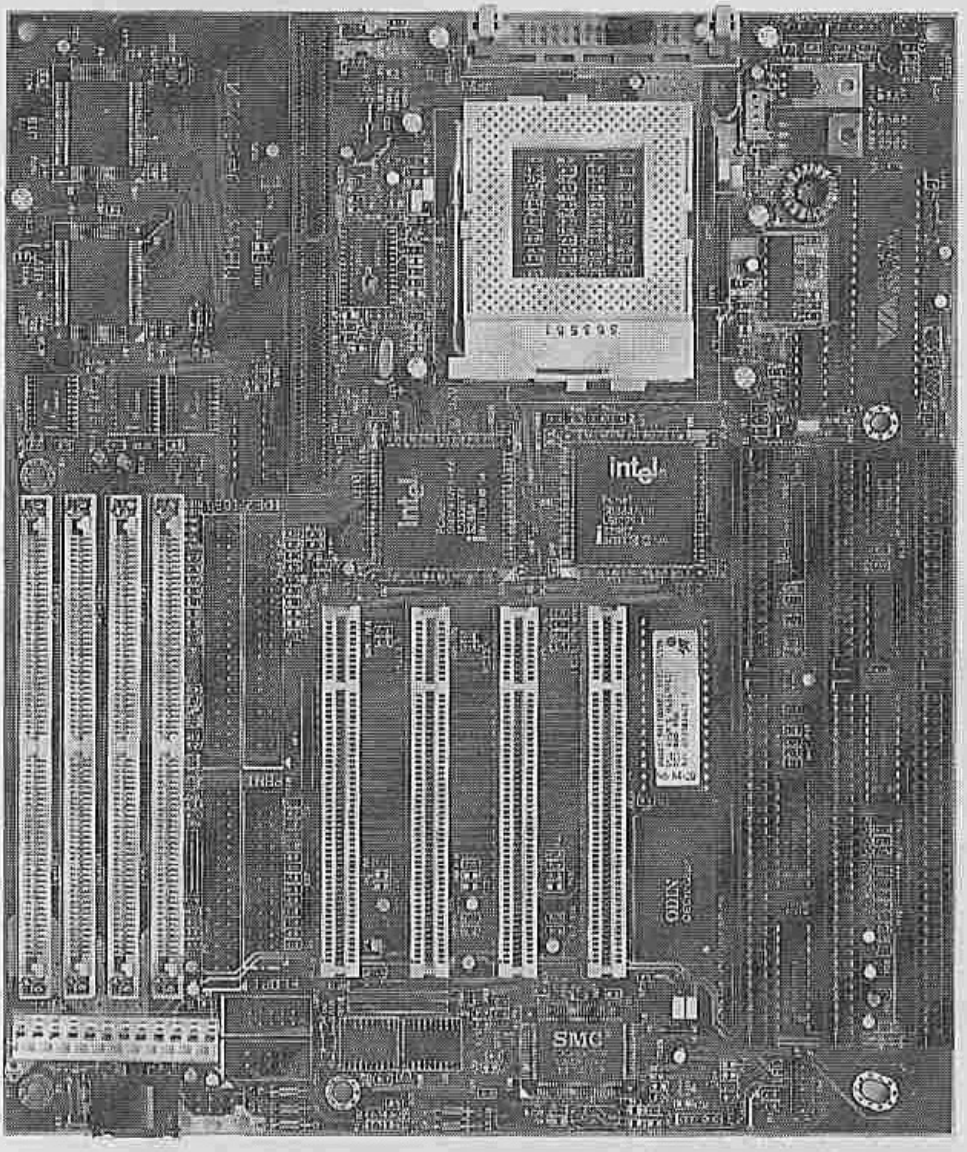
MB533

With on board PCI IDE & Multi I/O



We Speed Your World
PCI Bus and ISA Bus

User's Manual

The MB533 mainboard is a high-performance mainboard based on the advanced PENTIUM™ microprocessor, the PCI Local Bus and the Intel T chipset.

The mainboard offers a high degree of flexibility in configuration and is fully IBM PC/AT compatible.

Key Features

- Intel T PCIset™ chipset.
- Supports either 75/90/100/120/133/150/166 MHZ PENTIUM™ P54C CPUs with 321pin ZIF socket.
- **Uses 72-pin SIMM modules x 4 auto banking in multiple configuration up to 128MB.**
- **Supports both Fast Page Mode and Extended Data Output(EDO) DRAM module.**
- **High performance L2 write back cache that supports Pipeline Burst SRAM(256KB only) or asynchronous SRAM (256KB or 512KB), use one SRAM module (160pin slot).**
- **4 PCI Local Bus slots, and 3 x 16 bit ISA Bus slots.**
- **All 4 PCI slots support Master mode.**
- **System BIOS supports 4 IDE harddisk drivers, the capacity of harddisk can be larger than 528MB. Maximum capacity is up to 8.4GB.**

- **support 4 IDE devices in 2 channels, the PCI IDE Controller supports PIO Mode 3 and 4 at a maximum transfer rate of 16.67 MB/s and Bus master IDE DMA Mode 2 at maximum 22MB/s.**

- On board"Multi-I/O"using the super Multi-I/O chip that supports 2 serial port, 16550 Fast UART compatible, 1 parallel port with EPP and ECP capabilities.

- **System BIOS supports NCR810 SCSI BIOS firmware and Green feature function.**

The MB533 Mainboard comes packed in a sturdy cardboard shipping carton. The carton contains:

- **The MB533 Mainboard**

- **This User's Guide**

Note:

Do not remove the mainboard from its original packing until you are ready to install it.

