N2PA-LITE / N2PAP-LITE

USER'S MANUAL

AMD Athlon XP/Athlon/Duron Processor M/B

Remark:

TABLE OF CONTENT

USER'S NOTICE

Manual Revision Information

Reversion	Revision History	Date
1.0	First Release	August 2003

Item Checklist

- ☑ N2PA-LITE/N2PAP-LITE Motherboard
- ☑ Cable for IDE/Floppy
- ☑ CD for Motherboard Utilities
  Cable for USB2 Port (Option)
- ☑ N2PA-LITE/N2PAP-LITE User's Manual

AMD Athlon™ XP/ Athlon™/ Duron™ Processor Family

Cooling Solutions

As processor technology pushes to faster speed 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, AMD 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 AMD for use with AMD processors. Note, those heatsinks are recommended for maintaining the specified maximum Tcase requirement. In addition, this collection is not intended to be a comprehensive listing of all heatsinks that support AMD processors.

For vendor list of heatsink and fan, please visit
http://www1.amd.com/products/duron/thermals
http://www1.amd.com/products/athlon/thermals

Chapter 1

Introduction of N2PA-LITE/N2PAP-LITE Motherboard

1-1 Features of Motherboard

The all new N2PA-LITE and N2PAP-LITE is the latest desktop motherboard solution incorporating support for the new AMD Athlon™ XP processor 3200+ with advanced 400MHz front side bus technology (FSB) and DDR400 memory modules. It brings the power and performance of NVIDIA nForce2 technology to the mainstream market with more features and functionality.

Designed with the latest NVIDIA nForce2 400 platform processors, the motherboard supports 400MHz system bus with DDR400 memory interface, a single 64-bit architecture, delivering unparalleled performance and features to the mainstream. The AGP 8X graphic interface support enables enhanced graphics performance with high bandwidth speed up to 2.12GB/s and is twice as fast as AGP 4X. To complete the integrated digital media gateway functionality, the motherboard also incorporates NVIDIA nForce2 MCP (Media and Communication Processor) with capability exceeding the traditional Southbridge connectivity to provide serial, parallel, Ultra DMA133, up to six USB 2.0 ports. Also integrated are special features such as CPU overheating protection, overclocking, and lots more. Altogether, the features on the motherboard support a broad range user experience for today's computer market.

A special onboard CPU overheating protection circuit preventing AMD processor from being burned will automatically shutdown the power when CPU temperature is higher than the preset value, or when the CPU FAN is not working. Also built-in is the hardware monitoring function to monitor and protect your system.

The motherboard is designed to support DDR memory 2.5V voltage and AGP 1.5V voltage which can be minor-adjusted in BIOS setup. This is intended to provide user with the support of overclocking with more stable system. Also supported are adjustable CPU host clock in BIOS setup and hardware protection for BIOS against virus crash.

1-2 Specifications

Spec	Description
Design	∗ ATX form factor 4 layers PCB size: 30.5x19.0cm
Chipset	∗ nVIDIA nForce2 400 System Platform Processor (400) north bridge ∗ nVIDIA nForce2 Media and Communications Processor (MCP) south bridge
CPU Socket	∗ Support AMD Athlon 1.1GHz~1.4GHz processor ∗ Support AMD Duron 900MHz~1.3GHz processor ∗ Support AMD Athlon XP1500+ ~ XP3200+ processor ∗ Support 200MHz/266MHz/333MHz/400MHz (Double Data Rate) Front Side Bus frequency processors ∗ Reserves support for future AMD Athlon XP processors
Memory Socket	∗ 184-pin DDR module socket x2 ∗ Support DDR266/DDR333/DDR400 DDR SDRAM ∗ Expandable to 2.0GB
Expansion Slot & Headers	∗ AGP slot x1 support AGP 3.0 & 4X/8X mode ∗ 32-bit PCI slot x5
Integrated IDE	∗ Two PCI IDE controllers support PCI Bus Mastering, ATA PIO/DMA and the ULTRA DMA 33/66/100/133 functions that deliver the data transfer rate up to 133 MB/s
6 Channel Audio	∗ Realtek ALC 6-channel AC97' Codec integrated support Front/Rear/Center-Base 6 channel Speaker ∗ Audio driver and utility included
BIOS	∗ Award 2MBit Flash ROM
Onboard LAN (for N2PAP-LITE)	∗ nVIDIA LAN MAC controller chip included ∗ Support 10/100 Mb/sec data transfer rate
Multi I/O	∗ PS/2 keyboard and PS/2 mouse connectors ∗ Floppy disk drive connector x1 ∗ Parallel port x1, Serial port x2 ∗ USB2.0 connector x4, headers x2 (connecting cable option) ∗ Audio connector (Line-in, Line-out, MIC & Game Port headers)

1-3 Performance Table

The following performance table indicates the testing results of some popular benchmark testing programs. The data provided is intended just for user reference only. You may obtain different results depending upon the hardware and software configuration used.

Performance Test Report

CPU: AMD Athlon XP 3000+ (FSB 166MHz)

DRAM: 512MB DDR400 X1 (Winbond DDR W942508BH-5)

                                256MB DDR400 X1 (Winbond DDR W942508BH-5)

VGA Expansion Card: ATI 9700 PRO (1024x768x32bit color)

Hard Disk Driver: IBM IC35L040AVVN07-0 (ATA-100 7200RPM)

BIOS: Award Optimal default

OS: Win XP Professional

		166/166	166/200
3D Mark 2001SE		12477	12291
3D Mark 2003		4562	4541
3D Winbench 2000 (32/32bit)		393	394
PC Mark 2002			
CPU/Memory/HDD		6311 / 5162 / 965	6373 / 5120 / 969
Content Creation Winstone 2002		44.6	43.2
Content Creation Winstone 2003			
Business Winstone 2002		36.6	34.6
Winbench 99 V1.2 :			
Business Disk Winmark99		10300	10300
Hi-end Disk Winmark99		33800	33200
Business Graphic Winmark		752	751
Hi-end Graphic Winmark		1830	1820
SYS Mark 2001/2002 : SISMark 2001/2002 Rating (Internet Content Creation / Office Productivity)			
SISMark 2001		245 (246 / 245)	243 (244 / 243)
SISMark 2002			
SISOFT Sandra 2003 :			
Dhrystone ALU	MIPS	7800	7797
Whetstone FPU	MFLOPS	3137	3132
RAM Int Buffered iSSE2	MB/S	2251	2148
RAM Float Buffered iSSE2	MB/S	2100	2045
Integer SSE2	IT/S	11543	11534
Floating-Point SSE2	IT/S	12296	12282
QUAKE3 DEMO1	FPS	239.4	228.3
DEMO2	FPS	233.7	228.5
Return to Castle Wolfenstein	FPS	124.7	121.7
WCPUID System / CPU Clock		167.05 / 2171.60	167.05 / 2171.60

1-4 Layout Diagram & Jumper Setting

LAN PRINTER GAME/MIDI PORT

PS/2 MOUSE

PS/2 KEYBOARD

USB COM1 COM2A MIC

LINE-IN

LINE-OUT

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

PS2 KB/Mouse Port

USB Port/
LAN Connector

PC99 Back Panel

ATX Power Connector

Front Panel Audio

CD Audio

SFAN1

AC97' Audio Codec

CIR Connector

Winbond 83627HF Chip

IR Connector

PCI Slot

2MBit Flash ROM BIOS

SFAN2

Wake On LAN

USB Port
(USB2, USB1)

CPU Socket

CPU FAN

DDR DIMM X2

nVIDIA nForce2 400 Chip

(JP2)
CPU F.S.B. Frequency Selector

AGP 4X/8X Slot

nVIDIA nForce2 MCP Chip

ATA 133 IDE Conn.

Clear CMOS **(JP3)**

Speak Connector

Front Panel Connector

USB Power On Jumper
(JP4)

Floppy Connector

Jumpers

Jumper	Name	Description	Page
JP1	Keyboard Power On Enabled/Disabled	3-pin Block	P.6
JP4	USB Wake-Up Enabled/Disabled	3-pin Block	P.6
JP2	CPU Front Side Bus Frequency Selector	2-pin Block	P.6
JP3	CMOS RAM Clear Jumper	3-pin Block	P.7

Connectors

Connector	Name	Description	Page
PWR	ATX Power Connector	20-pin Block	P.12
KYB	PS/2 Mouse & PS/2 Keyboard Connector	6-pin Female	P.12
J1	USB/LAN Port Connector	2 x 4-pin/RJ45 Connector	P.12
LPT	Parallel Port Connector	25-pin Female	P.13
AUDIO_PORT (Line-OUT/Line-IN/MIC)	Audio Connector	3 phone jack Connector	P.13
AUDIO_GAME	Game Port Connector	15-pin Female Connector	P.13
COM1/COM2A	Serial Port COM1/2 Connector	9-pin Connector	P.13
FDD	Floppy Driver Connector	34-pin Block	P.13
IDE1/IDE2	Primary/Secondary IDE Connector	40-pin Block	P.14

