627FWE/627FE/627FW/627F USER'S MANUAL

M/B For VIA C3 EBGA Processor

Trademark:

TABLE OF CONTENT

USER'S NOTICE

Manual Revision Information

Reversion	Revision History	Date
1.0	First Release	September 2003

Item Checklist

- ☑ Motherboard
- ☑ Cable for IDE/Floppy
- ☑ CD for motherboard utilities
- ☐ Cable for USB Port (Option)
- ☑ User's Manual
- ☐ Cable for COM2 Serial Port(Option)

Intel® Processor Family

Thermal Solutions

As processor technology pushes to faster speeds and higher performance, thermal management becomes increasingly crucial when building computer systems. Maintaining the proper thermal environment is key to reliable, long-term system operation. The overall goal in providing the proper thermal environment is keeping the processor below its specified maximum case temperature. Heatsinks induce improved processor heat dissipation through increased surface area and concentrated airflow from attached fans. In addition, interface materials allow effective transfers of heat from the processor to the heatsink. For optimum heat transfer, Intel recommends the use of thermal grease and mounting clips to attach the heatsink to the processor.

When selecting a thermal solution for your system, please refer to the website below for collection of heatsinks evaluated and recommended by Intel for use with Intel processors.
Vendor list for heatsink and fan of **Pentium® !!! processor**, please visit：
http://developer.intel.com/design/Pentiumiii/components/index.htm
Vendor list for heatsink and fan of **Intel® Celeron™ processor**, please visit：
http://developer.intel.com/design/celeron/components/index.htm

Chapter 1

Introduction of 627FWE/627FE/627FW/627F Motherboard

1-1 Feature of motherboard

The 627FWE/627FE/627FW/627F motherboard is design for use VIA C3 EBGA new generation processors, which utilize the Mini ITX form factor design and the memory size expandable to 1GB.

This motherboard uses the newest VIA VT8623 (CLE266) SMA (Share Memory Architecture) North bridge chipset and VT8235 south bridge chipset. These motherboards support VIA C3 processors whose 133MHz front side bus & 133MHz memory interface delivers a clear upgrade path to the future generation of 133MHz processors and DDR266 DRAM memory. It offers ULTRA DMA 133MB/sec (ATA 133) to provide speedier HDD throughout that boosts overall system performance.

For 627FWE/627FE/627FW/627F, with integrated 3D Graphic Acceleration, makes this board lower cost alternative to a video card. The motherboard also integrated VIA VT6103 LAN PHY Controller supports 10/100 BASE-T Transfer rate for those whom require faster LAN function for net work. 627FW/627FWE embedded VIA VT1622A TV Encoder provide S-Video/ Composite connector support NTSC/PAL output.

627FE/627FWE integrated VIA VT6307S 1394 Controller chip compliant with 1394a OHCI specification Version 1.0 . Compliant with IEEE 1394a-2000 standard, support 400Mbit/s data transfer rate.

This board also integrated AC'97 2.1 CODEC on board support 6-channel Audio function, which is fully compatible with Sound Blaster Pro® that gives you the best sound quality and compatibility. With 2 USB controller as well as capability of expanding to 6 USB connectors compliant to USB2.0 provided 480Mb/sec data transfer rate, which guarantees this board to meet future USB demand. Moreover, these motherboards had built-in hardware monitor function that capable of monitor and protect your computer.

These motherboards have special design for add expansion daughter board to add more functions such like COM port, PCMCIA card, CF card, LAN card. Also we design a 12V DC-DC Power supply board for small case requirement. (Please refer Chapter 2-6 for more detail)
This motherboard provides high performance & meets future specification demand. It is really wise choice for your computer.

1-2 Specification

Spec	Description
Design	∗ Mini ITX form factor 4 layers PCB size: 17.0x17.0cm
Chipset	∗ VIA VT8623 SMA (Share Memory Architecture) North Bridge ∗ VIA VT8235 South Bridge
Clock Generator	∗ ICS 93712 Clock Generator ∗ Support 66/100/133MHz system Bus Clock (CPU Bus Clock) ∗ Support CPU Frequency step by step setting in BIOS Setup ∗ Support 100/133 MHz system Memory clock ∗ Support 33MHz PCI Bus clock
CPU Support	∗ Support VIA C3 EBGA up to 1.0GHz processor ∗ Reserves support for future VIA C3 EBGA processors
Memory Socket	∗ 184-pin DDRDIMM socket x1 ∗ Support DDR200/DDR266 DDR memory ∗ Expandable to 1GB(512Mb x8/x16 DRAM technology)
Expansion Slot	∗ 32-bit PCI slot x1 PCI-2.2 compliant
Integrate VGA	∗ Integrate 2D/3D graphic Engines ∗ 8/16/32/64MB frame buffer using system memory ∗ Internal AGP 8x performance ∗ Support 24-bit 250MHz RAMDAC
TV-Out (for 627FW/627FWE)	∗ VIA VT1622A TV Encoder ∗ Provided S-Video/Composite output for NTSC/PAL system
Integrate IDE	∗ 2 channel of Bus Master IDE port supporting ULTRA DMA 33/66/100/133 mode devices
Integrate LAN	∗ Integrated VIA VT6103 LAN PHY Controller ∗ Support 10/100 BASE-T Transfer rate
1394 (for 627FE/627FWE)	∗ Integrated VIA VT6307S 1394 controller ∗ Compliant with IEEE 1394a-2000 standard, support 400Mbit/s data transfer rate.
Audio	∗ AC'97 Digital Audio controller integrated ∗ AC'97 6-channel Audio CODEC on board ∗ Audio driver and utility included
BIOS	∗ Award 4Mb Flash ROM
Multi I/O	∗ PS/2 keyboard and PS/2 mouse connectors ∗ Floppy disk drive connector x1 ∗ Parallel port x1(header), Serial port x2 (1 header, 1 connector) ∗ USB 2.0 connector x2, header x4 ∗ Audio connector (Line-in, Line-out, MIC)

1-3 Layout Diagram & Jumper Setting

PRINT

(For V623FP/V623FW)
LAN

PS/2 MOUSE

PS/2 Keyboard

MIC

LINE IN

VGA   **RCA**   **SVIDEO**   **USB3**   **USB**   **LINE OUT**

(Only for V623FW)

K/B Power ON
Jumper **(JP1)**

PS2 KB/Mouse Port

PC99 Back Panel

IR Connector
USB Power ON Jumper
(JP2)
USB Port **(USB3)**

COM1/COM2 Connector

USB Port
/LAN Connector
Front Panel Audio

Audio Connector **(CN2)**

CD Audio
6CH Audio Controller

2Mbit Flash ROM BIOS

PCI Slot

370 CPU Socket

CPU FAN

DIMM Socket X2

ATX Power Connector

Floppy Connector

VIA VT8623 Chip

VIA VT1211 I/O Chip

SFAN
VIA VT8235 Chip

ATA 100 IDE Connector

RTL8101L PCI LAN Controller
Clear CMOS **(JP5)**

Speaker Connector
Front Panel Conn.

USB Port (USB2)

USB Power On Jumper **(JP6)**

Jumpers

Jumper	Name	Description	Page
JP1	Keyboard Power ON Function Setting	3-pin Block	p.6
JBAT	CMOS RAM Clear	3-pin Block	p.7

Connectors

Connector	Name	Description	Page
ATXPWR	ATX Power Connector	20-pin Block	p.12
KB/MS1	PS/2 Mouse & PS/2 Keyboard Connector	6-pin Female	p.12
USB	USB Port Connector	4-pin Connector	p.12
LAN	LAN Connector	RJ45 Connector	p.12
COM1	Serial Port Connector	25-pin Female	p.12
VGA	VGA Port Connector	15-pin Female	p.13
S-Video	S-Video TV-Out Connector	4-pin MINI-DIN	p.13
RCA	Composite TV-Out / or SPDIF Connector	RCA Jack	p.13
Line-In/Out, MIC	Line-Out/Line-In/MIC Audio Connector	Phone Jack	p.13
FDD	Floppy Driver Connector	34-pin Block	p.13
IDE1/IDE2	Primary/Secondary Connector	40-pin Block	p.13
1394 (for 627FE/627FWE)	1394 Port1 Connector		p.13

▩   **Only for 627FW/627FWE**

Headers

Header	Name	Description	Page
COM2	COM2 Serial Port Headers	10-pin Block	p.14
PARALLEL	Parallel Port Headers	25-pin Block	
AUDIO	Line-Out/MIC output Header	4-pin Block	p.14
USB1/USB2	USB2.0 Port Headers	10-pin Block	p.14
1394B1	1394 Port2 Headers	9-pin Block	
HD_LED	Hard drive LED connector	3-pin Block	p.15
RESET	Reset switch lead	2-pin Block	p.15
SPEAK	Speaker connector	4-pin Block	p.15
PWR LED	Power LED Headers	2-pin Block	p.15
PWR BTN	Power Button Headers	2-pin Block	p.15
CPUFAN, SFAN1/2	FAN Speed Headers	3-pin Block	p.15
IR	IR infrared module Headers	5-pin Block	p.16
CDIN	CD Audio-In Headers	4-pin Block	p.16
CN1/CN2	*Daughter Board Expansion Headers*	50-pin Block	

Expansion Sockets

Socket/Slot	Name	Description	Page
DDR	DDR SDRAM Module Socket	184-pin DDR SDRAM Module Expansion Socket	p.10
PCI1	PCI Slot	32-bit PCI Local Bus Expansion slots	p.11

Chapter 2
Hardware installation

2-1 Hardware installation Steps

Before using your computer, you had better complete the following steps:
1. Check motherboard jumper setting
2. Install CPU and Fan
3. Install System Memory (DIMM)
4. Install Expansion cards
5. Connect IDE and Floppy cables, Front Panel /Back Panel cable
6. Connect ATX Power cable
7. Power-On and Load Standard Default
8. Reboot
9. Install Operating System
10. Install Driver and Utility

2-2 Checking Motherboard's Jumper Setting

(1) Keyboard Power On function Enabled/Disabled (3-pin): JP1
When setting Enabled you can using keyboard by key in password to power on system.

