

Hardware Setup

If your mainboard has already been installed in your computer you may still need to refer to this chapter if you plan to upgrade your system's hardware.

! Be sure to disconnect the power cable from the power source before performing any work on your mainboard, i. e. installing a CPU, memory module, changing a jumper setting, etc. Not doing so may result in electrical shock!

2-1 Introduction to Jumpers

Jumpers are used to select between various operating modes. A jumper consists of a row of gold colored pins that protrude from the surface of the mainboard. It is important not to confuse jumpers with connectors or headers.

! Putting jumper caps on anything that is not a jumper may result in damaging your mainboard. Please refer to Section 1-3, Mainboard Layout, for the location of jumpers on your mainboard.

As indicated in Figure 2-1 below, a cap is used to cover the pins of a jumper, resulting in shorting those pins that it covers. If the cap is removed from the top of the pins, the jumper is left "open." The number 1 shown both in the diagram below and in all multiple pin jumper and header diagrams in this manual indicates the pin designated with the number 1. The numbering of the remaining pins follows in sequence.

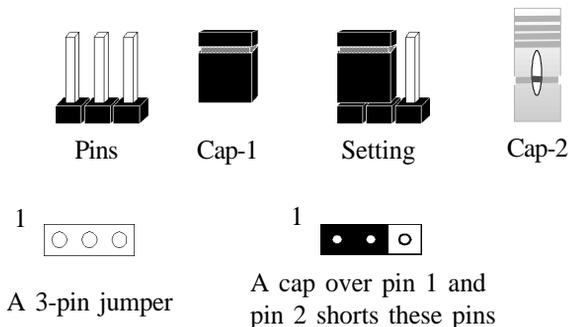


Figure 2-1

2-2 Installing a CPU in a Socket 370

The Intel Socket 370, designed for the Celeron processor, has been incorporated as a standard mainboard specification. To insert your CPU into Socket 370 please do the following:

1. Locate a small dot marked on the top surface of the CPU close to one of its corners. The same corner will also be cut off, leaving a noticeable notch in the CPU's corner. These markings indicate Pin 1 of the CPU.
2. Pull up the lever of Socket 370 so that it is perpendicular with the surface of the mainboard. Gently insert the CPU with Pin 1 at the same corner of Socket 370 that contains the end of the lever. Allow the weight of the CPU to push itself into place. Do not apply extra pressure as doing so may result in damaging your CPU. Snap the lever back into place.



Installing a heat sink with cooling fan is necessary for proper heat dissipation from your CPU. Failing to install these items may result in overheating and possible burn-out of your CPU.

2-3 Setting Your CPU's Parameters(SeePU Technology)

SeePU is a new user friendly technology that enables the user to setup a mainboard's CPU parameters through an easy to use BIOS setup procedure. It is no longer necessary to make many jumper settings as on conventional mainboards.

1. After installing all your hardware into your PC system, turn on your system's power. Enter the CMOS Setup Utility by pressing the Delete key when your BIOS identification screen appears.
2. Move the cursor to SeePU Setup menu and press Enter. Find the CPU Host/PCI Clock option. Commands for operating the cursor in BIOS are found at the Bottom of the BIOS screen (Figure 2-2).
3. Use the CPU Host/PCI Clock option to select your CPU's parameters. Set the clock ratio (also known as external clock multiplier factor) according to your processor's specifications (See Figure 2-3).

External clock frequency (JP2A) must be selected according to you processor. Failing to set these jumpers may resulted in system not booting. (See Section 2-4)

You do not need to make voltage settings because *SeePU* automatically sets your CPU voltage.

4. Press Esc to return to the CMOS Setup Utility, press F10 to Save and Exit Setup and choose 'Y' to confirm. The system will automatically reboot and during startup you will see the correct CPU type shown on the screen.

CPU Type	CPU Speed		
	External Clock	Frequency Ratio	Internal Clock
Intel Celeron Socket370 processor	66	4.5	300
		5	333
		5.5	366
		6	400
		6.5	433
		7	466
		7.5	500
		8	533
	100	3.5	350
		4	400
		4.5	450
		5	500
		5.5	550
		6	600
	133	4	533
		4.5	600
		5	667
		5.5	733

Figure 2-2

CMOS Setup Utility - Copyright (C) 1984-1999 Award Software
SeePU Setup

Auto Detect DIMM/PCI Clk	Enabled	Items Help
Spread Spectrum	Disabled	
HOST CPU/PCI Clock	Default	Menu Level ▶
CPU Clock Ratio	X 3	

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

Figure 2-3

Overclocking

Operating a CPU at a higher frequency than its specification allows is called overclocking. If the CPU frequency is set at a higher frequency than its specification allows, it may or may not run at that frequency, depending on the quality of your CPU and the extent to which the frequency has been overset. The mainboard manufacturer highly discourages overclocking as it may result in data loss, CPU burn-out, system failure, etc.

Many Celeron processors are frequency locked processors and are not able to perform overclocking. Regardless of whether the processor is a frequency locked, overclocking may cause some processors to hang when turning on the system. When the processor hangs, the screen remains blank and the system does not boot. To solve this problem, do the following.

1. Turn off the computer and then press the Home key on your keyboard
2. Turn on your computer, wait for five seconds and then release the Home key. (Pressing the Home key allows the computer to boot at a low system speed. For example, for 66MHz external clock CPUs, the CPU boot-up speed is 233MHz.)
3. Enter BIOS and reconfigure your CPU parameters as described in this section.

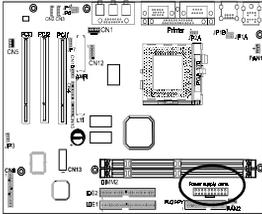
2-4 Connector and Jumper Settings

Connectors are used to link the system board with other parts of the system, including the power supply, the keyboard, and the various controllers on the front panel of the system case.



The power supply connector is the last connection to be made while installing a mainboard. Before connecting the power supply, please make sure it is not connected to the power source.

ATX Power Supply Connector



This mainboard requires a power supply of at least 200 watts. The power cord leading from the system's power supply to the external power source must be the very last part connected when assembling a system.



To support this function, a switching power supply with a minimum of **750mA 5VSB** is required.

12V	Ⓢ	Ⓢ	5V
5VSB	Ⓢ	Ⓢ	5V
PW-OK	Ⓢ	Ⓢ	-5V
Ground	Ⓢ	Ⓢ	Ground
5V	Ⓢ	Ⓢ	Ground
Ground	Ⓢ	Ⓢ	Ground
5V	Ⓢ	Ⓢ	Ground
Ground	Ⓢ	Ⓢ	PS-ON
3.3V	Ⓢ	Ⓢ	Ground
3.3V	Ⓢ	Ⓢ	-12V
	Ⓢ	Ⓢ	3.3V

The ATX power supply provides a single 20-pin connector interface which incorporates standard +/-5V, +/-12V, optional 3.3V and Soft-power signals. The Soft-power signal, a 5V trickle supply is continuously supplied when AC power is available. When the system is in the Soft-Off mode, this trickle supply maintains the system in its minimum power state.

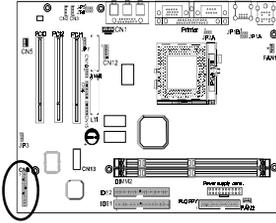
Software Power-Off Control

This mainboard can be powered down using the Windows 95/98 Software Power-Off function. To power down your computer, click the START button on the Windows 95 task bar. Select "Shut Down The Computer" and the system turns off. The message "It is now safe to turn off your computer" will not be shown when using this function.

Power-On By Modem

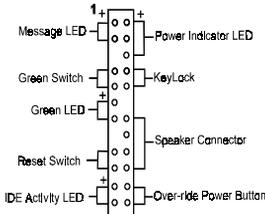
While in Soft-off state, if an external modem ring-up signal occurs, the system wakes up and can be remotely accessed. You may enable this function in BIOS's Power Management Setup menu.

Front Panel Connector Set (CN9) A through E

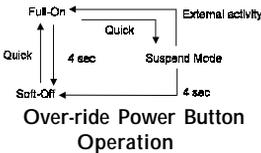


A. Over-ride Power Button Connector

The power button on the ATX chassis can be used as a normal power switch as well as a device to activate Advanced Power Management Suspend mode. This mode is used for saving electricity when the computer is not in use for long periods of time. The Soft-OFF by PWR-BTTN function in BIOS's Power Management Setup menu must be set to "Delay 4 Sec." to activate this function.



