Viking 3

(P5MVP3-AT)

AGP – PCI – ISA – I/O
Motherboard
User's Manual

TABLE OF CONTENTS

SPECIFICATIONS

1.   P5MVP3-AT Specifications

CPU	CPU Support	Intel Pentium /P54C/P54CS/P55C(MMX) Cyrix 6x86/6x86L/6x86MX/M II AMD K5/K6/K6-2
	CPU Speed	P54C:90/100/120/133/150/166/200MHz; P55C:166/200/233/266/300MHz;
	System Speed	60/66/75/83/100MHz
BIOS	BIOS	1MB BIOS; PnP Compliant
	BIOS ROM	Flash Memory
CACHE	Internal(L1)	Write Back
	External(L2)	Pipe-line Burst Write Back SRAM(512K)
MEMORY	DRAM Size	From 4MB up to 768MB
	DRAM Module	DIMM x 3 of 168 Pin for Sync. DRAM(3.3V Non-Buffer or 3.3V EDO)
		Data Path 64 Bit Wide
On Board I/O	I/O Function	Local Bus Enchanced Dual-Channel IDE
		Bus Master PCI IDE / Mode 4 Support, Ultra DMA-33 Mode Supports.
		ECP/EPP Parallel Port
		2 Serial Port
		IR Function (Optional)
		FDD Support
GREEN	SYSTEM	SMM Control, ACPI
	VGA	Control of DPMS
SLOT	Expansion Slot	16 Bit ISA x 3
		32 Bit PCI x 4 (4 Master Support)
	AGP	1 AGP
	Memory	DIMM x 3
USB		Two USB Ports (Optional Cable Must Be Purchased)
Mouse		PS/2 Mouse / Serial Mouse
Keyboard	Keyboard CNN	AT Keyboard (PS/2 Keyboard Optional)
Others	Main Chipset	VIA MVP3 Chipset
	I/O Chipset	SMC669
	LM75/W8378D	OPTIONAL
	PCB Size	220mm x 230mm x 1.6mm, 4 layers

2.   Installation Guide

Please follow these steps for proper installation of your high quality EFA motherboard into your system:

A.   Set the jumpers on the motherboard of the type of CPU you will be installing.
B.   Install the Central Processing Unit (CPU or processor).
C.   Install the DIMM (Dual Inline Memory Modules).
D.   Mount the motherboard in the case.
E.   Connect all cables and wires to the motherboard.
F.   Install the expansion cards.

Warning: **The motherboard and other components contain many IC (Integrated Circuit) chips. To protect them against damage from static electricity, please pay attention to the following precautions whenever you are working with computer components:**

1. Unplug the power connector whenever you are working on the interior of the computer.
2. Hold the motherboard, peripherals, and components by the edges and try not to touch the IC chips, leads and circuitry.
3. If possible, use a grounded wrist strap when handling the components and place them on a grounded anti-static pad or anti-static bag when they are pulled from the computer.

2.1   Jumper Description

Many hardware settings are made through the use of jumper caps connecting the jumper pins (see the following figures). There are various jumper pins on the motherboard such as two, three six and eight pin jumpers.

| Jumper Cap | 2-pin Jumper | 6-pin Jumper |
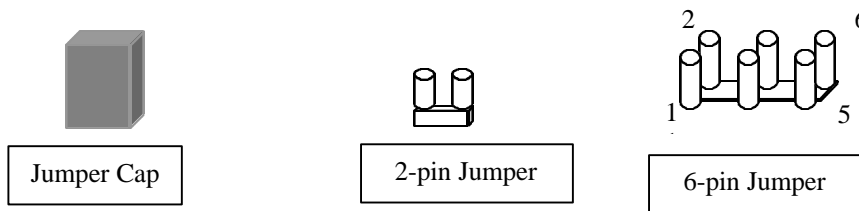
Please refer to the "Table of Jumper Settings" in the manual. For jumper examples, see below:

| Open Jumper | Closed Jumper | Pin 1-2 Closed | Pin 2–3 Closed |
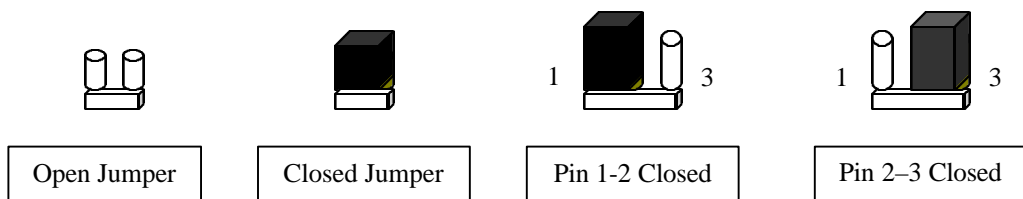
Note: Pin # 1 and the last pin for all the jumpers are silk-screened on the motherboard.

You should now set the jumpers for the voltage, clock ratio, system clock and CPU type. Please refer to the Jumper Settings section of this manual.

INSTALLATION GUIDE

2.2   Processor Installation

Before putting the CPU into the CPU ZIF socket, lift up the locking bar on the side of the socket, making sure that Pin 1 of the CPU (the corner with the notch) is facing towards the notch on the CPU socket. Press the CPU firmly into the socket making sure that it is firmly seated. Continue to push down on the CPU while lowering the locking bar to lock the CPU in place.

It is always necessary to use a reliable CPU cooling fan with a heat sink. Most fans will snap onto the ZIF socket.

2.3   DIMM Memory Installation

To install a DIMM module, simply line the notches of the module up with the notches in the DIMM socket on the motherboard and push the module into the socket and lock the plastic clips on the ends of the socket. DIMM memory can be added one at a time.

2.4   Mounting the Motherboard in the Case and Connecting the Cables

Mounting the Motherboard

Line up the keyboard connector on the motherboard with the keyboard hole on the case. This should also help you in lining up the mounting holes on the motherboard. Then use screws to mount the motherboard into the case.

Note: It is important that the motherboard is secure and does not touch the bare metal of the case. This could cause the motherboard to short.

Power Cable (AT Power Supply)

Insert the P8 and P9 power cable connectors from the power supply into the power socket on the motherboard. Make sure the ground (the black cable) on both P8 and P9 are next to each other in the center when the cables are connected to the motherboard. When inserting the power cables, tilt the P8 and P9 connectors at 45-degree angle until it aligns with the notches on the power socket on the motherboard. Then, tilt the cables back to a 90-degree angle and push them down into the socket.

