Notice to End Users

This User's Guide & Technical Reference is for assisting system manufacturers and end users in setting up and installing the mainboard.

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Web site: http://www.soltek.com.tw
email: support@soltek.com.tw

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SL-65C/65E SERIALS

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Chapter 1
Introduction

Features

CPU
1. Supports Intel **PPGA Celeron 370 CPUs using** Socket 370 at 300 ~ 433 MHz
2. Supports CPU voltage autodetect circuit

Chipset
1. Intel 82440LX chipset
2. PCI Rev 2.1, 5V, 33MHz interface compliant
3. Supports 66/133 MHz, 3.3V AGP(Accelerated Graphics Port) slot

L2 Cache
1. PPGA Celeron 370 CPU supports 128K write back cache with Pipelined Burst SRAMs

Main Memory
1. Memory range from 8MB (minimum) to 768MB(EDO) Or 512MB(SDRAM) (maximum) with DRAM Table Free configurations
2. Supports EDO with 50ns/60ns/70ns speed and SDRAM with 12/10/8ns speed
3. Supports 3 pcs 168pin DIMM sockets (3.3V Unbuffered and 4 clock type)

BIOS

1. AWARD Plug and Play BIOS
2. Supports Advanced Power Management and ACPI Function
3. Flash Memory for easy upgrade

Super I/O Function

1. Integrated USB (Universal Serial Bus) controller with two USB ports.
2. Supports 2 IDE channels with 4IDE devices (including ZIP/LS-120 devices)
3. Provides PCI IDE Bus Master function and supports Ultra DMA33 function
4. One floppy port
5. Two high speed 16550 FIFO UART ports
6. One parallel port with EPP/ECP/SPP capabilities
7. PS/2 mouse connector
8. Built-in RTC, CMOS, keyboard controller on single I/O chip
9. Peripherals boot function (with ATX power)

Sound Chip Features (ONLY FOR SL-65E)

1. Integrated sound controller compatible with:
   - Sound Blaster Pro™
   - AdLib™
   - Microsoft® Windows™ Sound System™
   - MPU-401 MIDI interface
2. Microsoft® PC-97 compliant
3. Built-In QSound QXpander™ 3D Sound Enhancement Processor
4. Built-in high-quality 22 voice,52 operator, music synthesizer with enhanced bass
5. Built-in 7-channel mixer: five stereo, two mono
6. Built-in 16-bit sigma delta stereo codec
7. ISA Plug and Play Specification 1.0a compatible:
   - Sound Blaster Pro,Windows Sound System, FM synthesis
8. Full duplex operation:record and playback Simultaneously using two 8-or 16-bit DMA channels
9. Supports IMA ADPCM,µ-law,A-law decompression

10. 8-or 16-bit stereo sound data up to 48KHz stereo
11. Supports 16-bit Type FDMA playback
12. Digital joystick interface support,improves responsiveness(Microsoft SideWinder™)
13. DirectSound™ interface support.

Other Functions
1. ATX size 17cm x 30.5cm
2. 4 PCI Master slots, 2 ISA slots, and 1 AGP slot
3. Supports SCSI/CD-ROM Boot function
4. Supports jumperless setting
5. **Supports 66/68/75/83Mhz Bus Clock(from Bios)**
6. Supports Wake On Lan (WOL) function. **
7. Supports Power Lost Recovery function.

**: *For support WOL, the ATX power supply has to have at least 5V/720mA standby current.*

Mainboard Layout with Default Settings

The default settings of the following figure is for the PPGA Celeron 370- 300A and the Jumperless function is Enabled.
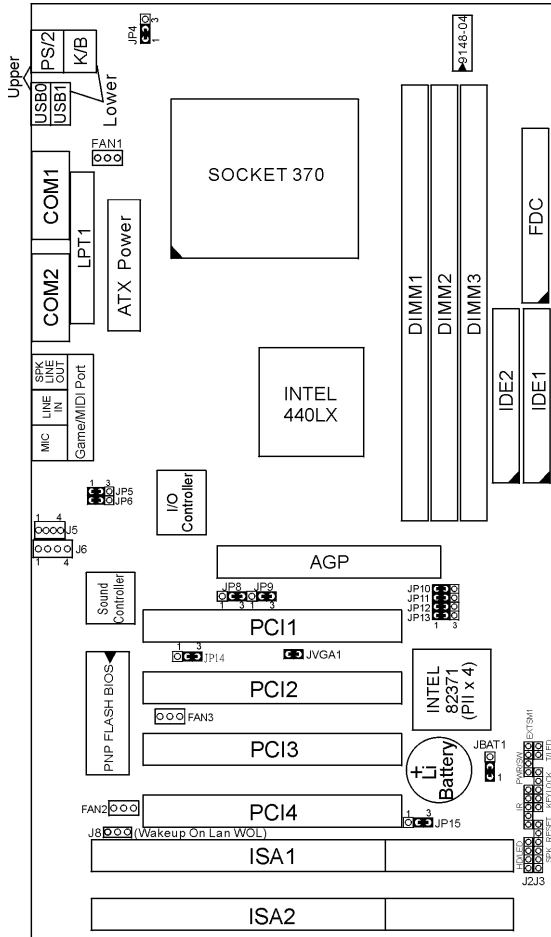
Figure 1-1. Motherboard Layout

Chapter 2
Hardware Setup

There are two ways to set the CPU type and both ways are controlled by JP10, JP11, JP12, and JP13:

1. Use jumpers (hardware): JP10 ~ JP13 must be set. Refer to the following pages (page 5~7).
2. Use BIOS (jumperless): JP10 ~ JP13 must be all closed at pin 1-2 (default). Refer to "CPU SPEED SETTING" or "CHIPSET FEATURE SETUP" section for detail description.