When the Soft-OFF by PWR-BTTN function is enabled, pushing the power button rapidly will switch the system to Suspend mode. Any occurrence of external activities such as pressing a key on the keyboard or moving the mouse will bring the system back to Full-On. Pushing the button while in Full-On mode for more than 4 seconds will switch the system completely off. See Over-ride Power Button Operation diagram.



B. Keyboard Lock & Power Indicator LED Connector

Plugging this connector into the lock on the front panel of the system case allows the lock to enable or disable the keyboard. This function provides limited security against casual intruders. The power indicator LED shows the system's power status. It is important to pay attention to the correct cables and pin orientation (i.e., not to reverse the order of these two connectors.)

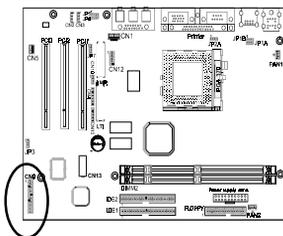
	Pin	Definition
Power indicator LED	1	+5V DC
	2	No Connect
	3	Ground
Keyboard Lock	4	Keylock
	5	Ground

Blinking LED in Suspend Mode

While in Suspend mode, the LED light on the front panel of your computer will flash. Suspend mode is entered by pressing the Override Power Button, pushing the Green button on your ATX case, or enabling the Power Management and Suspend Mode options in BIOS's Power Management menu.

C. Green Switch/Green LED Connector

Some ATX cases provide a Green switch which is used to put the system in Suspend mode. In Suspend mode, the power supply to the system is reduced to a trickle, the CPU clock is stopped, and the CPU core is in its minimum power state. The system is woken up whenever the keyboard or mouse is touched. The system resumes in different ways as defined by Power Management Setup screen in BIOS.



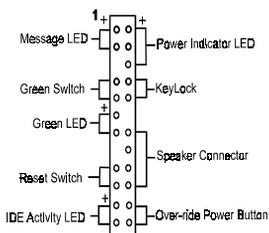
D. System Reset Switch Connector

This connector should be connected to the reset switch on the front panel of the system case. The reset switch allows you to restart the system without turning the power off.

Pin	Definition
1	System
2	GND

E. Speaker Connector

PIN	Definition
1	Speaker Signal
2	NC
3	NC
4	+5V DC



F. IDE Activity LED Connector

The IDE activity LED lights up whenever the system reads/writes to the IDE devices.

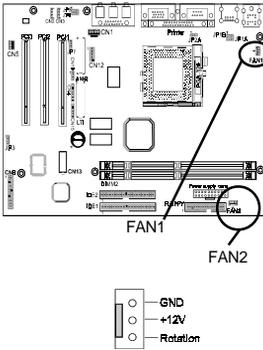
G. Message LED Connector

The message indicator LED lights up whenever the system went on suspend mode.

Suspend to RAM (STR)

The Suspend to RAM (STR) also known as S3 sleeping state feature allow the system to go into a low wake-up latency sleeping state where all system context is lost except system memory. CPU, cache and chip set context are lost in this state; the OS and drivers must restore all device context. Hardware must maintain memory context and restore some CPU and L2 configuration context

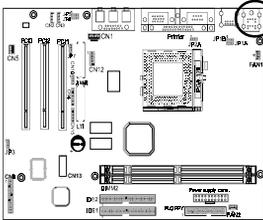
CPU/System Cooling Fan Connectors (FAN1/FAN2)



These added connectors allow the fan to draw their power from the mainboard instead of the disk drive connector.

The board's management extension hardware is able to detect the CPU and system fan speed in rpm (revolutions per minute). These connectors supports 3-pin cooling fans with minimum of 3500 RPM. The wiring and plug may vary depending on the manufacturer. On standard fans, the red is positive (+12V), the black is ground, and the yellow wire is the rotation signal.

PS/2 Mouse and Keyboard Ports



If a PS/2 mouse is used, BIOS will automatically detect and assign IRQ12 to the PS/2 mouse.

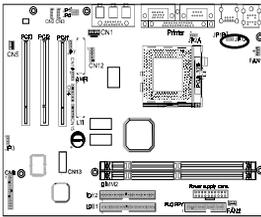


Pin	Definition
1	Data
2	No Connect
3	Ground
4	+5V (fused)
5	Clock
6	No Connect

Poly-fuse Over Current Protection

The poly-fuse protects the system from dangerous voltages the system might be exposed to via the keyboard or USB connectors. In case of such exposure, the poly-fuse will immediately be disconnected from the circuit, just like a normal fuse. After being disconnected for a certain period of time, the poly-fuse will return to its normal state, after which the keyboard or USB can function properly again. Unlike conventional fuses, the poly-fuse does not have to be replaced, relieving the user wasted time and inconvenience.

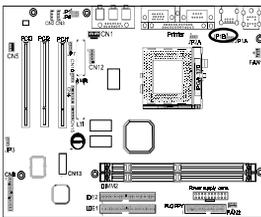
PS/2 Keyboard/Mouse Power On Function (JP1A)



1 Enabled 1 Disabled

This board is able to be turned on by the PS/2 keyboard (hot key/Password) or a PS/2 mouse click. To use this function, select a device of your choice at the Power on Function option in BIOS's Integrated Peripherals screen (See section 3-8). You must also set this jumper's cap to pins 1-2 to use this function.

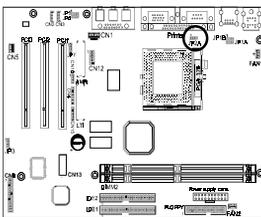
USB Device Power On Function (JP1B)



1 Enabled 1 Disabled

This board is able to be turned on by a USB keyboard (hot key/Password) or a USB mouse click. To use this function, select a device of your choice at the Power on Function option in BIOS's Integrated Peripherals screen (See section 3-8). You must also set this jumper's cap to pins 2-3 to use this function.

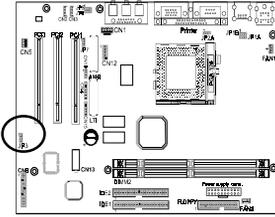
External Clock Frequency (JP2A/JP2B)



MHz	JP2A	JP2B
AUTO	1~2	1~2
100	2~3	1~2
133	2~3	2~3

This jumper allows the external clock frequency to be determined either by the CPU or the user.

CMOS Setting (JP3)

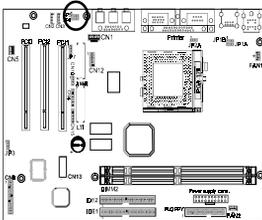


- 1 ● Normal (default)
- 1 ○ Clear CMOS data

To clear the contents of the CMOS, please follow the steps below.

1. Disconnect the system power supply from the power source.
2. Set the jumper cap at location 2~3 for 5 seconds, then set it back to the default position.
3. Connect the system's power and then start the system.
4. Enter BIOS's CMOS Setup Utility and choose Load Setup Defaults. Type Y and press enter.
5. Set the system configuration in the Standard CMOS Setup menu.

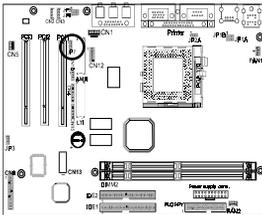
Audio Line out and Speaker out Jumpers(JP5/Jp6)



- | | | | |
|-----|----------|-----|-------------|
| JP5 | 1 ● | JP5 | 1 ○ |
| JP6 | ● | JP6 | ○ |
| | Line out | | Speaker out |

This jumper allows you to select between audio line-out or speaker out function. Set both JP5 and JP6 pins to 1-2 for line-out function or set both JP5 and JP6 pins to 2-3 for speaker out function..

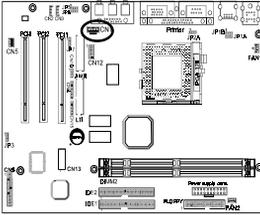
AC'97 CODEC Select Jumper (JP7)



- 1 ● 1-2: on board AC'97 CODEC (enabled)
- 1 ○ 2-3: AMR CODEC (enabled)

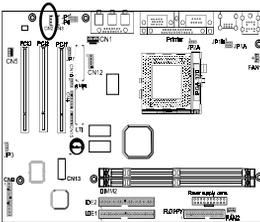
Short pin 1-2 to enable AC'97 CODEC. Short pin 2-3 to enable Soft Audio Modem riser.

CD-ROM Audio-in (CN1)



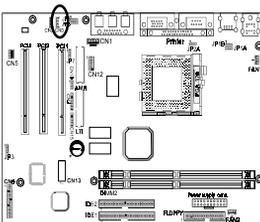
Use the audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your mainboard. This will enable your CD-ROM's audio function.