The MB533 mainboard is easily damaged by static electricity. Observe the following precautions while unpacking and installing the mainboard.

1. Touch an unpainted area of the system chassis before handling the mainboard or any component. Doing so discharge the static charge your body may have built.

2. Shipping may have lossened integrated circuits from their sockets. If any integrated circuit appears loose, press carefully to seat it firmly in its socket.

Do not apply power if the mainboard appears damaged , If there is any damage to the board, or items are missing, contact you dealer immediately.

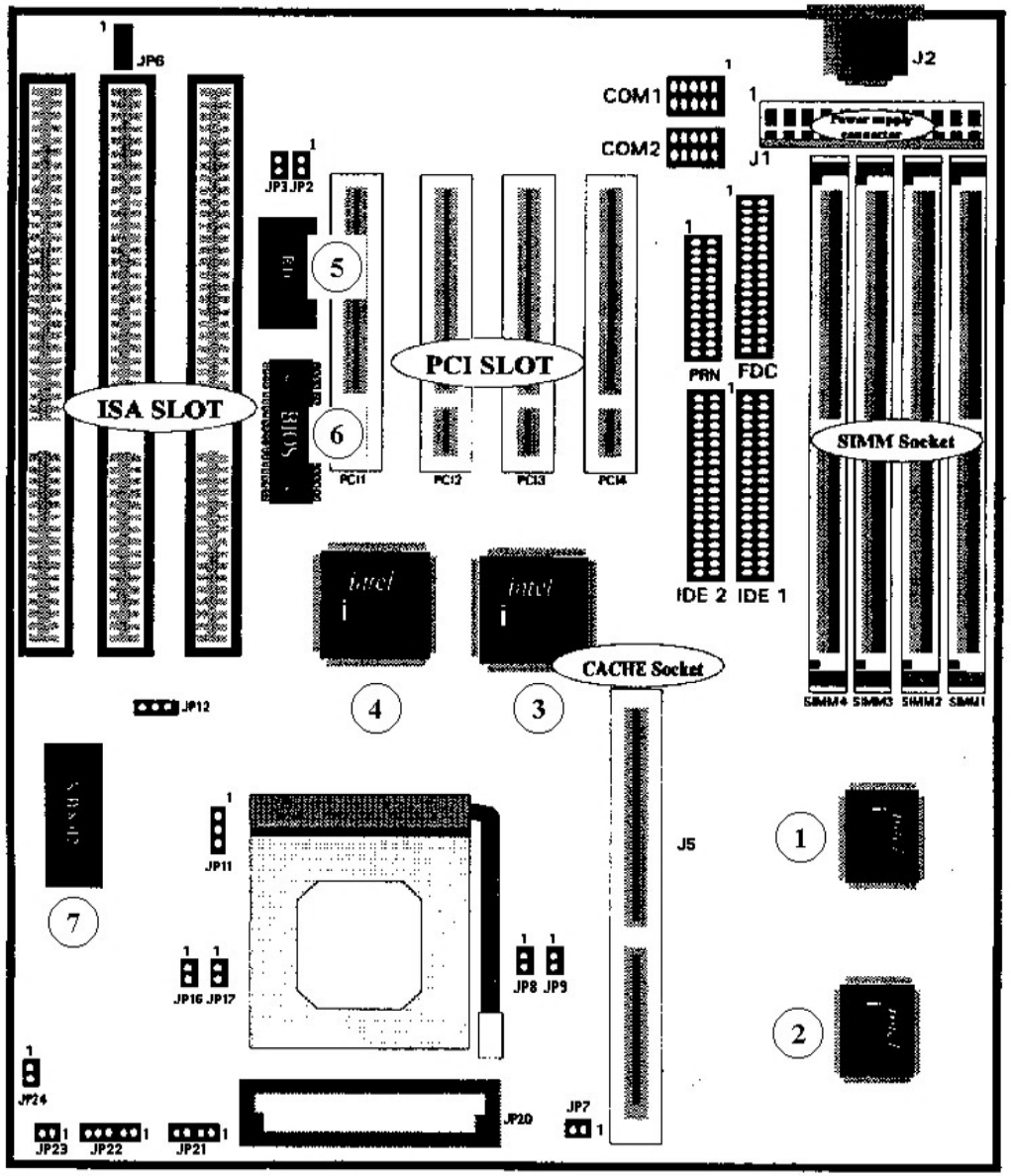
Static Electricity Precautions

Static electricity can easily damage your MB533 mainboard. Observing a few basic precautions can help you safeguard against damage that could result in expensive in expensive repairs. Follow the measures below to protect your equipment from static electricity damage:

- ❑ Keep the mainboard and other system components in their anti-static packaging until you are ready to install them.
- ❑ Touch a grounded surface before you remove any system component from its protective anti-static packaging. A grounded surface within easy reach is the expansion slot covers at the rear of the system case. Or any other unpainted portion of the system chassis.
- ❑ During configuration and installation, touch a grounded surface frequently to discharge any static electric charge that may build up in your body. Another option is to wear a grounding wrist strap.
- ❑ When handling a mainboard or an adapter card, avoid touching its components. Handle the mainboard and adapter cards either by the edges or by the mounting bracket that attaches to the slot.

chassis, you may find it convenient to first configure the mainboards's hardware. This chapter describes how to set jumpers and install memory modules, and where to attach components.

Mainboard component Locations



Before you begin configuration, make sure you are working with an unplugged mainboard. Many components are powered by low-voltage current, but there still may be a dangerous electric current coming from the leads and power supply. You should take the following precautions:

- Turn off the power supply, and unplug the power cord before you begin
- Unplug all cables that connect the mainboard to any external devices.

