771AS
USER'S MANUAL

4X AGP Slot / AC 97 Audio M/B

FOR AMD K7 Athlon Processor

NO. G03-771ASR1A

Release date: FEB 2000

** Year 2000 compliant **

Trademark:

*   AMD is registered trademark and K7 is a trademark of AMD corporation, the other names and brands are the property of their respective owners.

TABLE OF CONTENT

Chapter 1

1-1 Preface

Thank you for purchasing this multifunction motherboard. It has the most flexibility you can find in today's computer motherboard based on the AMD® newest microprocessor - AMD® Athlon™ processor with 3DNOW™. Moreover, this motherboard using next generation of 4X AGP specification, Ultra DMA 66, PCI 3D Audio, and many other new feature that meets future specification.

1-2 Key Feature

The motherboard is design for the PC user who wants highest possible quality and value in a small package. It includes following main features:

- **Support Jumperless solution for setting of Front Side Bus Frequency (CPU Host Clock), and CPU ratio in BIOS SETUP "Frequency / Voltage Control".**
- **Support 100MHz Clock and Double-Date rate (DDR) transfers.**
- **Built-In High performance 3D Audio:**
  - ∗ Fully Compliant AC97 Analog I/O Component.
  - ∗ 48-Terminal TQFP package.
  - ∗ Multibit $\Sigma\Delta$ Converter Architecture for improved S/N ratio greater than 90dB.
  - ∗ 16-Bit Stereo Full-Duplex Codec.
  - ∗ 4 Analog Line-Level Stereo Input.
  - ∗ High Quality CD Input with Ground Sense.
  - ∗ Stereo Line Level Output.
- **Multi-Speed Support :** Provide 100MHz Clock and Double Date Rate (200MHz) to support Slot A for AMD ® Athlon™ processor.
- **Chipset:** VIA Apollo KX133(VT8371) system controller and VT82C686A PCI to ISA bridge.
- **DRAM Memory Support:** support three 168-pin DIMMS(3.3V) for a maximum memory of 1.5GB of SDRAM.
- **AGP, AMR, PCI and ISA expansion Slots:** Provide a 4X AGP slot, one AMR slot, five PCI slots, and one ISA slot.
- **Super Multi-I/O:** Provides two high-Speed UART compatible serial ports and one parallel port with EPP and ECP capabilities. Two floppy drives of either 5.25" or 3.5" (1.44MB or 2.88MB) are also supported without an external card.
- **PCI Bus Master IDE Controller and ULTRA DMA 66 :** On-board PCI Bus Master IDE controller with two connectors that supports four IDE devices in two channels, provides faster data transfer rates, and supports Enhanced IDE devices such as Tape Backup, CD-ROM, ZIP, LS-120 Drives. This controller also supports PIO Modes and Bus Master IDE DMA 33/66 MB/S.

- **ACPI supporting for OS Directed Power Management**
  Ring-in Wake up: When Ring-In the system can wake up from SMI Mode.
  Ring-in Power On: When Ring-In the system can power on automatic by this function.
  Wake on LAN: When Wake on LAN the system can power on automatic by this function.
  RTC Power On: Enabled RTC Power On function, you can setting RTC alarm to power on the system at the time length you setting .
  Power Button: Press the button will place the system power on/off.
  Support Software Power OFF Function.
- **Power Support:** Efficient PWM switching power instead of traditional Linear Voltage Regulator to prevent power component from being burned-out.
- **Meets PC99 Requirements.**
- **Optional IRDA and PS/2:** This motherboard supports an dedicated 16C550 standard UART, supporting infrared communication module for wireless interface and PS/2 mouse cable set.
- **USB Port Connector:** This motherboard supports two USB port connectors and extra two USB interface for total of four USB devices.
- **PC Health Monitoring :** To track PC CPU temperature, system voltage and fan speed. When current temperature over warning temperature system will have alarm to warning.
- **ATX Form Factor:** Dimensions 30.5cm x 19.0cm.

Chapter 2

Hardware Installation

2-1 Unpacking

This mainboard package should contain the following:

- The mainboard
- USER'S MANUAL for mainboard
- Cable set for Ultra DMA 66 IDE x1, Floppy x1
- CD for Drivers PACK

The mainboard contains sensitive electronic components which can be easily damaged by electron-static, so the mainboard should be left in its original packing until it is installed.

Unpacking and installation should be done on a grounded anti-static mat.

The operator should be wearing an anti static wristband, grounded at the same point as the anti-static mat.

Inspect the mainboard carton for obvious damage. Shipping and handling may cause damage to your board. Be sure there are no shipping and handling damages on the board before proceeding.

After opening the mainboard carton, extract the system board and place it only on a grounded anti-static surface component side up. Again inspect the board for damage.

Press down on all of the socket IC's to make sure that they are properly inserted. Do this only on with the board placed on a firm flat surface.

Warning: Do not apply power to the board if it has been damaged.

You are now ready to install your mainboard. The mounting hole pattern on the mainboard matches the ATX system board.

It is assumed that the chassis is designed for a standard ATX™ main board mounting. Place the chassis on the anti-static mat and remove the cover.

Take the plastic clips, Nylon stand-off and screws for mounting the system board, and keep them separate.
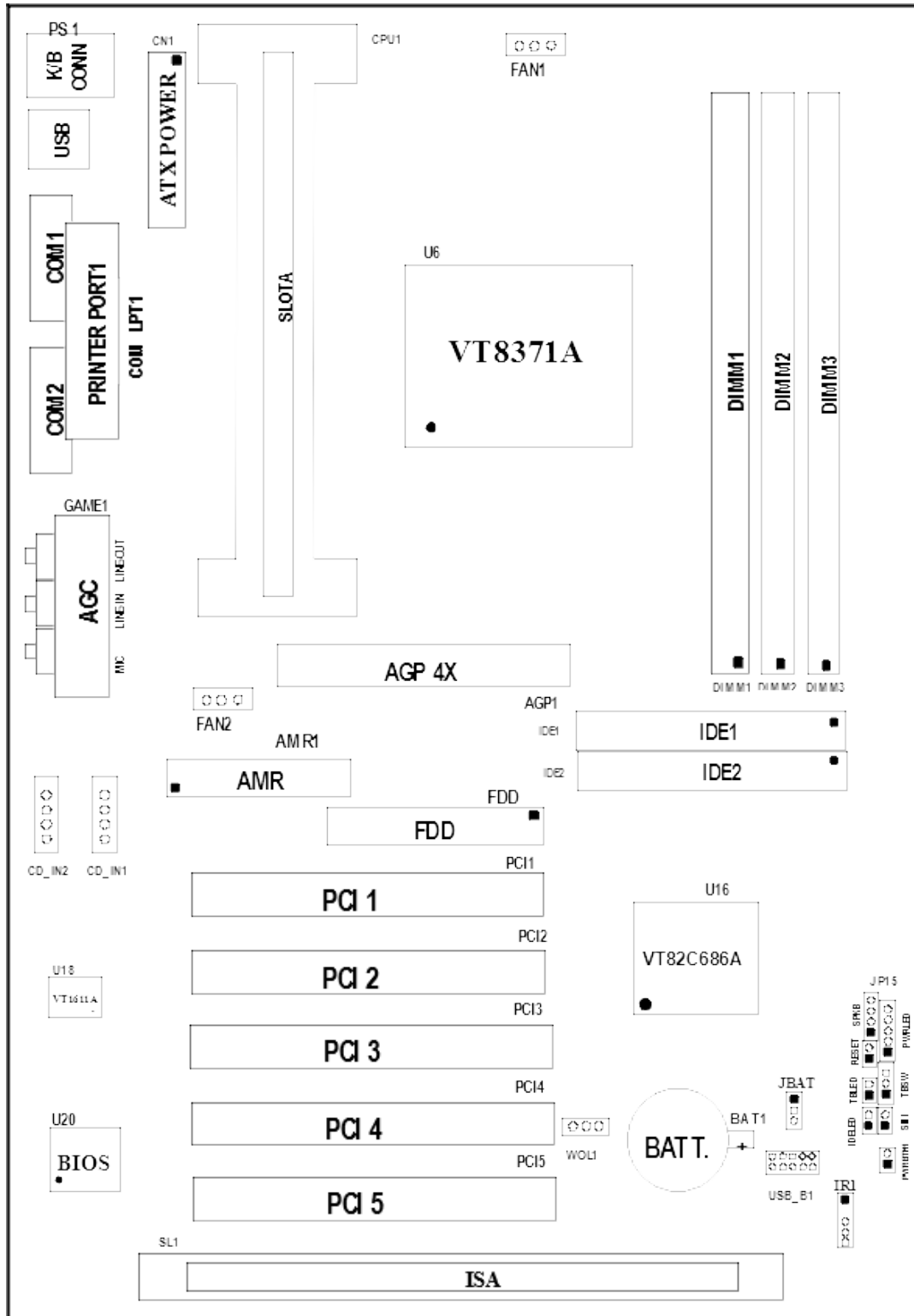
2-2 Diagram of Motherboard

