Contents

Chapter 1-Overview

We would like to take this opportunity to offer both our appreciation and our

congratulations for choosing the Pentium II mainboard. We are proud to offer the this Pentium II mainboard, which is built on Intel's Slot 1 architecture, with processor clock rates from 233-450MHz, and is based on 100MHz AGP chipset.

The mainboards come standard with 1x32-bit AGP slot, 4x32-bit bus mastering PCI slots, and 3x16-bit ISA slots, as well as 1 FDD Port supporting LS-120, 3 mode, or 1.2/1.44/2.88MB modules, 2 serial ports, 2 USB ports, and 1 Parallel Printer Port (EPP/ECP Port), in addition to ports for a PS/2 mouse and PS/2 keyboard. System memory consists of 3x168-pin DIMM memory slots with from 8-768MB 100MHz PC100 SDRAM, ECC.

The mainboards offer AWARD AGP BIOS with Enhanced ACPI Feature for PC98/WIN98 compliance, Boot Anti-Virus, and Plug and Play BIOS with 2-Mbit Flash EEPROM, in addition to Wake-On-LAN Header Onboard, as well as fan speed, voltage, and system environment temperature monitoring (optional), and Dual Ultra DMA/33 Bus Mastering ATA IDE ports supporting 8.4GB HDD, ATAPI IDE CD-ROM, and LS-120 drives. The mainboards also feature onboard Creative SB-Link, sensing for CPU and power supply temperature, and SM-Bus headers.

We are confident that your use of the mainboards will be rewarding and trouble-free. Should you have any questions, please contact us.

1-1Specifications

* **Processor**
  Intel Pentium II Processor Slot 1 with Internal Clock 233-450MHz
* **Chipset**
  6IBA/6IBC-Intel 440BX AGP set, 6VBA/6VBC-VIA Apollo Pro Plus AGP set
* **Expansion Slots**
  1x32-bit AGP slot
  4x32-bit Bus Mastering PCI slots
  3x16-bit ISA slots

∗ **System Memory**
3x 168-pin DIMMs Support 8MB to 768MB 100MHz PC100 SDRAM, ECC

∗ **On Board I/O**
1 FDD Port (Supports LS-120, 3 mode, 1.2/1.44/2.88MB FDD)
2 Serial Ports
1 Parallel Printer Port (EPP/ECP Port)
2 USB Ports
1 PS/2 Mouse
1 PS/2 Keyboard

∗ **On Board PCI IDE**
Dual Ultra DMA/33 Bus Mastering ATA IDE Ports Support Greater Than 8.4GB HDD, ATAPI IDE CD-ROM, and LS-120

∗ **Wake-On-Lan**
WOL Header Onboard

∗ **Enhanced ACPI BIOS**
AWARD AGP BIOS with Enhanced ACPI Feature for PC98/Win98 Compliance
Boot Antivirus
PnP BIOS in 2M-bit Flash EEPROM

∗ **BIOS Monitoring System (Optional)**
Fan Speed, Voltage, and System Environment Temperature Monitor

∗ **Keyboard Power On**
Supports Keyboard Power On Feature with ATX Power [300mA 5V(stand by) ATX Power is Required]

∗ **Other Features**
Onboard Creative SB-Link Header
CPU & Power Supply Temperature Sensing Header
SM-Bus Header

∗ **Board Size**
4-Layer PCB, 18cmX30.5cm, ATX form factor

1-2 Precautions

Please make sure you ground yourself prior to handling the mainboard or other system components as electrostatic discharge can easily damage components.

Take extra care when handling the mainboard in air-conditioned or dry environments, including these four precautions to protect the mainboard from electrostatic discharge:

* Do not remove the conductive grid packaging until you are prepared to install the mainboard or other system components.
* Ground yourself before removing any system component from its protective conductive grid packaging. To ground yourself grasp the expansion slot covers or other unpainted portions of the computer chassis.
* Frequently ground yourself while working, or use a grounding strap.
* Handle the mainboard by the edges and avoid touching its components.

1-3 Package Checklist

Please check that your package contains all the items listed below. If you find any missing or damaged item, please contact your vendor.

* Mainboard
* User's manual
* One Driver / Utility CD
* One retention module for CPU (may already be installed)
* One HDD/FDD cable
* Temperature sensor wire (Opitonal)