Connectors

Attach system components and case devices to the mainboard via the mainboard connectors. See Figure 2-1 for the location of the connectors on the mainboard.

Note:

Before making connections to the board, make sure that power to the system is turned off.

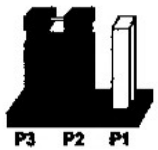
You can configure hardware options by setting jumper on the mainboard. See Figure 2-1 for jumper location.
Set a jumper as follows:

- Short a jumper by placing the plastic jumper cap over two pins of the jumper.
- Open the pins of a jumper by removing the jumper cap.

Symbols:

For setting 3-pin jumpers, the symbols below are used:

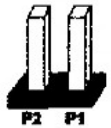
Pins 1 and 2 are Shorted with a jumper cap.



Pins 2 and 3 are Shorted with a jumper cap.

For setting 2-pin jumpers, the following symbols are used:

The jumper is Shorted when the jumper cap is placed over the two pins of the jumper.



The jumper is Open when the jumper cap is removed from the jumper.

Note:

When you open the jumper, attach the plastic jumper cap to one of the pins so you won't lose it.

The power supply connectors are two six-pin male header connectors. Plug the dual connectors from the power directly onto the board connectors.

Most of power supply have two leads. Each lead has six wires. Two of them are black, orient the connectors, so the black wires are in the middle.

Pin	Description	Pin	Description
1	Power Good	7	Ground
2	+5V DC	8	Ground
3	+12V DC	9	-5V DC
4	-12V DC	10	+5V DC
5	Ground	11	+5V DC
6	Ground	12	+5V DC

J2 Keyboard Connector

A standard five-pin female DIN keyboard connector is located at the rear of the board J2.

Pin	Description
1	Keyboard Clock
2	Keyboard Data
3	N.C.
4	Ground
5	+5VDC

Pin	Description
1	5 V
2	Active Low

JP23 Reset Switch Connector

Attach the Reset switch cable to this connector.

Setting	Description
Open	Normal Mode
Short	Reset System

JP22 Keylock & Power LED Connector

JP22 is a keylock connector that enables and disables the keyboard and the Power-LED on the case.

Pin	Description
1	LED Output
2	NC
3	Ground
4	Keylock
5	Ground

JP21 Speaker Connector

Attach the system speaker to connector JP21.

Pin	Description
1	DATA Out
2	NC
3	Ground
4	+5V

JP24 Sleep Connector

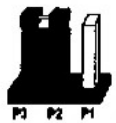
Please enable the power management setup, when you want to use the sleep function.

Setting	Description
Open	Normal
Short	Sleep

Description	JP12	
CPU Speed/6		
CPU Speed/8		(default)

Note: Some old version ISA Card can not work in higher frequency, please set JP12 to 1-2

JP11- Voltage Regulator Output Selectors

Description	JP11	
3.3 Volt (STD/VR)		(default)
3.5 Volt (VRE)		

Jumper JP2 lets you discharge the mainboard's CMOS memory and Real Time Clock (RTC). The CMOS memory maintains the system configuration information that is discussed in Chapter 3. The RTC provides the system with the date and time.

You should short this jumper for only a moment when you wish to Clear CMOS, and then make sure this jumper is Open for Normal mode to retain your new settings.

Description	JP2
Clear CMOS	
Normal Mode	

Important:

Under some circumstances, it is possible that CMOS configuration settings may be lost or corrupted and the system may not work properly next time you turn it on. This is not a serious problem. If this happens, run the BIOS setup utility and re-enter your configuration settings. When you restart the computer, the system should work normally.

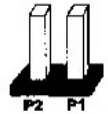
The mainboard has a clock generator that lets you choose the CPU frequency by settings jumpers JP8, JP9. You can set the CPU speed to 50/60MHz or 66 MHz as shown below.

	CPU Speed		
Jumpers	**66 MHz**	**60 MHz**	**50MHz**
JP8			
JP9			

JP16, JP17 - Internal Clock Speed Selectors

Description	JP16	JP17
Internal speed=2.0 x external input clock		
Internal speed=1.5 x external input clock (Default)		
Internal speed=2.5 x external input clock		
Internal speed=3.0 x external input clock		

The mainboard can uses two types of Flash EPROM - 5 volt and 12 volt. Set the mainboard for either type with jumper JP3. You can update both types with new BIOS files as they come available.

Description	JP3
12 volt Flash programming	
EPROM and 5 volt Flash programming (Default)	

Note:

The default jumper setting 5 volt flash programming have a function to write-protect a 12 volt flash EPROM, if you use the 12 volt flash. When you are programming the EPROM, you should change the JP3 setting from the default to the 12 volt setting. When you finish progromming. You have to set JP3 back to the default 5 volt setting.

You can intall 256KB or 512KB cache memory on the J5 location use one 160 pin SRAM module.
The SRAM module can use synchronous (pipeline burst SRAM) or asynchronous SRAM.

So you have 4 kinds select:

1. Asynchronous 256K use 32Kx8 SRAM x8 pcs + 8Kx8 Tag RAM.

2. Asynchronous 512K use 64Kx8 SRAM x8 pcs + 16Kx8 Tag RAM.

3. Synchronous 256K use 32Kx32 pipeline burst SRAM x2 pcs + 8Kx8 Tag RAM.

4. Synchronous 512K use 32Kx32 pipeline burst SRAM x4 pcs +16Kx8 Tag RAM.

The mainboard lets you add up to 128MB of system memory via SIMM sockets on the mainboard. Four sockets on the mainboard are divided into two banks: Bank 0, Bank 1. Each bank consists of two 72-pin SIMM modules. The mainboard supports the following memory configurations.