Figure 2-1

2.3 Quick Reference for Jumpers, Connectors &

Expansion Socket

Jumpers

Jumper	Name	Description	Page
JBAT	CMOS RAM Clear	1-2 Normal ,2-3 Clear CMOS	p. 6

Connectors

Connector	Name	Description	Page
CN1	ATX Power Connector	20-Pin Block	p.10
K/B CONN	PS/2 Keyboard/PS/2 Mouse	6-Pin Female	p.10
USB	USB Port Connector	5-Pin Connector	p.10
USB_B1	Extra USB Connector	10-Pin Block	p.10
PRINT	Parallel Port Connector	26-Pin Female	p.10
AGC	Audio/Game Connector	15-pin Connector + 3phone jack	p.11
COM1	Serial Port COMA	9-Pin Connector	p.11
COM2	Serial Port COMB	9-Pin Connector	p.12
FDD	Floppy Driver Connector	34-Pin Block	p.12
IDE1	Primary IDE Connector	40-Pin Block	p.12
IDE2	Secondary IDE Connector	40-Pin Block	p.12
IDELED	IDE activity LED	2-Pin Connector	p.13
JP15	Front Panel Connector	16-Pin Block	p.13
IR1	Infrared Module Connector	10-Pin Block	p.13
FAN1,FAN2	FAN Connector	Extra fanning system connectors	p.14
PWRBTN1	ATX power button/soft power button	2-Pin Connector	p.14
CD_IN1	CD-Audio	4-pin Block	p.14
CD_IN2	CD-Audio	4-pin Block	p.14
WOL1	Wake On LAN	3-pin Block	P.14

Expansion Sockets

Socket/Slot	Name	Description
DIMM1,DIMM2,DIMM3	DIMM Module Socket	168-Pins DIMM SDRAM Module Expansion Socket
Slot1	CPU Slot	Slot A for AMD® Athlon™ Processor
AGP1	4X AGP Slot	AGP Expansion Slot
AMR1	AMR SLOT	Modem Riser Card Slot
PCI1, PCI2,PCI3, PCI4,PCI5	PCI Slots	32-bits PCI Local Bus Expansion slots
ISA	ISA Slot	16-bits ISA Bus Expansion slot

2-4 Installation Steps

Before using your computer, you must follow the steps as follows:

1. Set Jumpers on the Motherboard
2. Install the CPU
3. Install DRAM Modules
4. Install Expansion card
5. Connect Cables, Wires, and Power Supply

2-5 Jumper Settings

1. CPU Bus Frequency : This motherboard auto-detected the processor speed. You only need insert the AMD Athlon processor into Slot.

2. CMOS RAM Clear: JBAT (Yellow color selector)

WARNING: Make sure your computer is POWER OFF when you CLEAR CMOS.

Connect a jumper Cap over this jumper for a few seconds, will clears information stored in the CMOS RAM Chip that input by user, such as hard disk information and passwords. After CLEAR CMOS, you must enter the BIOS setup (by holding down <DEL> during power-up) to re-enter BIOS information (see BIOS SETUP).

Selections	JBAT	
Normal	1-2	(Default)
Clear CMOS	2-3	(momentarily)

CMOS RAM (Normal / Clear CMOS Data)
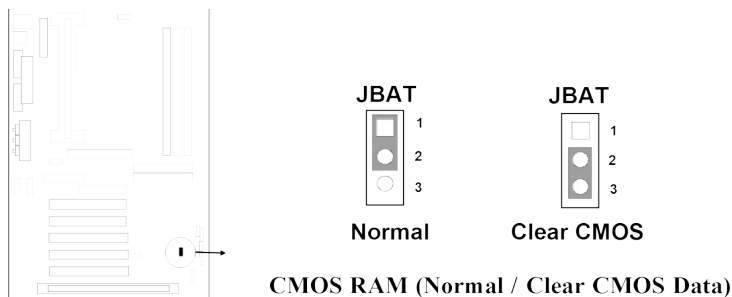
2-6   System Memory (DRAM)

This main board supports three 168-pins DIMM modules to the Max Memory Size of 1.5GB.

DIMM 1	DIMM 2	DIMM 3	System can be Accept or Not
168-pin DIMM	×	X	Accept
168-pin DIMM	168-pin DIMM	X	Accept
168-pin DIMM	168-pin DIMM	168-pin DIMM	Accept

2-7   Central Processing Unit (CPU)

2-7-1 The motherboard provides a Slot A for AMD® Athlon™ processor. The CPU on board must have a fan or heat sink attached to prevent overheating.

> *WARNING:* *Without a fan or heat sink, the CPU will overheat and cause damage to both the CPU and the motherboard.*

To install a CPU, first turn off your system and remove its cover. Locate the Slot1 and place RETENTION MODULE as following:

1. Attach heat sink to the CPU.

2. Place Part A on slot-1 and gently screw four corners on top of the mother- board.

PART A

2-8 Expansion Cards

You must read the documentation come with expansion card for any hardware or software settings that may be required to setup your specific card.

Installation Procedure:

1. Read the documentation from your expansion card.
2. Set any necessary jumpers on your expansion card.
3. Remove your computer's cover.
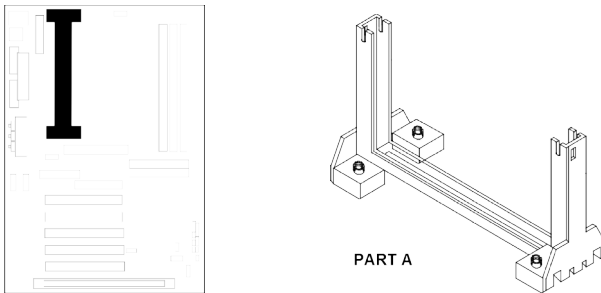4. Remove the bracket on the slot you intend to use.
5. Carefully align the card's connectors and press firmly.
6. Secure the card on the slot with the screw you remove in step 4.
7. Replace the computer's cover.
8. Setup the BIOS if necessary.
9. Install the necessary software drivers for your expansion card.

Assigning IRQs for Expansion Cards

Some expansion cards may require an IRQ to operate. Generally an IRQ must be exclusively assigned to only one device. In an standard design there are 16 IRQs available but most of them are occupied by the system and leaves 6 free for expansion cards.

With most recent device, the BIOS automatically assign an IRQ number to PCI expansion cards. Please make sure there are no any of two devices use same IRQs, otherwise your computer may experience some problems when those two devices are in use at the same time.

Assigning DMA Channels for Expansion Cards

Some devices may also need to use a DMA (Direct Memory Access) channel. DMA assignments for this motherboard are handled the same way as the IRQ assignment process described above. You can select a DMA channel in the PCI and PnP configuration section of the BIOS Setup utility.

2-9 External Connectors

1. **Power Connector: ATX Power Connector (20-pin block): CN1**

ATX Power Supply connector. This is a new defined 20-pins connector that usually comes with ATX case. The ATX Power Supply allows to use soft power on momentary switch that connect from the front panel switch to 2-pins Power On jumper pole on the motherboard. When the power switch on the back of the ATX power supply turned on, the full power will not come into the system board until the front panel switch is momentarily pressed. Press this switch again will turn off the power to the system board.

PIN	ROW2	ROW1
1	3.3V	3.3V
2	-12V	3.3V
3	GND	GND
4	Soft Power On	5V
5	GND	GND
6	GND	5V
7	GND	GND
8	-5V	Power OK
9	+5V	+5VSB (for Soft Logic)
10	+5V	+12V

Pin 1

ATX Power Connector
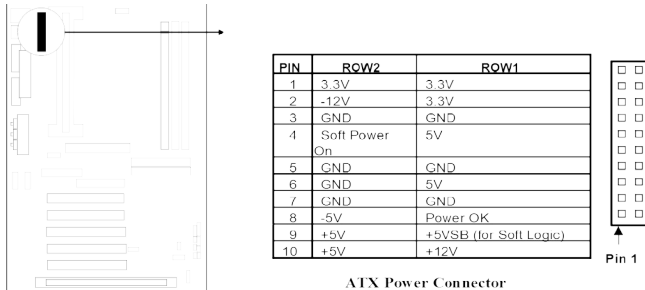
2. PS/2 Mouse & PS/2 Keyboard Connector: K/B CONN

If you are using a PS/2 mouse, you must purchase an optional PS/2 mouse set which connects to the 5-pins block and mounts to an open slot on your computer's case.