CPU Type Jumper Configuration

CPU 4.5X Clock Setting

PPGA Celeron 370-300A/66MHz
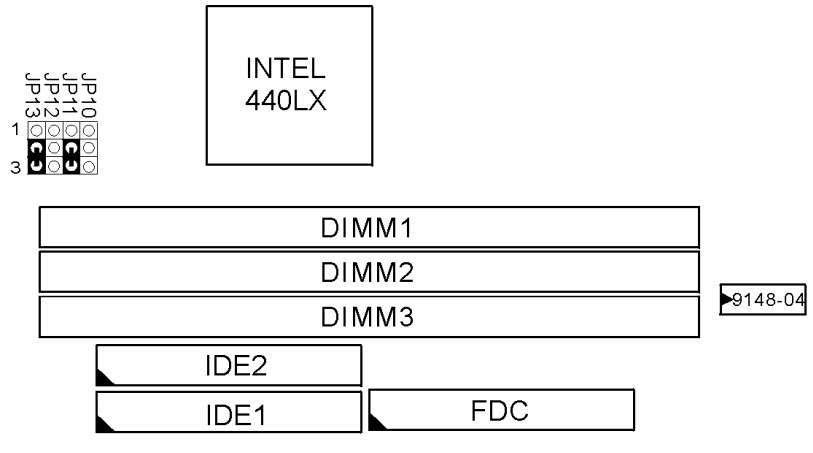
Figure 2-1. CPU Type Configuration

CPU 5.0X Clock Setting
PPGA Celeron 370-333/66 MHz
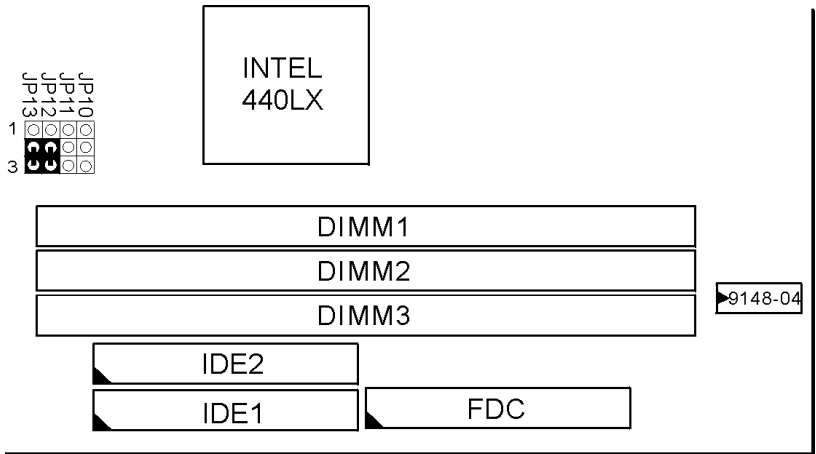
Figure 2-2. CPU Type Configuration

CPU 5.5X Clock Setting
PPGA Celeron 370–366/66 MHz
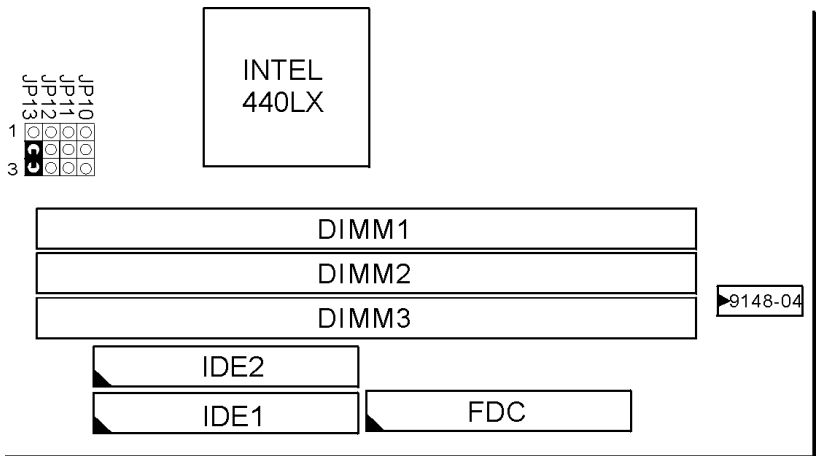
Figure 2-3. CPU Type Configuration

CPU 6.0X Clock Setting
PPGA Celeron 370-400/66 MHz

```
                    ┌──────────────┐
JP10                │              │
JP11                │   INTEL      │
JP12                │   440LX      │
JP13                │              │
1 ┌─────┐           │              │
  │○○○○○│           └──────────────┘
  │○●●●○│
3 │○●●●○│
  └─────┘
  ┌───────────────────────────────────────┐
  │                DIMM1                   │
  └───────────────────────────────────────┘
  ┌───────────────────────────────────────┐
  │                DIMM2                   │       ►9148-04
  └───────────────────────────────────────┘
  ┌───────────────────────────────────────┐
  │                DIMM3                   │
  └───────────────────────────────────────┘
     ┌────────────────────┐
     │       IDE2         │
     └────────────────────┘
     ┌────────────────────┐  ┌────────────────────┐
     │       IDE1         │  │        FDC         │
     └────────────────────┘  └────────────────────┘
```
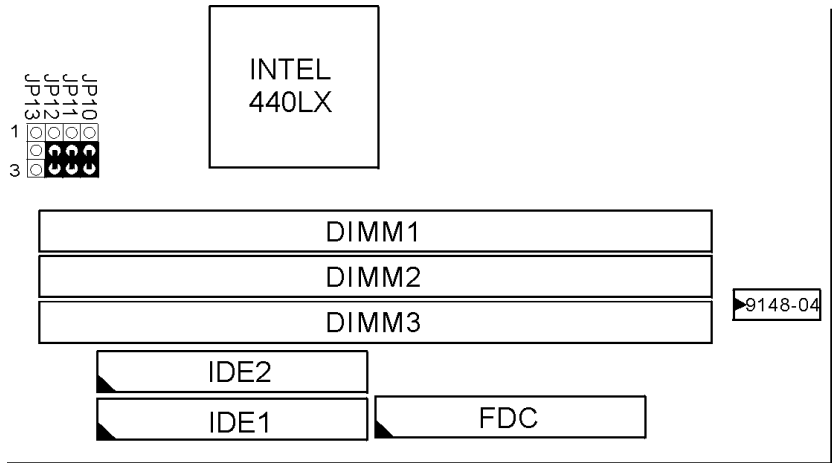
Figure 2-4 CPU Type Configuration

System Memory Configuration

This 82440ZX motherboard supports 168 pin DIMM of 4MB, 8MB, 16MB, 32MB, 64MB and 128MB to form a memory size between 8MB to 768MB (EDO) or 512MB(SDRAM). 82440ZX chipsets provide "Table- Free" function. It means that users can install DRAM with any configuration and in any bank, and that is why the DRAM table is not needed, but do remember that the DRAM must be 3.3V Unbuffered and 4 clock type.

