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If you do not properly set the motherboard settings, causing the motherboard to malfunction or fail, we cannot guarantee any responsibility.

BG7m Motherboard
User's Manual

Index

Chapter 1. Introduction

1-1. Features

The BG7m is designed for use with Intel's latest generation of Pentium 4 478-pin CPU with new graphics architecture yield higher 2D/3D performance, featuring new NetBurst Micro-architecture. With the new Intel 845G chipset, BG7m provides a 400MHz/533MHz system bus and 3.2GB/4.2GB per second bandwidth between CPU and MCH.

The latest DDR (Double Data Rate) memory technology is also utilized on this motherboard, allowing a 2.12GB/s bandwidth between MCH and DDR DIMMs. The BG7m supports 2 DDR DIMMs up to 2GB max.

With the bundled Hardware Monitor function, monitoring your computer at work for a safer computing environment is available on BG7m. In addition, a latest design for future demand on supporting Front Panel I/O standard established by Intel is also adopted on BG7m. This Front Panel header supports IR, USB, SP-LED, PWR-ON, HDD-LED, and RESET.

BG7m offers users a robust, high performance computing-platform. Moreover, the expanded connectivity via USB 2.0 ports gives users an easy way to connect to today's hottest peripherals. On-board 10/100Mb LAN provides high-speed networking capabilility. Highly integrated with the latest technologies, BG7m looks to the feature, giving users a new level of system longevity and flexibility.

1-2. Specifications

1. CPU
- Supports Intel Pentium® 4 socket 478 processor
- 400MHz/533MHz System Data Bus

2. Chipset
- Intel 82845G (MCH) + 82801DB (ICH4)
- Integrated graphics architecture yields higher 2D/3D performance
- Supports AGP 4X 1.5V device only
- Supports Hi-Speed Universal Serial Bus (USB v2.0)

3. Memory
- Supports two 184-pin DDR DIMM modules up to 2GB Max.
- Supports PC1600 and PC2100 (DDR200 and DDR266)
- Do not supports ECC functionality and registered DIMMS

4. Audio
- AC'97 Digital Audio controller integrated
- AC'97 2-channel Audio CODEC on board

5. System BIOS
- Award Plug and Play BIOS supports APM and ACPI
- Write-Protect Anti-Virus function by AWARD BIOS

6. Multi I/O Functions
- 2 channels of Bus Master IDE Ports supporting up to Ultra ATA/100
- PS/2 Keyboard and PS/2 Mouse connectors
- 1 floppy port (up to 2.88MB)
- 1 parallel port (EPP/ECP)
- 1 serial ports
- 2 USB 2.0 ports/1 RJ45 LAN port
- 1 standard 15 pin VGA connector
- 1 on-board USB headers to connect 2 extra USB ports
- Audio connector (Line-in, Line-out, Mic-in, and Game Port)

7. LAN
- On-board RTL8100B single chip Ethernet controller with power management
- 10/100Mb Operation
- Supports ACPI & Wake on LAN
- Supports Full Duplex Flow Control (IEEE 802.3x) and compliant to PCI Revision 2.2

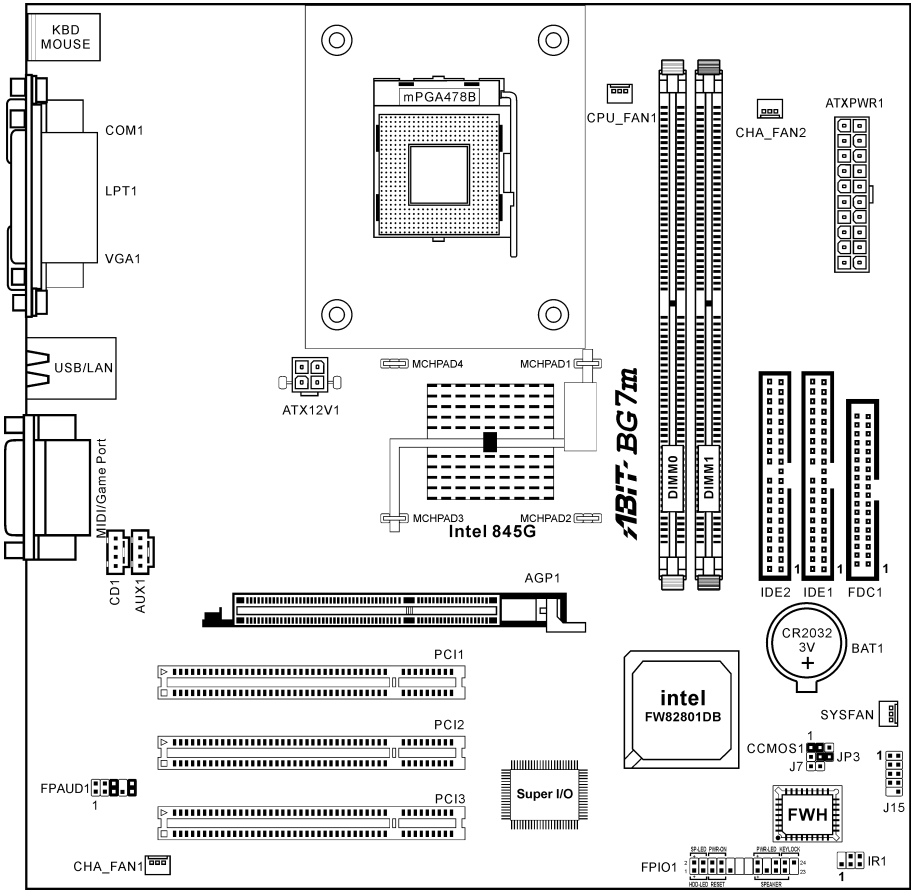
8. Miscellaneous
- Support STR (Suspend to RAM)
- Micro ATX form factor
- 1 AGP4X slot, 3 PCI slots

- Hardware Monitoring – including Fan Speed, Voltages, CPU and system temperature and one thermal header for other devices temperature monitoring
- Keyboard and Mouse Power On
- Built-in IrDA TX/RX header

✸ **The Switching Power Supply must meet ATX 2.03 specification with ATX12V and AUX Power connectors.**

✸ **Specifications and information contained herein are subject to change without notice.**

1-3. Layout Diagram



Chapter 2. Hardware Setup

This motherboard provides all standard equipment for classic personal computers with great flexibility for meeting future upgrade demands. This chapter will introduce step-by-step all of the standard equipment and will also present, as completely as possible, future upgrade capabilities.

Before Proceeding with the Installation: Please be reminded to turn the ATX12V power supply switch off (fully turn the +5V standby power off), or disconnect the power cord before you install or unplug any connectors or add-on cards. Failing to do so may cause the motherboard components or add-on cards to malfunction or damaged.

2-1. Install The Motherboard

Most computer chassis have a base with many mounting holes to allow motherboard to be securely attached on and at the same time, prevented from short circuits. There are two ways to attach the motherboard to the chassis base:

- use with studs
- or use with spacers

Figure 2-1 shows the shape of studs and spacers. There may be several types, but all look similar.

Figure 2-1. The outline of stud and spacer

In principle, the best way to attach the board is to use with studs. Only if you are unable to do this should you attach the board with spacers. Line up the holes on the board with the mounting holes on the chassis. If the holes line up and there are screw holes, you can attach the board with studs. If the holes line up and there are only slots, you can only attach with spacers. Take the tip of the spacers and insert them into the slots. After doing this to all the slots, you can slide the board into position aligned with slots. After the board has been positioned, check to make sure everything is OK before putting the chassis back on. Figure 2-2 shows the ways to fix the board to chassis by studs or spacers.

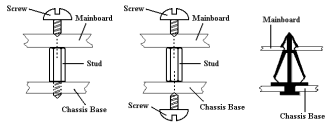


Figure 2-2. The way we fixed the motherboard

ATTENTION: To prevent shorting the PCB circuit, please REMOVE the metal studs or spacers if they are already fastened on the chassis base and are without mounting-holes on the motherboard to align with.

2-2. Install Pentium® 4 CPU and Heatsink Supporting-Base

This motherboard provides a ZIF (**Z**ero **I**nsertion **F**orce) Socket 478 to install Intel® Pentium® 4 CPU. The CPU you bought should have a kit of heatsink and cooling fan along with. If that's not the case, buy one specially designed for Pentium® 4 Socket 478. Please refer to figure 2-3 to install CPU.

1. Locate the Socket 478. Fasten the heatsink supporting-base onto the motherboard.

ATTENTION: If you are using chassis specially designed for Pentium® 4, please pay attention to the location of metal studs or spacers if they are already installed on the chassis. Be careful not let the metal studs or spacers contact the printed circuit wire or parts on the PCB.

2. Pull the CPU socket lever sideways away from the socket and then upwards to 90 degree. Insert the CPU with the correct orientation. Do not use extra force to insert CPU; it only fit in one orientation. Closing down the socket lever while holding down the CPU.

3. Put the heatsink faces down onto the CPU until it completely covers the CPU.

4. Put the heatsink supporting-cover onto the heatsink. Make sure all the four locking clasp at each side of the supporting cover reach in the locking holes.

5. Push down the retaining clip at both sides of the supporting cover to lock up together with the supporting base. Watch out the direction for pushing down the clip.

6. The heatsink supporting cover and base should now firmly locking up with each other with the heatsink inside.

ATTENTION: Do not forget to set the correct bus frequency and multiple for your processor.

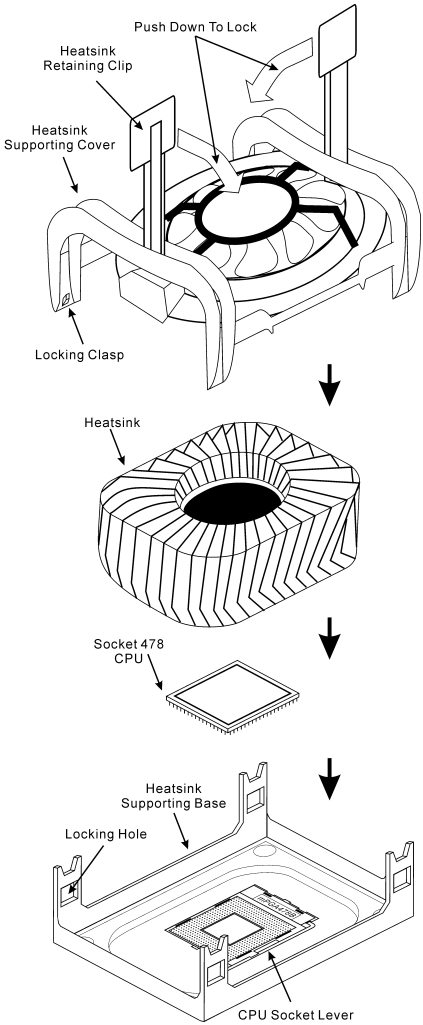


Figure 2-3. Installing P4 Socket 478 CPU and its heatsink into supporting base.

2-3. Install System Memory

This motherboard provides two 184-pin DDR DIMM sites for memory expansion available from minimum memory size of 64MB to maximum memory size of 2GB DDR SDRAM.

Table 2-1. Valid Memory Configurations

Bank	Memory Module	Total Memory
Bank 0, 1 (DIMM1)	64, 128, 256, 512MB, 1GB	64MB ~ 1GB
Bank 2, 3 (DIMM2)	64, 128, 256, 512MB, 1GB	64MB ~ 1GB
Total System Memory		64MB ~ 2GB

ATTENTION: Static electricity can damage the electronic components of the computer or optional boards. Before starting these procedures, ensure that you are discharged of static electricity by touching a grounded metal object briefly.

1. Power off the computer and disconnect the AC power cord.
2. Locate the DDR DIMM slot.
3. Push both ejector tabs of the DDR DIMM slot outward.
4. Insert the memory module into the DDR DIMM slot. Note how the module is keyed to the slot. ***This insures the memory module will be plugged into the slot in one way only***.
5. Firmly press the memory module into the DDR DIMM slot until both ejector tabs snap into places.

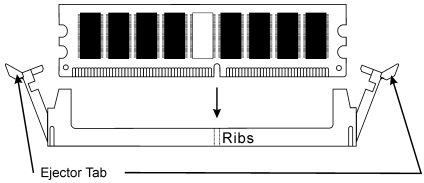


Figure 2-4. Memory module installation

2-4. Connectors, Headers and Switches

Inside the case of any computer there are several cables and plugs that have to be connected. These cables and plugs are usually connected one-by-one to connectors located on the board. You have to pay attention carefully to any connection orientation the cables may have and, if any, notice the position of the first pin.

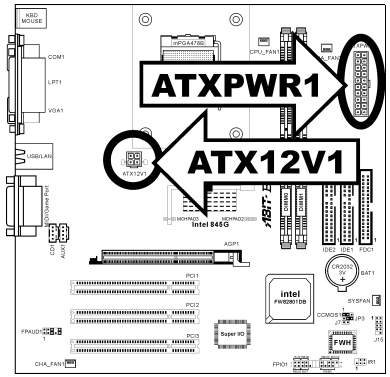
Here we will show you all of the connectors, headers and switches, and how to connect them. Please read the entire section for necessary information before attempting to finish all the hardware installation inside the computer chassis. A complete enlarged layout diagram is shown in section "Layout Diagram" for all the position of connectors and headers on the board that you may refer to.

All the connectors, headers and switches mentioned here are depending on your system configuration. Some features you may (or may not) have to connect or to configure depending on the peripherals you have connected.