–> **PS/2 Mouse**

–> **PS/2 Keyboard**
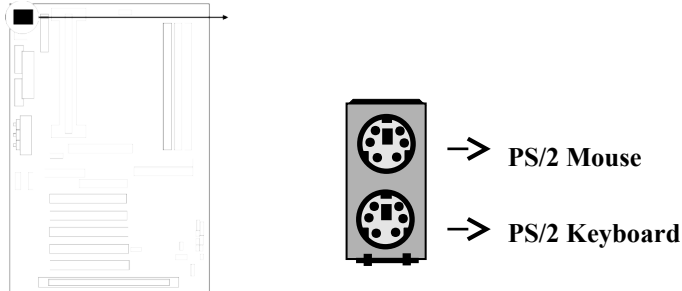
3. USB Port connector: USB

The connectors are 4-pins connector that connect USB devices to the system board.

USB
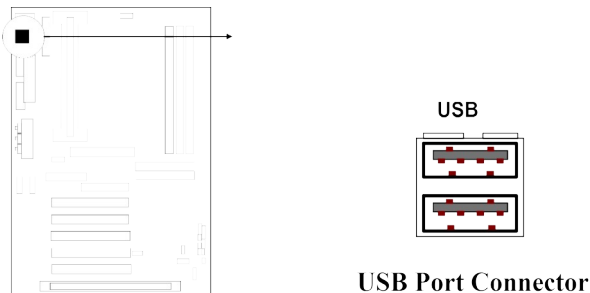
USB Port Connector

4. USB Port connector: USB_B1

The 10-Pin block for extra two USB interface (Connector not include).

USB
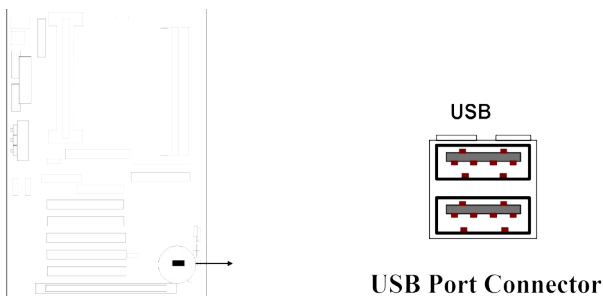
USB Port Connector

5. Parallel Port Connector (25-pin female): PRINT

Parallel Port connector is a 25-pin D-Subminiature Receptacle connector. The On-board Parallel Port can be disabled through the BIOS SETUP. Please refer to Chapter 3 "INTEGRATED PERIPHERALS SETUP" section for more detail information.

Parallel Port Connector
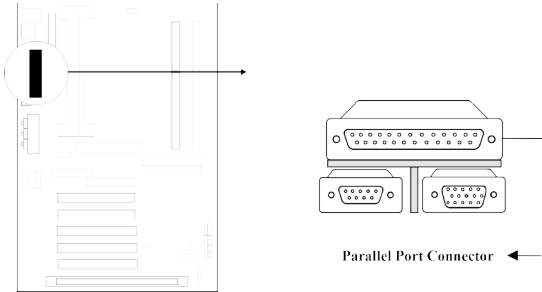
6. Audio and Game Connector : AGC

This Connector are 3 phone Jack for LINE-OUT,LINE-IN,MIC and a 15-pin D-Subminiature Receptacle Connector for joystick/MIDI Device.
Line-out : audio output to speaker
Line-in : audio input to sound chip
MIC : Microphone Connector
Game/MIDI : for joystick or MIDI Device

Game / MIDI PORT

LINE-OUT   LINE-IN   MIC

Audio and Game Connector
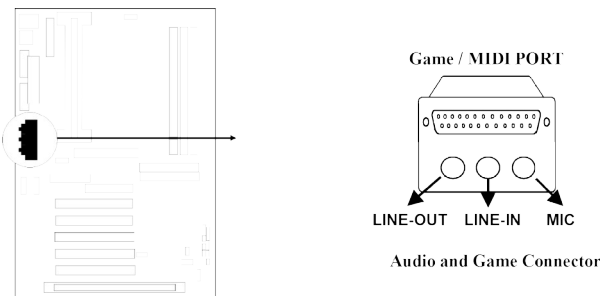
7. Serial Port COMA: COM1

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

COM1→

Serial port COM1 Connector
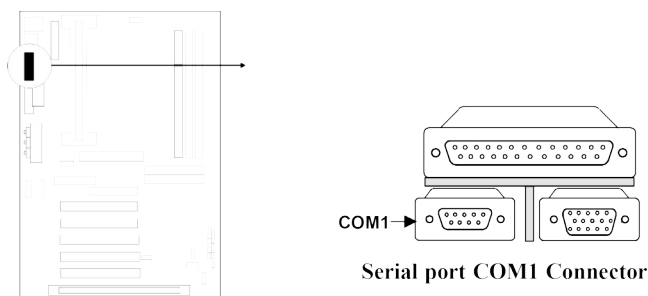
8. Serial Port COMB:COM2

This connector support the provided serial port ribbon cable with mounting bracket. Connect the ribbon cable to this connector and mount the bracket to the case on an open slot.

Pin 1

COM2

Serial port COM2 Connector
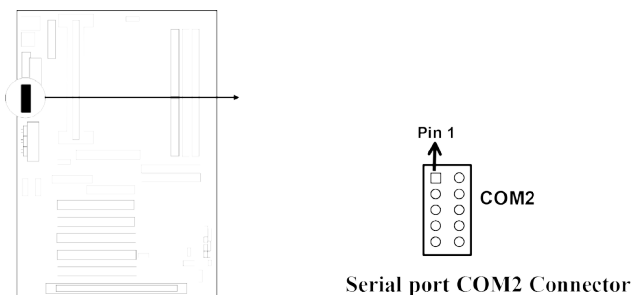
9. Floppy drive Connector (34-pin block): FDD

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

Pin 1

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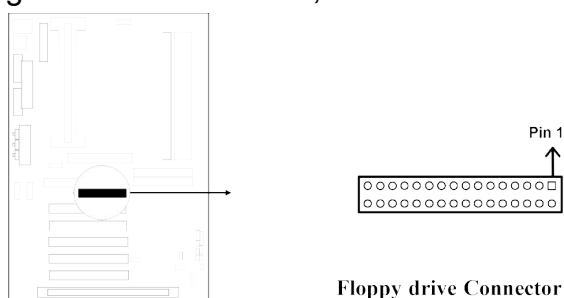
10. Primary IDE Connector (40-pin block): IDE1

This connector supports the provided IDE hard disk ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to your hard disk(s). If you install two hard disks, you must configure the second drive to Slave mode by setting its jumpers accordingly. Please refer to the documentation of your hard disk for the jumper settings.

Pin 1

Primary IDE Connector
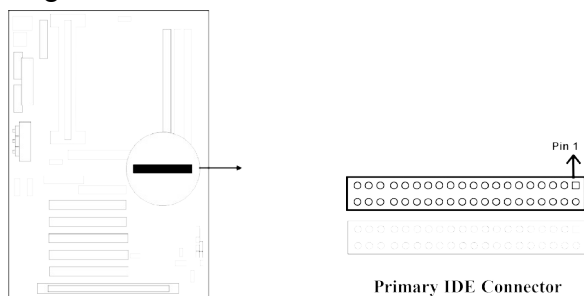
11. Secondary IDE Connector (40-pin block): IDE2

This connector connects to the next set of Master and Slave hard disks. Follow the same procedure described for the primary IDE connector. You may also configure two hard disks to be both Masters using one ribbon cable on the primary IDE connector and another ribbon cable on the secondary IDE connector.

Secondary IDE Connector
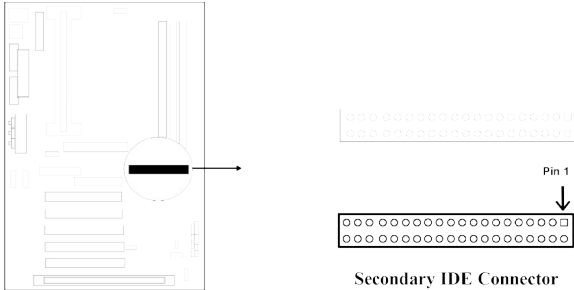
12. IDE activity LED: IDELED
This connector connects to the hard disk activity indicator light on the case.