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Jumper Settings

FAN 1~3: Onboard FAN (12V) Connector

FAN#	Function
FAN1	CPU FAN
FAN2	Power FAN
FAN3	Chassis FAN

JP10~JP13: Bus Ratio Select
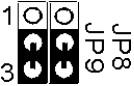
Bus Ratio	JP10~JP13	Bus Ratio	JP10~JP13	Bus Ratio	JP10~JP13	Bus Ratio	JP10~JP13
2.0X	(jumper diagram)	4.0X	(jumper diagram)	6.0X	(jumper diagram)	by BIOS (default)	(jumper diagram)
2.5X	(jumper diagram)	4.5X	(jumper diagram)	6.5X	(jumper diagram)		
3.0X	(jumper diagram)	5.0X	(jumper diagram)	7.0X	(jumper diagram)		
3.5X	(jumper diagram)	5.5X	(jumper diagram)	7.5X	(jumper diagram)		

JP4:Keyboard Power Selection

Keyboard Power On	JP4
Disabled (default)	
Enabled	

> *Note:1.If the JP4 is fixed by jumperwire then the board*
> *does not support keyboard power on function.*
> *2.When the keyboard power on function shows*
> *any compatible problem, choose Disabled and*
> *report the keyboard model to the vendor/maker.*
> *3.Keyboard power on function must be set from*
> *the BIOS. Refer to the ¡ Integrated Peripherals¡ ¨*
> *section in the Chapter 3.*

JP8,JP9:USB Port Select

USB Port	JP8,JP9
Redirect all USB ports To USB connector (default)	
Redirect all USB ports To AGP	

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JVGA1: VGA Card

	JVGA1
For Special VGA Card*	
Normal (default)	

Note: This jumper is set for the special VGA card. Open this jumper when the system isn't able to boot

JBAT1: Clear CMOS Data

Clear the CMOS memory by shorting this jumper momentarily; then remove the cap to retain new settings.
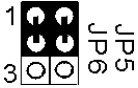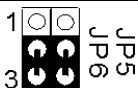
CMOS Data	JBAT1
Clear Data	
Retain Data (default)	

JP14: Onboard Sound Chip Enabled/Disabled

This jumper allows user to control onboard sound chip Function.

Sound Chip	JP14
Disabled	1 ... 3
Enabled (default)	1 ... 3

JP5,JP6: Sound Amplifier Control (Speaker/Line Out)

Sound Amplifier	JP6/JP5
Speaker Out (w/i amplifier) (default)	1 ... 3 JP5/JP6
Line Out (w/o amplifier)	1 ... 3 JP5/JP6

JP15:Power Lose Recovery

This jumper allows you to use the switch of ATX power Supply to control on/off switch directly instead of using the Power switch on the mainboard.

Power Lost Recovery	JP15
Normal(default)	1 ... 3
Enabled	1 ... 3

Sound Connector:

J5/J6: CD-ROM Audio Connector
Connect J5/J6 to the CD-ROM Audio Connector.

Game/MIDI port
Connect the joystick or MIDI to this connector.

Mic:Microphone Jack

Line in: Audio in Jack

Speaker Out/Line Out: Audio Out Jack
Use JP5/JP6 to control speaker out or line out.

IDE LED Activity Light: (J2 pin1-4)
This connector connects to the hard disk activity indicator light on the case.

Infrared Port Module Connector (J2 pin6-10)
The system board provides a 5-pin infrared connector-R1 for an optional wireless transmitting and receiving module. Pin 6 through 10 are Transmit, GND, Receive (low speed), Receive (high speed), and Vcc, respectively.

J2 pin12, 13: PWR Switch
Power Switch: Toggle this pin for turning on/off of the Power supply (for ATX power only).

SLEEP Switch (J2 pin14, 15)
Toggle this jumper forces the system to sleep and the system won't wake up until the hardware event is coming. (The BIOS Power Management setting must be Enabled.)

Speaker Connector (J3 pin1-4)

The speaker connector is a 4-pin connector for connecting the system and the speaker. (See the following drawing for jumper position.)

Reset Switch (J3 pin5, 6)

The system board has a 2-pin connector for rebooting your computer without having to turn off your power switch. This prolongs the life of the system's power supply.

J8: Wake On Lan (WOL) Connector

This connector is designed to use Lan to bootup the system. Connect the wake on signal from Lan card to this connector.

Power LED and Keylock Switch (J3 pin8-12)

The keylock switch is a 5-pin connector for locking the keyboard for security purposes. (See the following drawing for jumper position, and pin1~3 is connected to power LED and pin 4~5 is connected to keylock switch.)

Turbo LED (J3 pin14, 15)
Connect the case's turbo LED to this connector.
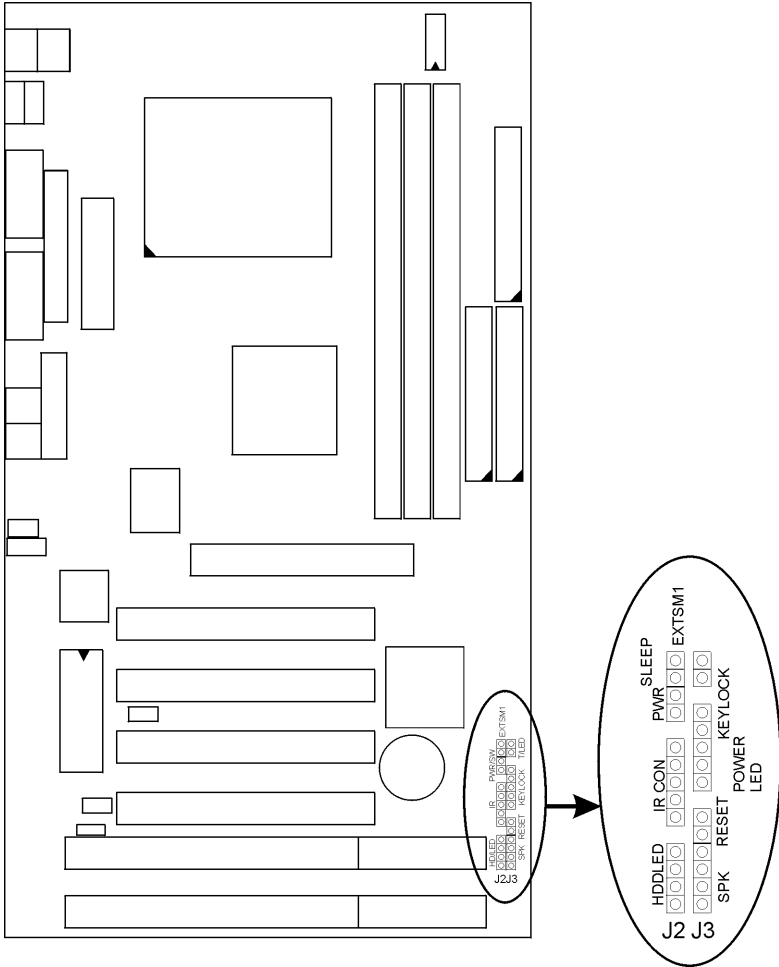
J2 Switch Signal Summary

