⚠ WARNING! **Electronic Emission Notices**

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with instructions contained in this manual, may cause harmful interference to radio and television communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- RE-ORIENT OR RELOCATE THE RECEIVING ANTENNA
- INCREASE THE SEPARATION BETWEEN THE EQUIPMENT AND THE RECEIVER
- CONNECT THE EQUIPMENT INTO AN OUTLET ON A CIRCUIT DIFFERENT FROM THAT OF THE RECEIVER
- CONSULT THE DEALER OR AN EXPERIENCED AUDIO/TELEVISION TECHNICIAN

NOTE: Connecting this device to peripheral devices that do not comply with Class B requirements, or using an unshielded peripheral data cable, could also result in harmful interference to radio or television reception.

The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

To ensure that the use of this product does not contribute to interference, it is necessary to use shielded I/O cables.

Table of Contents

Hardware Setup

Your computer system is a high-performance computer system board that supports Pentium® CPUs running at 75,90,100,120,133,150,166,180,200MHz, Cyrix™ 6x86 CPUs (up to P200+) and AMD™ K5 processors (up to PR166). The motherboard allows flexible cache upgrade with the introduction of a COAST connector for expansion purposes. The motherboard offers floppy drive interface IDE interface for HDD and CD-ROM drive, two serial ports and an ECP/EPP parallel port. In addition to the hardware features, Windows 95 ready Plug and Play and Advanced Power Management (APM) are supported.

Motherboard Layout

Cache Module Connector
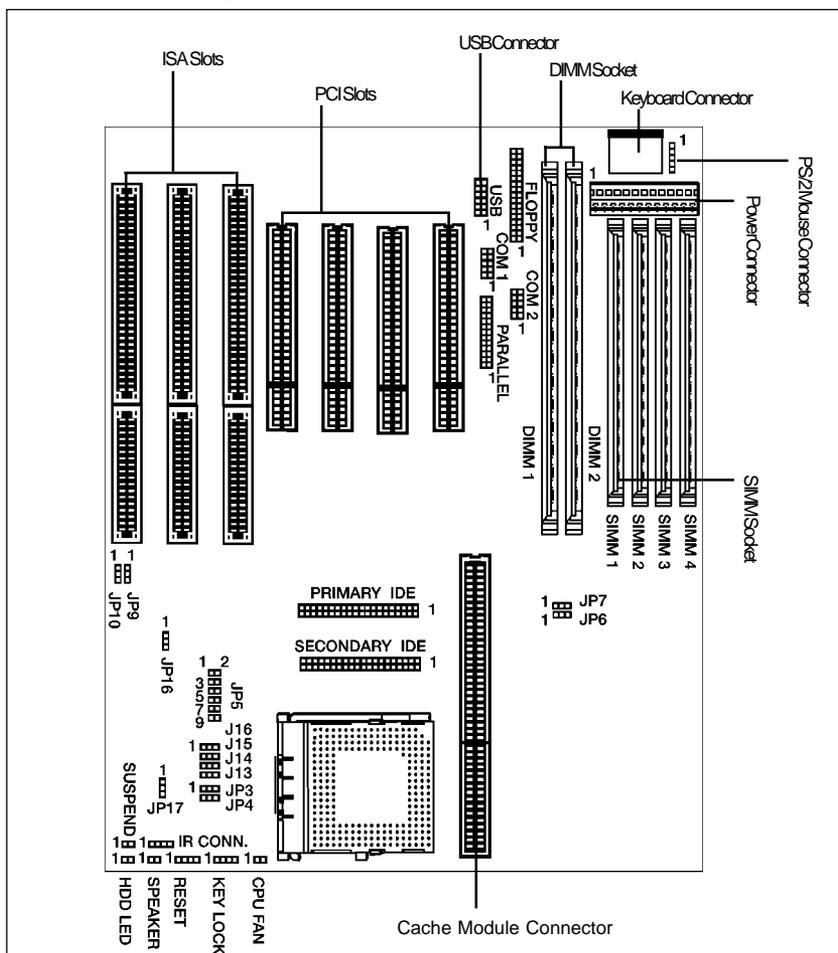
Jumper Settings

This chapter explains how to configure the motherboard's hardware. After you have installed the motherboard, you can set jumpers, install memory on the motherboard, and make case connections. Refer to this chapter whenever you upgrade or reconfigure you system.

