CONTENTS

HOW TO USE THIS MANUAL

This manual is written in a user-friendly style. It would be advisable for users to read it in an orderly sequence :

1. For Hardware Information:
Read **"Page A: COMPONENT LOCATION DIAGRAM"**, **"Page B: CHECK LIST OF THE PACKAGING"** and "**Page C: CONNECTORS AND JUMPERS DESCRIPTION".**

2. For Mainboard and System Features:
Read "**Chapter 1 Introduction"** in detail, and you will find helpful information on mainboard and system features. Especially, when you want to do some feature setup, detailed instructions are provided therein to help you through.

3. For CPU, Memory and Drivers Installation:
Read "**Chapter 2 Installation**" for your CPU, memory and application drivers installation. Detailed instructions are provided to guide all kinds of users.

4. For BIOS Update and Setup:
Read **"Chapter 3 Award BIOS Setup"** for updating your mainboard BIOS and setting up your BIOS Configuration.

5. For Installing Pentium® II/III, Celeron or Processors with SECC2 Package:
Read **"APPENDIX A"** for setting up Intel Pentium® II/III, Celeron™, or processors with SECC2 package.

6. For Installing Thermister:
Read "**APPENDIX B"** for thermister installation. You will find that the self-explanatory drawings enclosed therein make the job easy and simple.

7. For other Technical Support:
Read **"APPENDIX C",** fill and send the Request Form to your dealer for other technical support.

It is often heard that the default settings on a mainboard is not what user expects. A user-friendly manual would be the handiest assistant to help change the on-board configuration or default setting. In case this manual cannot solve all your problems, please ask your dealer for help and be sure the warranty on your system is still valid.

REMARK: Intel® is a registered trademark of Intel Corporation.

CHAPTER 1 INTRODUCTION

The mainboard utilizes Intel 440BX chipset which can perform with all current Intel Pentium®II/III and Celeron™ processors in Slot1(Primary CPU Slot) and Slots1 (Secondary CPU Slot) supporting both 66MHz and 100MHz Front Side Bus CPU. With the dual processor capability on this mainboard, it is optimized for high-performance workstation and server platforms.

1-1 System Features

- Dual CPU slot for Pentium®III 450MHz to 500MHz CPU, Pentium®II 233MHz to 450MHz CPU, and Celeron™ 266MHz to 433MHz CPU.
- Intel 440BX AGPset.
- Three 3.3V 168-pin DIMM sockets for three banks of 64-bit wide path up to 384MB SDRAM, 768MB registered SDRAM (with parity chip ECC support).
- Built-in Switching Voltage Regulator.(VRM 8.2 Spec.)
- CPU Core Voltage for Slot1 (Vcore): adjustable ranging from 1.8V to 2.8V. CPU Core Voltage for Slots1 (Vcore2): the same with CPU1 or auto-detected.
- CPU IO Voltage adjustable ranging from 3.35V to 3.65V.
- One AGP slot and six 32-bit PCI slots compliance with reversion 2.2 of the PCI Local Bus specification.
- Dual Master IDE Connectors supporting Ultra DMA/33(33MB/sec), up to four devices in two channels for connecting high capacity hard disk, CD-ROM, LS-120MB floppy drive, tape backup etc.
- National Semiconductor 309 high-speed Ultra Multi-I/O chip.
- ATX Power Connector.
- USB (Universal Serial Bus) Connector supporting up to 127 peripheral devices.
- PS/2 Keyboard Connector and PS/2 Mouse Connector.
- Infrared Transfer (IrDA TX/RX) Connector.
- One FDD Port supporting two devices available for 1.2MB, 1.44MB and 2.88MB.
- Two 16550A Fast UART Compatible Serial Ports.
- One EPP/ECP Mode Parallel Printer Port.
- Supporting Software Power Off Control; Modem Ring On; SB-Link; Wake-On-LAN functions.
- Built-in two set of Hardware Health Monitor Chips.
- ATX Form Factor; Board Dimension 305mm x 24.4mm. (12" x 9.6")

1-2 Software Power Off Control

The mainboard supports Software Power Off Control feature through the SMM code in the BIOS under Windows 95/98, Windows 3.1x, and MS-DOS operation system environment.

First, you should connect the power switch cable to the connector "PS-ON" on the mainboard. In the BIOS screen of 'POWER MANAGEMENT SETUP', choose "User Defined" (or "Min. Power Saving" or "Max. Power Saving") in 'Power Manager' and choose "Yes" in 'PM Control by APM'.

In Windows 95/98, if you would like to power off the system, you just choose "shutdown the computer ?" in the "Shut Down Windows" from Windows 95/98, then the system power will be off directly and become the stand-by status. In the mean time, you will find the power LED light is blinking. If you would like to restart the system, just press the power switch button, and the system will be powered on.

Note : If you are going to leave your system idle for several days, we suggest you use hardware power off to shutdown your system.

1-3 Fan Off Control

With fan-off function, the CPU cooling fan can turn off automatically even when the system is in suspend mode. This function enables the system to reduce energy consumption and system noise.

Because it is a feature of advanced BIOS, you should set this option enabled through "Power Management Setup" from the BIOS setup screen.

1-4 Modem Ring On

With Modem Ring On function, the computer can wake up remotely through the connected modem. This function enables users to access their computer data from anywhere in the world. But users have to set "Resume by Ring" with 'enabled' in "Power Management Setup" from the BIOS setup screen.

1-5 Running 100 MHz CPU Bus (With JP1)

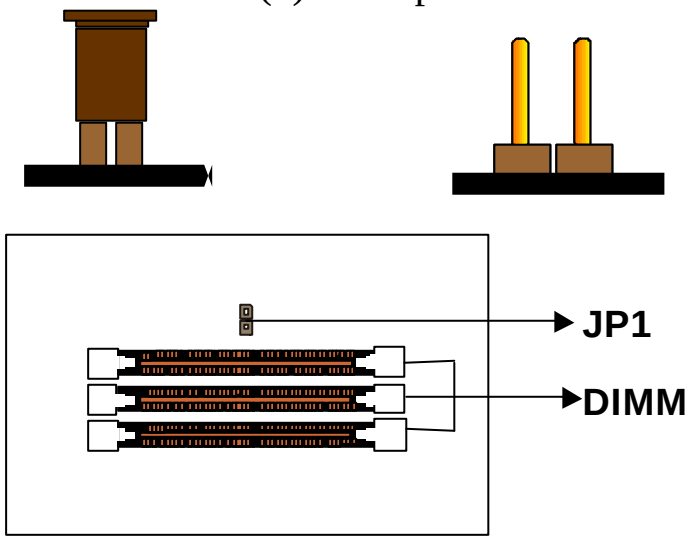
The mainboard provides **Jumper 1** that allows you to set your CPU host clock and perform CPU overclock function. There are two ways to set CPU host clock at 'closed' and 'open'. When setting 'closed', the system will automatically detect the CPU host clock, for instance 66MHz and 100MHz. Another way is to set **Jumper 1** at 'open' and the system can be operated with a higher frequency than the nominal one on CPU.

We recommend that users should use Intel Pentium®II/III 100 MHz CPU, running at 350, 400, 450 and 500MHz internal clock speed. Moreover, the SDRAM memory module must be 8 nano-second (Maximum Frequency 125 MHz) speed of memory –die or less. However, based on Intel's design, we don't recommend users to run over 100MHz CPU host bus.

Please note that the default setting of Jumper 1 is 'closed'.