JP1

1-2 closed   K/B Power ON Disable   2-3 closed   K/B Power ON Enabled
(Default)

Keyboard Power On Setting
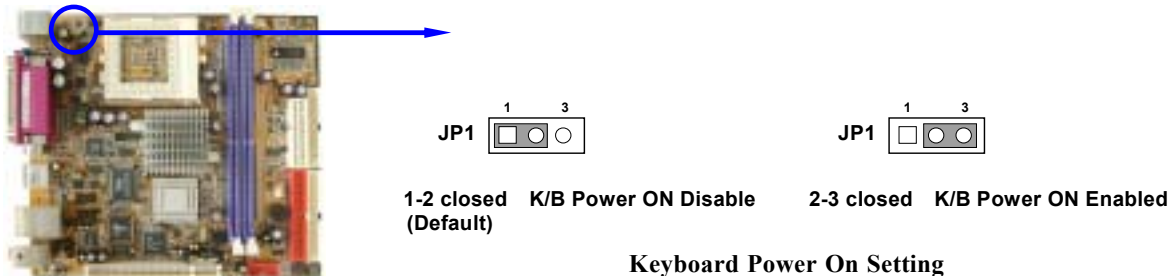
(2) CMOS RAM Clear (3-pin): JBAT
A battery must be used to retain the motherboard configuration in CMOS RAM short 1-2 pins of JBAT to store the CMOS data.

To clear the CMOS, follow the procedure below:
1. Turn off the system and unplug the AC power
2. Remove ATX power cable from ATX power connector
3. Locate JBAT and short pins 2-3 for a few seconds
4. Return JBAT to its normal setting by shorting pins 1-2
5. Connect ATX power cable back to ATX power connector

Note: When should clear CMOS
1. Troubleshooting

2. Forget password
3. After over clocking system boot fail

JBAT `1 □ ○ 3`   JBAT `1 □ ○ 3`

1-2 closed   Normal (Default)   2-3 closed   Clear CMOS

CMOS RAM Clear Setting
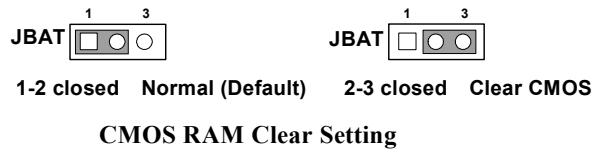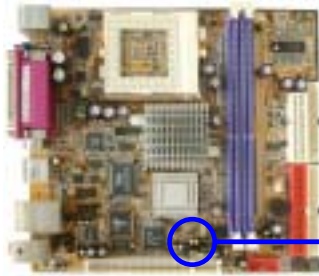
2-3 Install CPU

2-3-1 Glossary

Chipset (core logic) - two or more integrated circuits which control the interfaces between the system processor, RAM, I/O devises, and adapter cards.

Processor socket - the socket used to mount the system processor on the motherboard.

Slot (AGP, PCI, ISA, RAM) - the slots used to mount adapter cards and system RAM.

AGP - **A**ccelerated **G**raphics **P**ort - a high speed interface for video cards; runs at 1X (66MHz), 2X (133MHz), or 4X (266MHz).

PCI - **P**eripheral **C**omponent **I**nterconnect - a high speed interface for video cards, sound cards, network interface cards, and modems; runs at 33MHz.

Serial Port - a low speed interface typically used for mouse and external modems.

Parallel Port - a low speed interface typically used for printers.

PS/2 - a low speed interface used for mouse and keyboards.

USB - **U**niversal **S**erial **B**us - a medium speed interface typically used for mouse, keyboards, scanners, and some digital cameras.

Sound (interface) - the interface between the sound card or integrated sound connectors and speakers, MIC, game controllers, and MIDI sound devices.

BIOS (**B**asic **I**nput/**O**utput **S**ystem) - the program logic used to boot up a computer and establish the relationship between the various components.

Driver - software, which defines the characteristics of a device for use by another device or other software.

Processor - the "Central Processing Unit" (CPU); the principal integrated circuit used for doing the "computing" in "personal computer"

Front Side Bus Frequency - The working frequency of the motherboard, which is generated by the clock generator for CPU, DRAM and PCI BUS.

CPU L2 Cache - The flash memory inside the CPU, normally Pentium III CPU has 256K or above, while Celeron CPU will have 128K.

2-3-2　Setting CPU Bus Clock & Memory Clock Jumper

Setting the front side bus frequency and SDRAM frequency

The motherboard uses jumper less function for the front side bus frequency and SDRAM frequency users don't need setting any jumper when plug the CPU in motherboard

For experience user looking for over clocking possibility, please refer to sec 2-3-4.

2-3-4　Over clock Running

WARNING!	This section is for experienced motherboard installer only. Over clocking can result in system instability or even shortening life of the processor.

Users can choose over clock running by BIOS CMOS SETUP UTILITY. When you entered CMOS SETUP UTILITY, choose "Miscellaneous Control" you will see the screen as below then.

```
        CMOS Setup Utility – Copyright(C) 1984-2003 Award Software
                         Miscellaneous Control
 ┌─────────────────────────────────────────────────┬──────────────────────┐
 │  Auto Detect DIMM/PCI Clk        Enabled         │                      │
 │  Spread Spectrum                 Disabled        │      Item Help       │
 │  ** Current Host/PCI Clock is 133/133 MHz **     │                      │
 │  Host/PCI Clock at Next Boot is  133/33MHz       ├──────────────────────┤
 │  ** Current DRAM Clock is 133MHz **              │                      │
 │  DRAM Clock at Next Boot is       133MHz         │    Menu Level >      │
 │  +2.5V Select                    2.55V           │                      │
 │                                                  │                      │
 ├─────────────────────────────────────────────────┴──────────────────────┤
 │ ↑↓→← Move Enter:Select Item +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
 │       F5:Previous Values  F6:Optimized Defaults F7:Standard Defaults     │
 └─────────────────────────────────────────────────────────────────────────┘
```

WARNING!	The Design of this motherboard follows chipset and CPU vender's design guideline. Any attempts to push beyond product specification are not recommended and you are taking your own risk to damage your system or important data. Before over clocking, you must make sure your components are able to tolerate such abnormal setting, especially CPU, memory, hard disks, and VGA cards.

2-4　Install Memory

This motherboard provides one 184-pin DUAL INLINE MEMORY MODULES (DIMM) sites for memory expansion available from minimum memory size of 64MB to maximum memory size of 1.0GB DDR SDRAM.

Valid Memory Configurations

Bank	184-Pin DIMM	PCS	Total Memory
Bank 0, 1 (DDR1)	DDR200/DDR266 DDR SDRAM Module	X1	64MB~1.0GB
Total	System Memory (Max. 1.0GB)	2	64MB~1.0GB

Generally, installing DDR SDRAM modules to your motherboard is very easy, you can refer to figure 2-4 to see what a 184-Pin DDR200/DDR266 DDR SDRAM module looks like.
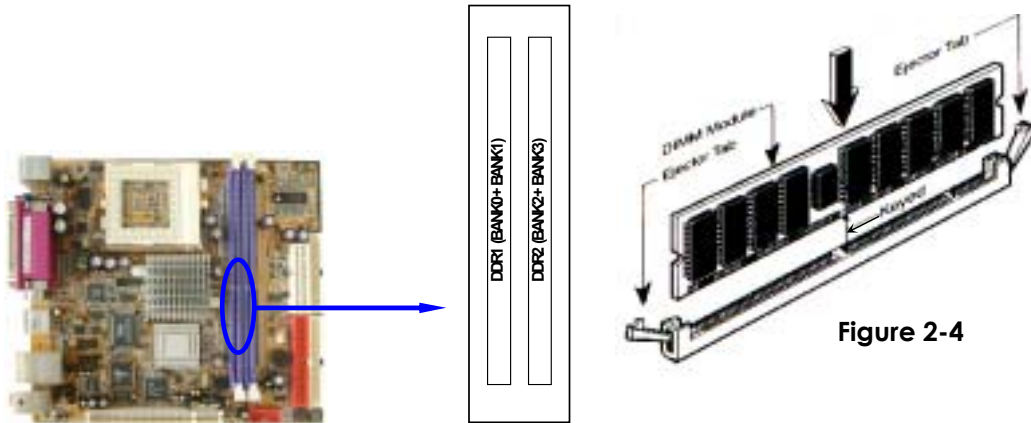
Figure 2-4

NOTE!	When you install DIMM module fully into the DIMM socket the eject tab should be locked into the DIMM module very firmly and fit into its indention on both sides.
WARNING!	For the DDR SDRAM CLOCK is set at 133MHz, use only DDR266-compliant DDR Modules. When this motherboard operate at 133MHz, most system will not even boot if non-compliant modules are used because of the strict timing issues, if your SDR Modules are not DDR266-compliant, set the DDR SDRAM clock to 100MHz to ensure system stability.

2-5 Expansion Cards

WARNING!	Turn off your power when adding or removing expansion cards or other system components. Failure to do so may cause severe damage to both your motherboard and expansion cards.

2-5-1 Procedure For Expansion Card Installation

1. Read the documentation for your expansion card and make any necessary hardware or software setting for your expansion card such as jumpers.
2. Remove your computer's cover and the bracket plate on the slot you intend to use.
3. Align the card's connectors and press firmly.
4. Secure the card on the slot with the screen you remove above.
5. Replace the computer system's cover.
6. Set up the BIOS if necessary.
7. Install the necessary software driver for your expansion card.

2-5-2 Assigning IRQs For Expansion Card

Some expansion cards need an IRQ to operate. Generally, an IRQ must exclusively assign to one use. In a standard design, there are 16 IRQs available but most of them are already in use.

