

B 860T

USER'S MANUAL

M/B For Socket 370 Pentium® III Processor

NO. B860T

Release date: March 2002

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Item Checklist

- B 860T Motherboard
- Cable for IDE/Floppy
- CD for motherboard utilities
- B 860T User's Manual

Intel® Processor Family

Thermal Solutions

As processor technology pushes to faster speed and higher performance, thermal management becomes increasingly crucial to computer systems. Maintaining the proper thermal environment is the key to reliable, long-term system operation. The overall goal in providing the proper thermal environment is keeping the processor's temperature 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.

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

1-1 Features of motherboard

The BN860T is designed for Intel's 370-pin processors and the memory size is expandable to 1GB (using 256Mb technology). This motherboard is integrated VGA, Audio, and PC Health Function with Mini Flex ATX form factor and supports total solution for today's computer and embedded IA market.

This motherboard is based on VIA Apollo PLE133T chipset (VT8601T and VT82C686B), whose 133MHz front side bus delivers a clear upgrade path to the future generation of 133MHz processors and PC-100/PC-133 SDRAM. The BN860T motherboard offers ULTRA DMA 66/100 (ATA 100) to provide higher data transfer rate to HDD and to boost the overall system performance.

The BN860T also has an integrated AC'97 2.1 CODEC on board which is fully competitive with Sound Blaster Pro that gives you the best sound quality and ompatibility. VIA VT8601T chipset also includes integrated 3D Graphic Acceleration to provide a lower-cost solution for video display.

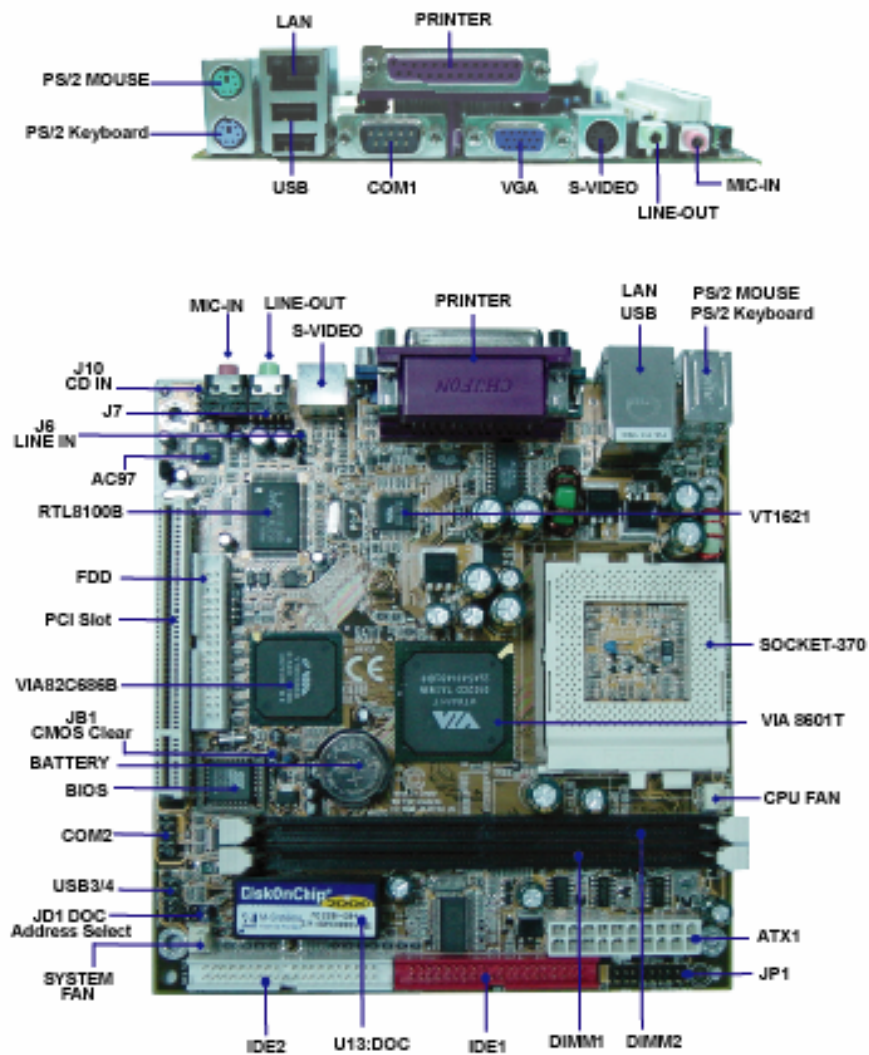
With USB control as well as capability of expanding to 4 USB devices, the BN860T meets future USB demand. Moreover, it has built-in hardware monitor function which can monitor and protect your computer.

This motherboard provides high performance and meets future specification demand. It is really a wise choice for your application.