CPU Clock

CPU Clock	JP6	JP7	PCI CLOCK
50MHz	2-3	2-3	25 MHz
55MHz	2-3	1-2	27.5MHz
60MHz	1-2	2-3	30 MHz
66MHz	1-2	1-2	33 MHz

	JP2	JP3	JP6	JP7
Intel Pentium-75	1-2	1-2	2-3	2-3
Intel Pentium-90	1-2	1-2	1-2	2-3
Intel Pentium-100	1-2	1-2	1-2	1-2
Intel Pentium-120	1-2	2-3	1-2	2-3
Intel Pentium-133	1-2	2-3	1-2	1-2
Intel Pentium-150	2-3	2-3	1-2	2-3
Intel Pentium-166	2-3	2-3	1-2	1-2
Intel Pentium-180	2-3	1-2	1-2	2-3
Intel Pentium-200	2-3	1-2	1-2	1-2
Cyrix 6x86-P120+ 100MHz	1-2	2-3	2-3	2-3
Cyrix 6x86-P133+ 110MHz	1-2	2-3	2-3	1-2
Cyrix 6x86-P150+ 120MHz	1-2	2-3	1-2	2-3
Cyrix 6x86-P166+ 133MHz	1-2	2-3	1-2	1-2
Cyrix 6x86-P200+ 150MHz	1-2	1-2	2-3	2-3
AMD K5-PR75	1-2	1-2	2-3	2-3
AMD K5-PR90	1-2	1-2	1-2	2-3
AMD K5-PR100	1-2	1-2	1-2	1-2
AMD K5-PR120	1-2	1-2	1-2	2-3
AMD K5-PR133	1-2	1-2	1-2	1-2
AMD K5-PR150	1-2	2-3	1-2	2-3
AMD K5-PR166	1-2	2-3	1-2	1-2

In the following tables, AMD K5 CPUs are classified by their chip marking. Example of CPU marking: " AMD-K5-PR100ABQ"

The AMD marking mentioned below refers to the 2nd character (B in the example) after P-rating (PR100 in the example).

CPU Core-voltage select

Voltage	JP5	CPU Example
2.50V	1-2	AMD K5 ("K" marking)
2.70V	3-4	AMD K5 ("J" marking)
2.93V	5-6	Intel P55C or AMD K5 ("H"marking)
3.38V(VRE)	7-8	AMD K5 ("C" or "F" marking)
3.52V(SID)	9-10	Intel P54C or AMD K5 ("B" marking or Cyrix 6x86

CPU Bus-voltage select

Voltage	JP17	CPU Examples
3.52V (VRE)	1-2	P55C
3.38V (SID)	2-3	AMD K5 ("H","J","K" marking)

For Intel P54C, Cyrix 6x86 and AMD K5 ("B", "C", "F" marking), JP17 is NOT used. Just leave JP17 at 1-2.

Power source selection for the CPU Bus section

CPU type	J13, J14, J15, J16
Intel® P54C	2-3
Intel® P55C	1-2
Cyrix™ 6x86	2-3
AMD™ K5 ("B","C","F" marking)	2-3
AMD™ K5 ("H","J","K" marking)	1-2

Flash voltage Select

Flash model	JP10
5V flash (SST/Winbond/ATMEL)	1–2
12V flash (Intel/MX)	2–3

Flash type Select (write-protection)

Flash model	JP9
SST/Winbond /ATMEL /MX	1–2
Intel	2–3

CMOS RAM Clear

	Normal	Clear
JP16	Open	Closed

Cache configurations

On-board Cache	Cache module connector	Total cache size
None	256KB module	256KB
None	512KB module	512KB
256KB	None	256KB
512KB	None	512KB
256KB	256KB module	512KB

Memory Configuration

Table 1 and 2 show the possible memory combinations. The motherboard will support both Fast Page DRAM or EDO DRAM SIMMs and SDRAM DIMMs

Table 1 (SIMM configurations)