Headers

Header	Name	Description	Page
AUDIO	Line-Out, MIC Header	9-pin Block	P.14
USB1/USB2	USB Port Headers	9-pin Block	P.15
HD LED	IDE activity LED	2-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	2-pin Block	P.15
PWR BTN	Power switch	2-pin Block	P.15
WOL	Wake On-LAN Headers	3-pin Block	P.16
SFAN1, SFAN2, CPUFAN	FAN Headers	3-pin Block	P.16
IR	IR infrared module Headers	5-pin Block	P.16
CDIN	CD Audio-In Headers	4-pin Block	P.17

Expansion Slot and Socket

Socket/Slot	Name	Description	Page
ZIF Socket 462	CPU Socket	462-pin PPGA CPU Socket	P.8
DIMM1, DIMM2	DDR SDRAM Module Socket	184-pin DDR SDRAM Module Expansion Socket	P.9
PCI1, PCI2, PCI3, PCI4, PCI5	PCI Slot	32-bit PCI Local Bus Expansion Slot	P.10
AGP	AGP 4X/8X Mode Slot	AGP Expansion Slot	P.12

Chapter 2

Hardware Installation

2-1 Hardware installation Steps

When installing the system, make sure to follow steps described in below:
1. Check motherboard setting
2. Install CPU
3. Install memory
4. Install expansion cards
5. Connect ribbon cables, panel wires, and power supply
6. Setup BIOS
7. Install software driver & utility

2-2 Checking Motherboard's Jumper Setting

(1) **Keyboard Power On function Enabled/Disabled: JP1**
USB Wake-Up function Enabled/Disabled : JP4
When set as Enabled you can use keyboard to power on the system by password key-in, and use USB device to wake up the system.

JP1	1-2 closed	K/B Power On Disabled (Default)
JP4	1-2 closed	USB Power On Disabled (Default)

JP1	2-3 closed	K/B Power On Enabled
JP4	2-3 closed	USB Power On Enabled
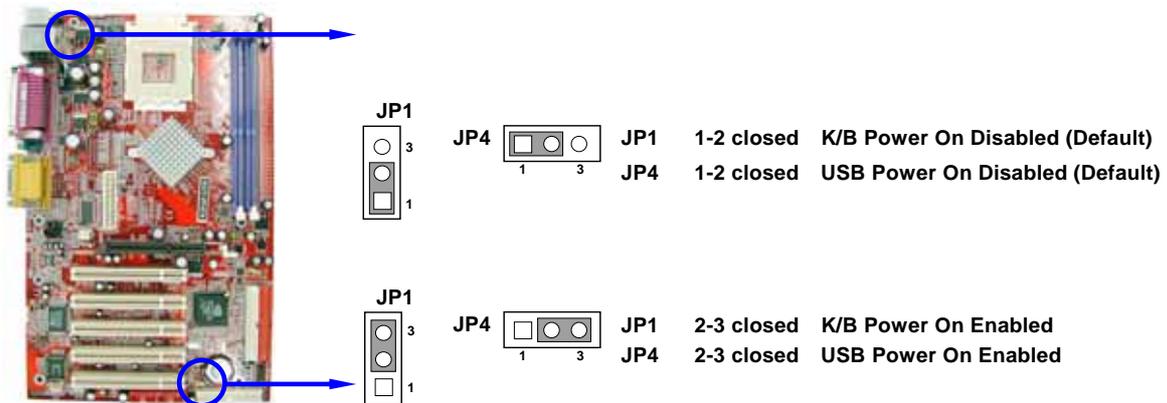
(2) **CPU Front Side Bus Frequency Setting (2-pin) : JP2**

JP2   ON : (AUTO)   JP2   OFF : 100MHz

CPU Front Side Bus Frequency
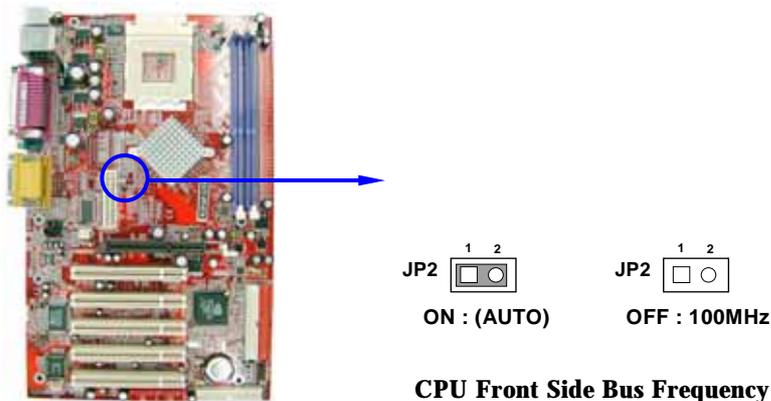
Note: *CPU Front Side Bus Frequency also can be changed in BIOS SETUP. Please refer to page 32 "Host Clock at Next Boot Is" selection in Miscellaneous Control menu.*

Note: *When the overclocking causes system boot failure, you will need to hold the "INS" key and the power on button at the same time until the screen resumes display to the standard default. Otherwise the CMOS will keep the faulty data and the motherboard will not function.*

(3) CMOS RAM Clear (3-pin) : JP3

A battery must be used to retain the motherboard configuration in CMOS RAM. Shorting 1-2 pins of JP3 will store the CMOS data.

To clear the CMOS, follow the procedure in below:
1. Turn off the system and unplug the AC power
2. Remove ATX power cable from ATX power connector
3. Locate JP3 and short pins 2-3 for a few seconds
4. Return JP3 to its normal setting by shorting pins 1-2
5. Connect ATX power cable back to ATX power connector

Note: When should CMOS be cleared
1. *Troubleshooting*
2. *Forget password*
3. *System boot failure after overclocking*

JP3 1-2 closed   Normal   JP3 2-3 closed   Clear CMOS
CMOS RAM Clear Setting
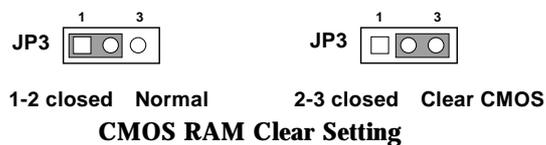
2-3 Install CPU

2-3-1 Glossary

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

Processor Slot/Socket - the slot or 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), 4X (266MHz), or 8X (533MHz).

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

ISA - **I**ndustry **S**tandard **A**rchitecture - a relatively low speed interface primarily used for sound cards and modems; runs at approx. 8MHz.

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.

LAN (interface) - **L**ocal **A**rea **N**etwork - the interface to your local area network.

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 Athlon CPU has 256K or above, while Duron will have 64K.

2-3-2 About AMD Athlon XP, Athlon & Duron 462-pin CPU

This motherboard supports Socket-A (Socket-462) AMD Athlon/Duron processors.

This motherboard Provides a ZIF Socket-A. The CPU to be used with the motherboard should have a cooling FAN attached to prevent overheating. If this is not the case, then purchase a correct cooling FAN before you turn on your system.

WARNING!	Be sure that there is sufficient air circulation across the processor's heatsink and CPU cooling FAN is working correctly, otherwise it may cause the processor and motherboard overheat and damage, you may install an auxiliary cooling FAN, if necessary.
WARNING!	Due to this motherboard provides new function of protecting CPU you must connect the CPU FAN connector on CPUFAN location in order to obtain this feature. Without connection on CPUFAN (or you have connect CPU FAN on SFAN1), the system will shut down immediately to protect both your CPU and motherboard.

Overheat Protect: Only for Athlon XP series CPU, when the CPU is overheated, system will automatically shut down power supply. You can hear a continue beep sound, the power button will be locked up. You must turn off and turn on the AC power to reset the system. Otherwise, the power button will not function. The other way is to keep pressing the button for a few seconds till the beep sound stops. Then, release the power button and press the power button again to turn on the power supply.

To install a CPU, first turn off your system and remove its cover. Locate the ZIF socket and open it by first pulling the lever sideways away from the socket and lift the lever upward to a 90-degree angle. Insert the CPU with the correct orientation as shown below. The notched corner should be pointed toward the end of the lever. The CPU has corner pin on two of the four corners and the CPU will only fit in the orientation as shown.
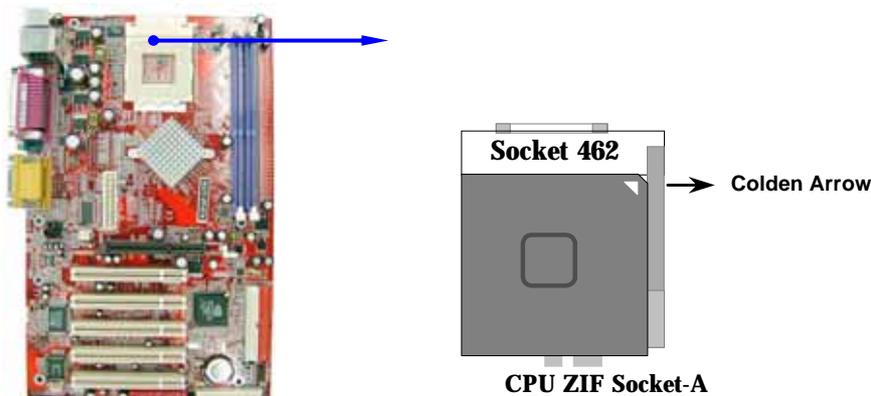
When you insert the CPU onto the ZIF socket, no force is required. After inserting, press the lever slightly without any extra force to lock CPU in position.

