



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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SL-56G5/G1/G2 SERIALS

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Chapter 1

I N T R O D U C T I O N

Features

CPU

1. Supports Intel Pentium MMX CPUs at 166 ~ 233 MHz
2. Supports Cyrix 6x86(L) CPUs at PR133⁺ ~ PR200⁺
3. Supports Cyrix 6x86(M-II) CPUs at 300 ~ 466
4. Supports AMD K6-II CPUs at 300 ~ 500MHz
5. Supports AMD K6-III CPUs at 400 ~ 500MHz
6. Supports IDT C6 CPUs at 200 ~ 300MHz
- 7. Supports 66/75/83/95/100/112/124/133 MHz CPU clock**
8. Provides SOCKET-7 ZIF Socket

Chipset

1. VIA Apollo MVP3 chipset
2. VIA 686A south bridge that supports UDMA66, Hardware Monitor Controller
3. PCI Rev 2.1 and APM1.1/1.2 compliant
4. AGP v2.0(1x, 2x transfer mode) compliant

L2 Cache

Onboard supports 512K(56G5)/1MB(56G1)/2MB(56G2) write back cache with Pipelined Burst SRAMS

Main Memory

1. Memory range from 4MB(minimum) to 768MB(maximum) with DRAM Table Free configurations
2. Supports SDRAM with 8/10ns
3. Supports 3 pcs of 168pin DIMM sockets(3.3V unbuffered 4 clock type)

BIOS

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

I/O Function

1. Integrated USB(Universal Serial Bus) controller with **four USB** port
2. Supports 2 IDE channels with 4 IDE devices(including 120MB IDE floppy)
3. Provides PCI **UDMA33/66 Bus Master 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. Infrared module connector
9. Onboard AC97 Audio Codec function

Other functions

1. ATX form factor with 18.5cm x 30.5cm
2. 4 PCI Master slots, 2 ISA slots, 1 AGP slot, 1 AMR slot
3. Supports SCSI CD-ROM Boot up function
4. Supports Wake On LAN(WOL)* function
5. Supports Modem Ring up function
6. Supports Power Lost recovering function
7. Integrated Hardware Monitor Controller

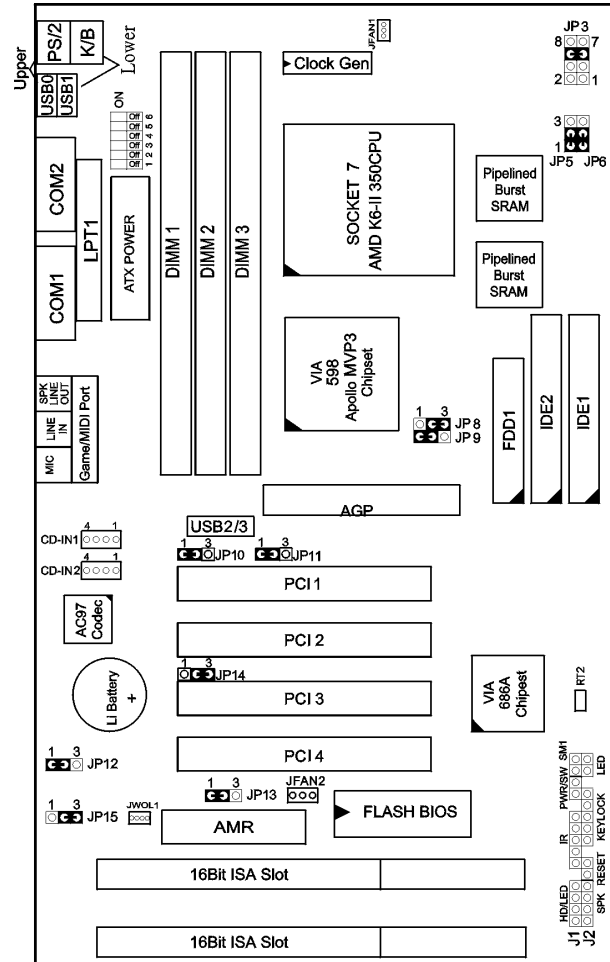
*: To support WOL, the ATX power supply has to have at least **5V/720mA** standby current

IMPORTANT !!

