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# Introduction

# 1

The 694T Pro (MS-6309 v5.X) ATX mainboard is a high-performance computer mainboard based on VIA® **Apollo Pro133T** chipset. The 694T Pro (MS-6309 V5.X) is optimized to support the whole series of new generation Intel® Pentium® III (FC-PGA/FC-PGA2) processor for high-end business/personal desktop market.

The **Apollo Pro133T** chipset consists of the VT82C694T North Bridge and the VT82C686B South Bridge. The VT82C694T is a Socket-370 system logic north bridge with the addition of 133 MHz capability for both the CPU and SDRAM interfaces. It may be used to implement desktop computer systems from 66MHz to 133MHz based on Socket-370. The primary features of the VT82C694T 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).

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	1-2
Mainboard Layout	1-4
Quick Components Guide	1-5
Key Features	1-6
MSI Special Features	1-7

## Chapter 1

# Mainboard Specification

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### CPU

- Supports Socket 370 for whole series of new generation of Intel® Celeron™ / Pentium III (FC-PGA)/(FC-PGA2) and VIA® C3 processors
- Supports 500MHz, 550MHz, 600MHz, 633MHz, 667MHz, 700MHz, 733MHz, 800MHz, 866MHz, 933MHz, 1GHz, 1.1GHz, 1.13GHz and up to 1.2GHz

### Chipset

- VIA® 694T chipset (520 BGA)
  - Supports 66/100/133MHz FSB
  - AGP 4x and PCI plus Advanced ECC Memory Controller
  - Supports PC100/133 SDRAM, VCM & ESDRAM technology
- VIA® VT82C686B chipset (352 BGA)
  - Enhanced Power Management Features
  - Integrated Super I/O (FDC, LPT, COM 1/2, and IR)
  - DirectSound AC97 Audio
  - Integrated hardware Soundblaster
  - Dual bus Master IDE Ultra DMA33/66/100
  - ACPI

### Clock Generator

- 66/100/133MHz clocks are supported.

### Main Memory

- Supports six memory banks using three 168-pin unbuffered DIMM
- Supports a maximum memory size of 1.5GB (32M x 8)
- Supports 3.3v SDRAM DIMM

### Slots

- One AGP (Accelerated Graphics Port) slot
  - AGP specification compliant
  - Supports AGP 1x/2x/4x
- 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 FDDs 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 (Rear x 2 / Front x 2)
  - 1 IrDA/HP connector for SIR
  - D-Bracket pin header

### **Audio**

- Chip integrated
- Creative CT5880 Hardware Audio (optional)

### **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**

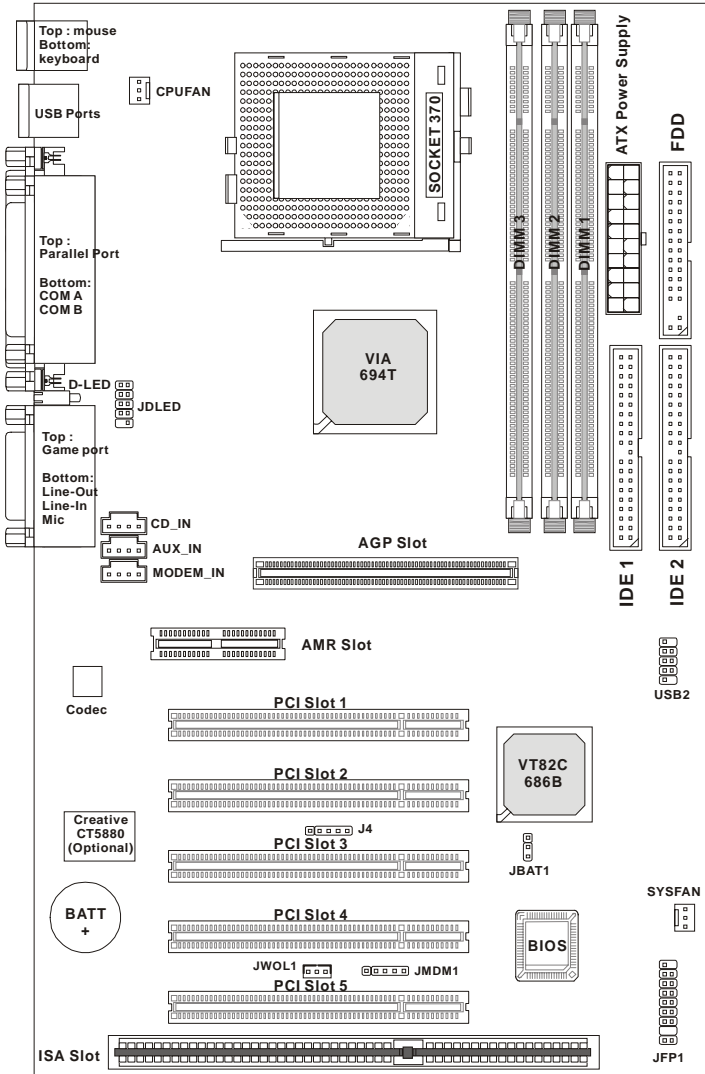
- ATX Form Factor: 30.5cm (L) x 19.2cm (W) x 4 layers PCB

### **Mounting**

- 6 mounting holes

# Chapter 1

## Mainboard Layout



**MS-6309 (V5.X) ATX VA Mainboard**



## Quick Components Guide

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Component	Function	Reference
DIMM1~2	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. 2-24
AGP Slot	Installing AGP cards	See p. 2-24
AMR Slot	Installing AMR riser cards	See p. 2-24
ISA Slot	Installing ISA expansion card	See p. 2-25
JMDM1	Connecting to modem module	See p. 2-15
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JBAT1	Clearing CMOS data	See p. 2-23
JFP1	Connecting to case	See p. 2-13
J4	Connecting to IR module	See p. 2-16
JDLED	Connecting to D-Bracket™	See p. 2-22

## Chapter 1

### Key Features

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- ATX Form Factor
- CPU: Socket 370 for Intel® Celeron™/Pentium III (FC-PGA/FC-PGA2) family series and VIA® C3 Processors
- Memory: 3 PC100/PC133 SDRAM DIMMs
- Vi/o & Vcore Adjustable
- USB PC to PC Networking Function (Optional)
- Support **Optional** D-Bracket™
- 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
- Support PCI 2.2
- 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 an extended sensing device that can 100% accurately detect the CPU's temperature. You can find out the temperature on BIOS setup menu. The PC Alert™ also provides the information.



### CPU temperature on Setup menu

AMIBIOS SETUP - Hardware Monitor Setup (C)2001 American Megatrends, Inc. All Rights Reserved		
Stop Unused PCI s Clk	Yes	
Spread Spectrum	Enabled	
CPU FSB Clock (Mhz)	Auto	
CPU Ratio	4.0x	
CPU Vcore Adjust (V)	Auto	
CPU Temperature	33°C/91°F	
System Temperature	33°C/91°F	
CPU Fan Speed	6124 RPM	
System Fan Speed	0 RPM	
Vcore	1.96V	
+ 2.5V	2.49V	
+ 3.3V	3.30V	
+ 5.0V	4.92V	
+ 12.0V	11.40V	
		ESC : Quit      ↑↓←→ : Select Item F1 : Help      PU/PD/+/- : Modify F5 : Load Previous Values F6 : Load Fail-Safe Defaults F7 : Load Optimized Defaults

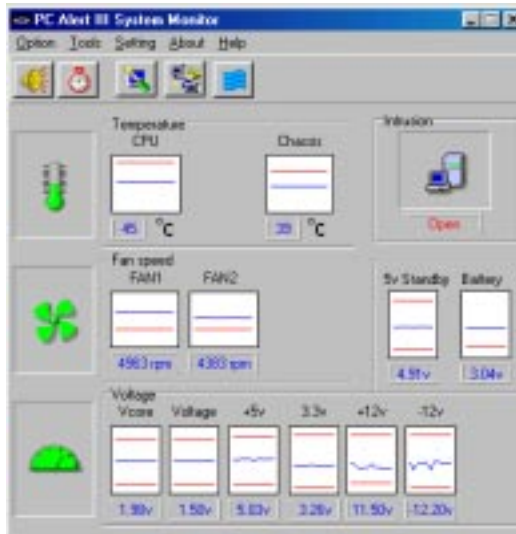
## Chapter 1

### 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.*



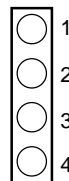
**Features:**

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

## Chapter 1

### D-LED™ & D-Bracket™

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**

If your motherboard installs an optional D-Bracket™ which also integrates four Diagnostic LEDs, definitions of the LED signals are the same as D-LED™ as shown below.



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

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

## Chapter 1

### 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



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# *Hardware Setup* **2**

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)	2-2
Memory Installation	2-4
Power Supply	2-6
Back Panel	2-7
Connectors	2-11
Jumpers	2-23
Slots	2-24

## Chapter 2

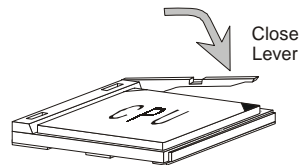
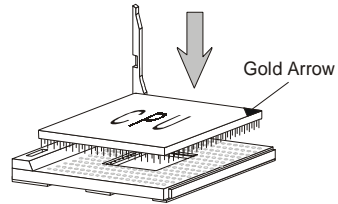
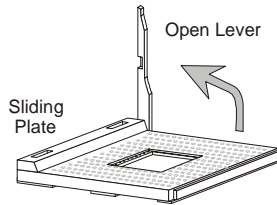
# Central Processing Unit: CPU

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The mainboard supports Intel® Celeron™/Pentium III (FC-PGA/FC-PGA2)/Tualatin (FC-PGA2) and VIA® Cyrix® III 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



**WARNING!**

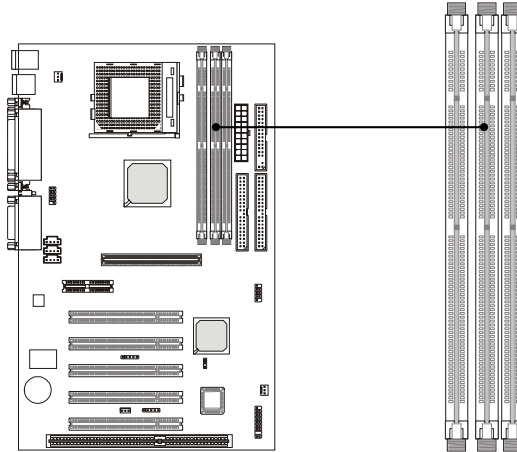
### ***Overclocking***

*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.***

## Chapter 2

### Memory Installation

The mainboard provides 3 sockets for 168-pin, 3.3V SDRAM DIMM with 6 memory banks. To operate properly, at least one DIMM module must be installed.