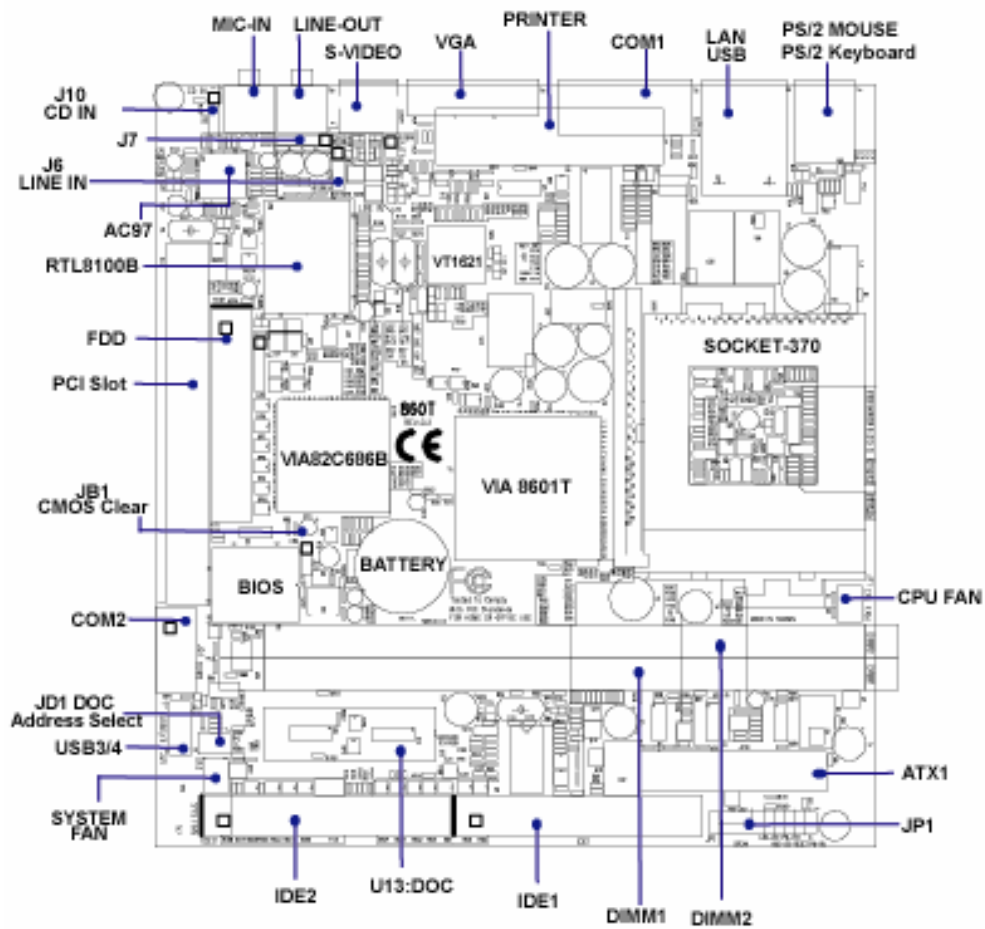
1-2 Specification

Spec	Description
Design	* Mini Flex ATX form factor 4 layers PCB size: 170 x 180mm
Chipset	* VIA Apollo PLE133T Chipset (VT8601T and VT82C686B)
Clock Generator	* Support 66/100/133MHz system Bus Clock (CPU Bus Clock) * Support 100/133 MHz system memory clock * Support 33MHz PCI Bus clock
CPU Socket	* Support Pentium® III 500~1GHz processor * Support FC PGA Celeron® 500~1.2GHz processor * Support Intel Tualatin processor * Support 66, 100 and 133MHz CPU Bus clock * Reserve support for future Intel Pentium® III processors * Support VIA C3 series processor
Memory Socket	* 168-pin DIMM socket x2 * Support PC-100/PC-133 SDRAM * Expandable to 1GB * Support 3.3V SDRAM DIMM
Expansion Slot	* 32-bit PCI slot x1
Integrate VGA	* 64-bit Signal Cycle 2D/3D Graphic Engine * Support 2 to 8 Mbytes of Frame Buffer
Integrate IDE	* 2 channel of Bus Master IDE port supporting ULTRA DMA 33/66/100 mode devices
Audio	* AC'97 Digital Audio controller integrated * AC'97 Audio CODEC on board * Audio driver and utility included
BIOS	* Award 2Mb Flash ROM
Multi I/O	* PS/2 keyboard and PS/2 mouse connectors * Floppy disk drive connector x1 * Parallel port x1 * Serial port x2 * USB connector x2, USB header x2 * Audio connector (Line-out & MIC-in) * Lan connector (RJ45 port, 10/100Mb) RTL8100B chipset: support IEEE 802.3X * S-Video connector x 1
Other function	Support DOC (Disk On Chip) 32pin DIP socket for Flash Disk up to 288MB

1-3 Layout Diagram & Jumper Setting



1-3 Layout Diagram & Jumper Setting



Jumpers

Jumper	Name	Description	Page
JB1	CMOS RAM Clear	3-pin Block	p.8
JD1	DOC address select	6-pin Block	p.9

Connectors

Connector	Name	Description	Page
ATX1	ATX Power Connector	20-pin Block	p.13
J1	PS/2 Mouse & PS/2 Keyboard Connector	6-pin Female	p.13
J2	USB Port & LAN RJ45 Connector	16-pin Connector	p.14
J4	Parallel Port Connector	25-pin Female	p.14
J5	VGA Port Connector	15-pin Female	p.14
J3	Serial Port COM1 Connector	9-pin Connector	p.14
JACK1	S-Video connector	4-pin Connector	p.14
J8	Line out connector	Phone jack Connector	p.14
J9	MIC-in Connector	Phone jack Connector	p.14
FDD1	Floppy Driver Connector	34-pin Block	p.14
IDE1	Primary IDE Connector	40-pin Block	p.15
IDE2	Secondary IDE Connector	40-pin Block	p.15

Headers

Header	Name	Description	Page
JC1	COM2 Headers	9-pin Block	p.16
JU1	USB 3/4 Port Headers	10-pin Block	p.16
PW ON	Power on switch	2-pin Block	p.17
RESET	Reset switch lead	2-pin Block	p.16
PWLED	Power LED	2-pin /3 pin Block	p.16
HDLED	IDE activity LED	2-pin Block	p.16
LAN LED	LAN activity LED	2-pin Block	p.16
SPEAK	Speaker connector	4-pin Block	p.16
JF1, JF3	FAN Speed Headers	3-pin Block	p.17
J11	IR infrared module Headers	5-pin Block	p.17
J6	Line in Headers	4-pin Block	
J7	Line-out & MIC-in Headers	5-pin Block	
J10	CD Audio-In Headers	4-pin Block	p.18

Expansion Sockets

Socket/Slot	Name	Description	Page
ZIF Socket 370	CPU Socket	370-pin FC-PGA/PPGA CPU Socket	p.9
DIMM1, DIMM2	DIMM Module Socket	168-pin DIMM Module Socket	p.11
PCI1	PCI Slot	32-bit PCI Local Bus Expansion slots	p.13
U13		Support DOC(Disk On Chip) flash disk	p.17

Chapter 2

Hardware installation

2-1 Hardware installation Steps

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) CMOS RAM Clear (3-pin): JB1

A battery must be used to retain the motherboard configuration in CMOS RAM short pin1 and pin2 of JB1 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 JB1 and short pin2 and pin2 for a few seconds
4. Return JB1 to its normal setting by shorting pin1 and pin2
5. Connect ATX power cable back to ATX power connector

Note: Do not clear CMOS unless

- 1. Trouble-shooting**
- 2. You forget the password**
- 3. You fail over-clocking system**



2-3 Install CPU

2-3-1 About Pentium® III & Celeron® 370-pin CPU

This motherboard supports both Pentium III and Celeron 370-pin CPU.

It has auto-setting CPU front side bus frequency function so that you do not need to set jumpers. The way to recognize the specification of CPU is from the production code.

On the surface of the CPU as shown in the picture, under the word of "PENTIUM III" the code is:

RB 80526 P2 866 256

RB : FC-PGA packing

P2 : P2-133MHz front side bus frequency
PY-100MHz front side bus frequency

866 : CPU internal frequency. Here is
866MHz

256 : the size of L2 cache. Here is 256K

Celeron FC-PGA

On the surface of the CPU as shown in the picture, under the word of "Celeron" the code is:

566/128/66/1.5V

566 : CPU internal frequency. Here is 566MHz

128 : the size of L2 cache. Here is 128K

66 : front side bus frequency. Here is 66MHz

1.5V : the voltage for the CPU



2-3-2 Install CPU

This motherboard provides a ZIF socket 370. The CPU that comes 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 the CPU cooling FAN is working correctly; otherwise, it may cause overheating and damage the processor and motherboard. You may install an auxiliary cooling FAN, if necessary.

Before installing a CPU, first of all, turn off your system and remove its cover. Locate the ZIF socket and open it by pulling the lever sideways up away from the socket then upward to a 90-degree angle. Insert the CPU with the correct orientation as shown below.

The notched corner should point toward the end of the level.

Because the CPU has a corner pin for two of the four corners, the CPU will fit only in the orientation as shown.



2-4 Install Memory

This motherboard provides two 168-pin DUAL INLINE MEMORY MODULES (DIMM) sites for memory expansion from 32MB to 1GB SDRAM.

Valid Memory Configurations

DIMM1	DIMM2	System Accept or Not	Total Memory
			Min. ~ Max.
DS/SS		Accept	32MB~512MB
	DS/SS	Accept	32MB~512MB
DS/SS	DS/SS	Accept	32MB~1GB

DS: Double Sided DIMM

SS: Single Sided DIMM

NOTE!

Make sure the total installed memory size does not exceed 1GB;
otherwise, the system may hang during startup.



DIMM2 (BANK3+BANK4)
DIMM1 (BANK1+BANK2)

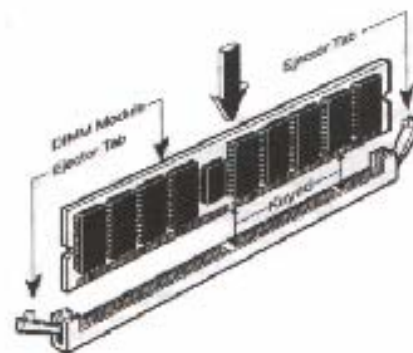


Figure 2-4

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 indentation on both sides.

WARNING!

If the SDRAM CLOCK is set at 133MHz, you must use PC133-compliant DIMMs. When this motherboard operates at 133Mhz, most system will not even boot if nonPC133-compliant SDRAM modules are used because of the strict timing issues. If your DIMMs are not PC133-compliant, set the SDRAM clock at 100MHz to ensure system's stability.

2-5 Expansion Cards**WARNING!**

Turn off the 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 of your expansion card and make any necessary hardware or software setting, such as jumpers, for your expansion card.
2. Remove the chassis cover and the bracket plate on the slot you intend to use.
3. Align the card with slot and insert the card firmly.
4. Secure the card in the slot with the screen you remove above.
5. Replace the chassis cover.
6. Set up the BIOS if necessary.
7. Install the necessary software driver for your expansion card.