J2	Pin	Signal Description
HDD LED Connector	1	+5V
	2	HDD LED Signal
	3	HDD LED Signal
	4	+5V
N.C.	5	No Connection
Infrared Connector	6	Infrared Transmit Signal
	7	GND
	8	Infrared Receive Signal (low speed)
	9	Infrared Receive Signal (high speed)
	10	+5V
N.C.	11	No Connection
PWR	12	CND
	13	Power Switch(for ATX Power)
SLEEP	14	GND
	15	Sleep Signal

J3 Switch Signal Summary

J3	Pin	Signal Description
Speaker Connector	1	Speaker Signal
	2	No Connection
	3	Ground
	4	+5V
Reset Switch	5	Reset Signal
	6	Ground
N.C.	7	No Connection
Power LED Connector	8	+5V
	9	No Connection
	10	Ground
Keylock Connector	11	Keylock Signal
	12	GND
N.C.	13	No Connection
Turbo LED Connector	14	Turbo LED Connector
	15	Ground

Chapter 3
Award BIOS Setup

This 82440ZX motherboard comes with the AWARD BIOS from AWARD Software Inc. Enter the Award BIOS program Main Menu by:

1. Turn on or reboot the system.
   After a series of diagnostic checks, the following message will appear:

   PRESS <DEL> TO ENTER SETUP

2. Press the <DEL> key and the main program screen will appear as follows.

```
                    ROM PCI/ISA BIOS
                   CMOS SETUP UTILITY
                  AWARD SOFTWARE, INC.
┌───────────────────────────────────────────────────────────────┐
│                                                                 │
│   STANDARD CMOS SETUP              INTEGRATED PERIPHERALS        │
│                                                                 │
│   BIOS FEATURES SETUP              SUPERVISOR PASSWORD           │
│                                                                 │
│   CHIPSET FEATURES SETUP           USER PASSWORD                 │
│                                                                 │
│   POWER MANAGEMENT SETUP           IDE HDD AUTO DETECTION        │
│                                                                 │
│   PNP/PCI CONFIGURATION            HDD LOW LEVEL FORMAT          │
│                                                                 │
│   LOAD SETUP DEFAULTS              SAVE & EXIT SETUP             │
│                                                                 │
│                                    EXIT WITHOUT SAVING           │
│                                                                 │
├───────────────────────────────────────────────────────────────┤
│ Esc : Quit                     ¡ ρ̂ ρ̃ ŧ  ö:Select Item          │
│ F10 : Save & Exit Setup          (Shift) F2 : Change Color      │
├───────────────────────────────────────────────────────────────┤
│                                                                 │
│              Time, Date,Hard Disk Type...                       │
│                                                                 │
└───────────────────────────────────────────────────────────────┘
```

3. Using the arrows on your keyboard, select an option, and press <Enter>. Modify the system parameters to reflect the options installed in your system.
4. You may return to the Main Menu anytime by pressing <ESC> .
5. In the Main Menu, "SAVE AND EXIT SETUP" saves your changes and reboots the system, and "EXIT WITHOUT SAVING" ignores your changes and exits the program.

Standard CMOS Setup

Standard CMOS Setup allows you to record some basic system hardware configuration and set the system clock and error handling. You only need to modify the configuration values of this option when you change your system hardware configuration or the configuration stored in the CMOS memory gets lost or damaged.

Run the Standard CMOS Setup as follows:
1. Choose "STANDARD CMOS SETUP" from the Main Menu and a screen with a list of options will appear.

```
                        ROM PCI/ISA BIOS
                       STANDARD CMOS SETUP
                      AWARD SOFTWARE, INC.
Date (mm:dd:yy) : Thu, May 9 1996
Time (hh:mm:ss) : 15 : 45 : 10

HARD DISKS        TYPE    SIZE   CYLS HEAD PRECOMP LANDZ SECTOR MODE

Primary Master   : Auto     0      0    0     0      0      0   Auto
Primary Slave    : Auto     0      0    0     0      0      0   Auto
Secondary Master : Auto     0      0    0     0      0      0   Auto
Secondary Slave  : Auto     0      0    0     0      0      0   Auto

Drive A: 1.44M, 3.5 in.
Drive B: None                         Base Memory:     640K
                                  Extended  Memory:  15360K
                                     Other Memory:    384K
Video : EGA/VGA                      Total Memory: 16384K
Halt On : All Errors

Esc : Quit          ↑ ↓ → ←¡  @ Select Item     PU/PD/+/- : Modify
F1  : Help             (Shift) F2 : Change Color
```

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/¡ Ð keys.

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A short description of the screen options is as follows:

Date (mm:dd:yy)   Set the current date and time.
Time (hh:mm:ss)

Primary   This field records the specifications
(Secondary)   for all non-SCSI hard disk drives
Master/Slave   installed in your system. Refer to
the respective documentation on
how to install the drives.

