

P6FX1-A

(for Award BIOS)



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P6FX1-A

User's Manual (for Award BIOS)

V1.1



August, 1996

This mainboard requires correct configuration information; otherwise, a malfunction may result.



Static electricity can cause serious damage to integrated circuit mainboards. To avoid building up a static electric charging on your body, be sure you discharge any static electricity by grounding yourself before handling the motherboards. If motherboards are handed from one person to another, they should touch hands first, then pass the motherboards.

Information presented in this publication has been carefully checked for reliability; however, no responsibility is assumed for inaccuracies. The information contained in this document is subject to change without notice.

Contact your dealer for warranty details.

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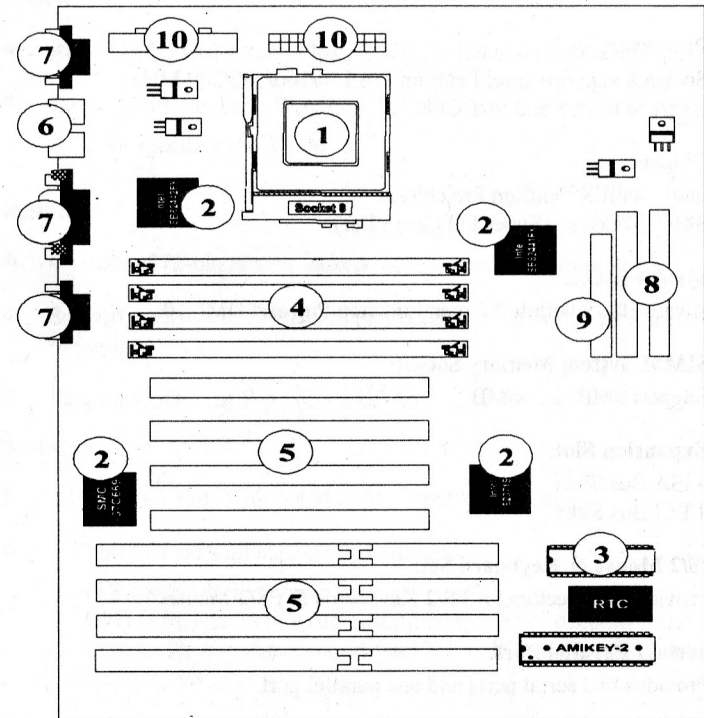
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1 Introduction

Mainboard Description



- | | |
|-----------------------------|-----------------------------|
| ① Processor | ⑥ PS/2 Mouse & Keyboard Set |
| ② Chipset | ⑦ Serial / Parallel Ports |
| ③ System BIOS | ⑧ PCI IDE Connectors |
| ④ SIMM System Memory Socket | ⑨ FDD Connector |
| ⑤ Expansion Slots | ⑩ Power Supply Connectors |

P6FX1-A is a Pentium Pro mainboard based on the Intel 440FX Chipset (82441FX, 82442FX and 82371SB) and SMC I/O chip. There are four ISA Bus slots and four PCI Bus slots on P6FX1-A. It also supports two banks (4 SIMMs) DRAM with memory size up to 256MB. If you use with parity SIMM, you can enable BIOS ECC function. There is only one bit error correction and up to double bit error detection in the system.

This is a high performance all-in-one mainboard which supports Intel Pentium-Pro™ CPU, EDO DRAM, PCI IDE interface and so on.

1. Processor:

Socket 8 supports Intel Pentium Pro 150/166/180/200 MHz
Upgrade to P6S and P6T CPU.

2. Chipset:

Intel 440FX Pentium Pro chipset
SMC 37C669 (Super I/O Controller)

3. System BIOS:

Award BIOS with full Green Function Pnp and DMI 2.0.

4. SIMM System Memory Socket:

Support 8MB to 256MB

5. Expansion Slot:

4 ISA Bus Slots.
4 PCI Bus Slots.

6. PS/2 Mouse & Keyboard Set:

Provides Connectors for PS/2 Keyboards & PS/2 Mouse.

7. Serial / Parallel Port:

Provides two serial ports and one parallel port.

8. PCI IDE Connector:

2 Enhanced PCI IDE up to 4 IDE Device Connectors.

9. FDD Connector:

Provides an on-board FDD Connector which supports
360KB/720KB/1.2MB/1.44MB/2.88MB type drives.

10. Power Supply Connectors:

Provides the connectors for standard PC power supply and ATX power supply.

Features

CPU:

- One Socket 8 supports Pentium Pro 150/166/180/200 MHz CPU
- Upgradable to P6S and P6T CPUs.

BIOS:

- Award BIOS with Green Flash ROM, DMI and CDROM boot function .
- Comply with Intel and Windows 95 PnP.
 - PNP specification V1.0a
 - PCI 2.1

Memory:

- 4 pieces of 72-pin SIMM sockets with memory size from 8MB to 256MB.
- Support parity or error checking and correction. (ECC function for reliability)
- Support EDO /Fast Page Mode DRAM .

Slots:

- 4 16-bit ISA slots with 100% ISA compatible function.
- 4 32-bit PCI slots all support PCI master.
 - PCI specification version 2.1.
 - CPU to PCI memory write posting with 4 Word deep buffers.
 - Convert Back-to-Back sequential CPU to PCI memory writes to PCI Burst writes.

IDE:

- Build-in Intel 82371SB chip 32-bit PCI IDE interface with 2 IDE channels.
 - Support PIO and Bus master IDE
 - Support up to PIO mode 4 timings
 - Transfer 8x32 bit buffer for Bus master IDE PCI Burst
 - Support Separate Master / Slave IDE mode.
 - Plug and Play compatible.

- Fully compatible with PCI local bus specification V2.1.

FDD:

- Two floppy drives support 360K/720K/1.2MB/1.44MB/2.88MB and 3 mode floppy drives.