IDELED

IDE (Hard Drive) LED
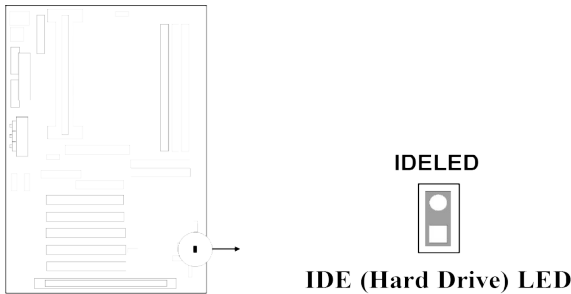
13. Turbo LED switch: TBLED
The motherboard's turbo function is always on. The turbo LED will remain constantly lit while the system power is on. You may wish to connect the   Power LED from the system case to this lead. See the figure below.

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

15. Keyboard lock switch lead: PWRLED
This 5-pin connector connects to the case-mounted key switch for locking the keyboard for security purposes. See the figure below.

16. Speaker connector: SPEAKB
This 4-pins connector connects to the case-mounted speaker. See the figure below.
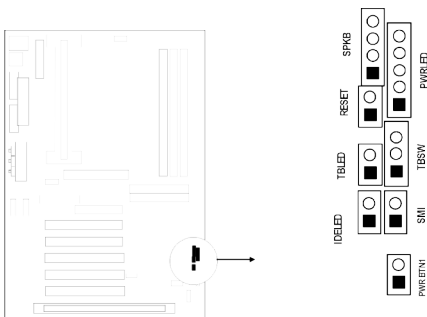
17. IR infrared module connector: IR1
This connector supports the optional wireless transmitting and receiving infrared module. This module mounts to small opening on system cases that support this feature you must also configure the setting through BIOS setup. Use the four pins as shown on the Back View and connect a ribbon cable from the module to the motherboard according to the pin definitions.

SIR ← IR1
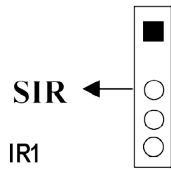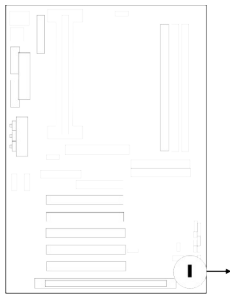
IR Infrared Module Connector

18. FAN connector: FAN1 and FAN2

FAN1,FAN2

GND | +12V | R.P.M. Inductor
1 2 3
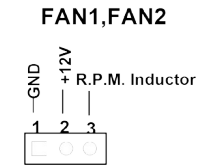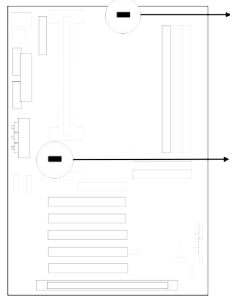
Fan Connector

19. Power-On button connector: PWRBTN1

PWRBTN1

4 — Push Button
2 — GND
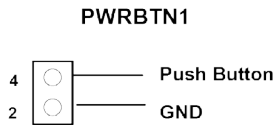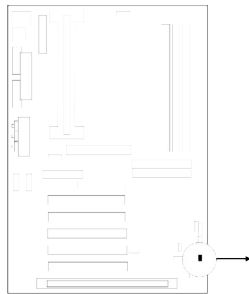
Power-On button connector

20. CD Audio in connector : CD_IN1, CD_IN2

These are the connectors for CD-Audio Input signal, please connect it to CD-ROM CD-Audio output connector

CD-IN2

CD-IN1

CD_IN2 :CD-Audio

CD_IN1 :CD-Audio
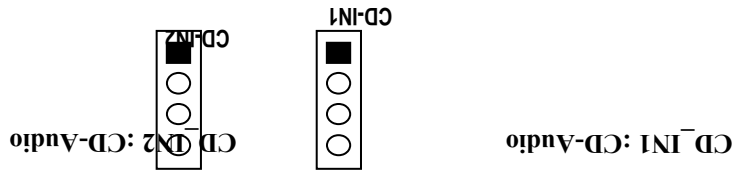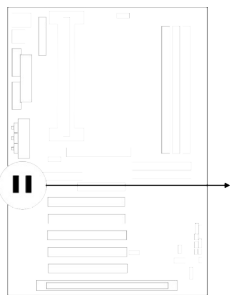
21. Wake On LAN connector: WOL1

WOL1

1 ▪ ○ ○

5VSB GND WON
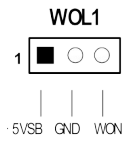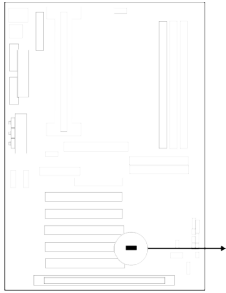
※ **Wake On LAN Function worked only when power supply support 5VSB more than 750mA current.**

Chapter 3

AWARD BIOS SETUP

This mainboard has previously set to its best stable status. If you are not an experienced user, please do not change the default setting. When you are encounter any problem, please choice "LOAD STANDARD DEFAULTS" to restore best setting.

Award's ROM BIOS provides a built-in Setup program which allows user modify the basic system configuration and hardware parameters. The modified data will be stored in a battery-backed CMOS RAM so data will be retained even when the power is turned off. In general, the information saved in the CMOS RAM stay unchanged unless here is configuration change in the system, such as hard drive replacement or new equipment is installed.

It is possible that CMOS had a battery failure which cause data lose in CMOS_RAM. If so, re-enter system configuration parameters become necessary.

To enter Setup Program

Power on the computer and press **<Del>** key immediately will bring you into BIOS **CMOS SETUP UTILITY**.

CMOS Setup Utility – Copyright (C) 1984-1999 Award Software	
Standard CMOS Features	Frequency/Voltage Control
Advanced BIOS Features	Load Optimal Defaults
Advanced Chipset Features	Load Standard Defaults
Integrated Peripherals	Set Supervisor Password
Power Management Setup	Set User Password
PnP/PCI Configurations	Save & Exit Setup
PC Health Status	Exit Without Saving
Esc : QUIT F 9: Menu in BIOS	↑↓←→ : Select Item
F10 : Save & Exit Setup	
Time, Date, Hard Disk Type….	

Figure 3

Note that a brief description of each highlighted selection is listed below. The main menu includes the following setup categories. Please recall that some systems may not include all entries.

♦ **Standard CMOS Features:** Use this menu for basic system configuration. See Section 3-1 for the details.

♦ **Advanced BIOS Features:** Use this menu to set the Advanced Features available on your system. See Section 3-2 for the details.

♦ **Advanced Chipset Features:** Use this menu to change the values in the chipset registers and optimize your system's performance. See section 3-3 for the details.

♦ **Integrated Peripherals:** Use this menu to specify your settings for integrated peripherals. See section 3-4 for the details.

♦ **Power Management Setup:** Use this menu to specify your settings for power management. See section 3-5 for the details.

♦ **PnP / PCI Configuration:** This entry appears if your system supports PnP / PCI. See section 3-6 for the details.

- ◆ **PC Health Status:** Use this menu to show the temperature, FAN Speed, Voltage of the PC Health. 3-7 for the details.
- ◆ **Frequency/Voltage Control:** Use this menu to specify your settings for frequency/voltage control. See section 3-8 for the details.
- ◆ **Load Optimal Defaults:** Use this menu to load the Optimal default values for the higher performance for your system to operate. See section 3-9 for the details.
- ◆ **Load Standard Defaults:** Use this menu to load the BIOS default values that are factory settings for normal/stable performance system operations. While Award has designed the custom BIOS to normal/stable performance, the factory has the right to change these defaults to meet their needs. See section 3-10 for the details.
- ◆ **Supervisor / User Password:** Use this menu to set User and/or Supervisor Passwords. See section 3-11 for the details.
- ◆ **Save & Exit Setup:** Save CMOS value changes to CMOS and exit setup. See section 3-12 for the details.
- ◆ **Exit Without Save:** Abandon all CMOS value changes and exit setup. See section 3-12 for the details.

3-1 STANDARD CMOS FEATURES

The items in Standard CMOS Features Menu are divided into many categories, and each category may includes more than one setup items. Please use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

```
         CMOS Setup Utility-Copyright © 1984-1999 Award Software
                         Standard CMOS Features
  ┌──────────────────────────────────────────────┬──────────────────────┐
  │  Date: (mm:dd:yy)         Fri, DEC 10 1999    │      Item Help       │
  │                                               │                      │
  │  Time: (hh:mm:ss)         10:52:22            │                      │
  │ ➢ IDE Primary Master        Press Enter None  │                      │
  │ ➢ IDE Primary Slave         Press Enter None  │  Menu Level    ➢     │
  │ ➢ IDE Secondary Master      Press Enter None  │                      │
  │ ➢ IDE Secondary Slave       Press Enter None  │  Change the day, month,│
  │                                               │                      │
  │   Drive A                 1.44M, 3.5 in.      │  year and century    │
  │   Drive B                 None                │                      │
  │                                               │                      │
  │   Video                   EGA/VGA             │                      │
  │   Halt On                 All Errors          │                      │
  │                                               │                      │
  │   Based Memory            640K                │                      │
  │   Extended Memory         60416K              │                      │
  │   Total Memory            61440K              │                      │
  ├──────────────────────────────────────────────┴──────────────────────┤
  │ ↑↓←→Move   Enter: Select   +/-/PU/PD: Value   F10:Save   ESC: Exit   F1:General Help │
  │   F5:Previous Values        F6:Fail-Safe Defaults      F7:Optimized Defaults │
  └──────────────────────────────────────────────────────────────────────┘
```

Figure 3-1

- ◆ **IDE Adapters:** The IDE adapters control the hard disk drive. Use a separate sub menu to configure each hard disk drive. Diagram below shows the IDE primary master sub menu.