Drive A/B   Set this field to the type(s) of floppy
disk drive(s) installed in your system.
The choices are:
360KB, 5.25 in.,
1.2MB, 5.25 in.,
720KB, 3.5 in.,
1.44M, 3.5 in. (default),
2.88MB, 3.5 in., or None

Video   Set this field to the type of video
display card installed in the system.
The choices are: Monochrome;
Color 40x25; VGA/EGA (default);
or Color 80x25

Halt On   Set this warning feature for the type of
errors that will cause the system to halt.
The choices are: All Errors (default);
No Errors; All, But Keyboard;
All, But Diskette; or
All, But Disk/Key

3. Press <ESC> to return to the Main Menu when you finish
   setting up the "Standard CMOS Setup"

BIOS Features Setup

BIOS Features Setup allows you to improve your system performance or set up system features according to your preference.

Run the BIOS Features Setup as follows:

1. Choose "BIOS FEATURES SETUP" from the Main Menu and a screen with a list of options will appear.

```
                    ROM PCI/ISA BIOS
                  BIOS FEATURES SETUP
                  AWARD SOFTWARE, INC.
Virus Warning              : Disabled Video BIOS Shadow    : Enabled
CPU Internal Cache         : Enabled  C8000-CBFFF Shadow   : Disabled
External Cache             : Enabled  CC000-CFFFF Shadow   : Disabled
CPU L2 Cache ECC Checking  : Enabled  D0000-D3FFF Shadow   : Disabled
Quick Power on Self Test   : Enabled  D4000-D7FFF Shadow   : Disabled
Boot Sequence              : A,C,SCSI D8000-DBFFF Shadow   : Disabled
Swap Floppy Drive          : Disabled DC000-DFFFF Shadow   : Disabled
Boot Up Floppy Seek        : Enabled
Boot Up NumLock Status     : On
Gate A20 Option            : Fast
Typematic Rate Setting     : Disabled
Typematic Rate (Chars/Sec) : 6        ESC :Quit    ¡ ↑↓ → Select Item
Typematic Delay (Msec)     : 250      F1  :Help       PU/PD/+/-: Modify
Security Option            : Setup    F5  :Old Values(Shift)F2 : Color
PCI/VGA Palette Snoop      : Disabled F6  :Load BIOS Defaults
Assign IRQ For VGA         : Enabled  F7  :Load Setup Defaults
OS Select for DRAMs>64MB   : Non-OS/2
Report No FDD For WIN 95   : No
```

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys. An explanation of the <F> keys follows:

<F1>: "Help" gives options available for each item.
   Shift <F2>: Change color.

<F5>: Get the previous values. These values are the values with which the user started in the current session.

<F6>: Load all options with the BIOS default values.

<F7>: Load all options with the Setup default values.

A short description of screen options follows:

Virus Warning   Enabled: Activates automatically
when the system boots
up causing a warning
message to appear if
there is anything
attempting to access the
boot sector or hard disk
partition table.

Disabled: No warning message
will appear when there is
something attempting to
access the boot sector or
hard disk partition table

*Note: Many diagnostic (or boot
manager) programs which
attempt to access the boot sector
table can cause the above
warning message. If you will be
running such a program, we
recommend that you disable the
virus protection first.*

CPU Internal   Choose Enabled (default) or
Cache   Disabled. This option allows you to
enable or disable the CPU's internal
cache.

External Cache   Choose Enabled (default) or
Disabled. This option allows you to
enable or disable the external cache
memory.

Quick Power On   Choose Enabled (default) or
Self Test   Disabled. This option allows you to
speed up the Power-On Self-Test
routine.

Boot Sequence   Default is "A, C, SCSI" This option determines which drive to look at first for an operating system.

Swap Floppy Drive   Choose Enabled or Disabled (default). This option swaps floppy drive assignments when it is enabled.

Boot Up Floppy Seek   Enabled (default): During POST, BIOS checks the track number of the floppy disk drive to see whether it is 40 or 80 tracks.
Disabled: During POST, BIOS will not check the track number of the floppy disk drive.

Boot Up NumLock Status   Choose On (default) or Off. This option lets user activate the NumLock function at boot-up.

Gate A20 Option   Choose Normal or Fast (default). This option allows the RAM to access the memory above 1MB by using the fast gate A20 line.

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

Typematic Rate (Chars/Sec)   Range between 6 (default) and 30 characters per second. This option controls the speed of repeating keystrokes.

Typematic Delay (Msec)   Choose 250 (default), 500, 750, and 1000. This option sets the time interval for displaying the first and the second characters.

Security Option	Choose System or Setup (default). This option prevents unauthorized system boot-up or use of BIOS Setup.
PCI/VGA palette Snoop	Choose Enabled or Disabled (default). It determines whether or not the MPEG ISA cards can work with PCI/VGA.
Assign IRQ for VGA	Choose Enabled (default) or Disabled. Enabled: Add one IRQ to VGA controller. Disabled: Remove IRQ from VGA controller. The system will have extra IRQ for other devices but the VGA controller will still not be disabled (only IRQ will be removed.)
OS Select for DRAM > 64MB	Non-OS2 (default): For Non-OS/2 system. OS: For OS/2 system.
Report No FDD For WIN95	Yes: BIOS reports "NO FDD" to Win95. No (default): BIOS will not report "NO FDD" to Win95.
Video BIOS Shadow	Enabled (default): Map the VGA BIOS to system RAM. Disabled: Will not map the VGA BIOS to system RAM.
C8000-CBFFF to DC000-DFFF Shadow	These options are used to shadow other expansion card ROMs.