1. Make sure that the SDRAM module not only has to be 168pin DIMM but designed for 3.3V unbuffered SDRAM supplier before install any SDRAMs. The mainboard manufacturer has no obligation to any damage of the board by using the incorrect specification of SDRAM.
- 2. For 100MHz CPU environment, the SDRAM must compliant PC-100MHz specification, otherwise, the system maybe unstable.**
- 3. User must use dedicated UDMA66 IDE Cable when connects UDMA66 hard disk or any other devices support UDMA66!**

Mainboard Setting for AMD K6-2 350/100

















The default setting of the following figure is for the AMD K6-2 350/100, Vcore: 2.2V, AC97 Audio Codec ENABLED.



Chapter 2

H A R D W A R E S E T U P

CPU Vcore Voltage Setting

V _{Core} Voltage	JP3	V _{Core} Voltage	JP3	V _{Core} Voltage	JP3	V _{Core} Voltage	JP3
2.0V	 1	2.4V	 1	2.8V	 1	3.2V	 1
		K6-III		MMX, 6x86L		K6-2 233	
2.1V	 1	2.5V	 1	2.9V	 1	3.3V	 1
				K6 166/200 6x86MX (MII)		IDT C6	
2.2V	 1	2.6V	 1	3.0V	 1	3.4V	 1
K6-2 400 (or below)							
2.3V	 1	2.7V	 1	3.1V	 1	3.5V	 1
						Penium (P54C) 6x86 K5	

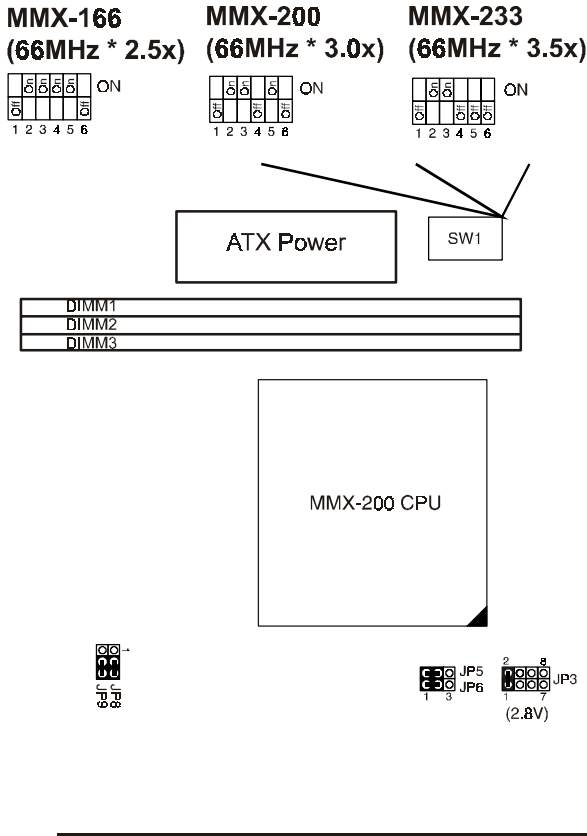
JP3: CPU Vcore Voltage Setting

IMPORTANT!