2-4 Install Memory

This motherboard provides two 184-pin DUAL INLINE MEMORY MODULES (DIMM) sockets for memory expansion from a minimum memory size of 64MB to maximum memory size of 2.0GB DDR SDRAM.

Valid Memory Configurations

Bank	184-Pin DIMM	PCS	Total Memory
Bank 0, 1 (DIMM1)	DDR 266/333/400 DDR SDRAM	X1	64MB~1.0GB
Bank 2, 3 (DIMM2)	DDR 266/333/400 DDR SDRAM	X1	64MB~1.0GB
Total	System Memory (Max. 2.0GB)	2	64MB~2.0GB

NOTE! Make sure the total installed memory size does not exceeds 2.0GB. Otherwise, the system may hang during startup.

Generally, installing DDR SDRAM modules to the motherboard is very straightforward. Please refer to figure 2-4 for the detail of 184-Pin DDR 266/333/400 DDR SDRAM module and the socket.
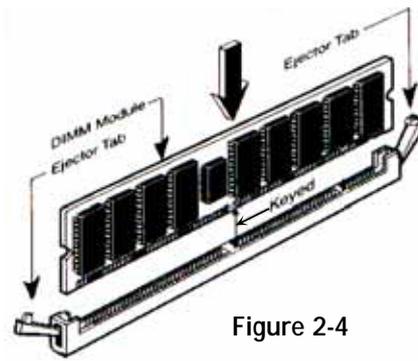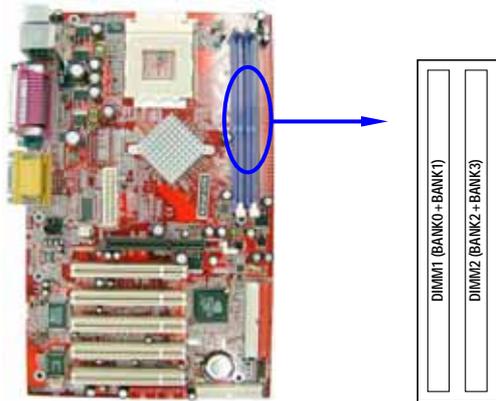
Figure 2-4

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 setting of 166MHz, use only DDR333 compliant DDR Modules. When this motherboard operates at 133Mhz, most system will not even boot if non-compliant modules are used because of the strict timing issues, if your DDR Modules are not DDR266-compliant, set the DDR SDRAM clock to 100MHz to ensure system stability.

2-5 Expansion Cards

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

2-5-1 Procedure For Expansion Card Installation

1. Read the documentation of the expansion card and make any necessary hardware or software setting on the expansion card, such as jumpers, before installing.
2. Remove computer 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 screw you remove above.
5. Replace the computer system's cover.
6. Set up the BIOS if necessary.
7. Install the necessary software driver of expansion card.

2-5-2 Assigning IRQs For Expansion Card

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

Standard Interrupt Assignments

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

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

2-5-3 Interrupt Request Table For This Motherboard

Interrupt requests are shared as shown in the table below:

	INT A	INT B	INT C	INT D
PCI slot 1	Shared	—	—	—
PCI slot 2	—	Shared	—	—
PCI slot 3	—	—	Shared	—
PCI slot 4	—	—	—	Shared
PCI slot 5	Shared	—	—	—
AGP slot	Shared	—	—	—
AC97/MC97	—	—	Shared	—
Onboard USB	—	—	—	Shared
Onboard USB 1	—	—	—	Shared
Onboard USB 2	—	—	—	Shared

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 and will make the system unstable or cards inoperable.

2-5-4 AGP Slot

The motherboard provides an AGP Slot, supporting the 4X/8X AGP VGA card.

AGP SLOT
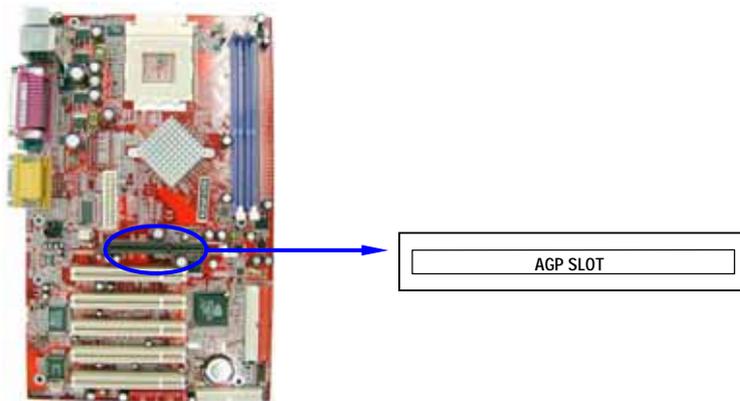
2-6 Connectors, Headers

2-6-1 Connectors

(1)   Power Connector (20-pin block) : PWR
ATX power supply connector. This is a newly defined 20-pins connector that usually comes with ATX case. The ATX power supply allows the use of soft power on momentary switch that connects 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 is switched 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
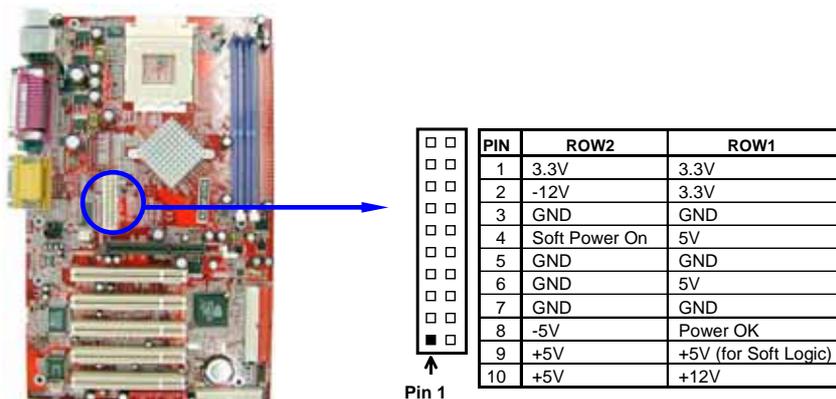
(2)   PS/2 Mouse & PS/2 Keyboard Connector: KYB
The connectors for PS/2 keyboard and PS/2 mouse.

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

(4)   LAN Port connector: LAN (for N2PAP-LITE only)
This is a standard RJ45 connector for network connection

(5)   Parallel Port Connector (25-pin female): LPT

Parallel port connector is a 25-pin D-subminiature receptacle connector. The onboard parallel port can be disabled through the BIOS SETUP. Please refer to Chapter 3 "INTEGRATED PERIPHERALS SETUP" section for more detail information.

(6)   Audio Connector : AUDIO_PORT/AUDIO_GAME

Audio port uses a connector with 3 phone jacks for LINE-OUT, LINE-IN and MIC. The 15-pin D-subminiature receptacle connector is connection of joystick/MIDI device

LINE_O :   Audio output to speaker(Front Speaker on 6-channel)
LINE_I :   Audio input to sound chip(Rear Speaker on 6-channel)
MIC :   Microphone Connector (Center-Base Speaker on 6-channel)
GAME: Joystick/MIDI Port Connector

(7)   Serial Port COM1, COM2A : COM1, COM2A

COM1 and COM2A are with the 9-pin D-subminiature male connectors. The onboard serial port can be disabled through BIOS SETUP. Please refer to Chapter 3 "INTEGRATED PERIPHERALS SETUP" section for more detail information.
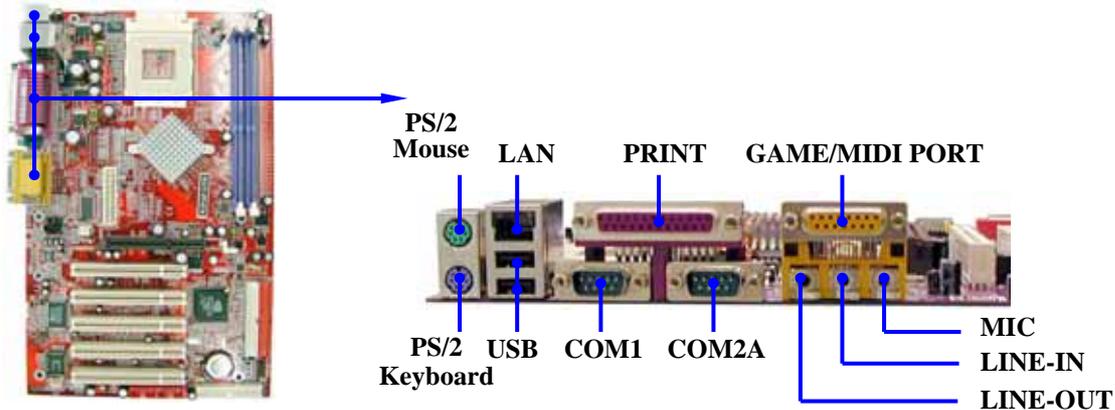
(8)   Floppy Drive Connector (34-pin block): FDD

This connector is for floppy drive ribbon cable connection. Connect the cable end with twisted stripe to floppy drive and other end of cable to the motherboard.