I/O:

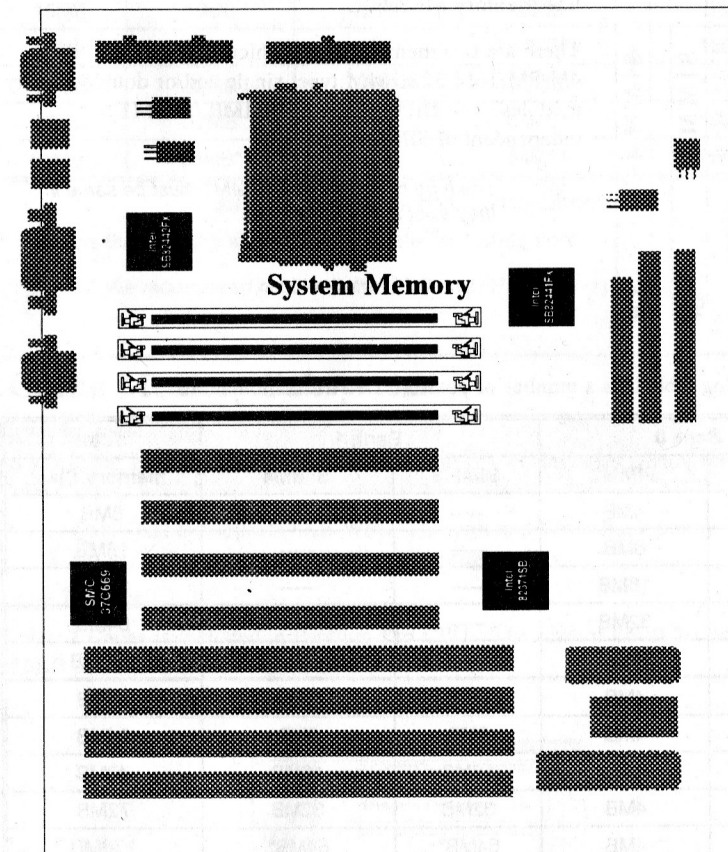
- One mutil-mode parallel port with chip-protect circuitry supports standard, enhanced (EPP), high speed (ECP) mode.
- Two high speed 16C550 compatible buffer fast serial port.

System and Power Management:

- Support Advanced Power Management (APM)
- Support Soft Power Down Function.

2 Memory Configurations

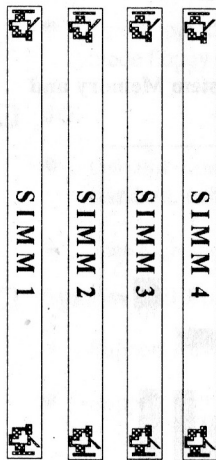
This chapter contains the detailed memory configuration: **System Memory and Cache Memory.**



The diagram above displays the location of SIMM Sockets on P6FX1-A motherboard.

System Memory


Bank 0 Bank 1



SIMM:

P6FX1-A provides tremendous flexibility DRAM configurations. It accepts a maximum 256 MB memory size. The main memory is installed with SIMM (Single-In-line-Memory Module).

There are two memory banks which support the 4M/8M/16M/32M/64M type, single and/or double-density modules. The DRAM type of SIMM0 /SIMM1 is independent of SIMM2/SIMM3.

 The type of SIMM 0 and SIMM1 must be same if they exist at the same time.

The following table lists a number of possible DRAM combinations.


Bank 0		Bank 1		Total
SIMM1	SIMM2	SIMM3	SIMM4	Memory Size
4MB	4MB	----	----	8MB
8MB	8MB	----	----	16MB
16MB	16MB	----	----	32MB
32MB	32MB	----	----	64MB
64MB*	64MB*	----	----	128MB
4MB	4MB	4MB	4MB	16MB
4MB	4MB	8MB	8MB	24MB
4MB	4MB	16MB	16MB	40MB
4MB	4MB	32MB	32MB	72MB
4MB	4MB	64MB*	64MB*	136MB
8MB	8MB	8MB	8MB	32MB
8MB	8MB	16MB	16MB	48MB

Continued.....

Bank 0		Bank 1		Total
SIMM0	SIMM1	SIMM2	SIMM3	Memory Size
8MB	8MB	32MB	32MB	80MB
8MB	8MB	64MB*	64MB*	144MB
16MB	16MB	16MB	16MB	64MB
16MB	16MB	32MB	32MB	96MB
16MB	16MB	64MB*	64MB*	160MB
32MB	32MB	32MB	32MB	128MB
32MB	32MB	64MB*	64MB*	192MB
64MB*	64MB*	64MB*	64MB*	256MB

Table 2-1. System Memory Configurations

* : means the memory size is not available for testing now.

 We recommend not to mix the EDO and FPM on the system.

Cache Memory Subsystem

Level 1 Cache

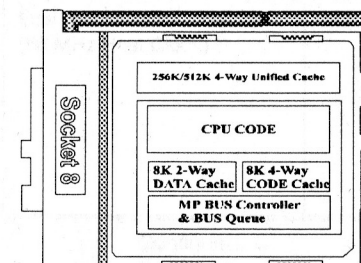
16 KB Level 1 Cache that is built in Pentium Pro CPU includes Data Cache and Code Cache.

- 1. Data Cache: supports 8KB Write-Through and Write-Back policy.
- 2. Code Cache: supports 8KB Write-Through policy.

Level 2 Cache

Level 2 Cache is included in Pentium Pro CPU. The Size of Level 2 Cache is 256KB or 512KB depending on CPU.

Pentium Pro CPU



3 Jumpers and Connectors

Setting the Jumpers

The table below summarizes the function and jumper settings of each jumper on the P6FX1-A. You can refer to the next section for the graphic descriptions.

Function	Jumper Settings
CPU Type Intel Pentium Pro 150MHz (60 MHz Host Clock) (default)	J13 open 1-2 short 3-4 short 5-6 open 7-8 open 9-10 short 11-12 short 13-14 short 15-16
Intel Pentium Pro 166MHz (66 MHz Host Clock)	J13 short 1-2 open 3-4 open 5-6 short 7-8 open 9-10 short 11-12 short 13-14 short 15-16
Intel Pentium Pro 180MHz (60 MHz Host Clock)	J13 open 1-2 short 3-4 short 5-6 open 7-8 short 9-10 open 11-12 short 13-14 short 15-16
Intel Pentium Pro 200MHz (66 MHz Host Clock)	J13 short 1-2 open 3-4 open 5-6 short 7-8 short 9-10 open 11-12 short 13-14 short 15-16

Continued.....