Jumper 1	**BASE CLK**
Closed	**Auto**
Open	**100 MHz**

(a) Pin Closed (b) Pin Open



✸ **If you want to run over 100MHz CPU host bus, such as 112 or 124MHz, please set "CPU Speed" to Manual in "CPU FEATURES SETUP" of the BIOS setup screen, and then set "CPU Frequency". If the system can't boot up with the clock frequency that you set to, you can clear the set frequency by pressing the 'Insert" key on keyboard. After restarting the system, you have the system operating at the default frequency.**

1-6 SB-Link Sideband Signals

In order to migrate the legacy Sound Blaster compatible audio to the PCI bus, EMU8008 incorporates a pair of SB-Link request/grant sideband signals (PCPCIR EQN and PCPCIGNTN) to interface to the PCI bus. SB-Link is a mechanism that was defined and developed by Intel as a docking solution which allows ISA slots to exist in docking stations connected to desktop PC PCI bus.

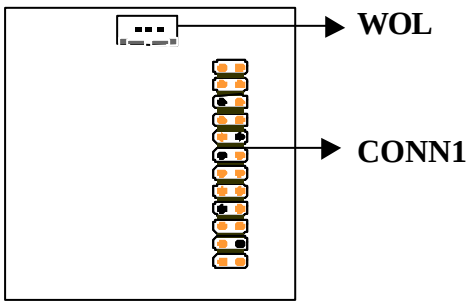
Note: If you want to enable the function of SB-Link, please insert the SB-Link PCI card into PCI Slot 5 or PCI Slot 6.

1-7 Wake-On-LAN

The remote Wake-On-LAN(WOL) mode of operation is a mechanism that uses Advanced Micro Device Magic Packet technology to power on a sleeping workstation on the network. This mechanism is accomplished when the LAN card receives a specific packet of information, called a Magic Packet, addressed to the node on the network. For additional protection, Secure ON is an optional security feature that can be added to the Magic Packet that requires a password to power on the sleeping workstation. When LAN card is in remote Wake-On-LAN mode, main system power can be shut down leaving power only for the LAN card and auxiliary power recondition.

The LAN card performs no network activities while in the remote Wake-On-LAN mode of operation. It only monitors the network for receipt of a Magic Packet. If a Magic Packet is addressed to the LAN card on the network, the LAN card wake up the system. If the Secure ON feature has been enabled, the password added to the Magic Packet is also verified prior to waking up the system.

You should select two kinds of PCI Ethernet cards with WOL function. One is Intel and the other is with PME signal supporting. And you can set “Wake Up On LAN” this function enabled through “ Power Management Setup” from the BIOS setup screen.



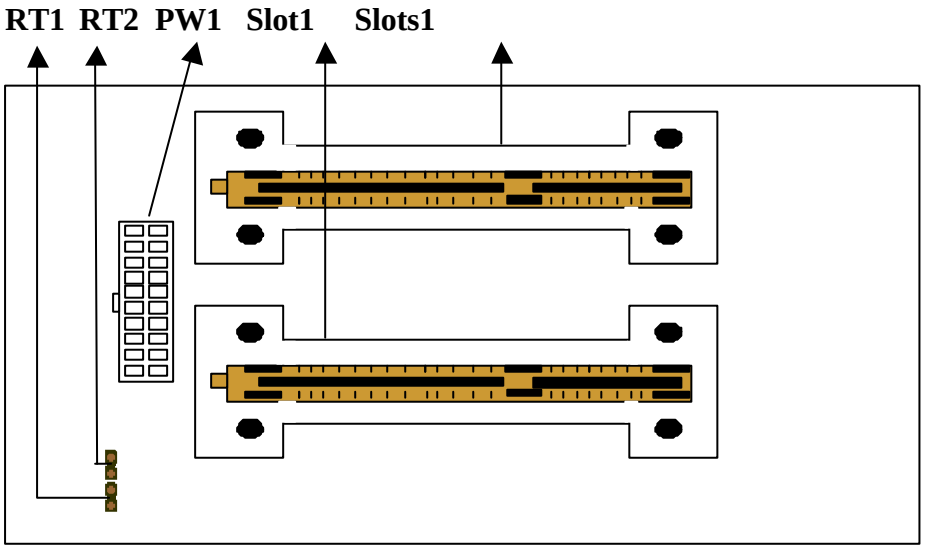
1-8 Thermister

User can monitor the CPU temperature through thermister. This mainboard provides two thermister cables for satisfying dual processor design. **Please keep in mind while setting up thermister that jumper RT1 is for Slot 1 and jumper RT2 is for Slots 1.**

After setting up the thermister (refer to Appendix B), the BIOS will load the CPU temperature automatically. There is a choice of the warning beep sound if the user set the option on. If the CPU temperature is overheated, the user will get the notice from the hardware doctor utility. This time you should shut down the computer and check your devices. Or you can connect with you dealer.

Therefore, monitoring the CPU temperature is the thermister's job.

Note: If you would like to enable the function of hardware monitor, to set up thermister beforehand is necessary.

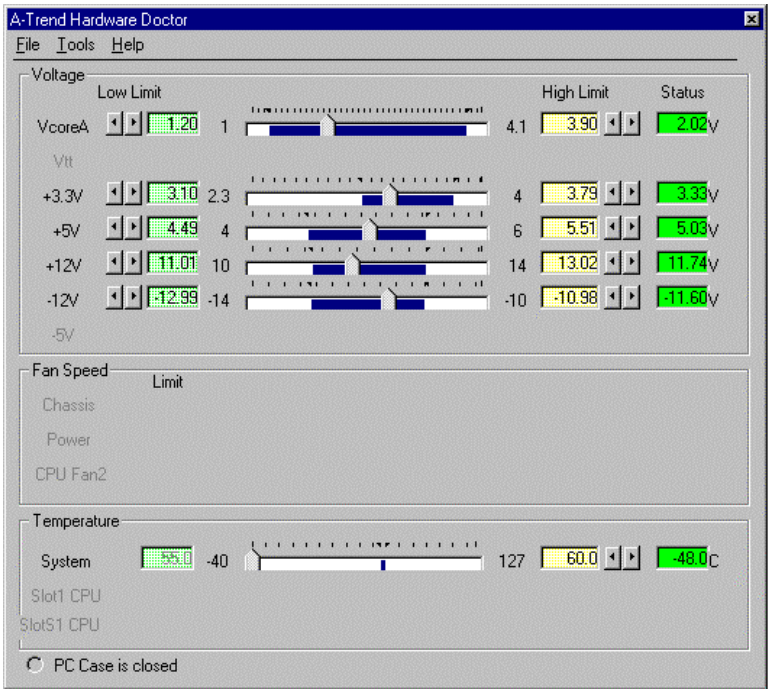


1-9 Hardware Monitor

Hardware Doctor is a self-diagnostic system for PC and must be used with *Winbond W83781D IC series* product. It will protect PC Hardware by monitoring several critical items including Power Supply Voltage, Fans Speed, and CPU & System temperature, which may damage system under malfunction.

■ *Run Hardware Doctor*

Select ”Start” / ”Programs” / ” Hardware Doctor”, and then you will see the main menu as below.



■ *Guideline to use Hardware Doctor*

Vcore VcoreA means the CPU working voltage. Vtt includes variety of voltages such as Second CPU,1.5V for Pentium®II/III GTL bus, 2.5V for Clock Generator, etc.

STATUS The status column means the current status of the item. Different background color has different meaning. "Green" means the item is normal; "Red" means it’s out of range and a warning message reminding you to treat this error will pop up at this time.

LIMIT User can adjust all limit value by clicking “arrow boxes”. After saving the file and executing the program again, the limit range will be modified. Of course, User can set back limits to default value by choosing the "Default" item under "File" pull-down menu.

EXIT Only choosing the "Exit" item under the " File" will exit Hardware Doctor. If you click the " X " minimize box on the right corner of the caption bar, it will just be minimized as an icon.

HELP If you need more detailed information about how to use this application, please refer to the content of “Help” item in Hardware Doctor menu bar.

CHAPTER 2 INSTALLATION

2-1 INSTALLATION PROCEDURE

Before installing the computer, please prepare all components such as CPU, DRAM; peripherals such as hard disk, keyboard, CD-ROM and accessories such as cables. Then, install the system as following:

❶ Plug CPU/ heat sink (refer to Pentium®II/III & Celeron™ installation guide, **Appendix A**), and DRAM modules on the mainboard.