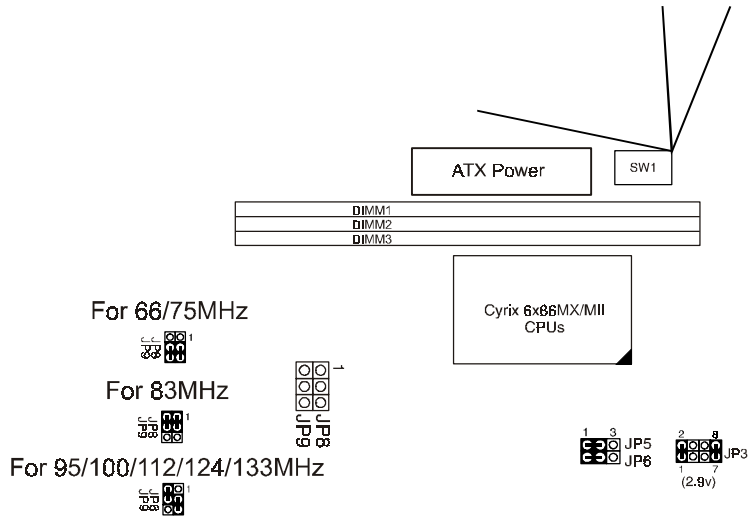
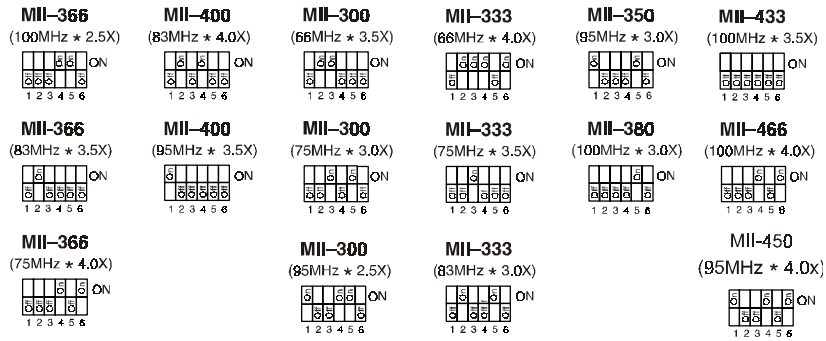
1. Refer to the table above to choose the correct voltage for the CPU everytime that you install a CPU.
2. Make sure that your JP3 is matched with the CPU voltage, otherwise will damage the CPU or make the system unstable.
3. When the new CPU is announced and is not listed on the manual, please refer to the above table, select the correct voltage setting for it.

CPU Clock and Bus Ratio Settings (Jumper position on the mainboard)

➤ Pentium-MMX CPUs

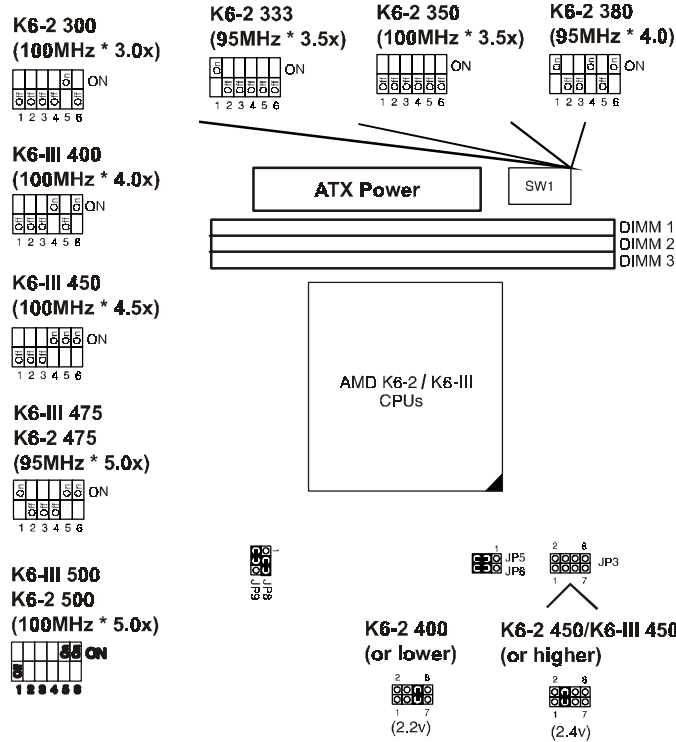


Clock adjustment for Intel Pentium-MMX CPU



Clock adjustment for Cyrix MII CPU

➔ AMD K6-2 & K6-III CPUs



Clock adjustment for AMD K6-2/K6-III CPU

WinChip2-200
(66MHz * 3.0x)



WinChip2-233
(66MHz * 3.5x)



WinChip2-266
(66MHz * 4.0x)



WinChip C6-200
(66MHz * 3.0x)



WinChip2-233
(83MHz * 2.5x)



WinChip2-266
(83MHz * 3.0x)



WinChip C6-225
(75MHz * 3.0x)



WinChip2-233
(100MHz * 2.0x)