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Function		Jumper Settings
Flash BIOS Power Selection	5V Flash BIOS	JP4 short 1-2
	12V Flash BIOS	JP4 short 2-3

Table 3-1. Jumper Settings

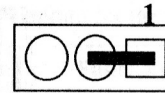


The table below is a break down functional table of table 3-1 which presents the detailed Jumper Settings for different CPU Clock. For example, if Pentium Pro 166MHz CPU is installed, you should set Host Clock as 66 MHz and CPU Core Clock as Host Clock *2.5.

PCI CLK is always set as CPU Clock * 0.5.

Host Clock		Host Clock	J13
		60 MHz	open 1-2 short 3-4 short 5-6 open 7-8 (default)
		66.6 MHz	J13 short 1-2 open 3-4 open 5-6 short 7-8
CPU Core Clock	Intel	Host Clock * 2	J13 short 9-10 short 11-12 short 13-14 short 15-16
		Host Clock * 2.5	J13 open 9-10 short 11-12 short 13-14 short 15-16 (default)
		Host Clock * 3	J13 short 9-10 open 11-12 short 13-14 short 15-16
		Host Clock * 3.5	J13 open 9-10 open 11-12 short 13-14 short 15-16
		Host Clock * 4	J13 short 9-10 short 11-12 open 13-14 short 15-16

Graphic Descriptions of Jumper Settings



means Pin 1 & 2 are set as "short"

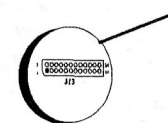
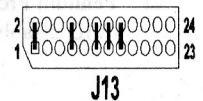
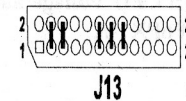
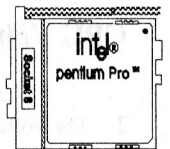
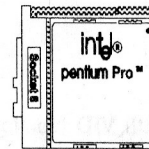


means this jumper is set as "open"

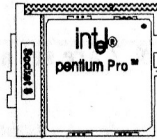
CPU Type

1. Intel Pentium Pro 150MHz CPU (60MHz Host Clock) installed on board

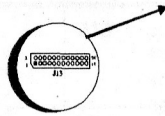
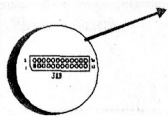
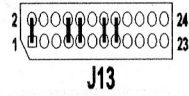
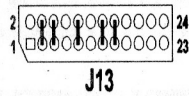
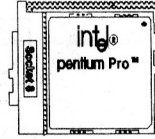
2. Intel Pentium Pro 166MHz CPU (66MHz Host Clock) installed on board



3. Intel Pentium Pro 180MHz CPU (60MHz Host Clock) installed on board



4. Intel Pentium Pro 200MHz CPU (66MHz Host Clock) installed on board



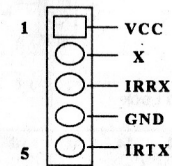
CPU Voltage Selection

- The voltage of Pentium Pro processor (with VID function) on P6FX1-A is automatically detected and supplied by on-board voltage regulator module.
- Pentium Pro CPU which does not support CPU Voltage auto-sense function (VID disabled) is not recommended for P6FX1-A.

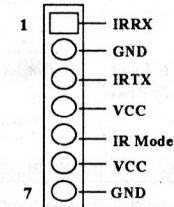
Connectors

There are several connectors located on the P6FX1-A. Users can refer to the following diagram for the clear figure of connectors. The function is listed below.

Connector	Function
J1	PS/2 Keyboard Connector
J2	PS/2 Mouse Connector
J3	COM 2 Port (COM 4)
J4	Printer Connector
J5	COM 1 Port (COM 3)
J6	Reserved
J7	USB Header Set
J8	FDD Connector
J9	IDE Secondary Connector
J10	Header for Intel IR Module



- J11 IDE Primary Connector
- J12 Header for HP & TEMIC IR Module

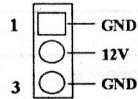


J13 CPU CLK Frequency & Ratio

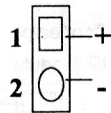
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Connector Function

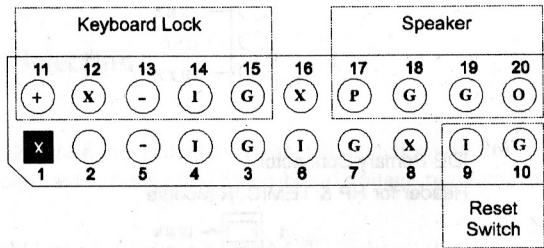
JP1 Fan Power (cut off when suspend)



JP3 RTC Clear (short to clear CMOS data at system off)
 JP4 for Flash ROM use (5V or 12V select , factory default)
 JP6/JP7 Reserved
 JP8 HDD LED Header



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X: No Function I: Input O: Output
 G: GND P: Power

JP100 Power Switch for ATX power supply (one shut switch)