**SDRAM DIMM Slots  
(DIMM 1~3)**

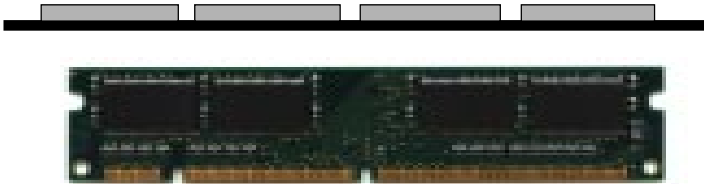
### SDRAM Combination

You can install the memory modules in any order and in any combination as listed below:

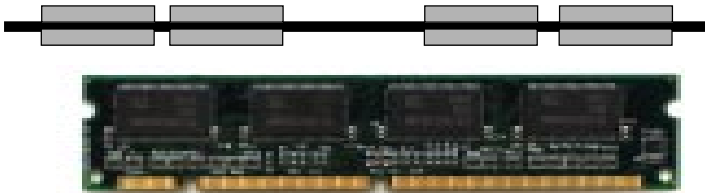
DIMM Socket	Memory Module	Total Memory
Socket 1 (Bank 0 & Bank 1)	32M B, 64M B, 128M B, 256M B, 512M B	32M B ~ 512M B
Socket 2 (Bank 2 & Bank 3)	32M B, 64M B, 128M B, 256M B, 512M B	32M B ~ 512M B
Socket 3 (Bank 4 & Bank 5)	32M B, 64M B, 128M B, 256M B, 512M B	32M B ~ 512M B
<b>Total System Memory</b>		<b>32M B ~ 1.5GB</b>

## **Module Installation Procedures**

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

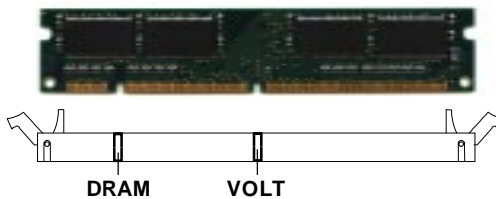


**Single Sided DIMM**



**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.

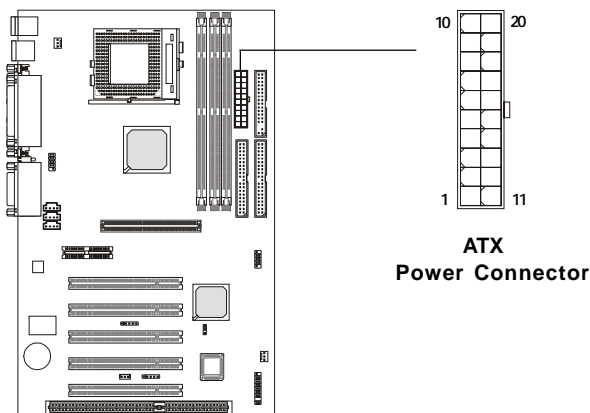
## Chapter 2

# 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

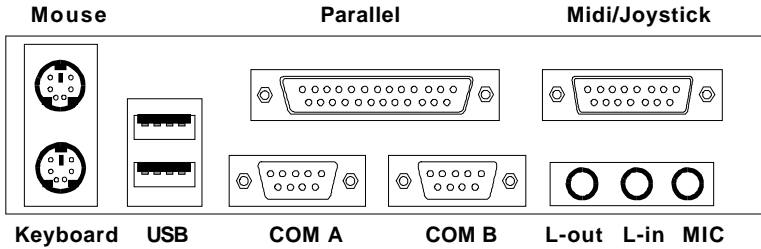
This connector allows you to connect to an ATX power supply. To connect to the ATX power supply, make sure the plug of the power supply is inserted in the proper orientation and the pins are aligned. Then push down the power supply firmly into the connector. The power connector supports **instant power 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**

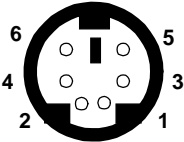
PIN	SIGNAL	DESCRIPTION
1	Mouse DATA	Mouse DATA
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Mouse Clock	Mouse clock
6	NC	No connection

## Chapter 2

### 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.

**Pin Definition**



**PS/2 Keyboard (6-pin Female)**

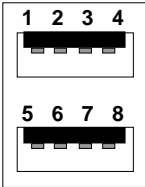
PIN	SIGNAL	DESCRIPTION
1	Keyboard DATA	Keyboard DATA
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Keyboard Clock	Keyboard clock
6	NC	No connection

---

### 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 this connector.

**USB Port Description**



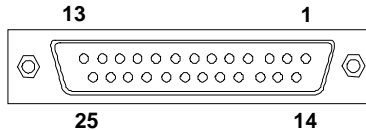
**USB Ports**

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.



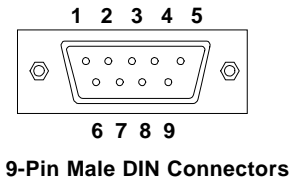
### Pin Definition

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	FE	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

## Chapter 2

### 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.



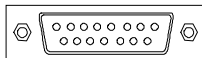
Pin Definition

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

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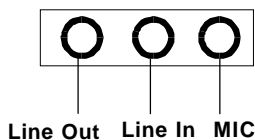
### Joystick/Midi Connectors

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.



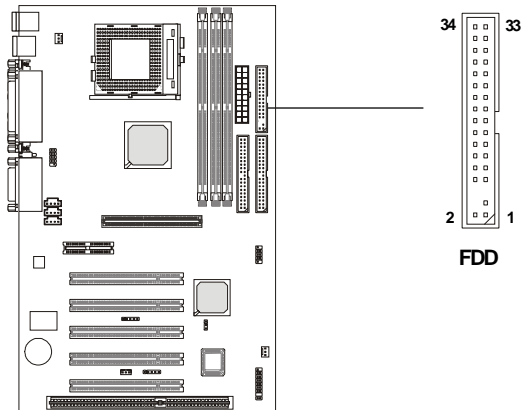
## Connectors

---

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: FDD

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



## Chapter 2

### Hard Disk Connectors: IDE1 & IDE2

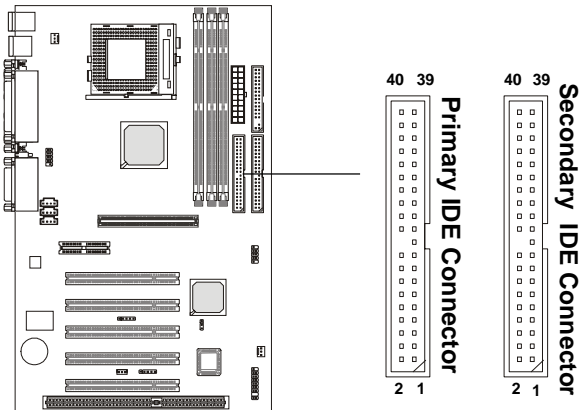
The mainboard uses an IDE controller on the VIA® VT82C686B chipset that provides PIO mode 0-4, Bus Master, and Ultra DMA 33/66/100 modes. It has two HDD connectors IDE1 (Primary) and IDE2 (Secondary). You can connect up to four hard disk drives, CD-ROM or 120MB Floppy to IDE1 and IDE2.

#### 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.

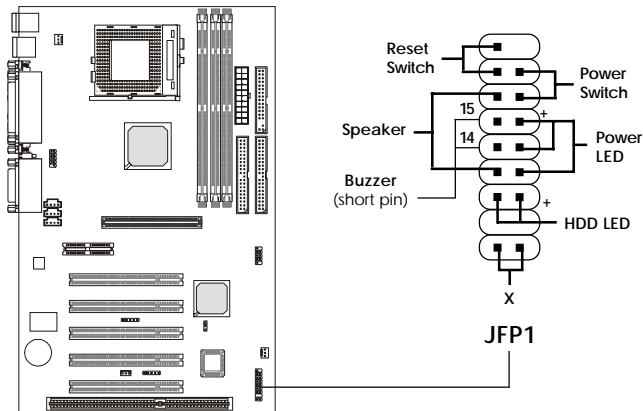


#### TIP:

*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 Switch, 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

## **Chapter 2**

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.

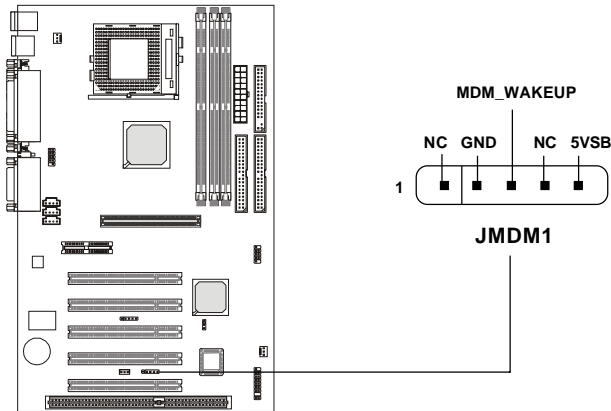
### **HDD LED**

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

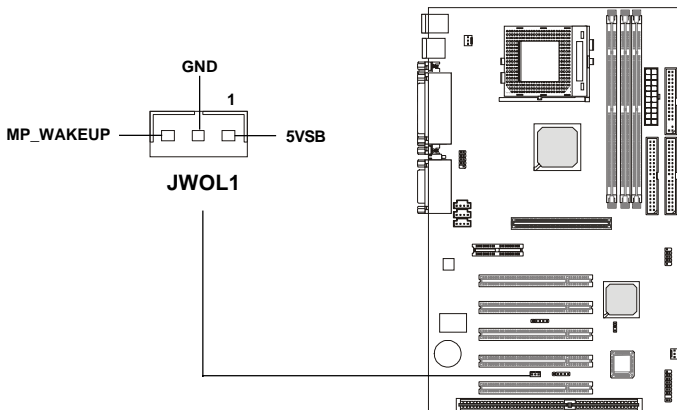
This connector allows you to connect to a modem card with Wake On Ring function. The connector will power up the system when a signal is received through the modem card.



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## Wake On LAN Connector: JWOL1

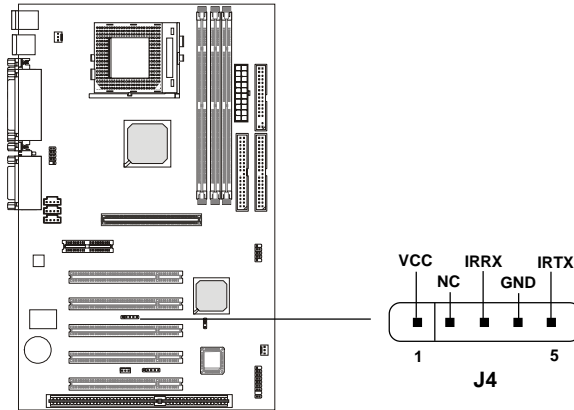
This connector allows you to connect to a LAN card with Wake On LAN function. You can wake up the computer via remote control through a local area network.