❷ Plug add-on cards into PCI slots, if needed.

❸ Connect cables to peripheral devices, power supply…

❹ Make sure all components and devices are well connected, turn on the power and setup System BIOS based on your configuration.

❺ Install peripheral devices, add-on card drivers and test them.

❻ If all of above procedures are running successfully, turn the power off and screw the chassis cover to the chassis, and then connect external devices which are cabled to the system.

2-2 CPU INSTALLATION

The 6280M mainboard has a JumperFree feature that let users needn't to set up the CPU clock frequency, and voltage through jumpers. It is smart enough to detect and recognize the CPU voltage and enables users to setup the CPU frequency only from the BIOS Setup Screen. A system equipped with JumperFree mainboard will be booted up by defaulted CPU frequency at the very first time. Users can adjust the frequency through "CPU Features Setup" from the BIOS Setup Screen. And then the system will run at the setting CPU frequency.

2-2-1 CPU TYPE SELECTION

6280M supports Intel Pentium® II/III CPU Intel Celeron™ CPU.

1.Press the <Del> key when the system is booting up.
2.The BIOS Setup main menu will appear.
3.Select " CPU FEATURES SETUP "

ROM PCI/ISA BIOS

CMOS SETUP UTILITY

AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	CPU FEATURES SETUP
BIOS FEATURES SETUP	INTEGRATED PERIPHERALS
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PNP/PCI CONFIGURATION	IDE HDD AUTO DETECTION
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	

4.Then the "CPU FEATURES SETUP" screen will appear.

NOTE

If an incorrect CPU frequency is set through the BIOS, a system failure may occur. Users can solve this problem by keeping pressing the "Insert" key on the keyboard at power up to clear up the previous set frequency (i.e. back to the default frequency). Then set the correct CPU speed and saved it in BIOS. Lastly turn off and then restart the computer.

5a. 66MHz➔ Ex. Intel Pentium® II 233MHz

Please set the item of "CPU Speed" to 233Mhz (66x3.5).

ROM PCI/ISA BIOS

CPU FEATURES SETUP

AWARD SOFTWARE, INC.

Current VID	: 2.0V	*Current CPU2_FAN Speed	: 0 PPM
VID Setting	: 2.0V	*Vcore2 : 2.40V	
Vcc3 (3.3V)	: 3.45V		
CPU2 Voltage Control	: Manual		
CPU Speed	: 233Mhz (66x3.5)		
Spread Spectrum	: Disabled		
CPU Warning Temperature	: Disabled		
*Current System Temp.	: 20°C/68°F		
*Current CPU1 Temperature	: 20°C/78°F		
*Current CPU2 Temperature	: 20°C/78°F		
*Current CHS_FAN Speed	: 0 PPM		
*Current PWR_FAN Speed	: 0 PPM		
*Current CPU_FAN Speed	: 0 PPM		
*Vcore: 2.40V	*Vtt: 1.920V	Esc: Quit	↑↓→←: Select Item
*Vio: 3.40V	*+5V: 3.392V	F1 : Help	PU/PD/+/- : Modify
*+12V: 11.91V	*-12V: 11.741V	F5 : Old Values	(Shift) F2: Color
*-5V: -4.95V		F6 : Load BIOS Defaults	
Shutdown Temperature	: 60°C/140°F	F7 : Load Setup Defaults	

✸ **Please set the item of "CPU Speed" depending on the working frequency of your CPU.**

❶ **233MHz CPU: Please set to 233Mhz (66x3.5).**
❷ **266MHz CPU: Please set to 266Mhz (66x4.0).**
❸ **300MHz CPU: Please set to 300Mhz (66x4.5).**
❹ **333MHz CPU: Please set to 333Mhz (66x5.0).**
❺ **366MHz CPU: Please set to 366Mhz (66x5.5).**
❻ **400MHz CPU: Please set to 400Mhz (66x6.0).**
❼ **433MHz CPU: Please set to 433Mhz (66x6.5).**

* The value of those items with * remark will be changed depending on the condition of system.

5b. 100MHz➔ Ex. Intel Pentium® II 350MHz

Please set the item of "CPU Speed" to 350Mhz (100x3.5).

ROM PCI/ISA BIOS

CPU FEATURES SETUP

AWARD SOFTWARE, INC.

Current VID	: 2.0V	Current CPU2_FAN Speed : 0 PPM
VID Setting	: 2.0V	Vcore2 : 2.40V
Vcc3 (3.3V)	: 3.45V	
CPU2 Voltage Control	: Manual	
CPU Speed	: 350Mhz (100x3.5)	
Spread Spectrum	: Disabled	
CPU Warning Temperature	: Disabled	
Current System Temp.	: 20°C/68°F	
Current CPU1 Temperature	: 20°C/78°F	
Current CPU2 Temperature	: 20°C/78°F	
Current CHS_FAN Speed	: 0 PPM	
Current PWR_FAN Speed	: 0 PPM	
Current CPU_FAN Speed	: 0 PPM	
Vcore: 2.40V Vtt: 1.920V		Esc: Quit ↑↓→←:Select Item
Vio: 3.40V +5V: 3.392V		F1 : Help PU/PD/+/- : Modify
+12V: 11.91V -12V: 11.741V		F5 : Old Values (Shift) F2: Color
-5V: -4.95V		F6 : Load BIOS Defaults
Shutdown Temperature	: 60°C/140°F	F7 : Load Setup Defaults

✸ **Please set the item of "CPU Speed" depending on the working frequency of your CPU.**

❶ **350MHz CPU: Please set to 350Mhz (100x3.5).**

❷ **400MHz CPU: Please set to 400Mhz (100x4.0).**

❸ **450MHz CPU: Please set to 450Mhz (100x4.5).**

❹ **500MHz CPU: Please set to 500Mhz (100x5.0).**

❺ **550MHz CPU: Please set to 550Mhz (100x5.5).**

❻ **600MHz CPU: Please set to 600Mhz (100x6.0).**

❼ **650MHz CPU: Please set to 650Mhz (100x6.5).**

5c. Manual➔ Ex. Intel Pentium® II 233MHz (66 x 3.5)
Please set the item of "CPU Speed" to Manual.

ROM PCI/ISA BIOS
CPU FEATURES SETUP
AWARD SOFTWARE, INC.

Current VID	: 2.0V	Current CPU2_FAN Speed	: 0 PPM
VID Setting	: 2.0V	Vcore2 : 2.40V	
Vcc3 (3.3V)	: 3.45V		
CPU2 Voltage Control	: Manual		
CPU Speed	: Manual		
CPU Ratio	: X 3.5		
CPU Frequency	: 66Mhz		
Spread Spectrum	: Disabled		
CPU Warning Temperature	: Disabled		
Current System Temp.	: 20 °C/68 °F		
Current CPU1 Temperature	: 20 °C/78 °F		
Current CPU2 Temperature	: 20 °C/78 °F		
Current CHS_FAN Speed	: 0 PPM		
Current PWR_FAN Speed	: 0 PPM		
Current CPU_FAN Speed	: 0 PPM		
Vcore: 2.40V	Vtt: 1.920V	Esc: Quit	↑↓→← :Select Item
Vio: 3.40V	+5V: 3.392V	F1 : Help	PU/PD/+/- : Modify
+12V: 11.91V	-12V: 11.741V	F5 : Old Values	(Shift) F2: Color
-5V: -4.95V		F6 : Load BIOS Defaults	
Shutdown Temperature	: 60 °C/140 °F	F7 : Load Setup Defaults	

6. Then set the item of "CPU Ratio" depending on the clock ratio of your CPU.
The choices are X 3.0, X 3.5, X 4.0, X 4.5, X 5.0, X 5.5, X 6.0 and X 6.5.