CMOS Setup Utility – Copyright © 1984-1999 Award Software

IDE Primary Master

```
IDE HDD Auto-Detection    Press Enter          Item Help
IDE Primary Master        Auto          Menu Level    ➢➢
Access Mode               Auto
Capacity               0      MB       To auto-detect the HDD's size, head...
Cylinder               0                on this channel
Head                   0
Precomp                0
Landing Zone           0
Sector                 0
↑↓←→Move  Enter: Select  +/-/PU/PD: Value  F10:Save  ESC: Exit  F1:General Help
     F5:Previous Values    F6:Fail-Safe Defaults        F7:Optimized Defaults
```

Figure3-1-1 IDE Primary Master sub menu

Use the legend keys to navigate through this menu and exit to the main menu. Use Figure3-1-1 to configure the hard disk.

3-2 ADVANCED BIOS FEATURES

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

CMOS Setup Utility – Copyright © 1984 – 1999 Award Software
Advanced BIOS Features

```
Virus Warning                  Disabled              Item Help
 CPU Internal Cache            Enabled
 External Cache                Enabled
 CPU L2 Cache ECC Checking     Enabled       Menu Level    ➢
 Quick Power On Self Test      Enabled
 First Boot Device             Floppy        Allows you to choose the VIRUS
 Second Boot Device            HDD-0         warning feature for IDE Hard Disk boot
 Third Boot Device             LS/ZIP        sector protection.  If this function is
 Boot other Device            Enabled        enabled and someone attempt to write
 Swap Floppy Drive            Disabled       data into this area, BIOS will show a
 Boot Up Floppy Seek          Enabled        warning message on screen and alarm
 Boot Up NumLock Status       Off            beep
 Gate A20 Option               Fast
  Typematic Rate Setting       Disabled
X Typematic Rate (Chars/Sec)   6
X Typematic Delay (Msec)       250
 Security Option               Setup
 OS Select For DRAM > 64MB     Non-OS2
↑↓←→Move  Enter: Select  +/-/PU/PD: Value  F10:Save  ESC: Exit  F1:General Help
   F5:Previous Values   F6:Fail-Safe Defaults       F7:Optimized Defaults
```

Figure3-2

❖ Virus Warning: **Allow you choose the VIRUS Warning feature for the IDE Hard Disk boot sector protection. If this function is enabled and someone attempts to write data into this area, BIOS will show a warning message on screen and alarm beep.**

Enabled	Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.
Disabled	No warning message will appear when anything attempts to access the boot sector or hard disk partition table.

- **CPU Internal Cache/External Cache:** These two categories speed up memory access. However, it depends on CPU/chipset design.
- **CPU L2 Cache ECC Checking:** This item allows you enable/disable CPU L2 Cache ECC checking.
  The choice: Enabled, Disabled.
- Quick Power On Self Test: **This category speeds up Power On Self Test (POST) after you power up the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.**

Enabled	Enable quick POST
Disabled	Normal POST

- **First/Second/Third/Other Boot Device:** The BIOS attempts to load the operating system from the devices in the sequence selected in these items.
  The Choice: Floppy, LS/ZIP, HDD, SCSI, and CDROM.
  Other Boot Device: If this option is enable the Bios will attempt to load operating system from other boot device that is available if the other fails.
- **Swap Floppy Drive:** If the system has two floppy drives, you can swap the logical drive name assignments.
  The choice: Enabled/Disabled.
- **Boot Up Floppy Seek:** Seeks disk drives during boot up. Disabling speeds boot up.
  The choice: Enabled/Disabled.
- **Boot Up NumLock Status:** Select power on state for NumLock.
  The choice: Enabled/Disabled.
- Gate A20 Option: **Select if chipset or keyboard controller should control GateA20.**

Normal	A pin in the keyboard controller controls GateA20
Fast	Lets chipset control GateA20

- **Typematic Rate Setting:** Key strokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected.
  The choice: Enabled/Disabled.
- **Typematic Rate (Chars/Sec):** Sets the number of times a second to repeat a keystroke when you hold the key down.
  The choice: 6, 8, 10, 12, 15, 20, 24, 30.
- **Typematic Delay (Msec):** Sets the delay time after the key is held down before it begins to repeat the keystroke.
  The choice: 250, 500, 750, 1000.
- Security Option: **Select whether the password is required every time the system boots or only when you enter setup.**

System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.

Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

Note: To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

- **OS Select For DRAM > 64MB:** Select the operating system that is running with greater than 64MB of RAM on the system.

  The choice: Non-OS2, OS2.

3-3 ADVANCED CHIPSET FEATURES

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

CMOS Setup Utility – Copyright © 1984 – 1999 Award Software

Advanced Chipset Features

Bank 0/1 DRAM Timing	SDRAM 10ns	Item Help
Bank 2/3 DRAM Timing	SDRAM 10ns	
Bank 4/5 DRAM Timing	SDRAM 10ns	Menu Level ➢
SDRAM Cycle Length	3	
DRAM Clock	Host CLK	
Memory Hole	Disabled	
P2C/C2P Concurrency	Enabled	
Fast R-W Turn Around	Disabled	
System BIOS Cacheable	Enabled	
Video RAM Cacheable	Enabled	
AGP Aperture Size	64MB	
AGP-4X Mode	4X	
AGP Driving Control	Auto	
X AGP Driving Value	DA	
K7 CLK_CTL Select	Optimal	
CPU to PCI Write Buffer	Disabled	
PCI Dynamic Bursting	Enabled	
PCI Master 0 WS Write	Enabled	
PCI Delay Transaction	Disabled	

↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help

F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Figure 3-5

- **DRAM Timings:** These settings deal with CPU access to dynamic random access memory (DRAM). The default timings have been carefully chosen and should only be altered if data is being lost. Such a scenario might occurs if your system had mixed speed DRAM chips installed so that greater delays may be required to preserve the integrity of the data held in the slower memory chips.
- **AGP Mode Select:** This function allows you choose suitable AGP mode.

The Choice: 1X, 2X, 4X AGP mode.

- **Delay Transaction:** The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select *Enabled* to support compliance with PCI specification version 2.1.

The Choice: Enabled, Disabled.

3-4   INTEGRATED PERIPHERALS

The "INTEGRATED PERIPHERALS" section mainly deals with I/O function. These functions will be necessary only when the system I/O malfunctioned or the system is unable to detects your CD-ROM or hard disk.

CMOS Setup Utility – Copyright © 1984-1999 Award Software
Integrated Preipherals

Integrated Preipherals		Item Help
OnChip IDE Channel0	Enabled	
OnChip IDE Channel1	Enabled	Menu Level ➢
IDE Prefetch Mode	Enabled	
Primary Master PIO	Auto	
Primary Slave PIO	Auto	
Secondary Master PIO	Auto	
Secondary Slave PIO	Auto	
Primary Master UDMA	Auto	
Primary Slave UDMA	Auto	
Secondary Master UDMA	Auto	
Secondary Slave UdMA	Auto	
Init Display First	AGP	
IDE HDD Block Mode	Enabled	
OnChip USB	Enabled	
USB Keyboard Support	Disabled	
OnChip Sound	Auto	
Sound Function	Press Enter	
OnChip Modem	Auto	
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	Auto	
Onboard Serial Port 2	Auto	
UART 2 Mode	Standard	
UR2 Duplex Mode	Disabled	
Half Duplex time-out	Enabled	

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

Figure 3-4

- **OnChip IDE Channel 0/Channel 1:** The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately.

The choice: Enabled, Disabled.

- **IDE Primary/Secondary Master/Slave PIO:** The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

The choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

- **Init Display First:** This item allows you decide to active whether PCI Slot or AGP VGA

first.

The choice: PCI Slot, AGP.

- ◆ **Onboard FDC Controller:** Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select Disabled in this field.

    The choice: Enabled, Disabled.
- ◆ **Onboard Serial Port 1/Port 2:** Select an address and corresponding interrupt for the first and second serial ports.