Floppy Drive Connector
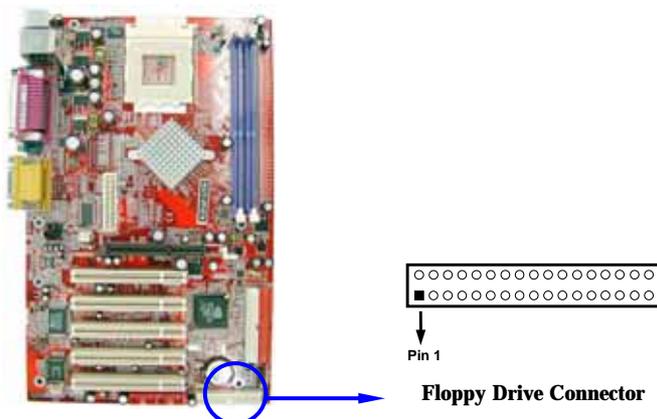
(9) Primary IDE Connector (40-pin block): IDE1

This connector is for IDE hard disk ribbon cable connection. Connect the single plug end to motherboard and 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.

(10) Secondary IDE Connector (40-pin block): IDE2

This connector connects to the another 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.
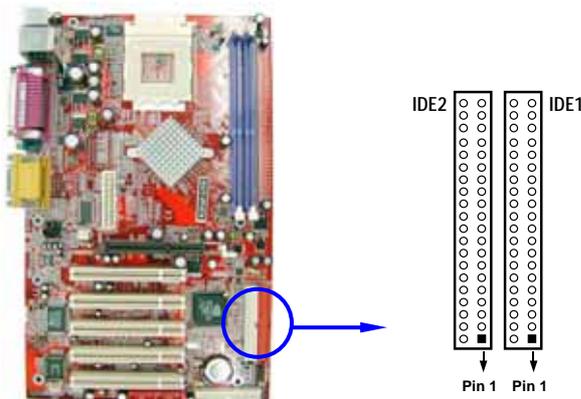
- Two hard disks can be connected to any one of the connectors. The first HDD is referred to as the "Master" and the second HDD is referred to as the "Slave".
- For best performance, we strongly suggest do not install CD-ROM or DVD-ROM drive on the same IDE channel as a hard disk. Otherwise, the system performance on this channel may drop.

2-6-2 Headers

(1) Line-Out, MIC Header (9-pin): AUDIO

This header connects to front panel line-out, MIC connector with cable.

Line-Out, MIC Headers
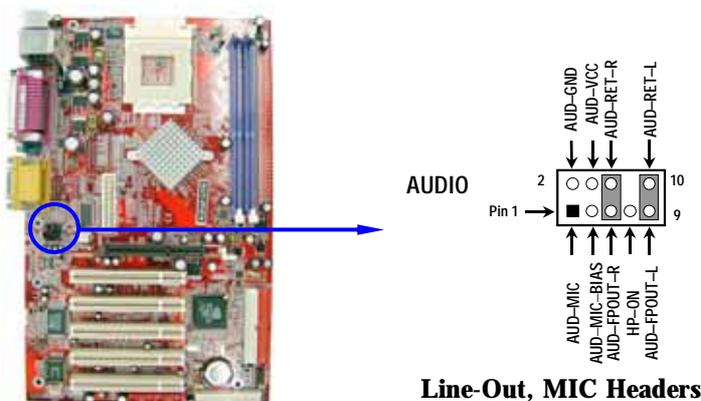
(2) USB Port Header (9-pin) : USB1/USB2

The headers are used for connecting the additional USB device. With an option USB cable, your can have two additional USB plugs affixed to the back panel.

USB Port Headers
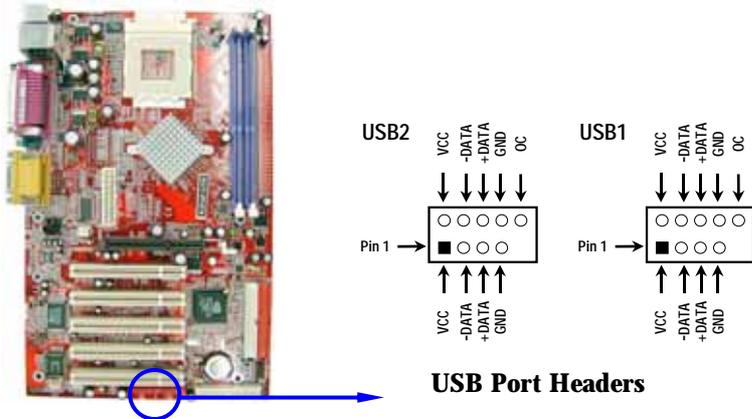
(3) IDE Activity LED: HD LED

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

(4) 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 life of the system's power supply. See the figure below.

(5) Speaker connector: SPEAK

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

(6) Power LED: PW_LED

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

(7) Power switch: PW_BTN

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

System Case Connections
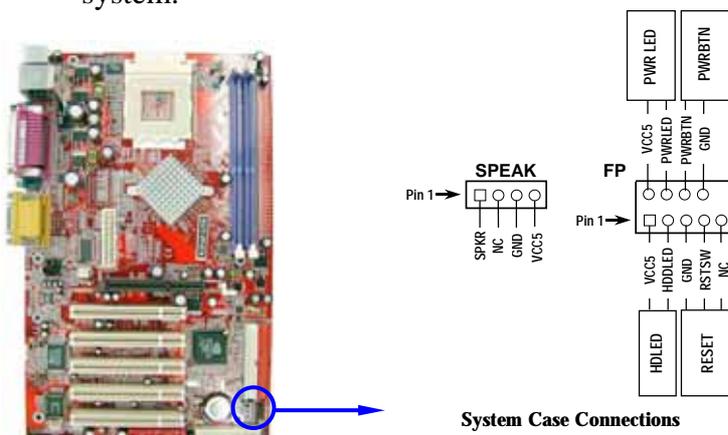
(8) Wake On-LAN Headers (3-pin) : WOL

This connector connects to LAN card with WAKE ON-LAN output. When connected, a wake up signal received through the LAN card will power up the system.

NOTE: This feature requires the Wake On LAN or Ring In Wake Up be enabled.

Wake-On-LAN Headers
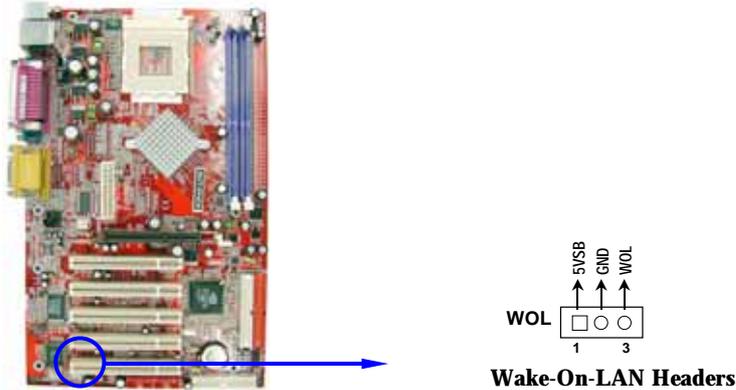
(9) FAN Speed Headers (3-pin) : SFAN1, SFAN2, CPUFAN

These connectors support a 350mA (4.2 Watts) current to cooling fans. Depending on the fan manufacturer, the wire and plug may be different. The red wire should be positive, while the black should be ground. Make sure the polarity of connector before you connect the fan's plug to the board.
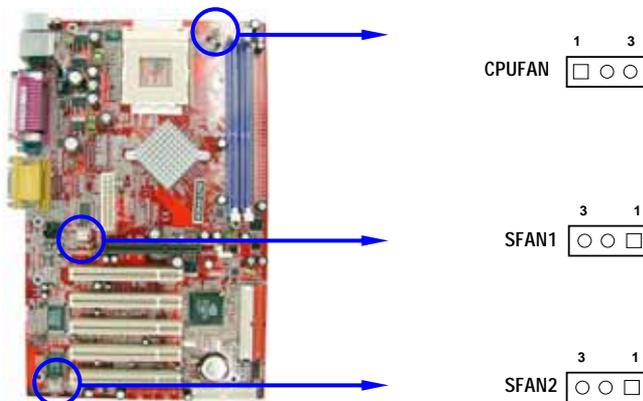
(10) IR infrared module Headers (5-pin) : IR

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

Pin 1 →　■ ○ ○　5

NC VCC IRTX
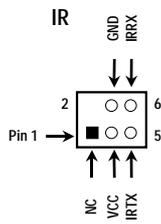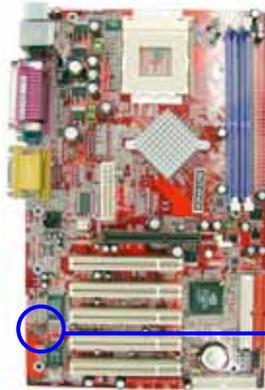
IR infrared module Headers

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

CDIN is the connector for CD-Audio input signal. It connects to the CD-ROM CD-Audio output connector.

1　　　4

CDIN　○ ○ ○ □
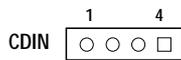
CD Audio-In Headers

2-7 Starting Up Your Computer

1. After all connections are made, close your computer case cover.

2. Be sure all the switches are off and the power supply input voltage is set to proper position. The input voltage is either 220V~240V or 110V~120V depending on your country's power voltage.