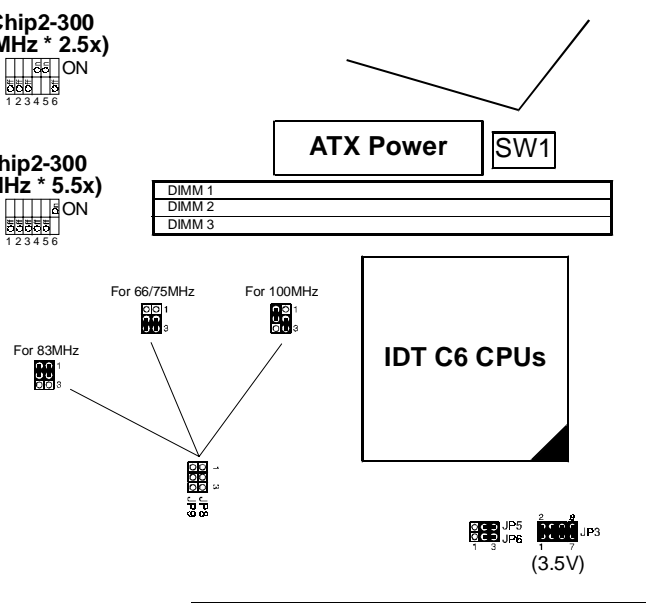
WinChip2-266
(100MHz * 5.0x)



WinChip2-300
(100MHz * 2.5x)



WinChip2-300
(100MHz * 5.5x)



Clock adjustment for IDT C6 CPU

Main Memory Configuration

This Apollo MVP3 mainboard supports 168pin DIMMs(3.3V unbuffered type) of 4MB, 8MB, 16MB, 32MB, 64MB, 128MB to form a memory size between 4MB to 768MB(total of 6 rows are supported).

The Apollo MVP3 chipset supports “Table Free” configuration so that DRAM module can be installed at any capacity.

NOTE!! For 100MHz CPU environment, the SDRAM must compliant PC-100MHz specification, otherwise the system maybe unstable.

Jumper Settings

SW1 (1 ~ 3) Description

CPU Clock Settings	DIP		
	1	2	3
66 MHz	OFF	ON	ON
75 MHz	OFF	OFF	ON
83 MHz	OFF	ON	OFF
95 MHz	ON	OFF	OFF
100 MHz	OFF	OFF	OFF
112 MHz	ON	ON	ON
124 MHz	ON	OFF	ON
133 MHz	ON	ON	OFF

SW1 (4 ~ 6) Description

CPU Bus Ratio Settings	DIP		
	4	5	6
2x	ON	OFF	OFF
2.5x	ON	ON	OFF
3x	OFF	ON	OFF
1.5x or 3.5x	OFF	OFF	OFF
4x	ON	OFF	ON
4.5x	ON	ON	ON
5x	OFF	ON	ON
5.5x	OFF	OFF	ON

J1: Switch Signal Summary

<i>J1</i>	<i>Pin</i>	<i>Signal Description</i>
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
ATX Power Switch	12	CND
	13	Power Switch
SLEEP	14	GND
	15	Sleep Signal

➤ **J1 pin1 ~ pin4: HDD LED Activity Light**

This connector connects to the Hard Disk activity indicator light on the case.

➤ **J1 pin6 ~ pin10: Infrared Port Module Connector**

The system board provides a 5-pin infrared connector – IR1 as an optional module for wireless transmitting and receiving. From pin6 to pin10 are Transmit signal, GND, Receive signal(low speed), Receive signal(high speed), and Vcc signal, respectively.

➤ **J1 pin12, pin13: ATX Power Button**

Toggle this switch to turn on/off the machine.

➤ **J1 pin14, pin15: Reserved**

J2 Switch Signal Summary

J2	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

➤ J2 pin1 ~ pin4: Speaker Connector

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

➤ J2 pin5, pin6: Reset Switch

The mainboard has a 2-pin connector for rebooting user's computer without having to turn off the power switch on the machine. Using this switch can prolong the life of the system's power supply.

➤ J2 pin8 ~ pin12: Power LED and Keylock Switch

The keylock switch is a 5-pin connector for locking the keyboard for security purposes. (See the following drawing for jumper position, and pin8 ~ pin10 is connected to power LED and pin11 ~ pin12 is connected to keylock switch.)

➤ J2 pin14, pin15: Turbo LED

➤ JWOL1: Wake On LAN (WOL) Connector

This connector is designed to use LAN to boot up the system. Connect the wake on signal from LAN card to this connector.