Table 3-2. Connectors

Board Layout

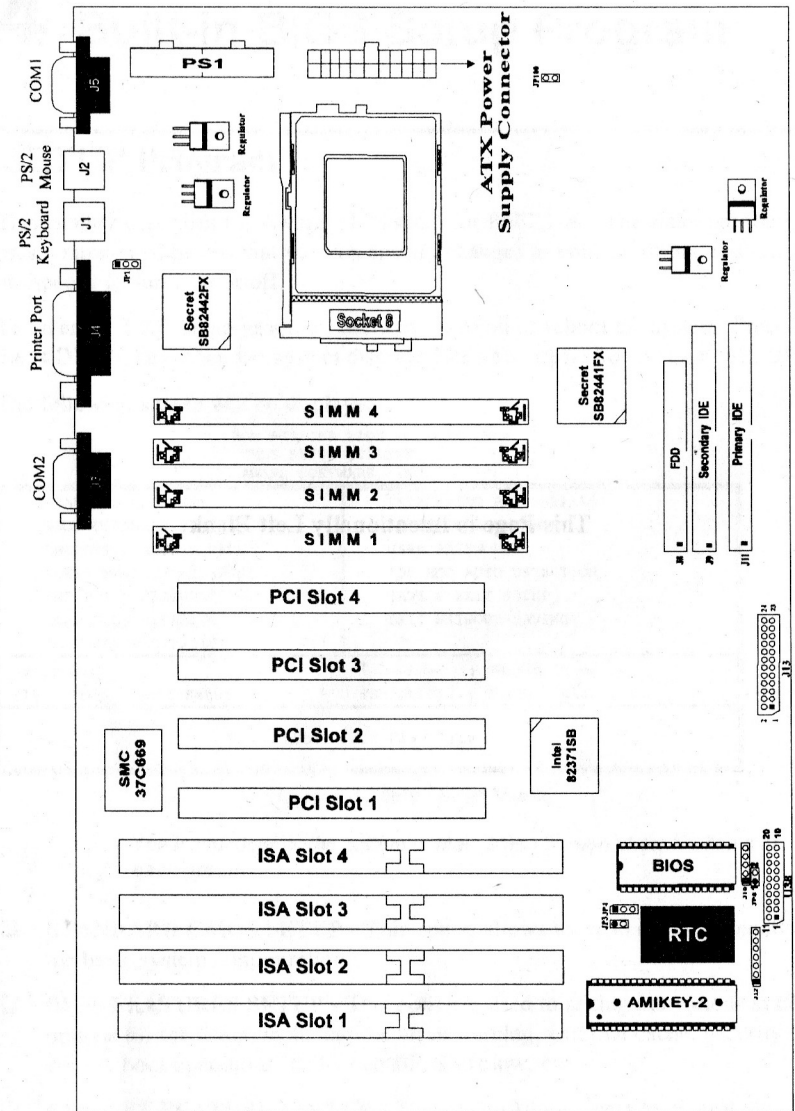


Figure 3-1. P6FX1-A Mainboard Layout

4 Built-in BIOS Setup Program

SETUP Program

This chapter describes the Award BIOS setup for P6FX1-A. The setup program uses a number of menus that you can specify changes to your hardware and turn the special features on or off.

To enter the BIOS setup program, users can turn on or reboot the system. Press the key when the system displays "Press DEL to enter SETUP".

The following screen will be displayed.

ROM PCI/ISA BIOS <<2A69HE1A>> 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 BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
Esc : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color
Time, Date, Hard Disk Type ...	

Figure 4-1. SETUP Main Menu



The instructions at the bottom of Main Menu Screen show the items of each option.

- STANDARD CMOS SETUP** - This option allows users to check or modify the basic system configuration.
- BIOS FEATURES SETUP** - This option is used to setting the various system options for the users, including the virus warning, external cache, security option, boot operations, and video BIOS shadow, etc.
- CHIPSET FEATURES SETUP** - This option allows users to control the features of chipset.

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- POWER MANAGEMENT SETUP** - This option allows users to set the power saving status for reducing the power consumption.
- PNP/PCI CONFIGURATION SETUP** - This option is used to setting the various system function and internal addresses of the PCI devices. Allows users to configure system IRQ and DMA to **PCI/ISA PnP** or **Legacy ISA**.
- LOAD BIOS DEFAULTS** - Users can load the BIOS default values to boot the system safely.
- LOAD SETUP DEFAULTS** - This option supports the better performance for the system. It is recommended to choose **SETUP Defaults** for the setup.
- INTEGRATED PERIPHERALS** - This option allows users to decide how many kinds peripherals need to change their I/O type, mode and used or not. This options also allows user to set the various system function and onboard PCI IDE controller.
- SUPERVISOR PASSWORD** - Password is required when entering and changing all of the SETUP option or booting your system. Users can change the current password stored in the CMOS by accessing this option.
- USER PASSWORD** - Password is required when booting your system and entering to change only the USER PASSWORD. Users can change the current password stored in the CMOS by accessing this option.
- IDE HDD AUTO DETECTION** - This option can automatic detect the hard disk drive type(s) including the number of cylinders and heads, write pre-compensation time, read/write head landing zone, and number of sectors per track.
- SAVE & EXIT SETUP** - After saving the changes what you have made in the SETUP program, then exit and reboot the system.
- EXIT WITHOUT SAVING** - Abandon all previous settings, then exit and reboot the system.

After choosing an item from the SETUP main menu, move the cursor by using the $\uparrow, \downarrow, \rightarrow, \leftarrow$ arrow keys and press $\langle \text{Enter} \rangle$. To modify the setting of an option, simply press the $\langle \text{PgUp} \rangle$ or $\langle + \rangle$ and the $\langle \text{PgDn} \rangle$ or $\langle - \rangle$ keys. Press the $\langle \text{F2} \rangle$ key when changing the color setting, $\langle \text{F1} \rangle$ for a context sensitive help function, and the $\langle \text{ESC} \rangle$ key when quitting SETUP.

Standard CMOS Setup

ROM PCI/ISA BIOS <<2A69HE1A>>
STANDARD CMOS SETUP
AWARD SOFTWARE, INC

Data (mm:dd:yy) : Thu, Feb 18 1996								
Time (hh:mm:ss) : 17 : 58 : 42								
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							Base Memory: 640K
Halt On	: All Errors							Extended Memory: 11264K
							Other Memory: 384K	
							Total Memory: 12288K	
Esc : Quit		$\uparrow \downarrow \rightarrow \leftarrow$: Select Item			PU/PD/+/- : Modify			
F1 : Help		(Shift)F2 : Change Color						

Figure 4-2. Standard CMOS SETUP Screen

Date - Allows manual setting of the electronic calendar on the mainboard.

Time - Sets the internal clock of the system which includes hour, minutes, and seconds.

Primary Master - Specifies the physical and electronic properties of the standard hard disk drives installed. Relevant specifications include the type, number of cylinders (CYLS), heads (HEAD), write pre-compensation time (PRECOMP), read/write head landing zone (LANDZ), number of sectors per track (SECTOR), and HDD mode (MODE). Selecting "AUTO" in the hard disk type item avoids the necessity of loading the HDD specifications and the function of the IDE HDD Auto Detection option in the main menu. The system BIOS will automatically detect the hard drive installed on the system upon bootup.