Chapter 2 – Hardware Setup

2-1 Mainboard Layout
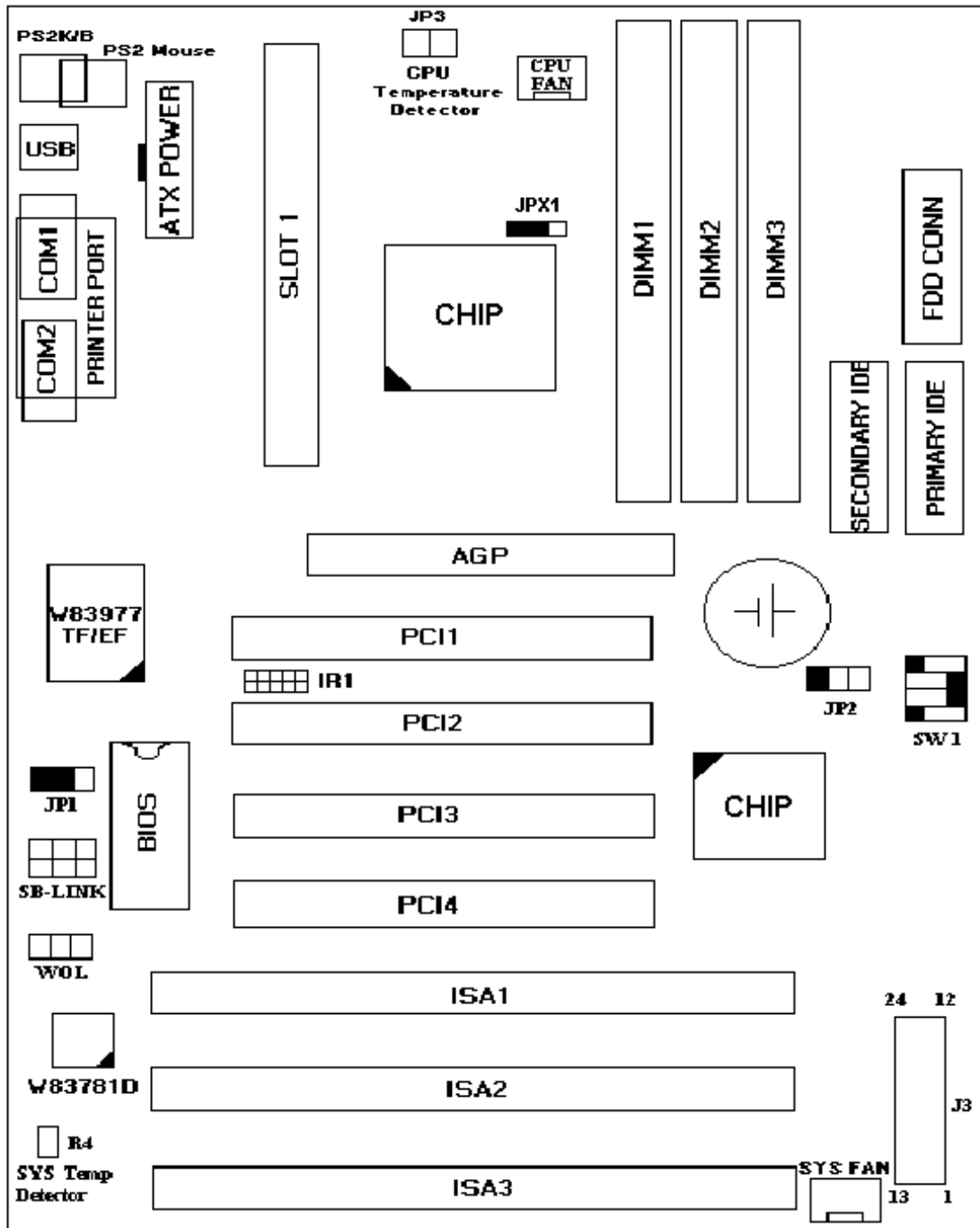
2-2 Configuration: Rear Panel Connector
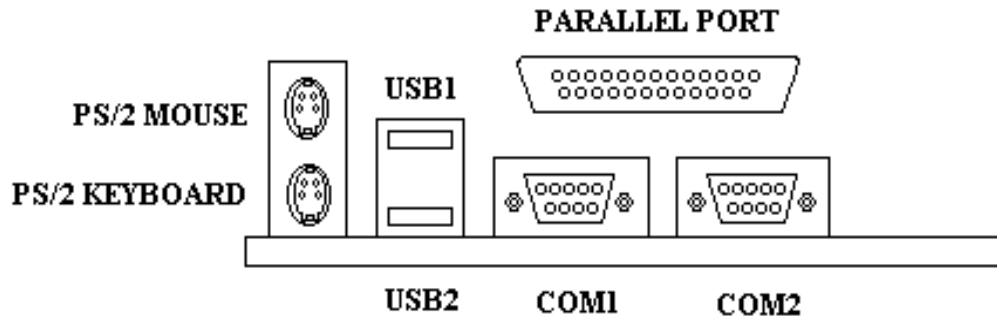
Rear Panel Connector

2-3 Setting the System Jumper

Jumpers are used to select the operation modes for your system. Choose your jumper according to the following figures and tables.

Jumper Settings:
(1)ATX Power Supply Connector: CN4
   (Please insert the ATX power supply plug into this header)

(2)Keyboard & PS/2 Mouse Power On: JP1

JP1	Keyboard & PS/2 Wake up
1-2	Disable (Default)
2-3	Enable

If JP1 is set to "Disable (1-2)", the system can only be turned on using the power button.

When Keyboard & PS/2 wake up is enabled, the mainboard's built-in JP1 offers four easy and convenient ways to power up the system. Users may turn on the system via the keyboard, by typing a password or hot key, with the PS/2 mouse, by double-clicking the left or right mouse buttons, or by using the power button.

∗   **Keyboard Power On Password:**
   This function is available for ATX power only. The user can select the following power on options to turn on the system. Password: when the user selects this option, the opening prompt will read "Enter Password:", after the user types a desired password, its validity "Confirm Password:", will be displayed, the user should then type the same password to confirm. After any powering down the user must type the correct password turn on the system.

∗ **Hot Key Power On:**
   When the user selects this option, Hot Key Power On will be displayed: Ctrl-F1 allows the user to select a Hot Key. After the system is turned off, the user types in the Hot Key to power up the system.

∗ **Mouse Left, Mouse Right:**
   This option will power up the system by double clicking either the left or right mouse button.
   Note: do not move your mouse between the first click and the second click.

∗ **Button Only:**
   Only the power button can power the system.

(3)CMOS Clear: JP2

Normal	1-2	Default
Clear CMOS	2-3	

(4)CPU Temperature Detect: JP3

(5)Front Bezel Connector: J3

The control panel on the front bezel of the case indicates several computer activities and includes switches to change the activities' status. J3 is a 24-pin header that provides interfaces for the following functions.
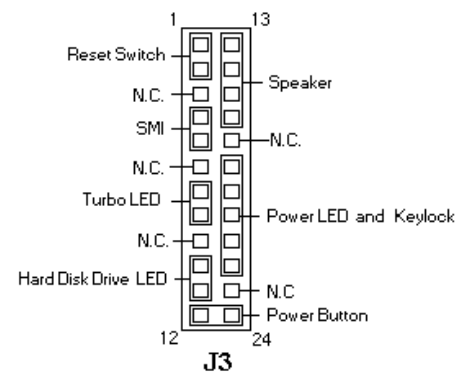
Reset Switch: Pins 1 & 2

The reset switch enables the user to reset the system without turning the main power switch off and then on. Orientation is not required when making a connection to this header.
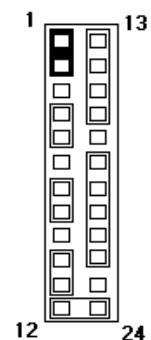
SMI/Hardware Switch: Pins 4 & 5

This connector supports the "Green Switch" on the control panel, which, when pressed, will immediately force the system board into power-saving mode.