SIMM Socket 1&2	SIMM Socket 3&4	Total Memory in Sockets 1 through 4
4MBx2	None	8MB
8MBx2	None	16MB
16MBx2	None	32MB
32MBx2	None	64MB
None	4MBx2	8MB
None	8MBx2	16MB
None	16MBx2	32MB
None	32MBx2	64MB
4MBx2	4MBx2	16MB
4MBx2	8MBx2	24MB
4MBx2	16MBx2	40MB
4MBx2	32MBx2	72MB
8MBx2	4MBx2	24MB
8MBx2	8MBx2	32MB
8MBx2	16MBx2	48MB
8MBx2	32MBx2	80MB
16MBx2	4MBx2	40MB
16MBx2	8MBx2	48MB
16MBx2	16MBx2	64MB
16MBx2	32MBx2	96MB
32MBx2	4MBx2	72MB
32MBx2	8MBx2	80MB
32MBx2	16MBx2	96MB
32MBx2	32MBx2	128MB

Notes:

All SIMMs must be faster than 70ns.
All banks can use either 1-sided or 2-sided SIMMs.
All banks are auto banking.
DRAM Type:Fast Page Mode or Extended Data Output

Install a SIMM in a memory socket as follows:

Caution:

Static electricity can seriously damage SIMM modules.

1. Review the section on static electricity precautions at the beginning of this manual.

2. Align the SIMM module so that the pin-1 marking on the module corresponds to the sockets pin-1 marking.

3. Hold the module at a 70-degree angle to the socket, and insert the module's connectors into the socket.

4. Snap the module to a vertical position in the socket. The module is fully inserted when retaining pegs snap into holes at each end of the module.

5. To fill a bank, repeat steps 1 through 4 until the sockets in each bank contain SIMMs.

BIOS setup program. After you have configured the mainboard, and have asscmbled the components, you can turn on the completed system. At his point, urn the software setup to ensure that the system information is correct.

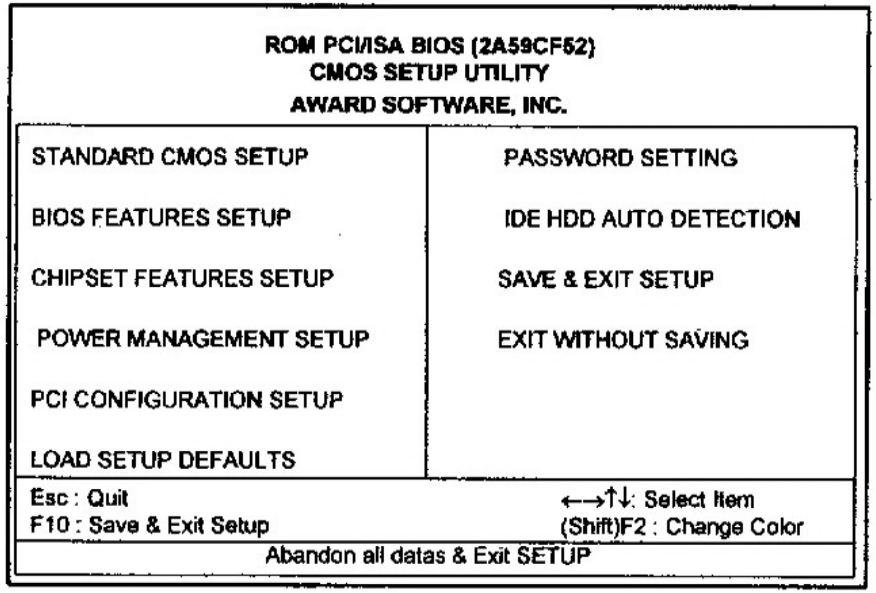
The software setup of the system board is achieved through Basic Input-Output system (BIOS) programming. You use the BIOS setup program to tell the operating system what type of devices are connected to ypur system board.

The system setup is also called CMOS setup-Normally, you need to urn system setup if either the hardware is not identical with information contained in the CMOS RAM, or if the CMOS RAM has lost power.

Enter the Award Setup program's Main Menu as follows:

1. Turn on or reboot the system. The following message appears at the bottom of the screen:
   "Press <DEL> to enter setup, ESC to skip memory test"

2. Press the **<DEL>** key to enter the Award BIOS setup program and the following screen appears:



3. Choose an option and press **<Enter>**. Modify the system parameters to reflect the options installed in the system. (See the following sections for more information.)

