AI5TV
User's Manual
Version 1.3D

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Chapter 1 Specifications

The AI5TV is a high performance PCI system board. It's highly flexible in CPU frequency, L2 cache type and size, and main memory type and size. The main features are listed as follows:

Main Processor

Intel Pentium 75/90/100/120/133/150/166/200
Cyrix 6x86 P120$^+$/P133$^+$/P150$^+$/P166$^+$
AMD K5 PR75/PR90/PR100/PR120/PR133

Processor Upgrade

Intel P6 based Over Drive

L2 Cache

Size: 256K or 512K
Type: Pipelined Burst Synchronous SRAM onboard or Module.

Main Memory

4x72-pin SIMM sockets and 1x168-pin DIMM socket
Up to 128MB of total main memory using FPM or EDO
Up to 64MB using SDRAM
SIMM Size: 4MB, 8MB, 16MB or 32MB SIMMs
SIMM Type: Fast page mode or Extended Data Out (EDO)
DIMM Size: 8MB, 16MB, 32MB or 64MB
DIMM Type: SDRAM (Synchronous DRAM)

Chipset

Intel 82430VX chipset with built- in PCI-EIDE

BIOS

Licensed BIOS with additional features:

- ISA Plug and Play (PnP) extension
- Power management: Advanced Power Management (APM) 1.2 compliant
- Symbios (NCR) 53C810 SCSI BIOS

Expansion Slots

Four PCI slots*
Three ISA slots*

* One shared slot

Onboard I/O

Winbond 877 Supper I/O for two serial ports (16550 UART compatible) and one parallel port (ECP/EPP compatible) and one floppy interface that support up to 2.88MB floppy drives.

Chapter 2 Hardware Description

This chapter briefly describes each of the major features of the AI5TV system board. The layout of the board is shown in *Figure 1* which shows the locations of key components. The topics covered in this chapter are as follows:

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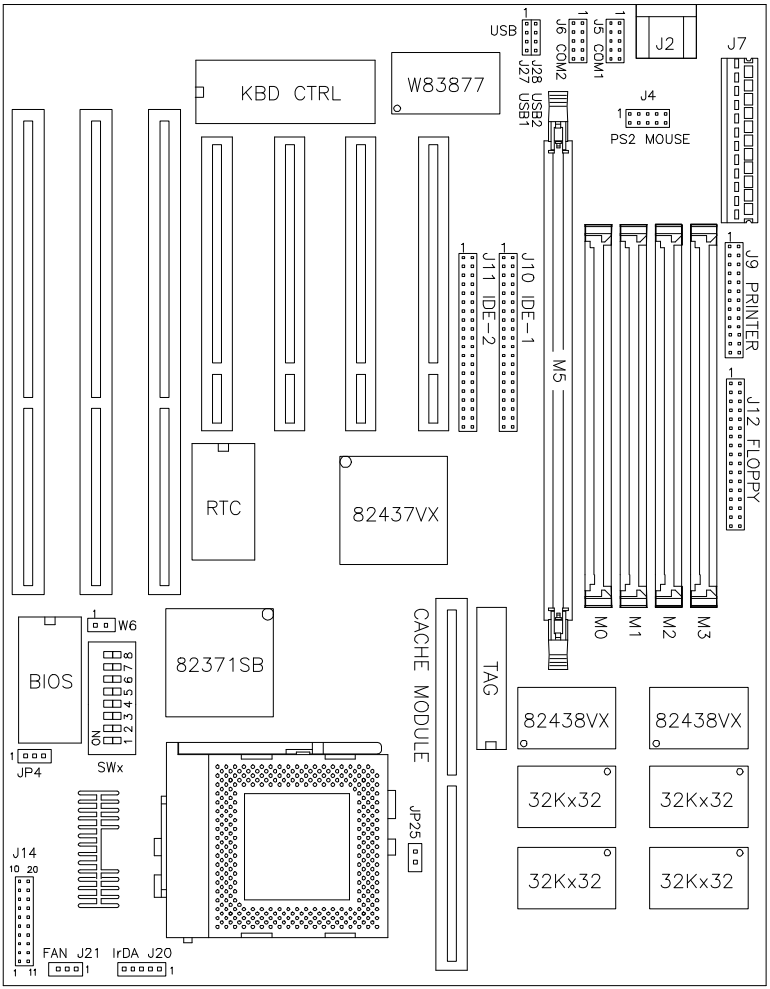


Figure 1: Layout of the AI5TV

2.1 Processor

The AI5TV is designed to take a Pentium processor with a bus speed of 50, 60 and 66 MHz. Since the internal clock of the CPU can be multiples of 1.5, 2, 2.5 or 3 of the bus clock, the CPU frequency can be 75MHz to 200MHz.

2.2 L2 Cache and Cache Module Connector

The AI5TV supports Pipelined Burst Synchronous Cache 256K or 512K. The P.B. Synchronous Cache boost the system performance 10% higher than regular Asynchronous Cache.

2.3 Main Memory

The AI5TV provides two 64-bit memory banks for up to 128MB. Each bank consist of two SIMM sockets, M0/M1 and M2/M3. Both EDO and page mode DRAMs are supported. The size of the SIMMs can be 4MB, 8MB, 16MB or 32MB.

Each 64-bit memory bank can also be populated by using a DIMM (Dual In-line Memory Module). The DIMM size can be 8mb, 16MB, 32MB or 64MB. The DIMM types can be FPM, EDO or SDRAM (synchronous DRAM). Since SIMMs are not available in SDRAM, DIMMs must be used for SDRAM support.

The following are the important factors for populating the SIMM sockets:

1. Either M0/M1 or M2/M3 bank can be populated first
2. Each bank should consist of the same size SIMMs
3. Each bank should consist of the same type SIMMs.
   ex: M0 and M1 should both be EDO or page mode.
4. SIMMs can be mixed by the bank.
   ex: M0/M1 are page mode and M2/M3 are EDO
5. If M2/M3 are occupied, then M5 can not be populated. The reverse is also true.