SIMM1 (Bank 0)	SIMM2 (Bank 0)	SIMM3 (Bank 1)	SIMM4 (Bank 1)	Total
Empty	Empty	4MB	4MB	8MB
Empty	Empty	8MB	8MB	16MB
Empty	Empty	16MB	16MB	32MB
Empty	Empty	32MB	32MB	64MB
4MB	4MB	Empty	Empty	8MB
4MB	4MB	4MB	4MB	16MB
4MB	4MB	8MB	8MB	24MB
4MB	4MB	16MB	16MB	40MB
4MB	4MB	32MB	32MB	72MB
8MB	8MB	Empty	Empty	16MB
8MB	8MB	4MB	4MB	24MB
8MB	8MB	8MB	8MB	32MB
8MB	8MB	16MB	16MB	48MB
8MB	8MB	32MB	32MB	80MB
16MB	16MB	Empty	Empty	32MB
16MB	16MB	4MB	4MB	40MB
16MB	16MB	8MB	8MB	48MB
16MB	16MB	16MB	16MB	64MB
16MB	16MB	32MB	32MB	96MB
32MB	32MB	Empty	Empty	64MB
32MB	32MB	4MB	4MB	72MB
32MB	32MB	8MB	8MB	80MB
32MB	32MB	16MB	16MB	96MB
32MB	32MB	32MB	32MB	128MB

Table 2 (DIMM configurations)

DIMM1	DIMM2	Total
8MB	None	8MB
8MB	8MB	16MB
8MB	16MB	24MB
8MB	32MB	40MB
None	8MB	8MB
16MB	8MB	24MB
32MB	8MB	40MB
16MB	None	16MB
16MB	16MB	32MB
16MB	32MB	48MB
None	16MB	16MB
32MB	16MB	48MB
32MB	None	32MB
32MB	32MB	64MB
None	32MB	32MB

Notice:

1. Don't mix the Fast Page DRAM and EDO DRAM within the same memory bank.

If Fast Page DRAM and EDO DRAM SIMMs are installed in separate banks, each bank will be optimized for maximum performance.

2. Never populate the DIMM sockets and the SIMM sockets at the same time.

BIOS SETUP

Main Menu

Once you enter the Award BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

ROM PCI/ISA BIOS (2A59F008)
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 SETUP	HDD LOW LEVEL FORMAT
LOAD BIOS DEFAULTS	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

Note that a brief description of each highlighted selection appears at the bottom of the screen.

Setup Items

The main menu includes the following main setup categories. Recall that some systems may not include all entries.

Standard CMOS Setup

This setup page includes all the items of Award standard features.

BIOS Features Setup

This setup page includes all the items of Award special enhanced features.

Super / User Password Setting

Change, set, or disable password. It allows you to limit access to the system Password and Setup or just to Setup.

Chipset Features Setup

This setup page includes all the items of chipset special features.

Power Management Setup

This entry only appears if your system supports Power Management, "Green PC", standards.

PNP / PCI Configuration Setup

This entry appears if your system supports PNP / PCI.

Load BIOS Defaults

The BIOS defaults have been set by the manufacturer and represent settings which provide the minimum requirements for your system to operate.

Load Setup

The chipset defaults are settings which provide for maximum Defaults system performance. While Award has designed the custom BIOS to maximize performance, the manufacturer has the right to change these defaults to meet their needs.

Integrated Peripherals

This section page includes all the items of IDE hard drive and Peripherals Programmed Input / Output features

IDE HDD Auto Detection

Automatically detect and configure hard disk parameters. The Award BIOS includes this ability in the event you are uncertain of your hard disk's parameters.

HDD Low Level Format

If supported by your system, this provides a hard disk low level Format utility. See Appendix D for details.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Save

Abandon all CMOS value changes and exit setup.

Standard CMOS Setup

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value your want in each item.

ROM PCI/ISA BIOS (2A59F008)
STANDARD CMOS SETUP
AWARD SOFTWARE. INC.

| Date   (mm:dd:yy) | : Mon, 01 Jan 1990 | | | | | | | |
| Time   (hh:mm:ss) | : 00:00:00 | | | | | | | |

HARD DISKS	TYPE	SIZE	CYLS.	HEADS	PRECOMP	LANDZ	SECTORS	Mode
Primary Master	: None	0	0	0	0	0	0	–
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 : 1.2M, 5.25"		Base Memory	:	640K
Drive B : None		Extended Memory	: 15360K	
Video : EGA/VGA		Other Memory	:	384K
Halt on : No Errors		Total Memory	:	16384K

Esc : Quit   🎧 🕹 ➲ ◯ : Select Item   PU/PD/+/- : Modify
F1 : Help   (Shift) F2 : Change Color

Primary Master/ Primary Slave/ Secondary Master/ Secondary Slave/	The categories identify the types of 2 channels that have been installed in the computer. There are 45 predefined types and 4 user definable types are for Enhanced IDE BIOS. Type 1 to Type 45 are predefined. Type user is user-definable. If you select Type "User" ,you will need to know the information listed below. Enter the information directly from the keyboard and press<Enter>. This information should be included in the documentation from your hard disk vendor or the system manufacturer.