2-5-2 Assign IRQs For Expansion Card

Some expansion cards need an IRQ to operate. Generally, an IRQ must be exclusively

assigned to one. In a standard design, there are 16 IRQs 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.

2-6 Connectors, Headers

2-6-1 Connectors

(1) Power Connector (20-pin block) : ATX1

ATX Power Supply connector. This is a new defined 20-pin connector that usually comes with ATX case. The ATX Power Supply is allowed to use soft power on momentary switch that connects from the front panel switch to 2-pin 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	Function	PIN	Function
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	Ground	13	Ground
4	+5V	14	PS-ON
5	Ground	15	Ground
6	+5V	16	Ground
7	Ground	17	Ground
8	PW-OK	18	-5V
9	5VSB	19	+5V
10	+12V	20	+5V

(2) PS/2 Mouse & PS/2 Keyboard Connector: J1

If you use 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 chassis.

(3) USB/ LAN Port connector: J2

The connector is a 16-pin connector that connects USB/LAN devices to the system board.

(4) Parallel Port Connector (25-pin female): J4

Parallel Port connector is a 25-pin D-Subminiature Receptacle connector.

The On-board Parallel Port can be disabled through the BIOS SETUP.

Please refer to Chapter 3 "INTEGRATED PERIPHERALS SETUP" section for more information.

(5)VGA Connector (15-pin female): J5

This connector is for on-board VGA display connection only. If you insert any external VGA card in PCI slot, you should have the connection to your VGA card's connector. And you have to set "Init Display First" to PCI under Integrated Peripherals option in BIOS Setup Utility to get display from PCI VGA card.

(6)S-Video Connector (4-pin female): JACK1

This connector is for on-board TV-OUT connection. If you connect the system to any external TV device, you will find NTSC/ PAL selection in BIOS Setup.

(7) Audio and Game Connector: J8,J9

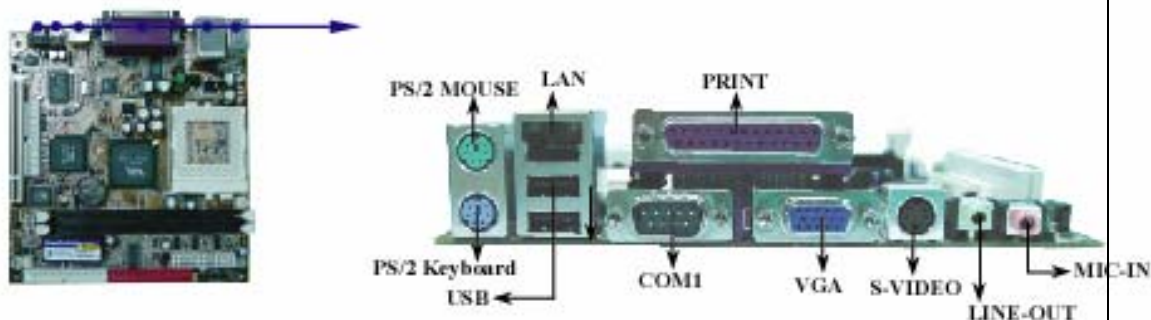
Thess connectors are 2 phone Jacks for LINE-OUT, MIC-IN.

Line-out : Audio output to speaker

MIC-IN : Microphone Connector

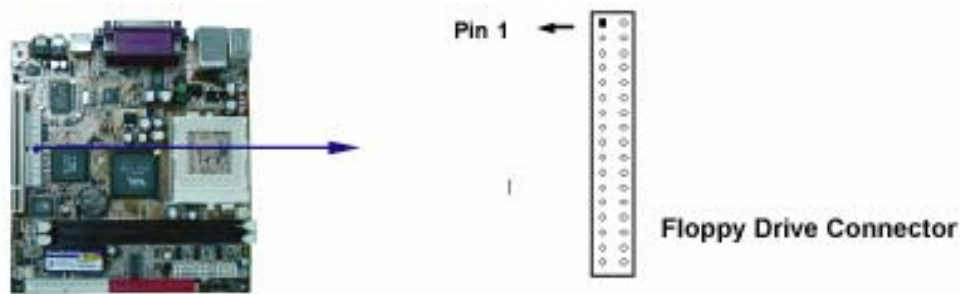
(8) Serial Port COM1: J3

COM1 is the 9-pin D-Subminiature mail connector. The On-board serial port can be disabled through BIOS SETUP. Please refer to Chapter 3 "INTEGRATED PERIPHERALS SETUP" section for more information.



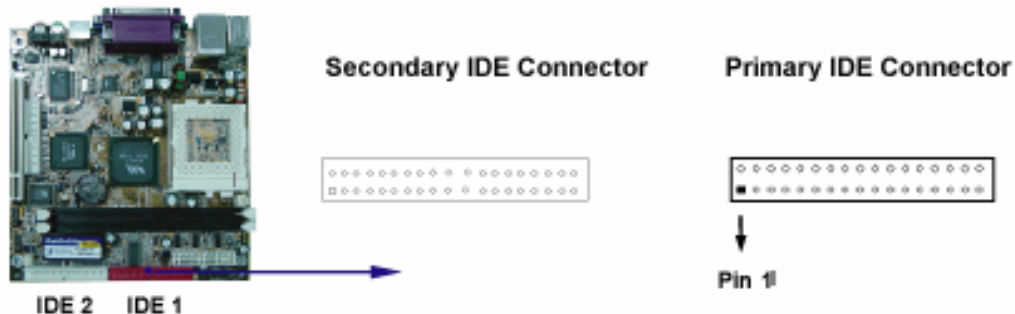
(9)Floppy Drive Connector (34-pin block): FDD1

This connector supports the provided floppy drive ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at the other end to the floppy drives.



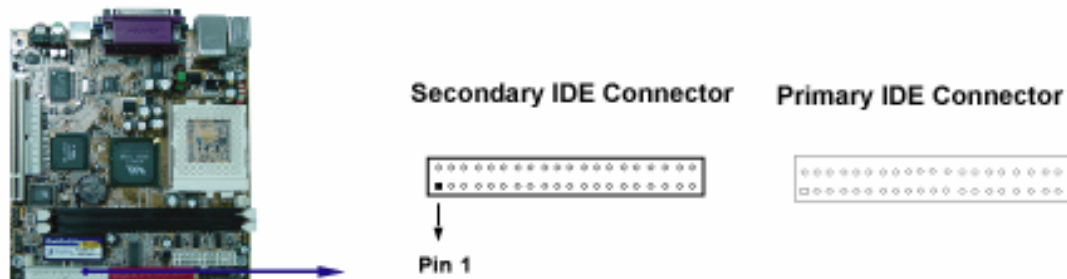
(10) Primary IDE Connector (40-pin block): IDE1

This connector supports the provided IDE hard disk ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at the 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 both two hard disks to Masters mode by using one ribbon cable on the primary IDE connector and another ribbon cable on the secondary IDE connector.



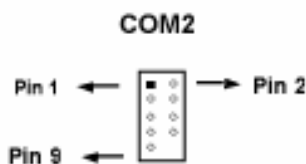
- . Two hard disks can be connected to each connector. The first HDD is referred to as the "Master" and the second HDD is referred to as the "Slave".
- . We strongly suggest you not to install a CD-ROM or DVD-ROM drive on the same IDE channel with a hard disk. Otherwise, the system performance on

this channel may drop.

2-6-2 Headers

(1)COM2 Headers (9-pin header) : JC1

This board has another serial port COM2, it comes with the cable providing serial port COM2.