Standard Interrupt Assignments

IRQ	Priority	Standard function
0	1	System Timer
1	2	Keyboard Controller
2	N/A	Programmable Interrupt
3 *	11	Communications Port (COM2)
4 *	12	Communications Port (COM1)
5 *	13	Sound Card (sometimes LPT2)
6	14	Floppy Disk Controller
7 *	15	Printer Port (LPT1)
8	3	System CMOS/Real Time Clock
9 *	4	ACPI Mode when enabled
10 *	5	IRQ Holder for PCI Steering
11 *	6	IRQ Holder for PCI Steering
12 *	7	PS/2 Compatible Mouse Port
13	8	Numeric Data Processor
14 *	9	Primary IDE Channel
15 *	10	Secondary IDE Channel

* These IRQs are usually available for ISA or PCI devices.

2-5-3 Interrupt Request Table For This Motherboard

Interrupt request are shared as shown the table below:

	INT A	INT B	INT C	INT D	INT E	INT F	INT G	INT H
Slot 1		√						
Onboard VGA	√							
Onboard USB	√							
Onboard USB 1		√						
Onboard USB 2			√					
LAN			√					
AC97/MC97			√					

IMPORTANT!	If using PCI cards on shared slots, make sure that the drivers support "Shared IRQ" or that the cards don't need IRQ assignments. Conflicts will arise between the two PCI groups that will make the system unstable or cards inoperable.

2-6 Connectors, Headers
2-6-1 Connectors
(1)   Power Connector (20-pin block) : ATXPWR

ATX Power Supply connector. This is a new defined 20-pins connector that usually comes with ATX case. The ATX Power Supply allows to use soft power on momentary switch that connect from the front panel switch to 2-pins Power On jumper pole on the motherboard. When the power switch on the back of the ATX power supply turned on, the full power will not come into the system board until the front panel switch is momentarily pressed. Press this switch again will turn off the power to the system board.
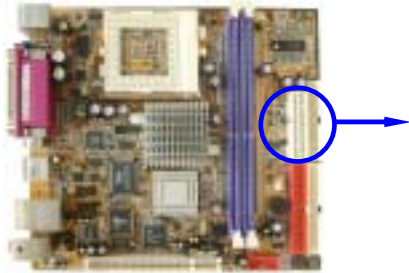
PIN	ROW2	ROW1
1	3.3V	3.3V
2	-12V	3.3V
3	GND	GND
4	Soft Power On	5V
5	GND	GND
6	GND	5V
7	GND	GND
8	-5V	Power OK
9	+5V	+5V (for Soft Logic)
10	+5V	+12V

Pin 1

****Optional DC-DC 12V Power Supply Board**********

To use this Power Board for save the space of low profile case

12V Mini-ITX Power supply
- 60Watt DC-DC power supply
- ATX standard compliant
- 12V operation
- 100% silent, small footprint

(2)   PS/2 Mouse & PS/2 Keyboard Connector: KB/MS1
If you are using a PS/2 mouse, you must purchase an optional PS/2 mouse set which connects to the 5-pins block and mounts to an open slot on your computer's case.

(3)   USB Port connector: USB
The connectors are 4-pins connector that connect USB devices to the system board.

(4)   LAN Port Connector: LAN
These connectors are standard RJ45 connector for Network supports 10/100 BASE-T transfer rate.

(5)   Serial Port Connector (9-pin female): COM1
Serial Port connector is a 9-pin D-Subminiature connector. The On-board Serial Port can be disabled through the BIOS SETUP. Please refer to Chapter 3 "INTEGRATED PERIPHERALS SETUP" section for more detail information.

(6)   VGA Connector (15-pin female): VGA
VGA Connector is a 15-pin D-Subminiature Receptacle connector.
This connector is for connection Monitor and System to display.

(7)   TV-Out Connector: S-Video/ RCA (for 627FW/627FWE only)

The S-Video/RCA Connector is for S-Video/Composite TV-Out function

(8)   Audio Connector: (Line-Out/ Line-IN/ MIC)
This Connector are 3 phone Jack for LINE-OUT/ LINE-IN/ MIC.
Line-out :   Audio output to speaker
Line-In :   Audio input to Audio controller
MIC :   Microphone Connector
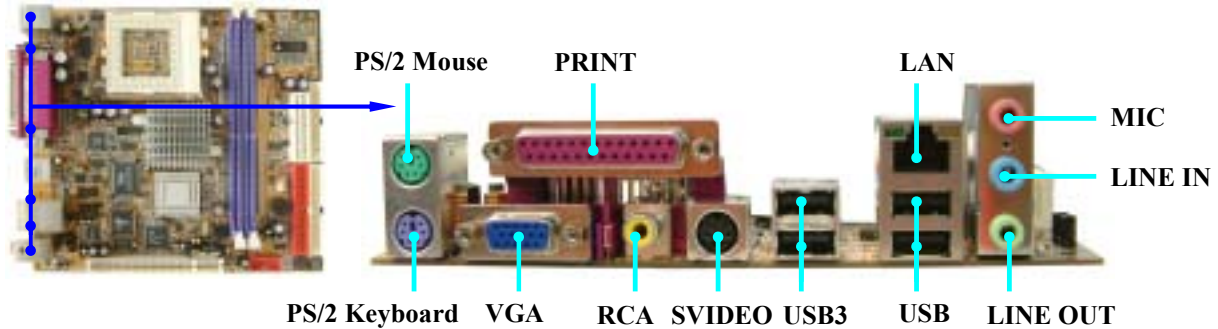
(9)   Floppy drive Connector (34-pin block): FDD
This connector supports the provided floppy drive ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to the floppy drives.
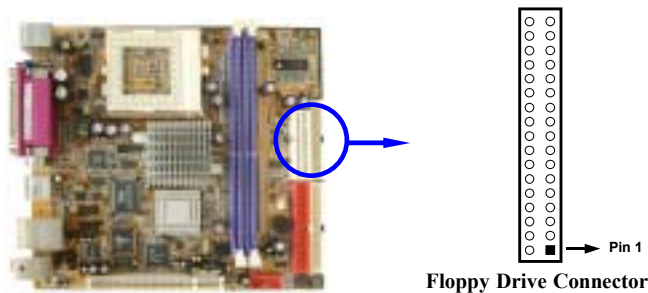
(10)   Primary IDE Connector (40-pin block): IDE1
This connector supports the provided IDE hard disk ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to your hard disk(s). If you install two hard disks, you must configure the second drive to Slave mode by setting its jumpers accordingly. Please refer to the documentation of your hard disk for the jumper settings.

(11)   Secondary IDE Connector (40-pin block): IDE2
This connector connects to the next set of Master and Slave hard disks. Follow the same procedure described for the primary IDE connector. You may also configure two hard disks to be both Masters using one ribbon cable on the primary IDE connector and another ribbon cable on the secondary IDE connector.

Pin 1 Pin 1
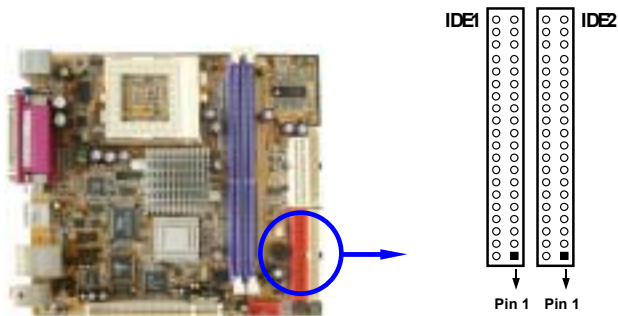
- Two hard disks can be connected to each connector. The first HDD is referred to as the "Master" and the second HDD is referred to as the "Slave".

- For performance issues, we strongly suggest you don't install a CD-ROM or DVD-ROM drive on the same IDE channel as a hard disk. Otherwise, the system performance on this channel may drop.

2-6-2 Headers

(1) COM2 Serial Port Headers (9-pin) : COM2
This board has two serial port COM1 (Connector)/COM2(Headers), it come with cable providing serial port COM1/COM2. The On-board serial port can be disabled through BIOS SETUP. Please refer to Chapter 3 "INTEGRATED PERIPHERALS SETUP" section for more detail information.

COM2

Pin 1

Note: Orient the read marking on the COM1/2 ribbon cable to pin 1
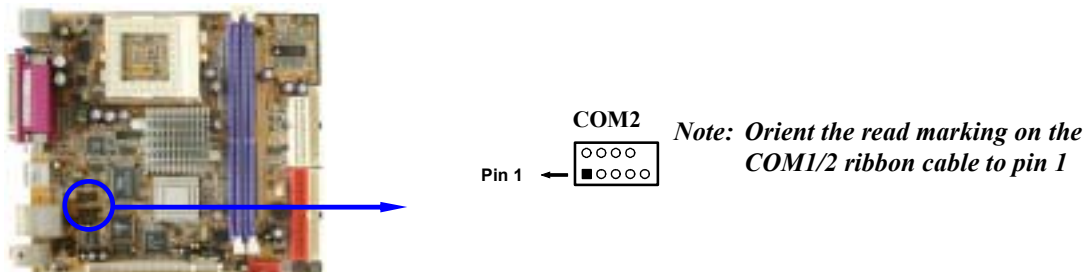
(2) Parallel Port Headers (25-pin Block): Parallel
The On-board Parallel Port can be disabled through the BIOS SETUP. Please refer to Chapter 3 "INTEGRATED PERIPHERALS SETUP" section for more detail information.

(2) Line-Out, MIC Header (9-pin): AUDIO
This header connect to Front Panel Line-out, MIC connector with cable.

AUDIO   10 9

AUD_RET_L → AUD_FPOUT_L
          HP_ON
AUD_RET_R → AUD_FPOUT_R
AUD_VCC → AUD_MIC_BIAS
AUD_GND → AUD_MIC

2
Pin 1

Line-Out, MIC Headers

12

(3)   USB Port Headers (9-pin) : USB1/USB2

These headers are used for connecting the additional USB port plug. By attaching an option USB cable, your can be provided with two additional USB plugs affixed to the back panel.