JP5/JP6: CPU Single/Dual Voltage Select

Voltage Type	JP5/JP6
Single Voltage(Intel Pentium P54C, Cyrix 6x86, AMD K5, IDT C6)	2-3/2-3
Dual Voltage(Intel Pentium-MMX, Cyrix MII, Cyrix 66x6L AMD K6-2, AMD K6-III) (default)	1-2/1-2

NOTE!! Wrong setting of JP5/JP6 will damage the CPU! Please double check before turn on the machine's power.

JP8/JP9: Chipset Clock

Chipset Clock	JP8/JP9
66/75 MHz	2-3/2-3
83 MHz	1-2/1-2
95/100/112/124/133MHz	1-2/2-3

JP10/JP11: USB Port Select

USB Port	JP10/JP11
Redirect all USB ports to USB connector (Default)	1-2/1-2
Redirect all USB ports to AGP	2-3/2-3

JP12: Clear CMOS Data

CMOS Data	JP12
Clear Data	2-3
Retain Data(default)	1-2

NOTE!! Once clear the CMOS, all data will be clean out. Clear the CMOS memory by shorting Jumper 12 momentarily, then remove the cap to retain the factory default settings.

JP13/JP14: Onboard AC97 Codec Controller

AC97 Codec	JP13 / JP14
Enabled(default)	1-2 / 2-3
Disabled(for external sound card)	2-3 / 1-2

NOTE!! Jumper 13 and Jumper 14 allow user to control onboard AC97 Codec chip function.

JP15: Power Lost Resume

Power Lost Resume	JP15
Normal(default)	2-3
Enabled	1-2

NOTE!! Jumper 15 allows user to use the switch of ATX power supply to control ON/OFF switch directly instead of using the power switch on the mainboard.

NOTE!! This feature has to work with BIOS. Please refer to the "Power On After PWR-Fail" section.

JFAN: Onboard FAN (+12V) Connector

FAN#	Function
JFAN1	CPU FAN
JFAN2	SYSTEM FAN

RT2: Thermal sensor cable connector

USB2: 2nd set USB connector

Line In: Audio In Jack

Line Out: Audio Out Jack

Mic: Microphone Jack

CD-IN1: CD-ROM Audio Connector

CD-IN2: CD-ROM Audio Connector

Onboard AC97 Audio Codec Controller Driver Installation for Windows95/Windows98

1. Enter Control Panel ⇒ Device Manager ⇒ Sound, video and game controller ⇒ VIA AC97 PCI AUDIO Device [WDM Driver].
2. Press Mouse right button (or double click this item).
3. Select "Update Driver" and change the directory to CD \Driver\Audio\VIA AC97\Win9x (Windows9x depends on user's actual O.S.: Windows95 or Windows98).
4. Install VIA AGP VxD Mini Port Driver. This driver can be found on the CD directory \driver\via\agp\setup.exe.
5. Reboot the computer.

NOTE: 1. IF USER WANT TO USE EXTERNAL SOUND CARD, THEN USER MUST DISABLE "Onboard Legacy Audio" option in the BIOS "Integrated Peripherals".
3. UNDER WINDOWS95, USER HAS TO INSTALL DirectX FOR AGP ENVIRONMENT.

VIA 686A SOUTH BRIDGE CHIPSET

What drivers should be installed on above chipset?

WINDOWS 95

- If user want to use AGP card, then it's necessary to install following software:
 - ① Install Windows 95 (If the version of Windows 95 is OSR2.x, user need to install USBSUPP.EXE).
 - ② Install DirectX 5.0 or higher version.
 - ③ Install AGP graphics card driver.
 - ④ Install VIA AGP VxD Mini Port Driver. The driver can be found on the CD directory \driver\via\agp\setup.exe.

AMD K6-2 350 or higher CPUs

- If user has an AMD K6-2 350 or higher CPU on the Pentium mainboard under Windows95, user must install the timing loop patch code "AMDK6UPD.EXE" that can be downloaded from Microsoft web site.
- **User does not need this patch code under Windows 98 and Windows NT.**

Chapter 3

A w a r d B I O S S e t u p

This mainboard 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 TO ENTER SETUP

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

ROM PCI/ISA BIOS(2A6LGSNC)
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	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING

Esc : Quit	↑ ↓ → :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
Video : EGA/VGA
Halt On : All Errors
Base Memory: 640K
Extended Memory: 15360K
Other Memory: 384K
Total Memory: 16384K
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/+/- keys.