Auxiliary CD-ROM Audio-in (CN2)



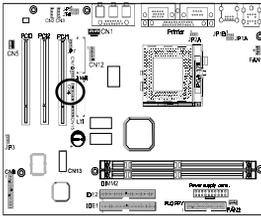
Use the auxiliary audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your mainboard. This will enable your CD-ROM's audio function.

Audio Mono -in/out (CN3)



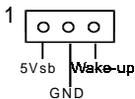
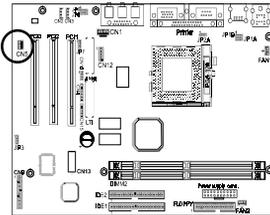
Use the mono audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your mainboard. This will enable mono audio in/out function.

Infrared Connector (CN4)



If you enable the IR Address Select in BIOS's Integrated Peripherals menu the IR port will support IR functions. (See section 3-4)

WOL (Wake-on-LAN) Connector (CN5)

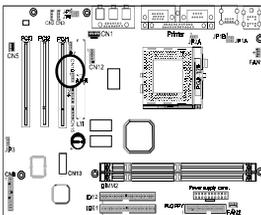


Enable the Wake Up On LAN selection in BIOS's Power Management Menu to use this function. The capability to remotely manage PCs on a network is a significant factor in reducing administrative and ownership costs. Magic Packet technology is designed to give WOL (Wake-on-LAN) capability to the LAN controller. When a PC capable of receiving wake up command goes to sleep, the Magic Packet mode in the LAN controller is enabled. When the LAN controller receives a Magic Packet frame, the LAN controller will wake up the PC. This header is used to connect an add-in NIC (Network Interface Card) which gives WOL capability to the mainboard.



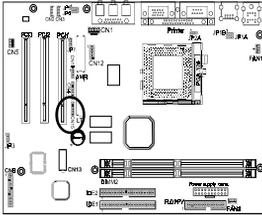
To support this function, a switching power supply with a minimum of **750mA** 5VSB is required.

Chassis Intrusion Detection (CN10)



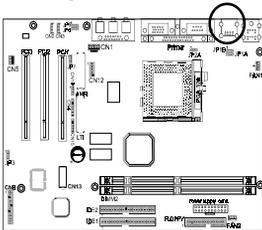
This board supports the chassis instruction detection feature of the management extension hardware by means of a mechanical or photo sensor switch attached to the motherboard through this 1x3-pin chassis security header. The mechanical switch is set to open for normal computer operation.

Alert On LAN Connector (CN15)



Alert On LAN enabled LAN controller to report messages to a network management console without the aid of the system processor. This is crucial in cases where the processor is malfunctioning or cannot function due to being in a low power state. In order to use this function, the connector must be connected to a LAN card that support AOL feature.

USB(Universal Serial Bus) Ports



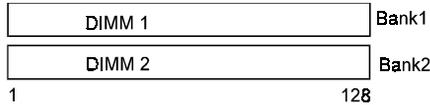
If you want to use a USB keyboard, you must enable the USB keyboard support function in BIOS's Integrated Peripherals menu . USB is an open industry standard, providing a simple and inexpensive way to connect up to 125 devices to a single computer port. Keyboards, mice, tablets, digitizers, scanners, bar-code readers, modems, printers and many more can all be used at the same time.

USB is a dynamically reconfigurable serial bus with an elementary data rate of 12Mbps. Based on off the shelf, low cost micro-controller technology, its modular layered software protocol supports sophisticated devices and application programs.

This board contains a USB Host controller and includes a root hub with two USB ports (meets USB Rev 1.0 spec.). Two USB peripherals or hub devices are able to be connected.

2-5 Main Memory Configuration

The DRAM memory system consists two banks and the memory size ranges from **16~256 MBytes**. If you only use one bank it does not matter which one you use and if you use two or more banks, it does not matter which bank you install first.



DRAM Specifications

DIMM type: 3.3V, 64/72-bit Synchronous DRAM
Module size: Single/double-sided 16/32/64/128 MBytes
DRAM speed: 10/12ns for Synchronous DRAM
Parity: Either parity or non-parity



The compatibility of 256MB DIMM is still under testing and cannot be guaranteed.



This mainboard supports 3.3v, unbuffered, 4-clock, SDRAM DIMM only. Buffered, 5V, or 2-clock SDRAM DIMMs should not be used.



Due to loading anomalies, using DIMM with an 'n x 4' DRAM base on this mainboard is not recommended. For example, a DIMM that uses sixteen 16Mb x 4 devices should not be used.

SPD (Serial Presence Detect)

This is an EPROM that contains speed and design information about the memory module. The mainboard queries the module and makes adjustments to system operation based on what it finds.

Award BIOS Setup Program

Award's BIOS ROM has a built-in setup program that allows users to modify the basic system configuration. This information is stored in CMOS RAM so that it can retain the setup information, even when the power is turned off.

When you turn on or reboot the system, press the Delete key to enter the Award BIOS setup program. The primary screen as shown in Figure 3-1 is a list of the menus and functions available in the setup program. Select the desired item and press enter to make changes. Operating commands are located at the bottom of this and all other BIOS screens. When a field is highlighted, on-line help information is displayed on the right side edge of the screen.

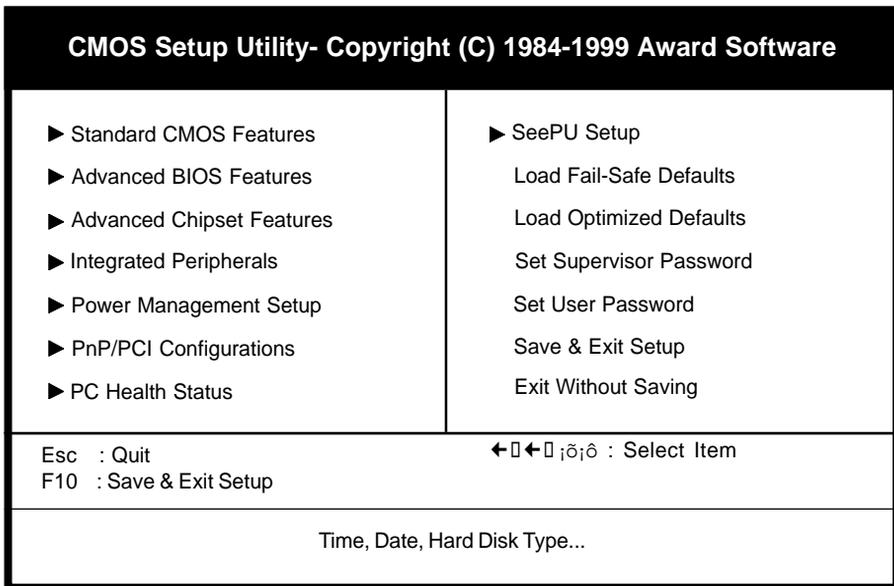


Figure 3-1 Setup Program Initial Screen

3-1 Standard CMOS Setup

The Standard CMOS Setup allows users to configure system components such as hard disk drive, floppy disk drive and video display as well as date, time and boot-up error signaling. This configuration menu should be changed when installing a mainboard for the first time, changing hardware in your system such as the HDD, FDD, video display, or when the CMOS data has been lost or contaminated. Choose the Standard CMOS Setup option from the CMOS Setup Utility menu (Figure 3-1) to display the following screen. When a field is highlighted, on-line help information is displayed on the right side of the screen.