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

Chipset Features Setup

Chipset Features Setup changes the values of the chipset registers. These registers control the system options. Run the Chipset Features Setup as follows:

1. Choose "CHIPSET FEATURES SETUP" from the Main Menu and a screen with a list of options will appear.

```
                     ROM PCI/ISA BIOS
                  CHIPSET FEATURES SETUP
                   AWARD SOFTWARE, INC.
┌─────────────────────────────────┬──────────────────────────────┐
│Auto Configuration    : Enabled  │CPU Host Clock(CPU/PCI):Default│
│EDO DRAM Speed Selection : 60ns  │CPU Clock Ratio     :4.5X      │
│EDO CASx# MA Wait State  : 2     │CPU Warning Temperature:Disabled│
│EDO RASx# To CAS# Delay  : 2     │Current System Temp   :        │
│SDRAM CAS latency Time   : 3     │Current CPU1 Temperature:       │
│DRAM Data Integrity Mode : Non-ECC│Current CPUFAN1 Speed  :       │
│System BIOS Cacheable : Disabled │Current CPUFAN2 Speed  :        │
│Video BIOS Cacheable  : Disabled │Current CPUFAN3 Speed  :        │
│Video RAM Cacheable   : Disabled │IN0 (V)   :    IN1(V):         │
│8 Bit I/O Recovery Time  : 1     │IN2 (V)   :    +5  V :          │
│16 Bit I/O Recovery Time : 1     │+12  V    :    -12 V :          │
│Memory hole At 15M-16M  : Disabled│-5   V    :                    │
│Passive Release       : Enabled  ├──────────────────────────────│
│Delay Transaction     : Disabled │ESC: Quit  ↑↓→←: Select Item   │
│AGP Aperture Size (MB)   : 64    │F1 : Help      PU/PD/+/-: Modify│
│                                 │F5 : Old Values (Shift)F2 : Color│
│                                 │F6 : Load BIOS Defaults         │
│                                 │F7 : Load Setup Defaults        │
└─────────────────────────────────┴──────────────────────────────┘
```

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/¡   Ð keys.

A short description of screen options follows:

Auto Configuration   Choose Enabled (default) or Disabled. The system sets all options on the left side of the screen automatically when you choose Enabled.

EDO DRAM Speed Selection   Choose 50ns or 60ns (default). Do not change this setting unless you know the DRAM access time spec.

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EDO CASX# MA Wait State	You could select the timing control type of EDO DRAM CAS MA (memory address bus). The choices are: 1, 2.
CPU Host Clock (CPU/PCI)	Choose 66/33,75/37,83/41MHz, or 133/33,140/35,112/37,115/38,120/40 140/35MHz,124/41,133/44MHz.
CPU Clock Ratio	Choose 2.0X, 2.5X, 3.0X, 3.5X, 4.5X, 4.0X,5.0X, 5.5X, 6.0X, 6.5X, 7.0X, 7.5X, or 8.0X.
EDO RASX# Wait State	You could select the timing control type of EDO DRAM RAS MA (memory address bus). The choice: 1, 2.
SDRAM CAS Latency Time	You can select CAS latency time in HCLKs of 2/2 or 3/3. The system board designer should have set the values in this field, depending on the DRAM installed. Do not change the values in this field unless you change specifications of the installed DRAM or the installed CPU..
DRAM Data	Choose Non-ECC (default) or ECC
Integrity Mode	Depends on the DRAM type. ECC stands for Error Check and Correct. Non-ECC: Disabled ECC check function. ECC: Enabled ECC check function.
System BIOS Cacheable	Choose Enabled or Disabled (default). When Enabled, the access to the system BIOS ROM addressed at F0000H-FFFFFH is cached.

Video BIOS Cacheable	Choose Enabled or Disabled (default). When Enabled, the access to the VGA BIOS ROM addressed at C0000H-C7FFFH is cached.
Video RAM Cacheable	Choose Enabled or Disabled (default). When Enabled, the access to the VGA RAM addressed is cached.
8 Bit I/O Recovery Time **16 Bit I/O Recovery Time**	This delay happens when the CPU is running so much faster than the I/O bus that the CPU must be delayed to allow for the completion of the I/O. The choices for 8 bit I/O are NA, 1 to 8 CPU clock. Default is 3. The choices for 16 bit I/O are NA, 1 to 4 CPU clock. Default is 2.
Memory Hole At 15M-16M	Choose Enabled or Disabled (default). In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory's space below 16MB.
Passive Release	When Enabled, CPU to PCI bus accesses are allowed during passive release. Otherwise, the arbiter only accepts another PCI master access to local DRAM. The Choice: Enabled, Disabled.
Delayed 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.

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AGP Aperture Size (MB) Choose 4 , 8, 16, 32, 64 (default), 128, or 256 MB. Memory mapped and graphics data structures can reside in a Graphics Aperture. This area is like a linear buffer. BIOS will automatically report the starting address of this buffer to the O.S.

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

Power Management Setup

Power Management Setup sets the system's power saving functions.

1. Choose "POWER MANAGEMENT SETUP" from the Main Menu and a screen with a list of options will appear.

```
                    ROM PCI/ISA BIOS
                 POWER MANAGEMENT SETUP
                  AWARD SOFTWARE, INC.
┌─────────────────────────────────┬─────────────────────────────────┐
│ACPI Function       : Enabled    │ ** Reload Global Timer Events ** │
│Power Management     : User Define│ IRQ[3-7,9-15], NMI    : Enabled  │
│PM Control by APM    : No         │ Primary IDE 0         : Enabled  │
│Video Off Method     : V/H        │ Primary IDE 1         : Enabled  │
│SYNC+Blank                        │ Secondary IDE 0       : Enabled  │
│Video Off After      : Standby    │ Secondary IDE 1       : Enabled  │
│Modem Use IRQ        : 3          │ Floppy Disk           : Enabled  │
│Doze Mode            : Disabled   │ Serial Port           : Enabled  │
│Standby Mode         : Disabled   │ Parallel Port         : Enabled  │
│Suspend Mode         : Disabled   │                                  │
│HDD Power Down       : Disabled   │                                  │
│Throttle Duty Cycle  : 62.5%      │                                  │
│PCI/VGA Act Monitor  : Enabled    ├─────────────────────────────────┤
│Soft-Off by PWR-BTTN : Instant-Off│ ESC : Quit¡ @↑ ↓ → ←: Select Item│
│Poweron by Ring      : Disabled   │ F1 : Help      PU/PD/+/- : Modify│
│Resume by Alarm      : Disabled   │ F5 : Old Values (Shift)F2 : Color│
│Wake Up On LAN       : Disabled   │ F6 : Load BIOS Defaults          │
│IRQ 8 Break Suspend  : Disabled   │ F7 : Load Setup Defaults         │
└─────────────────────────────────┴─────────────────────────────────┘
```

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys.

A short description of screen options follows:

Power Management	Choose Max. Saving, User Define (default), Disabled, or Min. Saving.
PM Control by APM	Choose Yes or No (default). You need to choose Yes when the operating system has the APM functions, otherwise choose No.