    The choice: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.
- ◆ **OnChip Sound:**Support Onboard Audio function.

    The choice:Auto;Disable.
- ◆ **Sound Function:**This function only active when OnChip Sound is set to Auto.

3-5 POWER MANAGEMENT SETUP

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

CMOS Setup Utility – Copyright © 1984 – 1999 Award Software
Power Management Setup

ACPI function	Enabled	Item Help
➢Power Management	Press Enter	
ACPI Suspend Type	S1(POS)	Menu Level ➢
PM Control by APM	Yes	
Video Off Option	Suspend -> Off	
Video Off Method	V/H SYNC+Blank	
MODEM Use IRQ	3	
Soft-off by PWRBTN	Instant-off	
➢Wake Up Events	Press Enter	

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

Figure 3-5

- ◆ **ACPI Function:** This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI).

    The choice: Enabled, Disabled.
- ◆ **Power Management:** This category allows you to select the type (or degree) of power saving and is directly related to the following modes:
    1. HDD Power Down
    2. Doze Mode
    3. Suspend Mode

    There are four selections for Power Management, three of which have fixed mode settings.

Disable (default)	No power management. Disables all four modes
Min. Power Saving	Minimum power management. Doze Mode = 1 hr. Standby Mode = 1 hr., Suspend Mode = 1 hr., and HDD Power Down = 15 min.

Max. Power Saving	Maximum power management -- **ONLY AVAILABLE FOR SL CPU's**. Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Defined	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

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

V/H SYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Initial display power management signaling.

◆ **Video Off In Suspend :** This determines the manner in which the monitor is blanked.
  The choice: Yes, No.

◆ **Suspend Type:** Select the Suspend Type.
  The choice: PWRON Suspend, Stop Grant.

◆ **MODEM Use IRQ:** This determines the IRQ in which the MODEM can use.
  The choice: 3, 4, 5, 7, 9, 10, 11, NA.

◆ **Suspend Mode:** When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.
  The choice: Enabled, Disabled.

◆ **HDD Power Down:** When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.
  The choice: Enabled, Disabled.

◆ **Soft-Off by PWRBTN:** Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung."
  The choice: Delay 4 Sec, Instant-Off.

◆ **Power on by ring :** When you select *Enabled,* a signal from ring returns the system to Full On state.

◆ **Resume on by alarm :** When you select *Enabled,* the system will wake up from suspend mode as defined in Resume Time.

  The choice: Enabled, Disabled.