Bank0(M0, M1)	Bank1(M2, M3)	Total Memory
4MB	-----	8MB
8MB	-----	16MB
16MB	-----	32MB
32MB	-----	64MB
4MB	4MB	16MB
4MB	8MB	24MB
4MB	16MB	40MB
4MB	32MB	72MB
8MB	8MB	32MB
8MB	16MB	48MB
8MB	32MB	80MB
16MB	16MB	64MB
16MB	32MB	96MB
32MB	32MB	128MB

*Note: Bank0 designates the memory bank populated first which can be **M0/M1** or **M2/M3**.*

Bank 0 (M5)	Total Memory
8MB	8MB
16MB	16MB
32MB	32MB
64MB	64MB

2.4 BIOS

The BIOS on the AI5TV system board provides the standard BIOS functions plus the following additional features:

1. ISA Plug and Play (PnP) extension

Unlike PCI cards which are plug and play, ISA cards require setting jumpers to resolve hardware conflict. To make a computer system PnP, an ISA PnP standard is established and supported by new OSes, such as Windows 95. Under Windows 95, the system board BIOS must have ISA PnP extension to support the new ISA PnP cards.

2. Power management

The power management feature provides power saving by slowing down the CPU clock, turning off the monitor screen, and stopping the HDD spindle motor.

3. NCR 53C810(AHA7850) SCSI BIOS

NCR 53C810(AHA7850) is a PCI SCSI shipped from NCR (Adaptec). The BIOS required to run cards with the 53C810(AHA7850) chip is built-in the system BIOS. The BIOS will automatically detect the existence of an 53C810 (AHA7850) chip and configure it accordingly.

2.5 I/O Port Address Map

Each peripheral device in the system is assigned a set of I/O port address which also becomes the identity of the device. There are a total of 1K port address space available. The following table list the I/O port address used on the system board.

Address	Device Description
000h - 01Fh	DMA Controller #1
020h - 03Fh	Interrupt Controller #1
040h - 05Fh	Timer
060h - 06Fh	Keyboard Controller
070h - 07Fh	Real Time Clock, NMI
080h - 09Fh	DMA Page Register
0A0h - 0BFh	Interrupt Controller #2
0C0h - 0DFh	DMA Controller #2
0F0h	Clear Math Coprocessor Busy Signal
0F1h	Reset Math Coprocessor
1F0h - 1F7h	IDE Interface
2F8h - 2FFh	Serial Port #2(COM2)
378h - 3FFh	Parallel Port #1(LPT1)
3F0h - 3F7h	Floppy Disk Controller
3F8h - 3FFh	Serial Port #1(COM1)

2.6 DMA Channels

There are seven DMA Channels available on the system board. Only DRQ2 is used by the floppy controller. In the case that ECP mode on parallel port is used, DRQ1 or DRQ3 will be used.

2.7 Interrupt Request Lines (IRQ)

There are a total of 15 IRQ lines available on the motherboard. Peripheral devices use interrupt request to notify CPU for the service required. The following table shows the IRQ used by the devices on the motherboard:

Level	Function
IRQ0	System Timer Output
IRQ1	Keyboard
IRQ2	Interrupt Cascade
IRQ3	Serial Port #2
IRQ4	Serial Port #1
IRQ5	Parallel Port #2
IRQ6	Floppy Disk Controller
IRQ7	Parallel Port #1
IRQ8	Real Time Clock
IRQ9	Software Redirected to Int 0Ah
IRQ10	Reserved
IRQ11	Reserved
IRQ12	Reserved
IRQ13	80287
IRQ14	Primary IDE
IRQ15	Secondary IDE

2.8 Onboard PCI-EIDE

The PCI-EIDE controller is part of the 430VX PCIset. It supports PIO mode 3/4 and bus mastering . The peak transfer rate of PIO mode 3/4 can be as high as 17MB/sec. Using HDDs that support bus mastering, the peak transfer rate can reach 22MB/sec.

There are two IDE connectors, primary IDE and secondary IDE. With two devices per connector, up to four IDE drives are supported.

2.9 Onboard Multi-I/O

The onboard multi-I/O chip, Winbond W83877, provides two serial port, one parallel port and one floppy controller. The serial ports are 16550 UART compatible. The parallel port supports high speed EPP/ECP mode.

The floppy controller supports up to 2.88 MB format. The I/O port addresses of the serial and parallel ports are programmable via BIOS set-up. Each I/O can be individually disabled.

Chapter 3 Configuring the AI5TV

The following sections describe the necessary procedures and proper jumper settings to configure the AI5TV motherboard.

SW1: AT Bus Clock Speed Select Page 12

SW2: P54C/P55C Type Select Page 12

SW5, SW6, SW7, SW8: CPU Frequency Select Page 12

W6: CMOS Discharge Select Page 13

JP4: Flash ROM BIOS Programming Voltage Select Page 13

For the locations of the jumpers, refer to Figure 2 on the following page.