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Video Off Method   Choose Blank , DPMS, or V/H Sync+Blank (default). You can choose either DPMS or V/H Sync+Blank when the monitor has the Green function. You need to choose Blank when the monitor has neither the Green function.

Video Off After   Choose NA, Suspend, Standby (default), or Doze.

MODEM Use IRQ   Assign the IRQ number to the modem which is being used so that the ring signal can wakeup the system. The default setting is 3 (COM2).

Doze Mode   This mode sets the CPU speed down to 33MHz.

Standby Mode
Suspend Mode   These two options allow you to choose the mode for the different timers. The Standby Mode turns off the VGA monitor, and the Suspend Mode turns off the CPU and saves the energy of the system.

HDD Power Down   Time is adjustable from 1 to 15 minutes. When the set time has elapsed, the BIOS sends a command to the HDD to power down, which turns off the motor.

Throttle Duty Cycle   Choose the duty cycle time: 12.5%, 25%, 37.5%, 50%, 62.5% (default), 75%,. The bigger the percentage, the more power saving.

PCI/VGA Act-Monitor	Enabled: the system can not enter the power saving mode when monitor is on. Disabled: the system can enter the power saving mode when monitor is on.
Soft-Off by PWR-BTTN	Instant-off: (default) turns off the system power at once after pushing the power button. Delay 4 Sec: turns off the system power 4 seconds after pushing the power button (to meet PC97/98 spec.)
Modem Ring Resume	An input signal on the serial Ring Indicator (RI) Line (in other words, An incoming call on the modem) Awakens the system from a soft off state
Wake On LAN	Enabled: Wake up the system from the LAN card (LAN Card must support Wake Up On LAN function And the power supply must provide at least 5V/750Ma standby current)
IRQ8 Break Suspend	You can Enable or Disable monitoring of IRQ8 so it does not awaken the system from Suspend mode. The Choice: Enabled, Disabled.

IRQ (#), NMI;	Enabled: (default) The system can not enter the power
Primary IDE 0	saving mode when I/O
Primary IDE 1;	ports or IRQ # is
Secondary IDE 0	activated
Secondary IDE 1;	Disabled: The system still can enter the power saving mode
Floppy Disk;	when I/O ports or IRQ# is activated.
Serial Port;	
Parallel Port	

Note: These functions can only be activated when the power management option is Enabled

.

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

PnP/PCI Configuration Setup

PnP/PCI Configuration Setup configures the PCI bus slots.

Run the Chipset Features Setup as follows:

1. Choose "PnP/PCI CONFIGURATION SETUP" from the Main Menu and a screen with a list of options will appear.

```
                    ROM PCI/ISA BIOS
                  PNP/PCI CONFIGURATION
                  AWARD SOFTWARE, INC.

 PNP OS Installed        : No
 Resources Controlled By : Manual      Used MEM base address  : N/A
 Reset Configuration Data: Disabled    Used MEM Length*       : 8K
                                       Assign IRQ For USB     : Enabled
 IRQ-3  assigned to      : PCI/ISA PnP
 IRQ-4  assigned to      : PCI/ISA PnP
 IRQ-5  assigned to      : PCI/ISA PnP
 IRQ-7  assigned to      : PCI/ISA PnP
 IRQ-9  assigned to      : PCI/ISA PnP
 IRQ-10 assigned to      : PCI/ISA PnP
 IRQ-11 assigned to      : PCI/ISA PnP
 IRQ-12 assigned to      : PCI/ISA PnP
 IRQ-14 assigned to      : PCI/ISA PnP
 IRQ-15 assigned to      : PCI/ISA PnP
 DMA-0  assigned to      : PCI/ISA PnP
 DMA-1  assigned to      : PCI/ISA PnP   ESC : Quit    ¡ Ô Ô ╪ ö Select Item
 DMA-3  assigned to      : PCI/ISA PnP   F1  : Help        PU/PD/+/- : Modify
 DMA-5  assigned to      : PCI/ISA PnP   F5  : Old Values (Shift)F2 : Color
 DMA-6  assigned to      : PCI/ISA PnP   F6  : Load BIOS Defaults
 DMA-7  assigned to      : PCI/ISA PnP   F7  : Load Setup Defaults
```

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys.

A short description of screen options follows:

PNP OS Installed   Yes: OS supports Plug and Play function.
No (default): OS doesn't support Plug and Play function.

> *Note: BIOS will automatically disable all PnP resources except the boot device card when you select Yes on Non-PnP OS..*

Resources Controlled By	Choose Manual (default) or Auto. The BIOS checks the IRQ/DMA channel number on the ISA and PCI card manually if you choose Manual and the IRQ/DMA channel number will be checked automatically if you choose Auto.
Reset Configuration Data	Choose Enabled or Disabled (default). Disabled retains PnP configuration data in BIOS and Enabled resets the PnP configuration data in the BIOS.
IRQ-x assigned to DMA-x assigned to	Legacy ISA: Manually assigns IRQ/DMA to device. PCI/ISA PnP: BIOS assigns IRQ/DMA to device automatically.
Used MEM Base Address	Choose N/A (default) or ISA legacy card to have the memory start at the address.
Used MEM Length*	Choose 8K, 16K, 32K, or 64K. With the above two functions, users can define where the used memory address is located and its corresponding length of the legacy area. BIOS will skip the UMB area which is used by the legacy device to avoid memory space conflict. `* This function is active only when the "Used MEM Base Addr" is chosen.`

Assign IRQ for USB	Choose Enabled (default) or Disabled.
	Enabled: Add one IRQ to USB controller.
	Disabled: Remove IRQ from USB controller. The system will have extra IRQ for other devices but the USB controller will still not be disabled (only IRQ was removed.)

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

Load Setup Defaults

Load Setup Defaults option loads the default system values to the system configuration fields. If the CMOS is corrupted the defaults are loaded automatically. Choose this option and the following message will appear:

```
"Load Setup Defaults (Y/N)? N"
```

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

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

Integrated Peripherals

Integrated Peripherals option changes the values of the chipset registers. These registers control system options in the computer.