4. Press **<ESC>** at anytime to return to the Main Menu.

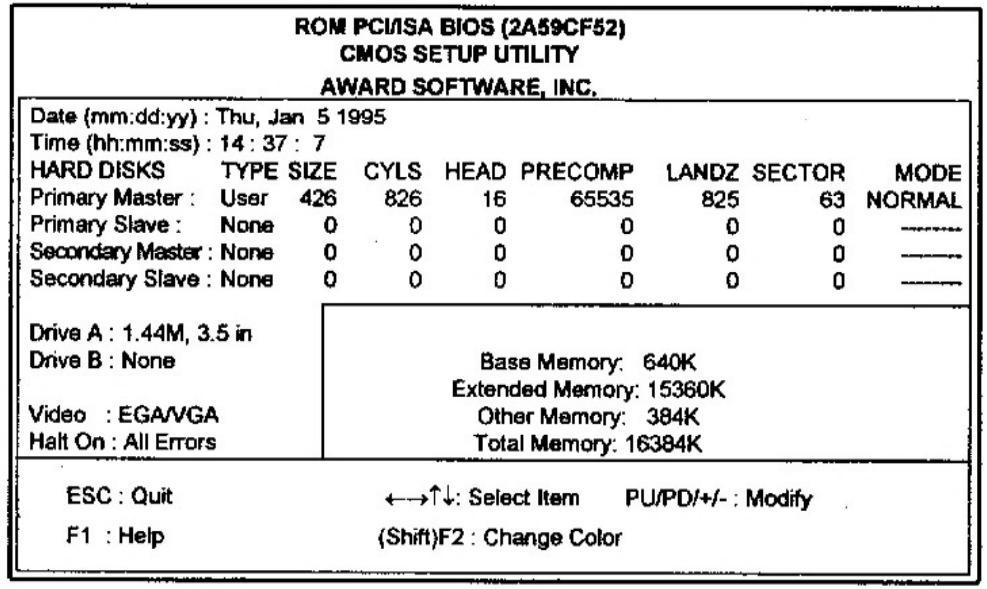
5. In the Main Menu, choose **"SAVE AND EXIT SETUP"** or **<F10>** to save your changes and reboot the system.
   Choosing **"EXIT WITHOUT SAVING"** or **<ESC>** ignores

The Main Menu options of the Award BIOS are as below.

STANDARD CMOS SETUP

Run the Standard CMOS Setup as follows.

1. Choose **"STANDARD CMOS SETUP"** from the Main Menu and a screen with a list of items appears.



2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUp/PgDn/+/- keys. Some fields let you enter numeric values directly.

Date (mm/dd/yy) Type the current date

Time (hh:mm:ss) Type the current time

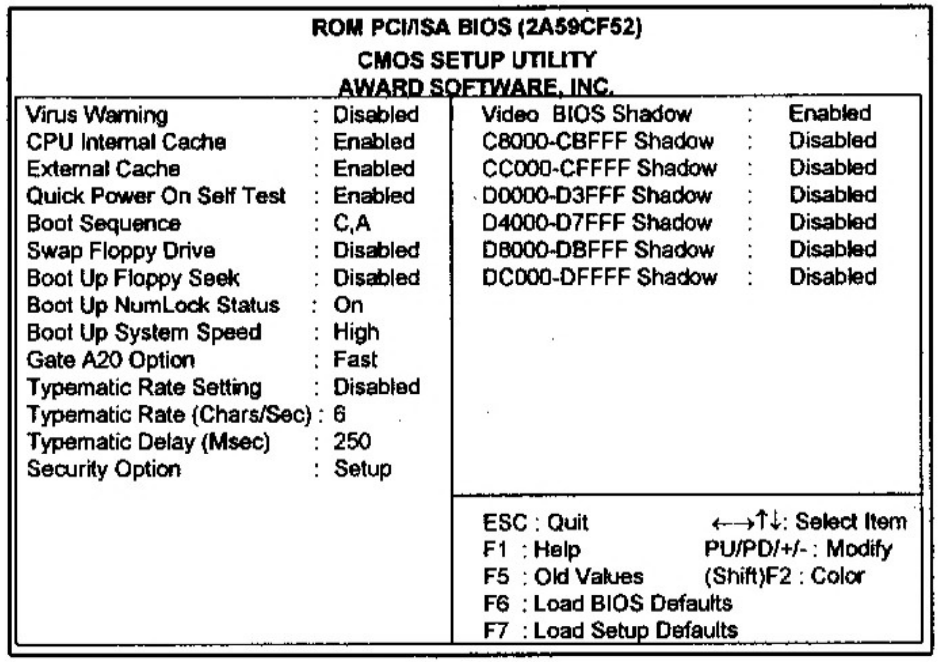
Secondary master and slave		disk types 1 to 46, or "User" defined. If you choose "User", run the IDE HDD Auto detection function from the Main Menu, or enter the HDD information directly from the keyboard and press <Enter>. If a hard disk is not installed choose "Not installed."
Drive A & B	Choose	360KB 5 1/4" 1.2MB 5 1/4" 720KB 3 1/2" 1.44MB 3 1/2" 2.88MB 3 1/2"or Not installed
Video	Choose	Monochrome, Color 40x25, VGA/PGA/EGA, Color 80x25, or Not installed
Halt On	Choose	All Errors (Default) No Errors All, But Keyboard All, But Diskette All, But Disk/Key

3. After you have finished with the Standard CMOS Setup program, press the <**ESC**> key to return to the Main Menu.

BIOS FEATURES SETUP

Run the BIOS Features Setup as follows.

1. Choose "**BIOS FEATURES SETUP**" from the Main Menu and a screen with a list of items appears.



2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUp/PgDn/+/- keys. An explanation of <**F**> keys follows:

   <F1>: "Help" gives options available for each item.

   <F2>: Change color

   <F5>: Get the old values. The user started the current session with these values.

   <F6>: Load all options in the BIOS Features Setup with the BIOS Default values.

   <F7>: Load all options in the BIOS Features Setup with the Setup Default values.

Virus Warning Choose Enabled or Disabled. Enable this option and a SYSTEM WARNING MESSAGE appears when the system detects a virus.

CPU Internal Cache Choose Enabled or Disabled. This option lets you enable the CPU's internal cache memory.

External Cache Choose Enabled or Disabled. This option lets you enable the external cache memory. For better performance, make sure you always choose "Enabled."

Quick Power On Self Test Choose Enabled or Disabled. Enabled provides a fast POST and boot-up speed.

Boot Sequence The default setting first to boot from drive C: You can reverse this sequence with "A:C:", will then drive A: boot directly.

Swap Floppy Driver Choose Enabled or Disabled. When Enabled Floppy drives A & B are swapped under DOS.