WARNING: Always power off the computer and unplug the AC power cord before adding or removing any peripheral or component. Failing to so may cause severe damage to your motherboard and/or peripherals. Plug in the AC power cord only after you have carefully checked everything.

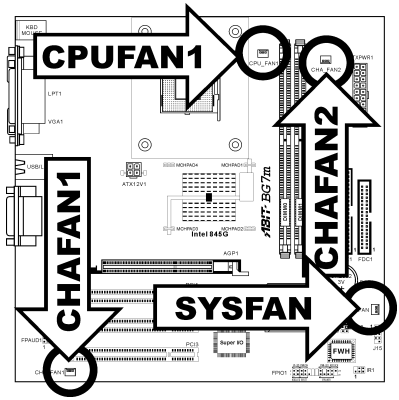
(1). ATX12V: ATX Power Input Connectors

The Pentium 4 requires a power supplier different from the regular one. It's a newly designed ATX12V power with 300W, 20A +5VDC capacity at least for heavily loaded system, and 720mA +5VSB at least for supporting Wake-On-LAN feature.



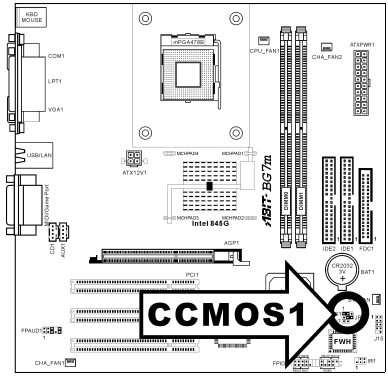
(2). FAN Connectors:

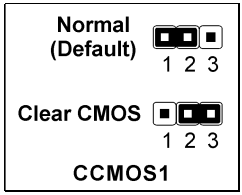
CPUFAN1: CPU Fan
SYSFAN: System Fan
CHAFAN1: Chassis Fan 1
CHAFAN2: Chassis Fan 2



(3). CCMOS1: CMOS Memory Clearing Header

This header uses a jumper to clear the CMOS memory. Short pin 2 and pin 3 only when you want to clear the CMOS memory. The default setting is pin 1 and pin 2 shorted for normal operation.



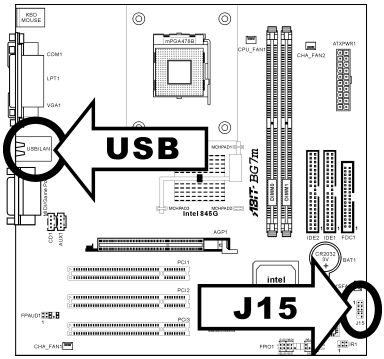


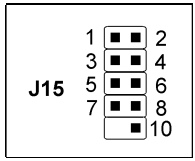
NOTE: Turn the power off first (including the +5V standby power) before clearing the CMOS memory. Failing to do so may cause your system to work abnormally or malfunction.

(4). J15: Additional USB Port Headers

This motherboard provides totally 4 USB 2.0 ports controlled by ICH4. Two of them are through the onboard USB connectors; two of them are capable through this header.

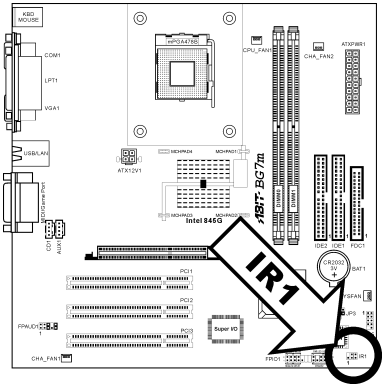
Pin Number	Pin Assignment	Pin Number	Pin Assignment
1	VCC	2	VCC
3	Data0 -	4	Data1 -
5	Data0 +	6	Data1 +
7	Ground	8	Ground
9	NC	10	NC

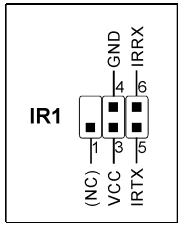




(5). IR1: Infrared Device Header

This header connects to an optional IR device attached to chassis. This motherboard supports standard IR transfer rates.

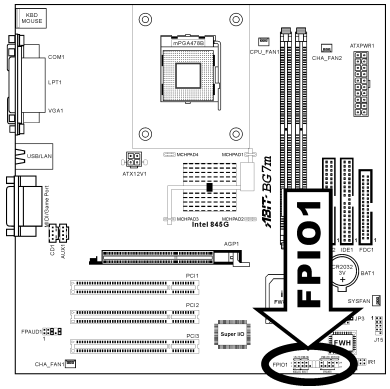


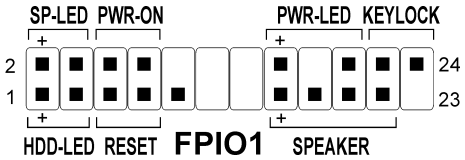


(6). FPIO1 Headers

This header is used for connecting switches and LED indicators on the chassis front panel.

Watch the power LED pin position and orientation. The mark "+" align to the pin in the figure below stands for positive polarity for the LED connection. Please pay attention to connect these headers. A wrong orientation will only cause the LED not lighting, but a wrong connection of the switches could cause system malfunction.





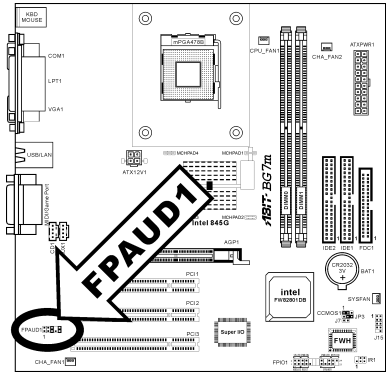
- **Pin 1-3: HDD-LED**
  Connects to the HDD LED cable of chassis front panel.
- **Pin 5-7: RESET**
  Connects to the Reset Switch cable of chassis front panel.
- **Pin 15-21: SPEAKER**
  Connects to the System Speaker cable of chassis.
- **Pin 2-4: SP-LED**
  Connects to the Suspend LED cable (if there is one) of chassis front panel.
- **Pin 6-8: PWR-ON**
  Connects to the Power Switch cable of chassis front panel.
- **Pin 16-20: PWR-LED**
  Connects to the Power LED cable of chassis front panel.
- **Pin 22-24: KEYLOCK**
  Connects to the Keylock cable (if there is one) of chassis front panel.

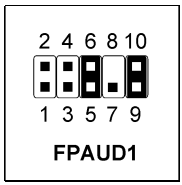
(7). FPAUD1: Front panel audio connection header

This header provides the connection to audio connector at front panel.

- To use the audio connector at front panel, remove all the jumpers on this header, and then connect to front panel by the extenson cable provided with the chassis.
- To use the audio connector at rear panel, disconnect the extension cable, attach the jumpers back at pin 5-6, and pin 9-10 (default setting).

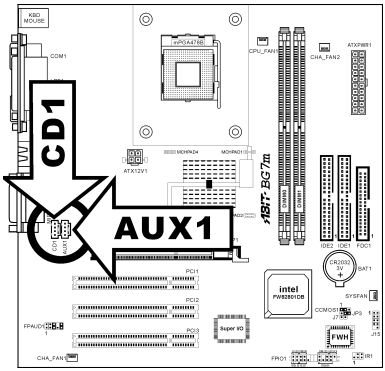
Pin	Pin Assignment	Pin	Pin Assignment
1	Audio Mic.	2	Ground
3	Audio Mic. Bias	4	VCC
5	Speaker Out Right Channel	6	Speaker Out Right Channel Return
7	X	8	NC
9	Speaker Out Left Channel	10	Speaker Out Left Channel Return

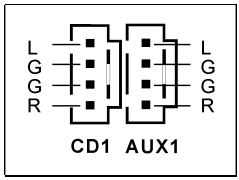




(8). CD1, AUX1: Internal Audio Connector

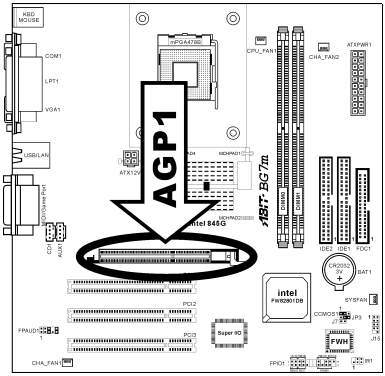
These connectors connect to the audio output of internal CD-ROM drive or add-on card.

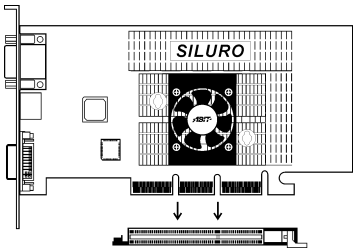




(9). AGP1: Accelerated Graphics Port Slot

This slot supports an optional AGP graphics card up to AGP 4X mode. Please refer to our Web site for more information on graphics cards.

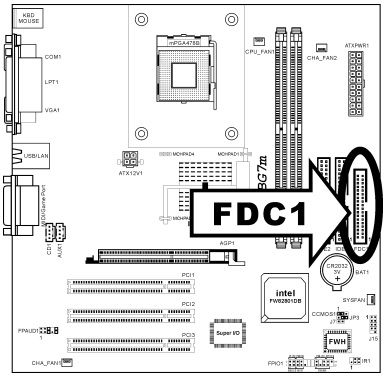




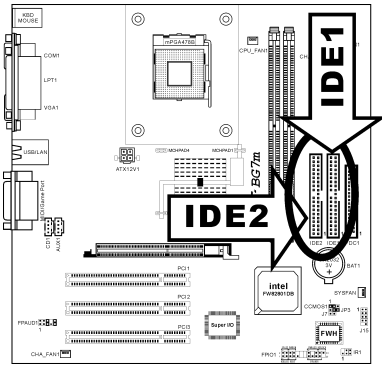
(10). FDC1 Connector

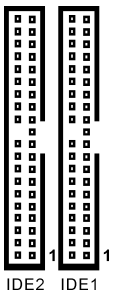
There are 34 wires and two connectors on each floppy cable providing two floppy disk drives connection. Connect the single end at the longer length of ribbon cable to this FDC1, and the two connectors on the other end to the floppy disk drives. Generally you need only one floppy disk drive in your system.

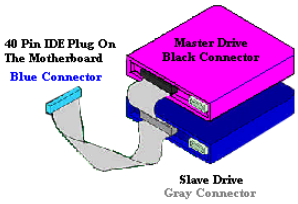
Note: *The red line on the ribbon cable should be aligned with pin 1 on this connector.*



(11). IDE1 and IDE2 Connectors





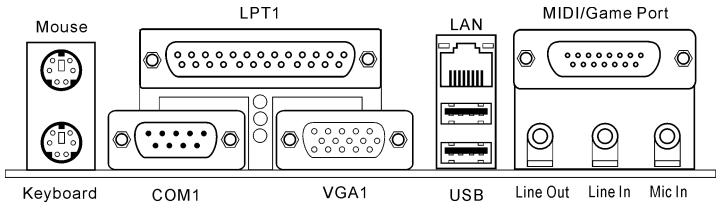


This motherboard provides two IDE ports to connect up to four IDE drives at Ultra ATA/100 mode by Ultra ATA/66 ribbon cables. Each cable has 40-pin 80-conductor and three connectors, providing two hard drives connection with motherboard. Connect the single end (blue connector) at the longer length of ribbon cable to the IDE port on motherboard, and the other two ends (gray and black connector) at the shorter length of the ribbon cable to the connectors on hard drives.

If you want to connect two hard drives together through one IDE channel, you must configure the second drive to Slave mode after the first Master drive. Please refer to the drives' documentation for jumper settings. The first drive connected to IDE1 is usually referred to as "Primary Master", and the second drive as "Primary Slave". The first drive connected to IDE2 is referred to as "Secondary Master" and the second drive as "Secondary Slave".

Keep away from connecting one legacy slow speed drive, like CD-ROM, together with another hard drive on the same IDE channel; this will drop your integral system performance.

(12). Back Panel Connectors



- **Mouse: PS/2 Mouse Connector**
  Attach a PS/2 mouse to this 6-pin Din-connector.

- **Keyboard: PS/2 Keyboard Connector**
  Attach a PS/2 keyboard connector to this 6-pin Din-connector. If you use an AT keyboard, you can go to a computer store to purchase an AT to ATX converter adapter. You can then connect your AT keyboard to this connector. We suggest you use a PS/2 keyboard for best compatibility.

- **Parallel Port Connector**
  This parallel port is also called an "LPT" port because it usually connects to the printer. You can connect other devices that support this communication protocol, like an EPP/ECP scanner, etc.

- **Serial Port Connector**
  This motherboard provides two COM ports to connect external modem, mouse or other devices that support this communication protocol. One is located at the on-board COM1 connector, and the other one is available with an extension cable and I/O shield connected through the COM2 header.

- **VGA Port:**
  This DIN 15 pin Female connector is for VGA signal output to the monitor. You can connect the plug from the monitor to this connector. If you don't move your system often, we suggest you to fasten the two screws from the plug with this connector. It will assure your display quality.

- **LAN Connector**
  This motherboard carries an RTL8100B 10/100Mb Fast Ethernet controller. You can connect your system to Local Area Network through this LAN connector.

- **USB Port Connectors**
  This motherboard provides two on-board USB2.0 ports to attach USB devices such as scanner, digital speakers, monitor, mouse, keyboard, hub, digital camera, joystick etc.

- **MIDI/GAME Port Connector:**
  You can connect your joystick, game pad, or other simulation hardware device DIN 15-pin plugs to this connector. Please refer to the further connection notes of the device's user's manual for further detailed information.