Power Cable Installation Diagram
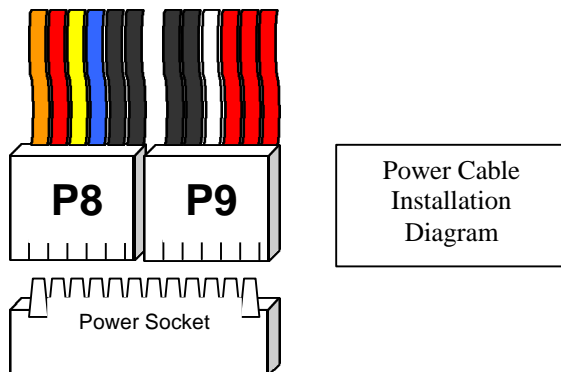
Power Cable (ATX Power Supply)

Line up the clip on the power cable's connector with the notch on the ATX jack on the motherboard and insert the cable in the jack.

Floppy Drive Interface (34-pin block)
Connect the floppy ribbon cable's single connection end to the motherboard and then connect the two plugs on the other end of the cable to the floppy drive(s). To identify which way to install the cable, make sure that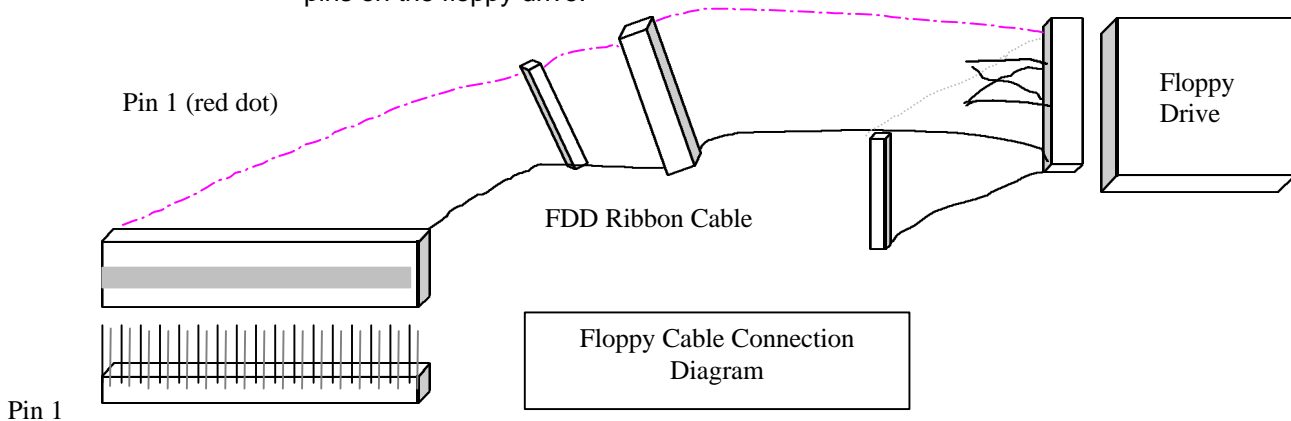 the red stripe on the cable is connected to pin 1 on the floppy drive and pin 1 on the floppy interface on the motherboard. Pin 1 on the floppy drive is located closest to the power pins on the floppy drive.

Pin 1 (red dot)

Floppy Drive

FDD Ribbon Cable

Floppy Cable Connection Diagram

Pin 1

Primary / Secondary IDE Interface (two 40-pin blocks)
Connect the IDE ribbon cable's single connection end to the motherboard and then connect the two plugs at the other end of the cable to the hard drive(s) and/or CD-ROM drive(s). If you have more than one hard drive, you can connect them in a "daisy-chained" manner (one as a "master" drive and one as a "slave" drive on the primary or secondary IDE channel).

Note: Make sure the master and slave jumpers on the hard drive or other IDE device is set correctly. You may need to refer to your hard drive or other IDE device's documentation to identify the correct jumper settings.

Serial Ports Interface (COM 1 / COM 2), Parallel Port Interface (LPT1) and PS/2 Mouse Interface
On the provided serial port cables, connect the 9-pin Port cable to the COM 1 interface on the motherboard and connect the 25-pin Port cable to COM 2 interface on the motherboard. Then connect the 25-pin female Parallel Port cable to Parallel Port interface on the motherboard. The PS/2 Port cable will also be connected to the PS/2 interface on the motherboard.

NOTE: Please make sure the red strip on the cable is always connected to the pin 1 (toward power supply socket) on all of the interfaces. You can always refer to the Jumper Layout Chart to see where pin 1 is located for any interface on the motherboard. Pin 1 is identified by the small, white triangle in the interfaces themselves.

USB Port Interface (optional assembly)
If you have obtained the optional USB Port Interface, then connect the cable to the USB interface on the motherboard.

JUMPER SETTINGS

3.   Jumper Settings

3.1   CPU Voltage Settings

CPU VOLTAGE (JP3)	A	B	C	D
2.2V	OFF	ON	OFF	OFF
2.5V	ON	OFF	ON	OFF
2.8V	OFF	OFF	OFF	ON
2.9V	ON	OFF	OFF	ON
3.2V	OFF	OFF	ON	ON
3.3V	ON	OFF	ON	ON
3.52V	ON	ON	ON	ON

3.2   CPU Jumper Settings

INTEL	S.C	JP7	JP8	JP9	C.R	JP4	JP5	JP6
90MHz	60MHz				1.5	1-2	1-2	1-2
120MHz	60MHz	2-3	2-3	2-3	2	2-3	1-2	1-2
150MHz	60MHz				2.5	2-3	2-3	1-2
100MHz	66MHz				1.5	1-2	1-2	1-2
133MHz	66MHz				2	2-3	1-2	1-2
166MHz	66MHz	1-2	2-3	2-3	2.5	2-3	2-3	1-2
200MHz	66MHz				3	1-2	2-3	1-2
233MHz	66MHz				3.5	1-2	1-2	1-2