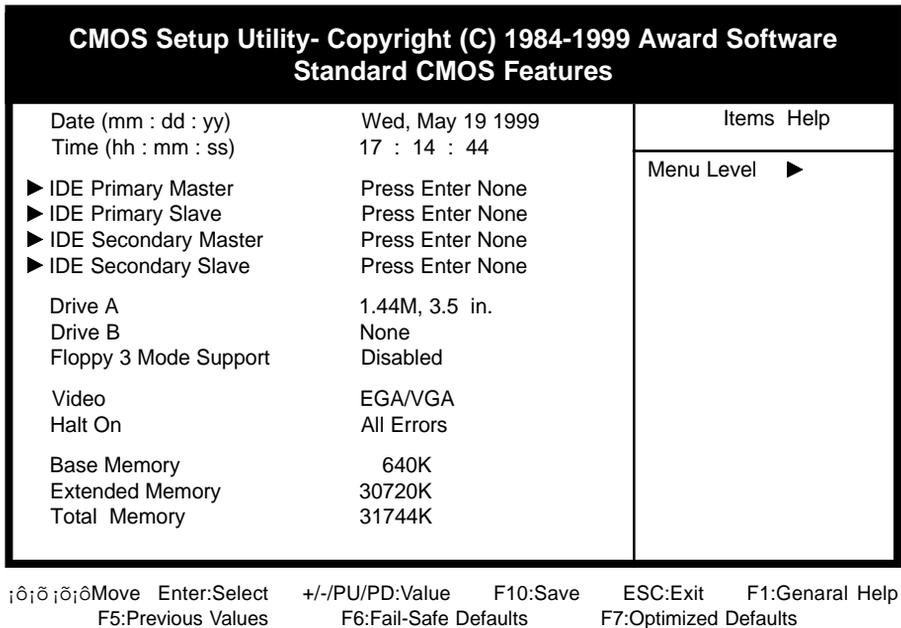


Figure 3-2 Standard CMOS Features Screen

Date/Time

Set the date and time. Do not skip this function as all of your timed events such as power management, saving files, etc. are based on this timer.

Hard Disk Setup (Primary/Secondary; Master/Slave)

This category identifies up to four IDE hard disk drives that have been installed in the computer. This section does not show information on other IDE devices such as CD-ROM drives or other hard drive types such as SCSI drives.

Type (Auto/User/None): Use the fields under the Type column to determine the method you will use to configure the IDE devices. If you choose Auto, BIOS will automatically detect and make optimal settings for most IDE hard drives.



The mainboard manufacturer recommends that you choose Auto for all drives.

Choose User to define your own drive type manually. You must enter values indicated in the table below into each drive parameter field. This information should be included in the documentation from your hard disk vendor or system manufacturer:

TYPE	Setting method
CYLS	Number of cylinders
HEAD	Number of heads
PRECOMP	Write precompensation cylinder
LANDZ	Landing zone
SECTOR	Number of sectors
MODE	Mode type

Table 3-1 Hard Disk Drive Parameters

Cyls/Head/Sector: The number of Cylinders, Heads, and Sectors can usually be found written on the top of the hard disk. If you have a relatively new hard drive, entering this information alone is usually sufficient for normal hard disk operation. The hard disk will not work properly if you enter improper information for these categories.

Precomp: Older hard drives (i.e., MFM or RLL drives) have the same number of sectors per track at the innermost tracks as at the outermost tracks. Thus, the data density at the innermost tracks is higher and the bits are lying closer together. Even though the physical size of a sector gets progressively smaller as the track diameter diminishes, each sector must still hold 512 bytes. Write precompensation circuitry compensates for the difference in sector size by boosting the write current for inner track sectors.

Landz: This defines the address of the landing zone and is only used for older hard drives which do not have an auto-parking feature.

Mode: If the Type value is not None for any device, you must set the Mode value for that device. There are four different Mode values: Auto, Normal, Large, and LBA.

Auto - BIOS detects and enters the IDE drive type during bootup.

Normal - for IDE drives that meet the old IDE specification which support a maximum capacity of 528MB (1024 cylinders, 16 heads, and 63 sectors).

Large - for IDE drives that do not support LBA and have more than 1024 cylinders. Try this setting if your hard disk does not operate properly with the LBA setting. Large mode is not supported by all operating systems, i.e., only certain versions of DOS support large mode.

LBA - (Large/Logical Block Addressing) With LBA, the IDE controller transforms the data address described by sector, head, and cylinder number into a physical block address, significantly improving data transfer rates. This mode is for drives with greater than 1024 cylinders and between 528MB and 8.4GB in size. This protocol is the current common standard.

Choose None for Type if there are no IDE HDD devices in your system.

- ✎ You can use the IDE HDD Auto Detection function to auto detect your hard drive parameters. Using this function will automatically insert the parameters discussed under Hard Disk Setup and will indicate User for the Field value. Please see Section 3-9 for more information.

Floppy Disk Drives

Choose the memory capacity and disk size that corresponds with that of your floppy disk drive(s).

Video

Select the type of video adapter present in your system. You can ignore this setting if you are using a VGA monitor since VGA BIOS automatically configures this setting.

Halt

When the system is powered on, BIOS performs a series of diagnostic tests called POST (Power On Self Test). This function stops the computer if BIOS detects a hardware error. You can tell BIOS to halt on all errors, no errors, or not to halt on specific errors.

3-2 Advanced BIOS Features

By choosing the Advanced BIOS Features option from the Standard CMOS Features menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard.

CMOS Setup Utility- Copyright (C) 1984-1999 Award Software		Items Help
Advanced BIOS Features		Menu Level ▶
Anti-Virus Protection	Disabled	
CPU Internal Cache	Enabled	
External Cache	Enabled	
CPU L2 Cache ECC Checking	Enabled	
Processor Number Feature	Enabled (For Pentium III only)	
Quiet Post	Disabled	
Quick Power On Self Test	Enabled	
Frist Boot Device	Floppy	
Second Boot Device	HDD-0	
Third Boot Device	LS/ZIP	
Boot Other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Disabled	
Boot Up NumLock Status	Off	
Gate A20 Option	Fast	
Typematic Rate Setting	Disabled	
Typematic Rate (Chars/Sec)	6	
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

Figure 3-3 Advanced BIOS Features Screen

A. Anti Virus Protection

Trend ChipAway Virus

Trend ChipAway Virus is a code incorporated in the mainboard's BIOS firmware. During the boot-up sequence, BIOS loads before loading of the partition table or boot sector. ChipAway Virus loads with BIOS and is able to detect boot-up viruses before they have a chance to infect the hard drive. ChipAway Virus employs rule-based logic that doesn't look for specific viruses but rather detects patterns found in every virus, eliminating the need to perform periodical version updates after new viruses have been found.

B. Cache Control

CPU Internal Cache/External Cache

Cache memory is much faster than conventional DRAM system memory. These fields allow you to enable or disable the CPUs Level 1 built-in cache and Level 2 external cache. Both settings are left enabled to significantly increase the performance of your computer.

C. Boot Up Features

After turning on the system, BIOS will perform a series of device initialization and diagnostic tests discussed below.

Quick Power On Self Test (POST)

Enable this function to reduce the amount of time required to run the POST (Power On Self Test). BIOS saves time by skipping some items during POST. It is recommended that you disable this setting. Discovering a problem during bootup is better than losing data during your work.

First/Second/Third/Boot Other Device

This option sets the sequence of drives BIOS attempts to boot from after POST completes. BIOS will search these drives for an operating system.

Swap Floppy Drive

Enabling this function will swap the floppy drive assignment so that drive A will function as drive B, and drive B will function as drive A. Note that the boot sequence assignment mentioned directly above does not include booting from floppy drive B. This function is useful if floppy drives B and A are of a different format and you want to boot from floppy drive B.

Boot up Floppy Seek

During POST, BIOS will determine if the installed floppy disk drive has 40 or 80 tracks. A 360K drive has 40 tracks and 720K, 1.2M and 1.44M drives have 80 tracks. All modern floppy disk drives have 80 tracks.

Boot Up NumLock Status

This function defines the keyboard's numberpad as number keys or arrow keys.

D. Gate A 20 Option

Gate A20 refers to the way the system addresses memory above 1 MB (extended memory). When set to Fast, the system chipset controls Gate A20. When set to Normal, a pin in the keyboard controller controls Gate A20. Setting Gate A20 to Fast improves system speed, particularly with OS/2 and Windows.

E. Keyboard Interface

Typematic Rate Setting

When enabled, you can set the following two typematic control items. When disabled, keystrokes are determined arbitrarily by the keyboard controller in your system.

Typematic Rate (Chars/Sec)

The typematic rate sets the rate at which characters on the screen repeat when a key is pressed and held down.

Typematic Delay (Msec)

The typematic delay sets how long after you press a key that a character begins repeating.

F. Security Option

The Supervisor and/or User Password functions shown in Figure 3-1 must be set to take advantage of this function. See Section 3-11 for password setting information. When the Security Option is set to System, a password must be entered to boot the system or enter the BIOS setup program. When the Security Option is set to Setup, a password is required to enter the BIOS setup program.

G. OS Select (For DRAM > 64MB)

If your system's DRAM is larger than 64MB and you are running OS/2, select OS/2 as the item value. Otherwise, set the item value to Non-OS/2 for all other operating systems.