If you select Type "Auto", BIOS will Auto-Detect the HDD & CD-ROM Drive at the POST stage and showing the IDE for HDD & CD-ROM Drive.

```
TYPE       – Drive type
CYLS       – Number of cylinders
HEADS      – Number of heads
PRECOMP    – Write precom
LANDZONE   – Landing zone
SECTORS    – Number of sectors
MODE       – Mode type
```

BIOS Features Setup

This section allows your to configure your system for basic operation. You have the opportunity to select he system's default speed, boot-up sequence, keyboard operation, shadowing and security.

ROM PCI/ISA BIOS (2A5R4000)
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 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		
Security Option	: Setup		
PCI/VGA Palette Snoop	: Disabled		

ESC : Quit   ↑ ↓ → ← : Select Item
F1 : Help   PU/PD/+/-   :   Modify
F5 : Old Values   (Shift)F2 : Color
F6 : Load BIOS Default
F7 : Load Setup Defaults

Supervisor/User Password Setting

You can set either supervisor or user password, or both of then. The differences between are:

supervisor password :   can enter and change the options of the setup menus.

user password :   just can enter but to not have the right to change the options of the setup menus .

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER   PASSWORD:

Type the password, up to eight characters in length, and press<Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password. To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled , the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option. If the Security option is set to "System", the password will be required both at boot and at entry to Setup . If set to "Setup" , prompting only occurs when trying to enter Setup.

Chipset Setup Features Setup

ROM PCI/ISA BIOS (2A59F008)
Chipset Features Setup
Award Software, Inc.

Auto Configuration	: Enabled	Peer Concurrency	: Enabled
DRAM Timing	: 70ns	Passive Release	: Enabled
DRAM RAS# Precharge Time	: 4	Delayed Transaction	: Enabled
DRAM R/W Leadoff Timing	: 8/6		
DRAM RAS To Cas Delay	: 3		
DRAM Read Burst Timing	: x2222		
DRAM Write Burst Timing	: x3333		
Fast MA to RAS# Delay CLK	: 2		
Fast EDO Path Select	: Disabled		
Refresh RAS# Assertion	: 4Clks		
ISA Bus Clock	: PCI CLK/4		
SD RAM (CAS Lat/RAS-to-CAS)	: 3/3		
System BIOS Cacheable	: Disabled	ESC: Quit	: Select
Video BIOS Cacheable	: Disabled	F1 : Help PU/PD/+/-	: Modify
8 Bit I/O Recovery Time	: 1	F5 : Old Values (Shift)F2	:Color
16Bit I/O Recovery Time	: 1	F6 : Load BIOS Defaults	
Memory Hole At 15M-16M	: Disabled	F7 : Load Setup Defaults	

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

Integrated Peripherals

IDE HDD Block Mode	: Enabled	Parallel Port Mode	: Normal
IDE Primary Master PIO	: Auto	ECP Mode Use DMA	: 3
IDE Primary Slave PIO	: Auto	Parallel Port EPP Type	: EPP 1.7
IDE Secondary Master PIO	: Auto		
IDE Secondary Slave PIO	: Auto		
PCI Slot IDE 2nd Channel	: Enabled		
On-Chip Primary PCI IDE	: Enabled		
On-Chip Secondary PCI IDE	: Enabled		
USB Controller	: Disabled	ESC : Quit ↑↓→← : Select Item
Onboard FDC Controller	: Enabled	F1 : Help PU/PD/+/- : Modify
Onboard Serial Port 1	: Auto	F5 : Old Values (Shift)F2 : Color
Onboard Serial Port 2	: Auto	F6 : Load BIOS Defaults
Onboard Parallel Port	: 378/IRQ7	F7 : Load Setup Defaults

IDE HDD Block Mode This allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive (HDD).

Enable (default) IDE controller uses block mode.

Disabled IDE controller uses standard mode.

PCI Slot IDE This item allows you designate an IDE controller board inserted into one of the physical PCI slots as your secondary IDE controller.

Enabled External IDE controller designated as the secondary controller.

Disabled (default) No IDE controller occupying a PCI slot.

Power Management Setup

The Power Management Setup allows you to configure you system to most effectively save energy while operating in a manner consistent with your own style of computer use.

