions. During Disabled, the system cannot be boot up through LAN and ignores any incoming call from the modem. During Enabled, the system can be boot up through LAN and modem.

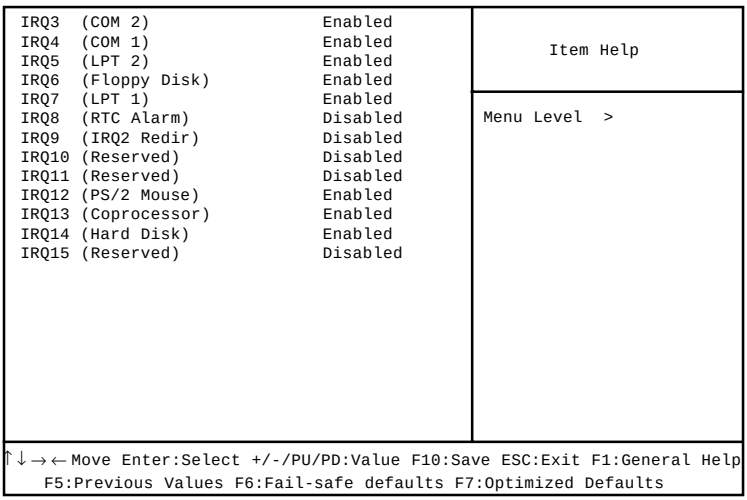
RTC Alarm Resume

This function is for setting date and time for your computer to boot up. During Disabled, you cannot use this function. During Enabled, choose the Date and Time Alarm:

Date(of month) Alarm	You can choose which month the system will boot up. Set to 0, to boot every day.
Time(hh:mm:ss) Alarm	You can choose what hour, minute and second the system will boot up.

Note: If you have change the setting, you must let the system boot up until it goes to the operating system, before this function will work.

IRQs Activity Monitoring

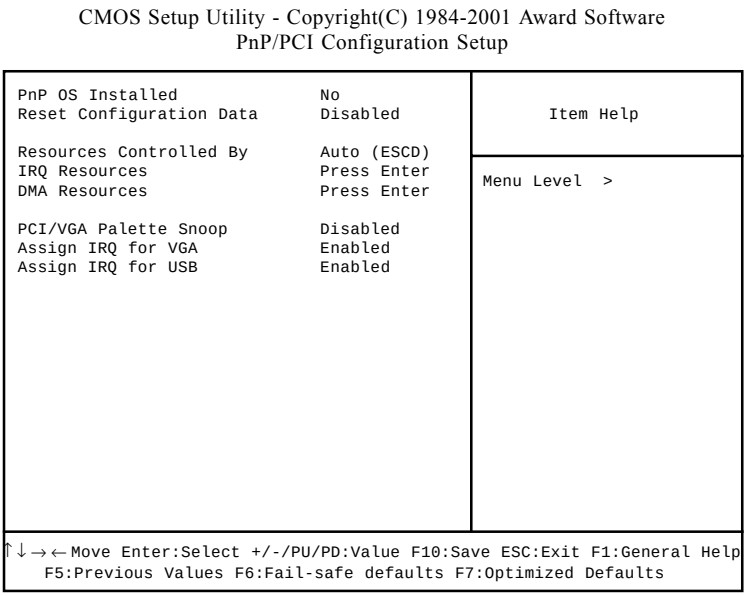


The following is a list of IRQ's, **I**nterrupt **ReQ**uests, which can be exempted much as the COM ports and LPT ports above can. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.

When set On, activity will neither prevent the system from going into a power management mode nor awaken it.

PnP/PCI Configuration Setup

This section describes configuring the PCI bus system. PCI, or **P**ersonal **C**omputer **I**nterconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.



PnP OS Installed

When set to YES, BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Windows® 95 or 98. When set to NO, BIOS will initialize all the PnP cards. So, for non-PnP operating system (DOS, Netware®), this option must set to Yes.

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot.

The settings are: Enabled and Disabled .