J3 Pin #	Signal Name
4	Ground
5	Sleep
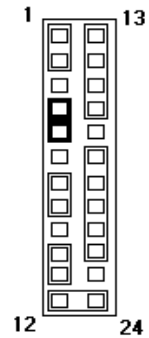
Turbo LED Connector: Pins 7 & 8

There is no turbo/deturbo function on the mainboard. The Turbo LED on the control panel will always be On when attached to this connector.

J3 Pin #	Signal Name
7	Ground
8	+5V
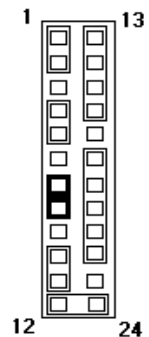
Hard Disk Drive LED Connector: Pins 10 & 11

This connector connects the hard drive activity LED on the control panel. This LED flashes when the HDD is being accessed.

J3 Pin #	Signal Name
10	HDLED
11	+5V
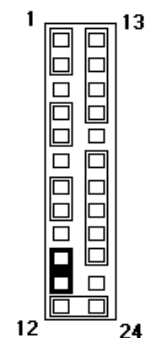
Speaker: Pins 13, 14, 15, & 16

The connector provides an interface to a speaker for audio output. An 8-ohm speaker is recommended.

J3 Pin #	Signal Name
13	Speaker out
14	Ground
15	Ground
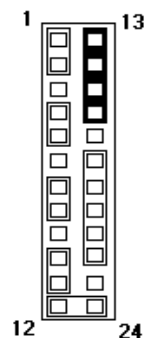
16	+5V

Power LED and Keylock: Pins 18, 19, 20, 21, & 22

The power LED displays the status of the main power switch. When the keylock switch is closed, it will disable the keyboard function.

J3 Pin #	Signal Name
18	Power LED
19	No connect
20	Ground
21	Keylock
22	Ground
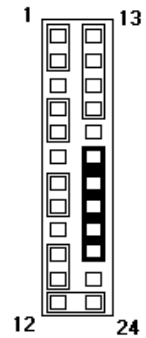
Power Button: Pins 12 & 24

This connects to the "Power Button" on the mainboard. When switched once, it causes the mainboard to power on. When switched again, it causes the mainboard to power down.
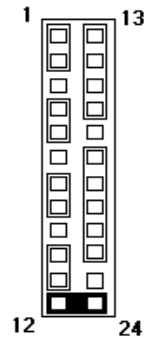
(6) Other Connectors Function:

(A)Chassis Fan Power Connector: CPU Fan and System Fan

CPU Fan and System Fan both are a 3-pin header for the chassis fan. The fan must be a 12V fan.

CPU & System Fan	Signal Name
1	Ground
2	+12V
3	Sense
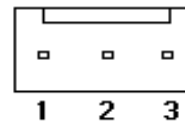
CPU Fan & System Fan

(B) IrDA/ASK IR Connector: IR1

PIN	1	2	3	4	5
Signal Name	+5V	FIRRX (Fast IR)	IRRX (Standard IR)	GND	IRTX (Standard IR)

PIN	6	7	8	9	10
Signal Name	NC	CIRRX	5VSB	NC	NC

IR1
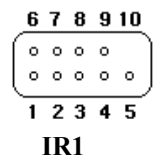
		(Consumer IR)			

(C)CPU Temperature Detector: JP3 (Optional)

Insert one end of the temperature sensor wire into JP3 and the other end into

the Slot 1 CPU heat sink.

(D)Wake on LAN (WOL) connector

PIN	1	2	3
Signal Name	+5V SB	GND	RING
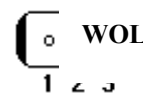
(E) SB-Link

PIN	1	2	3	4	5	6
Signal Name	GNT#	NC	DGND	SERIRQ	REQ#	DGND
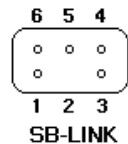
(F) JPX1: CPU Host Freq. Selector

JPX1	Configuration
N.C.	100MHz
1-2	Auto (Default)
2-3	66MHz

2-4 CPU Installation

The mainboard supports both INTEL Pentium II and Celeron CPU cartridges.

The mainboard has a built-in VID (Voltage Identify) function to auto detect CPU voltages. Hence you do not have to set the CPU voltage setting.
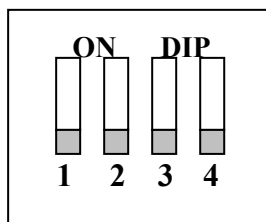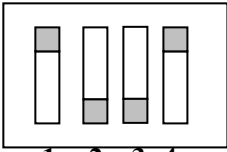
*DIP Switch, (i.e.: OFF, OFF, OFF, OFF)
 ON: switch to the 'ON' position.
 OFF: switch to the 'OFF' position.

SW1
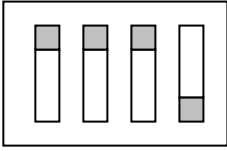
1. CPU Setting

* Intel Pentium II 233MHz

Internal CPU Clock	233MHz

Ext. x Frq.	66 x 3.5
SW1	ON [switch diagram] OFF 1 2 3 4

* Intel Pentium II 266MHz

Internal CPU Clock	266MHz
Ext. x Frq.	66 x 4.0
SW1	ON [switch diagram] OFF 1 2 3 4

* Intel Pentium II 300MHz

Internal CPU Clock	300MHz
Ext. x Frq.	66 x 4.5
SW1	ON [switch diagram] OFF 1 2 3 4

*Intel Pentium II 333MHz

Internal CPU Clock	333MHz
Ext. x Frq.	66 x 5.0
SW1	ON [switch diagram] OFF 1 2 3 4

* Intel Pentium II 350MHz

Internal CPU Clock	350MHz
Ext. x Frq.	100 x 3.5
SW1	ON ⬛⬜⬜⬛ / ⬜⬛⬛⬜ OFF 1 2 3 4
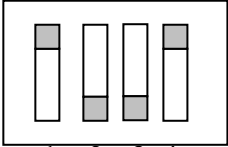
* Intel Pentium II 400MHz