ROM PCI /ISA BIOS (2A59F008)
POWER management SETUP
AWARD SOFTWARE,INC

Power Management	: Disable	**** Power Down & Resume Events ****
PM Control by APM	: Yes	IRQ3 (COM2) : ON
Video Off Method	: V/H SYNC + Blank	IRQ4 (COM1) : ON
Modem Use IRQ	: 3	IRQ5 (LPT 2) : ON
Doze Mode	: 10 Sec	IRQ6 (Floppy Disk) : OFF
Standby Mode	: 10 Sec	IRQ7 (LPT 1)) : ON
Suspend Mode	: 10 Sec	IRQ8 (RTC Alarm) : OFF
HDD Power Down	: Disabled	IRQ9 (IRQ2 Redir) : ON
		(Reserved) : ON
** Wake up Events in Doze & Standby **		IRQ11(Reserved) : ON
IRQ3 (Wake-Up Event)	: ON	IRQ12(PS/2 Mouse) : ON
IRQ4 (Wake -Up Event)	: ON	IRQ13(Coprocessor) : ON
IRQ8 (Wake-Up Event)	: ON	IRQ14(Hard Disk) : ON
IRQ12 (Wake-Up Event)	: ON	IRQ15(Reserved) : ON
		ESC:Quit 🎧 🔱 ➲ ⊝ :Select Item
		F1:Help PU/PD/+/-: Modify
		F5: Old Values (Shift) F2 : Color
		F6:Load BIOS Defaults
		F7: Load Setup Defaults

Power   This category allows you to select the type (or degree) of power saving and is directly related to the following modes:
1 Doze Mode
2 Standby Mode
3 Suspend Mode
4 HDD Power Down

PnP/PCI Configuration Setup

This section describes configuring the PCI bus system . PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

ROM PCI /ISA BIOS (2A59F008)
POWER management SETUP
AWARD SOFTWARE,INC

Resources Controlled by: Manual PCI IRQ Active By				:	Level
Reset Configuration Date: Disabled PCI IDE IRQ Map to				:	PCI-AUTO
				Primary IDE INT#	: A
IRQ-3	assigned to	:	Legacy ISA	Secondary IDE INT#	: B
IRQ-4	assigned to	:	Legacy ISA	Used MEM base addr	: N/A
IRQ-5	assigned to	:	PCI/ISA PnP	Used MEM length	: 8K
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 to	:	Legacy ISA		
DMA-0	assigned to	:	PCI/ISA PnP		
DMA-1	assigned to	:	PCI/ISA PnP	ESC:Quit ⬆⬇⬅➡ :Select Item	
DMA-3	assigned to	:	PCI/ISA PnP	F1:Help PU/PD/+/-: Modify	
DMA-5	assigned to	:	PCI/ISA PnP	F5: Old Values (Shift)F2 : Color	
DMA-6	assigned to	:	PCI/ISA PnP	F6:Load BIOS Defaults	
DMA-7	assigned to	:	PCI/ISA PnP	F7: Load Setup Defaults	

Resource Controlled by   The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows 95.
Choices are Auto and Manual (default).

Reset Configuration Data   This item allows you to determine reset the Configuration or not.

Choices are Enabled and Disabled (default).

Low-Level Format Utility

This Award Low-Level-Format Utility is designed as a tool to save your time formatting your hard disk. The Utility automatically looks for the necessary information of the drive you selected. The Utility also searches for bad tracks and lists them for your reference.
Shown below is the Main Menu after you enter into the Award Low-Level-Format Utility.

ROM PCI /ISA BIOS (2A59F008)
POWER management SETUP
AWARD SOFTWARE,INC

Hard disk Low-level-format
SELECT DRIVE
BAD TRACK LIST
PREFORMAT
Current select drive is : C
DRIVE :C CYLINDER :0 HEAD :0

BAD TRACKS TABLE
NO CYLS HEAD

	CYLINDERS	HEADS	SECTORS	PRECOMP	LANDZONE
Drive C: 40Mb	977	5	17	300	977
Drive D: None	0	0	0	0	0

Control Keys Use the Up and Down arrow keys to move around the selections displayed on the upper screen. Press [Enter] to accept the selection. Press Esc to abort the selection or exit the Utility.

SELECT DRIVE Select from installed hard disk drive C or D . Listed at the bottom of the screen is the drive automatically detected by the utility