3. Plug the power supply cord into the power socket located on the back of your system case according to your system user's manual.

4. Turn on your peripherals in following order:

    a. Your monitor.
    b. Other external peripherals (Printer, Scanner, External Modem etc…)
    c. Your system power. For ATX power supply, you need to turn on the power supply and press the ATX power switch on the front panel of the case.

5. The power LED on the system front panel will light. The LED on the monitor may light up or switch between orange and green (if it complies with green standards or has a power standby feature) after the system is on. The system will then run power-on self test and the BIOS will beep with additional message on the screen.

    If you do not see any thing on the screen 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 dealer or shop 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 on screen instructions to set up BIOS.

7. **Power off your computer:** You must first exit or shut down your operating system before switching off the system. For ATX power supply, you can press ATX power switch 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 stored in a flash memory on the motherboard. The program serves as a bridge between motherboard and operating system. When you switch on the system, the BIOS program gains immediate control. The BIOS first executes an auto-diagnostic test called POST (power on self test) on all the necessary hardware. It detects the entire hardware devices and configures the parameters of the hardware for synchronization. Only when these tasks are completed it gives up control of the computer to operating system (OS). Since the BIOS is the only communication channel for hardware and software, it is the key to ensure system stability and optimal system performance.

You will see various options in the BIOS Setup main menu as shown in Figure 3-1. These options will be explained step by step in the following pages. Before going further, let us first take a short look at the descriptions 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> to save these parameters and to exit the BIOS Setup menu when you have completed the setup of BIOS parameters.
- Press Page Up/Page Down or + /− keys when you want to modify the BIOS parameters for an active option.

3-1 Entering Setup

Power on the computer and press < Del> immediately allows you to enter BIOS Setup.
If the POST message disappears before you press < Del> 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. There are fourteen setup functions and two exit choices allowing you to select under the Main Menu. 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-set for optimal system performances operation.

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 changes of CMOS value to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS values changed and exit setup.

3-4 Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into categories. There might be no, one, or more than one setup items in the category. 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)          Fri, Aug, 08 2003         │      Item Help       │
   │   Time (hh:mm:ss)          16 : 45 : 35              │                      │
   │ > IDE Primary Master       Press Enter None          ├──────────────────────┤
   │ > IDE Primary Slave        Press Enter None          │  Menu Level >        │
   │ > IDE Secondary Master     Press Enter None          │                      │
   │ > IDE Secondary Slave      Press Enter None          │  Change the day, month,│
   │   Drive A                  1.44M, 3.5 in.            │  year and century    │
   │   Drive B                  None                      │                      │
   │   Video                    EGA/VGA                   │                      │
   │   Halt On                  All,But Keyboard          │                      │
   │   Base Memory                   640K                 │                      │
   │   Extended Memory             56320K                 │                      │
   │   Total Memory                57344K                 │                      │
   ├─────────────────────────────────────────────────────┴──────────────────────┤
   │  ↑↓→← Move Enter:Select +/-/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 in using 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 drive specifications information are required to be entered. Enter the information directly from the keyboard. This information is provided from the documentation of your hard disk.

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         │                         │
 │  CPU L1 Cache                Enabled          │       Item Help         │
 │  CPU L2 Cache                Enabled          │                         │
 │  Quick Power On Self Test    Enabled          │                         │
 │  SATA & SCSI Boot Order       ATA, SCSI       │   Menu Level >          │
 │  HDD Boot Sprite             Disabled         │                         │
 │  First Boot Device           Floppy           │                         │
 │  Second Boot Device          HDD-0            │                         │
 │  Third Boot Device           CDROM            │                         │
 │  Boot other Device           Enabled          │                         │
 │  Swap Floppy Drive           Disabled         │                         │
 │  Boot Up Floppy Seek         Enabled          │                         │
 │  Boot Up NumLock Status      On               │                         │
 │  Gate A20 Option             Normal           │                         │
 │  Typematic Rate Setting      Disabled         │                         │
 │  Typematic Rate (Chars/Sec)  6                │                         │
 │  Typematic Delay (Msec)      250              │                         │
 │  Security Option             Setup            │                         │
 │  OS Select For DRAM > 64MB   Non-OS2          │                         │
 │  HDD S.M.A.R.T. Capability   Disabled         │                         │
 │  Video BIOS Shadow           Enabled          │                         │
 ├──────────────────────────────────────────────┴─────────────────────────┤
 │   ↑↓→←  Move Enter:Select +/-/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 prompt a warning message on screen and give beep sound.

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

Enabled Activates automatically a warning message to appear whenever there are attempts to access the boot sector of hard disk partition table at the system boots up.

CPU L1 Cache

The default value is Enabled.

Enabled (default) Enable cache
Disabled Disable cache

Note: The internal cache is built in the processor.

CPU L2 Cache

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

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 setting options are Floppy, LS/ZIP, HDD-0/HDD-1/HDD-3, SCSI, CDROM, LAD and Disabled.

Swap Floppy Drive

Switches the floppy disk drives designator between 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 in 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 before it begins to repeat the keystroke. The settings are 250, 500, 750, and 1000.

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

System	The system will not boot, and the access to Setup will be denied if the correct password is not entered at the prompt.
Setup (default)	The system will boot, but the 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-OS2 (default) and OS2. Set to OS2 if using more than 64MB and running OS2®.

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

    System Performance        Standard                Item Help
  X CPU Interface             Optimal
  X T(RAS)                    6
  X T(RCD)                    3                  Menu Level >
  X T(RP)                     3
  X CAS Latency               2.5
    AGP Aperture Size         64M
    AGP 8X Support            Enabled
    AGP Fast Write Capability Enabled
    System BIOS Cacheable     Disabled
    Video RAM Cacheable       Disabled




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

CAS Latency

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

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.

Frame Buffer Size

You can choose the onboard VGA memory size shared from system memory. The settings are: 8M, 16M, 32M, 64M, Disabled.

3-7 Integrated Peripherals

```
              CMOS Setup Utility – Copyright(C) 1984-2003 Award Software
                              Integrated Peripherals
 ┌────────────────────────────────────────────────┬──────────────────────────┐
 │ > Onboard IDE Function          Press Enter     │        Item Help         │
 │ > Onboard Device Function        Press Enter    │                          │
 │ > Onboard Super IO Function      Press Enter    ├──────────────────────────┤
 │   Init Display First             PCI Slot       │   Menu Level >           │
 │   Power On Function              Button Only     │                          │
 │ X KB Power On Password           Enter          │                          │
 │ X Hot Key Power On               Ctrl+F1        │                          │
 │   Power Loss Function            Always off     │                          │
 │                                                 │                          │
 ├────────────────────────────────────────────────┴──────────────────────────┤
 │   ↑↓→←  Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help│
 │       F5:Previous Values   F6:Optimized Defaults    F7:Standard Defaults    │
 └────────────────────────────────────────────────────────────────────────────┘
```

Onboard IDE Function

Please refer to section 3-7-1

Onboard Device Function

Please refer to section 3-7-2

Onboard Super IO Function

Please refer to section 3-7-3

Init Display First

This item selects to activate PCI Slot or AGP VGA first. The settings are: PCI Slot, AGP Slot.

Power Loss Function

This item allows the system to power ON/OFF automatically when power recovery again after previous power loss. You can choose Auto to recover to pre-state, or always ON/OFF after power recovery.

3-7-1 Onboard IDE Function

```
                CMOS Setup Utility – Copyright(C) 1984-2003 Award Software
                                OnChip IDE Function
┌────────────────────────────────────────────────────┬──────────────────────────┐
│  OnChip IDE Channel0            Enabled             │                          │
│  OnChip IDE Channel1            Enabled             │         Item Help        │
│  Primary Master    PIO          Auto                │                          │
│  Primary Slave     PIO          Auto                │                          │
│  Secondary Master PIO           Auto                │   Menu Level >>          │
│  Secondary Slave   PIO          Auto                │                          │
│  Primary Master    UDMA         Auto                │                          │
│  Primary Slave     UDMA         Auto                │                          │
│  Secondary Master UDMA          Auto                │                          │
│  Secondary Slave   UDMA         Auto                │                          │
│  IDE 32-bit Transfer Mode       Enabled             │                          │
│  IDE HDD Block Mode             Enabled             │                          │
│  IDE Prefetch Mode              Enabled             │                          │
│  Delay For HDD (Secs)            0                  │                          │
│                                                     │                          │
│                                                     │                          │
├────────────────────────────────────────────────────┴──────────────────────────┤
│   ↑↓→←  Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help    │
│        F5:Previous Values   F6:Optimized Defaults    F7:Standard Defaults       │
└────────────────────────────────────────────────────────────────────────────────┘
```

OnChip IDE Channal0/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.