Cyrix	JP7	JP8	JP9	JP4	JP5	JP6
6x86-P150[+] 60MHz Bus 2x	2-3	2-3	2-3	2-3	1-2	1-2
6x86MX-PR166 60MHz Bus 2.5x	2-3	2-3	2-3	2-3	2-3	1-2
6x86/6x86L-P166[+] 66MHz Bus 2x	1-2	2-3	2-3	2-3	1-2	1-2
6x86MX-PR166 66MHz Bus 2x	1-2	2-3	2-3	2-3	1-2	1-2
6x86MX-PR200 66MHz Bus 2.5x	1-2	2-3	2-3	2-3	2-3	1-2
M II-300 66MHz Bus 3.5x	1-2	2-3	2-3	1-2	1-2	1-2
6x86MX-PR233 75MHz Bus 2.5x	1-2	1-2	2-3	2-3	2-3	1-2
M II-300 75MHz Bus3x	1-2	1-2	2-3	1-2	2-3	1-2
6x86MX-PR266 83MHz Bus 2.5x	1-2	2-3	1-2	2-3	2-3	1-2
M II-333 83MHz Bus 3x	1-2	2-3	1-2	1-2	2-3	1-2

AMD	S.C	JP7	JP8	JP9	C.R	JP4	JP5	JP6
K5-PR120	60MHz	2-3	2-3	2-3	2	2-3	1-2	1-2
K5-PR133	66MHz	1-2	2-3	2-3	2	2-3	1-2	1-2
K5-PR150	60MHz	2-3	2-3	2-3	2.5	2-3	2-3	1-2
K5-PR166	66MHz	1-2	2-3	2-3	2.5	2-3	2-3	1-2
K6-166	66MHz	1-2	2-3	2-3	2.5	2-3	2-3	1-2
K6-200	66MHz	1-2	2-3	2-3	3	1-2	2-3	1-2
K6-233	66MHz	1-2	2-3	2-3	3.5	1-2	1-2	1-2
K6-266	66MHz	1-2	2-3	2-3	4	2-3	1-2	2-3
K6-300	66MHz	1-2	2-3	2-3	4.5	2-3	2-3	2-3
K6-2/250	100MHz	1-2	1-2	1-2	2.5	2-3	2-3	1-2
K6-2/266	66MHz	1-2	2-3	2-3	4	2-3	2-3	1-2
K6-2/300	100MHz	1-2	1-2	1-2	3	1-2	2-3	1-2

3.3   SDRAM Clock Settings

SDRAM CLOCK	JP10
SAME AS CPU	2-3
SAME AS AGP	1-2

3.4   Special Function Jumpers

Jumper Number	FUNCTION
CN1	AT POWER CONNECTOR
CN2	ATX POWER CONNECTOR
KB1	AT KEYBOARD CONNECTOR
PS2	PS/2 MOUSE CONNECTOR
COM2	COM PORT 2
COM1	COM PORT 1
LPT1	PRINT PORT
FDD1	FDD CONNECTOR
IDE1	IDE SECONDARY CONNECTOR
IDE2	IDE PRIMARY CONNECTOR
J1	IRDA CONNECTOR
J2	ATX POWER ON SWITCH
J4	USB CONNECTOR
FAN1	SYSTEM FAN
FAN2	CPU FAN
J3-P2/4/6/8	SPEAKER CONNECTOR
J3-P1/3/5/7/9	POWER LED & KEYLOCK
J3-P11/12	TURBO LED
J3-P15/16	HDD LED
J3-P17/18	RESET SWITCH
J3-P19/20	GREEN LED
JP1	CMOS SELECT 1-2 NORMAL 2-3 CLEAR CMOS

JUMPER SETTINGS

3.5   Power Supply

PWR SUPPLY	JP11
AT	1-2
ATX	2-3

3.6   Multifunction Connector *
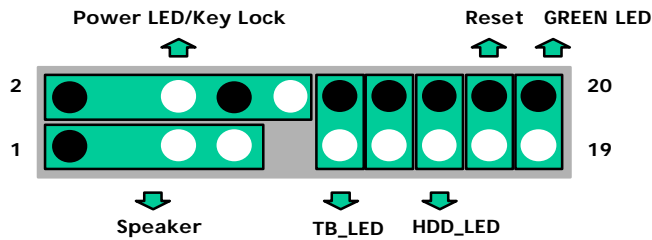
*NOTE: **Black pins on diagram identify positive (+) current pins.**

3.7   Memory Size *

Option	TYPE
DIMM1/2/3	8M,16M,32M,64M,128M,256M

*NOTE: **-The P5MVP3-AT only supports 168-pin DIMM modules.**
           -DRAM interface supports from 8MB to 768MB.
           -DRAM interface supports both SDRAM and EDO DRAM modules at
               3.3V.
           -For 100MHz bus operation you must use 10ns or faster DIMM
               modules.

3.8 Jumper Layout Chart

FAN1

K/B

ATX PWR CON.

DIMM3

DIMM2

USB

DIMM1

JP11

JP7 8 9 10

PS/2 MOUSE

AT PWR CON.