USB Port Headers
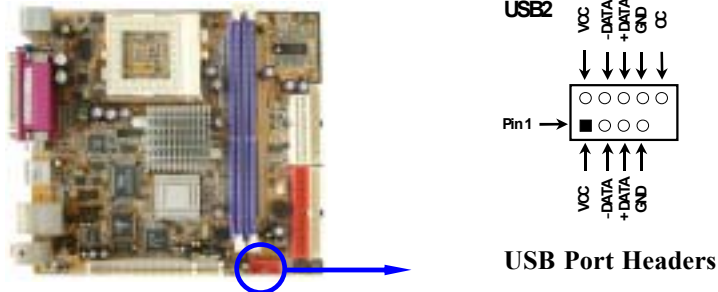
(4)   IDE Activity LED: HD_LED

This connector connects to the hard disk activity indicator light on the case.

(5)   Reset switch lead: RESET

This 2-pin connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the lift of the system's power supply. See the figure below.

(6)   Speaker connector: SPEAK

This 4-pin connector connects to the case-mounted speaker. See the figure below.

(7)   Power LED: PWR LED

The Power LED is light on while the system power is on. Connect the Power LED from the system case to this pin.

(8)   Power switch: PWR BTN

This 2-pin connector connects to the case-mounted power switch to power ON/OFF the system.

System Case Connections
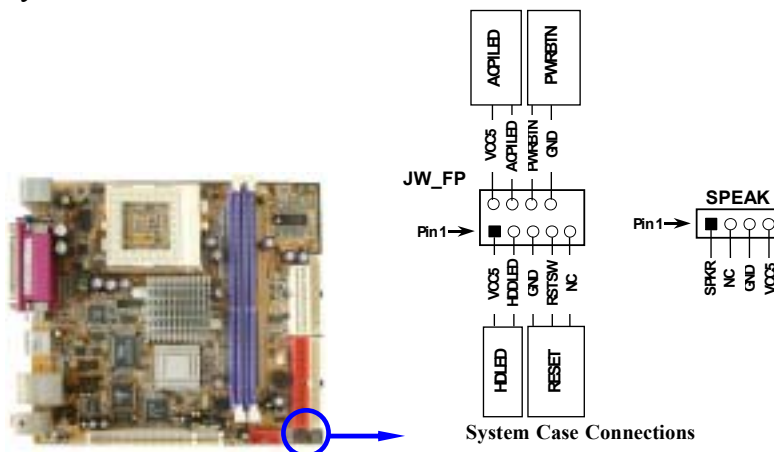
(9)   FAN Speed Headers (3-pin) : CPUFAN, SFAN1/SFAN2

These connectors support cooling fans of 350mA (4.2 Watts) or less, depending on the fan manufacturer, the wire and plug may be different. The red wire should be positive, while the black should be ground. Connect the fan's plug to the board taking into consideration the polarity of connector.

CPUFAN

1   3

SFAN

1

3
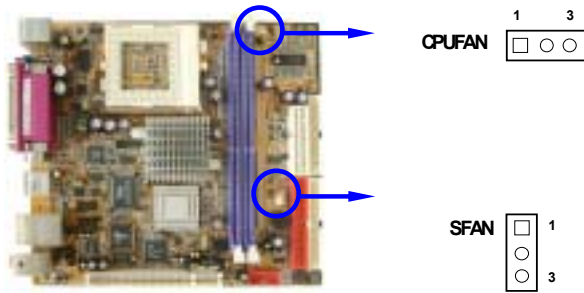
(10) IR infrared module Headers (5-pin) : IR

This connector supports the optional wireless transmitting and receiving infrared module. You must configure the setting through the BIOS setup to use the IR function.

IR

GND
IRRX

2   6
Pin1 →   5

NC
VCC
IRTX
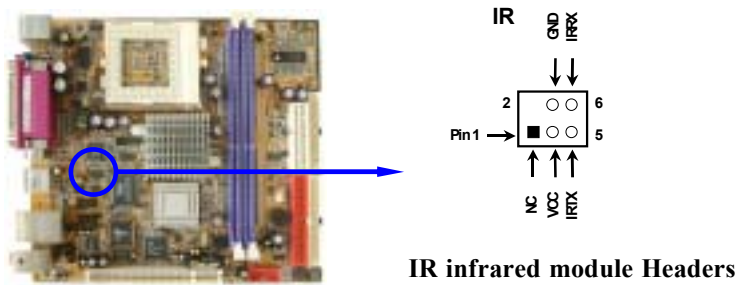
IR infrared module Headers

(11) CD Audio-In Headers (4-pin) : CDIN

CDIN is the connectors for CD-Audio Input signal. Please connect it to CD-ROM CD-Audio output connector.

CDIN   4

1
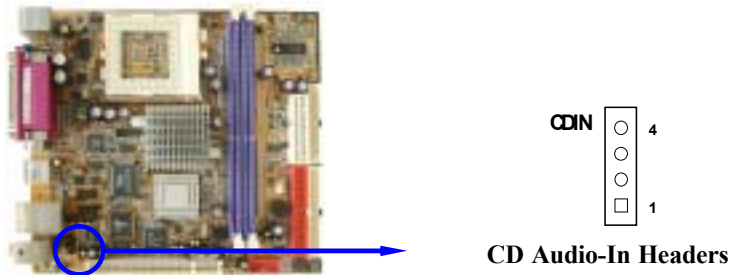
CD Audio-In Headers

(12) Expansion Daughter Board Headers :CN1/CN2

These two Headers can add the COM Port card/ LAN card/ PCMCIA card

(13)Optional Expansion cards

Expansion Daughter-boards (optional)

AD2COM
For 2xCOM Ports Added

ADRTLAN-P/ADRTLAN-G

For 2nd 10/100 or 10/100/1000 Ethernet LAN

ADPCM
Card Bus Type I + II Supported Expansion Interface With CF Compatible Card Reader

ADCF
IDE Interface Supported CF Compatible Disk On Module

2-7 Starting Up Your Computer

1. After all connections are made, close your computer case cover.
2. Be sure all the switch are off, and check that the power supply input voltage is set to proper position, usually in-put voltage is 220V~240V or 110V~120V depending on your country's voltage used.
3. Connect the power supply cord into the power supply located on the back of your system case according to your system user's manual.
4. Turn on your peripheral as following order:
   a. Your monitor.
   b. Other external peripheral (Printer, Scanner, External Modem etc…)
   c. Your system power. For ATX power supplies, you need to turn on the power supply and press the ATX power switch on the front side of the case.

5. The power LED on the front panel of the system case will light. The LED on the monitor may light up or switch between orange and green after the system is on. If it complies with green standards or if it is has a power standby feature. The system will then run power-on test. While the test are running, the BIOS will alarm beeps or additional message will appear on the screen.

   If you do not see any thing within 30 seconds from the time you turn on the power. The system may have failed on power-on test. Recheck your jumper settings and connections or call your retailer for assistance.

Beep	Meaning
One short beep when displaying logo	No error during POST
Long beeps in an endless loop	No DRAM install or detected
One long beep followed by three short beeps	Video card not found or video card memory bad
High frequency beeps when system is working	CPU overheated System running at a lower frequency

6. During power-on, press <Delete> key to enter BIOS setup. Follow the instructions in BIOS SETUP.

7. **Power off your computer:** You must first exit or shut down your operating system before switch off the power switch. For ATX power supply, you can press ATX power switching after exiting or shutting down your operating system. If you use Windows 9X, click **"Start"** button, click **"Shut down"** and then click **"Shut down the computer?"** The power supply should turn off after windows shut down.

Chapter 3

Introducing BIOS

The BIOS is a program located on a Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program gain control. The BIOS first operates an auto-diagnostic test called POST (power on self test) for all the necessary hardware, it detects the entire hardware device and configures the parameters of the hardware synchronization. Only when these tasks are completed done it gives up control of the computer to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate, it is the key factor for system stability, and in ensuring that your system performance as its best.

In the BIOS Setup main menu of Figure 3-1, you can see several options. We will explain these options step by step in the following pages of this chapter, but let us first see a short description of the function keys you may use here:

- Press <Esc> to quit the BIOS Setup.
- Press ↑↓←→ (up, down, left, right) to choose, in the main menu, the option you want to confirm or to modify.
- Press <F10> when you have completed the setup of BIOS parameters to save these parameters and to exit the BIOS Setup menu.
- Press Page Up/Page Down or +/− keys when you want to modify the BIOS parameters for the active option.

3-1 Entering Setup

Power on the computer and by pressing <Del> immediately allows you to enter Setup.

If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to

Press <F1> to continue, <Ctrl-Alt-Esc> or <Del> to enter Setup

3-2 Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu/Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press <Esc>.

3-3 The Main Menu

Once you enter Award® BIOS CMOS Setup Utility, the Main Menu (Figure 3-1) will appear on the screen. The Main Menu allows you to select from fourteen setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

```
        CMOS Setup Utility – Copyright(C) 1984-2003 Award Software
   ┌──────────────────────────────────────────────────────────────────┐
   │  Standard CMOS Features        Miscellaneous Control              │
   │                                                                    │
   │  Advanced BIOS Features        Load optimized Defaults            │
   │                                                                    │
   │  Advanced Chipset Features     Load Standard Defaults             │
   │                                                                    │
   │  Integrated Peripherals        Set Supervisor Password           │
   │                                                                    │
   │  Power Management Setup        Set User Password                 │
   │                                                                    │
   │  PnP/PCI Configurations        Save & Exit Setup                 │
   │                                                                    │
   │  PC Health Status              Exit Without Saving               │
   ├──────────────────────────────────────────────────────────────────┤
   │  Esc : Quit                      ↑↓→← : Select Item              │
   │  F10 : Save & Exit Setup                                          │
   ├──────────────────────────────────────────────────────────────────┤
   │              Time, Date, Hard Disk Type…                         │
   └──────────────────────────────────────────────────────────────────┘
```

Figure 3-1

Standard CMOS Features

Use this Menu for basic system configurations.

Advanced BIOS Features

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

Advanced Chipset Features

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

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Setup

Use this menu to specify your settings for power management.

PnP/PCI configurations

This entry appears if your system supports PnP/PCI.

PC Health Status

This entry shows your PC health status.

Miscellaneous Control

Use this menu to specify your settings for Miscellaneous Control.