Resource Controlled By

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®95/98. If you set this field to "manual" choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a "➢"). The settings are: Auto (ESCD), Manual.

IRQ Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

DMA Resources

This sub menu can let you control the DMA resource.

PCI/VGA Palette Snoop

Leave this field at *Disabled*. The settings are Enabled, Disabled.

Assign IRQ for VGA

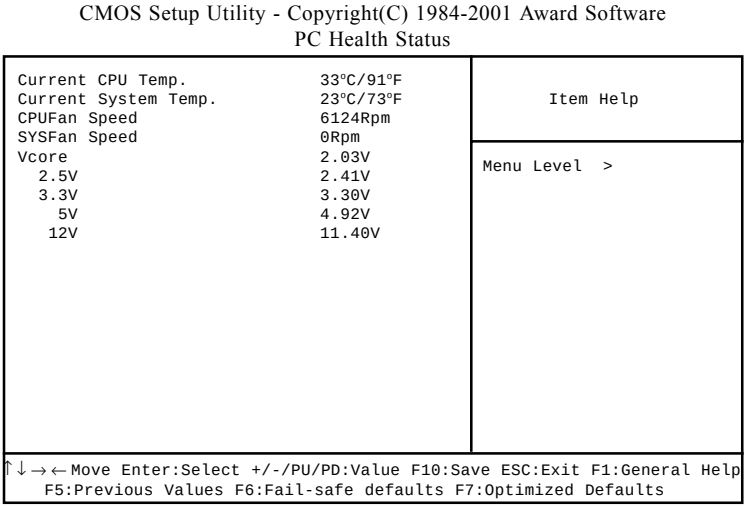
Leave this field at *Enabled*. The settings are Enabled, Disabled.

Assign IRQ for USB

Leave this field at *Enabled*. The settings are Enabled, Disabled.

PC Health Status

This section helps you to get more information about your system including CPU temperature, FAN speed and voltages. It is recommended that you contact with your motherboard supplier to get proper value about your setting of the CPU temperature.



Current CPU Temp.

This item shows the current CPU temperature.

Current System Temp.

This item shows the current system temperature.

CPUFAN Speed

This item shows the current CPUFAN speed.

SYSFAN Speed

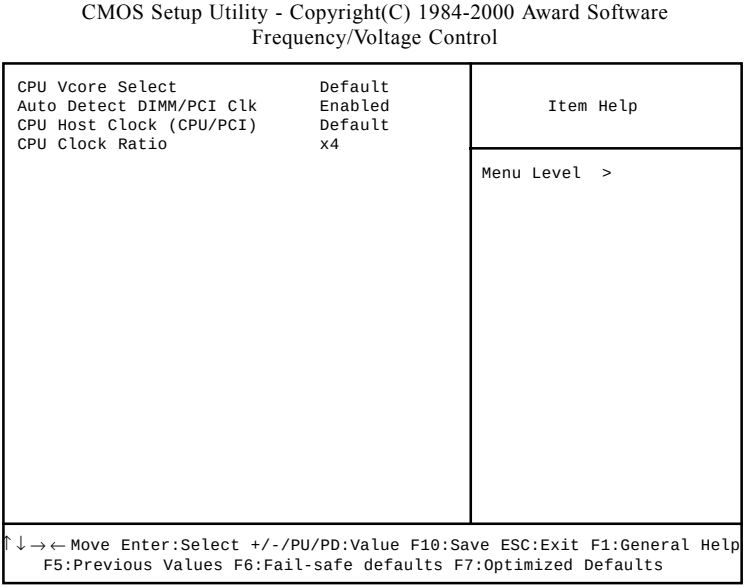
This item shows the current SYSFAN speed.

Vcore

This item shows the current system voltage.

Frequency/Voltage Control

This section is for setting the CPU Frequency/Voltage Control.



Auto Detect DIMM/PCI Clk

This item allows yout to enable/disable auto detect DIMM/PCI clock.

CPU Host Clock (CPU/PCI)

This item allows you to select the CPU clock.