## Chapter 2

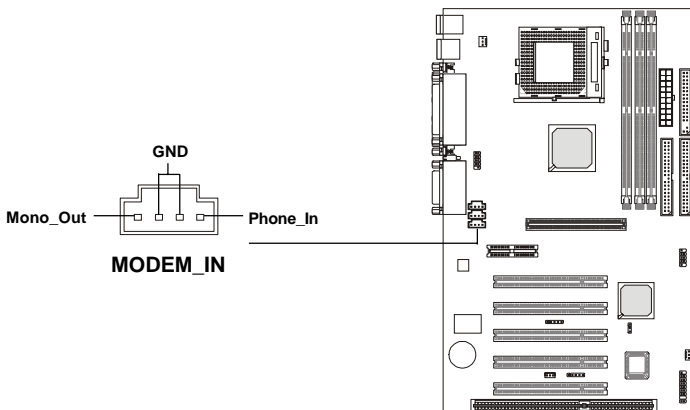
### IrDA Infrared Module Connector: J4

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: MODEM\_IN

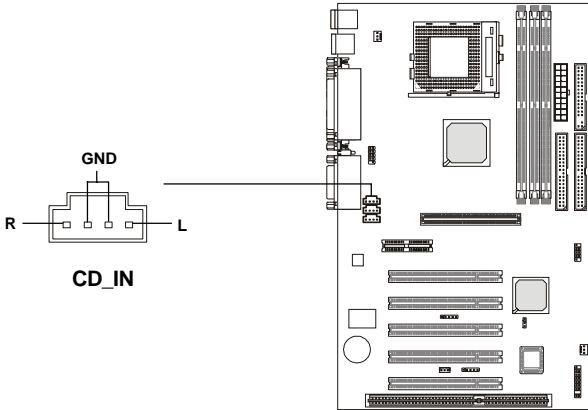
The connector is for modem with internal audio connector.





## **CD-In Connector: CD\_IN**

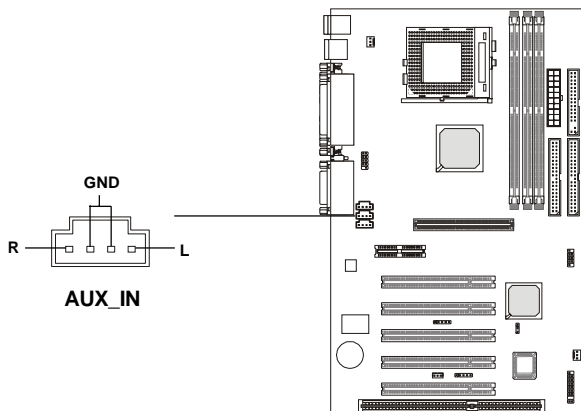
The connector is for CD-ROM audio connector.



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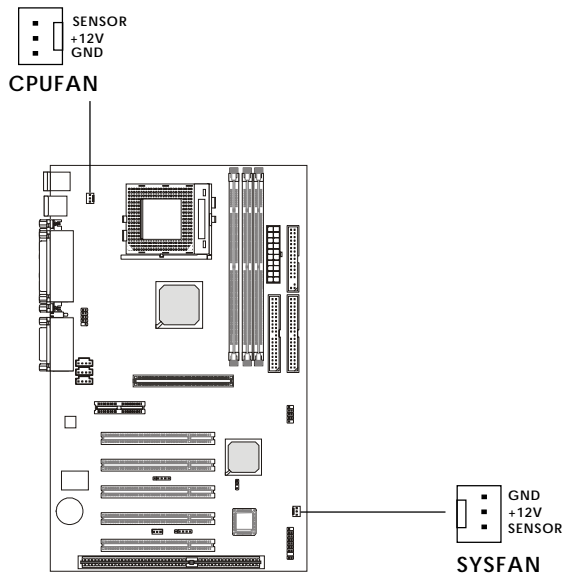
## **Aux Line-In Connector: AUX\_IN**

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.



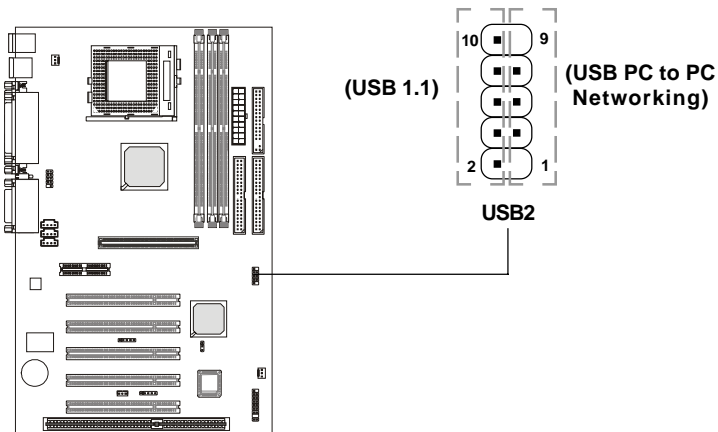
**Note:**

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 temperature.

## USB PC To PC Connector: USB2 (Optional)

The mainboard provides one USB (Universal Serial Bus) pin header that allows you to connect optional USB ports. USB2 is **optionally** implemented with USB PC to PC Networking function.

Depending on the model you purchased, the mainboard may offer **three USB 1.1 ports** and **one USB PC2PC port**, or just **four USB 1.1 ports**. This topic focuses on USB PC2PC function.



USB2 Pin Definition

Pin	Description	Pin	Description
1	NC	2	GND
3	USB3-	4	GND
5	USB3+	6	USB2+
7	GND	8	USB2-
9	NC	10	VCC

## Chapter 2

*Note: USB PC to PC Networking feature allows users to transfer and receive data from other computers or share system resources with other computers without using any network adapter. See below for instructions.*

### To Attach the USB PC to PC cable

1. Check whether the package includes the following items. If any is missing, contact your dealer.

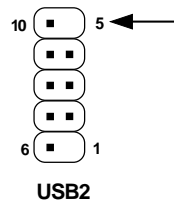
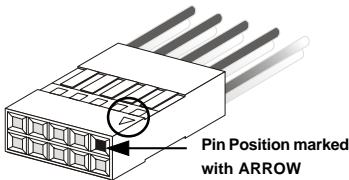


USB PC to PC Bracket

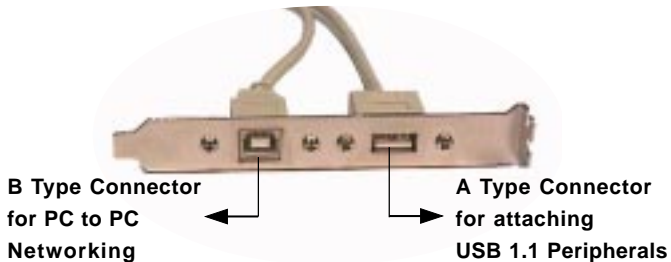


USB PC to PC Cable

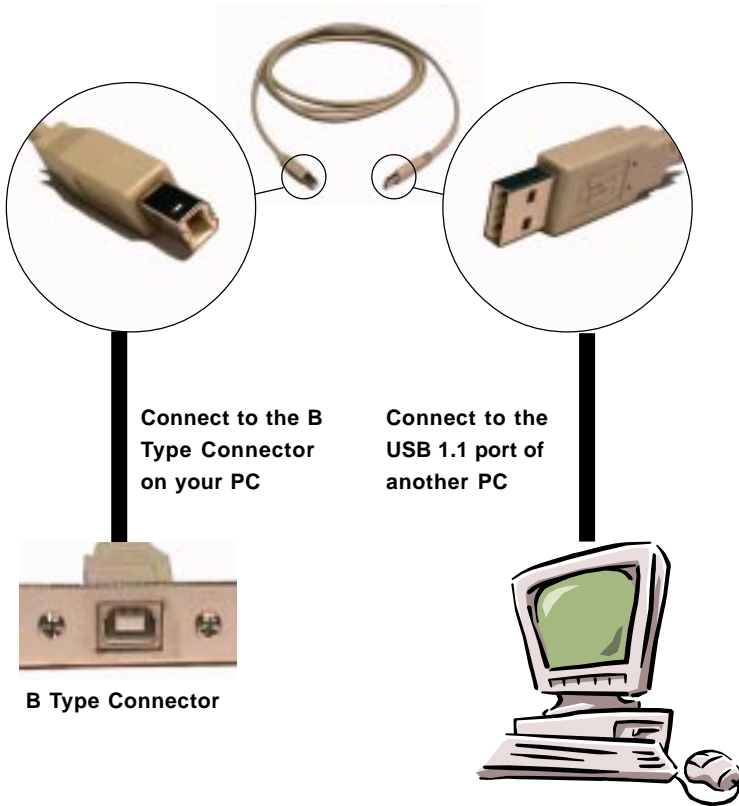
2. Connect the USB Bracket cable to the USB2 pin header on the mainboard. Locate the pin position marked with the ARROW on the connector of USB Bracket and Pin# 5 of USB2. Then align the marked pin position with Pin# 5 to attach the USB Bracket.



3. Identify the **B Type Connector** on the bracket used for PC to PC Networking function.



4. Connect your PC to another PC via USB PC to PC cable. The transfer rate will run at USB 1.1 speed (12Mbps/s).

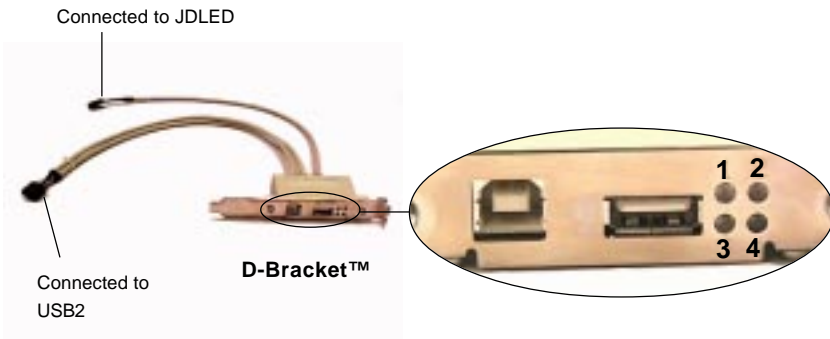
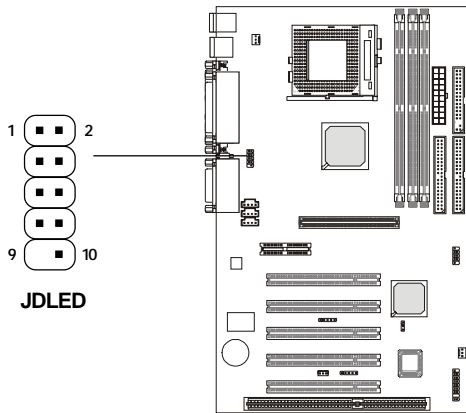


*For more information on USB PC to PC Networking function, refer to Appendix A: USB PC to PC Networking Function.*

## Chapter 2

### D-Bracket™ Connector: JDLED

Your motherboard comes with JDLED connector and you can connect an **optional** D-Bracket™ to JDLED. D-Bracket™ is a USB Bracket integrating four LEDs whose functions are similar to D-LED™ and allows users to identify system problem through 16 various combinations of LED signals. For definitions of 16 signal combinations, refer to page 1-10 *D-LED™* & *D-Bracket™*.