3-6 PnP/PCI CONFIGURATION SETUP

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

CMOS Setup Utility – Copyright © 1984-1999 Award Software

PnP/PCI Configurations

```
┌─────────────────────────────────────────────────────────────────────┐
│  PNP OS Installed           NO          │      Item Help              │
│  Reset Configuration Data   Disabled    ├─────────────────────────────│
│   Resources Controlled By   Auto(ESCD)  │ Menu Level    ➤             │
│  ➢IRQ Resources             Press Enter │ Select Yes if you are using │
│  ➢DMA Resources             Press Enter │ A Plug and Play capable     │
│   PCI/VGA Palette Snoop      Disabled   │ operating system Select     │
│   Assign IRQ For VGA         Enabled    │ No if you need the BIOS to  │
│   Assign IRQ For USB         Enabled    │ Configure non-boot devices  │
│                                         │                             │
├─────────────────────────────────────────┴─────────────────────────────│
│  ↑↓←→ Move  Enter: Select  +/-/PU/PD: Value F10:Save ESC: Exit  F1:General Help │
│                                                                       │
│  F5:Previous Values        F6:Fail-Safe Defaults        F7:Optimized Defaults │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 3-6

- **PnP OS Installed:** This item allows you to determine installed PnP OS or not.

  The choice: Yes, No.

- **Reset Configuration Data:** Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot.
  The choice: Enabled, Disabled .

- **Resource controlled by:** Auto will allow the Award Plug and Play BIOS to automatically configure all of the boot and Plug and Play compatible devices. If you have trouble in assigning the interrupt resource automatically you can select "manual", it will allow you to choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a "➢").
  The choice: Auto(ESCD), Manual .

- **IRQ Resources:** When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

- **IRQ3/4/5/7/9/10/11/12/14/15 assigned to:** This item allows you to determine the IRQ assigned to the ISA bus and is not available to any PCI slot. Legacy ISA for devices compliant with the original PC AT bus specification, PCI/ISA PnP for devices compliant with the Plug and Play standard whether designed for PCI or ISA bus architecture.

  The Choice: *Legacy ISA* and *PCI/ISA PnP*.
- **DMA Resources:** When resources are controlled manually, assign each system DMA channel a type, depending on the type of device using the DM channel.

- **DMA 0/1/3/5/6/7 assigned to:** Legacy ISA for devices compliant with the original PC AT bus specification, PCI/ISA PnP for devices compliant with the Plug and Play standard whether designed for PCI or ISA bus architecture.

Choices are *Legacy ISA* and *PCI/ISA PnP*.

◆ **PCI/VGA Palette Snoop:** Leave this field at *Disabled*.

Choices are Enabled, Disabled.

3-7 PC HEALTH STATUS

This category shows your system's current status such as CPU temperature, System temperature, and the current speed of Fan(s).

CMOS Setup Utility – Copyright © 1984-1999 Award Software
PC Health Status

Current CPU Temp.	50ºC	Item Help
Current System Temp.	25ºC	
Current CPUFAN1 Speed	4200	Menu Level ➢
Current CPUFAN2 Speed	4200	
Vcore	1.71	
UCC SRAM	3.32	
3.3V	3.3	
5 V	5.1	
12V	12.1	

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

Figure 3-7

3-8 FREQUENCY/VOLTAGE CONTROL

CMOS Setup Utility – Copyright © 1984-1999 Award Software
Frequency/Voltage Control

Auto Detect DIMM/PCI Clk	Enabled	Item Help
Spreed Spectrum	Disabled	
CPU Host/PCI Clock	Default	Menu Level ➢

↑↓←→ Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit   F1:General Help

F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Figure 3-8

◆ **DIMM/PCI CLK:** This item allows you to enable/disable auto detect DIMM/PCI Clock. The choice: Enabled, Disabled.

◆ **Spread Spectrum:** This item allows you choice CPU's clock/Spread Spectrum (ON,OFF) enable/disable to the spread spectrum modulate.

CPU Host/PCI Clock: In this item you can choose the CPU HOST/PCI Clock. The setting are: Default ,100/33Mhz,105/35Mhz, 112/37Mhz.

*Please turn off system power if the screen does not have any display after change of the setting. Then press and hold down " INS " key, and turn on system power again (release " INS " key till the screen has display) to reset correct frequency of CPU HOST clock.

3-9 LOAD OPTIMAL DEFAULTS

◆ **Load Optimal Defaults:**

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:
 Load Optimal Defaults (Y/N) ? N

Pressing 'Y' loads the Optimal default values for the most stable, optimal performance system operations.

3-10 LOAD STANDARD DEFAULTS

 ◆ **Load Standard Defaults:**

When you press <Enter> on this item you get a confirmation dialog box with a message as:
 Load Standard Defaults (Y/N) ? N

Pressing 'Y' loads the Standard default values that are factory settings for normal performance system operations.

3-11 SUPERVISOR/USER PASSWORD SETTING

In this section you can set either supervisor or user password, or both of then.

supervisor password : can enter and change the options of the setup menus.

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

ENTER PASSWORD:

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

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

PASSWORD DISABLED.

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

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

You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to "System", the password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

3-12 EXIT SELECTING

Save & Exit Setup

Pressing <Enter> on this item asks for confirmation:
        Save to CMOS and EXIT (Y/N)? Y

Pressing "Y" stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

> **Quit without saving (Y/N)?** Y

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

3-13 POST Messages

During the Power On Self-Test (POST), if the BIOS detects an error requiring you to do something to fix, it will either sound a beep code or display a message.

If a message is displayed, it will be accompanied by:

PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP

❖ **POST Beep**

Currently there are two kinds of beep codes in BIOS. This code indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by two short beeps. The other code indicates that your DRAM error has occurred. This beep code consists of a single long beep repeatedly.

❖ **Error Messages**

One or more of the following messages may be displayed if the BIOS detects an error during the POST. This list includes messages for both the ISA and the EISA BIOS.

❖ **CMOS BATTERY HAS FAILED**

CMOS battery is no longer functional. It should be replaced.

❖ **CMOS CHECKSUM ERROR**

Checksum of CMOS is incorrect. This can indicate that CMOS has become corrupt. This error may have been caused by a weak battery. Check the battery and replace if necessary.

❖ **DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER**

No boot device was found. This could mean that either a boot drive was not detected or the drive does not contain proper system boot files. Insert a system disk into Drive A: and press <Enter>. If you assumed the system would boot from the hard drive, make sure the controller is inserted correctly and all cables are properly attached. Also be sure the disk is formatted as a boot device. Then reboot the system.

❖ **DISKETTE DRIVES OR TYPES MISMATCH ERROR - RUN SETUP**

Type of diskette drive installed in the system is different from the CMOS definition. Run Setup to reconfigure the drive type correctly.

❖ **DISPLAY SWITCH IS SET INCORRECTLY**

Display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct, and then either turn off the system and change the jumper, or enter Setup and change the VIDEO selection.

- ◆ **DISPLAY TYPE HAS CHANGED SINCE LAST BOOT**

Since last powering off the system, the display adapter has been changed. You must configure the system for the new display type.

EISA Configuration Checksum Error
PLEASE RUN EISA CONFIGURATION UTILITY

The EISA non-volatile RAM checksum is incorrect or cannot correctly read the EISA slot. This can indicate either the EISA non-volatile memory has become corrupt or the slot has been configured incorrectly. Also be sure the card is installed firmly in the slot.

EISA Configuration Is Not Complete
PLEASE RUN EISA CONFIGURATION UTILITY

The slot configuration information stored in the EISA non-volatile memory is incomplete.

Note: When either of these errors appear, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

ERROR ENCOUNTERED INITIALIZING HARD DRIVE

Hard drive cannot be initialized. Be sure the adapter is installed correctly and all cables are correctly and firmly attached. Also be sure the correct hard drive type is selected in Setup.

ERROR INITIALIZING HARD DISK CONTROLLER

Cannot initialize controller. Make sure the cord is correctly and firmly installed in the bus. Be sure the correct hard drive type is selected in Setup. Also check to see if any jumper needs to be set correctly on the hard drive.

FLOPPY DISK CNTRLR ERROR OR NO CNTRLR PRESENT

Cannot find or initialize the floppy drive controller. make sure the controller is installed correctly and firmly. If there are no floppy drives installed, be sure the Diskette Drive selection in Setup is set to NONE.

Invalid EISA Configuration
PLEASE RUN EISA CONFIGURATION UTILITY

The non-volatile memory containing EISA configuration information was programmed incorrectly or has become corrupt. Re-run EISA configuration utility to correctly program the memory.

NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

KEYBOARD ERROR OR NO KEYBOARD PRESENT

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

If you are purposely configuring the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. This will cause the BIOS to ignore the missing keyboard and continue the boot.

Memory Address Error at ...

Indicates a memory address error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

Memory parity Error at ...

Indicates a memory parity error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

MEMORY SIZE HAS CHANGED SINCE LAST BOOT

Memory has been added or removed since the last boot. In EISA mode use Configuration Utility to reconfigure the memory configuration. In ISA mode enter Setup and enter the new memory size in the memory fields.

Memory Verify Error at ...

Indicates an error verifying a value already written to memory. Use the location along with your system's memory map to locate the bad chip.

OFFENDING ADDRESS NOT FOUND

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem cannot be isolated.

OFFENDING SEGMENT:

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem has been isolated.

PRESS A KEY TO REBOOT

This will be displayed at the bottom screen when an error occurs that requires you to reboot. Press any key and the system will reboot.

PRESS F1 TO DISABLE NMI, F2 TO REBOOT

When BIOS detects a Non-maskable Interrupt condition during boot, this will allow you to disable the NMI and continue to boot, or you can reboot the system with the NMI enabled.

RAM PARITY ERROR - CHECKING FOR SEGMENT ...

Indicates a parity error in Random Access Memory.

Should Be Empty But EISA Board Found