COM1

FDD COM2

LPT1

IDE1

IDE2

VIA
VT82C598AT

TAG

AGP

512 K

BAT1

SMC669

PCI1

PCI2

J1

BIOS

PCI3

VIA
VT82C586

JP1

PCI4

PWR-BTN
J2

SOCKET 7

ISA1

FAN 2

ISA2

JP4
JP5
JP6

JP3
A B C D

ISA3

J3
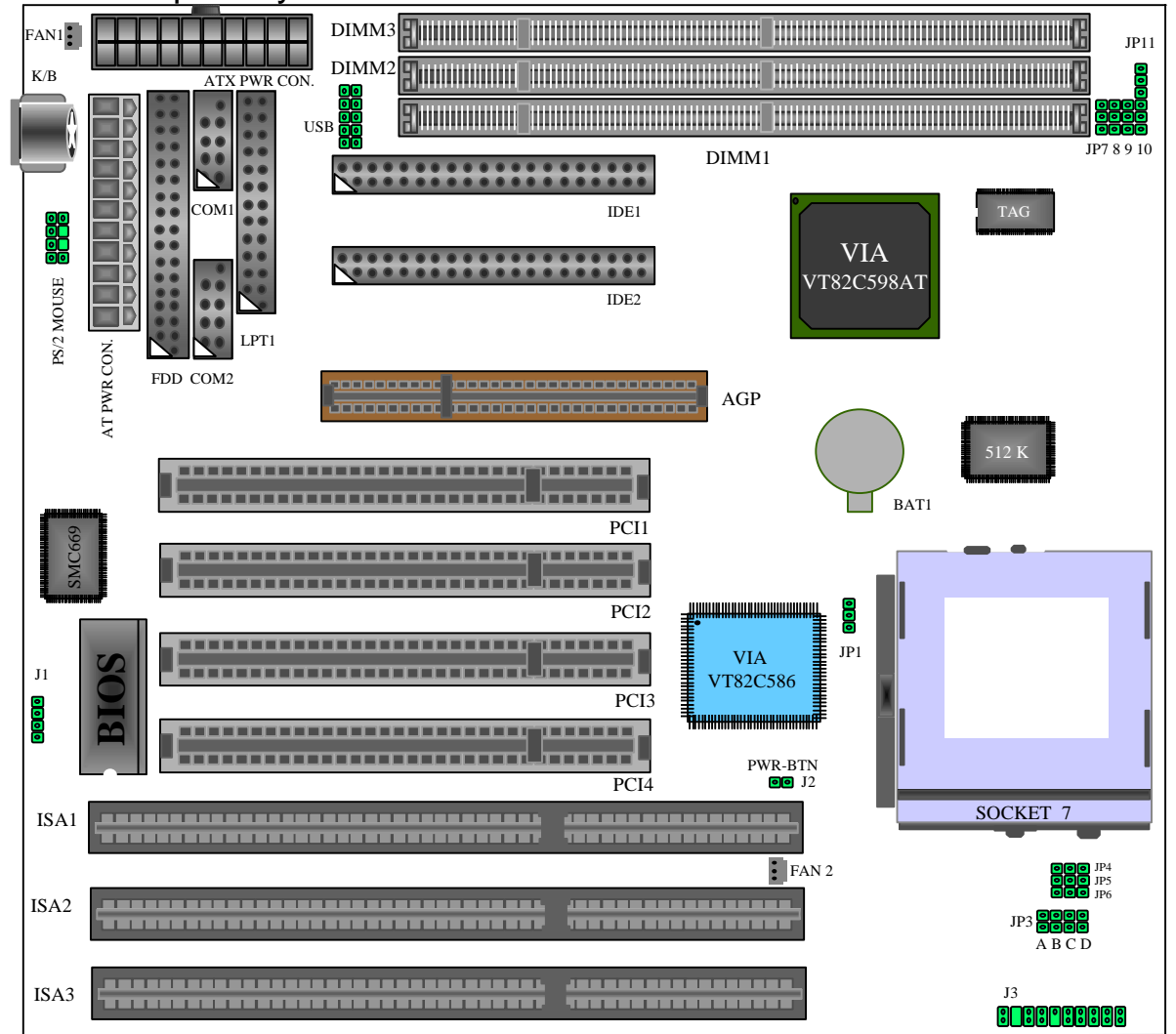
AWARD BIOS SETUP

4 AWARD BIOS SETUP

4.1 Entering Setup

It is strongly recommended that for most applications you load the setup defaults (as referred to in the following BIOS guide) and change only what is necessary to configure your system. Only system administrators or advanced computer users should configure a system on an item-by-item basis.

Power on the computer and press the [DEL] key immediately after the memory test is completed to enter Setup. You may also enter Setup by powering on the system and pressing the [CTRL], [ALT] and [ESC] keys simultaneously when you see the following message displayed briefly at the bottom of the screen:

"TO ENTER SETUP BEFORE BOOT PRESS: <CTRL-ALT-ESC> OR <DEL> KEY"

If the message is no longer displayed before you respond then just restart your system by turning the power off and then back on again. You may also restart your system by pressing the [CTRL], [ALT] and [DEL] keys simultaneously.

If you are booting the system for the first time you may see the following message:

"CHECKSUM ERROR, BIOS DEFAULTS LOADED. HIT [F1] TO CONTINUE"

This just means that the data in the BIOS Setup has been cleared and the factory defaults loaded. You will need to go into Setup to specify custom settings for your system.

4.2 Main Menu

Once you have entered the Award BIOS Setup Utility, the following menu will appear on the screen. The main menu allows you to select from the various sub-menus to specify system-specific and other customized settings for your system. You can use the arrow keys and the [ENTER] key to navigate and enter the sub-menus.
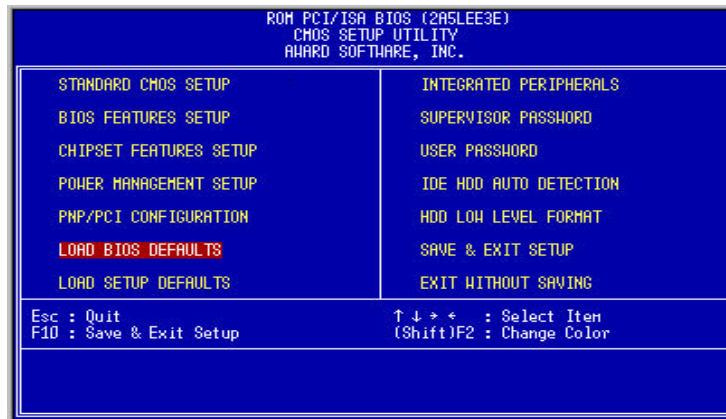
AWARD BIOS SETUP

Standard CMOS Setup allows you to specify pre-defined and user-defined settings for your IDE devices in addition to floppy drive setup and entering the time and date.

BIOS Features Setup allows you to configure functions of Award's enhanced features.

Chipset Features Setup allows you to configure special chipset features.

Power Management Setup allows you to configure power consumption and power-saving features for your system.

PnP/PCI Configuration allows you to configure your IRQ, DMA and other resource settings for your system.

Load BIOS Defaults will load the factory defaults for the BIOS.

Load Setup Defaults will load the factory defaults for the Setup Utility.

Integrated Peripherals includes configuration options for the on-board IDE Controllers, Floppy Drive Controller, as well as Serial Port and Parallel Port configuration.

Supervisor & User Password Setting allows you to setup up a system password which will require a password to be entered to complete the boot process as well as a supervisor password to restrict access to the Setup Utility.

IDE HDD Auto Detection This utility will detect and configure your IDE hard drives and enter the information in the Standard CMOS Setup menu.

Save & Exit Setup saves all changes made in the Setup Utility and reboots the system so the changes can take effect.

Exit Without Save will reboot the system without saving any changes made in the Setup Utility.