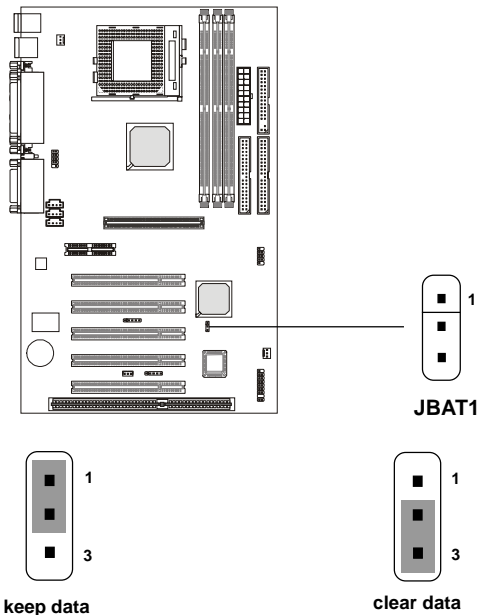



## Jumpers

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:



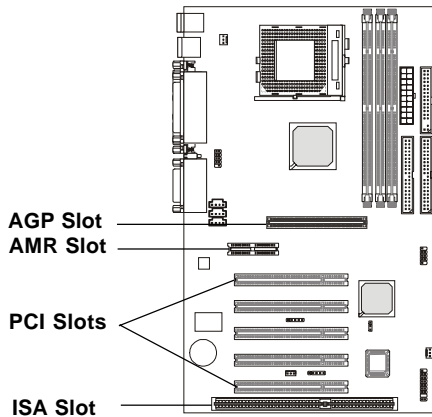
 <b>WARNING!</b>	<p><i>You can clear CMOS by shorting 2-3 pin while the system is off. Then return to 1-2 pin position. Avoid clearing the CMOS while the system is on; it will damage the mainboard.</i></p>
--	--

## Chapter 2

### 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” 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#	/	/	/
USB-2	INT D#	/	/	/
AC97	INT C#	/	/	/

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	3-2
Control Keys	3-2
Getting Help	3-3
The Main Menu	3-4
Standard CMOS Features	3-6
Advanced BIOS Features	3-8
Advanced Chipset Features	3-11
Power Management Setup	3-15
PNP/PCI Configurations	3-19
Integrated Peripherals	3-21
Hardware Monitor Setup	3-25
Load Optimized/Fail-Safe Defaults	3-27
Supervisor/User Password	3-29
IDE HDD AUTO Detection	3-31
Save & Exit Setup	3-32
Exit Without Saving	3-33

## Chapter 3

### 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
<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.

### **Default Settings**

The BIOS setup program contains two kinds of default settings: the Optimized and Fail-Safe defaults. Optimized defaults provide optimum performance settings for all devices and the system. (The “default” value described in the chapter usually refers to the Optimized defaults unless otherwise specified.) Fail-Safe defaults provide the safest set of parameters instead of the optimal system performance for the system.

## Chapter 3

### The Main Menu

---

Once you enter AMIBIOS SIMPLE SETUP UTILITY, the Main Menu will appear on the screen. The Main Menu displays twelve configurable functions and two exit choices. Use arrow keys to move among the items and press <Enter> to enter the sub-menu.

AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.43 (C)2001 American Megatrends, Inc. All Rights Reserved	
Standard CMOS Features	Load Fail-Safe Defaults
Advanced BIOS Features	Load Optimized Defaults
Advanced Chipset Features	Supervisor Password
Power Management Setup	User Password
PNP/PCI Configurations	IDE HDD AUTO Detection
Integrated Peripherals	Save & Exit Setup
Hardware Monitor Setup	Exit Without Saving
ESC : Quit	↑↓←→ : Select Item
F10 : Save & Exit	
Time, Date, Hard Disk Type,...	

#### Standard CMOS Features

Use this menu for basic system configurations, such as time, date etc.

#### Advanced BIOS Features

Use this menu to setup the items of AMI® special enhanced features.

#### Advanced Chipset Features

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

#### Power Management Setup

Use this menu to specify your settings for power management.

**PNP/PCI Configurations**

This entry appears if your system supports PnP/PCI.

**Integrated Peripherals**

Use this menu to specify your settings for integrated peripherals.

**Hardware Monitor Setup**

This entry shows your PC's current status, and allows you to adjust CPU clock, core voltage etc.

**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 factory default settings into the BIOS for optimal system performance operations.

**Supervisor Password**

Use this menu to set Supervisor Password.

**User Password**

Use this menu to set User Password.

**Save & Exit Setup**

Save changes to CMOS and exit setup.

**Exit Without Saving**

Abandon all changes and exit setup.

## Chapter 3

### Standard CMOS Features

---

The items inside STANDARD CMOS SETUP menu are divided into 9 categories. Each category includes none, one or more setup items. Use the arrow keys to highlight the item you want to modify and use the <PgUp> or <PgDn> key to switch to the value you prefer.

AMBIOS SETUP - STANDARD CMOS SETUP (C)2001 American Megatrends, Inc. All Rights Reserved							
Date (mm/dd/yyyy) : Wed Apr 18, 2001 Time (hh/mm/ss) : 00:00:00							
TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Pri Master	: Auto						
Pri Slave	: Auto						
Sec Master	: Auto						
Sec Slave	: Auto						
Floppy Drive A : 1.44 MB 3½				Base Memory : 640 Kb Other Memory : 384 Kb Extended Memory : 127 Mb Total Memory : 128 Mb			
Floppy Drive B : Not Installed							
Boot Sector Virus Protection Disabled							
Month: Jan - Dec Day: 01 - 31 Year: 1901 - 2099				ESC : Exit ↑↓ : Select Item PU/PD/+/-:Modify (Shift) F2 : Color			

#### Date

This allows you to set the system to the date that you want (usually the current date). The 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

This allows you to set the system time that you want (usually the current time). The time format is <hour> <minute> <second>.

### **Pri Master/Pri Slave/Sec Master/Sec Slave**

Press PgUp/<+> or PgDn/<-> to select the hard disk drive type. The specification of hard disk drive will show up on the right hand according to your selection.

<u>TYPE</u>	Type of the device.
<u>SIZE</u>	Capacity of the device.
<u>CYLS</u>	Number of cylinders.
<u>HEAD</u>	Number of heads.
<u>PRECOMP</u>	Write precompensation cylinder.
<u>LANDZ</u>	Cylinder location of Landing zone.
<u>SECTOR</u>	Number of sectors.
<u>MODE</u>	Access mode.

### **Floppy Drive A/B**

This item allows you to set the type of floppy drives installed. Available options are *Not Installed*, *360 KB 5¼*, *1.2 MB 5¼*, *720 KB 3½*, *1.44 MB 3½*, or *2.88 MB 3½*. The default value for Floppy Drive A is *1.44 MB 3½*, and for Floppy Drive B is *Not Installed*.

### **Boot Sector Virus Protection**

The item is to set the Virus Warning feature for IDE Hard Disk boot sector protection. When *Enabled*, BIOS will issue a virus warning message and beep if a write to the boot sector or the partition table of the HDD is attempted. Setting options are *Disabled* and *Enabled*. Default value is *Disabled*.

**Note:** *This feature only protects the boot sector, not the whole hard disk.*



## Chapter 3

# Advanced BIOS Features

---

AMIBIOS SETUP - ADVANCED BIOS FEATURES (C)2001 American Megatrends, Inc. All Rights Reserved	
Quick Boot	:Enabled
1st Boot Device	:Floppy
2nd Boot Device	:IDE-0
3rd Boot Device	:CDROM
Boot Other Device	:Yes
S.M.A.R.T. for HardDisks	:Disabled
BootUp Num-Lock	:On
Floppy Drive Swap	:Disabled
Floppy Drive Seek	:Enabled
Password Check	:Setup
Boot To OS/2	:No
CPU Serial Number	:Disabled
Internal Cache	:Enabled
External Cache	:Enabled
C000, 32k Shadow	:Cached
ESC : Quit                    ↑↓←→ : Select Item F1 : Help                    PU/PD/+/-:Modify F5 : Load Previous Values F6 : Load Fail-Safe Defaults F7 : Load Optimized Defaults	

### Quick Boot

Setting the item to *Enabled* allows the system to boot within 5 seconds since it will skip some check items. Available options are *Enabled* and *Disabled*. The default value is *Enabled*.

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

The items allow you to set the sequence of boot devices where AMIBIOS attempts to load the operating system. The settings are:

- IDE0*                    The system will boot from the first HDD.
- IDE1*                    The system will boot from the second HDD.
- IDE2*                    The system will boot from the third HDD.
- IDE3*                    The system will boot from the fourth HDD.
- Floppy*                    The system will boot from floppy drive.
- LS120/ZIP-FD*            The system will boot from LS-120 or ZIP drive that functions as floppy drive.
- MO/ZIP-HD*              The system will boot from MO or ZIP drive that functions as hard disk drive.

<i>CDROM</i>	The system will boot from the CD-ROM.
<i>SCSI</i>	The system will boot from the SCSI.
<i>Network</i>	The system will boot from the Network drive.
<i>Disabled</i>	Disable this sequence.

### **Boot Other Device**

Setting the option to *Yes* allows the system to try to boot from other devices if the system fails to boot from the 1st/2nd/3rd boot device.

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

This allows you to activate the S.M.A.R.T. (Self-Monitoring Analysis & Reporting Technology) capability for the hard disks. S.M.A.R.T is a utility that monitors your disk status to predict hard disk failure. This gives you an opportunity to move data from a hard disk that is going to fail to a safe place before it becomes offline. Settings are *Enabled* and *Disabled* (default).

### **BootUpNum-Lock**

This item is to set the Num Lock status when the system is powered on. Setting to *On* will turn on the Num Lock key when the system is powered on. Setting to *Off* will allow end users to use the arrow keys on the numeric keypad. Setting options are *On* and *Off*. Default value is *On*.

### **Floppy Drive Swap**

Setting to *Enabled* will swap floppy drives A: and B:. The default value is *Disabled*.

### **Floppy Drive Seek**

Setting to *Enabled* will make BIOS seek floppy drive A: before booting the system. Settings are *Disabled* and *Enabled*. The default value is *Enabled*.

### **Password Check**

This specifies the type of AMIBIOS password protection that is implemented. Setting options are described below.

## Chapter 3

Option	Description
Setup (default)	The password prompt appears only when end users try to run Setup.
Always	A password prompt appears every time when the computer is powered on or when end users try to run Setup.

### Boot to OS/2

This allows you to run the OS/2<sup>®</sup> operating system with DRAM larger than 64MB. When you choose the default value *No*, you cannot run the OS/2<sup>®</sup> operating system with DRAM larger than 64MB. But it is possible if you choose *Yes*. The default value is *No*.

### CPU Serial Number

This feature is for Pentium<sup>®</sup> !!! only. When set to *Enabled*, the system will check CPU Serial Number. Set to *Disabled* if you don't want the system to know the CPU Serial Number. The default value is *Disabled*.

### Internal/External Cache

The items enable or disable the L1 (internal) and L2 (external) cache memory for CPU. Setting to *Enabled* will speed up the system performance.


### C000, 32k Shadow

This item specifies how the contents of the adapter ROM named in the item are handled. Settings are described below:

Option	Description
Disabled (default)	The specified ROM is not copied to RAM.
Enabled	The contents of specified ROM are copied to RAM for faster system performance.
Cached	The contents of specified ROM are not only copied to RAM, the contents of the ROM area can be written to and read from cache memory.