Boot Up Floppy Seek Choose Enabled or Disabled. "Disabled" provides a fast boot and reduces the possibility of damage to the heads.

Boot Up Num Lock Status Choose On or Off. On puts numeric keypad in Num Lock mode at boot-up. Off puts this keypad in arrow key mode at boot-up.

choose system bootup speed. The default is High.

Gate A20 Option Choose Fast or Normal. This item lets you use the GA20 from the chipset or the keyboard controller.

Typematic Rate Setting Choose Enabled or Disabled. Enable this option to adjust the keystroke repeat rate.

Typematic Rate(Chars/Sec) Choose the rate a character keeps repeating.

Typematic Delay (Msec) Choose how long after you press a key that a character begins repeating.

Security Option Choose Setup, or System. Use this feature to prevent unauthorized system boot-up or unauthorized use of BIOS Setup.

"System"- Each time the system boots the password prompt appears.

"Setup"- Password prompt only appears if you attempt to enter the Setup program.

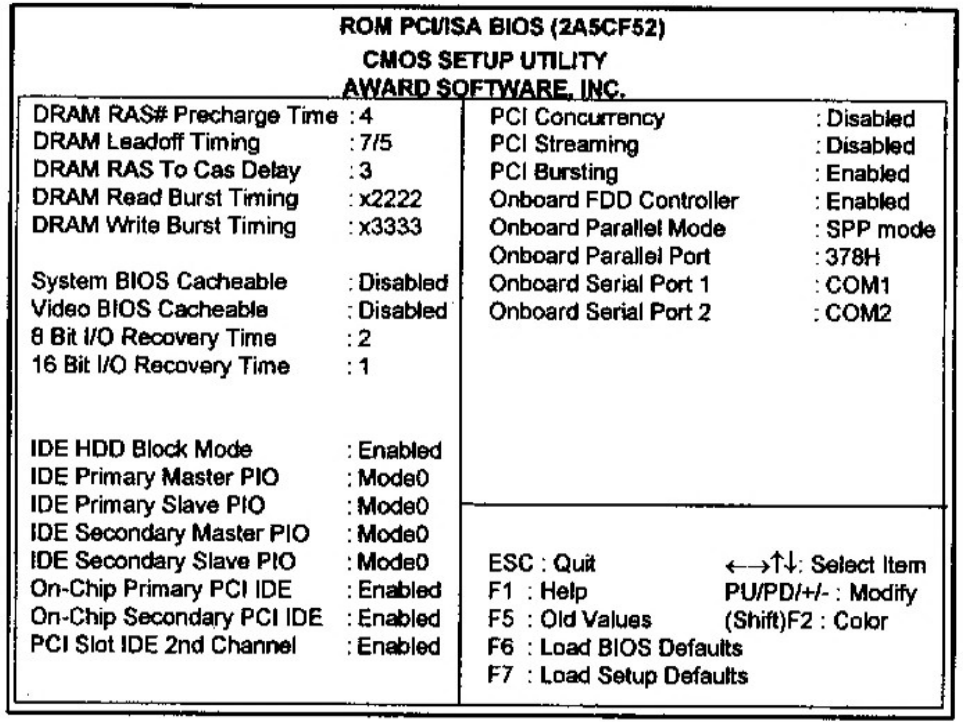
Video BIOS Shadow VIDEO shadow copies BIOS code from slower ROM to faster RAM. BIOS can then execute from RAM.

3. After you have finished with the BIOS Features Setup program, press the <**ESC**> key and then follow screen instructions to save or disregard your settings.

The "**CHIPSET FEATURES SETUP**" is used to control the values of the chipset registers. These registers control most of the system options in the computer.

Run the Chipset Features Setup as follows:

1. Choose "**CHIPSET FEATURES SETUP**" from the Main Menu and a screen with a list of items appears.



2. The first eight items are optimal setting for this mainboard, you should not change them unless you are familiar with the intel chipset.

There are five Modes defined in Manual Mode. They are Mode 0,1,2,3,4. The default setting for on board timing is PIO Mode 0. If you use real fast enhanced IDE Mode 3 and Mode 4 HDD, please make sure changing to the Mode that you need, it will provide

IDE HDD Block Mode

Choose Enabled or Disabled. If your IDE HDD supports BLOCK MODE, then you can enable this function to speed up the HDD Access time. If not, please disable this function to avoid an HDD Access Error.

Onboard PCI IDE Controller

The on Chip PCI IDE controller is default "Enable" setting , if you disable On-Chip primary and secondary PCI IDE, it will disable the on board IDE controller. Make sure you do this if you want to use an IDE controller other than on the mainboard IDE controlller.

Onboard FDD Controller

The default setting for the "Onboard FDC Controller" is "Enabled". This setting allows you to connect your floppy disk drives to the onboard "Floppy" connector. Choose the "Disabled" setting if you want to use a separate controller card.

Parallel Port

The options for "Onboard Parallel Port" is 378H. This item controls the on-board parallel port connector, if you are using an I/O card with a parallel port, make sure the address don't conflict.

Parallel Port Mode

The option for "Onboard LPT Port Mode" is default standard mode, you can select EPP & SPP, ECP, and SPP Mode just change setting , if you have a parallel interface peripheral device, use one of the parallel port enhancements and set this line for the enhanced mode that your peripheral supports.

The "Onboard Serial Port 1 " and "Onboard serial Port 2" lines control the assignments for the mainboard's two onboard serial connectors. They can be assigned as COM1, COM3 for serial Port 1 and COM2, COM4 for serial Port 2. or disable.