CPU Clock Ratio

This item allows you to select the CPU clock ratio. The settings are 1.5, 2 ~ 7.5, 8.

Load Fail-Safe/Optimized Defaults

Load Fail-Safe Defaults
When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Load Fail-Safe Defaults (Y/N) ? N

Pressing 'Y' loads the BIOS default values for the most stable, minimal-performance system operations.

Load Optimized Defaults
When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N) ? N

Pressing 'Y' loads the default values that are factory settings for optimal performance system operations.

5 Installing VIA Chipset Drivers

The chapter describes how to install the VIA chipset , AC97 and optional Creative CT5880 audio drivers, and the basic system requirements.

Note: *You must install VIA chipset driver before installing other drivers like audio or VGA drivers.*

This chapter contains the following topics:

Overview

The MS-6309 is paired with the VIA® Apollo Pro133A chipset. Highly advanced, the chipset combines an integrated 2D/3D engine with DVD hardware acceleration, AC-97 audio support for SoundBlaster Pro and FM synthesis legacy audio.

The mainboard may come with a Creative CT5880 digital controller, which provides the next generation of audio performance to the PC market.

Audio Features

-- VIA audio codec

- AC'97 audio support for SoundBlaster Pro
- FM synthesis legacy audio

-- Creative CT5880 (Optional)

- SoundScape WaveTable Synthesizer
- Full DOS Game Compatibility
- PCI Bus Master for fast DMA
- Fully Compliant with PC97 Power Management Specification

System Requirements

This section describes system requirements for the VIA driver installation and usage.

Computer	Intel® Celeron™/Pentium® III (FC-PGA) processor or higher
Monitor	VGA Support, minimum 640x480 resolution
Operating system	DOS 5.0 or higher, Windows® 95/98, Windows® NT3.51 or 4.0, or OS/2®, Windows® 2000, or Windows® ME
CD-ROM	Double Speed or higher
Chipset	VIA®VT82C694X/VT82C686B chipset

Driver Installation for Windows® 98SE

Installing VIA® Chipset Driver

1. Insert the supplied CD disk into the CD-ROM drive.
2. The CD will auto-run and the setup screen will appear.
3. Click on **Via Chipset Drivers** and the screen will show **VIA Service Pack 4.XX**.
4. Click **Next** and the screen will show a **VIA Service Pack 1 README** dialog box.
5. Click **Next** and the screen will show four drivers: **VIA Atapi Vendor Support Driver**, **AGP VxD Driver**, **IRQ Routing Miniport Driver** and **VIA INF Driver 1.XX**. Select all four drivers and click on **Next**.
6. The setup program will request you to choose **Install VIA Atapi Vendor Support Driver**. Select **Install** and click **Next** to continue.
7. Select **Click to enable DMA Mode** and click **Next** to continue.
8. The setup program will request you to choose **Install VIA AGP VxD in turbo mode**, **Install VIA AGP VxD in normal mode** or **Uninstall VIA AGP VxD**. Select **Install VIA AGP VxD in turbo mode** and click on **Next**.
9. Select **Install VIA IRQ Routing Miniport Driver** and click on **Next**.
10. The setup program will request you to choose whether to restart the computer or not. Please select "Yes, I want to restart my computer now" and click **Finish**. The computer will restart and complete the VIA Chipset Drivers installation.

Installing VIA® AC97 PCI Sound Driver

1. Make sure the supplied CD disk is in the CD-ROM drive.
2. Go to **My Computer** and double click on the CD-ROM icon. The setup screen will appear again.
3. Click on **VIA AC97 PCI Sound Drivers** and the screen will show **VIA Audio Driver Setup Program 1.XX**.
4. Click **Next** to proceed and the screen will show **Install** or **Uninstall**. Select **Install** and then click on **Next**.
5. Click **Finish** to complete the AC97 Audio Driver Installation.