Internal CPU Clock	400MHz
Ext. x Frq.	100 x 4.0
SW1	ON ⬛⬛⬛⬜ / ⬜⬜⬜⬛ OFF 1 2 3 4
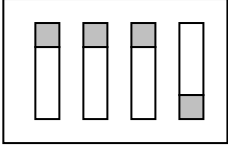
* Intel Pentium II 450MHz

Internal CPU Clock	450MHz
Ext. x Frq.	100 x 4.5
SW1	ON ⬛⬜⬛⬜ / ⬜⬛⬜⬛ OFF 1 2 3 4
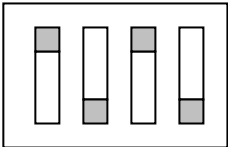
* Celeron 233MHz

Internal CPU Clock	233MHz
Ext. x Frq.	66 x 3.5
SW1	ON ... OFF 1 2 3 4
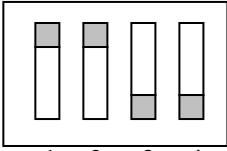
* Celeron 266MHz

Internal CPU Clock	266MHz
Ext. x Frq.	66 x 4.0
SW1	ON ... OFF 1 2 3 4

* Celeron 300MHz

Internal CPU Clock	300MHz
Ext. x Frq.	66 x 4.5
SW1	ON ... OFF 1 2 3 4

* Celeron 333MHz

Internal CPU Clock	333MHz
Ext. x Frq.	66 x 5.0
SW1	ON OFF 1 2 3 4

2. CPU Core/Bus Freq. Ratio

SW1	1	2	3	4
1.5x	OFF	OFF	ON	OFF
2x	OFF	OFF	OFF	OFF
2.5x	ON	OFF	ON	ON
3.0x	ON	ON	OFF	ON
3.5x	ON	OFF	OFF	ON
4.0x	ON	ON	ON	OFF
4.5x	ON	OFF	ON	OFF
5.0x	ON	ON	OFF	OFF
5.5x	ON	OFF	OFF	OFF
6.0x	OFF	ON	ON	ON
6.5x	OFF	OFF	ON	ON
7x	OFF	ON	OFF	ON
7.5x	OFF	OFF	OFF	ON
8x	OFF	ON	ON	OFF

2-5 Installation of System RAM Modules

The mainboard provides three onboard DIMM sockets that support different settings for the system memory. The following figures and tables provide some examples of possible memory combinations.

1. System Memory Configuration

DIMM	1	2	3
Bank	0	1	2
RAM Type	EDO SDRAM	EDO SDRAM	EDO SDRAM
Single RAM Module size (MB)	8/16/32 64/128	8/16/32 64/128	8/16/32 64/128

2. 168Pin DIMM (3.3V) SDRAM or EDO DRAM

Bank0 (DIMM1)	Bank1 (DIMM2)	Bank2 (DIMM3)	Total Memory
8MB	-----	-----	8MB
16MB	-----	-----	16MB
32MB	-----	-----	32MB
64MB	-----	-----	64MB
128MB	-----	-----	128MB
8MB	8MB	-----	16MB
16MB	8MB	-----	24MB
32MB	8MB	-----	40MB
64MB	8MB	-----	72MB
128MB	8MB	-----	136MB
8MB	8MB	8MB	24MB
16MB	8MB	8MB	32MB
32MB	8MB	8MB	48MB
64MB	8MB	8MB	80MB
128MB	8MB	8MB	144MB
16MB	16MB	-----	32MB
32MB	16MB	-----	48MB

| 64MB | 16MB | ----- | 80MB |
| 128MB | 16MB | ----- | 144MB |

Continue

Bank0 (DIMM1)	Bank1 (DIMM2)	Bank2 (DIMM3)	Total Memory
16MB	16MB	8MB	40MB
32MB	16MB	8MB	56MB
64MB	16MB	8MB	88MB
128MB	16MB	8MB	152MB
16MB	16MB	16MB	48MB
32MB	16MB	16MB	64MB
64MB	16MB	16MB	96MB
128MB	16MB	16MB	160MB
32MB	32MB	-----	64MB
64MB	32MB	-----	96MB
128MB	32MB	-----	160MB
32MB	32MB	8MB	72MB
64MB	32MB	8MB	104MB
128MB	32MB	8MB	168MB
32MB	32MB	16MB	80MB
64MB	32MB	16MB	112MB
128MB	32MB	16MB	176MB
32MB	32MB	32MB	96MB
64MB	32MB	32MB	128MB
128MB	32MB	32MB	192MB
64MB	64MB	-----	128MB
128MB	64MB	-----	192MB
64MB	64MB	8MB	136MB
128MB	64MB	8MB	200MB
64MB	64MB	16MB	144MB
128MB	64MB	16MB	208MB
64MB	64MB	32MB	160MB
128MB	64MB	32MB	224MB

64MB	64MB	64MB	192MB
128MB	64MB	64MB	256MB
128MB	128MB	8MB	264MB
128MB	128MB	16MB	272MB
128MB	128MB	32MB	288MB
128MB	128MB	64MB	320MB
128MB	128MB	128MB	384MB

Chapter 3-Award BIOS Setup

Power on the system and the screen will display:

Hit <Del> to enter Setup

Hit the <Del> key and the screen will display the main Setup screen.

The Main Menu allows you to choose from several setup functions and two exit choices. Use the arrow keys to select the appropriate choice and press <Enter> to accept and enter a sub-menu.

Main Menu

```
                    ROM PCI/ISA BIOS(2A69KCS9)
                        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...	

3-1 Standard CMOS Setup

The **STANDARD CMOS SETUP** allows you to configure the system settings such as the current date and time, type of hard disk installed, floppy type, and display type. Use the arrow keys to highlight a choice and then use the <PgUp> or <PgDn> keys to select the value you want for each option.

ROM PCI/ISA BIOS(2A69KCS9)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Mon, Jul 27 1998
Time (hh:mm:ss) : 20 : 22 : 36

HARD DISKS		TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	:	Auto	0	0	0	0	0	0	AUTO
Primary Slave	:	Auto	0	0	0	0	0	0	AUTO
Secondary Master	:	Auto	0	0	0	0	0	0	AUTO
Secondary Slave	:	Auto	0	0	0	0	0	0	AUTO

Drive A : 1.44M, 3.5 in.
Drive B : None

Video : EGA/VGA
Halt On : All Errors

Base Memory: 640K
Extended Memory: 64512K
Other Memory: 384K
Total Memory: 65536K

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

3-2 BIOS Features Setup

This section allows you to configure your system for basic operation. You can select the system default speed, boot-up sequence, keyboard operation, shadowing and security.