- **Line Out**
  Connect to headphone or an external powered stereo speaker.

- **Line In**
  To connect to the line out from external audio sources.

- **Mic In**
  To connect to the plug from microphone.

Chapter 3. BIOS Setup

The BIOS is a program located on a Flash Memory chip on the motherboard. This program will not be lost when you turn the computer off. This program is also referred to as the boot program. It is the only channel the hardware circuit has to communicate with the operating system. Its main function is to manage the setup of the motherboard and interface card parameters, including simple parameters such as time, date, hard disk drive, as well as more complex parameters such as hardware synchronization, device operating mode, and setup of CPU speed. The computer will operate normally, or will operate at its best, only if all of these parameters are correctly configured through the BIOS.

Don't change the parameters inside the BIOS unless you fully understand their meanings and consequences: The parameters inside the BIOS are used to setup the hardware synchronization or the device-operating mode. If the parameters are not correct, they will produce errors, the computer will crash, and sometimes you will not even be able to boot the computer after it has crashed. We recommend that you do not change the parameters inside the BIOS unless you are very familiar with them. If you are not able to boot your computer anymore, please refer to the section "**Erase CMOS data**" in Chapter 2.

When you start the computer, the BIOS program controls it. The BIOS first operates an auto-diagnostic test called POST (Power On Self Test) for all of the necessary hardware. It then configures the parameters of the hardware synchronization, and detects all of the hardware. Only when these tasks are completed does it give up control of the computer to the next level, which is the operating system (OS). Since the BIOS is the only channel for hardware and software to communicate, it is the key factor for system stability, and in ensuring that your system performs at its best. After the BIOS has achieved the auto-diagnostic and auto-detection operations, it will display the following message:

PRESS DEL TO ENTER SETUP

The message will be displayed for three to five seconds, if you press the <**Del**> key, you will access the BIOS Setup menu. At that moment, the BIOS will display the following screen:

NOTE: Because the BIOS menu is being constantly improved to increase stability and performance, the BIOS screens in this manual may not completely match your BIOS version. All the default settings in this chapter are taken from the Load Optimized Defaults settings, which are different from those taken from Load Fail-Safe Defaults.

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

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

CMOS Data: Maybe you have heard somebody saying that his or her CMOS DATA was lost. What is the CMOS? Is it important? The CMOS is the memory used to store the BIOS parameters that you have configured. This memory is passive. You can read its data, and you can also store data in it. But this memory has to be powered by a battery in order to avoid any loss of its data when the computer is turned off. Since you may have to change the CMOS battery when it is out of power, and if doing so you will lose all CMOS data, we recommend that you write down all the parameters of your hardware, or to put a label with these parameters on your hard disk.

3-1. Standard CMOS Features Setup Menu

This section contains the basic configuration parameters of the BIOS. These parameters include date, hour, VGA card, FDD and HDD settings.

Date (mm:dd:yy):

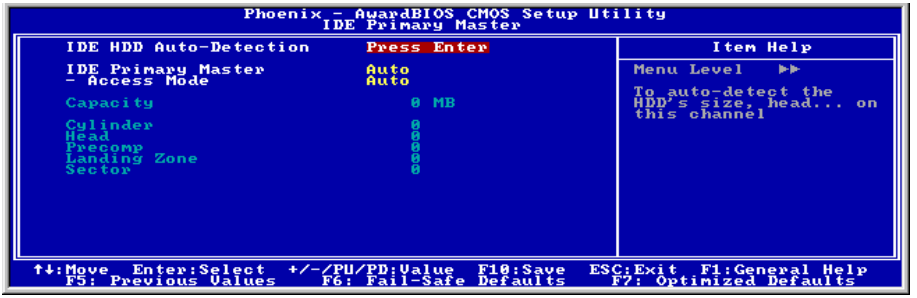
You can set the date in this item: month (mm), date (dd) and year (yy).

Time (hh:mm:ss):

You can set the time in this item: hour (hh), minute (mm) and second (ss).

IDE Primary Master / Slave and IDE Secondary Master / Slave:

These items have a sub-menu to let you choose further options. You can refer to figure 3-4 to check what options are available.



IDE HDD Auto-Detection:

Press the <Enter> key for the BIOS to auto detect all detailed parameters of the hard disk drives (HDD). If auto detection is successful, the correct values will be shown in the remaining items of this menu.

NOTE: A new IDE HDD must be first formatted, otherwise it can not read/write. The basic step in using a HDD is to make a **HDD low-level format**, then run FDISK, and then FORMAT the drive. Most current HDDs have already been subjected to low-level format at the factory, so you can probably skip this operation. Remember though, the primary IDE HDD must have its partition set to active within the FDISK procedure.

If you are using an old HDD that is already formatted, auto detection can not detect the correct parameters. You may need to do a low-level format or set the parameters manually, and then check if the HDD is working.

IDE Primary Master:

Three settings are available: *Auto, Manual and None.* If you choose Auto, the BIOS will automatically check what kind of hard disk you are using. If you want to set the HDD parameters yourself, make sure you fully understand the meaning of the parameters, and be sure to refer to the manual provided by the HDD manufacturer to get the settings right.

Access Mode:

Since old operating systems were only able to support HDDs with capacities no bigger than 528MB, any hard disk with more than 528MB was unusable. AWARD BIOS features a solution to this problem: you can, according to your operating system, choose four operating modes: NORMAL ➔ LBA ➔ LARGE ➔Auto.

The HDD auto detection option in the sub-menu will automatically detect the parameters of your hard disk and the mode supported.

Auto: Lets the BIOS detect your HDD access mode and make the decisions.

Normal mode: Standard normal mode supports hard disks of up to 528MB or less. This mode directly uses positions indicated by Cylinders (CYLS), Heads, and Sectors to access data.

LBA (Logical Block Addressing) mode: The earlier LBA mode can support HDD capacities of up to 8.4GB, and this mode uses a different method to calculate the position of disk data to be accessed. It translates Cylinders (CYLS), Heads and Sectors into a logical address where data is located. The Cylinders, Heads, and Sectors displayed in this menu do not reflect the actual structure of the hard disk. They are just reference values used to calculate actual positions. Currently, all high capacity hard disks support this mode and that is why **we recommend you use this mode**. Currently, the BIOS can support the INT 13h extension function, enabling the LBA mode to support hard disk drive capacities exceeding 8.4GB.

Large Mode: When the number of cylinders (CYLs) of the hard disk exceeds 1024 and DOS is not able to support it, or if your operating system does not support LBA mode, you should select this mode.

Capacity:

This item auto displays your HDD size. Note that this size is usually slightly greater than the size given by a disk checking program of a formatted disk.

NOTE: All the items below are available when you set the item "Primary IDE Master" to "Manual".

Cylinder:

When disks are placed directly above one another along the shaft, the circular vertical "slice" consisting of all the tracks located in a particular position is called a cylinder. You can set the number of cylinders for a HDD. The minimum number you can enter is 0, the maximum number you can enter is 65536.

Head:

This is the tiny electromagnetic coil and metal pole used to create and read back the magnetic patterns on the disk (also called the read/write head). You can configure the number of read/write heads. The minimum number you can enter is 0, the maximum number you can enter is 255.

Precomp:

The minimum number you can enter is 0, the maximum number you can enter is 65536.

WARNING: Setting a value of 65536 means no hard disk exists.

Landing Zone:

This is a non-data area on the disk's inner cylinder where the heads can rest when the power is turned off. The minimum number you can enter is 0, the maximum number you can enter is 65536.

Sector:

The minimum segment of track length that can be assigned to stored data. Sectors usually are grouped into blocks or logical blocks that function as the smallest units of data permit. You can configure this item to sectors per track. The minimum number you can enter is 0, the maximum number you can enter is 255.

Drive A & Drive B:

If you have installed the floppy disk drive here, then you can select the type of floppy drive it can support. Six options are available: None ➔ 360K, 5.25in. ➔ 1.2M, 5.25in. ➔ 720K, 3.5in. ➔ 1.44M, 3.5in. ➔ 2.88M, 3.5in.

Floppy 3 Mode Support:

Four options are available: Disabled ➔ Driver A ➔ Driver B ➔ Both. The default setting is ***Disabled***. 3 Mode floppy disk drives (FDD) are 3 1/2" drives used in Japanese computer systems. If you need to access data stored in this kind of floppy, you must select this mode, and of course you must have a 3 Mode floppy drive.

Video:

You can select the VGA modes for your video adapter, four options are available: EGA/VGA ➔ CGA 40 ➔ CGA 80 ➔ MONO. The default setting is ***EGA/VGA***.

Halt On:

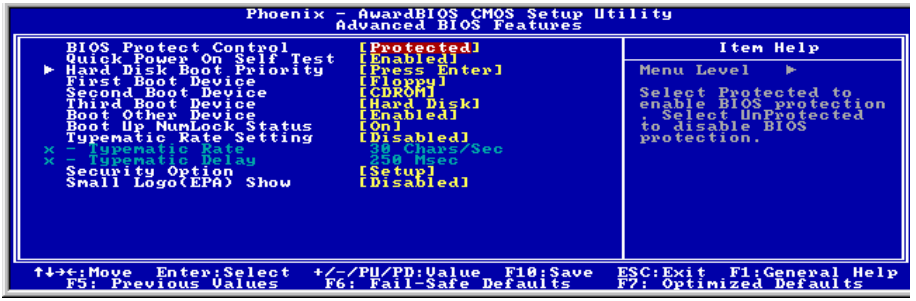
You can select which type of error will cause the system to halt. Five options are available: All Errors ➔ No Errors ➔ All, But Keyboard ➔ All, But Diskette ➔ All, But Disk/Key.

You can see your system memory list in the lower left box, it shows the *Base Memory*, *Extended Memory* and *total Memory size* configurations in your system. It is detected by the system during boot-up procedure.

3-2. Advanced BIOS Features Setup Menu

With each item, you can press <Enter> at any time to display all the options for that item.

ATTENTION: Advanced BIOS Features Setup Menu has already been set for maximum operation. If you do not really understand each of the options in this menu, we recommend you use the default values.



BIOS Protect Control

This option protects for accidentally BIOS writing attempt.

Quick Power On Self Test:

After the computer has been powered on, the BIOS of the motherboard will run a series of tests in order to check the system and its peripherals. If the Quick Power on Self-Test feature is enabled, the BIOS will simplify the test procedures in order to speed up the boot process. The default setting is ***Enabled***.

Hard Disk Boot Priority:

This item selects the boot priority of hard disks installed in your system. Use <up> or <down> arrow key to select a device, then press <+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.

First Boot Device:

When the computer boots up, the BIOS attempts to load the operating system from the devices in the sequence selected in these items: floppy disk drive A, LS/ZIP devices, hard drive C, SCSI hard disk drive or CD-ROM.

Second Boot Device:

Description is the same as the *First Boot Device,* the default setting is ***HDD-0***.

Third Boot Device:

Description is same as the *First Boot Device,* the default setting is ***LS120***.

Boot Other Device:

Two options are available: Enabled or Disabled. The default setting is ***Enabled***. This setting allows the BIOS to try three kinds of boot devices that are set from the above three items.

Boot Up NumLock Status:

On: At boot up, the Numeric Keypad is in numeric mode. (Default Settings)

Off: At boot up, the Numeric Keypad is in cursor control mode.

Typematic Rate Setting:

This item allows you to adjust the keystroke repeat rate. When set to *Enabled*, you can set the two keyboard typematic controls that follow (*Typematic Rate* and T*ypematic Rate Delay*). If this item is set to *Disabled,* the BIOS will use the default setting. The default setting is ***Enabled***.

Typematic Rate (Chars/Sec):

When you press a key continuously, the keyboard will repeat the keystroke according to the rate you have set (Unit: characters/second). Eight options are available: 6 ➔ 8 ➔ 10 ➔ 12 ➔ 15 ➔ 20 ➔ 24 ➔ 30 ➔ Back to 6. The default setting is ***30***.

Typematic Delay (Msec):

When you press a key continuously, if you exceed the delay you have set here, the keyboard will automatically repeat the keystroke according to a certain rate (Unit: milliseconds). Four options are available: 250 ➔ 500 ➔ 750 ➔ 1000 ➔ Back to 250. The default setting is ***250***.

Security Option:

This option can be set to System or Setup. The default setting is ***Setup***. After you have created a password through PASSWORD SETTING, this option will deny access to your system (System) or modification of computer setup (BIOS Setup) by unauthorized users.

SYSTEM: When you choose System, a password is required each time the computer boots up. If the correct password is not given, the system will not start.

SETUP: When you choose Setup, a password is required only when accessing the BIOS Setup. If the correct password is not given, you can't enter the BIOS setup menu.

To disable security, select *Set Supervisor Password* at main menu and then you will be asked to enter the password. Do not type anything and just press the <*Enter*> key and it will disable security. Once security is disabled, the system will boot and you can enter the *BIOS setup menu* freely

NOTE: Don't forget your password. If you forget the password, you will have to open the computer case and clear all information in the CMOS before you can start up the system. But by doing this, you will have to reset all previously set options.

Small Logo(EPA) Show:

This item determines to show the EPA logo when booting. The default setting is *Disabled*.

3-3. Advanced Chipset Features Setup Menu

The Chipset Features Setup Menu is used to modify the contents of the buffers in the chipset on the motherboard. Since the parameters of the buffers are closely related to hardware, if the setup is not correct or is false, the motherboard will become unstable or you will not be able to boot up. If you don't know the hardware very well, use default values (i.e. use the LOAD SETUP DEFAULTS option). The only time you might consider making any changes is if you discover that data is being lost while using your system.