Installing Creative CT5880 Sound Driver (Optional)

1. Make sure the supplied CD disk is in the CD-ROM drive.

2. Go to **My Computer** and double click on the CD-ROM icon. The setup screen will appear again.
3. Click on **Creative PCI 128 Sound Drivers**.
4. The setup program will request you to **Remove and Install Software** or **Remove Only**. Select **Remove and Install Software** and click **Next** to continue.
5. Click **Finish** and then click **Yes** to restart your computer and complete the installation.

Driver Installation for Windows® 2000

Note: *Before installing VIA chipset driver, you should installing Windows 2000 Service Pack2 or the latest version.*

Installing VIA® Chipset Driver

1. Insert the supplied CD disk into the CD-ROM drive.
2. The CD will auto-run and the setup screen will appear.
3. Click on **Via Chipset Drivers** and the screen will show **VIA Service Pack 4.XX**.
4. Click **Next** and the screen will show a **VIA Service Pack 1 README** dialog box.
5. Click **Yes** and the screen will show three drivers: **VIA Bus Master Ultra ATA Driver (Windows 2000)**, **AGP VxD Driver** and **VIA INF Driver 1.XX**. Select all and click **Next** to proceed.
6. The screen will show a **VIA Bus Master Ultra ATA Driver** dialog box. Select **Install** and then click on **Next**.
7. The screen will show a **VIA GART AGP Driver 4.XX** dialog box. Select **Install AGP 4X/133 driver** and click **Next**.
8. There is a **Read Only File Detected** dialog box. Click **Yes**. A dialog box **Digital Signature Not Found** will appear and ask "Do you want to continue the installation of the VIA Bus Master Ultra ATA Controller". Click **Yes** to continue.
9. Select **Yes** and then click **Finish** to restart the system.
10. After restart, the system will find a new hardware device and the **Found New Hardware Wizard** dialog box will appear. Click **Next** to the next screen and a **VIA BM Ultra DMA Channel** device will be found.
11. Click **Next** and the driver search result will be shown on the screen. Click **Next**.
12. A dialog box **Digital Signature Not Found** will appear. Click **Yes**.
13. Click **Finish** and then click **Yes** to restart the system.
14. Repeat **Step 10 through Step 13** again.
15. After restart, the VIA Chipset driver installation will be complete.

Installing VIA® AC97 PCI Sound Driver

1. Make sure the supplied CD disk is in the CD-ROM drive.
2. Go to **My Computer** and double click the CD-ROM icon. The setup

screen will appear again.

3. Click on **VIA AC97 PCI Sound Drivers** and the screen will show **VIA AC97 PCI Sound Drivers**.
4. Click **Next** to proceed and the screen will show **Install** or **Uninstall**. Select **Install** and then click on **Next**.
5. A window **Digital Signature Not Found** will appear and ask "Do you want to continue the installation of the VIA AC'97 Audio Controller (WDM) Driver?" Click **Yes** to proceed.
6. Click **Finish** to complete setup.

Installing Creative CT5880 Sound Driver (Optional)

1. Make sure the supplied CD disk is in the CD-ROM drive.
2. Go to **My Computer** and double click the CD-ROM icon. The setup screen will appear again.
3. Click on **Creative PCI 128 Sound Drivers**.
4. The setup program will request you to **Remove and Install Software** or **Remove Only**. Select **Remove and Install Software** and click **Next** to continue.
5. A window **Digital Signature Not Found** will appear and ask "Do you want to continue the installation of Creative Sound Blaster PCI128 (WDM)?" Click **Yes**.
6. Click **Finish** to complete installation.

One Touch Setup:

*In Windows® 2000, you probably will see the **One Touch Setup** button appear on the setup screen. Choosing the button will help you install more than one driver into the system without going through the installation process step by step and save a lot of time. After clicking on One Touch Setup, a window will show up listing what drivers will be installed. Install other drivers not included by One Touch Setup manually if any.*