1. Choose "INTEGRATED PERIPHERALS" from the Main Menu and a screen with a list of options will appear.

```
                    ROM PCI/ISA BIOS
                 INTEGRATED PERIPHERALS
                  AWARD SOFTWARE, INC.
┌─────────────────────────────────────────────────────────────────┐
│IDE HDD Block Mode        : Enabled │UART Mode Select      : IrDA  │
│IDE Primary Master PIO    : Auto    │RxD, TxD Active       : Lo, Lo│
│IDE Primary Slave PIO     : Auto    │IR Transmission Delay : Disabled│
│IDE Secondary Master PIO  : Auto    │Onboard Parallel Port : 378/IRQ7│
│IDE Secondary Slave PIO   : Auto    │Parallel Port Mode    : ECP+EPP│
│IDE Primary Master UDMA   : Auto    │ECP Mode Use DMA      : 3     │
│IDE Primary Slave UDMA    : Auto    │EPP Mode Select       : EPP1.7│
│IDE Secondary Master UDMA : Auto    │                              │
│IDE Secondary Slave UDMA  : Auto    │                              │
│On-Chip Primary PCI IDE   : Enabled │                              │
│On-Chip Secondary PCI IDE : Enabled │                              │
│USB Keyboard Support      : Disabled│                              │
│                                    │                              │
│KBC Input Clock           : 8 MHz   │                              │
│Onboard FDC Controller    : Enabled │ ESC : Quit    ¡ Ô Õ ₸ ö Select Item│
│Onboard Serial Port 1     : Auto    │ F1  : Help     PU/PD/+/- : Modify│
│Onboard Serial Port 2     : Auto    │ F5  : Old Values (Shift)F2: Color│
│                                    │ F6  : Load BIOS Defaults     │
│                                    │ F7  : Load Setup Defaults    │
└─────────────────────────────────────────────────────────────────┘
```

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/¡ ∨ keys.

A short description of screen options is as follows:

IDE HDD Block Mode Choose Enabled (default) or Disabled. If your hard disk size is larger than 540MB, choose Enabled, and, if you are using the IDE HDD Auto Detection option, the BIOS will choose this option automatically.
Note: Some older model HDDs don't provide this feature.

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IDE Primary Master/Slave PIO IDE Secondary Master/Slave PIO Choose Auto (default) or Mode 0~4. The BIOS will detect the HDD Mode type automatically when you choose Auto. You need to set to a lower mode than Auto when your hard disk becomes unstable.

On-Chip Primary/ Secondary PCI IDE Enabled: (default)Turn on the onboard IDE function. Disabled: Turn off the onboard IDE function.

USB Keyboard Support Enabled: Enables function when the USB keyboard is being used. Disabled: (default) When the AT keyboard is being used.

KBC Input Clock Choose 6MHz, 8MHz (default), 12MHz, or 16MHz. There may be a compatibility problem when it is set above 8MHz.

Onboard FDC Controller Choose Enabled (default) or Disabled. Choose Disabled when you use an ISA card with FDD function, or , choose Enabled to use the onboard FDD connector.

Onboard Serial Port 1 Choose Auto (default), 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, or Disabled. Do no set port 1 & 2 to the same value, except when setting at Disabled.

Onboard Serial Port 2 Choose Auto (default), 3F8/IRQ4 , 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, or Disabled.

UART Mode select	Choose Normal (default), IrDA, or ASKIR.
IR Transmission Delay	Enabled: Enabled delay when transferring data. Disabled (default) Disabled delay when transferring data.
Onboard Parallel Port	Choose the printer I/O address: 378H/IRQ7 (default), 3BCH/IRQ7, 278H/IRQ5
Parallel Port Mode	Choose SPP (default), ECP + EPP EPP, or ECP mode. The mode depends on the external device connected to this port.
ECP Mode Use DMA	Choose DMA3 (default) or DMA1. Most sound cards use DMA1. Check with your sound card configuration to make sure that there is no conflict with this function. ***: This option will not be displayed unless the EPP/ECP function is selected..***
EPP Mode Select	Choose EPP1.7 (default) or EPP1.9. EPP1.9 supports hardware handshake. This setting is dependent upon your EPP device. *Note: The above 2 options will not be displayed unless the EPP/ECP function is selected.*

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

Supervisor/User Password

These two options allow you to set your system passwords. Normally, the supervisor has a higher ability to change the CMOS setup option than the user. The way to set up the passwords for both Supervisor and User are as follows:

1. Choose "Change Password" in the Main Menu and press <Enter>. The following message appears:

   "Enter Password:"

2. The first time you run this option, enter your password up to 8 characters and press <Enter>. The screen does not display the entered characters.

3. After you enter the password, the following message appears prompting you to confirm the password:

   "Confirm Password:"

4. Enter the same password "exactly" as you just typed again to confirm the password and press <Enter>.

5. Move the cursor to Save & Exit Setup to save the password.

6. If you need to delete the password you entered before, choose the Supervisor Password and press <Enter>. It will delete the password that you had before.

7. Move the cursor to Save & Exit Setup to save the option you did, otherwise the old password will still be there the next time you turn your machine on.

8. Press <ESC> to exit to the Main Menu.

Note: If you forget or lose the password, the only way to access the system is to clear the CMOS RAM by setting JBAT1. All setup information will be lost and you need to run the BIOS setup program again.

IDE HDD Auto Detection

IDE HDD Auto Detection detects the parameters of an IDE hard disk drive and automatically enters them to the Standard CMOS Setup screen.

The screen will ask you to select a specific hard disk for Primary Master after you select this option. If you accept a hard disk detected by the BIOS, you can enter "Y" to confirm and then press <Enter> to check next hard disk. This function allows you to check four hard disks and you may press the <ESC> after the <Enter> to skip this function and go back to the Main Menu.

Save & Exit Setup

Save & Exit Setup allows you to save all modifications you have specified into the CMOS memory. Highlight this option on the Main Menu and the following message appears:

SAVE to CMOS and EXIT (Y/N)? Y

Press <Enter> key to save the configuration changes.

Exit Without Saving

Exit Without Saving allows you to exit the Setup utility without saving the modifications that you have specified. Highlight this option on the Main Menu and the following message appears:
Quit Without Saving (Y/N)? N

You may change the prompt to "Y" and press the <Enter> key to leave this option.