Load Optimized Defaults

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

Load Standard Defaults

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

Set 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.

3-4 Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into several 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) 1984-2003 Award Software
                               Standard CMOS Features
┌────────────────────────────────────────────────────┬─────────────────────────┐
│  Date (mm:dd:yy)        Mon, Sep, 08 2003            │                         │
│  Time (hh:mm:ss)        16 : 18 : 49                 │      Item Help          │
│                                                      ├─────────────────────────┤
│  IDE Primary Master                                  │                         │
│  IDE Primary Slave                                   │  Menu Level >           │
│  IDE Secondary Master                                │                         │
│  IDE Secondary Slave                                 │  Change the day, month, │
│                                                      │  Year and century       │
│  Drive A                1.4M, 3.25 in.               │                         │
│  Drive B                None                         │                         │
│                                                      │                         │
│  Video                  EGA/VGA                      │                         │
│  Halt On                All Errors                   │                         │
│                                                      │                         │
│  Base Memory                  640K                   │                         │
│  Extended Memory            64512K                   │                         │
│  Total Memory               65536K                   │                         │
├────────────────────────────────────────────────────┴─────────────────────────┤
│  ↑↓→←  Move Enter:Select Item +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help│
│         F5:Previous Values  F6:Optimized Defaults  F7:Standard 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>.

Primary Master/Primary Slave
Secondary Master/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, and LBA.
Cylinder	number of cylinders
Head	number of heads
Precomp	write precomp
Landing Zone	landing zone
Sector	number of sectors

3-5 Advanced BIOS Features

```
         CMOS Setup Utility – Copyright(C) 1984-2003 Award Software
                          Advanced BIOS Features
 ┌─────────────────────────────────────────────┬──────────────────────────┐
 │   Anti-Virus Protection      Disabled        │        Item Help         │
 │   CPU L1 Cache               Enabled         │                          │
 │   CPU L2 Cache               Enabled         ├──────────────────────────┤
 │   CPU L2 Cache ECC Checking  Disabled        │                          │
 │   Quick Power On Self Test   Enabled         │   Menu Level >           │
 │   First Boot Device          Floppy          │                          │
 │   Second Boot Device         HDD-0           │   Allows you to choose   │
 │   Third Boot Device          CDROM           │   the VIRUS warning      │
 │   Boot Other Device          Enabled         │   feature for IDE Hard   │
 │   Swap Floppy Drive          Disabled        │   disk boot sector       │
 │   Boot Up Floppy Seek        Enabled         │   protection. If this    │
 │   Boot Up NumLock Status     On              │   function is enabled    │
 │   Gate A20 Option            Normal          │   and someone attempt to │
 │   Typematic Rate Setting     Disabled        │   write data into this   │
 │   Typematic Rate (Chars/Sec) 6              │   area, BIOS will show a │
 │   Typematic Delay (Msec)     250             │   warning message on     │
 │   Security Option            Setup           │   screen and alarm beep  │
 │   OS Select For DRAM > 64MB  Non-OS2         │                          │
 │   HDD S.M.A.R.T. Capability  Disabled        │                          │
 │   Report No FDD For Windows  Yes             │                          │
 │   Video BIOS Shadow          Enabled         │                          │
 │                                              │                          │
 ├─────────────────────────────────────────────┴──────────────────────────┤
 │ ↑↓→← Move Enter:Select Item +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
 │       F5:Previous Values  F6:Optimized Defaults  F7:Standard 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 data into this area, BIOS will show a warning message on screen and alarm beep.

Disabled (default) No warning message to appear when anything attempts to access the boot sector or hard disk partition table.

Enabled 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 L1 Cache
The default value is Enabled.

    Enabled (default) Enable cache
    Disabled   Disable cache

Note: The L1 cache is built in the processor.

CPU L2 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 (default) Enable quick POST
    Disabled   Normal POST

First/Second/Third/Fourth 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-3, SCSI, CDROM, LAN and Disabled.

Swap Floppy Drive
Switches the floppy disk drives between being designated as A and B. Default is Disabled.

Boot Up Floppy Seek
During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks.

Boot Up NumLock Status
The default value is On.

    On (default) 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 (default) The A20 signal is controlled by port 92 or chipset specific method.

Typematic Rate Setting

Keystrokes 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 keystroke when you hold the key down. The settings are: 6, 8, 10, 12, 15, 20, 24, and 30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before is begins to repeat the keystroke. The settings are 250, 500, 750, and 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 (default) The system will boot, but access to Setup will be denied if the correct password is not entered prompt.

OS Select For DRAM > 64MB

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

Report No FDD For Windows

Whether report no FDD for Win 95 or not. The settings are: Yes, No.

3-6 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.

```
         CMOS Setup Utility - Copyright(C) 1984-2003 Award Software
                          Advanced Chipset Features
┌──────────────────────────────────────────────┬──────────────────────┐
│  DRAM Timing Setting         Press Enter       │      Item Help       │
│  AGP Timing Setting          Press Enter       │                      │
│  PCI Timing Setting          Press Enter       ├──────────────────────┤
│  Select Display Device       CRT               │                      │
│  TV-Type                     NTSC              │  Menu Level >        │
│  TV-Connector                CVBS              │                      │
│  System BIOS Cacheable       Disabled          │                      │
│  Video RAM Cacheable         Enabled           │                      │
│  Memory Parity/ECC Check     Disabled          │                      │
│  Memory Size Hole            Disabled          │                      │
│                                                │                      │
│                                                │                      │
├──────────────────────────────────────────────┴──────────────────────┤
│  ↑↓→← Move Enter:Select Item +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
│       F5:Previous Values  F6:Optimized Defaults  F7:Standard Defaults │
└──────────────────────────────────────────────────────────────────────┘
```

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

DRAM Timing Setting

Please refer to section 3-6-1

AGP Timing Setting

Please refer to section 3-6-2

PCI Timing Setting

Please refer to section 3-6-3

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 BIOS 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.

3-6-1 DRAM Timing Setting

```
              CMOS Setup Utility – Copyright(C) 1984-2003 Award Software
                              DRAM Timing Setting
┌──────────────────────────────────────────────┬───────────────────────────┐
│     DRAM Timing              By SPD            │                           │
│   x DRAM CAS Latency         2.5               │        Item Help          │
│     Bank Interleave          4 Banks           │                           │
│     RAS Precharge Time       3T                ├───────────────────────────┤
│     RAS Active Time          6T                │  Menu Level >>            │
│     RAS to CAS Delay         3T                │                           │
│     DRAM Command Rate        2T                │  When set to "Auto",      │
│                                                │  BIOS will program this   │
│                                                │  Timing mainly by the     │
│                                                │  SPD method.  SPD means   │
│                                                │  "Serial Presence         │
│                                                │  Detect", which enables   │
│                                                │  the BIOS to access       │
│                                                │  the manufacturer         │
│                                                │  settings stored in       │
│                                                │  DRAM module.             │
│                                                │                           │
│                                                │                           │
├────────────────────────────────────────────────────────────────────────────┤
│ ↑↓→← Move Enter:Select Item +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help│
│       F5:Previous Values  F6:Optimized Defaults  F7:Standard Defaults        │
└──────────────────────────────────────────────────────────────────────────────┘
```

DRAM CAS Latency

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. The settings are: 2T, 2.5T and 3T.

RAS Precharge Time

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain date. Fast gives faster performance; and Slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system. The settings are: 2T and 3T.

RAS-to-CAS Delay

This field let's you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system. The settings are: 2T and 3T.

3-6-2 AGP Timing Settings

```
              CMOS Setup Utility – Copyright(C) 1984-2003 Award Software
                             AGP Timing Settings
┌─────────────────────────────────────────────┬────────────────────────────┐
│   AGP Aperture Size            64MB          │         Item Help          │
│   AGP Mode                     4X            │                            │
│   AGP Fast Write               Disabled      ├────────────────────────────┤
│   AGP Master 1 WS Write        Disabled      │                            │
│   AGP Master 1 WS Read         Disabled      │    Menu Level >>           │
│   CPU to AGP Post Write        Enabled       │                            │
│   AGP Delay Transaction        Enabled       │                            │
│   VGA Share Memory Size        32MB          │                            │
│                                              │                            │
│                                              │                            │
├─────────────────────────────────────────────┴────────────────────────────┤
│   ↑↓→← Move Enter:Select  +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help│
│       F5:Previous Values    F6:Optimized Defaults    F7:Standard Defaults  │
└───────────────────────────────────────────────────────────────────────────┘
```

3-6-3 PCI Timing Settings

```
              CMOS Setup Utility – Copyright(C) 1984-2003 Award Software
                             PCI Timing Settings
┌─────────────────────────────────────────────┬────────────────────────────┐
│   PCI Master 1 WS Write        Disabled      │         Item Help          │
│   PCI Master 1 WS Read         Disabled      │                            │
│   CPU to PCI Post Write        Disabled      ├────────────────────────────┤
│   PCI Delay Transaction        Enabled       │                            │
│                                              │    Menu Level >>           │
│                                              │                            │
│                                              │                            │
│                                              │                            │
├─────────────────────────────────────────────┴────────────────────────────┤
│   ↑↓→← Move Enter:Select  +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help│
│       F5:Previous Values    F6:Optimized Defaults    F7:Standard Defaults  │
└───────────────────────────────────────────────────────────────────────────┘
```

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 and Disabled.

3-7 Integrated Peripherals

```
              CMOS Setup Utility – Copyright(C) 1984-2003 Award Software
                            Integrated Peripherals
┌─────────────────────────────────────────────┬────────────────────────────┐
│   OnChip IDE Function          Press Enter   │         Item Help          │
│   OnChip Device Function       Press Enter   │                            │
│   OnChip SIO Function          Press Enter   ├────────────────────────────┤
│   Init Display First           PCI Slot      │                            │
│                                              │    Menu Level >            │
│                                              │                            │
│                                              │                            │
│                                              │                            │
│                                              │                            │
├─────────────────────────────────────────────┴────────────────────────────┤
│   ↑↓→← Move Enter:Select Item +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help│
│       F5:Previous Values  F6:Optimized Defaults  F7:Standard Defaults      │
└───────────────────────────────────────────────────────────────────────────┘
```

OnChip IDE Function

Please refer to section 3-7-1

OnChip Device Function

Please refer to section 3-7-2

OnChip SIO Function

Please refer to section 3-7-3

Init Display First

This item allows you to decide to activate whether PCI Slot or on-chip VGA first. The settings are: PCI Slot, AGP Slot, On-Chip VGA.

3-7-1 On-Chip IDE Function