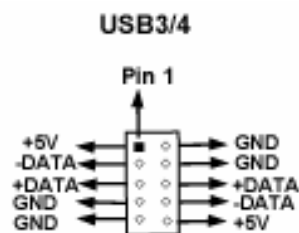


Note: Orient the red mark on the COM2 ribbon cable to pin 1

(2)USB Port Headers (10-pin header): JU1

These headers are used to connect the additional USB port plug.

By attaching an option USB cable, you will get two additional USB plugs affixed to the back panel.



USB Port Headers

(3)Front Panel Headers (2x9-pin header): JP1

1. Power switch: PW-ON

This 2-pin connector connects to the case-mounted power switch to power on/ off the system.

2. Reset switch lead: RESET

This 2-pin connector connects to the case-mounted reset switch for rebooting your computer without turning off your power switch. This is a preferred way to restart the system.

3. Power LED: PW-LED

The Power LED is lit while the system power is on. Connect the Power LED from the system case to this 2/ 3-pin connector.

4. IDE Activity LED: HDD-LED

HDD-LED shows the activity of the hard.

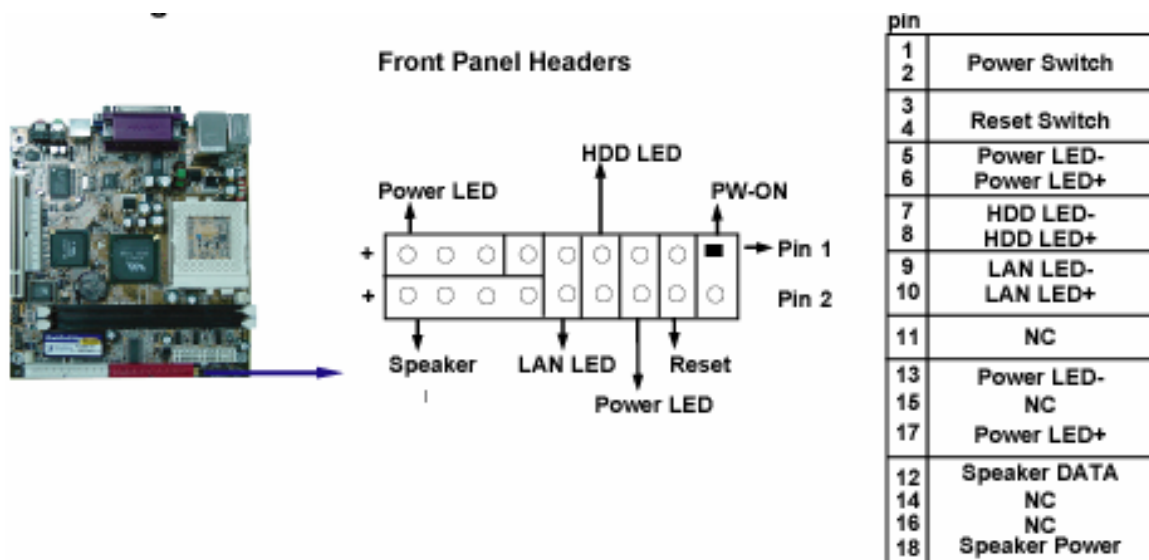
5. LAN LED Activity LED: LAN- LED

LAN-LED shows the activity of network. (If the case have the LED function).

6. Speaker connector: SPEAK

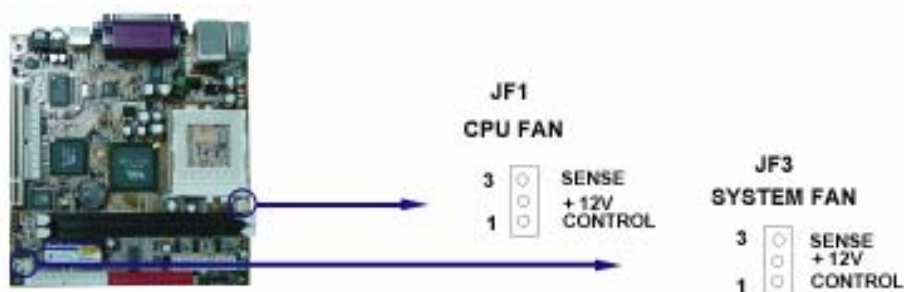
This 4-pin connector connects to the case-mounted speaker.

See the figure below.



(4) FAN Speed Headers (3-pin) : JF1, JF3

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



(5) IR infrared module Headers (10-pin) : JI1

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



(6) CD Audio-In Headers (4-pin) : J10

This header is for the CD-ROM Audio connector.



(7) Line-in Headers (4-pin) : J6

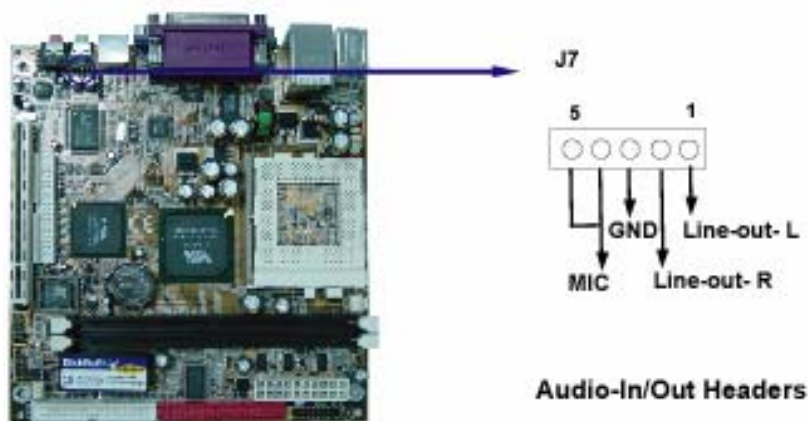
This header is for Line-in connector.



(8) Audio-In/Out Headers (5-pin) : J7

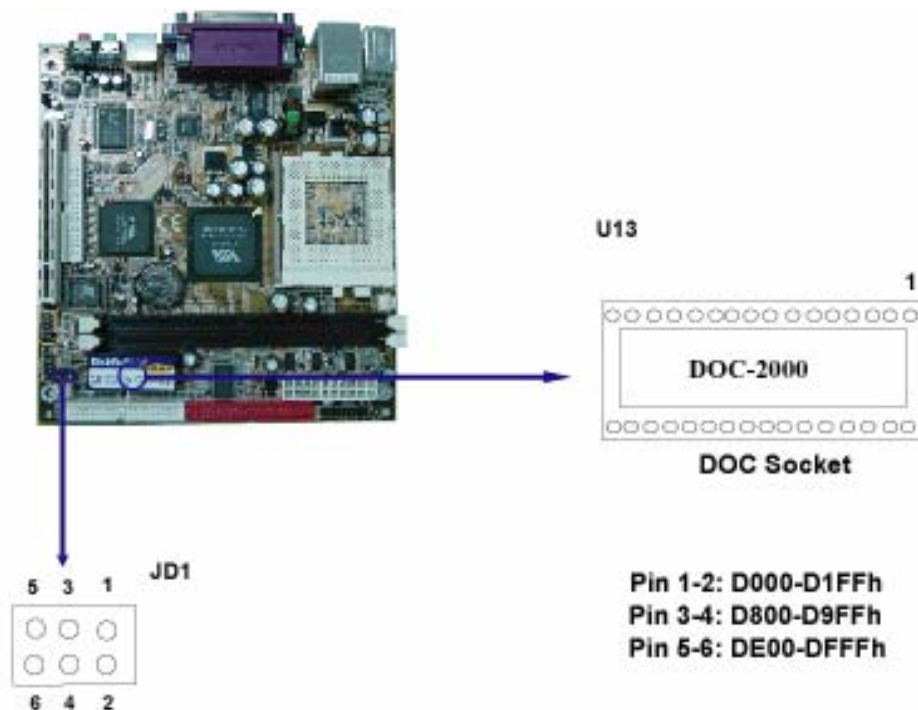
The Audio-in header is for MIC-in connector.

The Audio-out header is for Line-out connector.