AWARD BIOS SETUP

4.3   Standard CMOS Setup Menu

You can navigate through this menu by using the arrow keys. To change the values of configurable items you can use the [PgUp]/[PgDn] or the [+]/[-] keys.
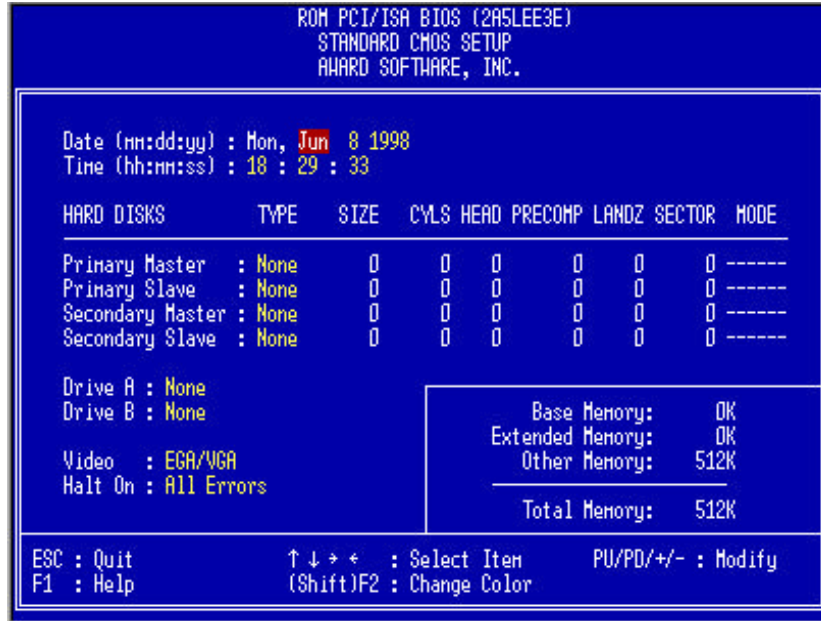
If you will refer to the image above, you will notice that the bottom section displays various keys you can use to navigate, change values, quit or get help on whatever item is highlighted.

User-definable items will appear in a different color from the rest of the text on your screen. To receive help on a highlighted item, just press the [F1] key to bring up the help menu. The memory display at the lower-right corner of the screen is read-only for reference purposes.

DATE
To set the date, highlight the TIME field and then use the appropriate keys to change the value of the individual sets of numbers. Available settings are:

Month:	1 to 12
Day:	1 to 31
Year:	up to 2099

TIME
To set the time, highlight the TIME field and then use the appropriate keys to change the value of the individual sets of numbers. Available settings are:

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

You can also bypass the date and time prompts by creating an AUTOEXEC.BAT file. For information on how to create this file, please refer to an MS-DOS manual.

Hard Disk Drives
This field records the specifications for installed IDE hard drives on your system. The onboard PCI IDE interfaces provide Primary and Secondary Channels for installing up to four IDE devices. Each channel can support up to two IDE devices, the first device is the "master" and the second device is the "slave" on the same channel.

SCSI devices are configured by a dedicated controller card and are not setup in the Award BIOS Setup Utility.

You can enter specifications for a hard drive by first selecting the type and then either specifying a pre-defined, user or auto setting. If there is no hard drive installed in a particular category you can choose the type "NONE" to skip the auto-detection process for that category during boot or avoid a hard drive failure if the drive is not currently installed.

Explanation of Spec Descriptions
The fields for specifying the hard drive type include **CYLS** (number of cylinders), **HEAD** (number of read/write heads), **PRECOMP** (write pre-compensation), **LANDZ** (landing zone), **SECTOR** (number of sectors) and **MODE**. The **SIZE** field will automatically adjust according to the configuration you specify in the other fields. Your hard drive's documentation should provide you with the information necessary to properly set up the specifications for your drive.

Auto Detection of Hard Drives on Bootup
If you decide that you want one or more of your Primary/Secondary and Master/Slave devices to be automatically detected during bootup, you can select "Auto" under the TYPE and MODE fields which will enable the auto detection during bootup. This will allow you to change hard drives (with the power off) without having to reconfigure the drives every time you switch them.   If you are using an older hard drive which does not support this function then it will be necessary for you to reconfigure that drive every time you install it on your system.

NOTE: Setup defaults are noted in parenthesis next to each function necessary where they apply.

Drive A/Drive B (None)
These fields record the type of floppy drives installed on your system. The available options for drives A and B are: **360KB 5.25"**, **1.2MB 5.25"**, **720KB 3.5"**, **1.44MB 3.5"** and **None**.

Video (EGA/VGA)
Set this field to the type of video display card you have installed in your system. The options are: **EGA/VGA**, **Mono (for Hercules or MDA)**, **CGA 40** and **CGA 80**.

NOTE: If you are using a VGA or higher resolution card then choose the "EGA/VGA" option.
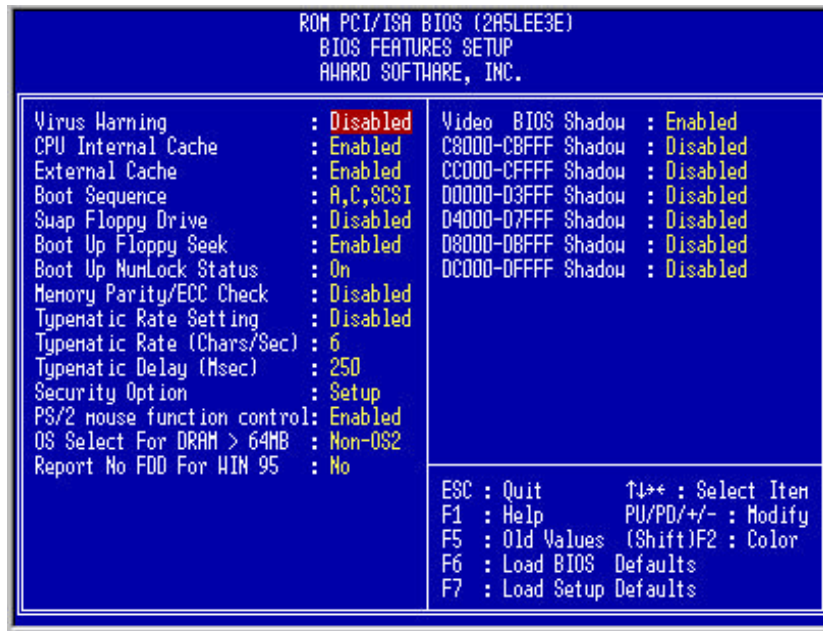
AWARD BIOS SETUP

Halt On (All Errors)
This field determines which types of errors will cause the system to halt the boot process. You can choose from the following options: **All Errors**, **No Errors**, **All but Keyboard**, **All but Diskette** and **All but Disk/Key**.