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
(Secondary)
Master/Slave** This field records the specifications for all non-SCSI hard disk drives 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);
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
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	: Disabled	Cyrix 6x86/MII CPU ID:	Enabled
Boot Up NumLock Status	: On		
IDE HDD Block MODE	: Enabled		
Gate A20 Option	: Fast		
Memory Parity/ECC Check	: Disabled	ESC :Quit	↑↓→←: Select Item
Typematic Rate Setting	: Disabled	F1 :Help	PU/PD/+/-: Modify
Typematic Rate (Chars/Sec)	: 6	F5 :Old Values(Shift)	F2 : Color
Typematic Delay (Msec)	: 250	F6 :Load BIOS Defaults	
Security Option	: Setup	F7 :Load Setup Defaults	
PCI/VGA Palette Snoop	: Disabled		
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 Cache Choose Enabled (default) or 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 Self Test Choose Enabled (default) or 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.
Memory Parity /ECC Check	Choose Enabled or Disabled
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.
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.
Cyrix 6x86/MII CPU ID	Enabled: Default setting Disabled: Disable this option under Novell 5.0

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(2A6LGSNC)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.
```

Bank 0/1 DRAM Timing	: FP/EDO 70ns	OnChip USB	: Enabled
Bank 2/3 DRAM Timing	: FP/EDO 70ns	USB Keyboard Support	: Disabled
Bank 4/5 DRAM Timing	: SDRAM 10ns		
SDRAM Cycle Length	: 2	CPU Host Clock(CPU/PCI):	Default
DRAM Read Pipeline	: Enabled	Current CPU Temp.	: 0C/32F
		Current System Temp.:	0C/32F
Cache Pd+CPU Wt Pipeline	:Enabled	Current CPUFAN1 Speed:	5851RPM
Cache Timing	: Fast	Current CPUFAN2 Speed:	0RPM
Video BIOS Cacheable	: Enabled	Vcore: 2.44V	2.5V: 3.10V
System BIOS Cacheable	: Enabled	3.3V: 3.44V	5V: 5.10V
Video Hole At 15Mb Addr.	: Disabled	12V:12.30V	
AGP Aperture Size	: 64M		
OnChip Sound	: Enabled		
OnChip Modem	: Disabled		

```
ESC: Quit      ↑ ↓ → ←: Select Item
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/+/- keys.

A short description of screen options follows:

**Bank 0/1 2/3 4/5
DRAM Timing** This item allows you to select the value in this field, depending on whether the board has paged DRAMs or EDO (extended data output) DRAMs. The Choice: EDO 50ns, EDO 60ns, Slow, Medium, Fast, Turbo.

**SDRAM Cycle
Length 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 Read
Pipeline** DRAM optimization feature: If a memory read is addressed to a location whose latest write is being held in a buffer before being written to memory, the read is satisfied through the buffer contents, and the read is not sent to the DRAM
The Choice: Enabled, Disabled.

**Cache Rd + CPU
Wt Pipeline** Use the default settings

Cache Timing Use the default settings

Video BIOS Cacheable	Choose Enabled or Disabled (default). When Enabled, the access to the VGA BIOS addressed is cached.
System BIOS Cacheable	Choose Enabled or Disabled (default). When Enabled, the access to the system BIOS ROM addressed at F0000H-FFFFFH is cached.
Memory Hole	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.
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.