3-3 Advanced Chipset Features

By choosing the Advanced Chipset Features option from the Standard CMOS Features menu(Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard.

CMOS Setup Utility- Copyright (C) 1984-1999 Award Software		Items Help
Advanced Chipset Features		Menu Level ▶
SDRAM CAS Latency Time	by SPD	
SDRAM Cycle Time Trns/Trc	6/8	
SDRAM RAS-to-CAS Delay	3	
SDRAM RAS Precharge Time	3	
System BIOS Cacheable	Disabled	
Video BIOS Cacheable	Enabled	
Memory Hole At 15M-16M	Disabled	
Delayed Transaction	Enabled	
On-Chip Video Window Size	64 MB	
Flash BIOS Protection	Disabled	
Hardware Reset Protect	Disabled	
* Onboard Display Cache Setting *		
CAS# Latency	3	
Paging Mode Control	Close	
RAS-to-CAS Override	by CAS# LT	
Ras# Timing	Slow	
Ras# Precharge Timing	Slow	

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 Chipset Features Setup Screen



All of the above settings have been determined by the mainboard manufacturer and should not be changed unless you are absolutely sure of what you are doing. Explanation of the DRAM timing and chipset features setup is lengthy, highly technical and beyond the scope of this manual. Below are abbreviated descriptions of the functions in this setup menu. You can look on the world wide web for helpful chipset and RAM configuration information including AWARD's web site at <http://www.award.com>.

A. Memory Hole at 15M-16M

Enabling this function will reserve the memory address space between 15MB and 16MB for ISA expansion cards. However, enabling this function will result in not allowing the system to have access to memory above 16MB. Please note that some expansion cards require this setting to be enabled. The default setting is Disabled. If Auto Configuration is enabled, you must set the DRAM timing function to 60ns or 70ns, depending on the type of DRAM you install.

B. Flash BIOS Protection

The mainboard manufacturer developed BIOS protection technology that protects the System BIOS from accidental corruption by unauthorized users or computer viruses. When enabled, the BIOS data cannot be changed when attempting to update BIOS with the FLASH utility. When disabled, the BIOS data can be updated by using the FLASH utility.

C. Hardware Reset Protect

When this function is enabled, your PC's hardware reset button will not function. This function is especially useful to prevent accidental resets for file servers and routers, etc., which should be available 24 hrs/day. When disabled, your PC's hardware reset button will function normally.

3-4 Integrated Peripherals

This section provides information on setting peripheral devices. By choosing the Integrated Peripherals option from the Standard CMOS Features menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard.

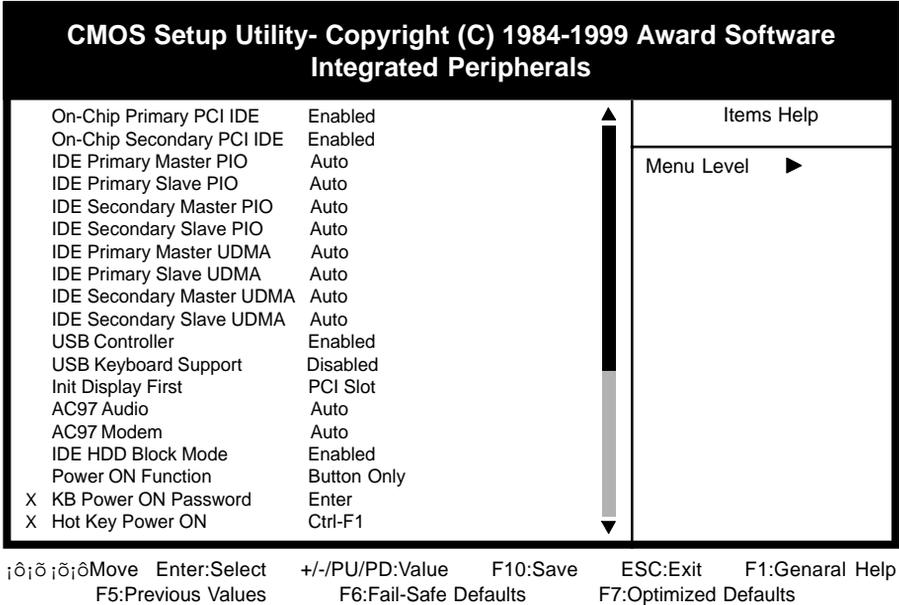


Figure 3-5 Integrated Peripherals Screen

A. On Board IDE Control

On-chip Primary/Secondary PCI IDE

You can set this to disable the On-chip IDE controller if you are going to add a higher performance IDE board.

IDE Primary/Secondary Master/Slave PIO

The four IDE PIO (programmed Input/Output) fields let you set a PIO mode (0-4) for each IDE device that the internal PCI IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

B. USB Keyboard Support

If your current operating system doesn't support USB drivers (i.e., DOS) this function must be enabled for USB keyboard operation in these operating systems.

C. Init Display First

This function allows user to choose between AGP slot or VGA slot to initialize Display first .

D. AC97 Audio

Select Auto if you install the audio riser card.

E. AC97 Modem

Select Auto if you install the soft modem riser card.

F. IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

G. Power On Function

Set to Button Only to control the system power via the button on your system case. Set to Mouse Left/Right Click to turn on the power via a PS/2 mouse, and set to Keyboard 98, Hot Key or Password to turn on the power via keyboard. With Hot Key and Password you must decide on which keys will turn on the power.

H. 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 an add-in FDC or the system has no floppy drive, select Disabled in this field.

I. COM2 Mode Select

This function allows you to select an operating mode for the second serial port. (Normal RS-232C serial port/IrDA SIR 1.0 specification/ASKIR 0.57-MB/sec infrared port)

J. Onboard Parallel Port

Select a logical LPT port address and corresponding interrupt for the physical parallel port.

K. Parallel Port Mode

Select an operating mode for the onboard parallel (printer) port. Select SPP unless you are certain your hardware and software support one of the other available modes.

L. Power Failure Recovery

Select **On** to enable the system to auto power on after a power failure occurred.

3-5 Power Management Setup

This section provides information on the Green PC power management functions. By choosing the Power Management Setup option from the Standard CMOS Features menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard

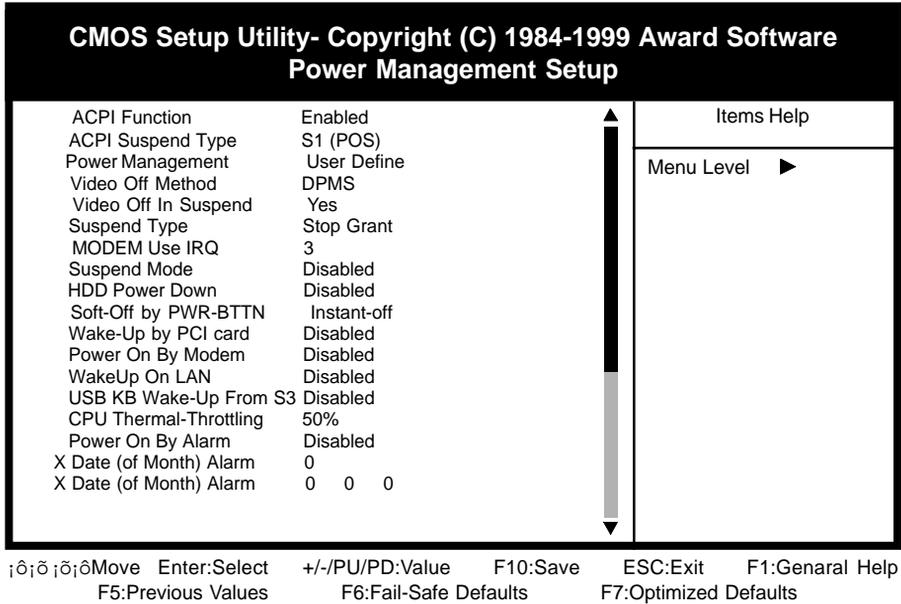


Figure 3-6 Power Management Setup Screen

A. Advanced Configuration Power Interface (ACPI)

ACPI management enables the operating system to control the amount of power given to each device attached to the computer. With ACPI, the operating system can turn off peripherals devices, such as CD-ROM players, when they are not in use.

B. Power Management

Power management allows the computer to save electricity when it is not in use by entering increasingly deep power saving modes as shown by the diagram below.