(9)DOC socket : U13,JD1

DOC 32pin dip socket can support flash disk up to 288MB
 DOC address can select among three address: D000-D1FFh ,
 D800-D9FFh,DE00- DFFFh.

**2-7 Start Up Your Computer**

1. After all the connections are made, close the chassis cover.
2. Be sure all the switches are off and check if the power supply input voltage is set at the proper position. Usually the in-put voltage is 220V~240V or 110V~120V, depending the country.
3. Connect the power supply cord into the power supply located on the back of your system case according to the user's manual of your system.
4. Turn on your peripherals as the following orders:
 - a. Your monitor.
 - b. Other external peripherals (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 which is on the front panel of the case.
5. The power LED on the front panel of the system case will be lit. The LED on the monitor may be lit or switch between orange and green colors after the system is on. If it complies with green standards or if it has the power stand-by feature, the system will run the Power-on test. While the tests are running, the BIOS will alarm beeps or additional message will appear on the screen.

If you do not see anything within 30 seconds after you turn on the power. The system may have failed on power-on test. Recheck your jumper settings and connections or call the vender 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 the power-on test, press <Delete> key to enter BIOS setup. Follow the instructions in BIOS SETUP.
7. **Power off your computer:** You must exit or shut down your operating system before switch off the power. 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**", click "**Shut down**" and then click "**Shut down the computer?**". The power should be off after windows shuts down.

Chapter 3

Introduction of BIOS

The BIOS is a program located in the Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program gains 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 devices and configures the parameters of the hardware synchronization. After these tasks are completed, BIOS will give control of the computer back to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate with, it is the key factor of system stability and of ensuring your system performance at best.

In the BIOS Setup main menu of Figure 3-1, you can see several options. We will explain these options in the following pages. First, let us see the function keys you may use here:

- . Press <Esc> to quit the BIOS Setup.
- . Press ↑ ↓ ← → (up, down, left, right) to choose the option you want to

confirm or modify.

- . Press <F10> to save these parameters and to exit the BIOS Setup menu after you complete the setup of BIOS parameters.
- . Press Page Up/Page Down or +/- keys to modify the BIOS parameters for the active option.

3-1 Enter Setup

Power on the computer and press immediately to enter Setup.

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

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

3-2 Get 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 has fourteen setup functions and two exit choices. Use arrow keys to select among these items. Press <Enter> to accept or enter the sub-menu.

Use this menu to load the BIOS default values for the optimum system performance. Standard Defaults settings are relatively more reliable than Optimized Defaults.

All the product verifications, compatibility test reports and manufacture quality controls are based on "Standard Defaults". We suggest you to use this setting for normal operation. "Standard Defaults" is not the slowest setting for this motherboard. If you need to verify an unstable problem, you may manually set the parameter in "Advanced Chipset Features" to get slower and safer setting.

Set Supervisor/User Password

This menu is to set User and Supervisor Passwords.

Save & Exit Setup

Save CMOS values modified to CMOS and exit setup.

Exit Without Saving

Abandon all the CMOS values modified 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 to modify with this item.

Phoenix-AwardBIOS CMOS Setup Utility

Standard CMOS Features

Date (mm:dd:yy)	Thu, Jan, 8 2002	Item Help
Time (hh:mm:ss)	13 : 45 : 03	
IDE Primary Master	Press Enter None	Menu Level > Change the day, moth, year and century
IDE Primary Slave	Press Enter None	
IDE Secondary Master	Press Enter None	
IDE Secondary Slave	Press Enter None	
Drive A	1.44M, 3.25 in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All Errors	
Base Memory	640K	
Extended Memory	64512K	
Total Memory	65536	


```

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

```

3-5 Advanced BIOS Features

Phoenix-AwardBIOS CMOS Setup Utility

Advanced BIOS Features

Virus Warning	[Disabled]	Item Help
CPU Internal Cache	[Enabled]	
External Cache	[Enabled]	Menu Level >
CPU L2 Cache ECC Checking	[Disabled]	
Processor Number Feature	[Disabled]	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 enabled copies Video BIOS to shadow RAM improves performance
Quick Power On Self Test	[Enabled]	
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]	
Video BIOS Shadow	[Enabled]	
C8000-CBFFF Shadow	[Disabled]	
CC000-CFFFF Shadow	[Disabled]	
D0000-D3FFF Shadow	[Disabled]	
D4000-D7FFF Shadow	[Disabled]	
D8000-DBFFF Shadow	[Disabled]	
DC000-DFFFF Shadow	[Disabled]	
Small logo (EPA) Shadow	[Disabled]	
<pre> :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults </pre>		

Virus Warning

The VIRUS Warning feature can help you protect IDE Hard Disk boot sector. If this function is enabled, BIOS will show a warning message on screen and alarm beep when someone attempts to write data into this area without permission.

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

Enabled Activate automatically when the system boots up. The system will show the warning message if anything attempts to access the boot sector of hard disk partition table.

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. The "Advanced DRAM Control" includes settings for the chipset dependents features. These features are related to system performance. Make sure you fully understand the items contained in this menu before you change anything. You may change the parameter settings to improve system performance. However, it may make your system unstable if the setting is not correct for your system configuration.

Phoenix-AwardBIOS CMOS Setup Utility

Advanced Chipset Features

DRAM CLOCK	[HOST CLK]	
DRAM Timing by SPD	[Enabled]	
X SDRAM Cycle Length	3	Item Help
X Bank Interleave	Disabled	
Memory Hole	[Disabled]	
P2C/C2P Concurrency	[Enabled]	Menu Level >>
Fast R-W Turn Around	[Enabled]	
System BIOS Cacheable	[Disabled]	
Video RAM Cacheable	[Disabled]	
Frame Buffer Size	8M	
AGP Aperture Size	64M	
OnChip USB	[Enabled]	
USB Keyboard Support	[Disabled]	
OnChip Sound	AUTO	
CPU to PCI Write Buffer	[Enabled]	
PCI Dynamic Bursting	[Enabled]	
PCI Master 0 WS Write	[Enabled]	
PCI Delay Transaction	[Enabled]	
PCI#2 Access #1 Retry	[Disabled]	
AGP Master 1WS Write	[Disabled]	
AGP Master 1WS Read	[Disabled]	
Memory Parity/ECC Check	[Disabled]	
TV Standard	[NTSC]	
: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 or Disabled.

TV Standard

This motherboard has TV-out function. This menu is to specify the TV system you use.

3-7 Integrated Peripherals

Phoenix-AwardBIOS CMOS Setup Utility

Integrated Peripherals

OnChip IDE Channel0	[Enabled]	Item Help
OnChip IDE Channel1	[Enabled]	
IDE Prefetch Mode	[Enabled]	Menu Level >
Primary Master PIO	[Auto]	
Primary Slave PIO	[Auto]	
Secondary Master PIO	[Auto]	
Secondary Slave PIO	[Auto]	
Primary Master UDMA	[Auto]	
Primary Slave UDMA	[Auto]	
Secondary Master UDMA	[Auto]	
Secondary Slave UDMA	[Auto]	
Init Display First	[PCI Slot]	
IDE HDD Block Mode	[Enabled]	
Onboard FDD Controller	[Enabled]	
Onboard Serial Port 1	[Auto]	
Onboard Serial Port 2	[Auto]	
UART 2 Mode	[Standard]	
X IR Function Duplex	Half	
X TX,RX Inverting Enable	No , Yes	
Onboard Parallel Port	[378/IRQ7]	
Onboard Parallel Mode	[Normal]	
X ECP Mode Use DMA	3	
X Parallel Port EPP Type	EPP1.9	
Onboard Legacy Audio	[Disabled]	
X Sound Blaster	Disabled	
X SB I/O Base Address	220H	
SB IRQ Select	IRQ5	
SB DMA Select	DMA1	
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

Init Display First

This item allows you to activate PCI slot or AGP VGA slot.

The settings are PCI Slot or AGP Slot.