```
                    ROM PCI/ISA BIOS(2A69KCS9)
                        BIOS FEATURES SETUP
                       AWARD SOFTWARE, INC.
```

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000-CFFFF Shadow	: Disabled
CPU L2 Cache ECC Checking	: Enabled	D0000-D3FFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	D4000-D7FFF Shadow	: Disabled
Boot Sequence	: A,C,SCSI	D8000-DBFFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	DC000-DFFFF Shadow	: Disabled
Boot Up Floppy Seek	: Enabled		
Boot Up NumLock Status	: On		
Gate A20 Option	: Normal		
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		
Report No FDD For WIN 95	: No		

```
 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

When this option is enabled, the Award BIOS will monitor the boot sector and partition table of the hard disk drive for any attempted modification. If an attempt is made, the BIOS will halt the system and the error message below will appear. Afterwards, if necessary, you will be able to run an anti-virus program to locate and remove the problem before any damage is done.

! WARNING !

Disk boot sector is going to be modified

Type "Y" to accept writing or "N" to abort

Award Software, Inc.

Enabled	Activates automatically when the system boots up, and displays a warning message if anything attempts to access the boot sector or the hard disk partition table.
Disabled	No warning message will appear from attempts to access the boot sector or the hard disk partition table.

Note: Many disk diagnostic programs, which attempt to access the boot sector table, can trigger the display of the above warning message. If you are running such a program, we recommend that you disable the Virus Protection beforehand.

CPU Internal Cache/External Cache
Cache use can speed up memory access. However, optimal settings depend on the CPU/chipset design. The default value is Enabled.

Enabled	Enables the cache
Disabled	Disables the cache

Quick Power On Self Test

This category speeds up the Power On Self-Test (POST) after you power up the computer. If it is set to Enabled, BIOS will shorten or skip the checking of some items during POST.

Enabled	Enables quick POST
Disabled	Normal POST

Boot Sequence

This category determines which drive to search first for the disk operating system (i.e., DOS). The default value is A, C and SCSI.

C, A, SCSI	System searches first for hard disk drive, then floppy disk drive, then SCSI.
A,C, SCSI	System searches first for floppy disk drive, then hard disk drive, then SCSI.
CDROM, C, A	System searches first for CDROM drive, then hard disk drive, then floppy disk drive.
C, CDROM, A	System searches first for hard disk drive, then CDROM drive, then floppy disk drive.
SCSI, A, C	System searches first for SCSI drive, then floppy disk drive , then hard disk drive.

Swap Floppy Drive

This option enables/disables the boot up sequence from B to A drive.

Boot Up Floppy Seek

During POST, BIOS will determine whether the floppy disk drive installed has 40 or 80 tracks. A 360K type has 40 tracks while 760K, 1.2M and 1.44M all have 80 tracks.

Enabled	BIOS scans the floppy disk drive to determine whether it has 40 or 80 tracks. Note that BIOS cannot differentiate between 720K, 1.2M or 1.44M drive types, as they are all 80 tracks.
Disabled	BIOS does not scan for the type of floppy disk drive by track number. Note that there is no warning message if the drive

	installed is 360K.

Boot Up NumLock Status

This allows you to determine the default state of the numeric keypad. The default, setting is NumLock on.

On	NumLock ON
Off	NumLock OFF

Gate A20 Option

This entry allows you to select how the gate A20 is handled. The gate A20 is a device used to address memory above 1 Mbyte. In older models, the gate A20 was handled via a pin on the keyboard. Currently, while keyboards still provide this support, it is more common, and much faster, for the system chipset to provide support for gate A20.

Normal	Keyboard
Fast	Chipset

Typematic Rate Setting

This determines whether the typematic rate is used. When disabled, continually holding down a key on your keyboard generates only one keying instance. In other words, the BIOS will only report that the key is down. When the typematic rate is enabled, the BIOS will report as before, but it will then wait a moment, and, if the key is still down, it will begin to report that the key has been depressed repeatedly. For example, this feature can be used to accelerate cursor movements with the arrow keys.

Enabled	Enables the typematic rate
Disabled	Disables the typematic rate

Typematic Rate (Chars/Sec)

When the typematic rate is enabled, this field allows you select the rate at which keystrokes are repeated automatically.

6	6 characters per second
8	8 characters per second
10	10 characters per second
12	12 characters per second
15	15 characters per second
20	20 characters per second
24	24 characters per second
30	30 characters per second

Typematic Delay (Msec)

When the typematic rate is enabled, this field allows you to select the delay between when the key is first depressed and when repetition begins.

250	250 msec
500	500 msec
750	750 msec
1000	1000 msec

Security Option

This category allows you to limit access to the system and Setup, or just to Setup.

System	The system does not boot, and access to Setup is denied if the correct password is not entered at the prompt.
Setup	The system does boot, but access to Setup is denied if the correct password is not entered at the prompt.

Note: To disable the security feature, select PASSWORD SETTING on the Main Menu; you will be asked to enter a password. Type no characters; just press <Enter> to disable the security feature. Once the security feature is disabled, the system will boot and you can enter Setup freely.

OS Select for DRAM > 64

This option allows you to access memory over 64MB in OS/2.

Choices: Non-OS2, OS2.

PCI / VGA Palette Snoop

Determines whether MPEG ISA/VESA VGA cards can work with PCI/VGA or not.

Enabled	When PCI/VGA works with MPEG ISA/VESA VGA Card.
Disabled	When PCI/VGA does not work with MPEG ISA/VESA VGA Card.