## Advanced Chipset Features

AMIBIOS SETUP - CHIPSET FEATURES SETUP (C)2001 American Megatrends, Inc. All Rights Reserved	
Configure SDRAM Timing by SPD:Enabled	
SDRAM CAS Latency :3	
DRAM Frequency :HCLK-33	
DRAM Bank Interleave :Enabled	
System Performance :Normal	
Memory Hole :Disabled	
AGP Mode :Auto	
AGP Read Synchronization :Enabled	
AGP Fast Write :Disabled	
AGP Comp. Driving :Auto	
Manual AGP Comp. Driving :CB	
AGP Aperture Size :64MB	
AGP Master 1 W/S Write :Disabled	
AGP Master 1 W/S Read :Disabled	
Search for MDA Resources :Yes	
PCI Delay Transaction :Enabled	
ISA Bus Clock :PCICLK/4	
	ESC : Quit            ↑↓←→ : Select Item F1 : Help             PU/PD/+/-:Modify F5 : Load Previous Values F6 : Load Fail-Safe Defaults F7 : Load Optimized Defaults

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

### Configure SDRAM Timing by SPD

Selects whether DRAM timing is controlled by the SPD (Serial Presence Detect) EPROM on the DRAM module. Setting to *Enabled* enables DRAM Frequency and SDRAM CAS Latency automatically to be determined by BIOS based on the configurations on the SPD. Selecting *Disabled* allows users to configure these fields manually. The default value is *Enabled*.

### SDRAM CAS Latency

This controls the timing delay (in clock cycles) before SDRAM starts a read command after receiving it. Settings are 2 and 3. 2 increases the system performance while 3 provides more stable performance. The default value is 3.

### DRAM Frequency

Use this item to configure the clock frequency of the installed DRAMs. Settings are:

## Chapter 3

<i>HCLK</i>	The DRAM clock will be equal to the Host Clock.
<i>HCLK+33</i>	The DRAM clock will be equal to the Host Clock plus 33MHz. For example, if the Host Clock is 100MHz, the DRAM clock will be 133MHz.
<i>HCLK-33</i>	The DRAM clock will be equal to the Host Clock minus 33MHz. For example, if the Host Clock is 133MHz, the DRAM clock will be 100MH

When the installed CPU is 66MHz, this field has two setting options: *HCLK* and *HCLK+33*. When the installed one is 133MHz, the two setting options will become *HCLK* and *HCLK-33*. If you install one 100MHz CPU, then three setting options are available: *HCLK*, *HCLK+33* and *HCLK-33*.

### DRAM Bank Interleave

This field enables or disables bank interleave feature for the installed SDRAM. Disable the function if 16MB SDRAM is installed. Settings are *Disabled* and *Enabled*. The default value is *Enabled*.

### System Performance

This item enables you to enhance your system performance. But not every DIMM installed on your system supports the function. Therefore, if your system cannot run after selecting *Turbo* in the field, please set it back to *Normal*. Settings are *Normal* and *Turbo*. *Turbo* provides better system performance. The default value is *Normal*.

### 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 16MB. When this area is reserved, it cannot be cached. The settings are *512KB-640KB*, *15MB-16MB*, *14MB-16MB* and *Disabled* (default).

### AGP Mode

The item sets an appropriate mode for the installed AGP card. Settings are *1x*, *2x*, *4x* and *Auto* (default). Select *4x* if your AGP card supports the mode.

### AGP Read Synchronization

The field allows you to enable or disable the AGP Read Synchronization

feature. Settings are *Enabled* and *Disabled*.

### **AGP Fast Write**

The field enables or disables the AGP Fast Write feature. The Fast Write technology allows CPU to write directly to the graphics card without passing anything through the system memory and improves the AGP 4X speed. Select *Enabled* only when the installed AGP card supports the function. The default value is *Disabled*.

### **AGP Comp. Driving**

This field is used to adjust the AGP driving force. Selecting *Manual* allows you to select an AGP driving force in **Manual AGP Comp. Driving**. It is strongly suggested to select *Auto* to avoid any system error.

### **Manual AGP Comp. Driving**

This item specifies an AGP driving force.

### **AGP Aperture Size**

The field selects the size of the Accelerated Graphics Port (AGP) aperture. Aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. Settings are *4MB*, *8MB*, *16MB*, *32MB*, *64MB*, *128MB* and *256MB*.

### **AGP Master 1 W/S Write**

The field allows users to insert one wait state into the AGP master write cycle. Settings are *Enabled* and *Disabled* (default).

### **AGP Master 1 W/S Read**

The field allows users to insert one wait state into the AGP master read cycle. Settings are *Enabled* and *Disabled* (default).

### **Search for MDA Resources**

MDA stands for Mono Display Adapter. Select *Yes* only when you install and use mono display adapter card.

## **Chapter 3**

### **PCI Delay Transaction**

The chipset has an embedded 32-bit posted write buffer to support delayed transactions cycles. Select *Enabled* to support compliance with PCI specification version 2.1. Settings are *Enabled* (default) and *Disabled*.

### **ISA Bus Clock**

This item controls the number of clock frequency or timing for ISA bus. The system divides your PCI clock down to determine the ISA bus clock. For example, if you select *PCICLK/4* (divide-by-4) in the field, because 33MHz (PCI clock) divided by 4 equals 8.25MHz, the ISA bus clock is 8.25MHz. Settings are *PCICLK/2*, *PCICLK/3*, *PCICLK/4*, *PCICLK/5* and *PCICLK/6*. The default value is *PCICLK/4*.

## Power Management Setup

AMIBIOS SETUP - POWER MANAGEMENT SETUP (C)2001 American Megatrends, Inc. All Rights Reserved			
Sleep State	:S1/POS	Alarm Minute	:30
Sleep State LED	:Dual Color	Alarm Second	:30
Suspend Time Out (Minute)	:Disabled		
Display Activity	:Ignore		
IRQ3	:Monitor		
IRQ4	:Monitor		
IRQ5	:Ignore		
IRQ7	:Monitor		
IRQ9	:Ignore		
IRQ10	:Ignore		
IRQ11	:Ignore		
IRQ13	:Ignore		
IRQ14	:Monitor		
IRQ15	:Ignore		
Power Button Function	:Suspend		
Power Again	:Last State		
Wake Up On Ring/LAN	:Enabled	ESC : Quit	↑↓←→ : Select Item
Wake Up On PME#	:Enabled	F1 : Help	PU/PD/+/-:Modify
Resume By Alarm	:Disabled	F5 : Load Previous Values	
Alarm Date	:15	F6 : Load Fail-Safe Defaults	
Alarm Hour	:12	F7 : Load Optimized Defaults	

### Sleep State

This item specifies the power saving modes for ACPI function. Options are:

- S1/POS*      The S1 sleep mode is a low power state. In this state, no system context is lost (CPU or chipset) and hardware maintains all system context.
- S3/STR*      The S3 sleep mode is a lower power state where the information of system configuration and open applications/files is saved to main memory that remains powered while most other hardware components turn off to save energy. The information stored in memory will be used to restore the system when an “wake up” event occurs.

The default value is *S1/POS*.



## Chapter 3

### Sleep State LED

This item configures how the system uses sleep state LED on the case to indicate the sleep state. Available options are:

- Blinking* The sleep state LED blinks to indicate the sleep state.
- Single Color* The sleep state LED remains the same color.
- Dual Color* The sleep state LED changes its color to indicate the sleep state.

The default value is *Dual Color*.

### Suspend Time Out (Minute)

The item specifies the length of the period of system inactivity before the system enters the suspend mode from the standby mode. Nearly all power use is reduced in the suspend mode. Settings are *Disabled* (default), *1*, *2*, *4*, *8*, *10*, *20*, *30*, *40*, *50* and *60* (Minutes).

### Display Activity/IRQ3/IRQ4/IRQ5/IRQ7/IRQ9/IRQ10/IRQ11/IRQ13/IRQ14/IRQ15

These items specify if the BIOS will monitor the activity of the specified hardware peripheral or component. If set to *Monitor*, any activity detected on the specified hardware peripheral or component will wake up the system or prevent the system from entering the power saving modes. Settings are *Monitor* and *Ignore*. The default values for different items are listed below:

Display Activity	<i>Ignore</i>
IRQ3	<i>Monitor</i>
IRQ4	<i>Monitor</i>
IRQ5	<i>Ignore</i>
IRQ7	<i>Monitor</i>
IRQ9	<i>Ignore</i>
IRQ10	<i>Ignore</i>
IRQ11	<i>Ignore</i>
IRQ13	<i>Ignore</i>
IRQ14	<i>Monitor</i>
IRQ15	<i>Ignore</i>

**Note:** *IRQ* (Interrupt Request) lines are system resources allocated to I/O devices. When an I/O device needs to gain attention of the operating

system, it signals this by causing an IRQ to occur. After receiving the signal, when the operating system is ready, the system will interrupt itself and perform the service required by the I/O device.

### Power Button Function

This feature sets the function of the power button. Settings are:

- On/Off*      The power button functions as normal on/off button.
- Suspend*     When you press the power button, the computer enters the suspend/sleep mode, but if the button is pressed for more than four seconds, the computer is turned off.

### Power Again

This item specifies whether your system will reboot after a power failure or interrupt occurs. Available options are:

- Power Off*    Leaves the computer in the power off state.
- Power On*     Reboots the computer.
- Last State*   Restores the system to the previous status before the power failure or interrupt occurred.

### Wake Up On Ring/LAN/PME#

When setting to *Enabled*, the features allow your system to be awakened from the power saving modes through an incoming call from the modem, a signal from the LAN, or any event on PME (Power Management Event). Settings are *Enabled* and *Disabled* (default).

**Note:** You need to install a modem/LAN card supporting power on function for Wake Up On Ring/LAN function.

### Resume By Alarm

This is used to enable or disable the feature of booting up the system on a scheduled time/date from the soft off (S5) state. Settings are *Enabled* and *Disabled*.

### Alarm Date/Hour/Minute/Second

If **Resume By Alarm** is set to *Enabled*, the system will automatically resume (boot up) on a specific date/hour/minute/second specified in these fields.

### **Chapter 3**

Available settings for each item are:

Alarm Date	01 ~ 31, Every Day
Alarm Hour	00 ~ 23
Alarm Minute	00 ~ 59
Alarm Second	00 ~ 59

***Note:** If you change these settings, you must reboot the system until it enters the operating system and then power off the system. By doing so, the changed settings will come into effect next time you power on the system.*

## PNP/PCI Configurations

This section describes configuring the PCI bus system and PnP (Plug & Play) feature. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its 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.

AMIBIOS SETUP - PNP/PCI CONFIGURATION (C)2001 American Megatrends, Inc. All Rights Reserved		
Clear ESCD	:No	
Primary Graphics Adapter	:PCI	
PCI VGA Palette Snoop	:Disabled	
DMA Channel 0	:PnP	
DMA Channel 1	:PnP	
DMA Channel 3	:PnP	
DMA Channel 5	:PnP	
DMA Channel 6	:PnP	
DMA Channel 7	:PnP	
IRQ3	:PCI/PnP	
IRQ4	:PCI/PnP	
IRQ5	:PCI/PnP	
IRQ7	:PCI/PnP	
IRQ9	:PCI/PnP	
IRQ10	:PCI/PnP	
IRQ11	:PCI/PnP	
IRQ14	:PCI/PnP	
IRQ15	:PCI/PnP	
		ESC : Quit            ↑↓←→ : Select Item F1 : Help            PU/PD/+/-:Modify F5 : Load Previous Values F6 : Load Fail-Safe Defaults F7 : Load Optimized Defaults

### Clear ESCD

The ESCD (Extended System Configuration Data) NVRAM (Non-volatile Random Access Memory) is where the BIOS stores resource information for both PNP and non-PNP devices in a bit string format. When the item is set to *Yes*, the system will reset ESCD NVRAM right after the system is booted up and then set the setting of the item back to *No* automatically. The default value is *No*.