3-7-1 OnChip IDE Function

Phoenix-AwardBIOS CMOS Setup Utility

OnChip IDE Function

OnChip IDE Channel0	[Enabled]	Item Help
OnChip IDE Channel1	Enabled	
IDE 32bit Transfer Mode	Disabled	
Primary Master PIO	Auto	

<pre> Primary Slave PPIO Auto Secondary Master PPIO Auto Secondary Slave PPIO Auto Primary Master UDMA Auto Primary Slave UDMA Auto Secondary Master UDMA Auto Secondary Slave UDMA Auto IDE HDD Block Mode Enabled IDE Prefetch Mode Disabled </pre>	Menu Level >>
<pre> :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults </pre>	

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.

Phoenix-AwardBIOS CMOS Setup Utility

Power Management Setup

<pre> ACPI Function [Enabled] > Power Management [Press Enter] ACPI Suspend Type [S1(POS)] PM Control By APM [Yes] Video Off Option [Suspend->Off] Video Off Method [V/H SYNC+Blank] MODEM Use IRQ [3] Soft-Off by PWRBTN [Instant-Off] State After Power Failure [Off] > Wake Up Events [Press Enter] </pre>	Item Help
Menu Level >	
<pre> :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults </pre>	

Wake-Up Events

Please refer to section 3-8-2

3-8-1 Power Management

Phoenix-AwardBIOS CMOS Setup Utility

Power Management

Power Management	[User Define]	Item Help
HDD Power Down	[Disabled]	
Doze Mode	[Disabled]	Menu Level >>
Suspend Mode	[Disabled]	
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

3-8-2 Wake Up Events

Phoenix-AwardBIOS CMOS Setup Utility

Wake Up Events

VGA	[OFF]	Item Help
LPT & COM	[LPT/COM]	
HDD & FDD	[ON]	Menu Level >>
PCI Master	[OFF]	
Power On By PCI/LAN Card	[Disabled]	
Modem Ring Resume	[Disabled]	
RTC Alarm Resume	[Disabled]	
x Date (of Month)	0	
x Resume Time (hh:mm:ss)	0 : 7 : 0	
> IRQs Activity Monitoring	[Press Enter]	
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

IRQs Activity Monitoring

Please refer to section 3-8-2.1

3-8-2.1 IRQs Activity Monitoring

Phoenix-AwardBIOS CMOS Setup Utility

IRQs Activity Monitoring

Primary INTR	[ON]	Item Help
IRQ3 (COM 2)	[Enabled]	
IRQ4 (COM 1)	[Enabled]	
IRQ5 (LPT 2)	[Enabled]	

<pre> IRQ6 (Floppy Disk) [Enabled] IRQ7 (LPT 1) [Enabled] IRQ8 (RTC Alarm) [Disabled] IRQ9 (IRQ2 Redir) [Disabled] IRQ10 (Reserved) [Disabled] IRQ11 (Reserved) [Disabled] IRQ12 (PS/2 Mouse) [Enabled] IRQ13 (Coprocessor) [Enabled] IRQ14 (Hard Disk) [Enabled] IRQ15 (Reserved) [Disabled] </pre>	Menu Level >>>
<pre> Move Enter:Select Item +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults </pre>	

3-9 PnP/PCI Configuration Setup

This section describes how to configure the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at the speed the CPU itself keeps when CPU communicates with its own special components. This section covers some very technical items and we strongly recommended that only experienced users should make any change to the default settings.

Phoenix-AwardBIOS CMOS Setup Utility

PnP/PCI Configurations

<pre> PNP OS Installed [No] Reset Configuration Data [Disabled] Resources Controlled By [Auto(ESCD)] x IRQ Resources [Press Enter] x DMA Resources [Press Enter] PCI/VGA Palette Snoop [Disabled] Assign IRQ For VGA [Enabled] Assign IRQ For USB [Enabled] </pre>	Item Help
<pre> Menu Level > Default is 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 OS cannot boot </pre>	
<pre> :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults </pre>	

Resource Controlled By

The Award Plug and Play BIOS can 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 a specific resource by going into each sub menu that follows this field (a sub menu is preceded by a ">").

The settings are Auto (ESCD) or Manual.

IRQ Resources

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

PCI/VGA Palette Snoop

Leave this field at Disabled. The settings are Enabled or Disabled.

3-10 PC Health Status

This section shows the status of your CPU, Fan, and overall system.

This is only available when there is Hardware Monitor function onboard.

Phoenix-AwardBIOS CMOS Setup Utility

PC Health Status

Current CPU Temp.	33°C/91°F	Item Help
Current System Temp.	29°C/84°F	
Current CPU FAN1 Speed	5100 RPM	Menu Level >
Current CPU FAN2 Speed	0 RPM	
Vcore	1.50V	
2.5V	2.50V	
3.3V	3.30V	
5V	5.10V	
12V	11.95V	
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

Show PC Health in Post

During Enabled, it displays information list below. The choice is either

Enabled or Disabled

Current CPU Temperature/Current System Temp/Current FAN1,FAN2 Speed/

Vcore/2.5V/3.3V/+5V/+12V

This will show the CPU/FAN/System voltage chart and FAN Speed

3-11 Frequency/Voltage Control

This section is to set CPU Frequency Control.

Phoenix-AwardBIOS CMOS Setup Utility

Frequency/Voltage Control

Auto Detect DIMM/PCI Clock	[Enabled]	Item Help
Spread Spectrum	[Disabled]	
CPU Clock	[100MHz]	
		Menu Level >
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

Auto Detect DIMM/PCI Clock

This item allows you to enable or disable Auto Detect DIMM/PCI Clock.

The settings are Enabled or Disabled.

Spread Spectrum

This item allows you to set the CPU Host/PCI clock Spread Spectrum.

The choice are Disabled or Enabled.

CPU Clock

This item allows you to set CPU/HOST Frequency step by step. Use PageDown/

PageUp key to adjust the frequency.

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

Press <Y> to load the BIOS default values for the most stable system operation and minimal performance.

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

Press <Y> to load the default values that are factory settings for optimal system operation performance.

3-13 Set Supervisor/ User Password

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

Supervisor password: You can enter the setup menus and change the options.

User password: You can enter the setup menus but do not have the right to change the options. 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 will clear any previous 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 without entering password. To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm if you want to disable the password. Once the password is disabled, the system will boot and you can enter Setup menus freely.

PASSWORD DISABLED.

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

Additionally, when a password is enabled, you can also have the BIOS to request a password at every time when your system is rebooted. This would prevent the unauthorized user.

You can determine if 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", the password is required only at the entry to Setup.

Chapter 4

DRIVER & FREE PROGRAM INSTALLATION

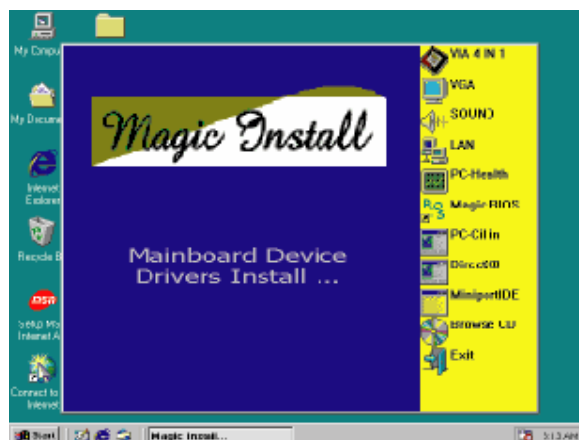
There is a MAGIC INSTALL CD disk in the package. This CD has all the drivers you need and some free application programs and utility programs. In addition, this CD also includes an auto-detect software which can tell you which hardware is installed and which driver is needed so that your system can function properly.

We call this auto detect software MAGIC INSTALL.

MAGIC INSTALL Supports WINDOWS

95/98/98SE/ME/NT4.0/2000

Insert the 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 and double-click CD-ROM drive or click START, click RUN, and type X:\SETUP.EXE (assuming X is your CD-ROM drive).