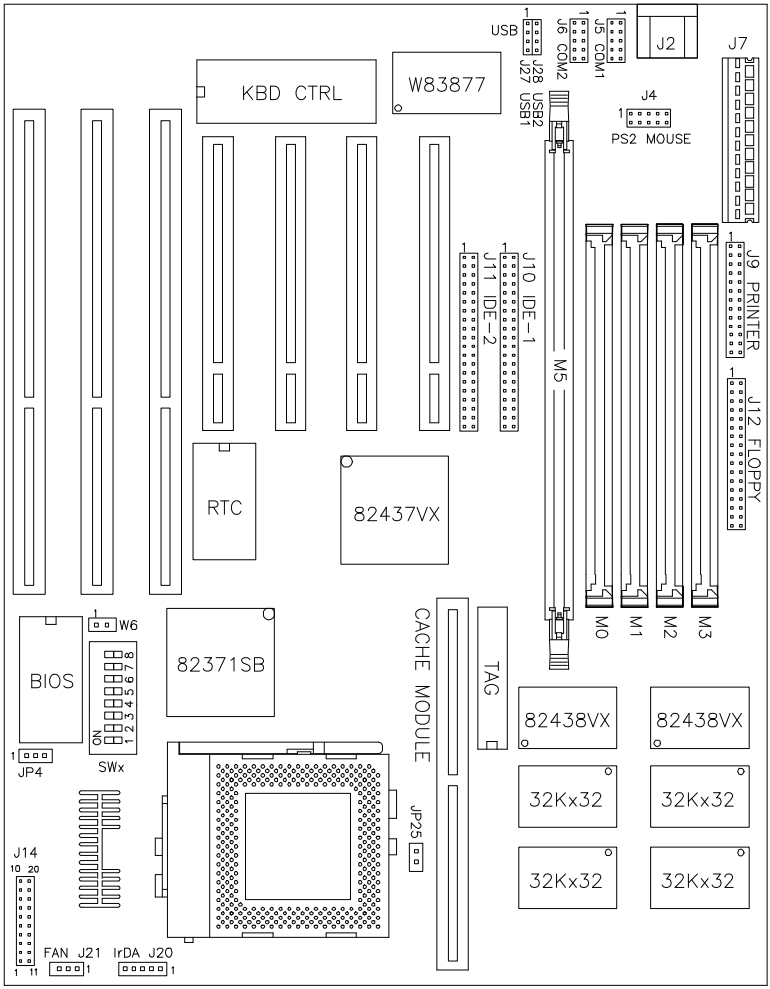


Figure 2: Jumper Location of the AI5TV

SW1: AT Bus Clock Select

Use this DIP-Switch to select the frequency of the AT bus clock (ATCLK). The ATCLK is derived from the PCI clock (PCLK) as PCLK/3 or PCLK/4 and the PCLK is derived from the CPU clock (CLK) as CLK/2.

For example, for a Pentium 100MHz system, the CLK would be 66MHz so the PCLK/2 equals to 33MHz. You would set SW1 as PCLK/4 where ATCLK would be 8.3MHz.

SW1	AT Clock
OFF	PCI Clock/3
ON	PCI Clock/4 (Default setting)

SW2: CPU Voltage Select

SW2	JP25	CPU Type	Vcore	V_{IO}
ON	ON	Intel Pentium (P54C) Cyrix 6x86, AMD K5	3.5V	3.5V
OFF	OFF	Intel Pentium MMX (P55C) Cyrix 6x86L, AMD K6	2.8V	2.8V

SW3, SW5, SW6, SW7, SW8: CPU Frequency Select

For Intel CPUs

SW3	SW5	SW6	SW7	SW8	Bus Clock	Multiplier	CPU
ON	OFF	OFF	ON	ON	50MHz	1.5x	P54C-75
ON	OFF	OFF	ON	OFF	60MHz	1.5x	P54C-90
ON	OFF	OFF	OFF	ON	66MHz	1.5x	P54C-100
ON	OFF	ON	ON	OFF	60MHz	2.0x	P54C-120
ON	OFF	ON	OFF	ON	66MHz	2.0x	P54C-133
ON	ON	ON	ON	OFF	60MHz	2.5x	P54C-150
ON	ON	ON	OFF	ON	66MHz	2.5x	P54C/P55C-166
ON	ON	OFF	OFF	ON	66MHz	3.0x	P54C/P55C- 200
ON	OFF	OFF	OFF	ON	66MHz	3.5x	P55C-233

For Cyrix 6x86, 6x86L CPUs

SW3	SW5	SW6	SW7	SW8	Bus Clock	Multiplier	CPU
ON	OFF	ON	ON	ON	50MHz	2x	6x86-P120+ (100MHz)
OFF	OFF	ON	ON	ON	55MHz	2x	6x86-P133+ (110MHz)
ON	OFF	ON	ON	OFF	60MHz	2x	6x86-P150+ (120MHz)
ON	OFF	ON	OFF	ON	66MHz	2x	6x86-P166+ (133MHz)

For AMD K5/K6 CPUs

SW3	SW5	SW6	SW7	SW8	Bus Clock	Multiplier	CPU
ON	OFF	OFF	ON	ON	50MHz	1.5	K5-PR75
ON	OFF	OFF	ON	OFF	60MHz	1.5	K5-PR90/PR120
ON	OFF	OFF	OFF	ON	66MHz	1.5	K5-PR100/PR133
ON	ON	ON	ON	OFF	60MHz	1.75	K5-PR150
ON	ON	ON	OFF	ON	66MHz	1.75	K5-PR166
ON	ON	ON	OFF	ON	66MHz	1.75	K6-PR2 166
ON	ON	OFF	OFF	ON	66MHz	3x	K6-PR2 200

W6:CMOS RAM Discharge

W6	Function
OFF	Normal operation
ON	Clear CMOS content

JP4: Flash ROM BIOS Voltage Select

Depending on the manufacturer and model, the programming voltage of the flash ROM can be 5V or 12V. This jumper should not be *altered* unless the flash BIOS is being replaced with a different type of flash ROM.

JP4	Flash ROM Type
1 - 2	12V Programming (Intel brand)
2 - 3	5V Programming (SST brand)

SW4: Default setting is OFF.

Chapter 4 Installation

This chapter describes the connectors and interface that the AI5TV provides for creating a working system. Refer to Figure 3 for the location of the connectors.