Driver Installation for Windows® ME

Installing VIA® Chipset Driver

1. Insert the supplied CD disk into the CD-ROM drive.
2. The CD will auto-run and the setup screen will appear.
3. Click on **Via Chipset Drivers** and the screen will show **VIA Service Pack 4.XX**.
4. Click **Next** and the screen will show a **VIA Service Pack 1 README** dialog box.
5. Click **Yes** and the screen will show two drivers: **AGP VxD Driver** and **VIA INF Driver 1.XX**. Select all and click **Next** to proceed.
6. The screen will show a **VIA_GART AGP Driver 4.XX** dialog box. Select **Install VIA AGP VxD in Turbo mode** and click **Next**.
7. The setup program will request you to choose whether to restart the computer or not. Please select "Yes, I want to restart my computer now" and click **Finish**. The computer will restart and finish the VIA Chipset Drivers installation.

Installing VIA® AC97 PCI Sound Driver

1. Make sure the supplied CD disk is in the CD-ROM drive.
2. Go to **My Computer** and double click the CD-ROM icon. The setup screen will appear again.
3. Click on **VIA AC97 PCI Sound Drivers**.
4. Then restart the system manually to make it work.

Installing Creative CT5880 Sound Driver (Optional)

1. Make sure the supplied CD disk is in the CD-ROM drive.
2. Go to **My Computer** and double click on the CD-ROM icon. The setup screen will appear again.
3. Click on **Creative PCI 128 Sound Drivers**.
4. The setup program will request you to **Remove and Install Software** or **Remove Only**. Select **Remove and Install Software** and click **Next** to continue.
5. Click **Finish** and then click **Yes** to restart your computer and complete the installation.

One Touch Setup:

In Windows® ME, you probably will see the ***One Touch Setup*** *button appear on the setup screen. Choosing the button will help you install more than one driver into the system without going through the installation process step by step and save a lot of time. After clicking on One Touch Setup, a window will show up listing what drivers will be installed. Install other drivers not included by One Touch Setup manually if any.*

Driver Installation for Windows® NT4.0

Note: *Install Windows® NT4.0 Service Pack 6 or above before installing the VIA drivers into Windows® NT.*

Installing VIA® Chipset Driver

1. Insert the provided CD disk into the CD-ROM drive.
2. The CD will auto-run and the setup screen will appear.
3. Click on **VIA Chipset Drivers** and the screen will show **VIA Service Pack 4.XX**.
4. Click **Next** and the screen will show the **VIA Service Pack 1 README** dialog box.
5. Click **Yes** to proceed and then select **Install** to enable (Ultra) DMA for IDE Driver.
6. The **Choose Destination Location** dialog box appears. Click **Next**.
7. The **Select Program Folder** dialog box appears. Click **Next**.
8. Click on "Yes, I want to restart my computer" and then click **Finish** to restart your computer and complete installation.

Installing VIA® AC97 PCI Sound Driver

1. Make sure the supplied CD disk is in the CD-ROM drive.
2. Go to **My Computer** and double click the CD-ROM icon. The setup screen will appear again.
3. Click on **VIA AC97 PCI Sound Drivers** and the screen will show the **VIA PCI Audio Drivers** setup screen.
4. The setup program will show **Install** or **Uninstall**. Select **Install** and click on **Next**.
5. The setup program will show the following message on the screen:

   Please choose "Add" from the next window and add the following device:
   VIA PCI Audio Controller
   VIA MIDI External Port

   Then click **OK**.
6. Follow the steps shown in **Step 5** to finish the VIA AC97 PCI Audio Drivers Installation.
7. A window will appear asking "Do you want to install the joystick

driver for the Microsoft Sidewinder 3D Pro Joystick?" Please click **No** to continue.

8. Please click **Finish** to restart your computer and complete installation.

Installing Creative CT5880 Sound Driver (Optional)

1. Make sure the supplied CD disk is in the CD-ROM drive.
2. Go to **My Computer** and double click on the CD-ROM icon. The setup screen will appear again.
3. Click on **Creative PCI 128 Sound Drivers**.
4. The setup program will request you to **Remove and Install Software** or **Remove Only**. Select **Remove and Install Software** and click **Next** to continue.
5. Click **Finish** and then click **Yes** to restart your computer and complete the installation.