### Primary Graphics Adapter

This item specifies which VGA card is your primary graphics adapter. Settings are *AGP* and *PCI*. The default value is *PCI*.

## Chapter 3

### PCI VGA Palette Snoop

When 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 one ISA) and the:

VGA Palette Snoop Bit Setting	Action
<i>Disabled</i>	Data read or written by the CPU is only directed to the PCI VGA device's palette registers.
<i>Enabled</i>	Data read or written by the CPU is directed to both the PCI VGA device's palette registers and the ISA VGA device's palette registers, permitting the palette registers of both VGA devices to be identical.

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

These items specify the bus that the system DMA (Direct Memory Access) channel is used. The settings determine if AMIBIOS 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 reserve the DMA by assigning an *ISA/EISA* setting to it. The default value is *PnP*.

### IRQ 3/4/5/7/9/10/11/14/15

These items specify the bus where the specified IRQ line is used. The settings determine if AMIBIOS 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 IRQ pool, the end user can use these settings to reserve the IRQ by assigning an *ISA/EISA* setting to it. Onboard I/O is configured by AMIBIOS. All IRQs used by onboard I/O are configured as *PCI/PnP*. If all IRQs are set to *ISA/EISA*, and IRQ 14/15 are allocated to the onboard PCI IDE, IRQ 9 will still be available for PCI and PnP devices. Settings are *ISA/EISA* and *PCI/PnP*. The default value is *PCI/PnP*.

## Integrated Peripherals

AMIBIOS SETUP - INTEGRATED PERIPHERALS (C)2001 American Megatrends, Inc. All Rights Reserved		
On-Chip IDE	:Both	
FDC Controller	:Auto	
Serial Port1	:Auto	
Serial Port2	:Auto	
Serial Port2 Mode	:Normal	
Duplex Mode	:N/A	
Parallel Port	:Auto	
Parallel Port Mode	:ECP	
EPP Version	:N/A	
Parallel Port DMA	:Auto	
Parallel Port IRQ	:Auto	
AC97 Audio	:Auto	
MC97 Modem	:Auto	
OnBoard Legacy Audio	:Enabled	
Sound Blaster	:Disabled	
MPU-401	:Enabled	ESC : Quit           ↑↓←→ : Select Item
MPU-401 I/O Address	:330h-333h	F1 : Help           PU/PD/+/-:Modify
OnBoard Game Port	:Enabled	F5 : Load Previous Values
USB Controller	:All USB Port	F6 : Load Fail-Safe Defaults
USB Legacy Support	:Disabled	F7 : Load Optimized Defaults

### On-Chip IDE

This allows you to enable or disable on-chip IDE controller. Settings are *Disabled*, *Primary*, *Secondary* and *Both*. The default value is *Both*.

### FDC Controller

This is used to enable or disable the onboard Floppy controller.

Option	Description
Auto (default)	BIOS will automatically determine whether to enable the onboard Floppy controller or not.
Enabled	Enables the onboard Floppy controller.
Disabled	Disables the onboard Floppy controller.

### Serial Port1/2

These items specify the base I/O port addresses of the onboard Serial Port 1 (COM A)/Serial Port 2 (COM B). Selecting *Auto* allows AMIBIOS to automatically determine the correct base I/O port address. Settings are *Auto*, *3F8/COM1*, *2F8/COM2*, *3E8/COM3*, *2E8/COM4* and *Disabled*. The

## Chapter 3

default value is *Auto*.

### Serial Port2 Mode

This item sets the operation mode for Serial Port 2 (COM B). Settings are:

<i>Normal</i>	RS-232C Serial Port
<i>IrDA</i>	IrDA Infrared Port
<i>ASK IR</i>	Amplitude Shift Keyed Infrared Port

### DuplexMode

This field specifies a duplex value for the IR device connected to COM B. Full-Duplex mode permits simultaneous two-direction transmission. Half-Duplex mode permits transmission in one direction only at a time. Settings are *Half Duplex* and *Full Duplex*.

### Parallel Port

This field specifies the base I/O port address of the onboard parallel port. Selecting *Auto* allows AMIBIOS to automatically determine the correct base I/O port address. Settings are *Auto*, *378*, *278*, *3BC* and *Disabled*. The default value is *Auto*.

### Parallel Port Mode

This item selects the operation mode for the onboard parallel port: *Normal*, *Bi-Dir*, *ECP* (Extended Capability Port), *EPP* (Enhanced Parallel Port) or *EPP+ECP*. The default is *ECP*.

### EPP Version

The item selects the EPP version used by the parallel port if the port is set to *EPP* or *EPP+ECP* mode. Settings are *1.7* and *1.9*.

### Parallel Port DMA

This feature is configured only when **Parallel Port Mode** is set to the *ECP* or *ECP+EPP* mode. When **Parallel Port** is set to *ECP*, the field will show *Auto* indicating that BIOS automatically determines the DMA channel for the parallel port.

### **Parallel Port IRQ**

The item shows *Auto* indicating that BIOS determines the IRQ for the parallel port automatically.

### **AC'97 Audio**

This item is used to enable or disable the onboard AC'97 (Audio Codec'97) feature. Selecting *Auto* allows the mainboard to detect whether an audio device is used. If an audio device is detected, the onboard AC'97 controller will be enabled; if not, the controller is disabled. Disable the function if you want to use other controller cards to connect an audio device. Settings are *Disabled* and *Auto*. The default value is *Auto*.

### **MC'97 Modem**

This item is used to enable or disable the onboard MC'97 (Modem Codec'97) feature. Selecting *Auto* allows the mainboard to detect whether a modem is used. If a modem is detected, the onboard MC'97 controller will be enabled; if not, the controller is disabled. Disable the controller if you want to use other controller cards to connect modems. Settings are *Auto*, *Disabled* and *Enabled*. The default value is *Auto*.

### **OnBoard Legacy Audio**

The item enables or disables the onboard audio features of the mainboard and the following audio options in the BIOS.

### **Sound Blaster**

The item turns on/off the Sound Blaster feature of the board. If you want to play the Sound Blaster compatible games, you need to set the field to *Enabled*.

### **MPU-401**

The field enables or disables the MPU-401 interface (the Yamaha Sound Blaster mode).

### **MPU-401 I/O Address**

This item selects the base I/O port address for the MPU-401 interface. Settings are *300h-303h*, *310h-313h*, *320h-323h* and *330h-333h*.



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### **OnBoard Game Port**

The item enables or disables the Joystick/Game port.

### **USB Controller**

This is used to enable or disable the USB ports. Settings are *All USB Port*, *Disabled*, *USB Port 0&1* and *USB Port 2&3*. The default is *All USB Port*.

### **USB Legacy Support**

Set to *Keyboard* or *Keyb+Mouse* if your need to use an USB keyboard/mouse in the operating system that does not support or have any USB driver installed, such as DOS and SCO Unix. Default is *Disabled*.

## Hardware Monitor Setup

This section describes how to set the CPU FSB frequency, monitor the current hardware status including CPU/system temperatures, CPU/System Fan speeds, Vcore etc. Monitor function is available only if there is hardware monitoring mechanism onboard.

AMIBIOS SETUP - Hardware Monitor Setup (C)2001 American Megatrends, Inc. All Rights Reserved			
Stop Unused PCI's Clk	Yes		
Spread Spectrum	Enabled		
CPU FSB Clock (Mhz)	Auto		
CPU Ratio	4.0x		
CPU Vcore Adjust (V)	Auto		
CPU Temperature	33°C/91°F		
System Temperature	33°C/91°F		
CPU Fan Speed	6124 RPM		
System Fan Speed	0 RPM		
Vcore	1.96V		
+2.5V	2.49V		
+3.3V	3.30V		
+5.0V	4.92V		
+12.0V	11.40V		
			ESC : Quit            ↑↓←→ : Select Item F1 : Help            PU/PD/+/-:Modify F5 : Load Previous Values F6 : Load Fail-Safe Defaults F7 : Load Optimized Defaults

### Stop Unused PCI's Clk

This item allows you to remove (turn off) clocks from empty PCI slots to minimize the emissions. Settings are *Yes* (default) and *No*.

### Spread Spectrum

This item is used to configure the clock generator's Spread Spectrum feature. Settings are *Enabled* (default) and *Disabled*. Always disable the feature when overclocking the processor.

### CPU FSB Clock (Mhz)

This item is used to set clock frequencies (in MHz) for CPU FSB (Front Side Bus). If you install the 66MHz CPU, available settings range from *67MHz* to *93MHz* and *Auto*. If the installed CPU is 100MHz, settings range from *101MHz* to *127MHz* and *Auto*. If you use the 133MHz CPU, you will have

## **Chapter 3**

setting options *134MHz* to *160MHz* and *Auto*. The field provides you an overclocking method.

### **CPU Ratio/CPU Vcore Adjust (V)**

The items are used to adjust the CPU frequency multiplier (ratio) and CPU core voltage (Vcore). The items enable you to overclock the processor.

### **CPU Temperature/System Temperature/CPU Fan Speed/System Fan Speed/ Power Fan Speed/Vcore/+2.5V/+3.3V/+5.0V/+12.0V**

These items display the current status of all of the monitored hardware devices/components such as system voltages, temperatures and fan speeds.







## Chapter 3

Additionally, when a password is enabled, you can also have AMIBIOS to request a password each time the system is booted. This would prevent unauthorized use of your computer. The setting to determine when the password prompt is required is the PASSWORD CHECK option of the ADVANCED BIOS FEATURES menu. If the PASSWORD CHECK option is set to *Always*, the password is required both at boot and at entry to Setup. If set to *Setup*, password prompt only occurs when you try to enter Setup.

### ***About Supervisor Password & User Password:***

*Supervisor password :* Can enter and change the settings of the setup menu.

*User password:* Can only enter but do not have the right to change the settings of the setup menu.