The following items are covered in this chapter:

J2: Keyboard Connector Page 16
J4: PS2 Mouse Connector Page 16
J7: Power Supply Connector Page 17
I/O Connector Page 18
J14: Front Bezel Connectors Page 18
J21: CPU Fan Power Connector Page 18
J20: IR Connector Page 19
J27, J28: USB Connectors Page 19

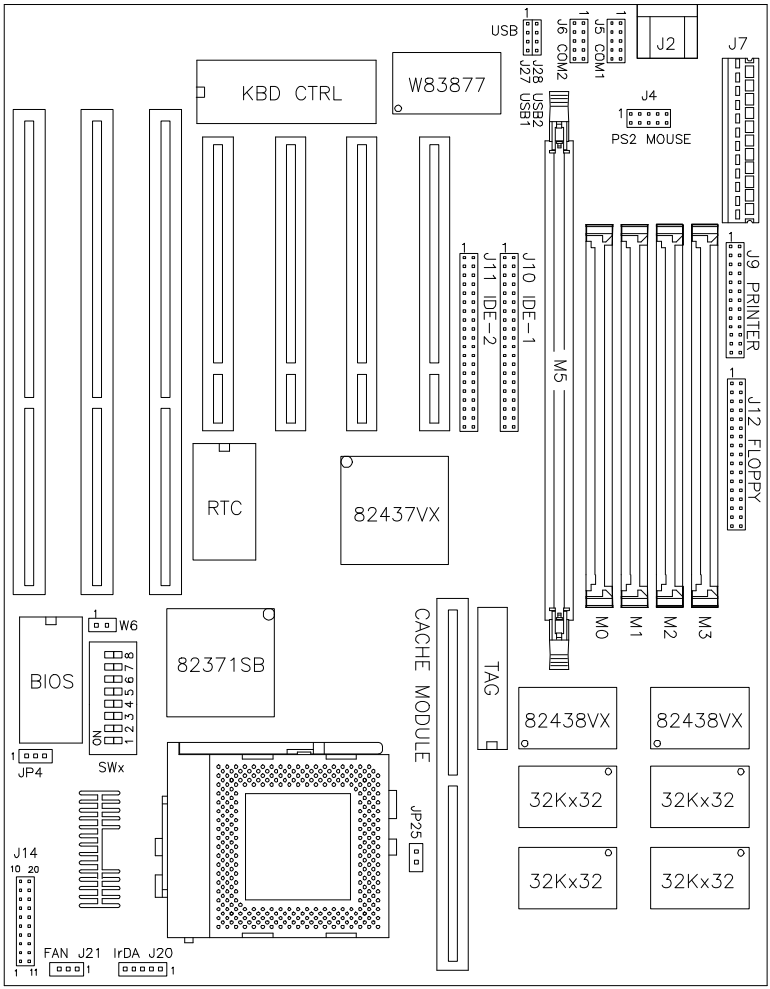


Figure 3: Connector Location of the AI5TV

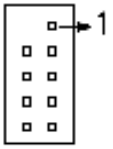
J2: Keyboard/Mouse Connector

There are two configuration available on AI5TV, an AT keyboard connector or PS/2 keyboard and mouse connectors (J1, J3). The manufacturing default uses J2, an AT keyboard connector. The following table shows the pin out assignments of this connector.

Pin #	Signal Name
1	Keyboard Clock
2	Keyboard Data
3	**N.C.**
4	Ground
5	Vcc

J4: PS/2 Mouse Connector

The PS/2 mouse connector of the AI5TV motherboard is a 10-pin header for the optional PS/2 mouse external connector. The following table shows the pin out assignments of this connector.



Signal Name	Pin #	Pin #	Signal Name
N.C.	1		
N.C.	3	4	Mouse clock
N.C.	5	6	5V
Mouse data	7	8	N.C.
GND	9	10	N.C.

J7: Power Supply Connector

When using an AT compatible power supply, plug both of the power supply connectors into J7.

Make sure the power supply connectors are connected in the right orientation. The power supply connectors are connected in the right orientation if the black wires of each power cable are ADJACENT to each other. That is, black wires of each connector should be aligned in the center of the power supply connectors, J7, of the AI5TV.

The following table indicates the pin-out assignments of the power supply connectors.

J7 Pin #		Description	Wire Color
1	Θ	Power Good	Orange
2	●	+5V	Red
3	●	+12V	Yellow
4	●	-12V	Blue
5	●	Ground	Black
6	●	Ground	Black
7	Θ	Ground	Black
8	●	Ground	Black
9	●	-5V	White
10	●	+5V	Red
11	●	+5V	Red
12	●	+5V	Red

I/O Connector

The I/O connectors connect the AI5TV to the most common peripherals. To connect cables to these connectors, align carefully the Pin 1 of the cables to that of connectors. Refer to Figure 3 for the location and orientation of the connectors.

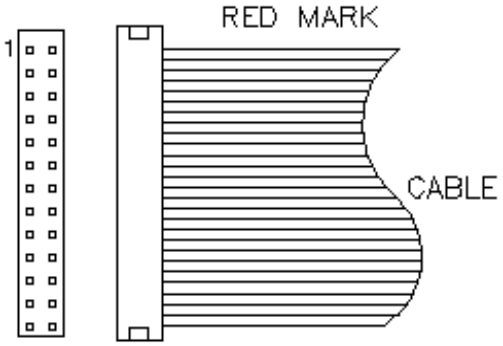
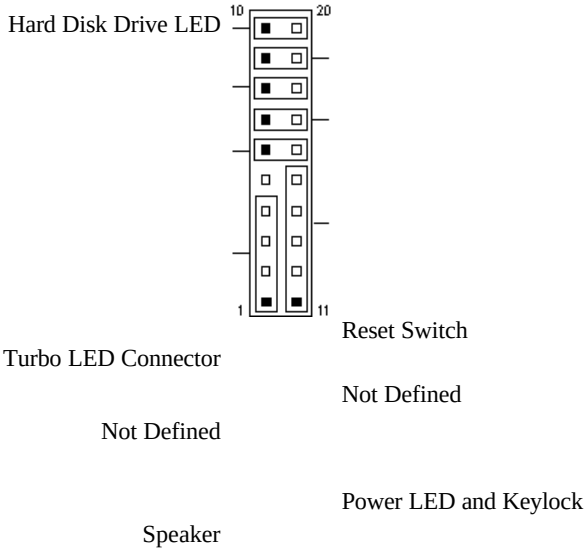


Figure 4: Orientation of the I/O Connector

J14: Front Bezel Connectors

The front bezel of the case has a control panel which provides light indication of the computer activities and switches to change the computer status.