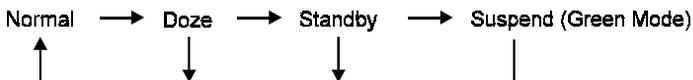


Figure 3-7 Power Saving Mode Flow Chart

C. Video Off Method

This function serves as both a screen saver and power saver for monitors. See the next function, Video Off After, for setting the video timer.

Blank - BIOS will only blank the monitor's screen. The electricity saved in this mode is negligible and this function is only used as a screen saver to prevent screen damage while the screen is on but not in use.

V/H SYNC+Blank - The system turns off the vertical and horizontal synchronization ports, writes blanks to the VGA buffer and the monitor's electron gun turns off. This function requires a monitor with Green features in order to take advantage of the power saving function. If you enable this function and do not have a Green monitor, the result will be the same as if you had selected Blank. This function serves as both a screen saver and an electricity saver.

DPMS Supported - Select this option if your video card supports the Display Power Management Signaling (DPMS) standard (i.e., you have a monitor that supports Green features). Use software supplied by your video subsystem to set video power management options.

D. Video Off In Suspend

This setting determines when the monitor enters power saving mode. If set to Yes, the monitor enters the power saving mode after the chosen event expires. The Power Management function must be enabled to use this function.

E. Modem Use IRQ

If your computer has a modem, use this function to tell BIOS which IRQ is being occupied by the modem card. When the system is in Green mode, the modem requires an IRQ assignment to wake up the system and perform tasks. This assignment is compliant with the APM 1.2 specification and is to be used in coordination with APM 1.2 compliant operating systems.

F. Suspend Mode

The Power Management function must not be set to disabled to enable this function. If the system runs in Standby mode and the Suspend timer expires, all devices regulated by power management will shut off and the CPU speed will be 0 MHz.

G. HDD Power Down

The Power Management function must not be set to disabled to enable this function. When the HDD idle time has elapsed, BIOS sends a command to the hard disk to turn off the motor. Set a time between 1 and 15 to indicate time required to wait before the hard drive enters a power saving mode. Some old hard drives may not support this function.

H. Soft-Off by PWR-BTTN

When set to Delay 4 Sec., this function allows the power button to put the system in Suspend, a power saving mode. See Section 2-4 for operation instructions of the over-ride power button operation which puts the system in Suspend mode. When set to Instant-Off the Soft-Off by PWR-BTTN function is disabled and the computer turns completely off when the power button is pressed.

I. Power On By Modem

When enabled, a modem that receives a call will wake up the system from soft off and green mode. You should connect the modem to the COM port and turn on the resume event in green mode.

J. Wake-Up by PCI card

Some PCI (Modem) cards use PME signal to wake up your system. Enable this function if your PCI card support this feature.

K. Wake Up On LAN

Enable this selection to use the Wake Up On LAN function discussed in Section 2-4 of this manual.

L. USB KB Wake-Up From S3

When enabled, this setting allows the USB keyboard to wake up the system from S3 mode (Suspend to RAM).

M. CPU Thermal-Throttling

When the system enters Doze mode, the CPU clock runs only part of the time. You may select the percent of time that the clock runs.

N. Power On By Alarm

When enabled, this setting allows the system to turn back on at a designated time of the month. User must designate date of month and time of day. This function is only available when using an ATX power supply and the Software Power-Off function to turn off the computer. See the Software Power-Off feature in Section 2-4 of this manual for instructions.

O. Reload Global Timer Events

When Enabled, an event occurring on each listed device restarts the global timer for Standby mode.

3-6 PNP/PCI Configuration

This section provides IRQ and DMA setting information. By choosing the PNP/PCI Configuration option from the Standard CMOS Features menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard.

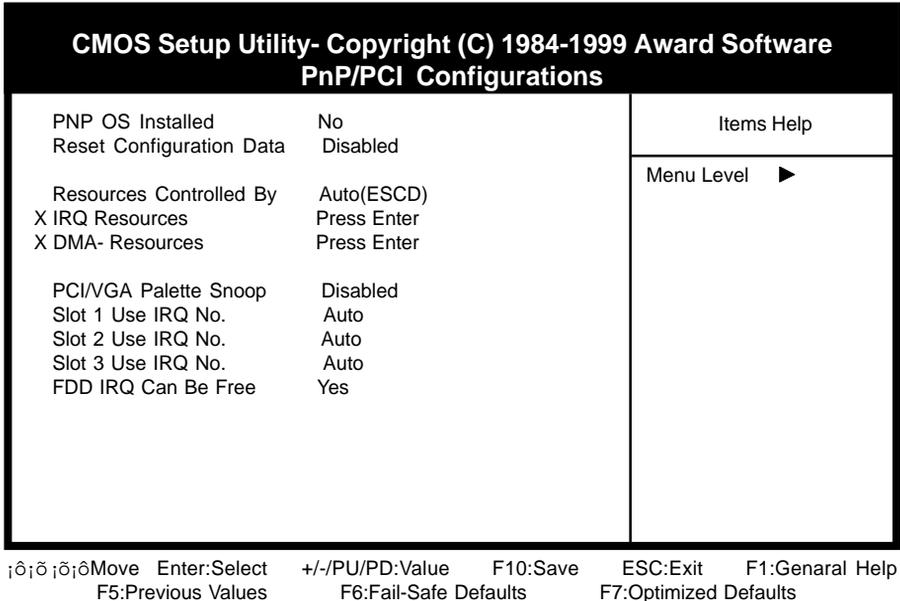


Figure 3-7 PnP/PCI Configurations Screen

A. PNP OS Installed

If you want to install a PNP compatible OS (such as Windows 95) set to Yes.

B. Resources Controlled By

When set to Manual the system BIOS will not refer to the ESCD for IRQ & DMA information. Instead, it will refer to the items in the setup menu for assigning IRQ & DMA. When set to Auto the system BIOS will refer to the ESCD for all legacy information.



ESCD (Extended System Configuration Data) provides a detailed format of the configuration data structures stored in flash memory. Each data structure defines the resources used by a device or a card in the system. This includes legacy and PCI/ISA PnP devices.

C. FDD IRQ Can Be Free

This function allows user to choose if the FDD IRQ is able to be freed up. The default setting is Yes and this does not allow the IRQ to be free.

3-7 PC Health Status

By choosing the PC Health Status option from the Standard CMOS Features menu(Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard.

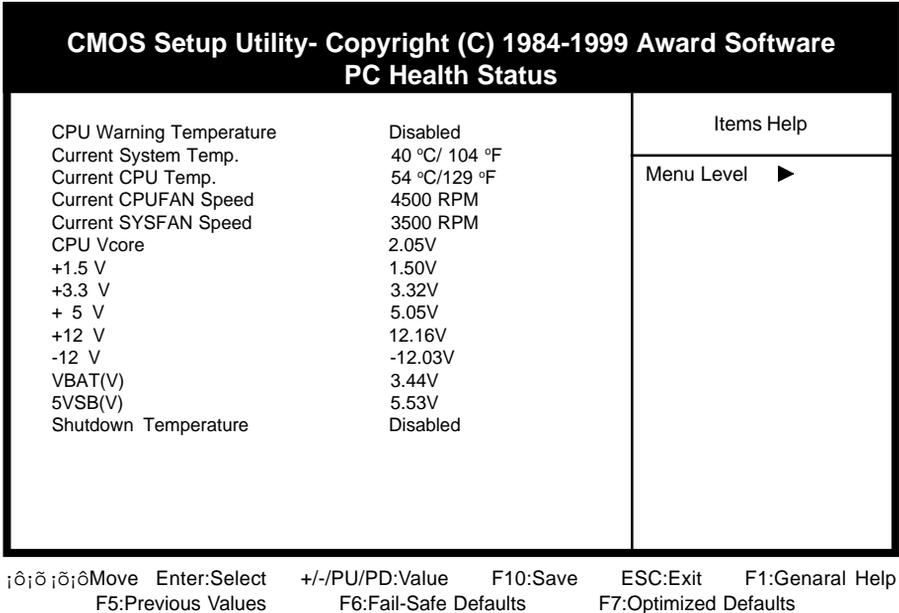


Figure 3-8 PC Health Status Screen

A. CPU Warning Temperature

Set a limit for the CPU temperature. If the CPU temperature extends beyond the limit, any warning mechanism programmed into your system will be activated.

B. Shutdown Temperature

The system will shutdown when the temperature setting is reached , to prevent the system from overheating. (Support Windows 98 ACPI function only)

3-8 SeePU Setup

By choosing the *SeePU* Setup option from the Standard CMOS Features menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard.