Video BIOS Shadow

Determines whether the video BIOS is copied to RAM. This option depends on the system's chipset design. Video Shadow will increase the video speed.

Enabled	Video shadow is enabled
Disabled	Video shadow is disabled

C8000 - CBFFF Shadow/DC000 - DFFFF Shadow

These categories determine whether option ROM is copied to RAM. An example of such option ROM would be the support of on-board SCSI.

Enabled	Optional shadow is enabled
Disabled	Optional shadow is disabled

3-3 Supervisor/User Password Setting

Passwords can be set for user and/or supervisor. The differences are:

The supervisor password allows entry to and alteration of the options in the setup menus.
The user password allows entry to but not alternation of the options in the setup menus.

When you select this function, the following message will appear at the center of the screen.

ENTER PASSWORD:

Type the desired password, up to eight characters, and press <Enter>. The password typed now will erase any previously entered password from the 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 initially disable the password function, just press <Enter> when you are prompted to enter the password. A message will confirm that the password has been 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 any unauthorized user 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 prevents any unauthorized use of your computer.

To determine when the password is required, enter the BIOS Features Setup Menu and select the 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"**, the prompting only occurs when trying to enter Setup.

3-4 Chipset Features Setup

ROM PCI/ISA BIOS(2A69KCS9)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration	: Disabled	Auto Detect DIMM/PCI CIK	: Enabled
EDO CASx# MA Wait State	: 2	Spread Spectrum	: Disabled
EDO RASx# Wait State	: 2	CPU Host Clock	: Auto
SDRAM RAS-to-CAS Delay	: 3	CPU Warning Temperature	: Disabled
SDRAM RAS Precharge Time	: 3	Current System Temp.	: 30°C/86°F
SDRAM CAS latency Time	: 3	Current CPU1 Temperature	: 31°C/87°F
SDRAM Precharge Control	: Disabled	Current CPUFAN1 Speed	: 5625 RPM
DRAM Data Integrity Mode	: Non-ECC	Current CPUFAN2 Speed	: 0 RPM
System BIOS Cacheable	: Disabled	IN0(V): 2.00V	IN1(V): 1.48V
Video BIOS Cacheable	: Disabled	IN2(V): 3.32V	+5 V: 5.08V
Video RAM Cacheable	: Disabled	+12V : 11.79V	-12 V: -11.81V
8 Bit I/O Recovery Time	: 1	-5V : -5.16V	
16 Bit I/O Recovery Time	: 1		
Memory Hole AT 15M-16M	: Disabled		
Passive Release	: Enabled		
Delayed Transaction	: Disabled		
AGP Aperture Size (MB)	: 64	ESC : Quit ↑↓→← : Select Item	
		F1 : Help PU/PD/+/- : Modify	
		F5 : Old Values (Shift)F2 : Color	
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

This section describes features of the Intel 440BX PCIset. If your system contains a different chipset, this section will bear little resemblance to what you see on your screen.

ADVANCED OPTIONS. The parameters in this screen are for system designers, service personnel, and technically competent users only. Do not reset these values unless you understand the consequences of your changes.

NOTE: This chapter describes all fields offered by Award Software in this screen. Your system board designer may omit or modify some fields.

1. Auto Configuration

Auto Configuration selects predetermined optimal values for chipset parameters. When Disabled, chipset parameters revert to setup information stored in CMOS. Many fields in this screen are not available when Auto Configuration is Enabled.

Choices: Enabled, Disabled.

EDO DRAM Speed Selection

The DRAM timing is controlled by the DRAM Timing Registers. The timings programmed into this register are dependent on the system design. Slower rates may be required in certain system designs to support loose layouts or slower memory.

50ns	DRAM Timing Type.
60ns	DRAM Timing Type.

EDO CASx# MA Wait State

This allows you to select the timing control type for the EDO DRAM CAS MA (memory address bus).

Choices: 1, 2.

EDO RASx# Wait State

This allows you to select the timing control type for the EDO DRAM RAS MA (memory address bus).

Choices: 1, 2.

SDRAM RAS-to-CAS Delay

You can select RAS to CAS Delay time in HCLKs of 2/2 or 3/3. The system board designer should set the values in this field, depending on the DRAM installed. Do not change the values in this field unless you change specifications of the installed DRAM or the installed CPU.

Choices: 2, 3.

SDRAM RAS Precharge Time

This defines the length of time the Row Address Strobe is allowed to precharge.

Choices: 2, 3.

SDRAM CAS Latency Time

You can select CAS latency time in HCLKs of 2/2 or 3/3. The system board designer should set the values in this field, depending on the DRAM installed. Do not change the values in this field unless you change specifications of the installed DRAM or the installed CPU.

Choices: 2, 3.

DRAM Data Integrity Mode

Select Parity or ECC (error-correcting code), according to the type of installed DRAM.

Choices: Non-ECC, ECC.

2. Cache Features

System BIOS Cacheable

Selecting Enabled allows caching of the system BIOS ROM at F000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Enabled	BIOS access cached
Disabled	BIOS access not cached

Video BIOS Cacheable

Selecting Enabled allows caching of the video BIOS ROM at C0000h to F7FFFh,
resulting in better video performance. However, if any program writes to this memory area, a system error may result.

Enabled	Video BIOS access cached
Disabled	Video BIOS access not cached

Video RAM Cacheable

Selecting Enabled allows caching of the video RAM, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

3. PCI and IDE Configuration

8 Bit I/O Recovery Time

The recovery time is the length of time, measured in CPU clocks, which the system will pause after the completion of an input/output request. The CPU is operating so much faster than the input/output bus that the CPU must be delayed to allow for the completion of the I/O.

This item allows you to determine the recovery time allowed for 8 bit I/O. Choices are NA, or from 1 to 8 CPU clocks.

16 Bit I/O Recovery Time

This item allows you to determine the recovery time allowed for 16 bit I/O. Choices are NA, or from 1 to 4 CPU clocks.

Memory Hole At 15M-16M

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16MB.

Enabled	Memory hole supported.
Disabled	Memory hole not supported

Passive Release

This item lets you control the Passive Release function of the PIIX4 chipset. This function is used to meet the latency of the ISA bus master. Try changing the setting if you have an ISA card compatibility problem.