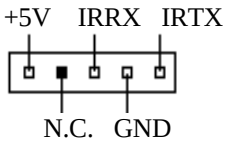


J21: FAN

This J21 is an easy access connector for CPU fan power. The fan must be a 12V fan.

J20: Infrared Connector

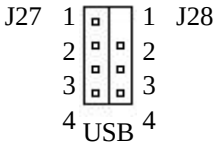
This connector is used for an IrDA connector.



J20 Pin #	Signal Name
1	+5V
2	No connect
3	Ir RX
4	Ground
5	Ir TX

J27, J28: USB Connectors

J27 and J28 are pin headers for the optional USB external connector. The following table shows the pin out assignments of these connectors.



J27 (USB1) Pin #	J28 (USB2) Pin #	Signal Name
1	1	Vcc
2	2	USB-
3	3	USB+
4	4	Ground

Chapter 5 BIOS

BIOS Introduction

The Award BIOS (Basic Input/Output System) installed in your computer system's ROM supports Intel/Cyrix/AMD processors in a standard IBM-AT compatible I/O system. The BIOS provides critical low-level support for standard devices such as disk drives, serial and parallel ports. It also adds virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

BIOS Setup

The Award provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn on the computer the Award BIOS is immediately activated. Pressing the <Del> key immediately will allow you to enter the Setup utility. If you are a little bit late pressing the <Del> key, POST(Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system off and back on again. The following message will appear on the screen:

Press <DEL> to Enter Setup

In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.

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	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	

The section below the setup items of the Main Menu displays the control keys for this menu. Another section at the bottom of the Main Menu just below the control keys section displays information on the currently highlighted item in the list.

NOTE: After making and saving system changes with Setup, you find that your computer can not boot, the Award BIOS supports an override to the CMOS settings that resets your system to its default.

We strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your system manufacturer to provide the absolute maximum performance and reliability.

Standard CMOS Setup

"Standard CMOS Setup" choice allows you to record some basic hardware configurations in your computer system and set the system clock and error handling. If the motherboard is already installed in a working system, you will not need to select this option. You will need to run the Standard CMOS option, however, if you change your system hardware configurations, the onboard battery fails, or the configurations stored in the CMOS memory were lost or damaged.

ROM PCI/ISA BIOS
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : **Mon**, Aug 19 1996
Time (hh:mm:ss) : 00 : 00 : 00

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	Auto	0	0	0	0	0	0	Auto
Primary Slave	None	0	0	0	0	0	0	-----
Secondary Master	None	0	0	0	0	0	0	-----
Secondary Slave	None	0	0	0	0	0	0	-----

Drive A	: 1.44M, 3.5in	Base Memory	: 640K
Drive B	: None	Extended Memory	: 15360K
Floppy 3 Mode Support	: Disabled	Other Memory	: 384K
Video	: EGA / VGA		
Halt On	: All Errors	Total Memory	: 16384K

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

At the bottom of the menu are the control keys for use on this menu. If you need any help in each item field, you can press the <F1> key. It will display the information to help you. The memory display at the lower right-hand side of the menu is read-only. It will adjust automatically according to the memory changed. The following describes each item of this menu.

Date

The date format is:

Day : **Sun to Sat**
Month : **1 to 12**
Date : **1 to 31**
Year : **1900 to 2099**

To set the date, highlight the "Date" field and use the PageUp/ PageDown or +/- keys to set the current time.

Time

The time format is:

Hour : **00 to 23**
Minute : **00 to 59**
Second : **00 to 59**

To set the time, highlight the "Time" field and use the <PgUp>/ <PgDn> or +/- keys to set the current time.

Primary HDDs / Secondary HDDs
The onboard PCI IDE connectors provide Primary and Secondary channels for connecting up to four IDE hard disks or other IDE devices. Each channel can support up to two hard disks; the first is the "Master" and the second is the "Slave".

To enter the specifications for a hard disk drive, you must select first a "Type". There are 45 predefined types and 4 user definable types for Enhanced IDE BIOS. Type 1 to 45 are predefined. Type "User" is user-definable. For the Primary Master/Slave as well as Secondary Master/Slave, you can select "Auto" under the TYPE and MODE fields. This will enable auto detection of your IDE drives and CD-ROM drive during POST.

Press <PgUp>/<PgDn> to select a numbered hard disk type or type the number and press <Enter> key. The hard disk will not work properly if you enter improper information for this field. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually. If you select Type User, related information is asked to be entered to the following items.

CYLS :	Number of cylinders
HEAD :	Number of read/write heads
PRECOMP :	Write precompensation
LANDZ :	Landing zone
SECTOR :	Number of sectors
SIZE :	Automatically adjust according to the configuration
MODE (for IDE hard disk only) :	Auto
	Normal (HD < 528MB)
	Large (for MS-DOS only)
	LBA (HD > 528MB and supports Logical Block Addressing)

NOTE : The specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information in these fields. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.

Drive A / Drive B
These fields identify the types of floppy disk drive A or drive B that has been installed in the computer. The available specifications for floppy drives are:

360KB, 5.25in.1.2MB, 5.25in. 720KB, 3.5in.1.44MB, 3.5in., 2.88MB, 3.5in.

Floppy 3 Mode Support
This is the Japanese standard floppy drive. The standard stores 1.2MB in a 3.5in diskette. You
have four options to choose:

Disabled	No 3 mode floppy drive installed.(default)
Drive A	Installed 3 mode drive at drive A.
Drive B	Installed 3 mode drive at drive B.
Both	Installed 3 mode drive at drive A and B.