Drive A:/B: - Specifies the capacity and format of the floppy drive installed in your system.

Video - Specifies the display adapter installed.

Halt On - Enables the system to halt on several conditions/options. The default value is set as "All Errors."

Base/Extended/Other Memory - A small section in the lower right corner of the screen displays the important information about your system which includes the base, extended, and other memory sizes. They are updated automatically by the SETUP program according to the status detected by the BIOS self-test. This section of the Standard CMOS SETUP screen is for viewing purpose only; therefore, manual modifications are not allowed.

BIOS Features Setup

ROM PCI/ISA BIOS <<2A69HE1A>>
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
Level 1 Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
Level 2 Cache	: Enabled	CC000-CFFFF Shadow	: Disabled
Quick Power On Self Test	: Disabled	D0000-D3FFF Shadow	: Disabled
Boot Sequence	: A,C	D4000-D7FFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	D8000-DBFFF Shadow	: Disabled
Boot Up Floppy Seek	: Enabled	DC000-DFFFF Shadow	: Disabled
Boot Up NumLock Status	: On		
Boot Up System Speed	: High		
Gate A20 Option	: Fast		
Typematic Rate Setting	: Disabled		
Typematic Rate(Chars/Sec)	: 6		
Typematic Delay(Msec)	: 250	ESC : Quit	↑↓←→: Select Item
Security Option	: Setup	F1 : Help	PU/PD/+/- : Modify
PCI/VGA Palette Snoop	: Disabled	F5 : Old Values	(Shift)F2 : Color
OS Select For DRAM >64MB	: Non-OS2	F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

Figure 4-3. BIOS Features Setup Screen

Virus Warning - Allows the virus warning feature for the hard disk boot sector to display a warning message and produce a beep sound whenever an attempt is made to write on the hard disk's boot sector. The default value for this option is **"Disabled."**

Level 1/2 Cache - Enables the Level 1/2 Cache cache when this options is set to **"Enabled"** (default).

Quick Power On Self Test - Allows the power on self test to run at either a fast or a normal speed. The available options are:

- Disabled (default)
- Enabled

Boot Sequence - Selects the drive where the system would search for the operating system to run with. The available options are:

- A,C (default)
- C,A

Swap Floppy Drive - **"Enabled"** will effectively change the A: drive to B: and the B: to A: drive. **"Disabled"** (default) sets the floppy drives in their default states.

Boot Up Floppy Seek - Checks whether the floppy drives installed on the system are correct or not. This option's operation usually occurs when the magnetic heads of the floppy drives produce a sound during power on self test. The available options are:

- Enabled (default)
- Disabled

Boot Up NumLock Status - Sets the <Num Lock> key to either on or off during system boot-up. The available options are:

- On (default)
- Off

Boot Up System Speed - Sets the speed of the system during power on self test sequence. The available options are:

- High (default)
- Low

Gate A20 Option - Boosts the performance of system with softwares by using the protected mode such as OS/2 or UNIX. This option determines the accessibility of the extended memory. The available options are:

- Fast (default)
- Normal

Typematic Rate Setting - Defines the setting of the keyboard's typematic rate. The available options are:

- Disabled (default)
- Enabled

Typematic Rate (Chars/Sec) - Specifies the key repeat rate, in seconds, of keyboard characters. The available options are:

- 6 (default)
- 8
- 10
- 12
- 15
- 20
- 24
- 30

Typematic Delay (Msec) - Selects the delay, in milliseconds, before a key repeats itself. The available options are:

- 250 (default)
- 750
- 500
- 1000

Security Option - Determines if the password will be asked for every boot (**System**), or when entering into the SETUP program (**Setup** - default). Refer to the section entitled SUPERVISOR PASSWORD for the password setting procedure.

PCI/VGA Palette Snoop - Selects "Enabled" to solve the abnormal color in Windows while using ISA MPEG and PCI VGA card. The available options are:

- Disabled (default)
- Enabled

OS Select For DRAM>64MB -Selects the OS if DRAM > 64MB. This option allows you to access the memory that over 64MB in OS/2. The available options are:

- Non-OS2 (default)
- OS2

Video BIOS Shadow - Enables the system shadowing and achieve the best performance of the system. The available options are:

- Enabled (default)
- Disabled

C8000-CBFFF, CC000-CFFFF, D0000-D3FFF, D4000-D7FFF, D8000-DBFFF, DC000-DFFFF Shadow - If you have a shadowing of the BIOS at any of the above segments, you may set the appropriate memory cacheable function to "**Enabled**". Otherwise, select "**Disabled**" (default).

Chipset Features Setup

ROM PCI/ISA BIOS <<2A69HE1A>>
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration	: Enabled	System BIOS Cacheable	: Enabled
DRAM Speed Selection	: 60ns	Video RAM Cacheable	: Enabled
DRAM RAS# Precharge Time	: 3	Memory Hole at 15M-16M	: Disabled
MA Additional Wait State	: Disabled	8 Bit I/O Recovery Time	: 1
RAS# To CAS# Delay	: Disabled	16 Bit I/O Recovery Time	: 1
DRAM Read Burst <B/E/F>	: x2/2/3		
DRAM Write Burst <B/E/F>	: x2/2/3		
ISA Bus Clock	: PCICLK/4		
DRAM Refresh Queue	: Enabled		
DRAM RAS Only Refresh	: Disabled		
ECC Checking/Generation	: Disabled		
Memory Parity Check	: Disabled		
Fast Dram Refresh	: Disabled		
Read-Around-Write	: Enabled	ESC : Quit	↑↓←→ : Select Item
PCI Burst Write Combine	: Enabled	F1 : Help	PU/PD/+/- : Modify
PCI-To-DRAM Pipeline	: Enabled	F5 : Old Values (Shift)F2 : Color	
CPU-To-PCI Write Post	: Enabled	F6 : Load BIOS Defaults	
CPU-To-PCI IDE Posting	: Enabled	F7 : Load Setup Defaults	

Figure 4-4. Chipset Features Setup Screen

Auto Configuration - The default values of this options is "**Enabled**" (default). When enabled, this options is for the following DRAM and cache options. Otherwise, "**Disabled**" allows you to program each option .