Primary/Secondary Master/Slave PIO
The four IDE PIO (Programmed Input/Output) fields let you set PIO mode (0-4) for each of the four IDE devices. Modes 0 through 4 provide consecutively 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 has the support and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If both your hard drive and system software 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 Onboard Device Function

```
                    CMOS Setup Utility – Copyright(C) 1984-2003 Award Software
                                   OnChip Device Function
┌──────────────────────────────────────────────────────┬────────────────────────┐
│                                                        │                        │
│   AC97 Sound Device            Auto                    │      Item Help         │
│   Game Port Address            201                     │                        │
│   Midi Port Address            Disabled                ├────────────────────────┤
│ X Midi Port IRQ                10                      │   Menu Level >>         │
│   nVIDIA LAN Function          Auto                    │                        │
│   USB Host Controller          Enabled                 │                        │
│   USB 2.0 Support              Enabled                 │                        │
│   USB Keyboard Legacy Support  Disabled                │                        │
│                                                        │                        │
│                                                        │                        │
├──────────────────────────────────────────────────────┴────────────────────────┤
│    ↑↓→←  Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help   │
│         F5:Previous Values   F6:Optimized Defaults    F7:Standard Defaults      │
│                                                                                  │
└──────────────────────────────────────────────────────────────────────────────┘
```

Game Port Address/Midi Port Address

This determines which address the Game Port/Midi Port will use.

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 Support

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

3-7-3 Onboard Super IO Function

```
                    CMOS Setup Utility – Copyright(C) 1984-2003 Award Software
                                   Onboard Super IO Function
┌──────────────────────────────────────────────────────┬────────────────────────┐
│   Onboard FDD Controller       Enabled                 │      Item Help         │
│   Onboard Serial Port 1        3F8/IRQ4                │                        │
│   Onboard Serial Port 2        2F8/IRQ3                ├────────────────────────┤
│   UART2 Mode                   Normal                  │   Menu Level >>         │
│ X RxD, TxD Active              Hi, Lo                   │                        │
│ X IR Transmission Delay        Enabled                 │                        │
│ X IR Duplex Mode               Half                    │                        │
│ X IR Pins                      IRRX/IRTX               │                        │
│   Onboard Parallel Port        378/IRQ7                │                        │
│   Parallel Mode                SPP                     │                        │
│ X EPP Mode Select              EPP1.9                  │                        │
│ X ECP Mode Use DMA             3                       │                        │
│                                                        │                        │
│                                                        │                        │
├──────────────────────────────────────────────────────┴────────────────────────┤
│    ↑↓→←  Move Enter:Select +/-/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.

UART2 Mode
This item allows you to determine which Infrared (IR) function of the onboard I/O chip to be used.

Onboard Parallel Port
There is a built-in parallel port on the onboard Super I/O chipset providing 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, 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 requires the use of DMA channel. So, after selecting ECP mode, the message: "ECP Mode Use DMA" will be displayed at this time. The user can choose among DMA channels 3 to 1. The onboard parallel port is EPP compliant. So, after you choose the onboard parallel port with the EPP function, the message: "EPP Mode Select" will be displayed on the screen. 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 the system to most effective energy saving status 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            │                        │
│    ACPI Suspend Type          S1(POS)            │     Item Help          │
│    Video off Method           V/H SYNC+Blank     │                        │
│    Power Button Function      Instant-Off        │   Menu Level >         │
│    Wake-Up on PCI PME         Disabled           │                        │
│    Wake-Up on Ring/LAN        Disabled           │                        │
│    USB Resume from S3/S4      Disabled           │                        │
│    Wake Up on RTC Alarm       Disabled           │                        │
│  X Time(dd:hh:mm) of Alarm    0: 0: 0            │                        │
│                                                  │                        │
├──────────────────────────────────────────────────────────────────────────┤
│   ↑↓→← Move Enter:Select +/-/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.

    DPMS (default)   Initial display power management signaling.

    Blank Screen   This option only writes blanks to the video buffer.

    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.

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.

Wake Up On Ring/PME/LAN
When Disabled, the system will ignore any incoming call from the modem/LAN. When Enabled, the system will boot up if there's an incoming call from the modem.

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

Time(dd:hh:mm) of Alarm
You can choose at which day of month , what hour and minute the system boots up.

    Note: If you have changed the setting, you must reboot system to make this function work.

3-9 PnP/PCI Configuration Setup

This section describes how to configure the PCI bus system. PCI, or **P**ersonal **C**omputer **I**nterconnect, is a system which allows I/O devices to operate at speeds similar to the speeds CPU uses when communicating with its own special components. The setup involves extensive technical knowledge. 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
┌─────────────────────────────────────────────────┬────────────────────────┐
│                                                  │        Item Help       │
│   Reset Configuration Data        Disabled       │                        │
│                                                  ├────────────────────────┤
│   Resources Controlled By         Manual         │  Menu Level >          │
│ x IRQ 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:Optimized Defaults   F7:Standard Defaults   │
└────────────────────────────────────────────────────────────────────────────┘
```

Reset Configuration Data

Normally, this field is set Disabled. If you have installed a new add-on and the system reconfiguration has caused a serious conflict resulting in the operating system boot failure, select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup. The settings are: Enabled and Disabled.

Resource Controlled By
The Award Plug and Play BIOS has the capability to configure all of the boot and Plug and Play compatible devices automatically. 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.
Please refer to section 3-9-1

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

3-9-1 IRQ Resources

```
                CMOS Setup Utility – Copyright(C) 1984-2003 Award Software

                                 IRQ Resources
 ┌─────────────────────────────────────────────────┬──────────────────────────┐
 │   IRQ3    assigned to         PCI Device         │                          │
 │   IRQ4    assigned to         PCI Device         │        Item Help         │
 │   IRQ5    assigned to         PCI Device         ├──────────────────────────┤
 │   IRQ7    assigned to         PCI Device         │                          │
 │   IRQ9    assigned to         PCI Device         │   Menu Level >>          │
 │   IRQ10   assigned to         PCI Device         │                          │
 │   IRQ11   assigned to         PCI Device         │                          │
 │   IRQ12   assigned to         PCI Device         │                          │
 │   IRQ14   assigned to         PCI Device         │                          │
 │   IRQ15   assigned to         PCI Device         │                          │
 │                                                  │                          │
 │                                                  │                          │
 │                                                  │                          │
 │                                                  │                          │
 │                                                  │                          │
 │                                                  │                          │
 ├─────────────────────────────────────────────────┴──────────────────────────┤
 │  ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help   │
 │      F5:Previous Values    F6:Optimized Defaults   F7:Standard Defaults      │
 └─────────────────────────────────────────────────────────────────────────────┘
```

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

   Shutdown Temperature          Disabled
   Show PC Health in Post        Enabled                    Item Help
   Current System Temperature    25°C
   Current CPU Temperature       38°C
                                                        Menu Level >
   Current CPUFAN Speed          5000 rpm
   Current SYSFAN1 Speed         5000 rpm
   Current SYSFAN2 Speed         5000 rpm
   Vcore                         1.78V
   Vcc3.3                        3.31V
   + 5V                          4.98V
   +12V                          12.22V
   -12V                          -12.36V
   VBAT(V)                       3.21V
   5VSB(V)                       5.02V



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

Shutdown Temperature
This item can let you set the Shutdown temperature. When CPU temperature is over this setting, the system will automatically shutdown to protect CPU.

Show PC Health in Post
When Enabled, it displays information list below. The choice is either Enabled or Disabled

Current CPU Temperature/Current System Temp/Current FAN1, FAN2 Speed/Vcore/ Vdd/3.3V/+5V/+12V/-12V/VBAT(V)/5VSB(V)
This will show the CPU/FAN/System voltage chart and FAN speed.

Detect CPUFAN in Post
When Enabled, system will send warning message if CPU fan is not functioning.

3-11 Miscellaneous Control

This section provides options for setting CPU Frequency/Voltage Control.

```
              CMOS Setup Utility – Copyright(C) 1984-2003 Award Software
                              Miscellaneous Control
 ╔═══════════════════════════════════════════════════╦═══════════════════════╗
 ║ ** Current Host Clock is                          ║                       ║
 ║ Host Clock at Next Boot is        100MHz          ║      Item Help        ║
 ║ ** Current DRAM Clock is                          ║                       ║
 ║ DRAM Clock at next Boot is        133MHz          ╠═══════════════════════╣
 ║ CPU Ratio Select                  Default         ║  Menu Level >         ║
 ║ Core_VDD Select                   1.7V(Default)   ║                       ║
 ║ VDD_AUXC Select                   1.6V(Default)   ║                       ║
 ║ VAGP Output                       1.5V(Default)   ║                       ║
 ║ VRAM Output                       2.6V(Default)   ║                       ║
 ║ VAUX Output                       Default         ║                       ║
 ║ VTT Voltage                       1.25V           ║                       ║
 ║ VAGP LUV Protect                  Enabled         ║                       ║
 ║ VRAM LUV Protect                  Enabled         ║                       ║
 ║ Dual3.3V LUV Protect              Disabled        ║                       ║
 ║ Flash Parts Write Protect         Enabled         ║                       ║
 ╠═══════════════════════════════════════════════════╩═══════════════════════╣
 ║  ↑↓→←  Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help ║
 ║      F5:Previous Values    F6:Optimized Defaults   F7:Standard Defaults     ║
 ╚════════════════════════════════════════════════════════════════════════════╝
```

Host Clock at next Boot is
This item allows you to select CPU frequency at preset values.
The choices are: 100MHz, 133MHz, 166MHz, 200MHz, 236MHz, 240MHz, 242MHz, 244MHz, 245MHz, 250MHz

DRAM Clock at next Boot is
This field supports the capability of setting the memory modules clocks that you can use.
The choice is either 100MHz, 110MHz, 125MHz, 133MHz, 138MHz, 166MHz, 200MHz, 208MHz, 221MHz, 249MHz

CPU Ratio Select
This item allows you to select Ratio of the CPU. The choice are:X5~ X24

VDD AUXC Select
This item allows you to select Chip Voltage. The choice are 1.6V(Default), 1.7V

VAGP Output
This item allows you to select 1.5V voltage of the AGP VGA card. The choice are: 1.5V, 1.6V,1.7V

VRAM Output
This item allows you to select 2.5V of the DDR Module. The choice are: 2.5V~ 3.0V.