## IDE HDD AUTO Detection

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

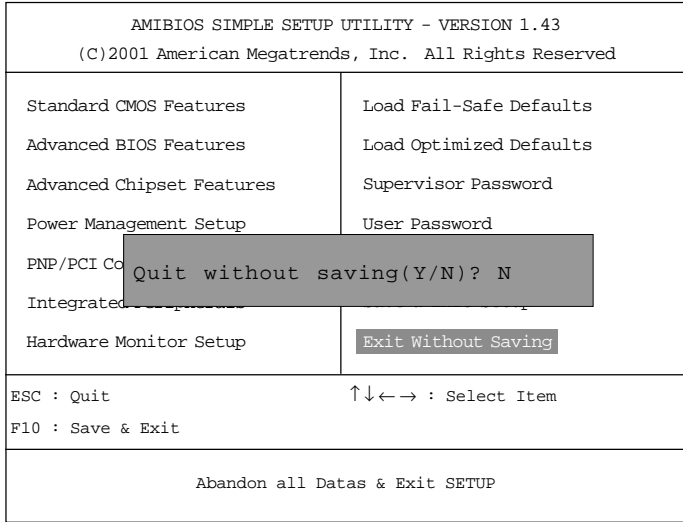
AMIBIOS SETUP - STANDARD CMOS SETUP (C)2001 American Megatrends, Inc. All Rights Reserved																																									
Date (mm/dd/yyyy) : Wed Apr 18, 2001 Time (hh/mm/ss) : 00:00:00																																									
	<table border="1"> <thead> <tr> <th>TYPE</th> <th>SIZE</th> <th>CYLS</th> <th>HEAD</th> <th>PRECOMP</th> <th>LANDZ</th> <th>SECTOR</th> <th>MODE</th> </tr> </thead> <tbody> <tr> <td>Pri Master</td> <td>:Auto</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Pri Slave</td> <td>:Auto</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Sec Master</td> <td>:Auto</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Sec Slave</td> <td>:Auto</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE	Pri Master	:Auto							Pri Slave	:Auto							Sec Master	:Auto							Sec Slave	:Auto						
TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE																																		
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Pri Slave	:Auto																																								
Sec Master	:Auto																																								
Sec Slave	:Auto																																								
Floppy Drive A : 1.44 MB 3½ Floppy Drive B : Not Installed	<table border="1"> <tbody> <tr> <td>Base Memory : 640 Kb Other Memory : 384 Kb Extended Memory : 127 Mb Total Memory : 128 Mb</td> </tr> </tbody> </table>	Base Memory : 640 Kb Other Memory : 384 Kb Extended Memory : 127 Mb Total Memory : 128 Mb																																							
Base Memory : 640 Kb Other Memory : 384 Kb Extended Memory : 127 Mb Total Memory : 128 Mb																																									
Boot Sector Virus Protection : Disabled																																									
Month: Jan - Dec Day: 01 - 31 Year: 1901 - 2099	ESC : Exit ↑↓ : Select Item PU/PD/+/- : Modify (Shift) F2 : Color																																								





## Exit Without Saving

When you want to quit the Setup menu, you can select this option to abandon the changes. A message as below will appear on the screen.



Typing *Y* will allow you to quit the Setup Utility without saving any changes to RTC CMOS.

Typing *N* will return to the Setup Utility.

---

# 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	4-2
Control Keys	4-2
Getting Help	4-3
The Main Menu	4-4
Standard CMOS Feature	4-6
Advanced BIOS Features	4-8
Advanced Chipset Features	4-11
Integrated Peripherals	4-14
Power Management Setup	4-18
PnP/PCI Configurations	4-24
PC Health Status	4-26
Frequency/Voltage Control	4-27
Load Fail-Safe/Optimized Defaults	4-28

## Chapter 4

### 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

---

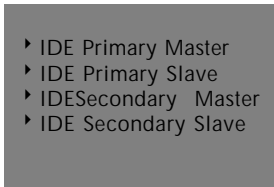
After entering the Setup utility, the first screen you see is the Main Menu.

### 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 press <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.



### **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.

## Chapter 4

# 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.

### CMOS Setup Utility - Copyright(C) 1984-2001Award Software Standard CMOS Setup

Date(mm:dd:yy): Time(hh:mm:ss):	Tue, Aug 21,2001 00:00:00	Item Help
IDE Primary Master IDE Primary Slave IDE Secondary Master IDE Secondary Slave	Press Enter 2557MB Press Enter None Press Enter None Press Enter None	Menu Level >
Drive A Drive B	1.44M, 3.5in. None	
Video Halt On	EGA/VGA All, But Keyboard	
Based Memory Extended Memory Total Memory	640K 64512K 65536K	
↑↓ → ← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		



**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

## Chapter 4

# Advanced BIOS Features

---

CMOS Setup Utility - Copyright(C) 1984-2001Award Software  
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	
Typeomatic Rate Setting	Disabled	
Typeomatic Rate (Chars/Sec)	6	
Typeomatic Delay (Msec)	250	
Security Option	Setup	
MPS Version Control For OS	1.1	
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.

## Chapter 4

### 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.

### MPS Version Control For OS

This field allows you to select which MPS (Multi-Processor Specification) version to be used for the operating system. To find out which version to use, consult the vendor of your operating system. Settings: 1.4 and 1.1.

**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®.

## Chapter 4

# 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.

CMOS Setup Utility - Copyright(C) 1984-2001 Award Software  
Advanced Chipset Features

SDRAM Cycle Length	3	Item Help	
DRAM Clock	Host CLK		
Memory Hole	Disabled	Menu Level >	
P2C/C2P Concurrency	Enabled		
Fast R-W Turn Around	Disabled		
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.

<b>HostCLK</b>	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

## **Chapter 4**

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	Menu Level >
Primary Master PIO	Auto	
Primary Slave PIO	Auto	
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	EPP 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.

## **Chapter 4**

### **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

## **Chapter 4**

### **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	
Video Off Option	Suspend->Off	
Video Off Method	V/H SYNC+Blank	Menu Level >
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.

## Chapter 4

### 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.

<b>Min. Power Saving</b>	Minimum power management. Suspend Mode = 1hr., and HDD Power Down = 15 min.
<b>Max. Power Saving</b>	Maximum power management — Suspend Mode = 1 min., and HDD Power Down = 1 min.
<b>User Defined</b>	Allows you to set each mode individually. 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.

<b>S1 (POS)</b>	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.
<b>S3 (STR)</b>	The S3 state is a low wake-up latency sleeping state where all system context is lost except system memory. CPU, cache, and chipset context are lost in this state. Hardware maintains 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.

## Chapter 4

### 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	Off	Item Help
LPT & COM I/O Access	LPT/COM	
HDD & FDD I/O Access	ON	Menu Level >
PCI Master	OFF	
PowerOn by PCI Card	Enabled	
Wake Up On LAN/Ring	Enabled	
RTC Alarm Resume	Disabled	
Date (of Month)	0	
Resume Time (hh:mm:ss)	0:29:0	
IRQs Wake Up Event	ON	
IRQs Activity Monitoring	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		

### 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.

## Chapter 4

### IRQs Activity Monitoring

IRQ3 (COM 2)	Enabled	Item Help	
IRQ4 (COM 1)	Enabled		
IRQ5 (LPT 2)	Enabled	Menu Level >	
IRQ6 (Floppy Disk)	Enabled		
IRQ7 (LPT 1)	Enabled		
IRQ8 (RTC Alarm)	Disabled		
IRQ9 (IRQ2 Redir)	Disabled		
IRQ10 (Reserved)	Disabled		
IRQ11 (Reserved)	Disabled		
IRQ12 (PS/2 Mouse)	Enabled		
IRQ13 (Coprocessor)	Enabled		
IRQ14 (Hard Disk)	Enabled		
IRQ15 (Reserved)	Disabled		
↑ ↓ → ← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults			

The following is a list of IRQ's, **I**nterrupt **R**e**Q**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 **Personal Computer Interconnect**, 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.

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PnP/PCI Configuration Setup

PnP OS Installed	No	Item Help
Reset Configuration Data	Disabled	
Resources Controlled By	Auto (ESCD)	Menu Level >
IRQ Resources	Press Enter	
DMA Resources	Press Enter	
PCI/VGA Palette Snoop	Disabled	
Assign IRQ for VGA	Enabled	
Assign IRQ for USB	Enabled	
↑ ↓ → ← Move Enter:Select +/-/PU/PD=Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

### 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.

## **Chapter 4**

### **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

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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.

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PC Health Status

Current CPU Temp.	33°C/91°F	Item Help
Current System Temp.	23°C/73°F	
CPU FAN Speed	6124Rpm	Menu Level >
SYS FAN Speed	0Rpm	
Vcore	2.03V	
2.5V	2.41V	
3.3V	3.30V	
5V	4.92V	
12V	11.40V	
↑ ↓ → ← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

### 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.

## Chapter 4

# Frequency/Voltage Control

---

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

CMOS Setup Utility - Copyright(C) 1984-2000 Award Software  
Frequency/Voltage Control

CPU Clock Ratio	x4	Item Help
Auto Detect DIMM/PCI CLk	Enter	
CPU Host Clock (CPU/PCI)	Default	
		Menu Level >
↑↓ → ← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

### CPU Clock Ratio

This item allows you to select the CPU clock ratio. The settings are 1, 5, 2~7.5, 8.

### Auto Detect DIMM/PCI CLK

This item allows you to enable/disable auto detect DIMM/PCI Clock. The settings are: Enabled, Disabled.

### CPU Host Clock (CPU/PCI)

This item specifies the clock frequency of CPU host bus (FSB) and PCI bus and provides a method for end users to overclock the processor accordingly. If the item shows *Default*, the clock frequency will use the default value for both the CPU host bus and PCI bus.

## 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.

---

# *Installing VIA Chipset Drivers* **5**

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	5-2
Driver Installation for Windows® 98SE	5-3
Driver Installation for Windows® 2000	5-5
Driver Installation for Windows® ME	5-7
Driver Installation for Windows® NT4.0	5-9



## Chapter 5

### Overview

---

The 694T Pro (MS-6309 v5.X) 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/FC-PGA2) 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®VT82C694T/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.

## **Chapter 5**

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

## Chapter 5

- 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.

## Chapter 5

### ***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**

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*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



## Chapter 5

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.

---

## ***USB PC to PC Networking Function***



USB PC to PC is the best solution for providing the easiest network connection service to you. By connecting multiple PCs through USB PC to PC port, you can build up a local area network without any network adapter. We give this Ethernet emulation environment a name — USB PC to PC. USB PC to PC supports TCP/IP, NetBEUI and IPX protocols. These features make your PCs able to share their resources such as files or printers to each other. Furthermore, USB PC to PC also gives you the ability of connecting to your existing Home or Office LAN for network resource or Internet sharing.

The section includes the following topics:

Installing GeneLink™ LAN Driver	A-2
Using USB PC to PC Networking Function	A-4

## **Appendix A**

### **Installing GeneLink™ LAN Driver**

---

Before you use the function, you need to install the GeneLink™ LAN Driver to all PCs connected via USB PC to PC cables.

#### **Step 1. Installing driver**

1. Insert the driver CD and click “USB PC to PC” button to install the driver.
2. The welcome dialog box appears and click Next > button.
3. Choose the destination folder and click Next > button.
4. Select components that you want to install and then click Next > button.  
(GeneLink™ LAN Driver is used only for those PCs connected via USB PC to PC port so that resources are shared between these PCs; GeneLink™ Software Router allows your PC to connect to another existing Home/Office LAN for network resource or Internet sharing.)
5. The Setup Program will install all necessary components automatically.
6. Setup completes. Then select ‘Yes, I want to restart my computer now’ and click “Finish” button to reboot your computer for updating your driver configuration.

After you complete the installation procedures, you’ll find Setup Program has installed GeneLink™ network driver in your computer. It binds TCP/IP, NetBEUI and IPX protocols to GeneLink™ device.

#### **Step 2 – Connect your PCs via the USB PC to PC cable**

#### **Step 3 - Network Login**

When you restart your computer, you will be prompted for a user name and password to login your network. Please enter an unique name for your PC.