From MAGIC INSTALL MENU you may make 8 selections:

1. IDE install VIA IDE/AGPVXD/IRQ ROUTING/INF driver
2. VGA install on-board VGA driver
3. SOUND install AC97 Audio Codec Installing driver
4. PC-HEALTH install VIA PC-HEALTH hardware monitor driver
5. Magic BIOS install BIOS Live Update Utility
6. LAN install Lan

- 5. Magic BIOS install BIOS Live Update Utility
- 6. PC-CILLIN install PC-CILLIN 2000 anti-virus program
- 7. BROWSE CD to browse the contents of the CD
- 8. EXIT to exit from MAGIC INSTALL menu

Each selection is illustrated as below:

4-1 IDE Install VIA IDE/AGPVXD/IRQ ROUTING/INF Driver

IDE : VIA ATAPI VENDOR SUPPORT DRIVER IS USED TO FIX 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 MINIPOINT 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 Right.
Click NEXT



4. Choose all the drivers.
Click NEXT.



5. Click NEXT to Install ATAPI Vendor Support Driver.



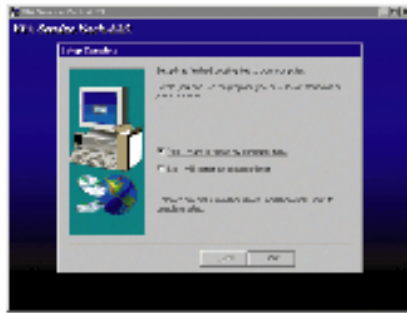
6. Click NEXT to choose Enabled DMA Mode.



7. Click NEXT to Install VIA AGP VXD Driver.



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

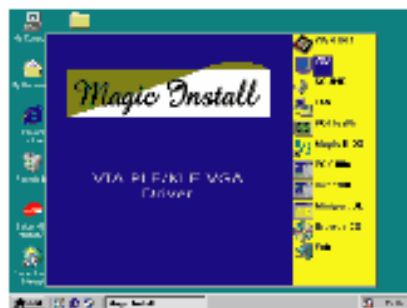


9. Click Finish to restart computer.

**NOTE: MAGIC INSTALL will auto detect file path X:\VIA\
This driver supports WINDOWS 95/98/98SE/NT4.0/2000**

4-2 VGA Install VIA 8601 VGA Driver

A. For WINDOWS 95/98/98SE/ME/NT4.0/2000



1. Click VGA when MAGIC INSTALL MENU appears.



2. Click NEXT when VIA Display Driver Setup appears.



3. Click FINISH to Restart Computer.

NOTE: The path of the file

For WINDOWS 95/98/98SE is X:\VIA\8601VGA\WIN9X\SETUP.EXE

For WINDOWS ME is X:\VIA\8601VGA\WINME\SETUP.EXE

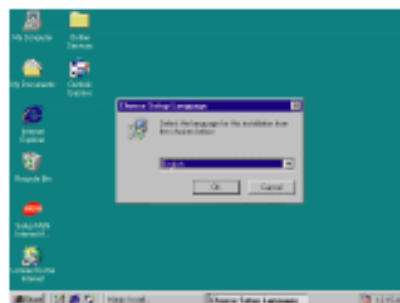
For NT4.0 is X:\VIA\8601VGA\NT4\SETUP.EXE

For WINDOWS 2000 is X:\VIA\8601VGA\WIN2000\SETUP.EXE

4-3 SOUND Install ALC Audio Codec Driver for VIA



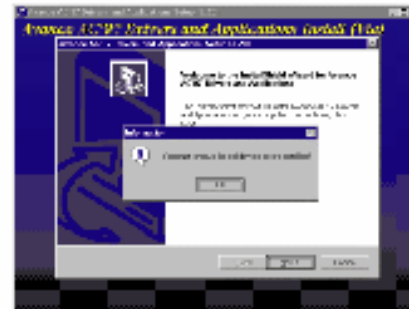
1. Click SOUND when Magic Install MENU appears.



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



3. Click Next to Install Advance for VIA Audio Driver.



4. When it asks if you want to Remove old Device Driver, click OK.



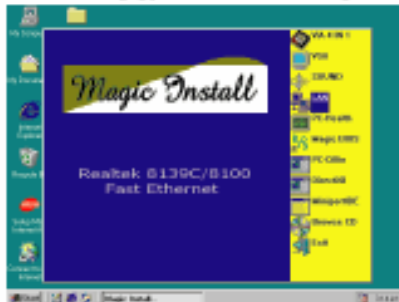
5. Click Go.



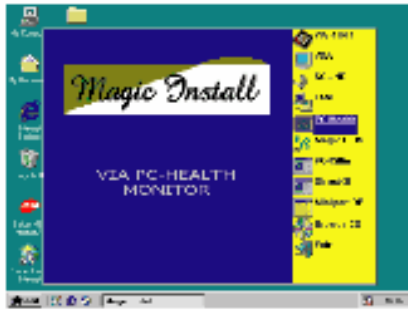
6. Click Finish and Restart windows.

Note: The path of the file
 For WIN98/NT4.0/WIN2K is X:\VIA\ALCVIA\SETUP.EXE
 For WIN95 is X:\VIA\VIAAUDIO\SETUP.EXE
 For Linux is X:\VIA\VIAAUDIO\Linux
 For Real DOS Mode is X:\VIA\VIAAUDIO\VIADOS

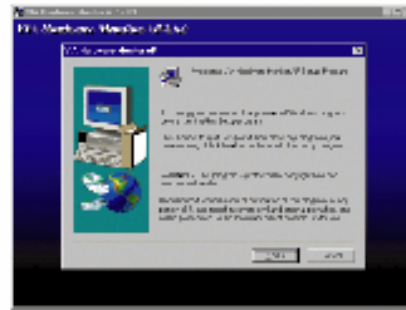
4-4 Install LAN Driver



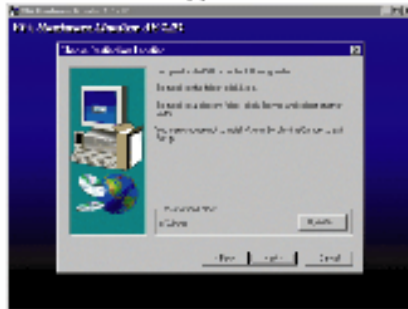
4-5 PC-HEALTH Install VIA Hardware Monitor Driver



1. Click PC-HEALTH when Magic Install MENU appears.



2. Click NEXT when VIA Hardware Monitor Wizard appears.



3. Click Next to install Driver in C:\VIAHM .



4. Click Next to use default Program Folders name.

4-5-1 How To Use VIA Hardware Monitor Application Software

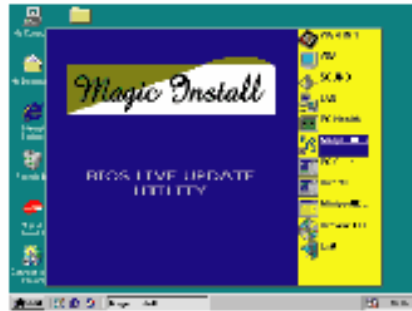


1. Click Programs, VIA HM and Monitoring Window.

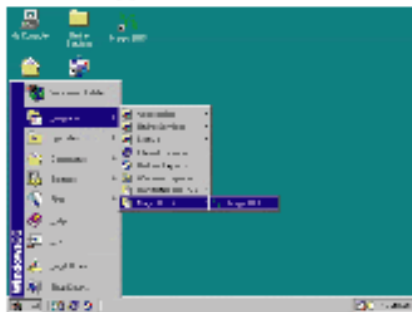


2. Then the Monitoring Window will show.

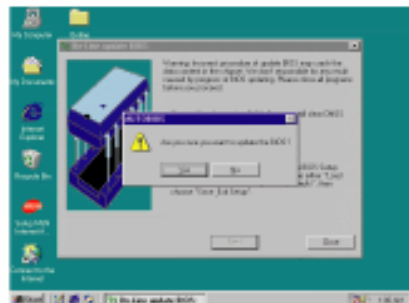
4-6 MAGIC BIOS Install BIOS Live Update Utility



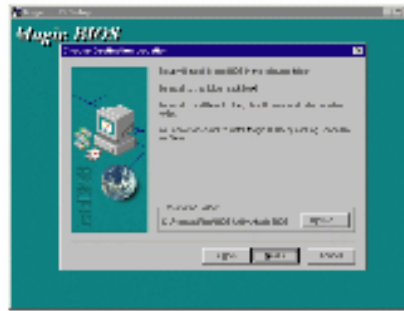
1. Click Magic BIOS when Magic Install MENU appears.