OnChip Sound	Enabled (default): Turn on AC97 chip Controller Disabled: Turn off AC97 chip controller or User can external add-on sound card
OnChip Modem	Enabled : Turn on MC99 feature Disabled (default): Disabled MC97 chip controller or User can external add-on modem
OnChip USB	This should be enabled if your system has a USB installed on the system board and you wish to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature. The choice: Enabled, Disabled.
USB Keyboard Support	Enabled: Enables function when the USB keyboard is being used. Disabled: (default) When the AT keyboard is being used.
CPU Host Clock (CPU/PCI)	Choose 66/75/83/95/100/112/124 /133 MHz

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(2A6LGSNC)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

ACPI Function	:Disabled	Primary INTR	: ON
Power Management	:User Define	IRQ3 (COM2)	: Primary
PM Control by APM	:Yes	IRQ4 (COM1)	: Primary
Video Off After	:Suspend	IRQ5 (LPT2)	: Primary
Video Off Method	:V/H SYNC+Blank	IRQ6 (Floppy Disk)	: Primary
Modem Use IRQ	:3	IRQ7 (LPT 1)	: Primary
Soft-Off by PWRBTN	:Instant-Off	IRQ8 (RTC Alarm)	: Disabled
HDD Power Down	:Disabled	IRQ9 (IRQ2 Redir)	: Secondary
Doze Mode	:Disabled	IRQ10 (Reserved)	: Secondary
Suspend Mode	:Disabled	IRQ11 (Reserved)	: Secondary
PM Events			
VGA	:OFF	IRQ12 (RS/2 Mouse)	: Primary
LPT&COM	:LPT/COM	IRQ13 (Coprocessor)	: Primary
HDD&FDD	:ON	IRQ14 (Hard Disk)	: Primary
DMA/master	:OFF	IRQ15 (Reserved)	: Disabled
Modem Ring Resume	:Disabled	ESC : Quit	↑ ↓ → ← : Select Item
RTC Alarm Resume	:Disabled	F1 : Help	PU/PD/+/- : Modify
Date(of Month)	: 0	F5 : Old Values (Shift)	F2 : Color
Timer(hh:mm:ss)	: 0: 0: 0	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 follows:

- ACPI Function** Enabled: Turn on ACPI Function
Disabled(default):Turn off ACPI Function
- Power Management** Choose Max. Saving, User Define (default), Disabled, or Min. Saving.
- PM Control by APM** Choose Yes (default) or No. You need to choose Yes when the operating system has the APM functions, otherwise choose No.
- Video Off Option** The default is "Suspend -> Off". This line defines when the video off features activate. The next line sets how.
- 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.
- 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).
- Soft-Off by PWR-BTN** 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.)

- Standby 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.
- Suspend Mode**
- HDD Power Down** When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.
- Doze Mode** This mode sets the CPU speed down to 33MHz.

PM Events

PM events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything which occurs to a device which is configured as On, even when the system is in a power down mode.

- VGA** When Enabled, you can set the LAN awaken the system.
- LPT & COM** When On of LPT & COM, any activity from one of the listed system peripheral devices or IRQs wakes up the system.
- HDD & FDD** When On of HDD & FDD, any activity from one of the listed system peripheral devices wakes up the system.

DMA / master	When you are On of DMA / ISA Master, any activity from one of listed system peripheral devices wakes up the system.
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
RTC Alarm Resume	When Enabled, your can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.
Primary INTR	When set to On, any event occurring at will awaken a system which has been powered down.

The following is a list of IRQ's, Interrupt ReQuests, which can be exempted much as the COM ports and LPT ports above can. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.

When set On, activity will neither prevent the system from going into a power management mode nor awaken it.

IRQ3 (COM 2)

IRQ4 (COM 1)

IRQ5 (LPT 2)

IRQ6 (Floppy Disk)

IRQ7 (LPT 1)

IRQ8 (RTC Alarm)

IRQ9 (IRQ2 Redir)
IRQ10 (Reserved)
IRQ11 (Reserved)
IRQ12 (PS / 2 Mouse)
IRQ13 (Coprocessor)
IRQ14 (Hard Disk)
IRQ15 (Reserved).

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(2A6LGSNC)
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.

PNP OS Installed      : No
Resources Controlled By : Auto
Reset Configuration Data: Disabled

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
DMA-3 assigned to    : PCI/ISA PnP
DMA-5 assigned to    : PCI/ISA PnP
DMA-6 assigned to    : PCI/ISA PnP
DMA-7 assigned to    : PCI/ISA PnP

CPU to PCI Write Buffer : Enabled
PCI Dynamic Bursting   : Enabled
PCI Master 0 WS Write  : Enabled
PCI Delay Transaction  : Enabled
PCI#2 Access #1 Retry  : Disabled
AGP Master 1 WS Write  : Enabled
AGP Master 1 WS Read   : Disabled

Assign IRQ For USB     : Enabled
Assign IRQ For VGA     : Enabled

ESC : Quit      ↑ ↓ → ← : Select Item
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/+/- 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.