4.4   BIOS Features Setup
This menu will allow you to configure the enhanced BIOS features to better optimize your system's performance. Some of the fields are required by the design of the motherboard to remain in their default setting.

```
                ROM PCI/ISA BIOS (2A5LEE3E)
                     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
 Boot Sequence              : A,C,SCSI   D0000-D3FFF Shadow  : Disabled
 Swap Floppy Drive          : Disabled   D4000-D7FFF Shadow  : Disabled
 Boot Up Floppy Seek        : Enabled    D8000-DBFFF Shadow  : Disabled
 Boot Up NumLock Status     : On         DC000-DFFFF Shadow  : Disabled
 Memory Parity/ECC Check    : Disabled
 Typematic Rate Setting     : Disabled
 Typematic Rate (Chars/Sec) : 6
 Typematic Delay (Msec)     : 250
 Security Option            : Setup
 PS/2 mouse function control: Enabled
 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 (Disabled)
Enabling this function protects the boot sector and partition table of your hard drive against accidental modifications. Any attempt to write to them will cause the system to halt and display a warning message. If this occurs, you can either allow the operation to continue or use a bootable virus-free floppy disk to reboot and investigate your system.

NOTE: Installation of new operating systems requires that this function remain disabled until the installation is completed to prevent write errors to your hard drive.

CPU Internal Cache (Enabled)
Enables or disables the internal cache on your processor.

External Cache (Enabled)
Enables or disables the external cache on the motherboard.

Boot Sequence (A, C, SCSI)
You can specify from a variety of options (which also include CD-ROM, ZIP Drive and LS-120 support) to determine which device your system will look first, second and third for the operating system to boot.

Swap Floppy Drive (Disabled)
When enabled, the BIOS will swap the floppy drive assignments so the drive A becomes drive B and vice versa under DOS.

Boot Up Floppy Seek (Enabled)
When enabled, the BIOS will seek floppy A drive. When disabled the BIOS will not seek the floppy A drive.

Boot Up NumLock Status (On)
A setting of ON will turn on the NumLock light on your keyboard during bootup. Changing the setting to OFF will leave the NumLock light off.

Memory Parity/ECC Check (Disabled)
Enabling this function will enable the DRAM Parity/ECC Check Mode for compatible memory types.

Typematic Rate Setting (Disabled)
When enabled, you can set the two following typematic controls…

Typematic Rate [Chars/Sec] (6)
This function controls the speed at which the system will register repeated keystrokes. Option range from 6 to 30 characters per second.

Typematic Delay [Msec] (250ms)
This function controls the time interval for displaying the first and second characters of repeated keystrokes. You can choose from **250ms**, **500ms**, **750ms** and **1000ms**.

Security Option (Setup)
Determines when the system prompts for a password if any are selected. If you specify "Setup", the system will prompt for the Supervisor password only when entering setup. Selecting "System" will cause the system to prompt you for the password before completing the boot process. The passwords can be specified from the Main Menu under Supervisor Password and User Password.

PS/2 Mouse Function Control (Enabled)
Enable this function when using a PS/2 mouse.

OS Select for DRAM > 64MB (Non-OS2)
When using the OS/2 operating system with more than 64MB memory installed, you must enable this function. Otherwise leave the value set at "Non-OS2".

Report No FDD for Win95 (NO)
Leaving this function on a "NO" setting will cause Windows 95 to report "No FDD for Windows 95" if no floppy drive is found on your system.
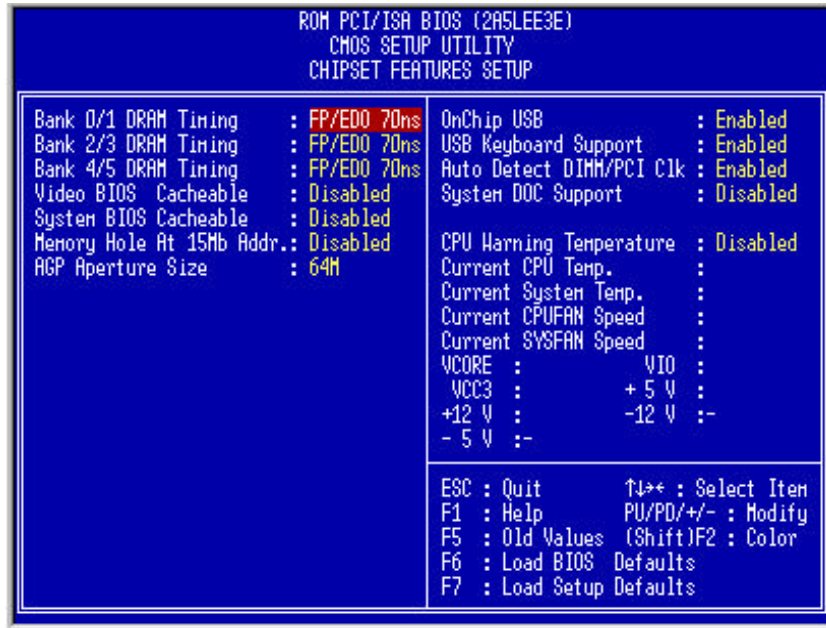
Video BIOS Shadow (Enable)
Determines whether video BIOS will be copied to the system's RAM, however, it is optional for each video chipset design. Video BIOS shadowing will help increase video performance.

AWARD BIOS SETUP

4.5   Chipset Features Setup
This menu will allow you to configure the enhanced chipset features to better optimize your system's performance.

```
                    ROM PCI/ISA BIOS (2A5LEE3E)
                         CMOS SETUP UTILITY
                       CHIPSET FEATURES SETUP

 Bank 0/1 DRAM Timing  : FP/EDO 70ns   OnChip USB              : Enabled
 Bank 2/3 DRAM Timing  : FP/EDO 70ns   USB Keyboard Support    : Enabled
 Bank 4/5 DRAM Timing  : FP/EDO 70ns   Auto Detect DIMM/PCI Clk: Enabled
 Video BIOS  Cacheable : Disabled      System DOC Support      : Disabled
 System BIOS Cacheable : Disabled
 Memory Hole At 15Mb Addr.: Disabled   CPU Warning Temperature : Disabled
 AGP Aperture Size     : 64M           Current CPU Temp.       :
                                       Current System Temp.    :
                                       Current CPUFAN Speed    :
                                       Current SYSFAN Speed    :
                                       VCORE  :           VIO  :
                                        VCC3  :          + 5 V :
                                       +12 V  :          -12 V :-
                                       - 5 V  :-

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

Bank 0/1/2/3/4/5 DRAM Timing (FP/EDO 70ns)
Use either 60ns or 70ns settings based on what type of memory you are using. If you are using SDRAM then you will not need to configure this option.