7. Please set the item of "CPU Frequency" depending on your CPU type.
The choices are 66 75 78 81 83 90 95 100 105 110 112 113 115 117 118 120 122 124 126 133 135 137 138 140 142 144 150 and 155Mhz.

2-3 SYSTEM MEMORY INSTALLATION

The mainboard provides three 168-pin DIMM sockets for system memory expansion from 8MB to 384MB SDRAM, 768MB registered SDRAM or EDO DRAM. (EDO DRAM is available for 66MHz processors only.) These three DIMMs are arranged to three banks. Please refer to page A Component Location Diagram.

Bank/DIMM	Memory Module	Total Memory
Bank0/DIMM1	8/16/32/64/128/256MB	8MB~256MB
Bank1/DIMM2	8/16/32/64/128/256MB	8MB~256MB
Bank2/DIMM3	8/16/32/64/128/256MB	8MB~256MB
Total System Memory		8MB~768MB

DRAM type, size, parity supported:

- EDO DRAM: for 66MHz system frequency only.
- Unbuffered, registered SDRAM with SPD.
- Both parity or non-parity are available.
- 3.3V, Single/double-side, 8/16/32/64/128Mbytes.
- Both 4Mbx4 and 16Mbx4 (Each side has 16 chips.) SDRAM devices are supported in the form of Registered DIMMs only.

- ***For 66MHz host bus CPUs use 12ns or faster DIMM module;***
- ***For 100MHz host bus CPUs use 10ns or faster and PC-100 compliant modules .***

SPD (Serial Presence Detect)

This EPROM contains speed and design information of the memory module. The mainboard may get optimal performance via accessing the data of SPD.

ECC (Error Check and Correction)

This mainboard can support the ECC function while utilizing parity modules. To enable this function, users must set “DRAM Data Integrity Mode” to “ECC” through “Chipset Features Setup” from the BIOS setup screen. Overall, the function of ECC is to detect and correct the errors of transfer data.

2-4 IDE DRIVER INSTALLATION

➢ **Setup for Windows 95/98 :**

1. Start Windows 95/98.
2. Put the All-In-One CD into your CD-ROM drive.
3. Select “START”, “RUN”.
4. Type “D:\IDE\WIN95\SETUP.EXE” or “E:\IDE\WIN95\SETUP.EXE”.
   (If your operating system is Win95, please type “D or E:\winp2x4.exe” before you install IDE driver.)
5. Restart the computer, then follow the instructions on your screen to install new IDE driver we offer in the All-In-One CD.
6. Exit Windows 95/98, turn power off; then turn power on.

2-5 HARDWARE DOCTOR INSTALLATION

➢ **Setup for Win95/98**

1. Start Windows95/98.
2. Insert All-In-One CD into your CD-ROM drive.
3. Choose “Install W781 Hardware monitor (Option)” in the installation main menu.
4. Press “OK” to begin setup.
   (*****In Win95, it may show a screen to prompt user to restart the computer, press “Yes” to restart the computer, then repeat the step 1-4.)
5. Click the button to install Hardware Doctor software.
6. Press “OK” to complete the setup program.

➢ **Setup for WinNT**

1. Start WinNT.
2. Insert All-In-One CD into your CD-ROM drive.
3. Choose “Install W781 Hardware monitor (Option)” in the installation main menu.
4. Press “Next” to start the installation.
5. Press “Next”.
6. Press “Next”.
7. Choose “Finish” to complete the installation.
8. Select “Start”, “Shut down”, “Restart the computer”.

Note: After finishing Hardware Doctor installation, in WinNT you must restart your computer, but in Win95/98 you don’t have to.

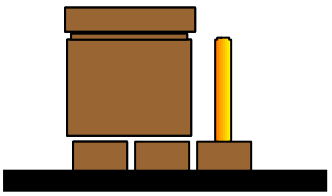
CHAPTER 3 AWARD BIOS SETUP

Award BIOS manufacturer provides access to the system BIOS through the hardware and software on each mainboard. The hardware consists of a Flash ROM and the software is a group of programs that are installed in the ROMBIOS along with all the other data that should be included into the BIOS.

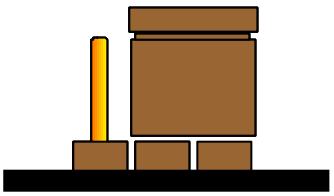
After the BIOS is updated, if you want to clear the old setup data stored in the CMOS, then you can clear CMOS as follow.

NOTE : In case CMOS should be cleared, unplug the power cord, set Jumper 8 2-3 closed for at least 5 seconds, put it back to 1-2 position and plug the power cord again.

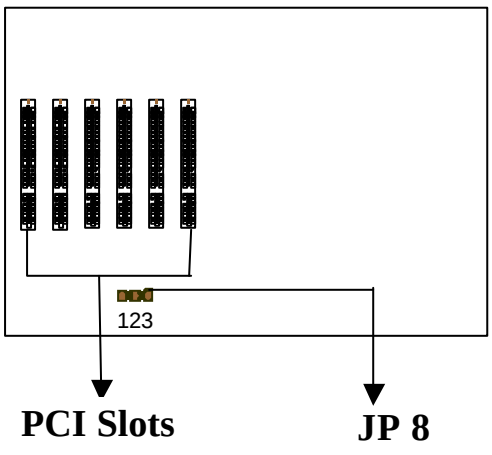
	JP8
Normal	1-2
Clear CMOS	2-3



Normal (Pin 1-2 closed)



Clear CMOS (Pin 2-3 closed)



3-1 UPDATE BIOS PROCEDURE

If the BIOS needs to be updated, you can get a CD with the updated BIOS utility in the package. The updated BIOS utility includes :

"awdflash.exe" -- BIOS update utility program
"awdflash.doc"

The update procedure is as following:

1. Boot the system to DOS mode in a normal manner.
2. Insert the updated CD to drive D (or E).
3. Change working directory to CD-ROM drive, D or E, which contains the update BIOS CD. -- Type "d:\" or "e: \", then press "ENTER".
4. Type "cd flash", then press "ENTER".
5. Type "awdflash", then press "ENTER"-- for running the BIOS update utility.
6. Type "(update BIOS file name with version number).bin", ENTER.
7. If you do not want to save the old BIOS, type "N" when the screen displays the message : " Do you want to save BIOS (Y/N) ?".
8. Type "Y" when the screen shows the message : " Are you sure to program (Y/N) ?".
9. Follow instructions displayed on the screen. DO NOT remove the update BIOS CD from the CD-ROM drive nor turn the system power off until the BIOS update is completed.
10. Turn the power off. Clear the data in CMOS according to the procedure described in the previous page.
11. Turn the system power on and test that your system is working properly.

3-1-1 UPDATE MICROCODE API

Intel also provides MICROCODE API(Applications Programming Interface) for the mainboard user to update data block in BIOS quickly and easily. (You can find this utility in the All-In-One CD in the mainboard package).

The BIOS code on the the mainboards contains data that is specific to each silicon stepping of the processor. Integrators must ensure that this BIOS stepping data matches the used processor stepping. When the BIOS does not contain stepping data that matches the processor stepping, integrators must update the data in the BIOS before shipping the system. Historically, systems have been updated by replacing the entire BIOS with a new revision of BIOS that contains the correct stepping data.

Intel‘s BIOS update API allows just the stepping data within the BIOS to be updated as needed. Mainboards that contain a BIOS with the Intel-defined BIOS update API can be quickly and easily updated, if required, without obtaining a complete BIOS upgrade. Using this utility, integrators can easily verify that the correct stepping data is present in mainboards. However, if the stepping data requires to be updated, the mainboard BIOS must contain the Intel-defined BIOS update API, otherwise a complete BIOS upgrade is required from the mainboard vendor.