Video
This field selects the type of video display card installed in your system. You can choose the following video display cards:

EGA/VGA	For EGA, VGA, SEGA, SVGA or PGA monitor adapters.(default)
CGA 40	Power up in 40 column mode.
CGA 80	Power up in 80 column mode.
MONO	For Hercules or MDA, includes high resolution monochrome adapters.

Halt On
This field determines whether the system will halt if an error is detected during power up.

All errors	Whenever the BIOS detects a non-fatal error the system will be halted and you will be prompted.
No errors	The system boot will not be halted for any error that may be detected. (default)
All, But Keyboard	The system boot will not be halted for a keyboard error; it will stop for all other errors.
All, But Diskette	The system boot will not be halted for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not be halted for a keyboard or disk error; it will stop for all other errors.

BIOS Features Setup

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

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
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 Drive	: Enabled	DC000-DFFF 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		
Security Option	: Setup		
PCI /VGA Palette Snoop	: Disabled		
OS Select For DRAM>64MB	: Non-OS2		
		ESC : Quit	↑ ↓ → ← : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift) F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

Virus Warning

This item protects the boot sector and partition table of your hard disk against accidental modifications. If an attempt is made, the BIOS will halt the system and display a warning message. If this occurs, you can either allow the operation to continue or run an anti-virus program to locate and remove the problem.

NOTE: Many disk diagnostic programs which attempt to access the boot sector table can cause the virus warning. If you will run such a program, disable the Virus Warning feature.

CPU Internal Cache / External Cache

These items allow you to enable (speed up memory access) or disable the cache function. By default, these items are ***Enabled***.

Quick Power On Self Test
This choice speeds up the Power On Self Test (POST) after you power up the system. If it is enabled, the BIOS will skip some items. By default, this choice is ***Enabled***.

Boot Sequence
This choice determines which drive the system searches first for an operating system. The default value is ***A, C***. Options are :
C, A A, C CD-ROM, C, A D, A, SCSI SCSI, C, A etc.
(Only new BIOS support CDROM, SCSI, D, E, F drive boot.)

Swap Floppy Drive
This item allows you to determine whether to enable swap floppy drive or not. When enabled, the BIOS swaps floppy drive assignments so that Drive A becomes Drive B, and Drive B becomes Drive A. By default, this field is set to ***Disabled.***

Boot Up Floppy Seek
When enabled, the BIOS will seek if the floppy drive installed has 40 or 80 tracks. 360K type has 40 tracks while 760K, 1.2M and 1.44M all have 80 tracks. By default, this field is set to ***Disabled.***

Boot Up NumLock Status
This allows you to activate the NumLock function after you power up the system. By default, the system boots up with ***NumLock on***.

Boot Up System Speed
This has no function and selects the default system speed ***(High).***

Gate A20 Option
This field allows you to select how Gate A20 is worked. Gate A20 is a device used to address memory above 1 MB. By default, this field is set to ***Fast.***

Typematic Rate Setting
When disabled, continually holding down a key on your keyboard will generate only one instance. When enabled, you can set the two typematic controls listed next. By default, this field is set to ***Disabled.***

Typematic Rate (Chars/Sec)
When the typematic rate is enabled, the system registers repeated keystrokes speed. You can select speed range from 6 to 30 characters per second. By default, this item is set to ***6.***

Typematic Delay (Msec)
When the typematic rate is enabled, this item allows you to set the time interval for displaying the first and second characters. By default, this item is set to ***250msec.***

Security Option
This field allows you to limit access to the System and Setup. The default value is ***Setup***. When you select System, the system prompts for the User Password every time you boot up. When you select Setup, the system always boots up and prompts for the Supervisor Password only when the Setup utility is called up.

PCI/VGA Palette Snoop
Some display cards that are non-standard VGA may not show colors properly. This field allows you to set whether MPEG ISA/VESA VGA Cards can work with PCI/VGA or not. When this field is enabled, a PCI/VGA can work with a MPEG ISA/VESA VGA card. When this field is disabled, a PCI/VGA cannot work with a MPEG ISA/VESA Card.

OS Select for DRAM > 64
This option allows the system to access greater than 64MB of DRAM memory when used with OS/2 which depends on certain BIOS calls to access memory. The default setting is ***NON-OS/2***.

Video BIOS Shadow
This item allows you to change the Video BIOS location from ROM to RAM. Video Shadow will increase the video speed.

C8000 - CBFFF Shadow/DC000 - DFFFF Shadow
Shadowing a ROM reduces the memory available between 640KB to 1024KB. These fields determine whether optional ROM will be copied to RAM or not.

Chipset Features Setup

This Setup menu controls the configuration of the motherboard chipset.

ROM PCI/ISA BIOS
CHIPSET FEATURES SETUP
AWARD SOFTWARE INC.

Auto Configuration	**: Enable**		
DRAM Timing	60ns		
DRAM RAS# Precharge Time	3		
DRAM R/W Leadoff Timing	6		
Fast RAS To CAS Delay	3		
DRAM Read Burst (EDO/FP)	x222/x333		
DRAM Write Burst Timing	x3333		
Fast MA to RAS# Delay CLK	1		
Refresh Ras# Assertion	4CLKS		
ISA Bus Clock	PCI CLK/4		
Pipeline Cache Timing	Faster		
System BIOS Cacheable	Disabled		
Video BIOS Cacheable	Disabled	ESC : Quit	↑ ↓ → ← : Select Item
8 Bit I/O Recovery Time	1	F1 : Help	PU/PD/+/- : Modify
16 Bit I/O Recovery Time	1	F5 : Old Values	(Shift) F2 : Color
Memory Hole At 15M-16M	Disabled	F6 : Load BIOS Defaults	
Peer Concurrency	Enabled	F7 : Load Setup Defaults	

Auto Configuration

This field predefined values for DRAM, cache timing according to CPU type and system clock. When this field is enabled, the predefined items will become read-only.