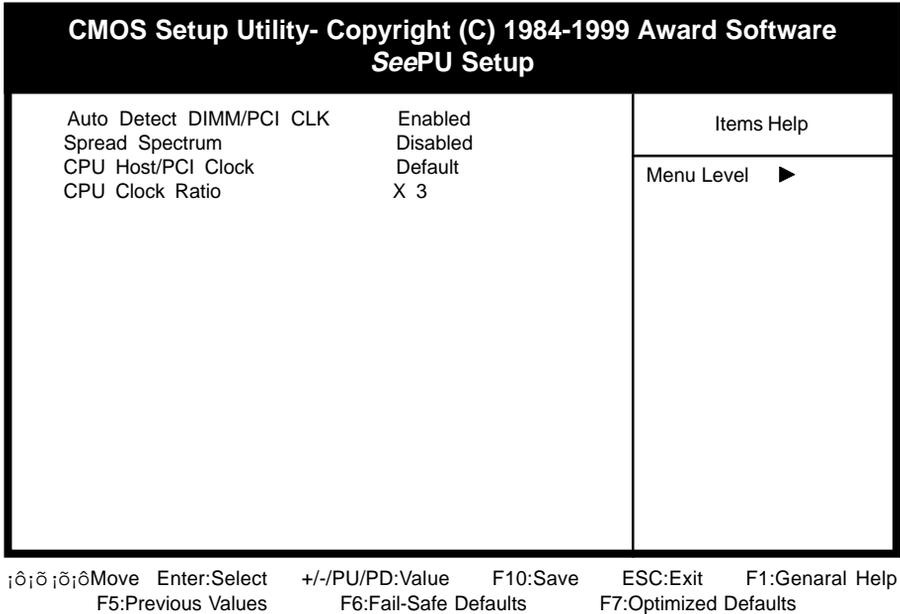


Figure 3-9 SeePU Setup Screen

A. CPU Setup

The mainboard manufacturer developed *SeePU* technology that allows you to easily change your CPU's **Host/PCI Clock** and **CPU Clock Ratio** in BIOS. Refer to Section 2-3 for details.

3-9 Load Fail-Safe Defaults

Load Fail-Safe Defaults loads the default BIOS values directly from the Standard CMOS Features menu (Figure3-1). If the stored record created by the setup program becomes corrupted and therefore unusable, these defaults will be loaded automatically when you turn on the computer.

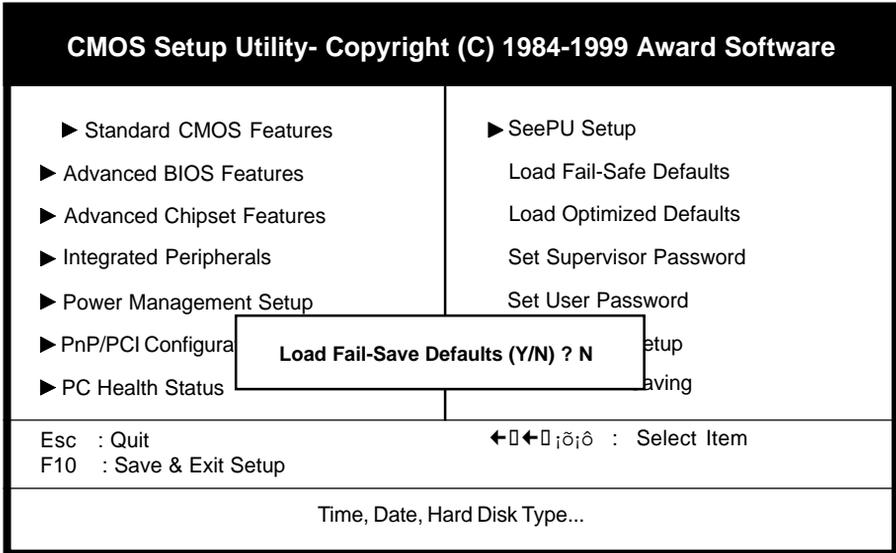


Figure 3-10 Load Fail-Safe Defaults Screen

3-10 Load Optimized Defaults

Load Optimized Defaults loads the default system values directly from the Standard CMOS Features menu (Figure 3-1). If the stored record created by the setup program becomes corrupted and therefore unusable, these defaults will be loaded automatically when you turn on the computer.

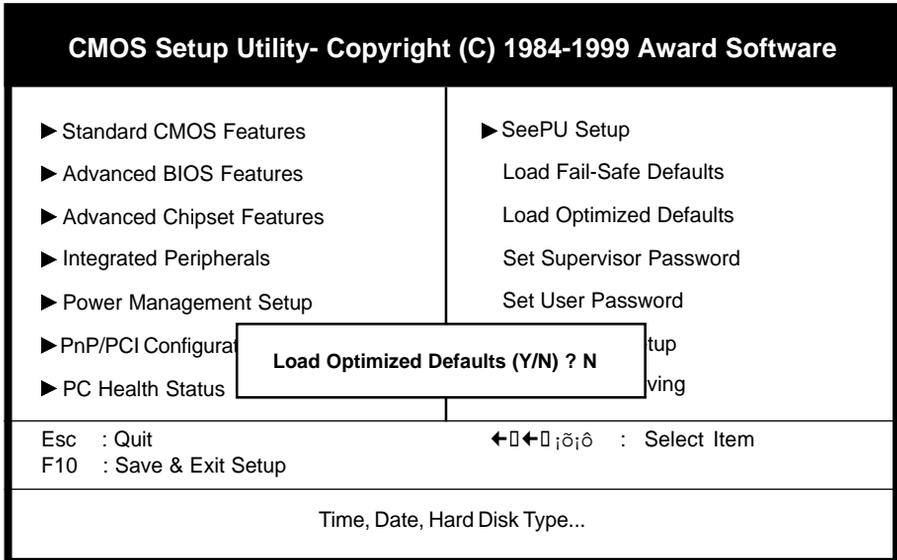


Figure 3-11 Load Optimized Defaults Screen

3-11 Supervisor Password & User Password Setting

There are four different variables that control password settings. The first two are located under the Security Option function in BIOS Features Setup Menu (Figure 3-1). When the Security Option function is set to Setup, a password is required to enter BIOS and change BIOS settings. When the Security Option function is set to System, a password is required to enter both BIOS and the computer's operating system (for example Windows 95) found on the boot drive. This is shown in Figures 3-12 and 3-13.

The third and fourth variables are user password and supervisor password selected in BIOS (Figure 3-1). The main purpose of separating user and supervisor is to allow only the supervisor to have control over the settings in BIOS. The user, on the other hand, is only allowed to access the computer's operating system and change the user password in BIOS (See Figure 3-13). Note that when there is no supervisor password set, the user password controls access to all BIOS settings (See Figure 3-12 below).

A. Set Either Supervisor Password or User Password

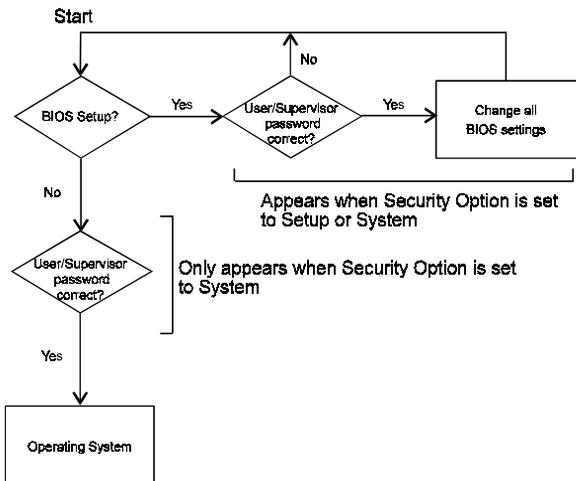


Figure 3-12 Set Either Supervisor or User Password

B. Set Both Supervisor Password and User Password

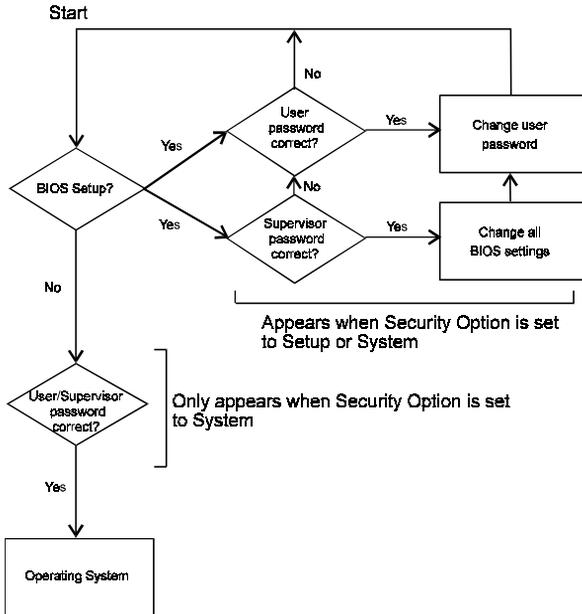


Figure 3-13 Set Both Supervisor and User Password

3-12 Save and Exit Setup

If you select this and type Y (for yes) followed by the [Enter] key, the values entered in the setup utilities will be recorded in the CMOS memory of the BIOS chip.