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.)

**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.)

4. 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>.

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(2A6LGSNC)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.
```

OnChip IDE Channel0	: Enabled	Onboard Parallel Port	: 378/IRQ7
OnChip IDE Channel1	: Enabled	Onboard Parallel Mode	: ECP/EPP
IDE Primary Mode PIO	: Enabled	ECP Mode Use DMA	: 3
Primary Master PIO	: Auto	Parallel Port EPP Type	: EPP1.7
Secondary Master PIO	: Auto	Onboard Legacy Audio	: Enabled
Secondary Slave PIO	: Auto	Sound Blaster	: Enabled
Primary Master UDMA	: Auto	SB I/O Base Address	: 220H
Primary Slave UDMA	: Auto	SB IRQ Select	: IRQ 5
Secondary Master UDMA	: Auto	SB DMA Select	: DMA 1
Secondary Slave UDMA	: Auto	MPU-401	: Disabled
Init Display First	: PCI Slot	MPU-401 I/O Address	: 330-333H
		FM Port (388-38BH)	: Disabled
		Game Port (200-207H)	: Enabled
Onboard FDC Controller	: Enabled		
Onboard Serial Port 1	: 3F8/IRQ4	ESC : Quit	↑ ↓ → ← : Select Item
Onboard Serial Port 2	: 2F8/IRQ3	F1 : Help	PU/PD/+/- : Modify
UART 2 Mode	: NORMAL	F5 : Old Values (Shift)	F2: Color
IR Function Duplex	: Half	F6 : Load BIOS Defaults	
TX,RX, inverting enable	: NO,NO	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:

OnChip IDE First Channel OnChip IDE Second Channel	Enabled: (default) Turn on the onboard IDE function. Disabled: Turn off the onboard IDE function.
IDE Prefetch Mode	The onboard IDE drive interfaces supports IDE prefetching, for faster drive accesses. If you install a primary and/or secondary add-in IDE interface, set this field to Disabled if the interface does not support prefetching. The choice: Enabled, Disabled.
IDE HDD Block Mode	Choose Enabled (default) or Disabled. If your hard disk size is large than 540MB, choose Enabled, and, if you are using the IDE HDD Auto Detection option, the BIOS will choose this option automatically. (NOTE: Some HDDs of old models don't provide this feature.)
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.
IDE Primary Master/Slave UDMA IDE Secondary Master/Slave UDMA	UDMA (Ultra DMA) is a DMA data transfer protocol that utilizes ATA commands and the ATA bus to allow DMA commands to transfer data at a maximum burst rate of 66 MB/s. When you select Auto in the four IDE UDMA fields (for each of up to four IDE devices that the internal PCI IDE

interface supports), the system automatically determines the optimal data transfer rate for each IDE device. The choice: Auto, Disabled.

Init Display First This item allows you to decide to active which bus first (PCI Slot or AGP first). The choice: PCI Slot, AGP.

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, 3F8/IRQ4 (default), 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 (default), 3E8/IRQ4, 2E8/IRQ3, or Disabled.

UART 2 Mode Choose Standard (default), HPSIR, or ASKIR.

IR Function Duplex Choose Half or All

Onboard Parallel Port Choose the printer I/O address: 378H/IRQ7 (default), 3BCH/IRQ7, 278H/IRQ5, Disabled

Onboard Parallel Mode	Choose Normal (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. <i>*: This option will not be displayed unless the EPP/ECP function is selected..</i>
Parallel Port EPP Type	Choose EPP1.7 (default) or EPP1.9. EPP1.9 supports hardware handshake. This setting is dependent upon your EPP device. <i>Note: The above 2 options will not be displayed unless the EPP/ECP function is selected.</i>
Onboard Legacy Audio	Enabled: Enabled onboard AC97 audio codec controller. Disabled: Disabled onboard AC97 audio codec controller.
SB I/O, IRQ, DMA	Use the default setting for DOS mode compatible.
MPU 401	Use default setting
FM port	Use default setting

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.