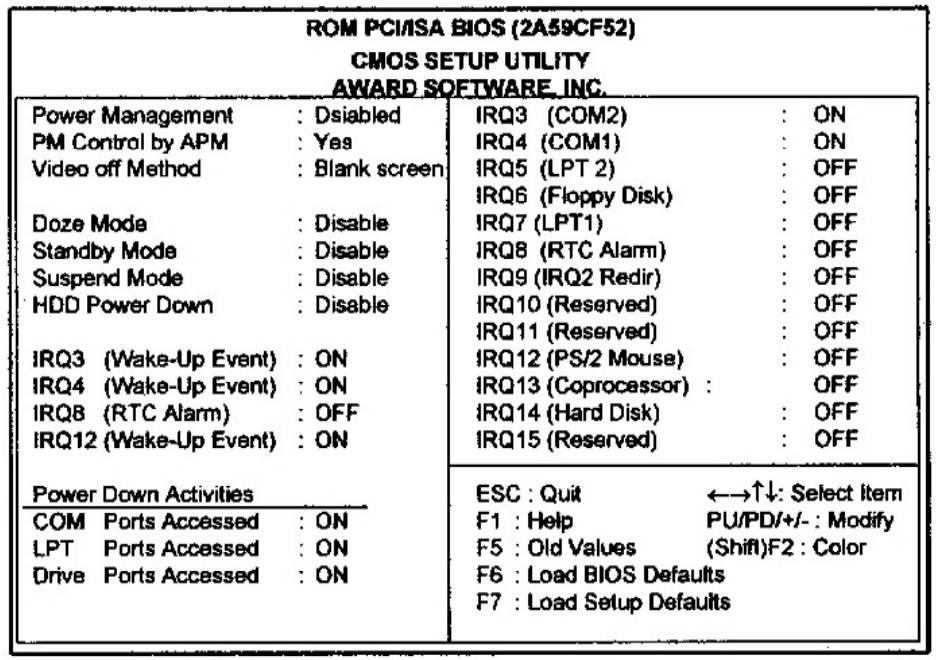
When you have done with this section, press the <ESC> key to go back to the main screen.

POWER MANAGEMENT SETUP

The Power Management controls the mainboard'a "green" features that for the power saving Mode, Display turn off and HDD power down that together form the hardwave power conservation scheme.

Run the Power Management Setup as follows:

1. Choose "**POWER MANAGEMENT SETUP**" from the Main Menu and a screen with a list of items appears.



2. A short description of the screen items follows:
"**POWER MANAGEMENT** " is the master control for the four power saving modes, doze,standby,suspend mode and HDD power down mode..

Min Saving The "Min saving" defaults as "1 hour","1 hour","1 hour"and "15 Min" respectively.

User define	Allows you to set the power mode time-out by yourself
Disable:[default]	Turn off all power saving time-outs.
Doze mode	Put the system performance down to 20%
Stand by mode	Turn off the video signal and cause CPU enter SMM mode
Suspend mode	Turn off the video signal and cause CPU enter SMM mode and shut down any IDE hard disk drivers connected to the system.
HDD Power down	Shut down any IDE hard disk drivers in the system if they are not accessed

Note:

HDD Power down does not effect SCSI hard disks.

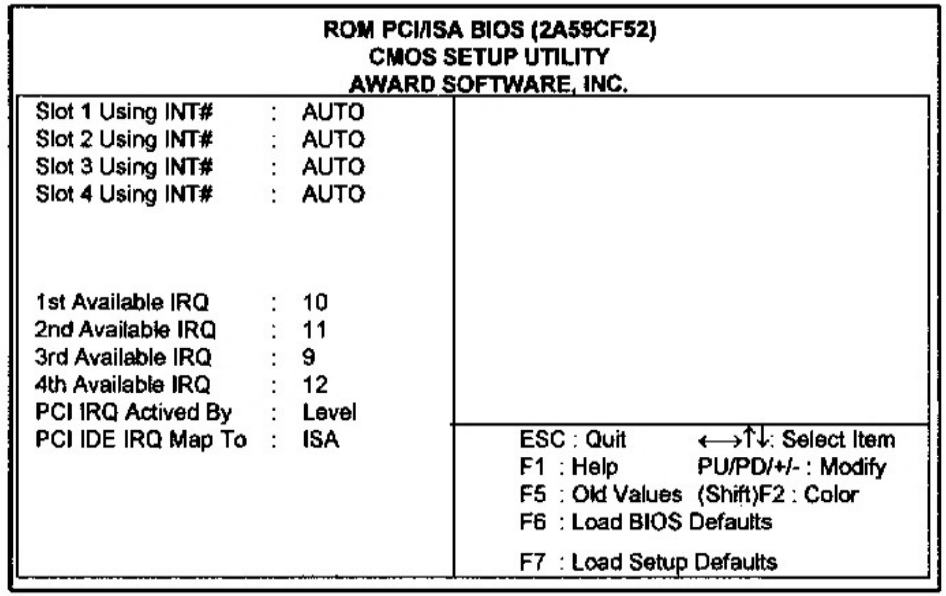
Individual IRQ wake-up Event
The setting in this group determine if a system IRQ is monitored for activity so as to wake up the system if an interrupt request is generated by a device using , if an IRQ is not use, there is no effect.

Power Down Activities
The Pown Down Activities determined which I/O port and IRQs are monitored when you enable the I/O ports or IRQs activities option.

The **"PCI SLOT CONFIGURATION"** sets the system for use with PCI bus cards.

Run the PCI Slot Configuration program as follows.