PLEASE RUN EISA CONFIGURATION UTILITY

A valid board ID was found in a slot that was configured as having no board ID.

NOTE; When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

Should Have EISA Board But Not Found
PLEASE RUN EISA CONFIGURATION UTILITY

The board installed is not responding to the ID request, or no board ID has been found in the indicated slot.

NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

Slot Not Empty

Indicates that a slot designated as empty by the EISA Configuration Utility actually contains a board.

> NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

SYSTEM HALTED, (CTRL-ALT-DEL) TO REBOOT ...

Indicates the present boot attempt has been aborted and the system must be rebooted. Press and hold down the CTRL and ALT keys and press DEL.

Wrong Board In Slot
PLEASE RUN EISA CONFIGURATION UTILITY

The board ID does not match the ID stored in the EISA non-volatile memory.

> NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

FLOPPY DISK(S) fail (80) → Unable to reset floppy subsystem.

FLOPPY DISK(S) fail (40) → Floppy Type mismatch.

Hard Disk(s) fail (80)   → HDD reset failed

Hard Disk(s) fail (40)   → HDD controller diagnostics failed.

Hard Disk(s) fail (20)   → HDD initialization error.

Hard Disk(s) fail (10)   → Unable to recalibrate fixed disk.

Hard Disk(s) fail (08)   → Sector Verify failed.

Keyboard is locked out - Unlock the key.

BIOS detect the keyboard is locked. P17 of keyboard controller is pulled low.

Keyboard error or no keyboard present.

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

Manufacturing POST loop.

System will repeat POST procedure infinitely while the P15 of keyboard controller is pull low. This is also used for M/B burn in test.

BIOS ROM checksum error - System halted.

The checksum of ROM address F0000H-FFFFFH is bad.

Memory test fail.

BIOS reports the memory test fail if the onboard memory is tested error.

3-13 POST Codes

POST (hex)	Description
CFh	Test CMOS R/W functionality.
C0h	Early chipset initialization: -Disable shadow RAM

POST (hex)	Description
	-Disable L2 cache (socket 7 or below) -Program basic chipset registers

C1h	Detect memory
	    -Auto-detection of DRAM size, type and ECC.
	    -Auto-detection of L2 cache (socket 7 or below)

C3h	Expand compressed BIOS code to DRAM
C5h	Call chipset hook to copy BIOS back to E000 & F000 shadow RAM.
0h1	Expand the Xgroup codes locating in physical address 1000:0
02h	Reserved
03h	Initial Superio_Early_Init switch.
04h	Reserved
05h	1. Blank out screen 2. Clear CMOS error flag
06h	Reserved
07h	1. Clear 8042 interface 2. Initialize 8042 self-test
08h	1. Test special keyboard controller for Winbond 977 series Super I/O chips. 2. Enable keyboard interface.
09h	Reserved
0Ah	1. Disable PS/2 mouse interface (optional). 2. Auto detect ports for keyboard & mouse followed by a port & interface swap (optional). 3. Reset keyboard for Winbond 977 series Super I/O chips.
0Bh	Reserved
0Ch	Reserved
0Dh	Reserved
0Eh	Test F000h segment shadow to see whether it is R/W-able or not. If test fails, keep beeping the speaker.
0Fh	Reserved
10h	Auto detect flash type to load appropriate flash R/W codes into the run time area in F000 for ESCD & DMI support.
11h	Reserved
12h	Use walking 1's algorithm to check out interface in CMOS circuitry. Also set real-time clock power status, and then check for override.
13h	Reserved
14h	Program chipset default values into chipset. Chipset default values are MODBINable by OEM customers.
15h	Reserved
16h	Initial Early_Init_Onboard_Generator switch.
17h	Reserved
18h	Detect CPU information including brand, SMI type (Cyrix or Intel) and CPU level (586 or 686).
19h	Reserved
1Ah	Reserved
1Bh	Initial interrupts vector table. If no special specified, all H/W interrupts are directed to SPURIOUS_INT_HDLR & S/W interrupts to SPURIOUS_soft _HDLR.
1Ch	Reserved
1Dh	Initial EARLY_PM_INIT switch.

POST (hex)	Description
1Eh	Reserved
1Fh	Load keyboard matrix (notebook platform)
20h	Reserved
21h	HPM initialization (notebook platform)
22h	Reserved

23h	1. Check validity of RTC value:
	    e.g. a value of 5Ah is an invalid value for RTC minute.
	2. Load CMOS settings into BIOS stack. If CMOS checksum fails, use default value instead.
	3. Prepare BIOS resource map for PCI & PnP use. If ESCD is valid, take into consideration of the ESCD's legacy information.
	4. Onboard clock generator initialization. Disable respective clock resource to empty PCI & DIMM slots.
	5. Early PCI initialization:
	    -Enumerate PCI bus number
	    -Assign memory & I/O resource
	    -Search for a valid VGA device & VGA BIOS, and put it into C000:0.

24h	Reserved
25h	Reserved
26h	Reserved
27h	Initialize INT 09 buffer
28h	Reserved
29h	1. Program CPU internal MTRR (P6 & PII) for 0-640K memory address. 2. Initialize the APIC for Pentium class CPU. 3. Program early chipset according to CMOS setup. Example: onboard IDE controller. 4. Measure CPU speed. 5. Invoke video BIOS.
2Ah	Reserved
2Bh	Reserved
2Ch	Reserved
2Dh	1. Initialize multi-language 2. Put information on screen display, including Award title, CPU type, CPU speed ….
2Eh	Reserved
2Fh	Reserved
30h	Reserved
31h	Reserved
32h	Reserved
33h	Reset keyboard except Winbond 977 series Super I/O chips.
34h	Reserved
35h	Reserved
36h	Reserved
37h	Reserved
38h	Reserved
39h	Reserved
3Ah	Reserved
3Bh	Reserved
3Ch	Test 8254
3Dh	Reserved

POST (hex)	Description
3Eh	Test 8259 interrupt mask bits for channel 1.
3Fh	Reserved
40h	Test 8259 interrupt mask bits for channel 2.
41h	Reserved
42h	Reserved
43h	Test 8259 functionality.
44h	Reserved
45h	Reserved
46h	Reserved
47h	Initialize EISA slot
48h	Reserved
49h	1.Calculate total memory by testing the last double word of each 64K page 2.Program writes allocation for AMD K5 CPU.
4Ah	Reserved
4Bh	Reserved
4Ch	Reserved
4Dh	Reserved
4Eh	1. Program MTRR of M1 CPU 2. Initialize L2 cache for P6 class CPU & program CPU with proper cacheable range. 3. Initialize the APIC for P6 class CPU. 4. On MP platform, adjust the cacheable range to smaller one in case the cacheable ranges between each CPU are not identical.
4Fh	Reserved
50h	Initialize USB
51h	Reserved
52h	Test all memory (clear all extended memory to 0)
53h	Reserved
54h	Reserved
55h	Display number of processors (multi-processor platform)
56h	Reserved
57h	1. Display PnP logo 2. Early ISA PnP initialization -Assign CSN to every ISA PnP device.
58h	Reserved
59h	Initialize the combined Trend Anti-Virus code.
5Ah	Reserved
5Bh	(Optional Feature) Show message for entering AWDFLASH.EXE from FDD (optional)
5Ch	Reserved
5Dh	1. Initialize Init_Onboard_Super_IO switch. 2. Initialize Init_Onbaord_AUDIO switch.
5Eh	Reserved
5Fh	Reserved
60h	Okay to enter Setup utility; i.e. not until this POST stage can users enter the CMOS setup utility.
61h	Reserved
62h	Reserved
63h	Reserved
64h	Reserved

POST (hex)	Description
65h	Initialize PS/2 Mouse
66h	Reserved
67h	Prepare memory size information for function call: INT 15h ax=E820h
68h	Reserved
69h	Turn on L2 cache
6Ah	Reserved
6Bh	Program chipset registers according to items described in Setup & Auto-configuration table.
6Ch	Reserved
6Dh	1. Assign resources to all ISA PnP devices. 2. Auto assign ports to onboard COM ports if the corresponding item in Setup is set to "AUTO".
6Eh	Reserved
6Fh	1. Initialize floppy controller 2. Set up floppy related fields in 40:hardware.
70h	Reserved
71h	Reserved
72h	Reserved

73h	(Optional Feature)
	Enter AWDFLASH.EXE if :
	    -AWDFLASH is found in floppy drive.
	    -ALT+F2 is pressed

74h	Reserved
75h	Detect & install all IDE devices: HDD, LS120, ZIP, CDROM…..
76h	Reserved
77h	Detect serial ports & parallel ports.
78h	Reserved
79h	Reserved
7Ah	Detect & install co-processor
7Bh	Reserved
7Ch	Reserved
7Dh	Reserved
7Eh	Reserved

7Fh	1. Switch back to text mode if full screen logo is supported.
	    -If errors occur, report errors & wait for keys
	    -If no errors occur or F1 key is pressed to continue:
	      ◆Clear EPA or customization logo.

80h	Reserved
81h	Reserved
82h	1. Call chipset power management hook. 2. Recover the text fond used by EPA logo (not for full screen logo) 3. If password is set, ask for password.
83h	Save all data in stack back to CMOS
84h	Initialize ISA PnP boot devices
85h	1. USB final Initialization 2. NET PC: Build SYSID structure 3. Switch screen back to text mode 4. Set up ACPI table at top of memory. 5. Invoke ISA adapter ROMs

POST (hex)	Description
	6. Assign IRQs to PCI devices 7. Initialize APM 8. Clear noise of IRQs.
86h	Reserved
87h	Reserved
88h	Reserved
89h	Reserved
90h	Reserved
91h	Reserved
92h	Reserved
93h	Read HDD boot sector information for Trend Anti-Virus code
94h	1. Enable L2 cache 2. Program boot up speed 3. Chipset final initialization. 4. Power management final initialization 5. Clear screen & display summary table 6. Program K6 write allocation 7. Program P6 class write combining
95h	1. Program daylight saving 2. Update keyboard LED & typematic rate
96h	1. Build MP table 2. Build & update ESCD 3. Set CMOS century to 20h or 19h 4. Load CMOS time into DOS timer tick 5. Build MSIRQ routing table.
FFh	Boot attempt (INT 19h)

Chapter 4

Driver Installation

4-1 Software Installation

4in 1 IDE / VXD/AGP/ACPI

Windows 95 Run X :\KX133\IDE\SETUP.EXE
Windows 98 Run X :\KX133\IDE\SETUP.EXE
Windows NT4.0 Run X :\KX133\IDE\SETUP.EXE

PC Health Software

Windows 95：Run X：\KX133\HEALTH\SETUP.EXE

Windows 98：Run X：\KX133\HEALTH\SETUP.EXE

Sound Driver

For Windows 95/98 user, before you install Sound Driver, please remove PCI Multimedia Audio Device under "OTHER DEVICE" of "DEVICE MANAGER".

Windows 95：Run X：\KX133\SOUND\SETUP.EXE

Windows 98：Run X：\KX133\SOUND\SETUP.EXE

Windows NT 4.0：Run X：\KX133\SOUND\SETUP.EXE

Please follow on screen instruction to complete your installation.

4-2 QUICK GUIDE

Mother Board Configuration

CPU Installation	Pg.8-9

Dram Installation	Pg. 8-9

CPU core speed   =   FSB   x   Ratio

If   CPU Clock   =   100MHz

         Core / Bus ratio   =   5

Then   CPU core speed   =   500MHz

Install Expansion Card	Pg.9

Please follow manufacturer instruction for any expansion card installed.

Connect cable, wires & power supplies	Pg. 10-15

Refer to page 4 Fig. 2-1 to identify Pin No.1 connector on the motherboard. (Black dot indicates Pin No.1).

Red line on the ribbon cable indicates Pin No.1.

Bios Configuration

Clear CMOS	Pg. 6

Short Pin 2-3 for 3 to 5 seconds on JBAT to clear CMOS.

Bios Setup	Pg. 6

1. Turn on the computer.
2. Hold Down $\boxed{\text{Del}}$ key immediately after turning on the computer.
3. Main Menu on Display (Pg. 15 Fig 3)
4. Select 'Standard CMOS Feature' and press $\boxed{\text{Enter}}$
5. Check and adjust date, time and Drive A/B configuration.

*We suggest you do not change the default setting unless you are very well informed about all detail of the BIOS.
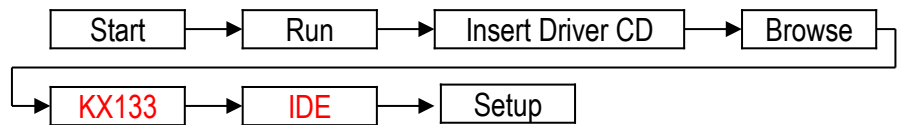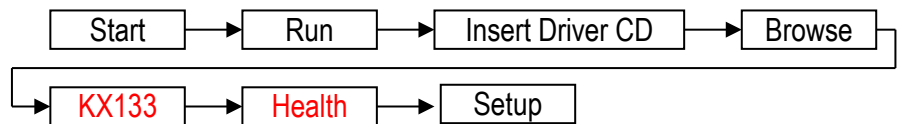
Driver Installation

4 in 1 IDE/VXD/AGP/ACPI

1. From Windows 95/98.

Start → Run → Insert Driver CD → Browse →

KX133 → IDE → Setup

Health Monitor

2. From Windows 95/98.

Start → Run → Insert Driver CD → Browse →

KX133 → Health → Setup

Sound

3. From Windows 95/98.

Start → Run → Insert Driver CD → Browse →

KX133 → Sound → Setup