VAUX Output
This item allows you to select AUX voltage. The choice are: Default, 2%, 4%, 8%,12%, 16%.

VTT Voltage
This item allows you to select VTT voltage. The choice are: 1.25V, VDIMM/2.

VAGP/VRAM LUV Protect

This item allows you to enable the protective function on motherboard when over current presents.
The choice are: Enabled(Default), Disabled

Flash Parts Write Protect

This item allows you to protect BIOS against the data crash of virus. The choice are: Enabled, Disabled. Before flash BIOS you have to change the setting to Disabled, otherwise you can not flash BIOS.

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: be able to enter and change the options of the setup menus.
User password: be able to enter, but not 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 to 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 can 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 of Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

Chapter 4

DRIVER & FREE PROGRAM INSTALLATION

Check your package and find the included MAGIC INSTALL CD. This CD consists of all drivers you need and some free bundled application and utility programs. Also included is an auto detection software which can tell you what hardware is installed and which driver is needed for proper system operation.

MAGIC INSTALL Supports WINDOWS 98SE/ME/NT4.0/2000/XP

Insert CD into your CD-ROM drive and the MAGIC INSTALL Menu should appear as shown 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. nFORCE   install NVIDIA nForce chipset system driver
2. SOUND   install ALC AC97' Audio Codec driver
3. USB2.0   install USB 2.0 driver
4. DirectX8   install Microsoft DirectX 8.1 driver
5. PC-CILLIN   install PC-CILLIN2002 anti-virus program
6. PC-HEALTH   install PC-HEALTH monitor Utility
7. MAGIC BIOS   install BIOS Live Update Utility
8. Audio Hotfix   install Audio Patch File (Only for WIN98SE OS)
9. BROWSE CD   to browse the contents of the CD
10. EXIT   to exit from MAGIC INSTALL menu

4-1 nFORCE   Install NVIDIA nFORCE Pack Driver

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

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

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

MEMCTL :   NVIDIA Memory Controller driver

SMBUS :   NVIDIA SMBUS Controller driver

ETHERNET : NVIDIA nFORCE MCP networking

1. Click nFORCE when MAGIC INSTALL
    MENU appears

2. Click NEXT when NVIDIA Windows98/
    ME/2000/XP nForce Drivers Wizard appears
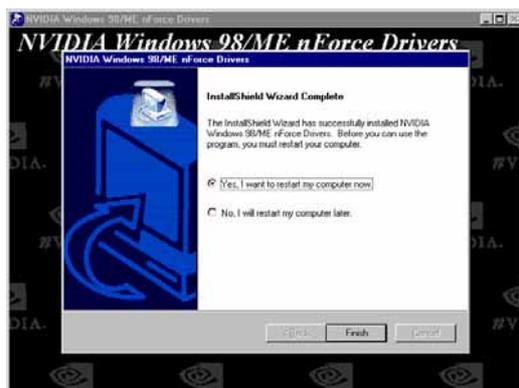
3.   Click Finish to restart computer

4-2 Sound Install AC97 Audio Codec Driver

1. Click SOUND when MAGIC INSTALL MENU appears

2. It will auto detect operation system language edition. Click OK to start DRIVER installation

3. Click Finish and Restart Windows
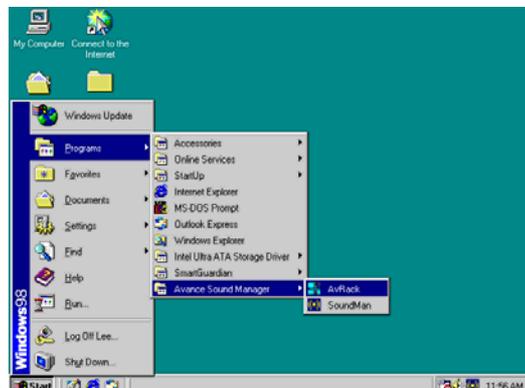
4. Click Start→Program→Avance Sound Manager→AvRack. Then AVRACK Windows appears
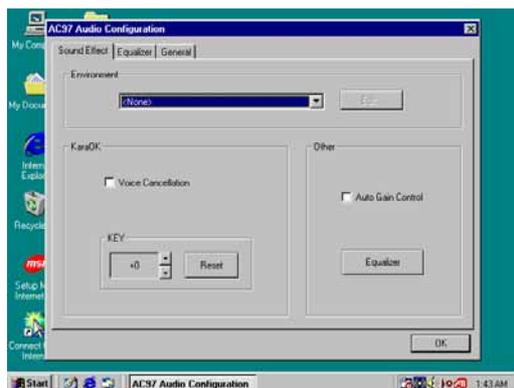
5. Sound Effect select and KaraOK Mode Function
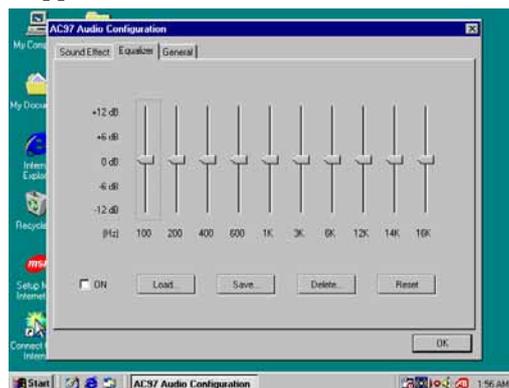
6. Manual Sound Effect Setting

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

4-3 USB2.0　　Install NVIDIA USB 2.0 Driver

Windows 98SE/ME/2000 USB 2.0 Driver Installation

1. Click USB2.0 when MAGIC INSTALL MENU appears

2. Click CLOSE and Restart Computer

Windows XP USB 2.0 Driver installation

1. Install Windows XP Service Pack 1 or later
2. Select My Computer, Press Right Button, Select Properties,
   Go to Hardware \ Device Manager, Remove Other Device \ Universal Serial Bus (USB) Controller
   Restart Your Computer, It Will Find **"NVIDIA USB2.0 Enhanced Host Controller"** And **"USB2.0 Root Hub Device"**

4-4　PC-CILLIN　Install PC-CILLIN 2002 Anti-virus program
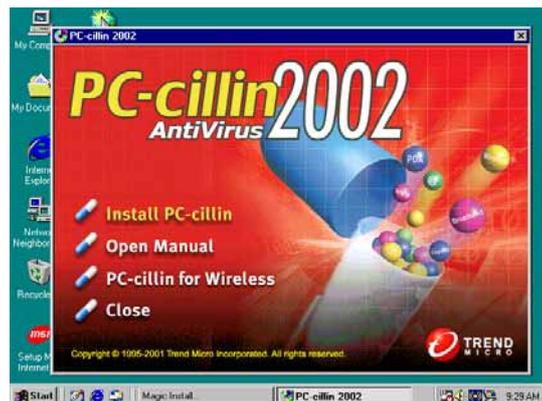
1. Click PC-CILLIN when MAGIC INSTALL MENU appear

2. (1) Click "Install PC-CILLIN" when PC-CILLIN 2002 main menu appears. Then click NEXT when "Install Shield Wizard For PC-CILLIN 2002" appears

   (2) Click Open Manual to learn how to use PC-CILLIN 2002

3. This is license agreement. Select "I Accept the terms" and Click NEXT
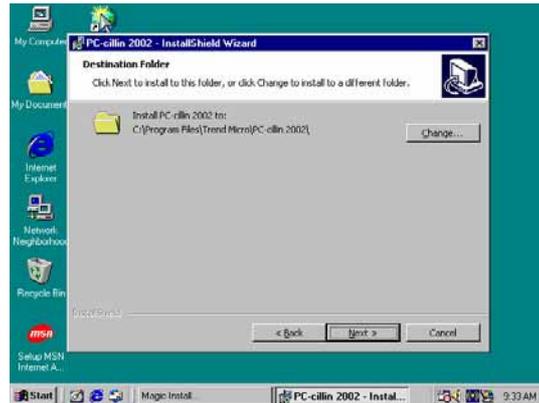
4. Click NEXT and Enter your Customer Information. Click NEXT or choose Change to change the path for storing the file
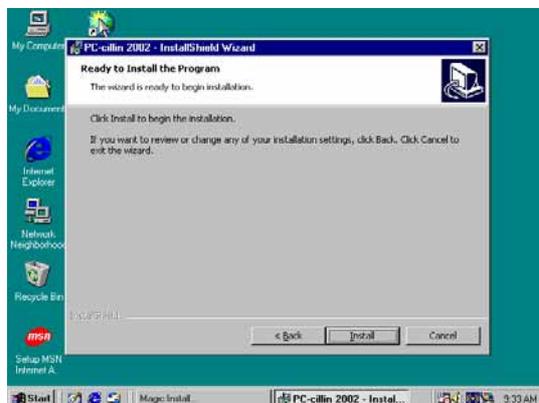
5. Click INSTALL to begin software installation