1. Choose **"PCI SLOT CONFIGURATION"** from the Main Menu and a screen with a list of items appears.



2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUp/PgDn/+/- keys. <F> keys are explained below:

   <F1>: "Help" gives options available for each item.

   <F2>: Change color

   <F5> : Get the old values. The user started the current session with these values.

   <F6>: Load all options in the BIOS Features Setup with the BIOS Default values.

   <F7>: Load all options in the BIOS Features Setup with the Setup

3. After you have finished with the PCI Slot Configuration program, press the <**ESC**> key and then follow screen instructions to save or disregard your settings.

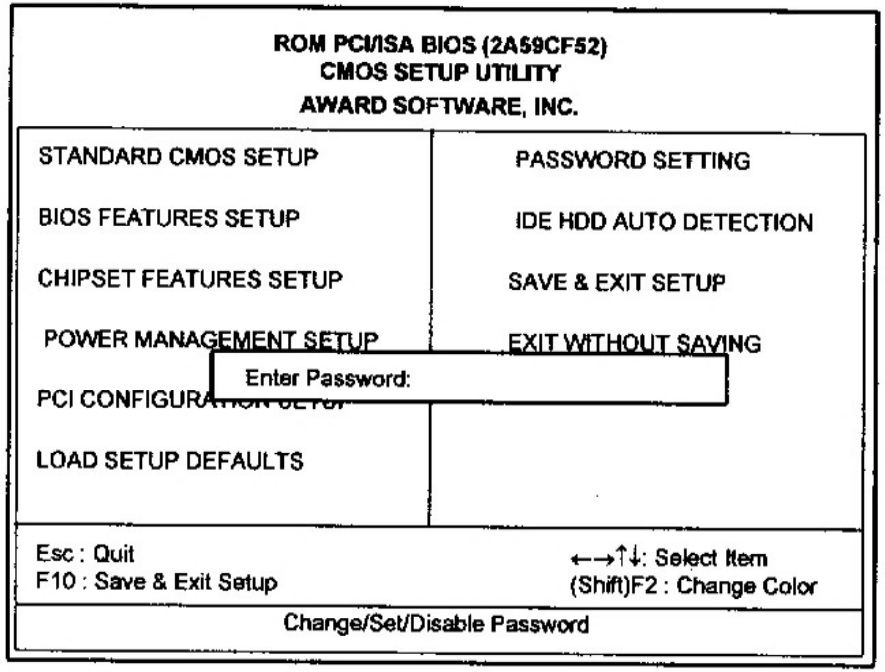
LOAD SETUP DEFAULT

This Main Menu item loads the default system values. **These settings are recommended for optimum performance.** If the CMOS is corrupted **when enter BIOS setup utility you must load setup default again.** Choose this item and the following message appears:

"Load SETUP Defaults (Y/N)? N"

To use the Setup defaults, change the prompt to "Y" and press <**Enter**>.

This Main Menu item lets you configure the system so that a password is required every time the system boots or an attempt is made to enter the Setup program. The password cannot be longer than 8 characters.

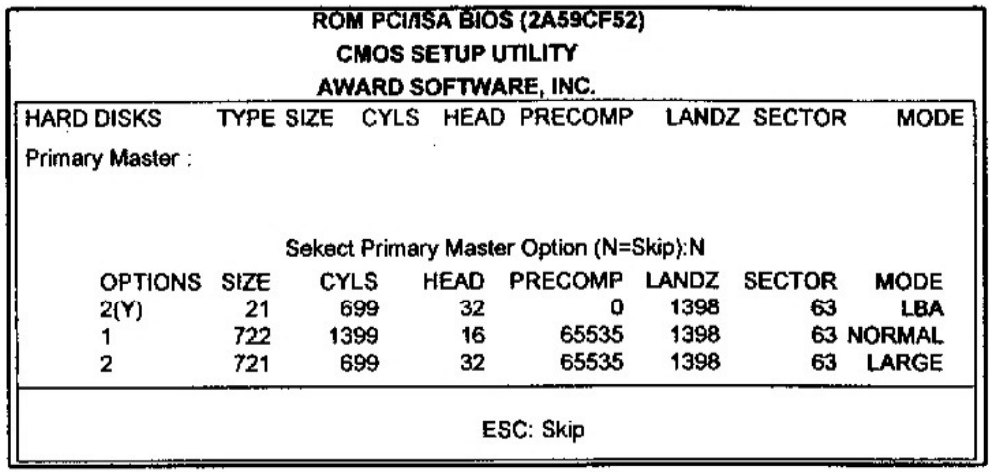


Important:

Keep a safe record of the new password. If you forget or lose the password, the only way to access the system is to discharge CMOS memory using jumper JP2.

1. If your system has an IDE hard drive, you can use this utility to detect its parameters and automatically enter them into the Standard CMOS Setup.

2.



For IDE hard disk driver,the BIOS provide three modes to support both normal IDE hard disk and also drivers large than 528MB, a short description of three modes as follows:

a.**Normal mode**: For drivers small than 528MB

b.**Large Mode**: For drives larger than 528MB that do not use LBA. There can only be used with MS-Dos operating system.

c.**LBA mode**: For drivers larger than 528MB and upto 8.4GB that use logic block addressing mode. Normally we recommand to select LBA Mode if your HDD drivers large than 528MB.

3. This utility will autodetect as many as four IDE drivers.

Select this item from the main menu and type "Y" to save the values entered during the current session and then exit the BIOS Setup program. Type "N" to return to the Setup program.

EXIT WITHOUT SAVING

Select this item from the main menu and type "Y" to exit the BIOS Setup program without saving the values entered during the current session. Type "N" to return to the Setup program.