Since API program can only be executed under DOS Real Mode, you must enter Real Mode first and load the API program to Drive C.

To load the program to C by following steps:

(1) Type “ md c:\ api ” and press Enter. Directory “api” is made in Drive C now.

(2) Insert the Driver/Utility CD into CD ROM Drive E.

(3) Then type “ copy e:\api*.* c:\api ” and press Enter.
(API program is loaded to Drive C now.)

(4) Type “ C:\ api \checkup ” to execute this program.

The main menu should now be displayed with the following four options :

1) Check and load update
2) Specify stepping data file [current : pep.pdb]
3) Help
4) Quit without loading update

Select 1 to know the stepping filename, select 2 to load right patch code, then select 1 to update proper patch code. Now, the screen will show the message “please remove the CD from CD-ROM drive”. Then cold boot (mechanical power off) system to continue. For more information, please refer to “CHECKUP.HLP“ file.

3-2 SYSTEM BIOS CONFIGURATION SETUP

The following pages explain how to set up the BIOS configuration under the Award BIOS. The SETUP program is stored in the Read-Only-Memory (ROM) on the mainboard. To do the SETUP procedure, press the <Del> key when the system is booting up. The following main menu will appear. Please select " STANDARD CMOS SETUP" to enter the next screen.

ROM PCI/ISA BIOS

CMOS SETUP UTILITY

AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	CPU FEATURES SETUP
BIOS FEATURES SETUP	INTEGRATED PERIPHERALS
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PNP/PCI CONFIGURATION	IDE HDD AUTO DETECTION
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	

The section on the bottom of the main menu explains how to control this screen. The other section displays the items highlighted in the list.

STANDARD CMOS SETUP

This screen records some basic hardware information, and sets the system clock and error handling. These records can be lost or corrupted if the on-board battery has failed or is weak.

ROM PCI/ISA BIOS

STANDARD CMOS SETUP

AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Wed, Feb 10 1999								
Time(hh:mm:ss) : 13 : 37 : 14								
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					Base Memory : 640K			
Floppy 3 Mode Support : Disabled					Extended memory : 7168K			
					Other Memory : 384K			
Video : EGA/VGA					----------			
Halt On: All But Keyboard					Total Memory : 8192K			
ESC : Quit		↑↓→←:Select Item			PU/PD/+/- : Modify			
F1 : Help		(Shift) F2 : Change Color						

Date The date format is <day>,<date>,<month>,<year>. Press<F3> to show the calendar.

day	The day, from Sun to Sat, determined by the BIOS and is displayed-only
date	The date, from 1 to 31
month	The month, Jan. through Dec.
year	The year, from 1900 to 2099

Time The time format is <hour><minute><second>. The time is calculated based on the 24-hour military-time clock. For example, 1p.m. is 13:00:00.

Primary Master Primary; Slave Secondary Master Secondary Slave

These categories identify the types of the 2 channels that have been installed in the computer. There are 45 predefined types and 4 user definable types for Enhanced IDE BIOS. Type 1 to 45 which are predefined. Type **'user'** which is user-definable. Press PgUp/PgDn to select a numbered hard disk type or type the number and press <Enter>.

If you select **'Auto',** the BIOS will detect the HDD & CD-ROM Drive automatically at the POST stage and show the IDE for HDD & CD-ROM Drive. If you select **'user'**, you will need to know the information listed below. This information should be from your hard disk vender or dealer. Then enter the figure directly and press <Enter>. If the controller of the HDD interface is ESDI, the selection shall be **'Type 1'**; if SCSI, the selection shall be **'None'**. If no device is installed select **'NONE'** and press <Enter>.

Type	drive type
SIZE	automatically adjusts
CYLS	number of cylinders
HEAD	number of heads
PRECOMP	write precom
LANDZ	landing zone
SECTOR	number of sectors
MODE	mode type

Drive A, Drive B This category identifies the types of floppy disk drive A or drive B that have been installed in the computer.

None	No floppy drive installed
360K, 5.25 in	5.25" PC-type 360KB capacity
1.2M, 5.25 in	5.25" AT-type 1.2MB capacity
720K, 3.5 in	3.5" double-side 720KB capacity
1.44M, 3.5 in	3.5" double-side 1.44MB capacity
2.88M, 3.5 in	3.5" double-side 2.88MB capacity

Floppy 3 Mode Support This is the Japanese standard floppy drive. This standard stores 1.2MB in a 3.5" diskette.

Video This category selects the type of video adapter used for the primary system monitor. Although secondary monitors are supported, you do not have to select the type in Setup.

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SEGA, SVGA or PGA monitor adapters.
CGA 40	Color Graphics Adapters, power up in 40 column mode.
CGA 80	Color Graphics Adapters, power up in 80 column mode.
MONO	Monochrome adapter, includes high resolution monochrome adapters.

Halt On This category determines whether the computer will stop if an error is detected during power up.

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

Memory This category is displayed only which is determined by POST (Power On Self Test) of the BIOS.

Base Memory The POST will determine the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 512K or 640K based on the memory installed on the motherboard.

Extended Memory How much extended memory is present during the POST. This is the amount of memory located above 1MB in the CPU‘s memory address map.

Other Memory This refers to the memory located in the 640K to 1024K address space. This is memory that can be used for different applications. DOS uses this area to load device drivers in an effort to keep as much base memory free for application programs. The BIOS is the most frequent user of this RAM area since this is where it shadows RAM.

BIOS FEATURES SETUP

This screen is a list of system configuration options. Some of them are defaults required by the mainboard's design, others depend on the features of your system.

ROM PCI/ISA BIOS

BIOS FEATURES SETUP

AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000-CFFFF Shadow	: Disabled
CPU L2 Cache ECC Checking	: Enabled	D0000-D3FFF Shadow	: Disabled
Processor Number Feature	: Enabled	D4000-D7FFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	D8000-DBFFF Shadow	: Disabled
Boot Sequence	: A,C,SCSI	DC000-DFFFF Shadow	: Disabled
Swap Floppy Drive	: Disabled		
Boot Up Floppy Seek	: Enabled	Full Screen Logo Show	: Enabled
Boot Up NumLock Status	: On		
Gate A20 Option	: Fast		
Security Option	: Setup		
PCI/VGA Palette Snoop	: Disabled		
MPS Version Control For OS	: 1.4	Esc : Quit ↑↓→←:Select Item	
OS Select for DRAM>64MB	: Non-OS2	F1 : Help PU/PD/+/- : Modify	
Report No FDD For Win95	: No	F5 : Old Values (SHIFT) F2 : Color	
Hit <TAB> Message Display	: Enabled	F6 : Load BIOS Defaults	
RTC Y2k Compliance	: Enabled	F7 : Load Setup Defaults	

Virus Warning When this item is enabled, the Award BIOS will monitor the boot sector and partition table of the hard disk drive for any attempt at modification. If an attempt is made, the BIOS will halt the system and the following error message will appear.

Afterwards, if necessary, you will be able to run an antivirus program to locate and remove the problem before any damage is done.

! WARNING !

Disk boot sector is to be modified
Type 'Y' to accept write or 'N' to abort write
Award Software, Inc.

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

Many disk diagnostic programs which attempt to access the boot sector table can cause the above warning message. If you will be running such a program, we recommend that you first disable Virus Protection beforehand.

CPU Internal Cache, External Cache These two categories speed up memory access. However, it depends on CPU/chipset design. The default value is 'enabled'.

CPU L2 Cache ECC Checking When this item is enabled, it means the system supports Error Checking and Correcting (ECC) memory which can guard against data corruption.

Processor Number Feature The Processor Serial Number serves as an identifier for the Processor and its system and thus adds to the system security features. When this feature is "Enabled", the Processor Serial Number is detectable and can be utilized in information Management etc. When "Disabled", the Processor Serial Number is not detectable. This feature is built in Pentium®III Processor only.