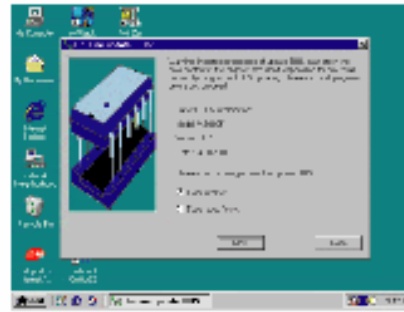
3. After Setup finishes, you will have a Magic BIOS icon in the Program.



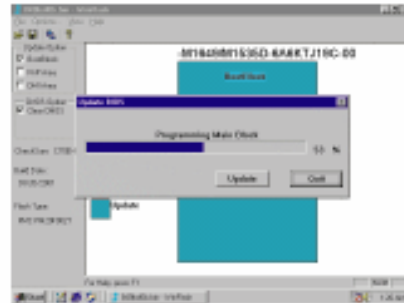
5. At the beginning, the program will auto-check your BIOS version.



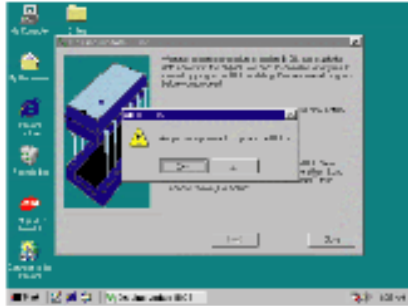
2. Click Next to install the Magic BIOS in the destination folder.



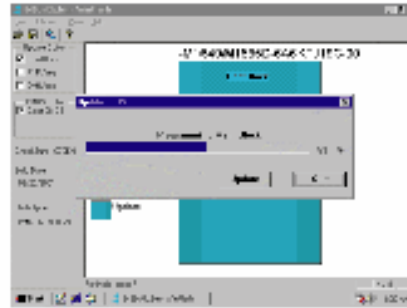
4. Double click the Magic BIOS icon, you will have this picture. Choose From Internet to upgrade BIOS On-line.



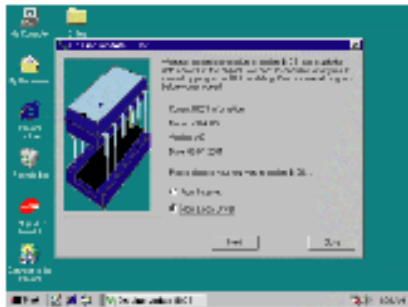
6. Click Next if you need to update BIOS. After upgrade process ends, the system will clear CMOS and restart automatically.



7. Click Yes if you want to update the BIOS or choose No to exit.



8. When System is programming BIOS, do not power off. After update finishes, the system will clear CMOS and restart automatically.

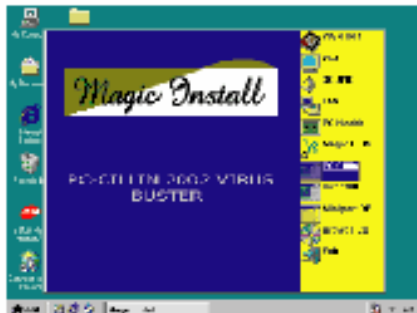


9. If you choose From Local Driver to update BIOS, you must have the correct BIOS file in your Local Driver.



10. Choose the correct BIOS file to update BIOS.

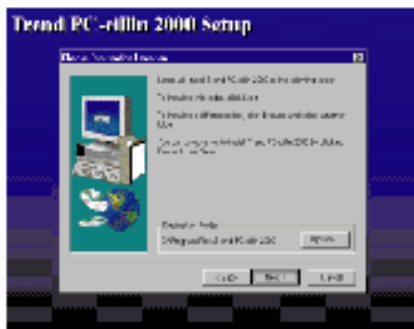
4-7 PC-CILLIN Install PC-CILLIN 2000 Anti-virus program



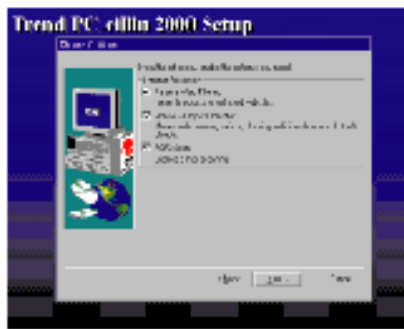
1. Click PC-CILLIN when MAGIC INSTALL MENU Appears.



2. Click NEXT when PC-CILLIN 2000 SETUP appears. Then click YES when the announcement of copyright appears. Software will start to detect HDD for virus.



3. Click NEXT to enter User Information, or choose BROWSE to change the path for the file to be stored



4. Click NEXT and choose all Internet Protection.



5. Click OK. If You Have Proxy Server, enter Your Setting.



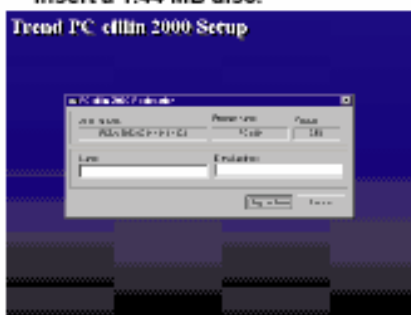
6. Click NEXT to install the software.



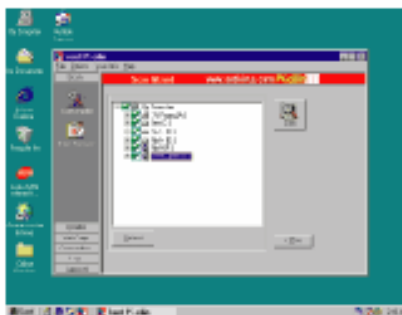
7. If you want to make a rescue disc, insert a 1.44 MB disc.



8. When Setup completes, click Finish.



9. Enter Your name and E-mail address to register PC-cillin 2000 or click Cancel to register Later.



10. After PC-cillin 2000 installation completes, we suggest you to download the latest virus code and set Auto refresh virus code.

4-8 HOW TO DISABLE ON-BOARD SOUND

Enter BIOS SETUP. Choose INTEGRATE PERIPHERALS. Choose ON-CHIP EVIC

FUNCTION. Choose AC97 AUDIO Disable on-board sound function by pressing PAGE DOWN KEY to Disable.

4-9 HOW TO UPDATE BIOS

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 disc. (you may make one by clicking START, clicking RUN, typing SYS A: , and clicking OK)

STEP 2. Copy utility program to your boot disc. You may copy it from DRIVER

CD X:\FLASH\AWDFLASH.EXE or download it from our web site.

STEP 3. Copy the latest BIOS for BN860T from our web site to your boot disc.

STEP 4. Insert your boot disc into A:

Start the computer and type "Awdflash

A:\B860Txxx.BIN/SN/PY/CC/R"

B860Txxx.BIN is the file name of the latest BIOS. It may be

B860TA03.

BIN or B860TB02.BIN

SN means don't save the current BIOS data

PY means renew the current BIOS data

CC means clear the current CMOS data

R means restart computer

STEP 5. Press ENTER and the BIOS will be updated,
computer will restart automatically.