DRAM Timing

The DRAM timing is controlled by the DRAM Timing Registers. The timing type is dependent on the system design. Slower rates may be required in some system designs to support loose layouts or slower memory.

DRAM RAS# Recharge Time

DRAM must continuously be refreshed or it will loose its data. This option allows you to determine the number of CPU clocks allocated for Row Address Strobe to accumulate its charge before DRAM is refreshed. If refreshed time is not enough, refresh may be incomplete and data will be lost.

DRAM R/W Leadoff Timing

This field allows you to set the number of CPU clocks before reads and writes to DRAM. By default, it is set to ***7/6 Leadoff timing***.

Fast RAS to CAS Delay
When DRAM is refreshed, both rows and columns are addressed separately. This field allows you to determine the timing of transition from Row Address Strobe (RAS) to Column Address Strobe (CAS). By default, it is set to ***3 CPU clocks***.

Refresh RAS# Assertion
This field allows you to determine the number of CPU clocks asserted for the Row Address Strobe is refreshed. By default, it is set to ***5 CLKS.***

ISA Bus Clock
This field allows you to select the PCI clock type.

Pipeline Cache Timing
This field allows you to select two timings of pipeline caches, Faster and Fastest.

System BIOS Cacheable
When enabled, accesses to the system BIOS ROM addressed at F0000H-FFFFFH are cached, provided that the cache controller is enabled.

Video BIOS Cacheable
When enabled, accesses to the video BIOS addressed at C0000H to C7FFFH are cached, provided that the cache controller is enabled.

8 Bit I/O Recovery Time
This field allows you to select the recovery time allowed for 8 bit I/O. By default, this field is set to ***1 Clock.***

16 Bit I/O Recovery Time
This field allows you to select the recovery time allowed for 16 bit I/O. By default, this field is set to ***1 Clock.***

Memory Hole At 15M-16M
In order to improve performance, certain space in memory can be reserved for ISA cards. This field allows you to reserve 15MB to 16MB memory address space to ISA expansion cards. This makes memory from 15MB and up unavailable to the system. Expansion cards can only access memory up to 16MB. By default, this field is set to ***Disabled.***

Peer Concurrency
This field allows you to select the number of PCI devices to be activated at a time. The default value is ***Enabled.***

Power Management Setup

The Power Management Setup allows you to save energy of your system effectively. It will shut down the hard disk and turn off video display after a period of inactivity.

ROM PCI/ISA BIOS
CHIPSET FEATURES SETUP
AWARD SOFTWARE INC.

Power Management	: Disabled	** Power Down & Resume Events **	
PM Control by APM	: Yes	IRQ3(COM2)	
Video Odd Method	: V/H SYNC +BLank	IRQ4(COM1)	
		IRQ5(LPT2)	
Doze Mode	: Disabled	IRQ6(Floppy Disk)	
Standby Mode	: Disabled	IRQ7(LPT1)	
Suspend Mode	: Disabled	IRQ8(RTC Alarm)	
HDD Power Down	: Disabled	IRQ9(IRQ2 Redir)	
		IRQ10(Reserved)	
** Wake Up Events In Doze & Standby **		IRQ11(Reserved)	
IRQ3 (Wake- Up Event)		IRQ12(PS/2 Mouse)	
IRQ4 (Wake- Up Event)		IRQ13(Coprocessor)	
IRQ8 (Wake- Up Event)		IRQ14(Hard Disk)	
IRQ12 (Wake- Up Event)		IRQ15(Reserved)	
		ESC : Quit	↑ ↓ → ← : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift) F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

Power Management

This field allows you to select type of power saving management modes. There are fours selections for Power Management.

Disable	No power management.(default)
Min. Power Saving	Minimum power management.
Max. Power Saving	Maximum power management. Only available for SL CPU.
User Defined	Each of the ranges are from 1 min. To 1hr. except for HDD Power Down which ranges from 1 min. to 15 min.

PM Control by APM

This field allows you to use Advanced Power Management device to enhance the Max. Power Saving mode and stop the CPU internal clock. If Max. Power Saving is not enabled, this will be preset to NO.

Video OFF Method
This field defines the video off features. There are three options available:

V/H SYNC + Blank	Default setting, blank the screen and turn off vertical and horizontal scanning.
DPMS	Allows the BIOS to control the video display card if it supports the DPMS feature.
Blank Screen	This option only writes blanks to the video buffer.

Doze Mode
When enabled and after the set time of system inactivity, the CPU clock will run at slower speed while all other devices still operate at full speed.

Standby Mode
When enabled and after the set time of system inactivity expires, the fixed disk drive and the video would be shut off while all other devices still operate at full speed.

Suspend Mode
When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

HDD Power Down
When enabled and after the set time of system inactivity expires, the hard disk drive will be powered down while all other devices remain active.

Wake Up Events In Doze & Standby
This section sets the wake-up call of the system. If activity is detected from any enabled IRQ channels in the left-hand group, the system wakes up from suspend mode.

Power Down & Resume Events
This section are I/O events which can prevent the system from entering a power saving mode or can awaken the system from such a mode. 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. The default value is ***Off***. When set to On, activity will neither prevent the system from going into a power management mode nor awaken it.

PNP/PCI Configuration

This option configures the PCI bus system. All PCI bus systems on the system use INT#, thus all installed PCI cards must be set to this value.

ROM PCI/ISA BIOS
CHIPSET FEATURES SETUP
AWARD SOFTWARE INC.