Video BIOS Cacheable (Disabled)
Allows the video BIOS to be cached when enabled. Enabling this function will permit faster video BIOS execution.

System BIOS Cacheable (Disabled)
Enabling this function allows you to cache the system BIOS to help enhance system performance.

Memory Hold at 15MB Addr (Disabled)
Enabling this function means that when the system memory is greater than 15MB, the physical memory address from 15MB to 16MB will be passed to PCI or ISA and there will be a 1MB hole in your system memory. This option is designed for some operating systems with special add-on cards which need the 15-16MB memory addresses.

AGP Aperture Size (64MB)
This will determine the effective size of the of the AGP Graphics Aperture which memory-mapped graphic data structures can reside in.

On Chip USB (Enable)
Enables or disables USB support.

USB Keyboard Support (Disabled)
Enables or disables support for USB keyboards.

Auto Detect DIMM/PCI Clk (Enabled)
When set to "Enabled", the system will automatically turn off the PCI and DIMM clocks which are not being used and reduce electromagnetic interference.

System DOC Support (Disabled)
When this function is enabled, the motherboard will pass the FCC Declaration of Conformity test. This function is for compatibility testing.

CPU Warning Temperature (Disabled)
Enabling this function will allow the system to slow down when the CPU temperature is over the warning threshold.

Current CPU/System Temperature
Monitors the processor's temperature.

Current CPU Fan/System Fan Speed
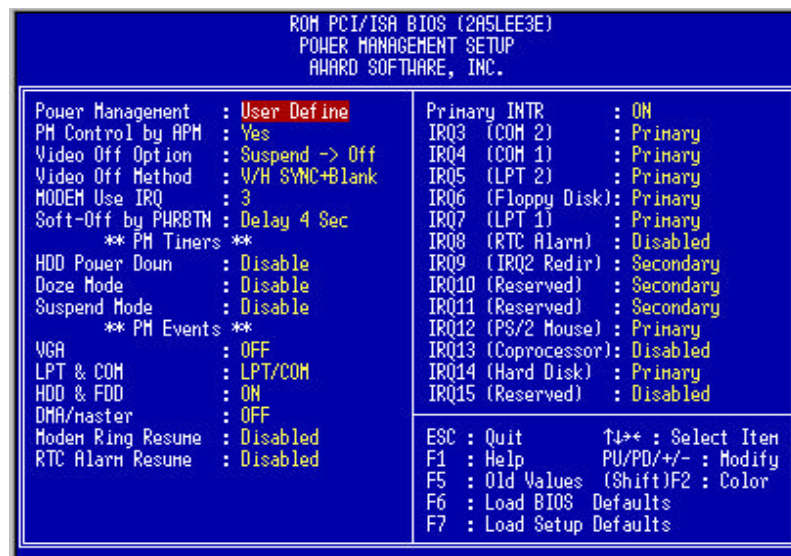Monitors CPU fan (FAN 2) and system fan (FAN 1) RPM.

VCORE, VIO, Vcc3, +5V, +12V, -12V
Monitors the conditions of:

Processor Core Voltage	(VCORE)
Processor I/O Voltage	(VIO)
Onboard 3.3 Voltage	(Vcc3)
5 Volt Power Supply	(+5V)
-5 Volt Power Supply	(-5V)
12 Volt Power Supply	(+12V)
-12 Volt Power Supply	(-12V)

4.6   Power Management Setup

This menu allows you to control the motherboard's green features.

AWARD BIOS SETUP

Power Management (User Defined)
This function allows you to set the parameters of the power-saving modes. You can disable this if you do not want to use these features.

PM Controlled by APM (Yes)
If "Max Saving" is specified you can turn on this item to transfer power management to APM (Advanced Power Management) which will enhance the power-saving functions.

Video Off Option (Suspend = Off)
This function will suspend the display on your monitor when the system is powered down.

Video Off Method (V/H SYNC+Blank)
This function will determine the method in which the monitor is put into suspend mode. Blank screen writes blanks to the video buffer. V/H SYNC+Blank allows the BIOS to control the VSYNC and HSYNC signals. This function applies only for DPMS (Display Power Management Standard) monitors. The DPMS mode uses the DPMS functions provided by the VGA card if it supports this function.

Modem Use IRQ (3)
You can set IRQs 3, 4, 5 or 7 individually through the modem. Activity detected on the corresponding IRQ channel will "wake-up" the system.

Soft-Off by PWR-BTTN (Delay 4 Sec)
The system can be set in one of two states: one is suspend mode and the other is Soft-Off mode. Pushing the power button for less than 4 seconds places the system into suspend mode. When the power button is pressed for more than 4 seconds the system will enter Soft-Off mode. Setting this option to "Instant" will shut down the system when the power button is pushed.

HDD Power Down (Disabled)
This function lets you specify the IDE hard drive idle time before the device enters the power down state. This function operates independently from the Standby and Suspend functions.

Doze Mode (1 Min)
Determines how much idle time is required before the system enters Doze mode. In this mode the processor's clock will slow down. The ratio is specified in "Throttle Duty Cycle." Any activity detected on the IRQ channels returns the system to full power.

Standby Mode (1 Min)
This function determines how much idle time is required before the system enters Standby mode. In this mode the processor will slow down and IDE hard drives will be powered down while the monitor is placed into suspend mode. In activity detected on the IRQ channels will return the system to full power.

Suspend Mode (1 Min)
This is another idle time requirement to place the system into Suspend mode. Suspend mode can either suspend the system's power or suspend IDE hard drives. This determination is specified in "Suspend Mode Option."

VGA (Off)
This function allows you to monitor the video display. Setting this to NO resumes the system from Doze mode or Standby mode once an activity is detected.

LPT&COM (LPT/COM)
This function allows you to monitor the activities of the devices connected to the serial ports and parallel port. Setting this to LPT/COM restores the system from Doze mode or Standby mode if any activity is detected from these devices.