Delayed Transaction

This item lets you control the Delayed Transaction function of the PIIX4 chipset. This function is used to meet the latency of PCI cycles to or from ISA bus. Try changing the setting if you have an ISA card compatibility problems.

AGP Aperture Size (MB)

This allows you to select the size of the Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. See www.agpforum.org for more information on AGP.

Choices: 4, 8, 16, 32, 64, 128, 256

Current System Temp

This field displays the *current* system temperature, if your computer contains a monitoring system.

Current CPUFAN 1/2/3/ Speed

These fields display the *current* speed of up to three CPU fans, if your computer contains a monitoring system.

3-5 Power Management Setup

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

```
                    ROM PCI/ISA BIOS(2A69KCS9)
                      POWER MANAGEMENT SETUP
                       AWARD SOFTWARE, INC.
```

```
Power Management      : Disabled         ** Reload Global Timer Events **
PM Control by APM     : Yes         IRQ[3-7, 9-15] NMI : Disabled
 Video  Off  Method            : V/H  Primary IDE 0       : Disabled
SYNC+Blank                            Primary IDE 1       : Disabled
 Video Off After      : Standby       Secondary IDE 0     : Disabled
 MODEM Use IRQ        : 3             Secondary IDE 1     : Disabled
 Doze Mode            : Disabled      Floppy Disk         : Disabled
 Standby Mode        : Disabled       Serial Port         : Enabled
 Suspend Mode         : Disabled      Parallel Port       : Disabled
 HDD Power Down        : Disabled
 Throttle Duty Cycle  : 62.5%
 VGA Active Monitor    : Disabled
 Soft-Off by PWR-BTTN  : Instant-Off
 CPUFAN Off In Suspend : Enabled
 Resume by Ring        : Disabled
 Resume by Alarm       : Disabled


 IRQ 8 Break Suspend   : Disabled

                                     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 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

There are four options for Power Management, three of which have fixed mode settings.

Disable (default)	No power management. Disables all four modes.
Min. Power Saving	Minimum power management. Doze Mode = 1 hr. Standby Mode = 1 hr., Suspend Mode = 1 hr., and HDD Power Down = 15 min.
Max. Power Saving	Maximum power management – **ONLY AVAILABLE FOR SL CPU.** Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Defined	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. , or disabled.

PM Control APM

When enabled, an Advanced Power Management device will be activated to enhance the Max. Power Saving mode and stop the CPU internal clock.

If the Max. Power Saving is not enabled, this will be preset to *No*.

Video Off Method

This determines the manner in which the monitor screen is turned blank.

V/H SYNC+Blank	This selection causes the system to turn off the vertical and horizontal synchronization ports and writes blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Initial display power management signaling.

Video Off After

When enabled, this feature allows the VGA adapter to operate in a power saving mode.

N/A	Monitor will remain on during power saving modes.
Suspend	Monitor blanked when the system enters the Suspend mode.
Standby	Monitor blanked when the system enters Standby mode.
Doze	Monitor blanked when the system enters any power saving mode.

MODEM Use IRQ

This lets you name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity on the selected IRQ always awakens the system.

Choices: NA, 3, 4, 5, 7, 9, 10, 11

1. PM Timers

The following four modes are Green PC power saving functions which are only user configurable when *User Defined* Power Management has been selected. See above for available selections.

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, the fixed disk drive and the video are 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, the hard disk drive will be powered down while all other devices remain active.

Throttle Duty Cycle

When the system enters Doze mode, the CPU clock runs only part of the time. You may select the percent of time that the clock runs.

Choices: 12.5%, 25.0%, 37.5%, 50.0%, 62.5%, 75.0%

ZZ Active in Suspend

When Enabled, the ZZ signal is active during Suspend mode.

Choices: Enabled, Disabled.

VGA Active Monitor

When Enabled, any video activity restarts the global timer from Standby mode.

Choices: Enabled, Disabled.

Soft-Off by PWR-BTTN

When Enabled, turning the system off with the on/off button places the system in a very low-power-usage state, with only enough circuitry receiving power to detect power button activity or Resume by Ring activity.

Choices: Instant-Off, Delay 4 Sec.

Resume By Ring

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.

Choices: Enabled, Disabled.

IRQ 8 Break Suspend

You can Enable or Disable monitoring of IRQ8 to awaken the system from Suspend mode.
Choices: Enabled, Disabled.

2. Reload Global Timer Events

When Enabled, an event occurring on each device listed below restarts the global time from Standby mode.

IRQ[3-7, 9-15], NMI
Primary IDE 0
Primary IDE 1
Secondary IDE 0
Secondary IDE 1
Floppy Disk
Serial Port
Parallel Port

3-6 PNP/PCI Configuration Setup

This section describes configuring the PCI bus system. PCI, or **P**ersonal **C**omputer **I**nterconnect, 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

<div align="center">

ROM PCI/ISA BIOS(2A69KCS9)

PNP/PCI CONFIGURATION

AWARD SOFTWARE, INC.

</div>

PNP OS Installed	: No	Used MEM base addr : N/A
Resources Controlled By	: Manual	
Reset Configuration Data	: Disabled	
IRQ-3 assigned to	: PCI/ISA PnP	
IRQ-4 assigned to	: PCI/ISA PnP	
IRQ-5 assigned to	: PCI/ISA PnP	
IRQ-7 assigned to	: PCI/ISA PnP	
IRQ-9 assigned to	: PCI/ISA PnP	
IRQ-10 assigned to	: PCI/ISA PnP	
IRQ-11 assigned to	: PCI/ISA PnP	
IRQ-12 assigned to	: PCI/ISA PnP	
IRQ-14 assigned to	: PCI/ISA PnP	
IRQ-15 assigned to	: PCI/ISA PnP	ESC : Quit ↑↓→←: Select Item
DMA-0 assigned to	: PCI/ISA PnP	F1 : Help PU/PD/+/- : Modify
DMA-1 assigned to	: PCI/ISA PnP	F5 : Old Values (Shift)F2 : Color
DMA-3 assigned to	: PCI/ISA PnP	F6 : Load BIOS Defaults

DMA-5 assigned to : PCI/ISA PnP DMA-6 assigned to : PCI/ISA PnP DMA-7 assigned to : PCI/ISA PnP	F7 : Load Setup Defaults

PNP OS Installed

Select Yes if the system-operating environment is Plug-and-Play aware (e.g., Windows 95).

Choices: Yes and No

Resource Controlled by

The Award Plug and Play BIOS can automatically configure all boot and Plug and Play-compatible devices. If you select Auto, all the interrupt request (IRQ) and DMA assignment fields disappear, as the BIOS automatically assigns them.

Choices: *Auto* and *Manual*.

Reset Configuration Data

Normally, you should leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot.

Choices: Enabled and Disabled.

IRQ n Assigned to

When resources are controlled manually, assign each system interrupt as one of the following types, depending on the type of device using the interrupt:

Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt (such as IRQ4 for serial port 1).

PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

DMA n Assigned to

When resources are controlled manually, assign each system DMA channel as one of the following types, depending on the type of devices using the interrupt:

Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt DMA channel.

PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

PCI IDE IRQ Map to

This field lets you select PCI IDE IRQ mapping or PC AT (ISA) interrupts. If your system does not have one or two PCI IDE connectors on the system board, select values according to the type of IDE interface(s) installed in your system (PCI or ISA). Standard ISA interrupts for IDE channels are IRQ14 for primary and IRQ15 for secondary devices.

Choices: PCI-SLOT1, PCI-SLOT2, PCI-SLOT3, PCI-SLOT4, ISA, PCI-AUTO

Primary/Secondary IDE INT#

Each PCI peripheral connection is capable of activating up to four interrupts: INT# A, INT# B, INT# C and INT# D. By default, a PCI connection is assigned INT# A. Assigning INT# B has no meaning unless the peripheral device requires two interrupt services rather than just one. Because the PCI IDE interface in the chipset has two channels, it requires two interrupt services. The primary and secondary IDE INT# fields default to values appropriate for two PCI IDE channels, with the primary PCI IDE channel having a lower interrupt than the secondary.

Used MEM base address

Select a base address for the memory area used by any peripheral that requires high memory.

Choices: C800, CC00, D000, D400, D800, DC00, N/A.

Used MEM Length

Select a length for the memory area specified in the previous field. This field does not appear if no base address is specified.

Choices: 8K, 16K, 32K, 64K.

3-7 Loading BIOS Defaults

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

3-8 Loading Setup Defaults

The chipset defaults are settings that provide for maximum 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.

3-9 Integrated Peripherals

ROM PCI/ISA BIOS(2A69KCS9)

INTEGRATED PERIPHERALS

AWARD SOFTWARE, INC.