- Enabled (default)
- Disabled

The following items are controlled by Auto Configuration when users select "Enabled". For this reason, their default values will be changed by the speed of CPU. These items are :

"MA Additional Wait State", "RAS# To CAS# Delay", "DRAM Read Burst<B/E/F>", "DRAM Write Burst<B/E/F>", and "ISA Clock".

DRAM Speed Selection - Allows to select DRAM speed. The default value is 60ns which is preferable. After changing this option will affect RAS Precharge option. The available options are:

- 60 ns (default)
- 70

DRAM RAS# Precharge Time - Selects RAS# precharge time for DRAM access. The available options are:

- 3 (default)
- 4

MA Additional Wait State - One additional wait state is inserted before the assertion of the first Maxx and CAS#/RAS# assertion during DRAM read or write leadoff cycles. The available options are:

- Disabled (default)
- Enabled

RAS# To CAS# Delay - Allows 1 clock delay or none between assertion of RAS# and CAS#. The available options are:

- Disabled (default)
- Enabled

DRAM Read Burst Timing <B/E/F> - Controls DRAM Read Burst Timings. If users set the option to x2/2/3, the Burst Read Timings of **BEDO**, **EDO** and **FPM** DRAM respectively are x222, x222, and x333. The available options are:

- x2/2/3 (default)
- x2/3/4
- x3/4/4
- x1/2/3

DRAM Write Burst Timing <B/E/F> - Controls DRAM Write Burst Timings. The available options are:

- x2/2/3(default)
- x3/3/4
- x3/3/3
- x4/4/4

ISA Bus Clock - ISA clock divide by 4 or 3 depending on PCI bus clock. Users can refer to the formula for clear figure. (**ISA Clock = PCI Clock / 3** or **ISA Clock = PCI Clock / 4**). The available options are:

- PCICLK/4 (default)
- PCICLK/3

DRAM Refresh Queue - If DRAM is set to "Enabled", the internal 4 deep refresh queue is enable for adjusting the DRAM refresh rate. The available options are:

- Enabled (default)
- Disabled

DRAM RAS Only Refresh - If you choose "Enabled", the DRAM refresh type is RAS only; otherwise, the DRAM refresh type is CAS-before-RAS. The available options are:

- Disabled (default)
- Enabled

ECC Checking/Generation - Enables the option for detecting memory error. The available options are:

- Disabled (default)
- Enabled

Memory Parity Check - Enables or disables the memory parity error check of every DRAM module on board. It is recommended to set this option to "Disabled" (default) when using non-parity bit DRAM modules.

Fast Dram Refresh - The fast refresh mode implements a refresh cycle every 32 host clocks. The available options are:

- Disabled (default)
- Enabled

Read-Around-Write -When the option is disabled, all posed writes in the DBX are retired before a CPU or PCI read access is reservised. The available options are:

- Enabled (default)
- Disabled

PCI Burst Write Combine - If this option is set as enabled, DBX is allowed to combine back-to-back sequential CPU to PCI Writes into a single PCI Write Burst. The available options are:

- Enabled (default)
- Disabled

PCI-To-DRAM Pipeline - Restricts pipelining of PCI to DRAM Write cycles when this option is set as disabled. The available options are:

- Enabled (default)
- Disabled

CPU-To-PCI Write Post - Enables the PCU to PCI posting. The available options are:

- Enabled (default)
- Disabled

CPU-To-PCI IDE Posting - When this option is set as disabled, the cycles are treated as normal I/O write transactions. The available options are:

- Enabled (default)
- Disabled

System BIOS Cacheable - Allows shadowing of the system BIOS and improves the system performance. The available options are:

- Disabled (default)
- Enabled

Video RAM Cacheable - Sets the mode of the system's video BIOS shadowing mode. The available options are:

- Disabled (default)
- Enabled

Memory Hole at 15M-16M - Enables this option to reserve the certain space in memory for ISA cards. The available options are:

- Disabled (default)
- Enabled

8 Bit I/O Recovery Time - Defines the 8-bit I/O recovery time with one of the following system clock options. The available options are:

- 1 (default)
- 2/3/4/5/6/7/8/NA

16 Bit I/O Recovery Time - Defines the 16-bit I/O recovery time with one of the following system clock options. The available options are:

- 1 (default)
- 2/3/4/NA

Power Management Setup

ROM PCI/ISA BIOS <<2A69HE1A>>
Power MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management : Disabled	** Power Down & Resume Events **
PM Control by APM : Yes	IRQ3 (COM 2) : OFF
Video Off Method : DPMS	IRQ4 (COM 1) : ON
MODEM Use IRQ : 3	IRQ5 (LPT 2) : ON
	IRQ6 (Floppy Disk) : ON
Doze Mode : Disabled	IRQ7 (LPT 1) : ON
Standby Mode : Disabled	IRQ8 (RTC Alarm) : OFF
Suspend Mode : Disabled	IRQ9 (IRQ2 Redir) : ON
HDD Power Down : Disabled	IRQ10 (Reserved) : ON
	IRQ11 (Reserved) : ON
**Wake Up Events In Doze & Standby **	IRQ12 (PS/2 Mouse) : ON
IRQ3 (Wake-Up Event) : OFF	IRQ13 (Coprocessor) : ON
IRQ4 (Wake-Up Event) : ON	IRQ14 (Hard Disk) : ON
IRQ8 (Wake-Up Event) : OFF	IRQ15 (Reserved) : ON
IRQ12 (Wake-Up Event) : ON	
ESC : Quit ↑↓←→ : Select Item	
F1 : Help PU/PD/+/- : Modify	
F5 : Old Values (Shift)F2 : Color	
F6 : Load BIOS Defaults	
F7 : Load Setup Defaults	