Quick Power On Self Test This category speeds up Power On Self Test after you power up the computer. If you set Enabled, BIOS will shorten or skip some items under check during POST.

Boot Sequence This category determines which drive to search first for Operating System to boot(i.e., DOS). The system will search those drives in order, Ex.: C, CDROM, A: System will first search for hard disk drive then CDROM drive, and the last is floppy disk drive.
Note: C is primary master; D is primary slave; E is secondary master, F is secondary slave.

Swap Floppy Drive This item allows you to determine whether to enable the swap floppy drive or not. The choice : Enabled/ Disabled

Boot Up Floppy Seek During POST, the BIOS will determine if the floppy disk drive installed is 40 tracks (360K) or 80 tracks (720K, 1.2M, 1.44M)

Enabled	BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks
Disabled	BIOS will not search for the type of floppy disk drive by track number

Boot Up NumLock Status This allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on.

On	Keypad is for numeric keys
Off	Keypad is for arrow keys

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 MB. Initially, the gate A20 was handled via a pin on the keyboard. Today, while keyboards still provide this support, it is more common and much faster for the system chipset to provide support for gate A20. Normal is keyboard; Fast is chipset.

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

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

To disable the security, select PASSWORD SETTING at Main Menu, and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable the security. Once the security is disabled, the system will boot and you can enter Setup freely.

PCI/VGA Palette Snoop It determines whether the MPEG ISA/VESA VGA cards can work with PCI/VGA or not.

Enabled	When PCI/VGA working with MPEG ISA/VESA VGA Card
Disabled	When PCI/VGA not working with MPEG ISA/VESA VGA Card

MPS Version Control For OS Multi-Processor Spec. version control. Recommend not to change the default setting.

OS Select for DRAM > 64MB This item allows you to access the memory that is over 64MB in OS/2. The choice : Non-OS2, OS2.

Report No FDD For WIN 95 Set this item to Yes, BIOS will report FDD to Win95. If in standard CMOS setup, set Drive A to none and set this item to yes. Inside Win95, My Computer and File manager Disk(A:) will show Removable Disk (A:).

Hit <TAB> Message Display This item is enabled when the setting of *Initial Display Mode* is Silent. If you set Yes, you can see the message: "<TAB> - Switch back to POST screen, <DEL> - to run SETUP" show on the screen.

RTC Y2k Compliance Full Y2k system compliance supported.

Video BIOS Shadow Determines whether video BIOS will be copied to RAM. However it is optional depending on chipset design. Video Shadow will increase the video speed. The choice : Enabled/Disabled

C8000 – CBFFF Shadow; DC000 – DFFFF Shadow These categories determine whether option ROMs will be copied to RAM. An example of such option ROM would be the support of onboard SCSI. The choice : Enabled/Disabled

Full Screen Logo Show If you choose "Enabled", the system will show full screen logo in booting. Otherwise, it won't show the screen logo.

CHIPSET FEATURES SETUP

This screen controls the setting for the chipset on the mainboard.

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

Auto Configuration	: Enabled	Auto Detect DIMM/PCI ClK	: Disabled
EDO DRAM Speed Selection	: 60ns		
EDO CASx# MA Wait State	: 2		
EDO RASx# Wait State	: 2		
SDRAM RAS-to-CAS Delay	: 3		
SDRAM RAS Precharge Time	: 3		
SDRAM CAS Latency Time	: 3		
SDRAM Precharge Control	: Disabled		
DRAM Data Integrity Mode	: Non-ECC		
System BIOS Cacheable	: Enabled		
Video BIOS Cacheable	: Enabled		
Video RAM Cacheable	: Disabled		
8-bit I/O Recovery Time	: 1		
16-bit I/O Recovery Time	: 1	Esc: Quit	↑↓→←: Select Item
Memory Hole At 15M-16M	: Disabled	F1 : Help	PU/PD/+/-: Modify
Passive Release	: Enabled	F5 : Old Values	(Shift)F2 :Color
Delayed Transaction	: Disabled	F6 :Load BIOS Defaults	
AGP Aperture Size (MB)	: 128	F7 : Load Setup Defaults	

Auto Configuration The first chipset settings deal with CPU access to dynamic random access memory (DRAM). The default timings have been carefully chosen and should only be altered if data was lost. Such a scenario might well occur if your system had mixed speed DRAM chips installed so that bigger delays may be required to preserve the integrity of the data held in the slower memory chips.

EDO DRAM Speed Selection The DRAM speed 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. i.e. 50ns; 60ns

EDO CASx# MA Wait State This item allows you to select EDO CASx# MA Wait State. The choice : 1, 2

EDO RASx# Wait State This sets the relative delay between the row and column address strobes from DRAM (EDO). The choice : 1, 2

SDRAM RAS-to-CAS Delay This item sets the relative delay between the row and column address strobes from DRAM (EDO) is allowed to precharge.The choice : 2,3.

SDRAM RAS Prechage Time Defines the length of time for Row Address Strobe is allowed to precharge.

SDRAM CAS Latency Time You can select CAS latency time in SCLKs of 2/2 or 3/3.The system board designer should set the values in this field depending on the DRAM installed. The choice: 2,3 SCLKs

SDRAM Precharge Control This option determines the action taken when a page miss occurs (SDRAM only).

DRAM Data Integrity Mode Select parity, ECC, or Disabled, depending on the type of DRAM installed in your system. The choice : ECC, Parity, Disabled

System BIOS Cacheable Selecting Enabled allows the caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Video BIOS Cacheable Selecting Enabled allows the caching of the video BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

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

8 Bit I/O Recovery Time The recovery time is the length of time, measured in CPU clocks, which the system will be delayed after the completion of an I/O request. This delay takes place because 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. The choices are Disabled and 1 to 8 Sysclk.

16 Bit I/O Recovery Time This item allows you to determine the recovery time for 16-bit I/O. The choices are Disabled and 1 to 4 Sysclk.

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 below 16MB.

Passive Release When Enabled, CPU to PCI bus accesses are allowed during passive release. Otherwise, the arbiter only accepts another PCI master access to local DRAM. The choice : Enabled, disabled.

Delayed Transaction This chipset has an embedded 32-bit posted write buffer to support deadly transactions cycles. Select Enabled to support compliance with PCI specification version 2.1. The choice : Enabled, disabled space

AGP Aperture Size (MB) Select the size of the AGP aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycle that hit the aperture range are forwarded to the AGP without any translation. See www.agpforum.org for AGP information. The choice 4, 8, 16, 32, 64, 128, 256.

Auto Detect DIMM/PCI ClK If this item is enabled, the unused DIMM and PCI slot clock will be disabled. If this item is disabled the unused DIMM and PCI slot will still get the active clock signal.

POWER MANAGEMENT SETUP

This screen controls the 'green' features of this mainboard.

ROM PCI/ISA BIOS

POWER MANAGEMENT SETUP

AWARD SOFTWARE, INC.

ACPI function	: Disabled	*Reload Global Timer Events*	
Power Management	: User Defined	IRQ [3-7, 9-15], NMI	:Disabled
PM Control by APM	: Yes	Primary IDE 0	:Disabled
Video Off Method	: DPMS	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%		
PCI/VGA Active Monitor	: Disabled		
Soft-Off by PWR-BTTN	: Instant-Off		
CPUFAN Off In Suspend	: Enabled	Esc: Quit ↑↓→←	:Select Item
PowerOn by Ring	: Disabled	F1 : Help	PU/PD/+/- : Modify
Resume by Alarm	: Disabled	F5 : Old Values	(Shift) F2: Color
Wake Up On LAN	: Disabled	F6 : Load BIOS Defaults	
IRQ 8 Break Suspend	: Disabled	F7 : Load Setup Defaults	

ACPI function This item is to set the ACPI (Advanced Configuration Power Interface) function enabled or disabled. The default setting is disabled.