```
IDE HDD Block Mode          : Enabled     Onboard Serial Port 2       :
IDE Primary Master PIO      : Auto        2F8/IRQ3
IDE Primary Slave PIO       : Auto         Onboard Parallel Port      :
IDE Secondary Master PIO    : Auto        378/IRQ7
IDE Secondary Slave PIO     : Auto         Parallel Port Mode         : SPP
IDE Primary Master UDMA      : Auto
 IDE Primary Slave UDMA       : Auto
IDE Secondary Master UDMA  : Auto
IDE Secondary Slave UDMA    : Auto
On-Chip Primary PCI IDE     : Enabled
On-Chip Secondary PCI IDE  : Enabled
USB Keyboard Support         : Enabled
Init Display First           : PCI Slot

Power ON Function            : BUTTON
ONLY
                                          ESC  : Quit          ↑↓→←  : Select
KBC input clock              : 8 MHz      Item
Onboard FDC Controller       : Enabled    F1   : Help        PU/PD/+/- : Modify
Onboard Serial Port 1        : 3F8/IRQ4
                                          F5   : Old Values   (Shift)F2 : Color

                                          F6   : Load BIOS Defaults

                                          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).

Enabled	IDE controller uses block mode.
Disabled	IDE controller uses standard mode.

IDE Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input / Output) fields let you set PIO modes (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increasing levels of performance. In Auto mode, the system automatically determines the best mode for each device.

IDE Primary/Secondary Master/Slave UDMA
Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, select Auto to enable BIOS support.

Choices: Auto, Disabled

On-Chip Primary/Secondary PCI IDE
The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select enabled to activate each channel separately.

Onboard PCI SCSI Chip
Select Enabled if your system contains a PCI SCSI chip and you have a PCI SCSI card.

Choices: Enabled, Disabled.

USB Keyboard support
Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

Choices: Enabled, Disabled.

Onboard FDD Controller
This should be enabled if your system has a floppy disk drive (FDD) installed on the system board and you wish to use it. Even when so equipped, the adding of a higher performance controller will require the disabling this feature.

Choices: Enabled, Disabled.

Onboard Serial Port 1/Port 2

This allows you to determine which I/O address accesses the onboard serial port 1/port 2 controller.
Choices: 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

UART 2 Mode
This item allows you to determine the Infra Red (IR) function of your onboard I/O chip.

Choices: Standard, ASKIR, HPSIR.

Duplex Select
Select the value required by the IR device connected to the IR port. Full-duplex mode permits simultaneous two-direction transmission. Half-duplex mode permits transmission in one direction at a time.

Choices: Half, Full.

Onboard Parallel Port
Select a logical LPT port name and matching address for the physical parallel (printer) port.
Choices: 378H/IRQ7, 278H/IRQ5, 3BCH/IRQ7, Disabled.

Parallel Mode
Select an operating mode for the onboard parallel port. Select Compatible or Extended unless you are certain both your hardware and software support EPP or ECP mode.

Choices: SPP, ECP+EPP1.7, EPP1.7+SPP, EPP1.9+SPP, ECP, ECP+EPP1.9, and Normal.

ECP Mode Use DMA
Select a DMA channel for the port.

Choices: 3,1.

3-10 Save & Exit Setup

Saves the CMOS value changes to CMOS and exits setup.

3-11 Exit without Saving

Cancels all the CMOS value changes and exits setup.