6. Setup Complete and click FINISH
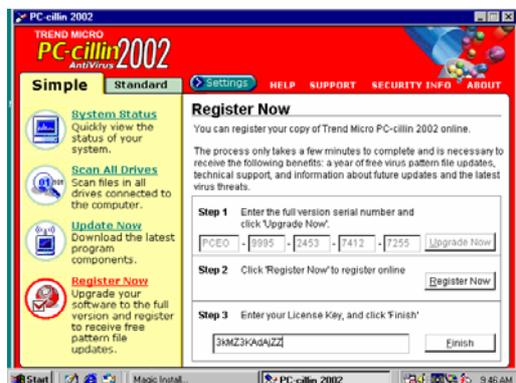
7. After completing PC-CILLIN 2002 installation, please register your information and get LICENSE KEY from TREND MICRO web site. Enter your license key and click FINISH
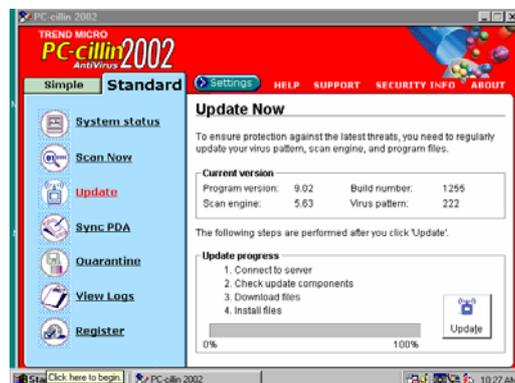
8. After finishing register process, we recommend you select update item to download newest engine code and virus code

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

4-5 PC-HEALTH Install NFORCE2 Hardware Doctor Utility

The path of the file is X:\83627HD\SETUP.EXE (support WINDOWS 98SE/ME/2000/XP)

1. Click PC-Health when Magic Install Menu appears

2. Click Next when Winbond Hardware Doctor Setup Window appears

3. Click Next to continue installation

4. Select Program Group name or enter a new group name. Click Next and click Finish after setup complete

4-5-1 How To Utilize PC-HEALTH
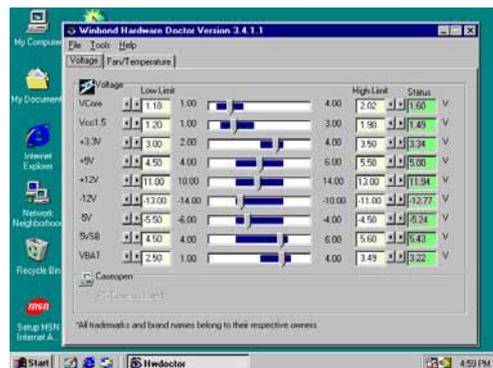
1. Click Program → Winbond Hardware Doctor → Hardware Doctor the Winbond Hardware Doctor will appears
    You can remove the Utility in Control Panel → Add/Remove Program icon

2. After executing Winbond Hardware Doctor, system voltage, Fan speed and CPU/SYSTEM Temperature can be displayed. Because this is a On-time Monitoring program therefore the value will change after it detected. If the value is over default setting, you will be prompted with warning picture and beeps. This is a System Voltage status
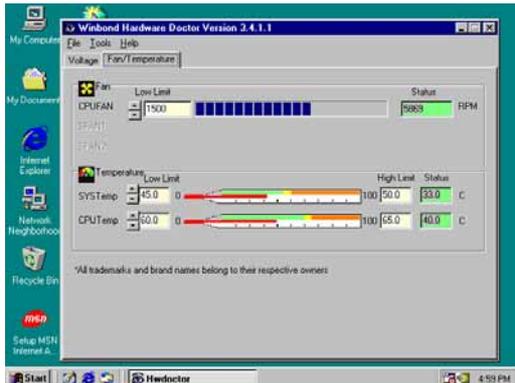
3.   This is a CPU/System Fan Speed and Temperature status information

4-6   MAGIC BIOS   Install BIOS Live Update Utility



1.   Click Magic BIOS when Magic Install MENU appears
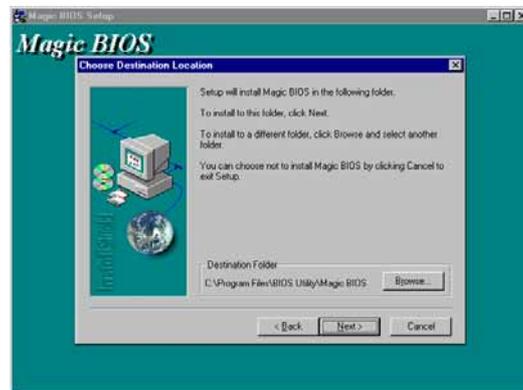
2.   Click Next to install the Magic BIOS in Destination Folder

3.   After finish Setup you will have a Magic BIOS icon in your screen

4.   The above picture will appear after double click the Magic BIOS icon. You can upgrade BIOS On-line by choose internet.
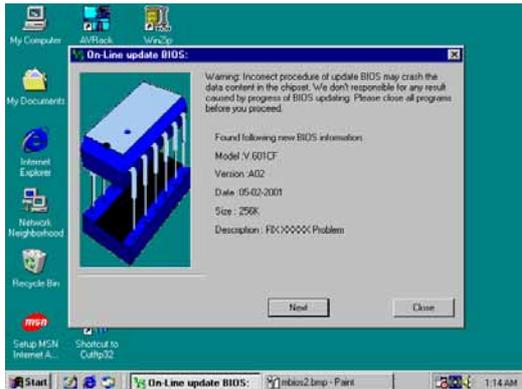
5. When updating BIOS on-line, the program will auto-check your BIOS version
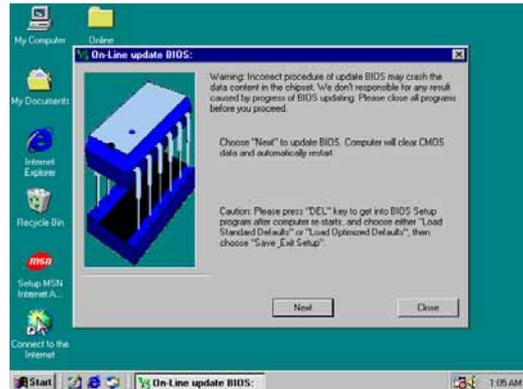
6. Click Next if you need to update BIOS. After BIOS is updated, the system will clear CMOS and automatically restart
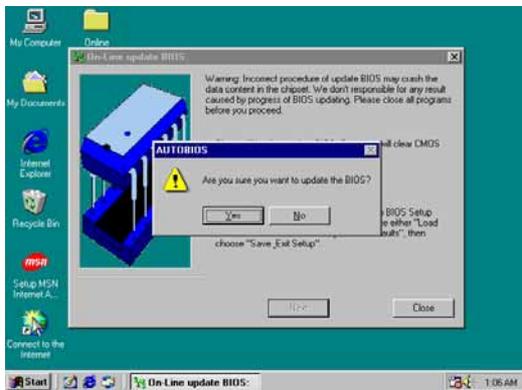
7. Click Yes if you want to update the BIOS, otherwise choose No to exit
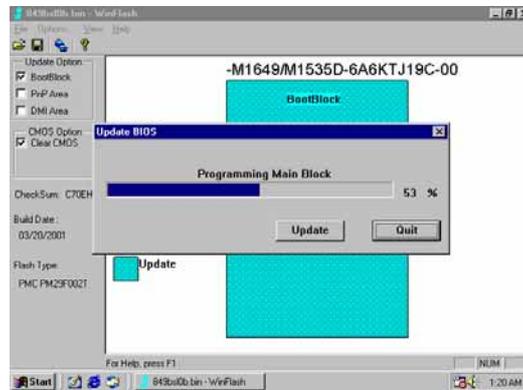
8. When System programming BIOS don't turn off power after finish update BIOS, the system will clear CMOS and automatically Restart

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

4-7 HOW TO UPDATE BIOS

Before update BIOS please choose Disabled in "Flash Part Write Protect" item on "Miscellaneous Control" in BIOS Setup. Please refer to page 32 for detail.

Method 1. Use "Magic BIOS" to update BIOS in Windows 98 (refer to page 40)

Method 2. In DOS Mode:

STEP 1. Prepare a boot diskette. (you may make one by clicking START, clicking RUN, typing SYS A:, and clicking OK)

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

STEP 3. Copy latest BIOS for N2PA-LITE/N2PAP-LITE from our web site to your boot diskette.

STEP 4. Insert your boot diskette into A:.
Start the computer and type "Awdflash A:\N2PALxxx.BIN /SN/PY/CC/R".
N2PALxxx.BIN is the file name of latest BIOS. It can be N2PALA3.BIN or N2PALB2.BIN.
SN   means not to save existing BIOS data
PY   means to renew existing BIOS data
CC   means to clear existing CMOS data
R   means to restart computer

STEP 5. Press ENTER and the BIOS will be updated. System will be restarted automatically.