3-13 Exit Without Saving

Selecting this option and pressing Y followed by the [Enter] key lets you exit the Setup program without recording any new values or changing old ones.



Memo

Brief Software Driver Guide

The Mainboard Software Guide is found on the CD-ROM that is enclosed with your mainboard and is a PDF file which must be viewed with Adobe's freeware called Acrobat® Reader. The Acrobat Reader software is also included on the same CD-ROM. See the Readme.txt file in the CD-ROM's root directory for installation instructions of the Acrobat Reader. The Mainboard software guide discusses the following items:

The following items are discussed in the TXT and PDF files:

- Bus Master/PIO IDE Driver Installation
- USB Driver Installation
- Removing the Exclamation and/or Question Marks From the Windows 95 Device Manager Menu
- Updating Your System BIOS
- Installing and Using a Desktop Management Interface (DMI) Utility for DOS
- Sound Driver and Utility Installation
- Graphics Accelerator Driver and Utility Installation



The DMI utility is a DOS utility, operating under Windows or other operating system might cause damage to the BIOS.



Memo

Optional Audio Subsystem

5-1 Features

- Creative **1373** or **CT5880** audio chip option
- Advanced 64-Voice WaveTable synthesizer
- Programmable independent sample rate from 4KHz to 48KHz for recording and playback
- Full-duplex operation for simultaneous recording and playback
- 4-Channel speaker audio support for Home Theater environment (CT5880 only)
- Supports S/PDIF-out for digital audio (for example compressed AC3 data)
- Supports Microsoft's DLS (Downloadable sample) level-1 technology with limitless variety of instrument samples using PC RAM
- Up to 8MB wavedata provides 128 GM, GS and WT-32 compatible instruments and 10 drum kits
- Supports HRTF 3D positional audio with Microsoft's DirectSound, DirectSound3D, DirectMusic, Aural A3D and Creative EAX(Environment Audio Extensions) APIs
- PCI v2.1 compliant and full Legacy DOS software compatible



5-2 Onboard Audio jumper (See Section 2-4)

5-3 Sound Driver and Utility (See Chapter 4)

5-4 CD-ROM Audio-in Connection (See Section 2-4)



Memo

Appendix I

On Board I/O Addresses & IRQ Maps

System Resource	IRQ	I/O Address
1. Timer	IRQ0	040, 043
2. Keyboard	IRQ1	060, 064
3. Programmable INT	IRQ2	0020, 0021, 00A0, 00A1
4. COM2(B)	IRQ3	2F8, 2FF
5. COM1(A)	IRQ4	3F8, 3FF
6. Floppy	IRQ6	3F0, 3F7
7. LPT1	IRQ7	378, 37F
8. Real Time Clock	IRQ8	070, 071
9. PS/2 Mouse	IRQ12	060, 064
10. Math coprocessor	IRQ13	0F0, 0FF
11. IDE 1	IRQ14	1F0, 1F7
12. IDE 2	IRQ15	170, 177

✎ IRQ 5, 9, 10 and 11 are available for interface cards.



Memo

Quick Connector and Jumper Reference

JP3: CMOS Setting

- 1-2: Normal (Default)
- 2-3: Clear CMOS

JP5/JP6: Audio Amplifier

- 1-2: Line out
- 2-3: Speaker out (Default)

JP7: Primary CODEC Setting Jumper

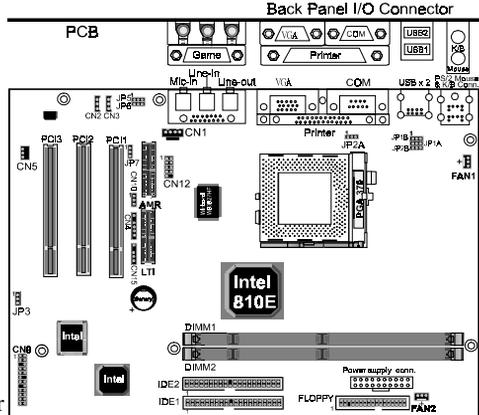
- 1-2: On board CODEC (Default)
- 2-3: AMR

JP1A:PS/2 and power-on Setting Jumper

- 1-2:Disabled (Default)
- 2-3:Enabled

JP1B:USB Device Wake up Setting Jumper

- 1-2:Disabled (Default)
- 2-3:Enabled



JP2A/JP2B:HOST BUS

	JP2A	JP2B
Auto	1-2	1-2
100MHz	2-3	1-2
133MHz	2-3	2-3

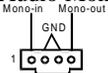
FAN1/2: CPU/System cooling fan connectors



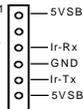
CN1/CN2: CD-ROM/AUX-IN₁



CN3: Audio Mono in/out Conn.



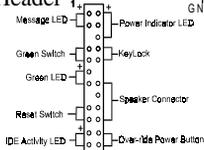
CN4: Infrared Connector



CN5: WOL (Wake-on-LAN) Conn.



CN9: Front Panel Header



See **PU** (Jumper free CPU installation) setting table

CPU Type	CPU Speed		
	External Clock	Frequency Ratio	Internal Clock
Intel Celeron Socket370 processor	66	4.5	300
		5	333
		5.5	366
		6	400
		6.5	433
		7	466
		7.5	500
		8	533
100	100	3.5	350
		4	400
		4.5	450
		5	500
		5.5	550
		6	600
133	133	4	533
		4.5	600
		5	667
		5.5	733

CN10: Chassis intrusion detection



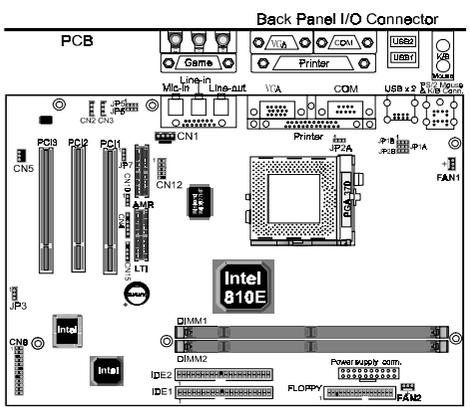
CN12: COM2 PORT connector

CN15: AOL(Alert On LAN)





Memo



SeePU (Jumper free CPU installation) setting table

CPU Type	CPU Speed		
	External Clock	Frequency Ratio	Internal Clock
Intel Celeron Socket 370 processor	66	4.5	3.00
		5	3.33
		5.5	3.66
		6	4.00
		6.5	4.33
		7	4.66
		7.5	5.00
		8	5.33
100	100	3.5	3.50
		4	4.00
		4.5	4.50
		5	5.00
		5.5	5.50
		6	6.00
133	133	4	5.33
		4.5	6.00
		5	6.67
		5.5	7.33

- JP3: CMOS Setting**
1-2: Normal
2-3: Clear CMOS
- JP5/JP6: Audio Amplifier**
1-2: Line out (Default)
2-3: SPK out
- JP7: Primary CODEC Setting Jumper**
1-2: on board primary codec(Default)
2-3: AMR
- JP1A: PS/2 and power_on Setting Jumper**
1-2: Normal(Default)
2-3: Enabled
- JP1B: USB Device Wake up Setting Jumper**
1-2: Normal(Default)
2-3: Enabled

- FAN1/2: CPU/System cooling fan connectors**
- CN1/CN2: CD-ROM/AUX-IN**
- CN3: Audio Mono in Conn.**
- CN4: Infrared Connector**
- CN5: WOL (Wake-on-LAN) Conn.**

- CN9: Front Panel Header**
- CN10: Chassis intrusion detection**
- CN12: COM2 PORT connector**
- CN15: AOL(Alert On LAN)**

MHz	JP2A	JP2B
AUTO	1-2	1-2
100	2-3	1-2
133	2-3	2-3

6WIV2 V.1 Jumper Setting Label