Figure 4-5. Power Management Setup Screen

Power Saving Mode - Allows users to determine how often the Power Saving actives. The available options are:

- Disable (default)
- Min Saving
- Max Saving
- User Define

PM Control by APM - Sets the power management (PM) control by APM. The available options are:

- Yes (default)
- No

Video Off Method - Sets the video power green method. The available options are:

- DPMS (default)
- Blank Screen
- V/H SYNC+Blank

MODEM Use IRQ - In order to support resume on ring and to pass APM 1.2, this option is required to be set same IRQ as the modem add-in-card used. The available options are:

- 3 (default)
- 4/5/7/9/10/11/NA

Doze Mode - Sets the time interval when the system enters DOZE mode. The available options are:

- Disabled (default)
- 1 Hour

- 1/2/4/6/8/10/20/30/40 Min

Standby Mode - Sets the timer interval when the system enters STANDBY mode. The available options are:

- Disabled (default)
- 1 Hour
- 1/2/4/6/8/10/20/30/40 Min

Suspend Mode - Sets the time interval when the system enters SUSPEND mode. The available options are:

- Disabled (default)
- 1 Hour
- 1/2/4/6/8/10/20/30/40 Min

HDD Power Down - Sets the timer of the HDD when to enter the Standby mode. The available options are:

- Disabled (default)
- 1....15 Min

Wake Up Events In Doze & Standby

IRQ 3/4/8/12 (Wake-Up Event) - Sets the wake-up event to "ON" or "OFF" when system enters the suspend mode.

Power Down & Resume Events

Power Down Activities - The manual also lists the Power Management SETUP (PM) events by which the system wakes up from STANDBY or SUSPEND modes. Switch the following parameters to "ON" or "OFF":

- COM Ports Accessed
- LPT Ports Accessed
- Drive Ports Accessed
- IRQ3 (COM2)
- IRQ4 (COM1)
- IRQ5 (LPT2)
- 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)

The default values of "IRQ3 (COM2)", and "IRQ8 (RTC Alarm)" are OFF now. In the following version (V1.2), these values will be changed to ON.

PNP/PCI CONFIGURATION Setup

ROM PCI/ISA BIOS <<2A69HE1A >>
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.

Resources Controlled By : Auto	PCI IRQ Activated By : Level
Reset Configuration Data : Disabled	PCI IDE IRQ Map To : PCI-AUTO
	Primary IDE INT# : A
	Secondary IDE INT# : B
ESC : Quit ↑↓←→ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults	

Figure 4-6. PNP/PCI CONFIGURATION SETUP Screen

Resources Controlled By - Allows users to use what kind IRQs assignment. The available options are:

- Auto (default)
- Manual

The default of "Resources Controlled By" is Auto. If users set Manual option for the setting, "IRQ-3 / IRQ-4 / IRQ-5 / IRQ-7 / IRQ-9 / IRQ-10 / IRQ-11 / IRQ-12 / IRQ-14 / IRQ-15 / DMA-0 / DMA-1 / DMA-3 / DMA-5 / DMA-6 / DMA-7 assigned to" options below will be shown on the screen.

Reset Configuration Data - Clears the data in ESCD area. (Extended System Configuration). The available options are:

- Enabled (default)
- Disabled

IRQ-3 / IRQ-4 / IRQ-5 / IRQ-7 / IRQ-9 / IRQ-10 / IRQ-11 / IRQ-12 / IRQ-14 / IRQ-15 / DMA-0 / DMA-1 / DMA-3 / DMA-5 / DMA-6 / DMA-7 assigned to -

Users can select resources controlled by "manual" method to fix legacy ISA card IRQ & DMA in Plug & Play problem . Legacy card has the highest priority to use someone IRQ# & DMA# which one assigned by manual . The available options are:

- PCI/ISA PnP (default)
- Legacy ISA

PCI IRQ Activated By - Programs the PCI IRQ to single edge or logic level.

Level/Edge sensitivity is programmed per controller. Every IRQ input for a given bank is either "EDGE" or "LEVEL" (default) triggered.

PCI IDE IRQ Map To - Defines the IDE IRQ Routing either from the PCI Bus or the ISA Bus. The available options are:

- PCI-AUTO (default)
- PCI-SLOT 1
- PCI-SLOT 3
- ISA
- PCI-SLOT 2
- PCI-SLOT 4

If user sets this option to "ISA", both the "Primary IDE INT#" and "Secondary IDE INT#" options below will not be shown on the screen.

Primary/Secondary IDE INT# - Defines the primary/secondary IDE INT# of the PCI IDE card. The available options are:

- A (default of Primary IDE INT#)
- B (default of Secondary IDE INT#)
- C
- D

This option may not be able to configure all the values within the SETUP program according to the installed equipments (i.e., floppy drives A: & B.; hard disk drives C: & D:).

Load BIOS Defaults

In the event of a loss in memory on the configuration SETUP, the user can restore the information on the BIOS by loading its default values. Loading the BIOS defaults provides safety booting of the system.

Load Setup Defaults

SETUP defaults are considered default values with which the system will be enabled to perform better. This is due to the enabling of some options within the SETUP program. However, if problems are encountered after loading the SETUP defaults, reboot the system and load the BIOS defaults instead.

INTEGRATED PERIPHERALS

ROM PCI/ISA BIOS <<2A69HE1A >> INTEGRATED PERIPHERALS AWARD SOFTWARE, INC.	
IDE HDD Block Mode	: Enabled
IDE Primary Master PIO	: Auto
IDE Primary Slave PIO	: Auto
IDE Secondary Master PIO	: Auto
IDE Secondary Slave PIO	: Auto
On-Chip Primary PCI IDE	: Enabled
On-Chip Secondary PCI IDE	: Enabled
PCI Slot IDE 2nd Channel	: Enabled
Onboard FDD Controller	: Enabled
Onboard UART 1	: 3F8/IRQ4
Onboard UART 2	: 2F8/IRQ3
Onboard UART 2 Mode	: Standard
Onboard Parallel Port	: 378/IRQ7
Parallel Port Mode	: Normal
ESC : Quit ↑↓←→ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults	

Figure 4-7. PNP CONFIGURATION SETUP Screen

IDE HDD Block Mode - Determines the block transfer mode will be used or not. The available options are:

- Enabled (default)
- Disabled

IDE Primary/Secondary Master/ Slave PIO - Sets the advanced hard disk PIO transfer mode which effects your hard disk transfer rate. The program will auto detect the mode of this option when users select "Auto". Otherwise, you must set this option by yourself. The available options are:

- Auto (default)
- Mode 0
- Mode 1
- Mode 2
- Mode 3
- Mode 4

On-Chip Primary/Secondary PCI IDE - Enables or Disables the primary/secondary PCI IDE of Intel IDE controller. Selecting "Disabled" can release IRQ14.