You can use the arrow keys to move between the items. Use ↑ , ↓ and <**Enter**> key to change the values. When you have finished setting up the chipset, press <**Esc**> to go back to the main menu.

NOTE: The parameters in this screen are for system designers, service personnel, and technically competent users only. Do not reset these values unless you understand the consequences of your changes.

The first chipset settings deal with CPU access to DRAM. The default timings have been carefully chosen and should only be altered if data is being lost. Such a scenario might well occur if your system has mixed speed DRAM chips installed. In such a case, greater delays may be required to preserve the integrity of the data held in the slower memory chips.

DRAM Timing Selectable:

This item sets the optimal timings for the following four items, depending on the memory module you are using. The default setting "By SPD" configures these four items by reading the contents in the SPD (Serial Presence Detect) device. The EEPROM on the memory module stores critical parameter information about the module, such as memory type, size, speed, voltage interface, and module banks.

- **CAS Latency Time:**

This item controls the latency between the DRAM read command and the time that the data becomes actually available. The options are: 1.5, 2, and 2.5.

- **Active to Precharge Delay:**

The options are: 7, 6, and 5.

- **DRAM RAS# to CAS# Delay**

This item controls the latency between the DRAM active command and the read/write command. The options are: 2 and 3.

- **DRAM RAS# Precharge:**

This item controls the idle clocks after issuing a precharge command to the DRAM.

Delayed Transaction:

Two options are available: Enabled and Disabled. The default setting is ***Disabled***. Set the option to enabled or disabled PCI 2.1 features including passive release and delayed transaction for the chipset. This function is used to meet the latency of PCI cycles to or from the ISA bus. This option must be enabled to provide PCI 2.1 compliance. If you have an ISA card compatibility problem, you can try to enable or disable this option for optimal results.

AGP Aperture Size:

The options are: 4, 8, 16, 32, 64, 128, and 256MB. The default setting is ***64MB***. This option specifies the amount of system memory that can be used by the AGP device. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. See www.agpforum.org for AGP information.

3-4. Integrated Peripherals

In this menu, you can change the onboard I/O device, I/O port address and other hardware settings.

Figure 3-7. Integrated Peripherals Menu Screen

Onboard IDE-1 Controller:

This option enables or disables the IDE-1 controller.

Onboard IDE-2 Controller:

This option enables or disables the IDE-2 controller.

USB Controller:

Two options are available: Enabled and Disabled. The default setting is ***Enabled***. This motherboard provides two Universal Serial Bus (USB) ports, thus supporting USB devices. If you don't want to use USB devices, set it to *Disabled*, then the item *USB Keyboard Support & USB Mouse Support* will also be disabled.

- **USB Keyboard Support:**

Two options are available: OS and BIOS. The default setting is ***OS***. If you want to use USB keyboard in DOS environment, please set it to BIOS.

- **USB Mouse Support:**

Two options are available: OS and BIOS. The default setting is ***OS***. If you want to use USB mouse in DOS environment, please set it to BIOS.

AC97 Audio

Two options are available: Auto and Disabled. The default setting is ***Auto***. If you set it to

Auto, it will allow the BIOS to detect the audio device you use. If an audio device is detected, the onboard audio controller will be able to support it. If you want to use another audio adapter card to connect the audio connectors, please set this item to *Disabled*.

Onboard LAN Controller:

This option enables or disables the LAN controller. The default setting is ***Enabled***.

Onboard LAN Boot ROM:

This option enables or disables the Boot ROM on LAN controller. The default setting is ***Enabled***.

POWER ON Function:

This item allows you to select which way you want your system to power on. Seven items are available: Password ➔ Hot Key ➔ Mouse Left ➔ Mouse Right ➔ Any Key ➔ BUTTON ONLY ➔ Keyboard 98. The default setting is ***BUTTON ONLY***.

NOTE: The mouse wake up function can only be used with the PS/2 mouse, not with a mouse that uses the COM port and USB connection. *Mouse Left* (*Mouse Right*) means you need to double click the mouse *left* (*right*) button, for the computer to power on. You also need to note the compatibility issue with your PS/2 mouse. Some PS/2 mice cannot wake up the system because of compatibility problems. Also, if the specs of your keyboard are too old, it may fail to power on.

KB Power ON Password: This option allows you to set a password required in order to Power ON your computer. You will be asked to enter your password and then to confirm it. Do not forget your password. Should you forget your password, you will have to open your computer case, clear the CMOS and reset all parameters again in order to be able to utilize this function.

Hot Key Power ON: There are twelve options are available, Ctrl-F1 to Ctrl-F12. You can select this item and using the <Ctrl> plus the one of each function key (F1 to F12) to power on the computer. The default setting is ***Ctrl-F1***.

Onboard FDD Controller:

Two options are available: Enabled and Disabled. The default setting is ***Enabled***. You can enable or disable the onboard FDD controller.

Onboard Serial Port 1:

This is used to specify the I/O address and IRQ of Serial Port 1. Six options are available: Disabled ➔ 3F8/IRQ4 ➔ 2F8/IRQ3 ➔ 3E8/IRQ4 ➔ 2E8/IRQ3 ➔ AUTO. The default setting is ***3F8/IRQ4***.

Onboard IR Function:

Three options are available: IrDA (HPSIR) mode ➔ ASK IR (Amplitude Shift Keyed IR) mode ➔ Disabled. The default setting is ***Disabled***.

RxD , TxD Active: Four options are available: Hi, Hi ➔ Hi, Lo ➔ Lo, Hi ➔ Lo, Lo. The default setting is ***Hi, Lo***. Set IR transmission/reception polarity as High or Low.

IR Transmission Delay: Two options are available: Enabled and Disabled. The default setting is ***Enabled***. Set IR transmission delays 4 character-time (40 bit-time) when SIR is changed from RX mode to TX mode.

UR2 Duplex Mode: Two options are available: Full and Half. The default setting is ***Half***. This item lets you choose the operation mode for your IR KIT. Some IR device only can work at half duplex mode. Refer to your IR KIT user's guide to find out which setting is correct.

Use IR Pins: Two options are available: RxD2, TxD2 and IR-Rx2Tx2. The default setting is ***IR-Rx2Tx2***. If you choose *RxD2, TxD2*, your motherboard must support a COM port IR KIT connection. Otherwise, you can only choose the *IR-Rx2Tx2* to use the IR header on your motherboard to connect your IR KIT. Please use the default setting.

Onboard Parallel Port:

Sets the I/O address and IRQ of the onboard parallel port. Four options are available: Disable ➔ 378/IRQ7 ➔ 278/IRQ5 ➔ 3BC/IRQ7. Default setting is ***378/IRQ7***.

Parallel Port Mode: Four options are available: SPP ➔ EPP ➔ ECP ➔ ECP+EPP. The default setting is ***SPP*** mode.

EPP Mode Select: Two options are available: EPP1.7 ➔ EPP1.9. The default setting is ***EPP 1.7***. When the mode selected for the parallel port mode is EPP, the two EPP version options are available.

ECP Mode Use DMA: Two options are available: 1 ➔ 3. The default setting is ***3***. When the mode selected for the parallel port mode is ECP, the DMA channel selected can be Channel 1 or Channel 3.

PWRON After PWR-Fail:

This setting lets you set the system action after a power failure. Three options are available: On ➔ Former-Sts ➔ Off. The default setting is ***Off***.

Game Port Address:

Three options are available: Disabled ➔ 201 ➔ 209. The default setting is ***201***. This item sets the address of the onboard game port connector.

Midi Port Address:

Four options are available: Disabled ➔ 330 ➔ 300 ➔ 290. The default setting is ***330***. This item sets the address of the onboard midi port connector.

Midi Port IRQ: Two options are available: 5 ➔ 10. The default setting is ***5***. This item sets the IRQ of the onboard midi port connector. If you choose disable the *Midi Port Address*, then this field is not available.

NOTE: If you bought an audio adapter and wanted to replace the use of onboard audio solution, you have to disable three items in BIOS. Otherwise, your audio adapter may not work well. These three items are:

AC 97 Audio: set to *Disabled*
Game Port Address: set to *Disabled*
Midi Port Address: set to *Disabled*

3-5. Power Management Setup Menu

This menu allows you to set up the power management in order to reduce power consumption.

If you want ACPI (Advanced Configuration and Power Interface) functions to work normally, you should notice two things. One is your operating system must support ACPI. The second thing is that all devices and add-on cards in your system must fully support ACPI, both hardware and software (drivers). If you want to know if your devices or add-on cards support ACPI or not, please contact the device or add-on card manufacturer for more information. If you want to know more about ACPI specifications, please go to the address below for more detailed information: http://www.teleport.com/~acpi/acpihtml/home.htm

ACPI requires an ACPI-aware operating system. ACPI features include:

- Plug and Play (including bus and device enumeration) and APM functionality normally contained in the BIOS.
- Power management control of individual devices, add-in cards (some add-in cards may require an ACPI-aware driver), video displays, and hard disk drives.
- A Soft-off feature that enables the operating system to power off the computer.
- Support for multiple wake-up events (see Table 3-1).
- Support for a front panel power and sleep mode switch. Table 3-2 describes the system states based on how long the power switch is pressed, depending on how ACPI is configured with an ACPI-aware operating system.

System States and Power States:

Under ACPI, the operating system directs all system and device power state transitions. The operating system puts devices in and out of low-power states based on user preferences and knowledge of how devices are being used by applications. Devices that are not being used can be turned off. The operating system uses information from applications and user settings to put the system as a whole into a low-power state.

Table 3-1: Wake Up Device and Events

The table below describes which devices or specific events can wake the computer from specific states.

These device/events can wake up the computer……	**……from this state**
Power switch	Sleeping mode or power off mode
RTC alarm	Sleeping mode or power off mode
LAN	Sleeping mode or power off mode
Modem	Sleeping mode or power off mode
IR command	Sleeping mode
USB	Sleeping mode
PS/2 keyboard	Sleeping mode or power off mode
PS/2 mouse	Sleeping mode or power off mode

Table 3-2: Effect of Pressing the Power Switch

If the system is in this state……	**……and the power switch is pressed for**	**……the system enters this state**
Off	Less than four seconds	Power on
On	More than four seconds	Soft off/Suspend
On	Less than four seconds	Fail safe power off
Sleep	Less than four seconds	Wake up

ACPI Suspend Type:

Two options are available: S1(POS) and S3(STR). The default setting is ***S1(POS)***. Generally, ACPI has six states: System S0 state, S1, S2, S3, S4, S5. S1 and S3 states are described below:

The S1 (POS) State (POS means Power On Suspend):

While the system is in the S1 sleeping state, its behavior is as described below:

- The processor is not executing instructions. The processor's complex context is maintained.
- Dynamic RAM context is maintained.
- Power Resources are in a state compatible with the system S1 state. All Power Resources that supply a System Level reference of S0 are in the OFF state.

- Devices states are compatible with the current Power Resource states. Only devices which solely reference Power Resources which are in the ON state for a given device state can be in that device state. In all other cases, the device is in the D3 (off) state.
- Devices that are enabled to wake the system and that can do so from their current device state can initiate a hardware event which transitions the system state to S0. This transition causes the processor to continue execution where it left off.

To transition into the S1 state, the operating software does not have to flush the processor's cache.

The S3 (STR) State (STR means Suspend to RAM):

The S3 state is logically lower then the S2 state and is assumed to conserve more power. The behavior of this state is defined as follows:

- Processor is not executing instructions. The processor complex context is not maintained.
- Dynamic RAM context is maintained.
- Power Resources are in a state compatible with the system S3 state. All Power Resources that supply a System Level reference of S0, S1, or S2 are in the OFF state.
- Devices states are compatible with the current Power Resource states. Only devices which solely reference Power Resources which are in the ON state for a given device state can be in that device state. In all other cases, the device is in the D3 (off) state.
- Devices that are enabled to wake the system and that can do so from their current device state can initiate a hardware event which transitions the system state to S0. This transition causes the processor to begin execution at its boot location. The BIOS performs initialization of core functions as required to exit an S3 state and passes control to the firmware resume vector. Please see the ACPI Specification Rev. 1.0 book section 9.3.2 for more details on BIOS initialization.

From the software point of view, this state is functionally the same as the S2 state. The operational difference can be that some Power Resources that could be left ON in the S2 state might not be available to the S3 state. As such, additional devices can be required to be in logically lower D0, D1, D2, or D3 state for S3 than S2. Similarly, some device wake events can function in S2 but not S3.

Because the processor context can be lost while in the S3 state, the transition to the S3 state requires that the operating software flush all dirty cache to DRAM.

❋ **The information above for system S0 & S3 were referring to ACPI Specification.**

USB KB Wake-Up From S3:

Two options are available: Enabled and Disabled. The default setting is ***Disabled***.

Soft-off by PWR-BTTN:

Two options are available: Instant-off and Delay 4 Sec.. The default setting is ***Instant-off***.

Pressing the power button for more than four seconds forces the system to enter the Soft-Off state when the system has "hung".

Wake-Up by PCI card/LAN:

Two options are available: Enabled and Disabled. Default setting is ***Disabled***. This item can let you wake-up your computer by PCI devices. For instance, if you had installed a PCI LAN card with Wake-Up on LAN capability, then you could wake-up your computer from another computer via a network by sending a wake-up frame signal. This feature also allows the PCI card built-in hardware function to support the wake up function without special cables connected to the motherboard.