```
            CMOS Setup Utility – Copyright(C) 1984-2003 Award Software
                            On-Chip IDE Function
 ┌─────────────────────────────────────────────────┬────────────────────────┐
 │  OnChip IDE Channel 0        Enabled             │                        │
 │  OnChip IDE Channel 1        Enabled             │      Item Help         │
 │  Primary Master    PIO       Auto                │                        │
 │  Primary Slave     PIO       Auto                │  Menu Level >>         │
 │  Secondary Master PIO        Auto                │                        │
 │  Secondary Slave   PIO       Auto                │                        │
 │  Primary Master    UDMA      Auto                │                        │
 │  Primary Slave     UDMA      Auto                │                        │
 │  Secondary Master UDMA       Auto                │                        │
 │  Secondary Slave   UDMA      Auto                │                        │
 │  IDE DMA Transfer Access     Enabled             │                        │
 │  IDE Prefetch Mode           Enabled             │                        │
 │  IDE HDD Block Mode          Enabled             │                        │
 │  Delay For HDD (Secs)        0                   │                        │
 │                                                  │                        │
 ├─────────────────────────────────────────────────┴────────────────────────┤
 │  ↑↓→← Move Enter:Select Item +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
 │         F5:Previous Values  F6:Optimized Defaults  F7:Standard Defaults    │
 └───────────────────────────────────────────────────────────────────────────┘
```

OnChip IDE Channel 0/Channel 1

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.

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.

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.

3-7-2 On-Chip Device Function

```
              CMOS Setup Utility – Copyright(C) 1984-2003 Award Software
                            On-Chip Device Function
 ┌─────────────────────────────────────────────┬────────────────────────────┐
 │  RealTek LAN Function        Enabled         │        Item Help           │
 │  RealTek LAN BootROM         Disabled        │                            │
 │  AC97 Sound Device           Auto            ├────────────────────────────┤
 │  USB Host Controller         Enabled         │                            │
 │  USB 2.0 Support             Enabled         │   Menu Level >>            │
 │  USB Keyboard Leagacy Support   Disabled     │                            │
 │  USB Mouse Leagacy Support      Disabled     │                            │
 │                                              │                            │
 │                                              │                            │
 │                                              │                            │
 │                                              │                            │
 │                                              │                            │
 ├─────────────────────────────────────────────┴────────────────────────────┤
 │ ↑↓→←  Move Enter:Select Item +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
 │         F5:Previous Values  F6:Optimized Defaults  F7:Standard Defaults    │
 └───────────────────────────────────────────────────────────────────────────┘
```

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

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

AC97 Sound Device
This item allows you to decide to enable/disable the chipset family to support AC97 Audio. The settings are: Enabled, Disabled, Auto.

3-7-3 On-Chip SIO Function

```
          CMOS Setup Utility – Copyright(C) 1984-2003 Award Software
                            On-Chip SIO Function

    Onboard FDD Controller          Enabled             Item Help
    Onboard Serial Port 1           3F8/IRQ4
    Onboard Serial Port 2           2F8/IRQ3
    Onboard Fast IR                 Disabled         Menu Level >>
 x  Fast IR IRQ                     11
 x  Fast IR DMA                     6
    Onboard Parallel Port           378/IRQ7
    Parallel Port Mode              SPP
    EPP Mode Select                 EPP1.7
    ECP Mode Use DMA                3

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

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 the second serial ports. The settings are: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

Onboard Fast IR
This item allows you to Enabled Fast InfraRed (IR) function of the onboard I/O chip, when enabled this function user must install driver the driver is in CD Pack\VIA\VIAFIR.

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 option:

Disabled
(3BCH/IRQ7)/   Line Printer port 0
(278H/IRQ5)/   Line Printer port 2
(378H/IRQ7)   Line Printer port 1

Parallel Port Mode
SPP   : Standard Parallel Port
EPP   : Enhanced Parallel Port
ECP   : Extended Capability Port
SPP/EPP/ECP/ECP+EPP
To operate the onboard parallel port as Standard Parallel Port only, choose "SPP." To operate the onboard parallel port in the EPP modes simultaneously, choose "EPP." 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 to 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.

3-8 Power Management Setup

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

```
              CMOS Setup Utility – Copyright(C) 1984-2003 Award Software
                              Power Management Setup
   ┌─────────────────────────────────────────────────┬──────────────────────────┐
   │   ACPI  Function              Enabled            │        Item Help         │
   │   Video Off Option            Always Off         │                          │
   │   Video Off Method            V/H SYNC+Blank      ├──────────────────────────┤
   │   MODEM Use IRQ               3                   │   Menu Level >           │
   │   Power Button Function       Instant Off         │                          │
   │   State after Power Failure   Always Off          │                          │
   │ > Wake Up Events              Press Enter         │                          │
   │                                                   │                          │
   │                                                   │                          │
   │                                                   │                          │
   ├───────────────────────────────────────────────────┴──────────────────────────┤
   │  ↑↓→← Move Enter:Select Item +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
   │          F5:Previous Values  F6:Optimized Defaults F7:Standard Defaults         │
   └────────────────────────────────────────────────────────────────────────────────┘
```

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

Video Off Method
This determines the manner in which the monitor is blanked.

V/H SYNC+Blank (Default)	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.

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

State After Power Failure
This determines the manner when the power recovery after power failure. The setting are: Always Off, Always On.

3-8-1 Wake Up Events

```
              CMOS Setup Utility – Copyright(C) 1984-2003 Award Software
                                  Wake Up Events
┌────────────────────────────────────────────────┬────────────────────────────┐
│   VGA                        Off                 │                            │
│   LPT&COM                    LPT/COM             │         Item Help          │
│   HDD&FDD                    ON                  ├────────────────────────────┤
│   PCI Master                 OFF                 │                            │
│   Wake-Up on Ring/LAN        Disabled           │   Menu Level >>            │
│   Wake-Up on PCI PME         Disabled           │                            │
│   PS2KB Wakeup Selection     Hot Key            │                            │
│   PS2KB Wakeup from S1-S5    Disabled           │                            │
│   Wake-Up on RTC Alarm       Disabled           │                            │
│ x Date of Month Alarm        0                   │                            │
│ x Time (hh:mm:ss)            0:0:0               │                            │
│   IRQS Activities            Press Enter        │                            │
│                                                  │                            │
│                                                  │                            │
├──────────────────────────────────────────────────────────────────────────────┤
│  ↑↓→← Move Enter:Select Item +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
│         F5:Previous Values  F6:Optimized Defaults  F7:Standard Defaults         │
└────────────────────────────────────────────────────────────────────────────────┘
```

Wake Up by PCI PME
This will enable the system to wake up to PCI LAN Card.
The settings are: Enabled and Disabled.

Power On by Ring/LAN
During Disabled, the system will ignore any incoming call from the modem/LAN. During Enabled, the system will boot up if there's an incoming call from the modem/LAN.

Wake-Up on RTC Alarm
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.

3-9 PnP/PCI Configuration Setup

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

```
             CMOS Setup Utility – Copyright(C) 1984-2003 Award Software
                             PnP/PCI Configurations
 ╔══════════════════════════════════════════════════════════════════════════╗
 ║   PNP OS Installed              No                                         ║
 ║   Reset Configuration Data      Disabled                  Item Help        ║
 ║                                                    ╟────────────────────── ║
 ║   Resources Controlled By       Manual              Menu Level >           ║
 ║ > IRQ Resources                 Press Enter         Default is Disabled.   ║
 ║                                                     Select Enabled to      ║
 ║   PCI/VGA Palette Snoop         Disabled            reset Extended System  ║
 ║   Assign IRQ for VGA            Enabled             Configuration Data      ║
 ║   Assign IRQ for USB            Enabled             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 os    ║
 ║                                                     cannot boot             ║
 ║                                                                            ║
 ╟────────────────────────────────────────────────────────────────────────── ║
 ║   ↑↓→←  Move Enter:Select Item +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help ║
 ║         F5:Previous Values  F6:Optimized Defaults F7:Standard Defaults      ║
 ╚══════════════════════════════════════════════════════════════════════════╝
```

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.

PCI/VGA Palette Snoop
Leave this field at *Disabled.* The settings are Enabled, Disabled.

3-10 PC Health Status

This section shows the Status of you CPU, Fan, Warning for overall system status. This is only available if there is Hardware Monitor onboard.

```
          CMOS Setup Utility – Copyright(C) 1984-2003 Award Software
                              PC Health Status
┌─────────────────────────────────────────────────┬──────────────────────────┐
│                                                   │                          │
│   Current Fan 1 Speed          4964 RPM           │      Item Help           │
│   Current Fan 2 Speed             0 RPM           │                          │
│   CPU Vcore                    1.450V             ├──────────────────────────┤
│   3.3V                         3.208V             │                          │
│   +12V                        12.256V             │   Menu Level >           │
│   Internal VCC                 3.200V             │                          │
│                                                   │                          │
│                                                   │                          │
│                                                   │                          │
│                                                   │                          │
│                                                   │                          │
│                                                   │                          │
│                                                   │                          │
│                                                   │                          │
├───────────────────────────────────────────────────────────────────────────┤
│ ↑↓→← Move Enter:Select Item +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help│
│        F5:Previous Values  F6:Optimized Defaults F7:Standard Defaults        │
└───────────────────────────────────────────────────────────────────────────┘
```

Current FAN1, FAN2 Speed/CPU Vcore/3.3V/+12V/Internal VCC
This will show the CPU/FAN/System voltage chart and FAN Speed.