Power Management This category allows you to select the type (or degree) of power saving and is directly related to the following modes **: Doze; Standby; Suspend; HDD Power Down.**

Min. Power Saving	Minimum power management. Doze =1hr.; Standby=1hr.; Suspend=1hr.; HDD Power Down=15min
Max. Power Saving	Doze=1min.; Standby=1min.; Suspend=1min.;HDD Power Down=1min
User Defined	Allows you to set each mode individually. Each of the ranges is from 1min. to 1hr. except for HDD Power Down which ranges from 1 to 15min.

If you would like to use Software Power-off Control function, you should select "Yes" in PM Control by APM.

PM Control by APM When enabled, an Advanced Power Management mechanism 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 shown as Yes.

Video Off Method This determines the manner in which the monitor is blanked.

V/H SYNC + Blank	This selection will cause the system to turn off the vertical and horizontal sync. ports and write blanks to the video buffer
Blank Screen	This option only writes blanks to the video buffer
DPMS	Initial of "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 is blanked when the system enters the Suspend mode.
Standby	Monitor is blanked when the system enters Standby mode.
Doze	Monitor is blanked when the system enters any power saving mode.

MODEM Use IRQ This item determines which IRQ the MODEM is set to. The choice : 3,4,5,7,9,10,11,NA.

The Following 4 modes are Green PC power saving functions which are only user configurable when 'User Defined' power management has been selected.

➢ **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 will 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, 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 partial cycle. You may select the percentage of cycle that the clock runs.

PCI/ VGA Active Monitor When Enabled, any video active restarts the global timer for standby mode.

Soft-Off by PWR-BTTN *Instant-off :* When push the power button, the system power will be off immediately. *Delay 4 sec :* when push the power button, it will enter suspend mode. We need to push the power button and hold for 4 seconds to turn off the power.

CPUFAN Off In Suspend Enabled: under suspend mode, the CPU FAN will be turned off. Disabled: the CPU FAN won't be turned off.

PowerOn by Ring Enabled: when the system is in suspend mode, it can be woken up by modem. Otherwise, not.

Resume by Alarm When Enabled, two additional lines will be added to the screen :Date (of Month) Alarm; Time (hh:mm:ss) Alarm to let user set the desired date and time. After soft power off, the system will automatically power on at the specified date and time.

Wake Up On LAN Enabled : after the system is powered off, you can wake up by the ethernet card. Disabled : You cannot wake up by LAN.

IRQ 8 Break Suspend When enabled, the device which occupies the IRQ8 can wake up the system.

Reload Global Timer Events When enabled, an event occurring on each device listed below restarts the global timer for Standby mode. IRQ [3-7, 9-15], NMI; Primary IDE 0; Primary IDE 1; Secondary IDE0; Secondary IDE1; Floppy Disk; Serial Port; Parallel Port

PNP/PCI CONFIGURATION

This screen configures the PCI Bus slots.

ROM PCI/ISA BIOS

PNP/PCI CONFIGURATION

AWARD SOFTWARE, INC.

PNP OS Installed	: No	Assign IRQ For VGA	: Enabled
Resources Controlled by	: Auto		
Reset Configuration Data	: Disabled		
		Esc: Quit	↑↓→←: Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift) F2: Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

PNP OS Installed This item allows you to determine PnP OS or not. Choices are Yes or No.

Resource Controlled by The Award Plug and Play BIOS has the capability to automatically configure all of the boot and Plug & Play compliant devices. However, this capability means absolutely nothing unless you are using a Plug and Play OS such as Windows 95. Choices are Auto and Manual.

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

Assign IRQ for VGA When this items is enabled, the system will assign an IRQ for VGA. If this item is disabled, the VGA will not occupy an IRQ; therefore the IRQ of VGA will be released for other usage.

IRQ3/4/5/7/9/1011/12/14/15, DMA0/1/3/5/6/7 Assign to This item allows you to determine the IRQ/DMA assigned to the ISA bus and is not available to any PCI slot. Choices are Legacy ISA and PCI/ISA PnP.

Used MEM base addr This item allows you to determine which basic address will not be occupied by PCI card and leave these address for some special ISA card used only. Choices are C800, CC00, D000, D400, D800, DC00.

Used MEM Length This item determines the memory length of address which is for some special ISA Card used. Choices are 8K, 64K, 32K, 16K.

CPU FEATURES SETUP

This section page includes CPU settings and hardware health monitoring.

ROM PCI/ISA BIOS

CPU FEATURES SETUP

AWARD SOFTWARE, INC.

Current VID	: 2.0V	Current CPU2_FAN Speed	: 0 PPM
VID Setting	: 2.0V	Vcore2 : 2.40V	
Vcc3 (3.3V)	: 3.45V		
CPU2 Voltage Control	: Manual		
CPU Speed	: Manual		
CPU Ratio	: X 3		
CPU Frequency	: 66Mhz		
Spread Spectrum	: Disabled		
*Following items are for Hardware Health Monitor:			
CPU Warning Temperature	: Disabled		
Current System Temp.	: 20 °C/68 °F		
Current CPU1 Temperature	: 20 °C/78 °F		
Current CPU2 Temperature	: 20 °C/78 °F		
Current CHS_FAN Speed	: 0 PPM		
Current PWR_FAN Speed	: 0 PPM		
Current CPU_FAN Speed	: 0 PPM		
Vcore: 2.40V	Vtt: 1.920V	Esc: Quit	↑↓→← :Select Item
Vio: 3.40V	+5V: 3.392V	F1 : Help	PU/PD/+/- : Modify
+12V: 11.91V	-12V: 11.741V	F5 : Old Values	(Shift) F2: Color
-5V: -4.95V		F6 : Load BIOS Defaults	
Shutdown Temperature	: 60 °C/140 °F	F7 : Load Setup Defaults	

Current VID It shows the figure of VID setting value depending on the CPU type, 2.00V or 2.80V.

VID Setting You can adjust the figure of Vcore by pressing the PgUp/PgDn key. This function is helpful when you perform the overclock of CPU. The system will automatically detect your CPU Vcore. And the adjustable figure range is from +0.4V to -0.1V. That means if your CPU Vcore is 2.0V, the choice is from 1.90V~2.40V. If your CPU Vcore is 2.8V, you can change it from 2.7V to 3.2V.

VCC3 Voltage Setting The selection of I/O voltage. Recommend users not to change the default setting.

CPU2 Voltage Control When setting to Auto, CPU2 voltage will be detected automatically. When setting to Manual, CPU2 voltage will be compared with CPU1 voltage.

CPU Speed Use this item to set CPU speed. When user select Manual, it will show two lines below : CPU Ratio and CPU Frequency for user to setup manually.

CPU Ratio Use this item to set CPU ratio which includes X 3.0, X 3.5, X 4.0, X 4.5, X 5.0, X 5.5, X 6.0 and X 6.5.

CPU Frequency Use this item to set CPU base clock frequency which includes 66 75 78 81 83 90 95 100 105 110 112 113 115 117 118 120 122 124 126 133 135 137 138 140 142 144 150 and 155MHz.

Note: After you change the CPU Clock Frequency and the system can not start, please do the following procedures:

1. Turn the system off firstly.
2. Turn on the system. Then press and hold the " Insert " key at boot.
3. Select the proper frequency in the item of *CPU Speed*.
4. Save and Exit Setup.

Spread Spectrum Enable / Disable this item, the BIOS will Enable / Disable the clock generator spread spectrum .

*The following functions are enabled after setting up thermister, please refer to Page 7 and Appendix B.

CPU Warning Temperature When this item is enabled, we can set the CPU warning temperature. If the CPU temperature is higher than the setting temperature, the system will beep.

Current System Temperature This field displays the current system temperature if your computer contains a hardware monitoring system.

Current CPU1/CPU2 Temperature It shows the current temperature of CPU in Slot1 and Slots1.