NOTE: This feature needs a specific network interface (optional). Also your ATX power supply +5V standby power must be at least 720mA compatible.

Power On by Ring:

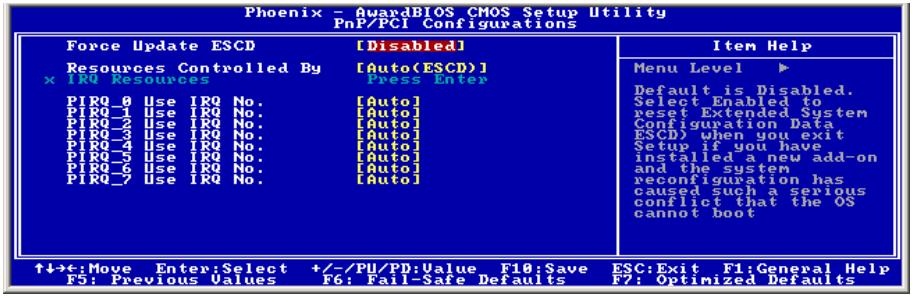
Two options are available: Enabled and Disabled. Default setting is ***Disabled***. If you connect an external modem to the onboard serial port, the system will be turned on when a telephone ring-up occurs.

Resume by Alarm:

Two options are available: Enabled and Disabled. Default setting is ***Disabled***. The RTC alarm can turn on the system. You can set Date (of month) and Time (hour, minute, and second) when you set this item to *Enabled*.

3-6. PnP/PCI Configurations

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



Force Update ESCD:

If you want to clear ESCD data next time you boot up, and ask the BIOS to reset the settings for the Plug & Play ISA Card and the PCI Card, select Enabled. But the next time you boot up, this option will automatically be set as Disabled.

NOTE: The ESCD (Extended System Configuration Data) contains the IRQ, DMA, I/O port, memory information of the system. This is a specification and a feature specific to the Plug & Play BIOS.

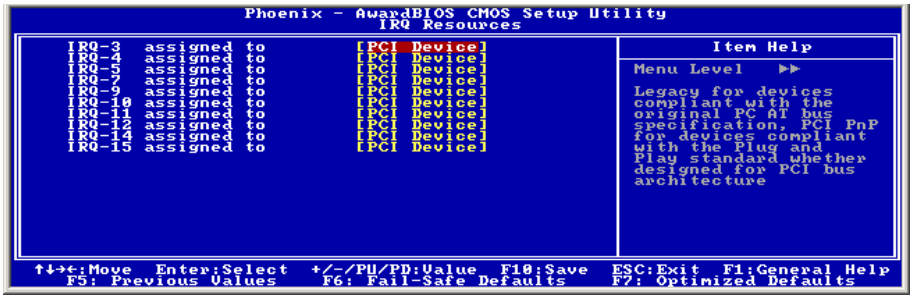
Resources Controlled By:

Two options are available: Auto(ESCD) and Manual. Default setting is ***Auto(ESCD)***. When the setting is Auto(ESCD), the *IRQ Resources* and *Memory Resources* can not be changed. When resources are controlled manually, the *IRQ Resources* and *Memory Resources* can then be changed.

PCI PnP devices compliant with the Plug and Play standard, whether designed for the PCI bus architecture.

The Award Plug and Play BIOS has the capability to automatically configure all of the boot and Plug and Play compatible devices. If you select *Auto (ESCD)*, The IRQ Resources item will be disabled, as the BIOS automatically assigns them. But if you have trouble in assigning the interrupt resources automatically, you can select *Manual* to set which IRQ is assigned to PCI PnP cards.

The following figure shows you the screen of IRQ resources. Each item has two options: PCI Device and Reserved. The default setting is *PCI Device*.



PIRQ_0 Use IRQ No. ~PIRQ_7 Use IRQ No. :

This item allows the IRQ number for the device installed on PCI slots to be specified by the system automatically or yiou can specify a fixed IRQ number. This is a useful function when you want to fix the IRQ for a specific device. For example, if you want to move your hard disk to another computer and don't want to re-install Windows® NT, then you can specify the IRQ for the device installed on the new computer to fit the original computer settings.

This feature is for the operating system that will record and fix the PCI configuration status, if you want to change it.

For the relations between the hardware layout of PIRQ (the signals from the ICH chipset), INT# (means PCI slot IRQ signals) and devices, please refer to the table below:

Signals	AGP	PCI-1	PCI-2	PCI-3		
PIRQ_0 Assignment	INT A	INT D	INT C			
PIRQ_1 Assignment	INT B	INT A	INT D			
PIRQ_2 Assignment		INT B	INT A			
PIRQ_3 Assignment		INT C	INT B			
PIRQ_4 Assignment				INT A		
PIRQ_5 Assignment				INT B		
PIRQ_6 Assignment				INT C		
PIRQ_7 Assignment				INT D		

3-7. PC Health Status

You can set the warning temperature for your computer system, and you can check the fan speeds and power supply voltages of your computer system. The features are useful for monitoring all the important parameters within your computer system. We call it the *PC Health Status*.

Shutdown Temperature:

Once the system or CPU temperature exceeds the temperature specified, the CPU will shutdown automatically to avoid damaging. This function only works for an ACPI OS such as Windows 98/ Windows 2000 with ACPI activated. The options are Disabled, 60°C/140°F, 65°C/149°F, 70°C/158°F, and 75°C/167°F. The default setting is ***Disabled***.

CPU Warning Temperature:

This item lets you select the temperature at which you want the system to send out a warning message to the PC speakers of when the temperature goes beyond either limit. You can select the temperatures you want. The ranges are from 30°C/86°F to 120°C/248°F, default setting is ***75°C/167°F***。

All Voltages, Fans Speed and Thermal Monitoring:

These unchangeable items list the current status of the CPU and environment temperatures, fan speeds, and system power voltage.

NOTE: The hardware monitoring features for temperatures, fans and voltages will occupy the I/O address from 294H to 297H. If you have a network adapter, sound card or other add-on cards that might use those I/O addresses, please adjust your add-on card I/O address to avoid using these addresses.

3-8. Load Fail-Safe Defaults

Loads Fail Safe settings into the BIOS Setup program. These options are designed to slow the system down for troubleshooting purposes. To load the default values, highlight this option and press <Enter>. Enter "Y" in the confirmation screen and press <Enter> again. User-defined options in the **Standard CMOS Setup** are not affected.

3-9. Load Optimized Defaults

Loads the default values for best performance into the BIOS Setup program. To load the default values, highlight this option and press <Enter>. Enter "Y" in the confirmation screen and press <Enter> again. User-defined options in the **Standard CMOS Setup** are not affected.

3-10. Supervisor Password and User Password Setting

Password can be set to provide protection for the BIOS configuration options, or to restrict access to computer itself.

When enabled, User Password will request all users to enter a password in order to use the system, and/or enter the BIOS setup (but can't change its contents). A Supervisor Password is used to protect the stored CMOS options from being changed by unauthorized users.

Keep in mind that when set, a password is required only when booting the system. It will not provide protection to a system that is already booted.

The password check option is set in Advanced BIOS Features by choosing either System (the password appears every time the system is powered on) or Setup (the password prompt appears only when the users enter the BIOS Setup). The password is stored in CMOS RAM, and can be cleared by the Clear CMOS jumper.

To Set a Password:

You must first set the *Supervisor Password* by choosing (*Supervisor) Password* and pressing <Enter>. Setup prompts for a password.

Enter a 1-8 character password using letters, numbers, or a combination of both. The specific characters are not shown as you enter them. Press <Enter>.

A confirmation box appears asking you to re-enter the password. Enter the password again. Press <Enter>. Follow the same procedure to set the *Use Password*.

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

Changing a Password:

Select the appropriate password option (Supervisor or User) from the main menu and press <Enter>. Enter the current password and press <Enter>. The screen does not display the characters entered. Enter in the new password, then the confirmation. You cannot change the current password unless you know it.

Erasing a Password:

If you know the current password, but want to disable password checking, follow the procedure for changing the password. When Setup prompts for the new password, simply press <Enter>. You will see a message indicating that the password is disabled.

If you do not know the current password, the CMOS must be cleared by the CMOS clearing jumper.

* This will clear all user-defined BIOS Setup options.

3-11. Save & Exit Setup / Exit Without Saving

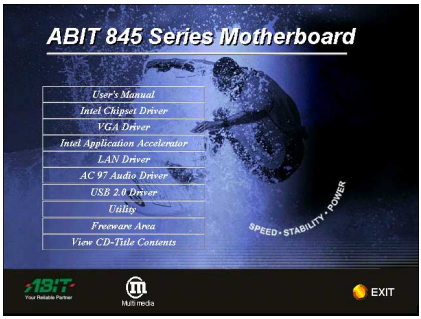
Selecting Save & Exit Setup to save into the CMOS memory all modifications specified during the current session. To save the configuration changes, highlight this option in the main menu and press <Enter>. The system displays a confirmation message on the screen. Press “Y” and then <Enter>. Press the “N” and then <Enter> to abort. The Exit Without Saving options allows the user to exit the BIOS Setup without updating any changes made during the current session.

Appendix A. Install Intel Chipset Driver

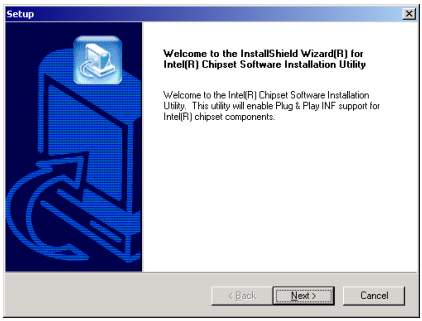
NOTE: Please install this Intel Chipset Driver before installing VGA and Audio driver.

The installation procedures and screen shots in this chapter are based on Windows 2000 operating system. Please follow the on-screen instruction for those of other operating system.

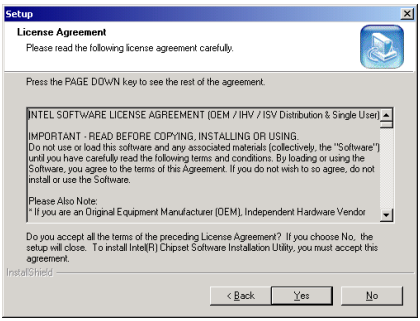
Insert the Installation Disk into CD-ROM drive, it should execute the installation program automatically. If not, double-click the execution file at the main directory of this Installation Disk to enter the installation menu.



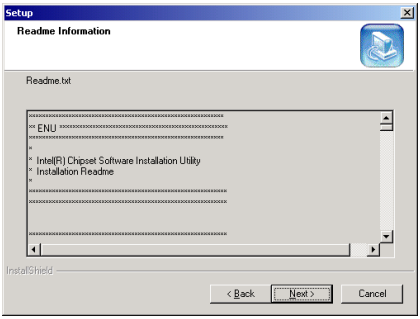
1. Click "**Intel Chipset Driver**".



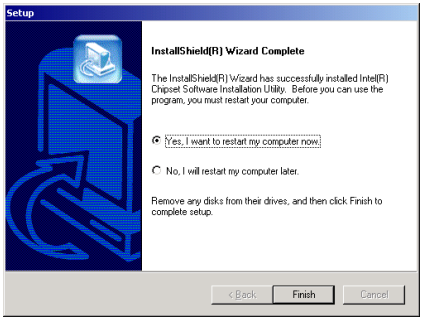
2. Click "**Next>**".



3. Click "**Yes**".



4. Click "**Next>**".



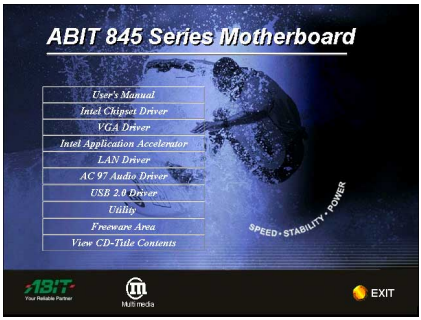
5. Choose "**Yes, I want to restart my computer now**", and click "**Finish**" to end the installation.

Appendix B. Install Intel Application Accelerator

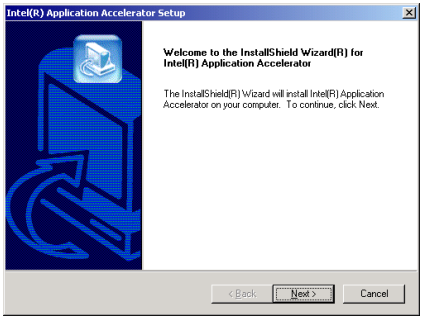
NOTE: Please make sure to install the "Intel Chipset Driver" first and to reboot the system before installing this "Intel Application Accelerator".

The installation procedures and screen shots in this chapter are based on Windows 2000 operating system. Please follow the on-screen instruction for those of other operating system.

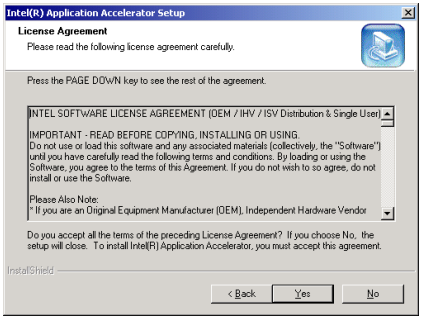
Insert the Installation Disk into CD-ROM drive, it should execute the installation program automatically. If not, double-click the execution file at the main directory of this Installation Disk to enter the installation menu.