3-11 Miscellaneous Control

This section is for setting CPU Miscellaneous Control.

```
                CMOS Setup Utility – Copyright(C) 1984-2003 Award Software
                                 Miscellaneous Control
┌─────────────────────────────────────────────────────┬───────────────────────┐
│   VIA C3 Clock Ratio               Default           │                       │
│   Intel CPU Ratio                  Default           │      Item Help        │
│   Auto Detect DIMM/PCI Clk         Enabled           ├───────────────────────┤
│   Spread Spectrum                  Disabled          │   Menu Level >        │
│   ** Current Host/PCI Clock is 133/133 MHz **        │                       │
│   Host/PCI Clock at Next Boot is   133/33MHz         │                       │
│   ** Current DRAM Clock is 133MHz **                 │                       │
│   DRAM Clock at Next Boot is       133MHz            │                       │
│   +2.5V Select                     2.55V             │                       │
│                                                      │                       │
│                                                      │                       │
│                                                      │                       │
│                                                      │                       │
│                                                      │                       │
│                                                      │                       │
├──────────────────────────────────────────────────────┴───────────────────────┤
│  ↑↓→← Move Enter:Select Item +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
│         F5:Previous Values  F6:Optimized Defaults F7:Standard Defaults          │
└────────────────────────────────────────────────────────────────────────────────┘
```

Auto Detect DIMM/PCI Clk

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

Spread Spectrum

This item allows you to set the Spread Spectrum.

Host/PCI Clock at Next Boot is

This item allows you to select the CPU/PCI Clock, refer to Page 9.
By press PageDown/PageUp key you can change the CPU Host/PCI Clock
When jumper setting CPU Host Clock 66MHz you can choose 66/33~99/49MHz
When jumper setting CPU Host Clock 100MHz you can choose 100/33~132/44MHz
When jumper setting CPU Host Clock 133MHz you can choose 133/33~200/50MHz

CPU Clock Ratio

This item allows you to select the CPU ratio.

3-12 Load Standard/Optimized Defaults

Load Standard Defaults

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

Load Standard 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.

3-13 Set Supervisor/User Password

You can set either supervisor or user password, or both of them. The differences are:

Supervisor password: Can enter and change the options of the setup menus.

User password: Can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

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

PASSWORD DISABLED.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option. If the Security option is set to "System", the password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

Chapter 4

DRIVER & FREE PROGRAM INSTALLATION

Check your package and there is A MAGIC INSTALL CD included. This CD consists of all DRIVERS you need and some free application programs and utility programs. In addition, this CD also include an auto detect software which can tell you which hardware is installed, and which DRIVERS needed so that your system can function properly. We call this auto detect software MAGIC INSTALL.

MAGIC INSTALL supports WINDOWS 95/98/98SE/NT4.0/2000

Insert CD into your CD-ROM drive and the MAGIC INSTALL Menu should appear as below. If the menu does not appear, double-click MY COMPUTER / double-click CD-ROM drive or click START / click RUN / type X:\SETUP.EXE (assuming X is your CD-ROM drive).

From MAGIC INSTALL MENU you may make 10 selections:
1. VIA 4 IN 1   install VIA Service Pack 4 IN 1 driver
2. VGA   install VIA VGA driver
3. SOUND   install ALC Audio Codec driver
4. LAN   install VIA 10/100MB LAN Controller driver
5. USB2.0   install USB 2.0 driver
6. DIRECTX9   install Microsoft DirectX 9 driver
7. PC-CILLIN   install PC-CILLIN2002 anti-virus program
8. MAGIC BIOS   install BIOS Live Update Utility
9. BROWSE CD   to browse the contents of the CD
10. EXIT   to exit from MAGIC INSTALL menu

Each selection is illustrated as below:

4-1 VIA 4 IN 1   Install VIA Service Pack 4 IN 1 Driver

* The path of the file is X:\VIA\DRIVER\SETUP.EXE

IDE :   VIA ATAPI VENDOR SUPPORT DRIVER IS USED TO FIXED COMPATIBILITY ISSUE FOR IDE DEVICES

AGPVXD :   VIA AGPVXD DRIVER IS TO BE INSTALLED, IF YOU ARE USING AN AGP VGA CARD, VIAGART.VXD WILL PROVIDE SERVICE ROUTINES TO YOUR VGA DRIVER AND INTERFACE DIRECTLY TO HARDWARE, PROVIDING FAST GRAPHIC ACCESS

IRQ ROUTING :   VIA PCI IRQ MINIPORT DRIVER IS TO BE INSTALLED UNDER WIN98 ONLY, IT WILL FIX PCI IRQ ROUTING SEQUENCE

INF :   VIA REGISTRY DRIVER IS TO BE INSTALLED UNDER WINDOWS
THE DRIVER WILL ENABLE VIA POWER MANAGERMENT CONTROLLER

1. Click IDE when MAGIC INSTALL MENU appears

2. Click NEXT when VIA Service Pack Wizard appears

3. This is to announce the Copy Write, click Yes

4. Click NEXT to choose all driver

5. Click NEXT to Install ATAPI Vender Support Driver

6. Click NEXT to choose enabled DMA Mode

7. Click NEXT to Install VIA AGP VXD Driver

8. Click NEXT to Install VIA IRQ Routing Mini port Driver

9. Click Finish to restart computer

4-2 VGA   install VIA VGA Driver

For WINDOWS 9X/ME/NT4.0/2000/XP

1. Click VGA when MAGIC INSTALL MENU appears

2. Click NEXT When ProSavageDDR Driver Install Setup Wizard Appears

3. Click NEXT to Install Driver File

4. Click Finish to Restart Computer

4-3 SOUND install ALC AC97' Codec Audio Driver

1. Click SOUND when MAGIC INSTALL MENU appears
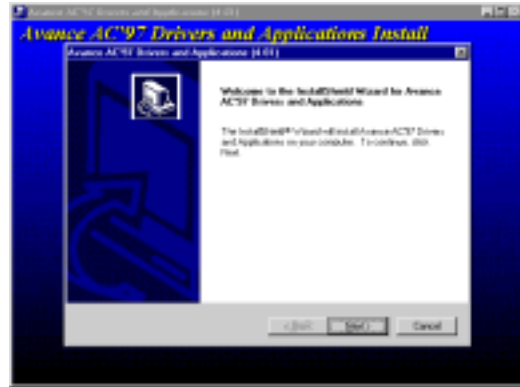
2. Then auto detect operation system language edition, click OK, start to install DRIVER
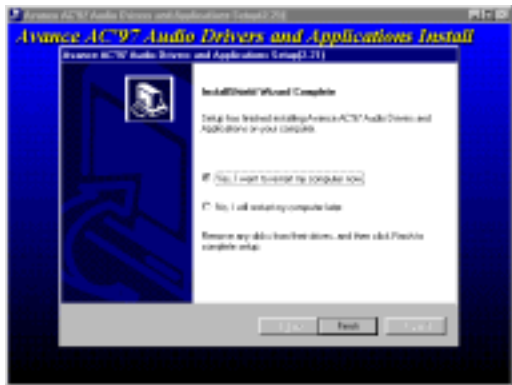
3. Click Finish and Restart Windows
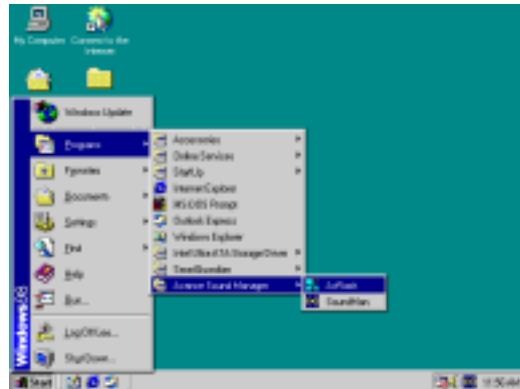
4. Click Start→Program→Avance Sound Manager→AvRack. Then AVRACK Windows appears
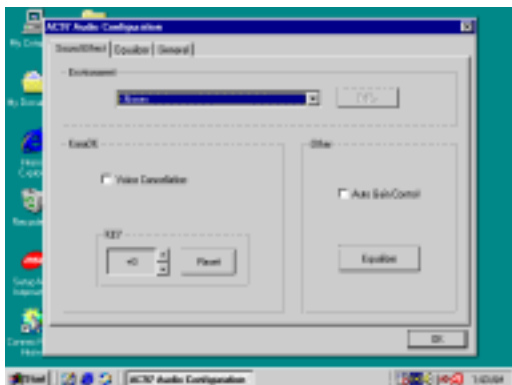
5. Sound Effect select and KaraOK Mode Function
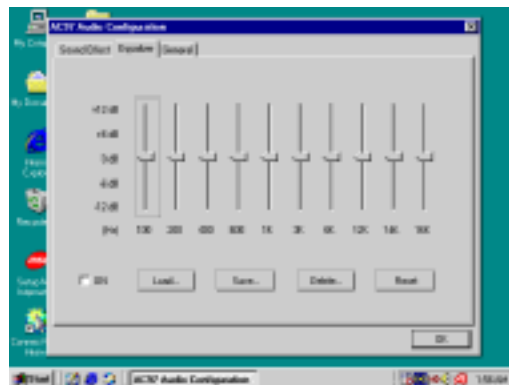
6. Manual Sound Effect Setting

Note: **The path of the file**
      For WIN98/NT4.0/WIN2K/XP is X:\CODEC\ALC\SETUP.EXE

Note: **In Win2K/WinME users have to click Control Panel\System\Device Manager\ DVD\CD-ROM drives to Enabled digital CD Audio for the CD-ROM Device when use the SPDIF-Out digital signal.**