Current CHS FAN/ PWR FAN/ CPU FAN /CPU2 FAN Speed It shows the running speed of the chassis fan, power fan, CPU fan for Slot1 and CPU2 fan for Slots1. The figure will be changing when the system is running. If you do not install the fan, the figure will show 0.

Shutdown Temperature If the CPU temperature is higher than the setting temperature, the system will shut down.

INTEGRATED PERIPHERALS

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

ROM PCI/ISA BIOS

INTEGRATED PERIPHERALS

AWARD SOFTWARE, INC.

IDE HDD Block Mode	: Enabled	Onboard Parallel Port	: 378/IRQ7
IDE Primary Master PIO	: Auto	Parallel Port Mode	: ECP
IDE Primary Slave PIO	: Auto		
IDE Secondary Master PIO	: Auto		
IDE Secondary Slave PIO	: Auto		
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	: Disabled		
Init Display first	: PCI Slot		
KBC input clock	: 8 MHz	Esc: Quit ↑↓→←	:Select Item
Onboard FDC Controller	: Enabled	F1 : Help	PU/PD/+/- : Modify
Onboard Serial Port 1	: 3F8/IRQ4	F5 : Old Values	(Shift) F2: Color
Onboard Serial Port 2	: 2F8/IRQ3	F6 : Load BIOS Defaults	
UR2 Mode	: Standard	F7 : Load Setup Defaults	

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

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

IDE Primary Master/Slave PIO IDE; Secondary Master/Slave PIO

PIO - Programmed Input/Output, it allows the BIOS to tell the controller what it wants and then let the controller and the CPU to complete the task by themselves. This is simpler and more faster. Your system supports five modes, 0 - 4, which primarily differ in timing. When **Auto** is selected, the BIOS will select the best available mode.

IDE Primary Master/Slave UDMA; IDE Secondary Master/Slave UDMA Auto, will support the Ultra DMA function. Disabled, will not support the Ultra DMA functio1n.

On-Chip Primary PCI IDE; On-Chip Secondary PCI IDE This setup item allows you to either enable or disable the primary/secondary controller. You might choose to disable the controller if you want to add higher performance or specialized controller.

USB Keyboard Support Enabled will support USB keyboard in Win95 2.1 and NT 5.0 or above operating system.

Init Display First If you set this item to PCI Slot, it will activate the PCI video card first in the multi-displayed environment. The choice: PCI Slot, AGP.

KBC input clock Let user change the keyboard working clock.

On Board FDC Controller This item will enable or disable the floppy disk controller.

On Board Serial Port 1 User can select serial port IRQ. If set to Auto, system will assign an IRQ for it. Note : set to Auto is not recommended.

On Board Serial Port 2 User can select serial port IRQ. If set to Auto, system will assign an IRQ for it. Note : set to Auto is not recommended.

UR2 Mode This lets you select the Infrared mode. Choices are Standard, IrDA SIR, Sharp IR.

On Board Parallel Port Let user select IRQ for parallel port When Disabled, the parallel port will be disabled.

Parallel Port Mode Let user select error check mode. This item is not recommended to change except user has special request.

ROM PCI/ISA BIOS

CMOS SETUP UTILITY

AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	CPU FEATURES SETUP
BIOS FEATURES SETUP	INTEGRATED PERIPHERALS
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PNP/PCI CONFIGURATION	IDE HDD AUTO DETECTION
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 .....

ROM PCI/ISA BIOS

CMOS SETUP UTILITY

AWARD SOFTWARE, INC.

Hard Disks Type Size CYLS HEAD PRECOMP LANDZ SECTOR MODE

Primary Master :

Select Primary Master Option (N=Skip) : N

Options	Size	CYLS	Head	PRECOMP	LANDZ	Sector	Mode
2(Y)	1337	648	64	0	2594	63	LBA
1	1339	2595	16	65535	2594	63	NORMAL
3	1338	1297	32	65535	2594	63	LARGE

Note : Some OSes (like SCO-UNIX) must use “Normal” for installation

ESC : Skip

The last second item of the main menu is 'save and exit'. If you select this item and press 'Y', then these records will be saved in the CMOS memory on the mainboard. It will be checked every time you turn your computer on.

ROM PCI/ISA BIOS

CMOS SETUP UTILITY

AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	CPU FEATURES SETUP
BIOS FEATURES SETUP	INTEGRATED PERIPHERALS
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PNP/PCI CONFIGURATION	IDE HDD AUTO DETECTION
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	

ROM PCI/ISA BIOS

CMOS SETUP UTILITY

AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	CPU FEATURES SETUP
BIOS FEATURES SETUP	INTEGRATED PERIPHERALS
CHIPSET FEATURES SETUP	PASSWORD SETTING
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	SAVE & EXIT SETUP
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
	SAVE to CMOS and EXIT (Y/N):Y
ESC: Quit	↑↓→←:Select Item
F10: Save & Exit Setup	(Shift) F2 : Change Color
Save Data to CMOS & Exit SETUP	

LOAD BIOS DEFAULTS When your mainboard has problems and needs to trouble shoot the system, you can use this function. The default values loaded only affect the BIOS Features Setup, Chipset Features Setup, Power Management Setup and PNP/PCI Configuration Setup. There is no effect on the Standard CMOS Setup. To use this function, select it from main menu and press <Enter>. A line will appear on the screen asking if you want to load the BIOS default values. Press <Yes> and <Enter> then the BIOS default values will be loaded.

LOAD SETUP DEFAULTS This allows you to load optimal settings which are stored in the BIOS ROM. The default values loaded only affect the BIOS Features Setup, Chipset Features Setup, Power Management Setup and PNP/PCI Configuration Setup. There is no effect on the Standard CMOS Setup. To use this function, select it from main menu and press <Enter>. A line will appear on the screen asking if you want to load the Setup default values. Press <Yes> and <Enter> then the Setup default values will be loaded.

SUPERVISOR PASSWORD / USER PASSWORD This allows you to set the password. The mainboard defaults with password disabled. If you set both supervisor and user passwords, only the supervisor password allows you to enter the BIOS SETUP program.

Enter/Change password : Enter the current password. And at the prompt, key-in your new password (up to eight alphanumeric characters), then press <Enter>. At the next prompt, confirm the new password by typing it again and press <Enter>.

Disable password : Press the <Enter> key instead of entering a new password when the 'Enter Password' dialog box appears. A message will appear for confirming that the password is disabled.

CAUTION: If you forgot your password, you must clear CMOS first and restart system in order to set up password again. See "Clear CMOS" on Page 16.

IDE HDD AUTO DETECTION This allows you to detect the IDE hard disk driver's parameters and enter them into 'Standard CMOS Setup' automatically. If the auto-detected parameters displayed do not match the ones that should be used for your hard drive, do not accept them. Press <N> to reject the values and enter the correct ones manually on the Standard CMOS Setup screen.

SAVE & EXIT SETUP This allows you to save the new setting values in the CMOS memory and continue with the booting process. Select what you want to do, press <Enter>.

EXIT WITHOUT SAVING This allows you to exit the BIOS setup utility without

recording any new values or changing old ones.

Control Key Description

UP ARROW		Move to previous item
DOWN ARROW		Move to next item
LEFT ARROW		Move to the item in the left hand
RIGHT ARROW		Move to the item in the right hand
Esc KEY	Esc	Main Menu : Quit and not save changes Setup menu : Exit current page and return to main menu
PgUp KEY		Increase the numeric value or make changes
PgDn KEY		Decrease the numeric value or make changes
F1 KEY	Help	General help
F2 KEY	Shift +F2	Change color from total 16 colors
F5 KEY	Old Value	Restore the pervious CMOS value from CMOS
F6 KEY	Load BIOS default	Load the default CMOS value from BIOS default table
F7 KEY	Load setup default	Load Setup default
F10 KEY	Save & Exit Setup	Save all the CMOS changes and Exit setup, only for Main Menu