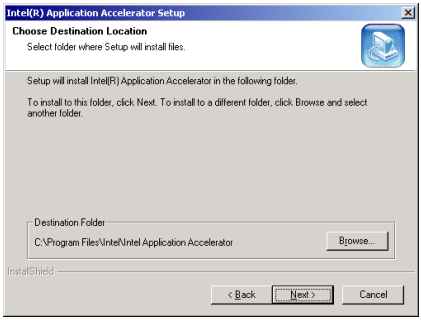
1. Click "**Intel Application Accelerator**".



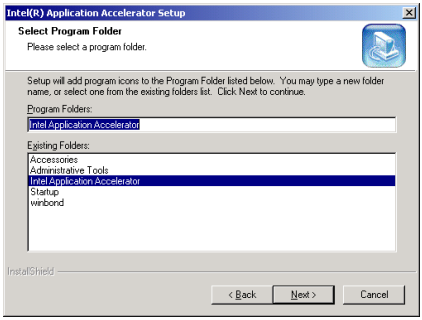
2. Click "**Next>**".



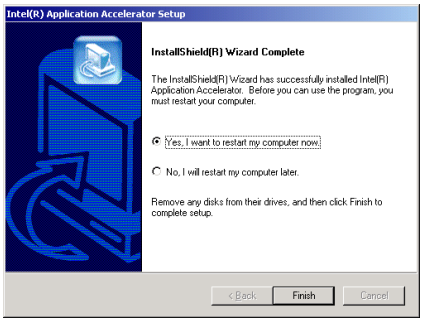
3. Click "**Yes**".



4. Click "**Next>**".



5. Click "**Next>**".

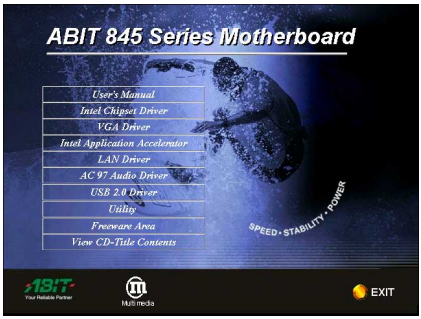


6. Choose "**Yes, I want to restart my computer now**", and click "**Finish**" to end the installation.

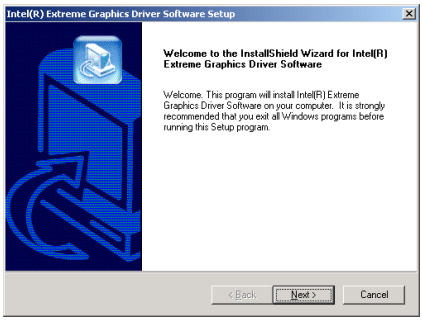
Appendix C. Install VGA Driver

The installation procedures and screen shots in this chapter are based on Windows 2000 operating system. Please follow the on-screen instruction for those of other operating system.

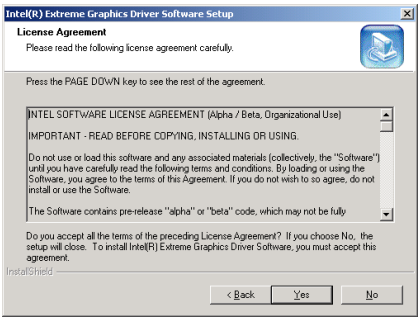
Insert the Installation Disk into CD-ROM drive, it should execute the installation program automatically. If not, double-click the execution file at the main directory of this Installation Disk to enter the installation menu.



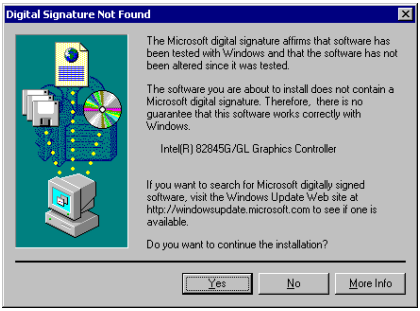
1. Click "**AC97 Audio Driver**".



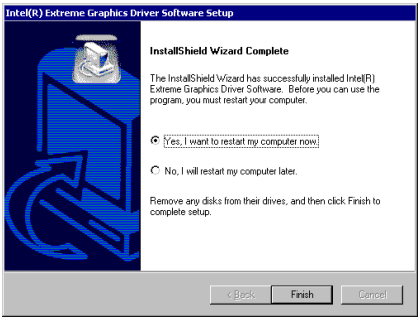
2. Click "**Next>**".



3. Click "**Yes**".



4. Click "**Yes**".



5. Choose "**Yes, I want to restart my computer now**", and click "**Finish**" to end the installation.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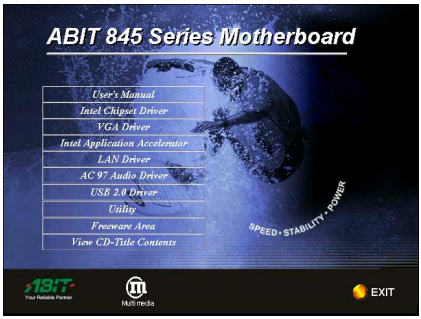
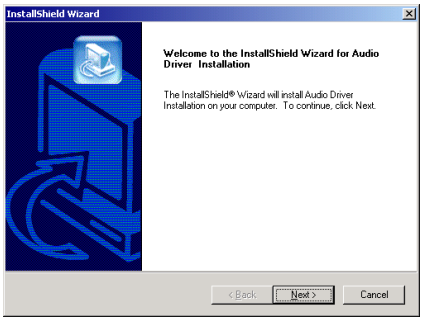
Appendix D. Install Audio Driver

The installation procedures and screen shots in this chapter are based on Windows 2000 operating system. Please follow the on-screen instruction for those of other operating system.

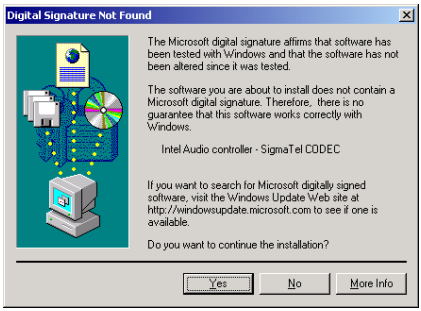
Insert the Installation Disk into CD-ROM drive, it should execute the installation program automatically. If not, double-click the execution file at the main directory of this Installation Disk to enter the installation menu.



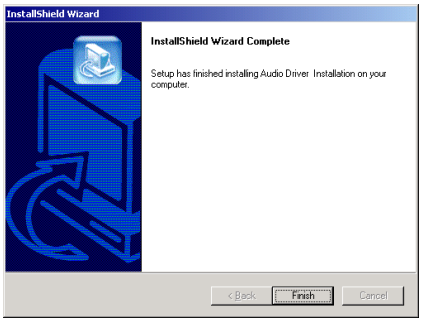
1. Click "**AC97 Audio Driver**".



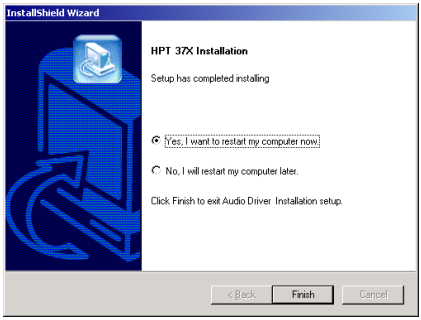
2. Click "**Next>**".



3. Click "**Yes**".



4. Click "**Finish**".



5. Choose "**Yes, I want to restart my computer now**", and click "**Finish**" to end the installation.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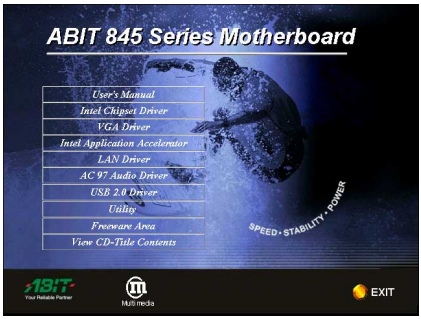
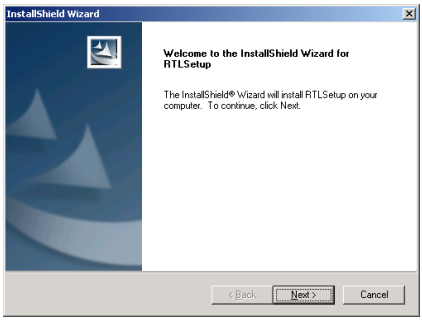
Appendix E. Install LAN Driver

The installation procedures and screen shots in this chapter are based on Windows 2000 operating system. Please follow the on-screen instruction for those of other operating system.

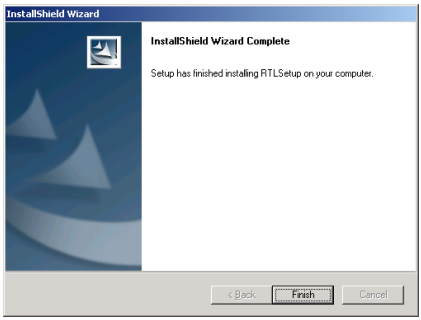
Insert the Installation Disk into CD-ROM drive, it should execute the installation program automatically. If not, double-click the execution file at the main directory of this Installation Disk to enter the installation menu.



1. Click "**LAN Driver**".



2. Click "**Next >**".



3. Click "**Finish**".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Appendix F. Install USB2.0 Driver

For Intel ICH4 USB 2.0 Driver: Please look into our Web site at http://www.abit.com.tw/abitweb/webjsp/english/faqs/ich4usb2.htm for the formal driver release.


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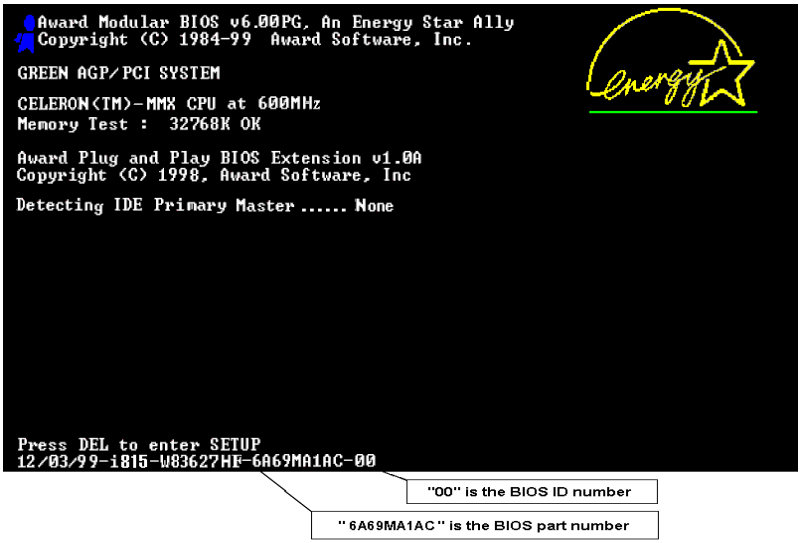
Appendix G. BIOS Update Guide

The procedure illustrated here is based on the model SE6 as an example; all other models follow the same process.

1. First, find out the model name and version number of this motherboard. You can find a sticker with model name and version number on one slot or at the back of the motherboard.

2. Find out the current BIOS ID.



For example, in this case, the current BIOS ID is "**00**". If you already have the latest BIOS, no any update action is necessary. If your BIOS is not the latest BIOS, go on to the next step.

3. Download the correct BIOS file from our Web site.

[SE6]

Filename:
SE6SW.EXE
Date: 07/06/2000
ID: SW

NOTE:

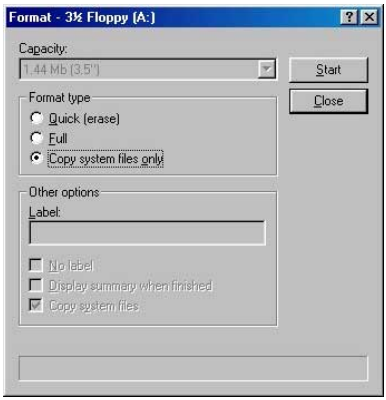
1. Fixes SCSI HDD detection problem when booting from SCSI CD-ROM and executing FDISK.
2. Supports 512MB memory modules.
3. Sets the In-Order Queue Depth default to 4, increasing the integrated video performance.

Go to our Web site and choose the correct BIOS file and download it.