#### **Step 4 – Sharing your resources and Connecting to Internet**

You need to manually share your resources (files, folders, drives and printers) to make them accessible for other computers. For Internet accessing, you must define which computer (That has already been connected to Internet) should install GeneLink™ Software Router. And all clients accessing Internet resources through GeneLink™ USB port should have installed GeneLink™ LAN driver.

## **USB PC to PC Networking Function**

### ***Notice:***

- 1. You should use the same network protocol (TCP/IP, NetBEUI or IPX) for connecting GeneLink™ LAN to existing Home/Office LAN.*
- 2. If you've already configured your [IPX/SPX] and [Client for Netware Networks] before installing GeneLink™ driver, we strongly recommend that you should also install **Software Router** while installing GeneLink™ driver into your system.*



## **USB PC to PC Networking Function**

- d. In “Sharing” tag, select “Share As”.
- e. Enter a name to help others recognize your sharing file or device (optional).
- f. Select “Access Type”. If you select “ Depend on Password”, your need to assign an access password for this device.
- g. Click “OK” button.

### **How to check if you have already shared your resources**

Go to the resource and check if Windows had added a hand on its icon or not. If yes, it means you’ve successfully shared your resource and others can access it through USB PC to PC; if not, you need to repeat the steps described in “**How to share your files, folders, drives and printers**” to complete your sharing processes.

### **Connecting to your existing Home or Office LAN**

To connect your USB PC to PC to another existing Home or Office LAN via USB PC to PC port, you need to install **GeneLink™ Software Router** in addition to GeneLink™ LAN driver. GeneLink™ Software Router is responsible for handling all network packets between USB PC to PC and your Home/Office LAN. So only the computer that is physically connected to both LANs needs to install GeneLink™ Software Router (i.e., this computer should install both GeneLink™ LAN and one network adapter for Home/Office LAN). For those computers on USB PC to PC, you only need to follow installation procedures on the manual to install GeneLink™ LAN driver. The following procedures will show you how to install drivers to the computer that will link both PC and your existing Home/Office LAN:

**Notice: If you want to connect your GeneLink™ LAN to your existing Home/Office LAN, you should use the same protocol for the two LANs.** For example, if your Home/Office LAN uses TCP/IP protocol, you should also use TCP/IP protocol for your GeneLink™ LAN. Otherwise, these two LANs cannot communicate to each other. The Setup Program installs TCP/IP, NetBEUI and IPX protocols for GeneLink™ LAN by default. If your Home/Office LAN uses other protocol, please install the same protocol for those computers within GeneLink™ LAN.

## Appendix A

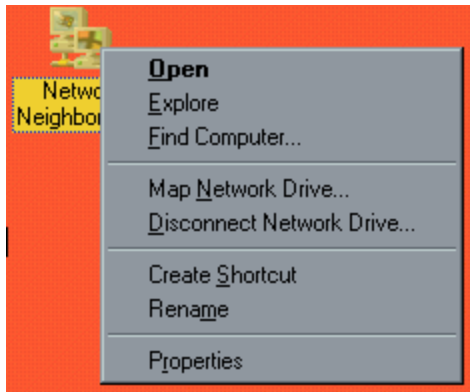
### Connecting to Internet through USB PC to PC & Office/Home LAN

If you would like to access Internet resources through USB PC to PC, here are some things you should notice:

- a. You must define which computer should install GeneLink™ Software Router.
- b. The computer which has installed GeneLink™ Software Router should have already been connected to internet.
- c. All clients which would like to access Internet resources through USB cable should have installed GeneLink™ driver.

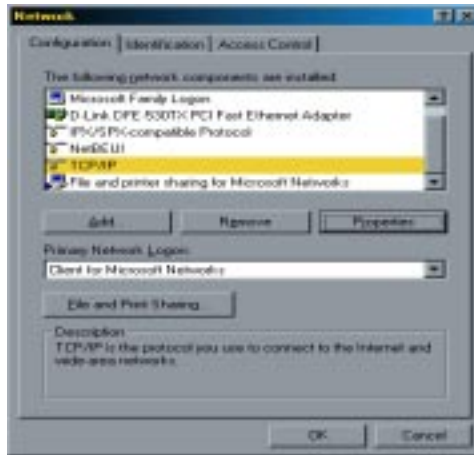
Now we need to make some network configurations on the Desktop/ Notebook which connect to GeneLink™ Software Router to make your Internet access possible (maybe you need to consult you Network Administrator for doing that):

- a. If your existing home/office network is NOT using DHCP to assign client's IP address, your need to:
  - Move your mouse pointer on Network Neighborhood icon and right click on it. You'll see a pop-up menu.



## USB PC to PC Networking Function

- Click on “Properties”, you’ll see another menu.



- Choose TCP/IP in Configuration tag, and then press “Properties” button. You’ll see “TCP/IP Properties” menu.





## Appendix A

- Now you need to navigate between “IP Address”, “Gateway”, and “DNS Configuration” tags to specify “IP Address”, “Subnet Mask”, “Gateway” and “DNS Server”. If you don’t know their values, please consult your Network Administrator.

- Press “OK” button to go back to “Network” pop-up menu. Choose “Identification” tag. Specify an unique name for your computer if it doesn’t have and fill in the name of your workgroup. If you are not sure what’s the name of your computer or Workgroup, please consult your Network Administrator.



- Press “OK” to complete your network configuration. Restart your computer and you’ll be ready to connect to Internet.

- b. If your existing HOME/OFFICE network is using DHCP to assign client’s IP address, your Network Sever will configure your network configuration automatically. So you can skip those procedures described in the previous session.

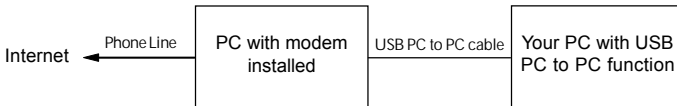
**SPECIAL NOTICE for those users who have already installed Network Adapter in their system:**

If you've already configured your [IPX/SPX] and [Client for Netware Networks] before installing GeneLink™ driver, we strongly recommend that you should also install **Software Router** when you install GeneLink™ driver into your system. If you decide not to install **Software Router**, then the OS will not allow two IPX/SPX configurations co-exist in the same system. This will cause GeneLink™ Driver Install Program overwrite your original IPX/SPX configuration and make your original network configuration malfunction.

## Appendix A

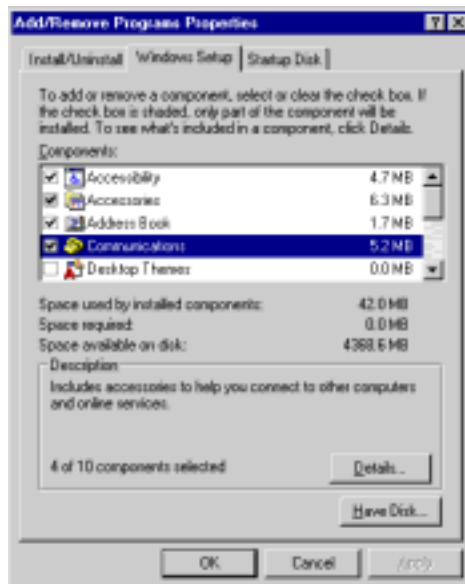
### Connecting to internet through USB PC to PC & remote modem

If there is no existing Office/Home LAN and your computer does not have a modem, you still can connect USB PC to PC to internet through another computer with a modem installed. **The function is available in Windows® 98SE and ME.**



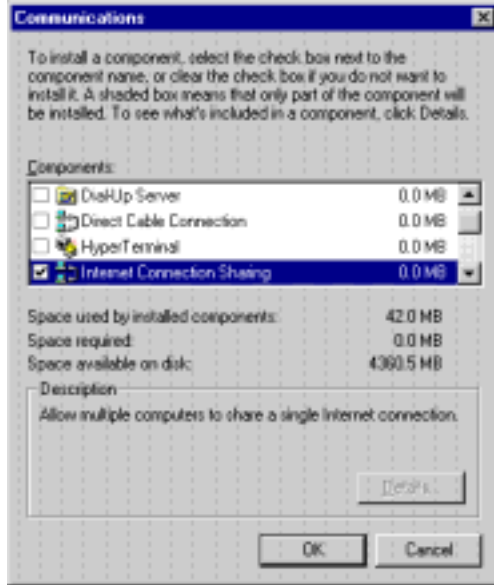
To access internet through another computer with modem, you need to setup “Internet Connection Sharing” on all computers connected via USB PC to PC cables. Instructions are as follows:

- Go to “Control Panel”.
- Double click “Add/Remove Programs” and the “Add/Remove Programs Properties” window appears.
- Select “Windows Setup” tag and double click



## USB PC to PC Networking Function

- d. “Communications”. The “Communications” window appears.  
Check “Internet Connection Sharing” and click “OK”.

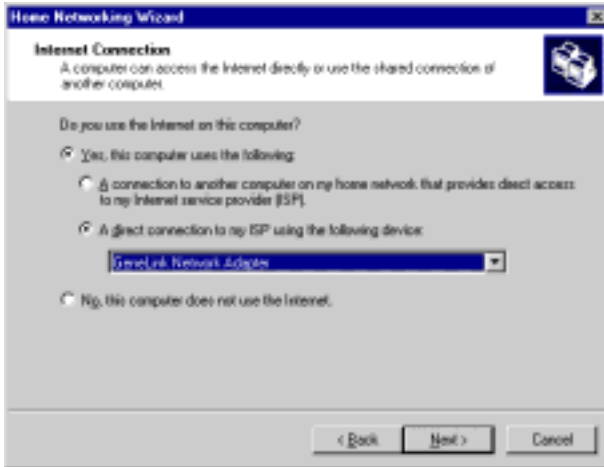


- e. The “Home Networking Wizard” starts. Click “Next”.



## Appendix A

- f. Click “A direct connection to my ISP using the following device”, and select “GeneLink Network Adapter” from the pull-down menu. Click “Next”.

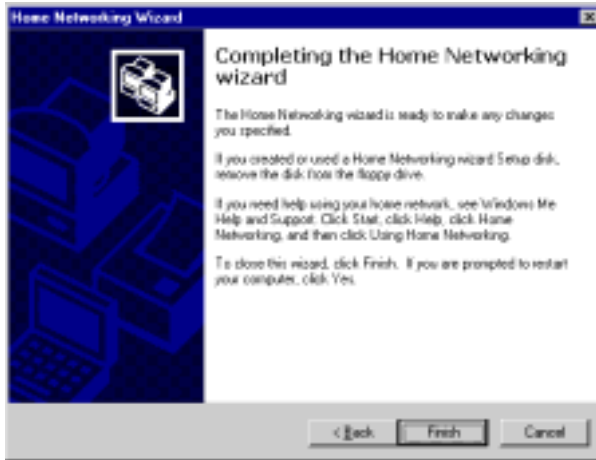


**Note:** For the computer with a modem installed, you need to select “My Connection” instead of “GeneLink Network Adapter” on the step, and after finishing installation of “My Connection”, select “GeneLink Network Adapter” when the above window returns.

- g. Continue to click “Next”.

## USB PC to PC Networking Function

- h. Click “Finish.”



- i. Restart the computer.

**Note:** In Windows® 98SE, you can access internet through the shared connection of another computer, but it is unable for you to control the remote modem. However, in *Windows® ME*, you are allowed to dial the remote modem of another computer using the dialing program built in Windows®.