Resources Controlled by	: Manual	PCI IRQ Activated By	: Level
Reset Configuration Data	: Disable	PCI IDE IRQ Map to	: PCI-Auto
		Prinary IDE INT#	: A
IRQ-3 assigned to	: Legacy ISA	Secondrary IDE INT#	: B
IRQ-4 assigned to	: Legacy ISA		
IRQ-5 assigned to	: PCI/ISA PnP		
IRQ-7 assigned to	: Legacy ISA		
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	: Legacy ISA		
IRQ-15 assigned o	: Legacy ISA		
DMA-0 assigned to	: PCI/ISA PnP		
DMA-1 assigned to	: PCI/ISA PnP		
DMA-2 assigned to	: PCI/ISA PnP		
DMA-3 assigned to	: PCI/ISA PnP	ESC : Quit	↑ ↓ → ← : Select Item
DMA-4 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	

Resources Controlled by

This PnP BIOS can configure all of the boot and compatible devices automatically. However, this capability needs you to use a PnP operating system such as Windows 95. The default value is ***Manual.***

Reset Configuration Data

This field allows you to determine whether reset the configuration data or not. The default value is ***Disabled.***

IRQ3/4/5/7/9/10/11/12/14/15, DMA0/1/3/5/6/7 assigned to

These fields allow you to determine the IRQ/DMA assigned to the ISA bus and is not available to any PCI slot.

PCI IRQ Activated by

This field allows you to select the method by which the PCI bus recognizes that an IRQ service is being requested by a device. The default value is ***Level.***

PCI IDE IRQ Map To

This field allows you to configure the type of IDE disk controller in your system. The default setup is ***ISA***. If you are equipped with PCI controller, you need to specify which slot has the controller and PCI interrupt is associated with the connected hard drives. Selecting "PCI AUTO" allows the system to automatically determine your IDE disk system configuration.

Load BIOS Defaults

This option allows you to load the troubleshooting default values permanently stored in the BIOS ROM. These default settings are non-optimal and disable all high performance features.

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	SAVE & EXIT SETUP
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Load BIOS Defaults except Standard CMOS Setup	

To load BIOS defaults value to CMOS SRAM, enter "Y". If not, enter "N".

Load Setup Defaults

This option allows you to load the default values to your system configuration. These default settings are Optimal and Enable all high performance features.

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	SAVE & EXIT SETUP
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Load BIOS Defaults except Standard CMOS Setup	

To load SETUP defaults value to CMOS SRAM, enter "Y". If not, enter "N".

Integrated Peripherals

This option allows you to determine your hard disk configuration, mode and port.

ROM PCI/ISA BIOS
CHIPSET FEATURES SETUP
AWARD SOFTWARE INC.

IDE HDD Block Mode	: Enable		
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	: Enable		
On-Chip Secondary PCI IDE	: Enable		
PCI Slot IDE 2nd Channel	: Enable		
Onboard FDD Controller	: Enable		
Onboard Serial Port1	: 3F8/IRQ4		
Onboard Serial Port2	: 2F/IRQ3		
Uart 2 Mode	: Standard		
Onboard Parallel Port	: 378H/IRQ7		
Onboard Parallel Mode	: SPP		
		ESC : Quit	↑ ↓ → ← : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift) F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

IDE HDD Block Mode

This field allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive.

IDE Primary Master/Slave PIO And Secondary Master/Slave PIO

These fields allow your system hard disk controller to work faster. Rather than have the BIOS issue a series of commands that transfer to or from the disk drive, PIO (Programmed Input/Output) allows the BIOS to communicate with controller and CPU directly. This way will make the work more efficiently.

The system supports five modes, numbered from 0 (default) to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode.

On-Chip Primary/Secondary PCI IDE
These fields allow you either to enable or disable the Primary/Secondary controller. You might choose to disable the controller if you were to add a higher performance or specialized controller.

PCI Slot 2nd Channel
This field allows you designate an IDE controller board inserted into one of the physical PCI slots as your secondary IDE controller. The default value is Disabled.

Enabled	External IDE controller designated as the secondary controller.
Disabled	No IDE controller occupying a PCI slot.

Onboard FDD Controller
This option allows you to select the onboard FDD port.

Onboard Serial/Parallel Port
These fields allow you to select the onboard serial/parallel port and its address. The default value for these ports are:

Serial Port 1	3F8/IRQ4
Serial Port 2	2F8/IRQ3
Parallel Port	378H/IRQ7

Onboard Parallel Mode
This field allows you to determine the parallel port mode function.

SPP	Normal Printer Port.
EPP	Enhanced Parallel Port.
ECP	Extended Capabilities Port.

Supervisor / User Password
These two options set the system password. "Supervisor Password" sets a password that will be used to protect the system and Setup utility. "User Password" sets a password that will be used exclusively on the system. To specify a password highlight the type you want and then press the <Enter> key. Then, the "**ENTER** PASSWORD:**"** message prompts on the screen. Type the password, up to eight characters in length, and press <Enter> key. The system confirms your password by asking you type it again. After setting a password, the screen automatically returns to the main screen.

To disable a password, just press the <Enter> key when you are prompted to enter the password. A message will confirm the password to be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

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	SAVE & EXIT SETUP
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Change / Set / Disable Password	

IDE HDD Auto Detection

This option detects the parameters of an IDE hard disk drive, and automatically enters them into Standard CMOS Setup screen.

ROM PCI/ISA BIOS
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master:								

Select Primary Master Option (N=SKIP) : N

OPTIONS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
1 (Y)	0	0	0	0	0	0	0	NORMAL

NOTE: Some Oases (like SCO-UNIX) must use ORMAL" for installation

Up to four IDE drives can be detected, with parameters for each appearing in sequence inside a box. To accept the displayed entries, press the "Y" key; to skip to the next drive, press the "N" key. If you accept the values, the parameters will appear listed beside the drive letter on the screen.

Save & Exit Setup

This option allows you to determine whether to accept the modifications or not. If you type "Y", you will quit the setup utility and save all changes into the CMOS memory. If you type "N", you will return to Setup utility.

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	**SAVE & EXIT SETUP**
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color

Save Data to CMOS & Exit Setup

Exit Without Saving

Type “Y” will quit the Setup utility without saving to the CMOS memory. Type “N” will return to Setup utility.

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	SAVE & EXIT SETUP
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Abandon all Data & Exit Setup	