- Enabled (default)
- Disabled

PCI Slot IDE 2nd Channel - Enables or Disables the second IDE channel of PCI slot if users use the PCI IDE card on board. The available options are:

- Enabled (default)
- Disabled

Onboard FDD Controller - Enables or Disables the FDD controller or on-board I/O chip. The available options are:


- Enabled (default)
- Disabled

Onboard UART 1/2 - Sets the I/O address for serial port 1/2.

- 3F8/IRQ4 (default of Onboard serial Port 1)
- 2F8/IRQ3 (default of Onboard serial Port 2)
- 3E8/IRQ4
- 2E8/IRQ3
- Disabled

Onboard UART 2 Mode - Determines which type IR module to be used. The available options are:

- Standard (default)
- ASKIR
- HPSIR


 If users set this option to "Standard" (default), the "IR Duplex Mode" option below will not be shown on the screen.

IR Duplex Mode - Allows users to control the infrared communication duplex mode. The available options are:

- Half (default)
- Full


Onboard Parallel Port - Sets the I/O address for the parallel port. The available options are:

- 378H/IRQ7 (default)
- Disabled

 If users set this option to "Disabled", the "Parallel Port Mode" option below will not be shown on the screen.

Parallel Port Mode - Selects the working mode of parallel port. The available options are:

- Normal (default)
- ECP+EPP
- EPP
- ECP

-  1. If users set this option to "Normal", the "ECP Mode Use DMA" and "Parallel Port EPP Type" options below will not be shown on the screen.
2. If users set this option to "EPP", the "ECP Mode Use DMA" option below will not be shown on the screen.
3. If users set this option to "ECP", the "Parallel Port EPP Type" option below will not be shown on the screen.

ECP Mode Use DMA - Selects the DMA channel of ECP Mode to transfer your data. The available options are:

- 3 (default)
- 1

Parallel Port EPP Type - Determines what version of EPP protocol to be supported. The available options are:

- EPP1.7 (default)
- EPP1.9

SUPERVISOR PASSWORD

The SUPERVISOR PASSWORD utility allows you to set, change, and disable the password which is stored in the BIOS. To change the password setting, press <Enter> on the SUPERVISOR PASSWORD option of the main menu and then type the new password.

Configure the Security Option within the BIOS Features Setup corresponding to the setting in this utility. SUPERVISOR PASSWORD access right hither than USER PASSWORD.

The password can be at most 8 characters long. The program will require you to confirm the new password before it exits and will enable the utility. To disable the SUPERVISOR PASSWORD, press the <F1> when the program asks you to enter the new password.

USER PASSWORD

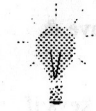
USER PASSWORD only can be used when the system is booting. Users only can enter SETUP screen to change the USER PASSWORD.

The password can be at most 8 characters long. The program will require you to confirm the new password before it exits and enables the utility. To disable the USER PASSWORD, press the <F1> as the program asks you to enter the new password.

IDE HDD Auto Detection

The IDE HDD Auto Detection provides auto configuration of the hard drive installed in the system. It supports LBA, Large, and Normal modes. If the system's hard disk drive has a capacity of over 528MB and does not supports LBA functions, you may select either the LBA mode or the Large mode. On the other

hand, if the hard disk drive's capacity is over 528MB but does support LBA functions, you may select the Large mode in order to use the area over 528MB.



- a. The LBA and Large modes will only appear on the screen when the installed hard disk drive is specified to support the LBA mode.
- b. In the case when a hard disk drive's cylinder specification exceeds 1024, and does not support the LBA functions, only the Large mode will be displayed on the screen.
- c. With a hard disk drive supporting cylinders below 1024, only the Normal mode will appear on the screen. The Normal mode will also be shown on the screen under conditions a & b above.
- d. Hard disk drives with less than 528MB total capacity must be set to Normal mode when combined with either old BIOS versions or the Award BIOS.



LBA and Large modes are new specifications which may not be fully supported by all operating systems. An example of which is the current version of UNIX System (R3.2.4) which is still unable to support the LBA function. Therefore, determine the specifications of your hard disk drive and operating system before selecting the drive's mode.

After pressing the <Enter> key on this item of the main menu, the display screen will show the following screen.

```

ROM PCI/ISA BIOS <<2A69HE1A >>
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.
    
```

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master :								
Select Primary Master Option (N=Skip) : N								
OPTIONS	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE	
1	0	0	0	0	0	0	NORMAL	

Note: Some Oses (like SCO-UNIX) must use "NORMAL" for installation
Esc : Skip

Figure 4-8. IDE HDD Auto Detection Screen

Once the program detects the type of hard disk installed, it will display the relative information such as the type, cylinders, heads, write pre-compensation, landing zone, number of sectors per track, size and mode. A message asking you to accept the IDE HDD detected will also be flashed on the screen.

Quitting SETUP

After making all modifications in the SETUP program, go to the option "Save & Exit SETUP" then press the <Enter> key.

Press <Y> to confirm the changes made, and the <N> or the <ESC> keys if further modifications are still necessary before exiting the SETUP program. Once the <Y> key is pressed, the system will automatically exit the program and reboot. However, if you want to cancel all changes made under the SETUP program, go to the option "Exit Without Saving".

Press <Y> and the system will exit the SETUP program then reboot without saving any of the changes made.



You may also use the <F10> key to save the new settings.

40-012-905110

Version 1.1

Made in Taiwan