4. Double click the download file, it will self-extract to .bin file.

```
LHA's SFX 2.13S (c) Yoshi, 1991
SE6_SW.BIN ..............................
```

5. Make a bootable floppy disk and copy the necessary files onto it.

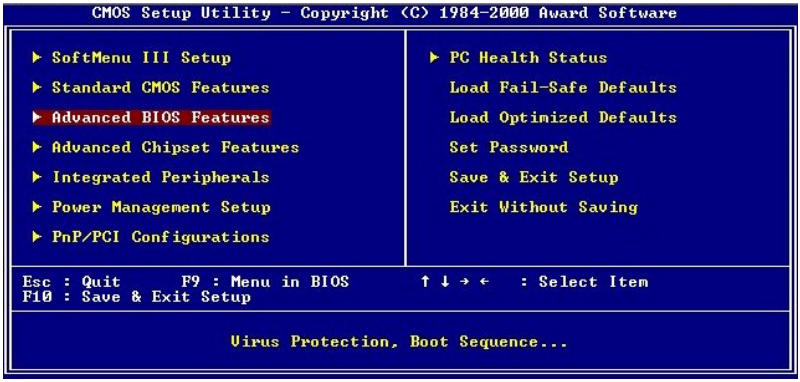


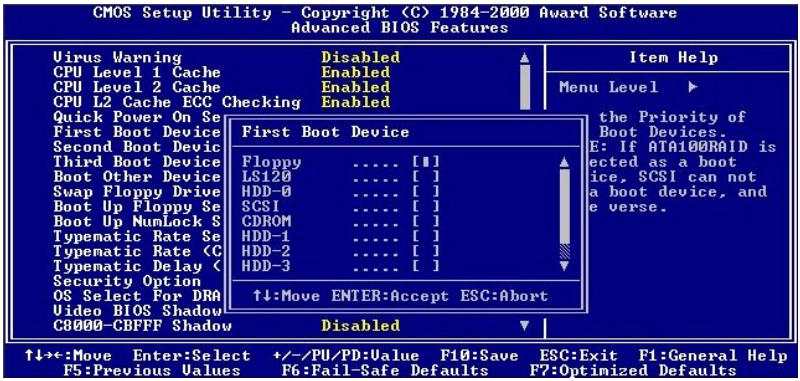
You may make a floppy disk bootable either in Explorer or in the DOS prompt mode.

```
[c:\]format a: /s
```

After formatting and transferring the system to the floppy disk, copy two files into it. One is the BIOS flash utility "**awdflash.exe**" and the other is the decompressed BIOS binary file.

6. Boot off floppy disk.





Please set the first boot sequence as "**floppy**" in BIOS and boot off the floppy disk.

7. Flash the BIOS in pure DOS mode.

After successfully booting off of the floppy, execute the flash utility according to these instructions.

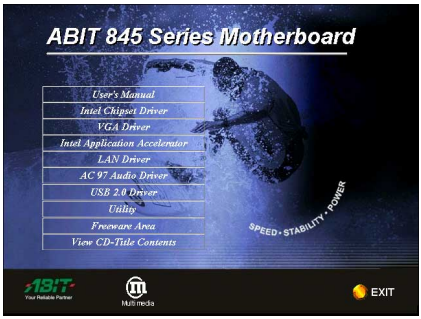
Note

- We strongly recommend you use the above parameters following 'awdflash' to flash your BIOS.
  DO NOT just type "**awdflash se6_sw.bin**" without the above parameters following the "**.bin**" file.
- The Award flash utility cannot be completed under the Windows® environment. It must be done in a pure DOS environment.
- You should check which BIOS file is to be used with your motherboard, don't flash with the wrong BIOS file. Otherwise, it may cause system malfunctions.
- Please do not use the Award flash memory writer version earlier than Version 7.52C to flash the BIOS. Otherwise, it may cause flash fail or un-anticipated problems.
- During the updating, the progress will be measured by white blocks. The last four *blue* blocks of the flash update process represent the "BIOS boot block". The BIOS boot block is used to prevent the BIOS from becoming corrupt during programming. It should not be programmed every time. If this "BIOS boot block" remains intact when the BIOS becomes corrupt during programming, then you can boot from a bootable floppy next time you boot your computer. This allows you to flash your BIOS again without the need for technical support from the dealer.

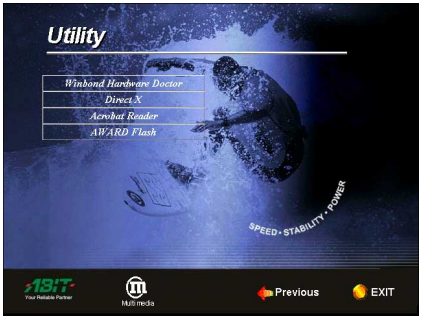
Appendix H. The Winbond Hardware Doctor Utility

The Winbond Hardware Doctor is a self-diagnostic system for PCs used with Winbond W83627HF chipset. It protects PC hardware by monitoring several critical items including power supply voltages, CPU & system fan speeds and CPU and system temperatures. These items are important for the system operation. Errors may result in permanent damage to the PC. Once any item is out of its normal range, a warning message pops up reminding you to take proper measures.

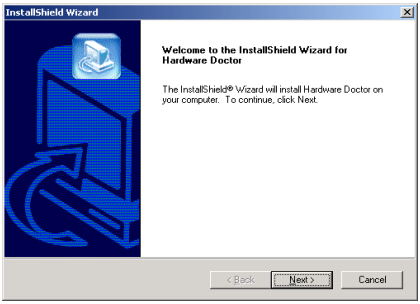
Insert the Installation Disk into CD-ROM drive, it should execute the installation program automatically. If not, double-click the execution file at the main directory of this Installation Disk to enter the installation menu.



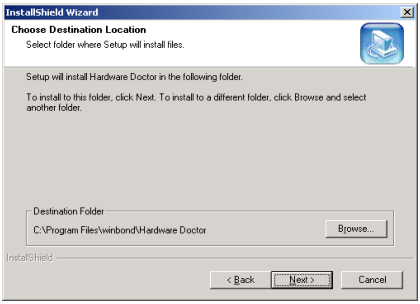
1. Click "**Utility**".



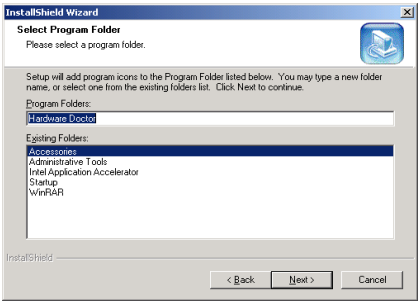
2. Click "**Winbond Hardware Doctor**".



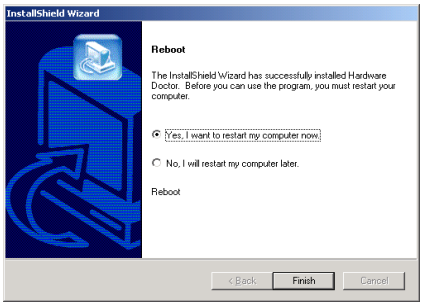
3. Click "**Next >**".



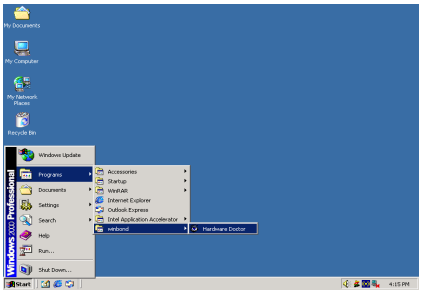
4. Click "**Next >**".



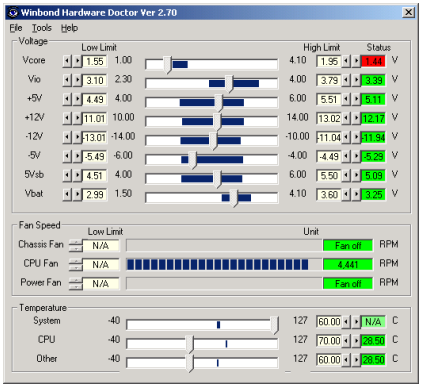
5. Click "**Next >**".



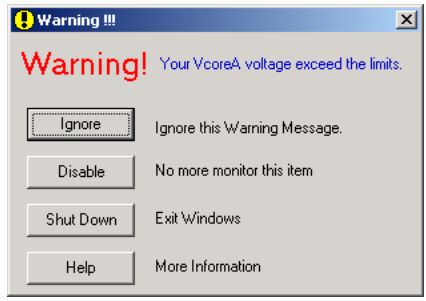
6. Choose "**Yes, I want to restart my computer now**", and then click "**Finish**" to end the installation.



7. Execute the Hardware Doctor by entering the Windows Menu "**Start**" ➔ "**Programs**" ➔ "**Winbond**" ➔ "**Hardware Doctor**".



8. This screen appears. Hardware Doctor shows you the status of Voltage, Fan Speed, and Temperature readings as well. If any reading is critical or over its limitation, the reading turns red. Also, a pop-up window appears warning you the system has a problem!



9. This is the warning message window:

Ignore: You can ignore the warning message of the item, but it will pop up again when an error of the same item reoccurs.

Disable: The chosen item will be no longer monitored thereafter, unless you activate it in the "**Configuration**" page.

Shutdown: Choosing this button will shutdown the computer.

Help: You can read more information and self-diagnose simple problems.

If the warning message pops up due to the wrong warning limit, you can adjust it in the "**Configuration**" option. For example, if you set the temperature high limit to 40°C, you will easily exceed the "proper" temperature.

Pay attention to two things when you want to make any change to the "**Configuration**" option. Firstly, you have to make sure your new setting is in the proper range. Secondly, after you finished the configuration, you have to save it. Otherwise, the program will start with the default value next time.

If you encounter any problem or have any question about the software settings and adjustments, please use the Winbond hardware doctor on-line help. It should give you enough information to answer your questions.

Appendix I. Installation Guide for Suspend to RAM

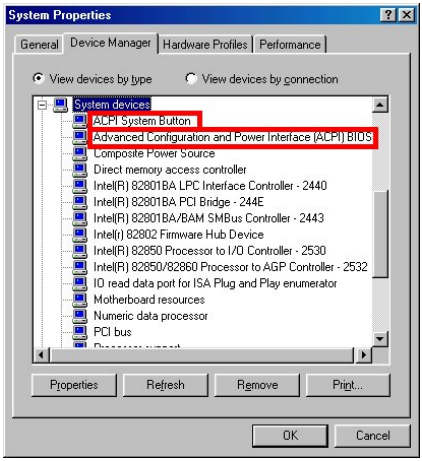
Suspend To RAM (STR) is a cost-effective, optimal implementation of the ACPI 1.0 specification. The ACPI specification defines the S3 sleep state, in which all system context is lost except system memory. CPU, cache, and chip set context are lost in this state. Hardware maintains memory context and restores some CPU and L2 configuration context.

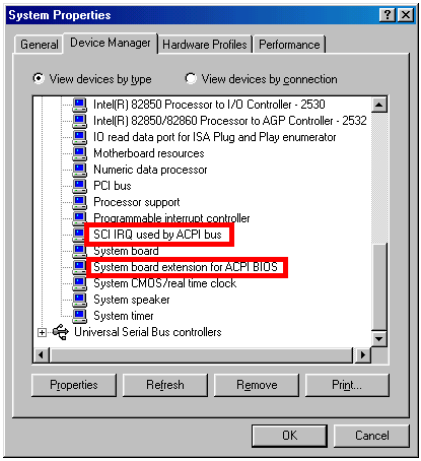
The STR function enables a PC to achieve the S3 state during idle periods, then quick "wake up" and retrieve the last "state" of the system before it went to sleep. When idle, STR-enabled systems consume only a small fraction of the power used for full operation. Instead of shutting down the system to save power when not in use and then having to reboot later, users can let the STR function take over and not have to worry about using power to run all the electronics, fans and disks. When needed, a PC with STR function can restore all applications and features to an operational state within a few seconds.

The following description will tell you how to install the STR function and use it.

NOTE: To get Windows® 98 to enable the ACPI BIOS function, you have to type the parameter after the setup command, for example, setup /p j. This command will let Windows® 98 automatically install the necessary elements for the ACPI BIOS. If you have already installed Windows® 98 without using this command, you have to re-install Windows® 98 and use the /p j command. Otherwise, your Windows® 98 ACPI function may not work.

As above note mentioned, you have to use the parameter come with the setup command to install your Windows® 98. After you complete Windows® 98 installation and reboot your computer, you can see these items show up in the *System Properties* ➔ *Device Manager*:





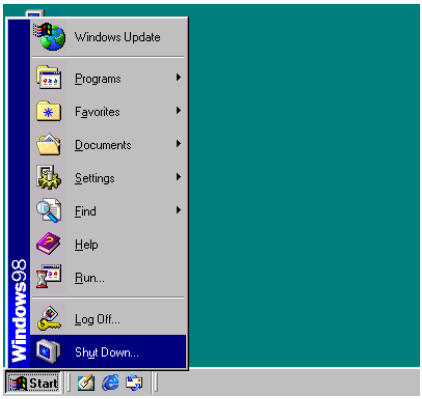
- ACPI System Button
- Advance Configuration and Power Interface (ACPI) BIOS
- SCI IRQ use by ACPI bus
- System board extension for ACPI BIOS

After these items show up, you can go to the next step for the STR function setting.

How to use the STR function:

There are two ways to put your system into STR mode:

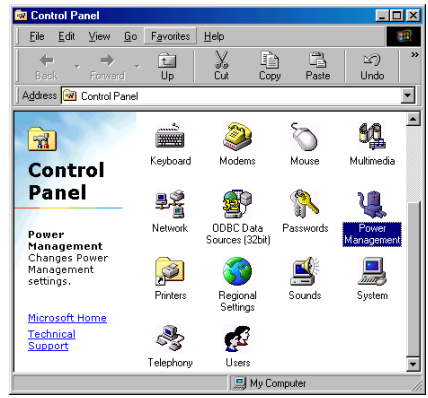
Method 1: Select "**Stand by**" in the "**Shut Down Windows**" area.