4-4 LAN   Install VIA 10/100MB LAN Controller Driver

The VIA 10/100MB PCI Ethernet Adapter Driver path is X:\VIA\LANDRV
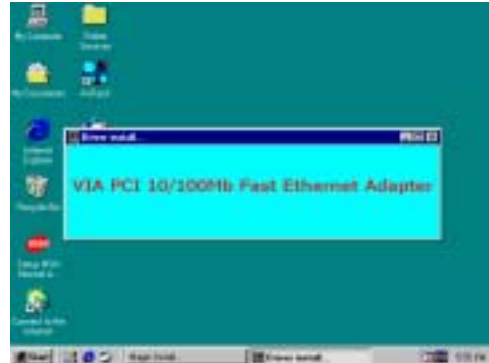
1. Click LAN when Magic Install Menu appear

2. Setup VIA 10/100Mb PCI Ethernet Driver
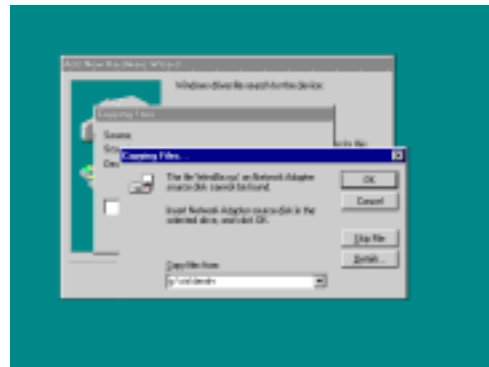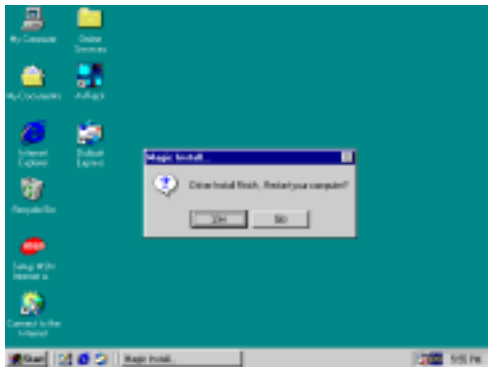
3. Driver install Finish , Click Yes and Restart Computer

4. When windows ask VIA 10/100Mb PCI Ethernet Adapter driver path, Change directory to X:\VIA\LANDRV and click OK , then finish installation

4-5   MAGIC BIOS   Install BIOS Live Update Utility
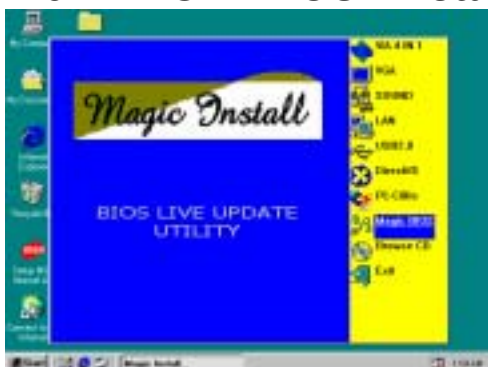
1. Click Magic BIOS when Magic Install MENU appears

2. Click Next to install the Magic BIOS in Destination Folder
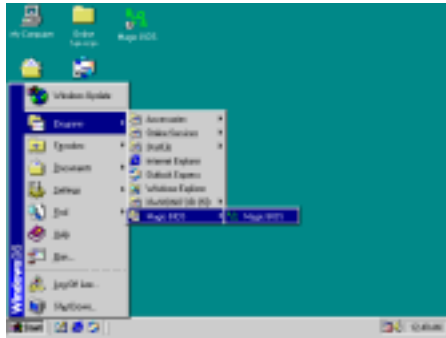
3. After finish Setup you will have a Magic BIOS icon in your screen

4. Double click the Magic BIOS icon you will have this picture, choose from internet you can upgrade BIOS On-line
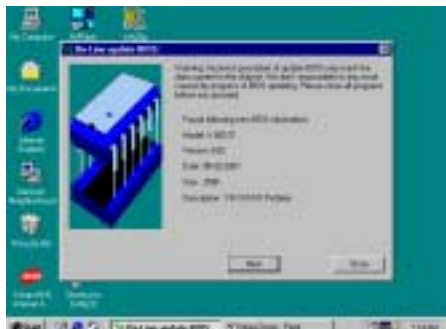
5. When On-line update BIOS the program will auto-check your BIOS version

6. Click Next if you need update BIOS, after upgrade BIOS, the system will clear CMOS and automatically restart
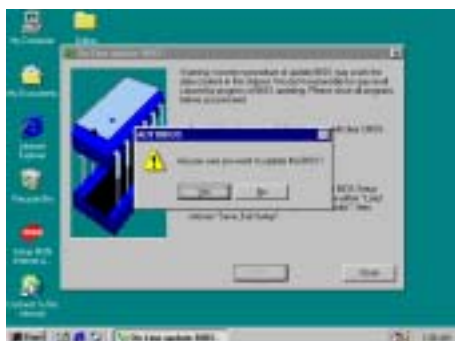
7. Click Yes if you want to update the BIOS otherwise choose No to exit

8. When System programming BIOS don't turn off power, after finish update BIOS, the system will clear CMOS and automatically Restart

9. When choose From Local Driver to update BIOS, you must have the correct BIOS file in your Local Driver

10. Choose the correct BIOS file to update BIOS

4-6 USB2.0 Install VIA USB2.0 Device Driver

1. Click USB2.0 when MAGIC INSTALL MENU Appear
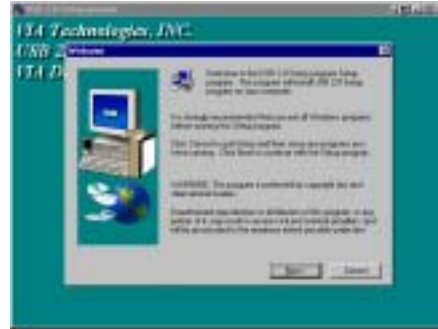
2. When USB2.0 Setup Program Appear, Click NEXT
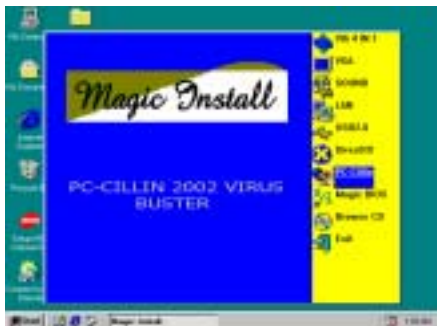

3. Select Install USB Driver and Click NEXT

4. Select FINISH and Restart your Computer
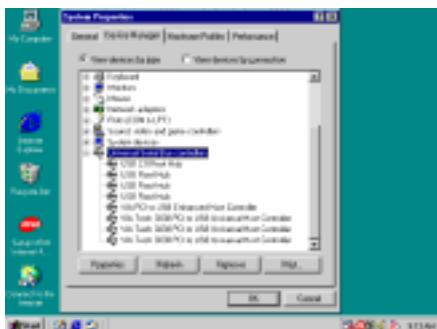
5. Check device working properly in Device Manager

The Path of the file is X:\VIA\VIAUSB20\SETUP.EXE

4-7 PC-CILLIN Install PC-CILLIN 2002 Anti-virus program

1. Click PC-CILLIN when MAGIC INSTALL MENU appear

2. (1) Click "Install PC-CILLIN" when PC-CILLIN 2002 main menu appears, and Click NEXT when "Install Shield Wizard For PC-CILLIN 2002"
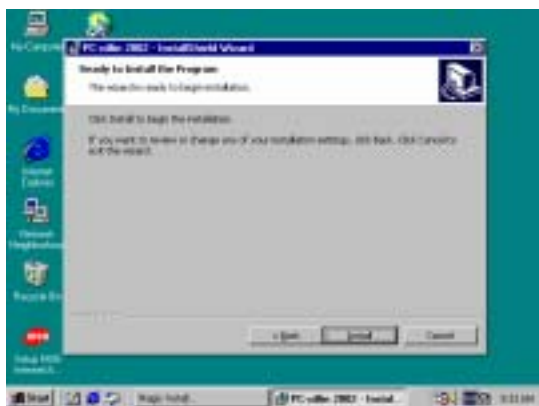
(2) Click Open Manual. you can learn PC-CILLIN 2002 how to use

3. This is license agreement, select "I Accept the terms" and Click NEXT

4. Click NEXT and Enter your Customer Information, Click NEXT or choose Change to change the path for the file to be stored

5. Click INSTALL, Start to install the software

6. Setup Complete and click FINISH

7. After PC-CILLIN 2002 complete, Please register your information and get LICENSE KEY from TREND MICRO web site, enter your license key and click FINISH

8. finish register process, we recommend select update item to download newest engine code and virus code

Note : **Please install ACROBAT READER, Before you read PC-CILLIN 2002 User Manual, the path at X:\acrobat\ar500eng.exe**

4-8   HOW TO DISABLE ON-BOARD SOUND

Enter BIOS SETUP choose INTEGRATE PERIPHERALS choose ON-CHIP DEVICE FUNCTION choose AC97 AUDIO
Disable on-board sound function by press PAGE DOWN KEY to Disable

4-9   HOW TO UPDATE BIOS

Before update BIOS users have to "Disable", "Flash Part Write Protect" item which in "Miscellaneous Control" of BIOS SETUP. Otherwise the system the will not allow you to upgrade BIOS by Award Flash Utility.

Method 1.   Use "Magic BIOS" update BIOS in Windows 98 (refer)
Method 2.   In DOS Mode

STEP 1. Prepare a boot disc. (you may make one by click START click RUN type SYS A: click OK)

STEP 2. Copy utility program to your boot disc. You may copy from DRIVER CD X:\FLASH\AWDFLASH.EXE or download from our web site.

STEP 3. Copy latest BIOS for 627F from our web site to your boot disc.

STEP 4. Insert your boot disc into A:,
start the computer, type "Awdflash A:\V627Fxxx.BIN /SN /PY /CC /R"
V627Fxxx.BIN is the file name of latest BIOS it can be V627FA3.BIN or
V627FB2.BIN
SN   means   don't save existing BIOS data
PY   means   renew existing BIOS data
CC   means   clear existing CMOS data
R   means   restart computer

STEP 5. Push ENTER and the BIOS will be updated, computer will be restarted automatically