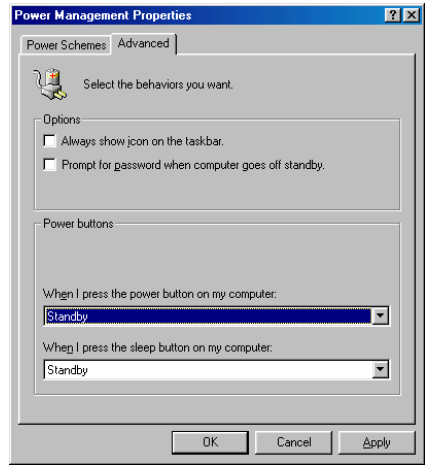
1. Click "**Start**" in the Windows Tools Bar, and then select "**Shut Down…**"

2. Select "**Stand by**", and then click "**OK**".

Method 2: Define the case "**Power**" button to initiate STR sleep Mode



1. Open "**Control Panel**", and then enter "**Power Management**".



2. Select "**Advanced**", and then set the "**Power Buttons**" to "**Standby**".

Restart your computer to put these settings into effect. Now you will only need to press the "**Power**" button on the front panel of the chassis when you want to put your computer into STR sleep mode.

Appendix J. Troubleshooting (Need Assistance?)

Motherboard Troubleshooting:

Q & A:

Q: Do I need to clear the CMOS before I use a new motherboard to assemble my new computer system?

A: Yes, we highly recommend that you clear the CMOS before installing a new motherboard. Please move the CMOS jumper from its default 1-2 position to 2-3 for a few seconds, and then back. When you boot up your system for the first time, follow the instructions in the user's manual to load the optimized defaults.

Q: If my systems hang when I update the BIOS or set the wrong CPU parameters, what should I do?

A: Whenever you update the BIOS or if the system hangs due to wrong CPU parameters setting, always clear CMOS jumper before booting up again.

Q: How can I get a quick response to my request for technical support?

A: Be sure to follow the guidelines as stated in the "Technical Support Form" section of this manual.

If you have a problem during operation, in order to help our technical support personnel quickly determine the problem with your motherboard and give you the answers you need, before filling in the technical support form, eliminate any peripheral that is not related to the problem, and indicate it on the form. Fax this form to your dealer or to the company where you bought the hardware in order to benefit from our technical support. (You can refer to the examples given below)

Example 1: With a system including: motherboard (with CPU, DRAM, COAST...) HDD, CD-ROM, FDD, VGA CARD, MPEG CARD, SCSI CARD, SOUND CARD, etc. After the system is assembled, if you cannot boot up, check the key components of the system using the procedure described below. First remove all interface cards except the VGA card and try to reboot.
If you still cannot boot up:

Try installing another brand/model VGA card and see if the system will start. If it still does not start, note the VGA card model, motherboard model, Bios identification number, CPU on the technical support form (refer to main instructions), and describe the problem in the problem description space provided.

If you can boot up:

Insert the interface cards you have removed back into the system, one by one

and try to start the system each time you insert a card, until the system will not start. Keep the VGA card and the interface card that caused the problem inserted on the motherboard, remove any other cards or peripheral, and start again. If you still cannot start, note the information related to both cards in the add-on Card space provided, and don't forget to indicate the motherboard model, version, BIOS identification number, CPU (refer to main instructions), and give a description of the problem.

Example 2: With a system including the motherboard (with CPU, DRAM, COAST...) HDD, CD-ROM, FDD, VGA CARD, LAN CARD, MPEG CARD, SCSI CARD, SOUND CARD, after assembly and after having installed the Sound Card Driver, when you restart the system, when it runs the Sound Card Driver, it resets automatically. This problem may be due to the Sound Card Driver. During the Starting DOS… procedure, press SHIFT (BY-PASS) key, to skip CONFIG.SYS and AUTOEXEC.BAT; edit CONFIG.SYS with a text editor, and in function the line that loads the Sound Card Driver, add a remark REM, in order to disable the Sound Card Driver. See the example below.

CONFIG.SYS:
DEVICE=C:\DOS\HIMEM.SYS
DEVICE=C:\DOS\EMM386.EXE HIGHSCAN
DOS=HIGH, UMB
FILES=40
BUFFERS=36
REM DEVICEHIGH=C:\PLUGPLAY\DWCFGMG.SYS
LASTDRIVE=Z

Restart the system. If the system starts and does not reset, you can be sure that the problem is due to the Sound Card Driver. Write down the Sound Card model, motherboard model, BIOS identification number on the technical support file (refer to main instructions), and describe the problem in the space provided.

We will show you how to fill the "**Technical Support Form**".

Main instructions:

To fill in this "**Technical Support Form**", refer to the step-by-step instructions given below:

1*. MODEL: Note the model number given in your user's manual.

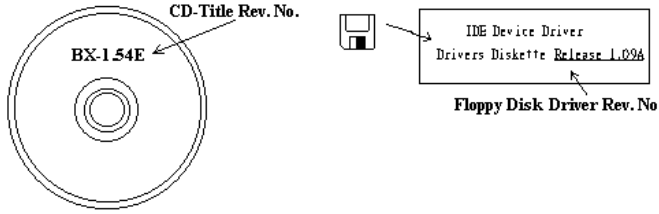
Example: BG7m, BD7L-RAID, etc…

2*. Motherboard model number (REV): Note the motherboard model number labeled on the motherboard as "REV:*.**".

Example: REV: 1.01

3*. BIOS ID and Part Number: See the on screen message.

4. **DRIVER REV:** Note the driver version number indicated on the DEVICE DRIVER disk (if any) as "Release *.**". For example:



5*. **OS/APPLICATION:** Indicate the operating system and applications you are running on the system.

Example: MS-DOS® 6.22, Windows® 98 SE, Windows® 2000, etc....

6*. **CPU:** Indicate the brand and the speed (MHz) of your CPU.

Example:(A) In the "Brand" space, write "Intel", in the "Specifications" space, write "Pentium® 4 1.9GHz" ◦

7. **HDD:** Indicate the brand and specifications of your HDD(s), specify if the HDD is using ☐IDE1 or ☐IDE2. If you know the disk capacity, indicate it and check ("✓") "☐"; in case you give no indication, we will consider that your HDD is "☑IDE1" Master.

Example: In the "HDD" space, check the box, in the Brand space, write "Seagate", in the Specifications space, write "ST31621A (1.6GB)".

8. **CD-ROM Drive:** Indicate the brand and specifications of your CD-ROM drive. Specify if it uses ☐ IDE1 or ☐IDE2， and check ("✓") "☐"; in case you give no indication, we will consider that your CD-ROM is "☑IDE2" Master.

Example: In the "CD-ROM drive" space, check the box, in the Brand space, write "Mitsumi", in the Specifications space, write "FX-400D".

9. **System Memory (DDR SDRAM):** Indicate the brand and specifications (DDR DIMM) of your system memory. Such as Density, Description, Module Components, Module Part Number, CAS Latency, and Speed (MHz).

For example: In the Brand space, write "**Micron**", in the Specifications space, write: **Density:** 128MB, **Description:** SS 16 Megx72 2.5V ECC Gold, **Module Components:** (9) 16 Megx 8, **Module Part Number:** MT9VDDT1672AG, **CAS Latency:** 2, **Speed (MHz):** 200 MHz.

Please give us the detailed information of your DDR SDRAM module; it will help us to simulate the problems you met.

10. **ADD-ON CARD:** Indicate which add-on cards you are *absolutely sure* are related to the problem.

If you cannot identify the problem's origin, indicate all the add-on cards inserted into your system.

NOTE: Items between the "*" are absolutely necessary.

Technical Support Form

Company Name: **Phone Number:**

Contact Person: **Fax Number:**

E-mail Address:

Model	*	BIOS ID #	*
Motherboard Model No.		DRIVER REV	
OS/Application	*		
Hardware Name	Brand	Specifications	
CPU	*		
HDD ☐IDE1 ☐IDE2			
CD-ROM-Drive ☐IDE1 ☐IDE2			
System Memory			
ADD-ON CARD			

Problem Description:

Appendix K. How to Get Technical Support

(From our website) http://www.abit.com.tw
(In North America) http://www.abit-usa.com
(In Europe) http://www.abit.nl

Thank you for choosing ABIT products. ABIT sells all our products through distributors, resellers and system integrators; we have no direct sales to end-users. Before sending email for tech support please check with your resellers or integrators if you need any services, they are the ones who sold you your system and they should know best as to what can be done, how they serve you is a good reference for future purchases.

We appreciate every customer and would like to provide the best service to you. Providing fast service to our customers is our top priority. However we receive many phone calls and a huge amount of email from all over the world. At the present time it is impossible for us to respond to every single inquiry. Therefore it is quite possible that if you send an email to us that you may not receive a response.

We have done many compatibility tests and reliability tests to make sure our products have the best quality and compatibility. In case you need service or technical support, please understand the constraint we have and **always check with the reseller who sold the product to you first.**

To expedite service, we recommend that you follow the procedures outlined below before contacting us. With your help, we can meet our commitment to provide the best service to the **greatest number of ABIT customers:**

1. **Check the Manual.** It sounds simple but we have taken a lot of care in making a well-written and thorough manual. It is full of information that doesn't only pertain to motherboards. The CD-ROM included with your board will have the manual as well as drivers. If you don't have either one, go to our Program Download Area of the Website or FTP server.

2. **Download latest BIOS, software or drivers.** Please go to our Program Download area on our Website to check to see if you have the latest BIOS. They are developed over periods of time to fixes bugs or incompatibilities. **Also please make sure you have the latest drivers from your peripheral cards makers!**

3. **Check the ABIT Technical Terms Guide and FAQ on our Website.** We are trying to expand and make the FAQs more helpful and information rich. Let us know if you have any suggestions. For hot topics check out our HOT FAQ!

4. **Internet Newsgroups.** They are a great source of information and many people there can offer help. ABIT's Internet News group, alt.comp.periphs.mainboard.abit, is an ideal forum for the public to exchange information and discuss experiences they have had with ABIT products. Many times you will see that your question has already been asked before. This is a public Internet news group and it is reserved for free discussions. Here is a list of some of the more popular ones:

   alt.comp.periphs.mainboard.abit
   comp.sys.ibm.pc.hardware.chips
   alt.comp.hardware.overclocking
   alt.comp.hardware.homebuilt
   alt.comp.hardware.pc-homebuilt

5. **Ask your reseller.** Your ABIT authorized distributor should be able to provide the fastest solution to your technical problem. We sell our products through distributors who sell to resellers and stores. Your reseller should be very familiar with your system configuration and should be able to solve your problem much more efficiently than we could. After all, your reseller regards you as an important customer who may purchase more products and who can urge your friends to buy from him or her as well. They integrated and sold the system to you. They should know best what your system configuration is and your problem. They should have reasonable return or refund policies. How they serve you is also a good reference for your next purchase.

6. **Contacting ABIT.** If you feel that you need to contact ABIT directly you can send email to the ABIT technical support department. First, please contact the support team for the branch office closest to you. They will be more familiar with local conditions and problems and will have better insight as to which resellers offer what products and services. Due to the huge number of emails coming in every day and other reasons, such as the time required for problem reproduction, we will not be able to reply to every email. Please understand that we are selling through distribution channels and don't have the resources to serve every end-user. However, we will try to do our best to help every customer. Please also remember that for many of our technical support team English is a second language, you will have a better chance of getting a helpful answer if your question can be understood in the first place. Be sure to use very, simple, concise language that clearly states the problem, avoid rambling or flowery language and always list your system components. Here is the contact information for our branch offices:

In North America and South America please contact:

ABIT Computer (USA) Corporation
46808 Lakeview Blvd.
Fremont, California 94538, U.S.A.
sales@abit-usa.com
technical@abit-usa.com
Tel: 1-510-623-0500
Fax: 1-510-623-1092

In the UK and Ireland:

ABIT Computer Corporation Ltd.
Unit 3, 24-26 Boulton Road
Stevenage, Herts SG1 4QX, UK
abituksales@compuserve.com
abituktech@compuserve.com
Tel: 44-1438-228888
Fax: 44-1438-226333

In Germany and Benelux (Belgium, Netherlands, Luxembourg) countries:

AMOR Computer B.V. (ABIT's European Office)
Van Coehoornstraat 7,
5916 PH Venlo, The Netherlands
sales@abit.nl
technical@abit.nl
Tel: 31-77-3204428
Fax: 31-77-3204420

All other territories not covered above please contact:

Taiwan Head Office

When contacting our headquarters please note we are located in Taiwan and we are 8+ GMT time. In addition, we have holidays that may be different from those in your country.

ABIT Computer Corporation
No. 323, YangGuang St.,
Neihu, Taipei, 114, Taiwan
sales@abit.com.tw
market@abit.com.tw
technical@abit.com.tw
Tel: 886-2-8751-8888
Fax: 886-2-8751-3381

7. **RMA Service.** If your system has been working but it just stopped, but you have not installed any new software or hardware recently, it is likely that you have a defective component. Please contact the reseller from whom you bought the product. You should be able to get RMA service there.

8. **Reporting Compatibility Problems to ABIT**. Because of tremendous number of email messages we receive every day, we are forced to give greater weight to certain types of messages than to others. For this reason, any compatibility problem that is reported to us, giving detailed system configuration information and error symptoms will receive the highest priority. For the other questions, we regret that we may not be able to reply directly. But your questions may be posted to the Internet news group in order that a larger number of users can have the benefit of the information. Please check the news group from time to time.

9. The information listed below are some **chipset vendors' WEB site addresses** for your reference:
   ALi's WEB site: http://www.ali.com.tw/
   HighPoint Technology Inc.'s WEB site: http://www.highpoint-tech.com/
   Intel's WEB site: http://www.intel.com/
   SiS' WEB site: http://www.sis.com.tw/
   VIA's WEB site: http://www.via.com.tw/

Thank you, ABIT Computer Corporation

http://www.abit.com.tw