HDD&FDD (ON)
This functions monitors the floppy and hard drives. Setting the value to NO will resume the system from Doze mode or Standby mode if any activity is detected from those devices.
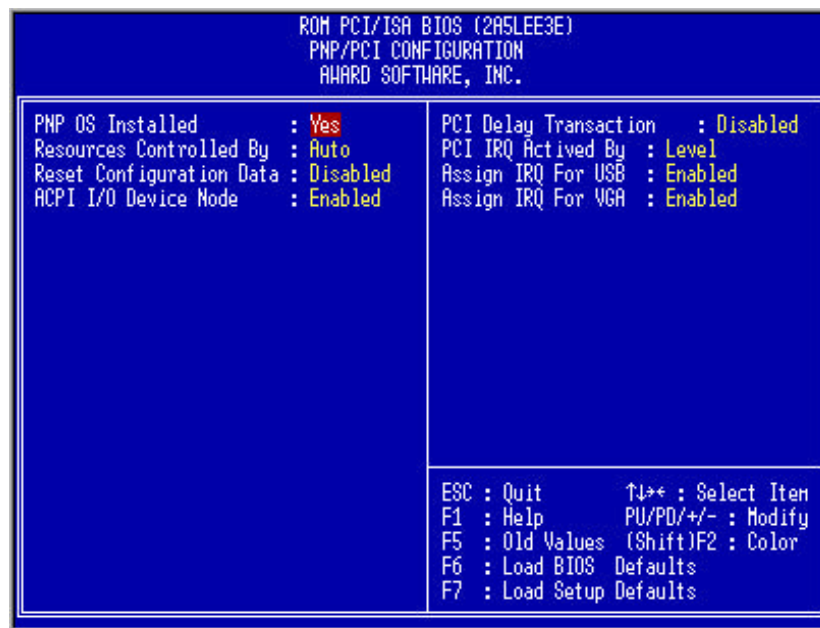
Resume by Ring (Disabled)
Enabling this function will power on the system if an external fax/modem receives an incoming call.

Resume by Alarm (Disabled)
Enabling this function will power on the system at the specified time and date. Setting the day of the month to zero specifies everyday as opposed to a specific day.

4.7   PnP/PCI Configuration Setup
The PnP/PCI Configuration menu allows you to configure the ISA and PCI devices installed on your system.

```
                ROM PCI/ISA BIOS (2A5LEE3E)
                   PNP/PCI CONFIGURATION
                    AWARD SOFTWARE, INC.

PNP OS Installed       : Yes      PCI Delay Transaction  : Disabled
Resources Controlled By : Auto    PCI IRQ Actived By  : Level
Reset Configuration Data : Disabled  Assign IRQ For USB  : Enabled
ACPI I/O Device Node    : Enabled  Assign IRQ For VGA  : Enabled




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

AWARD BIOS SETUP

PnP OS Installed (Yes)
Normally PnP resources are allocated by the BIOS during POST (Power On Self Test). If you are using a PnP operating system (e.g. Windows 98), set this item to "Yes" to instruct the BIOS to configure only the resources for devices needed during the boot process (e.g. video cards and SCSI controllers). The rest of the system's resources will then be allocated by the PnP operating system.

Resources Controlled By (Auto)
This option allows you to individually assign IRQs and DMAs to the ISA and PCI devices. You will need to set the value to "Manual" if you wish to do so.

Reset Configuration Data (Disabled)
In case conflict occurs after you assign the IRQs or after you have configured your system, you can enable this function to allow your system to automatically reset your configuration and reassign the IRQs.

ACPI I/O Device Mode (Enable)
Enables or disables ACPI I/O devices.

PCI Delay Activated By (Level)
Specifies to the chipset whether IRQ signal input is a Level or an Edge trigger.

Assign IRQ for USB (Enabled)
When set to DISABLED the BIOS will not assign an IRQ for USB devices. If your USB device(s) requires an IRQ then leave this option enabled.

Assign IRQ for VGA (Enabled)
Disabling this option will instruct the BIOS to not assign an IRQ for the video card. If your video card requires an IRQ then leave this option enabled.

4.8   Load BIOS Defaults

Use this option to load the BIOS defaults during troubleshooting if it becomes necessary to do so. Loading BIOS defaults loads settings concurrent with the least optimized system performance. This function does not affect settings made in the Standard CMOS Setup menu.
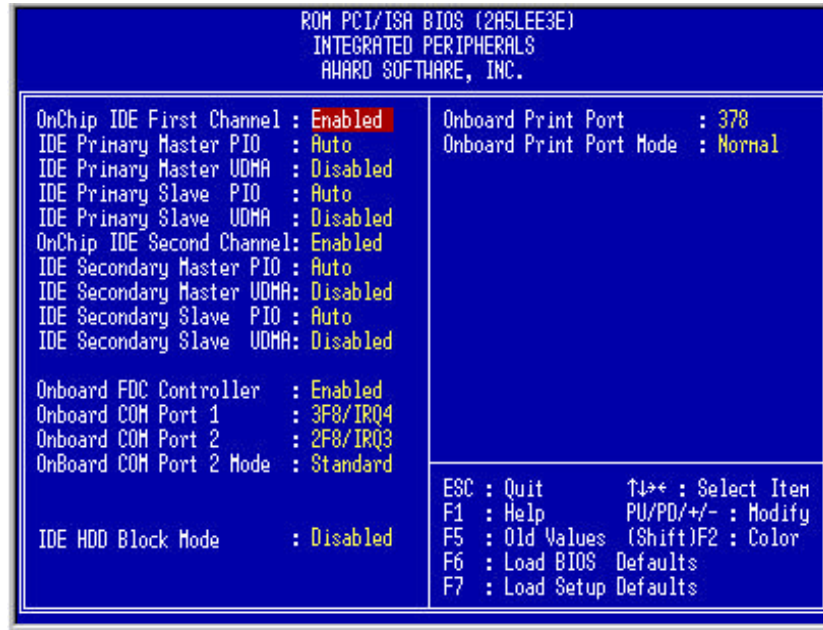
4.9   Load Setup Defaults

Use this option to load the system configuration defaults during troubleshooting if it becomes necessary to do so. Loading Setup defaults loads settings concurrent with the most optimized system performance. This functions does not affect the settings made in the Standard CMOS Setup menu.

4.10 Integrated Peripherals

This menu is where you can configure your Input/Output features.

```
              ROM PCI/ISA BIOS (2A5LEE3E)
                 INTEGRATED PERIPHERALS
                  AWARD SOFTWARE, INC.

OnChip IDE First Channel : Enabled     Onboard Print Port      : 378
IDE Primary Master PIO   : Auto        Onboard Print Port Mode : Normal
IDE Primary Master UDMA  : Disabled
IDE Primary Slave  PIO   : Auto
IDE Primary Slave  UDMA  : Disabled
OnChip IDE Second Channel: Enabled
IDE Secondary Master PIO : Auto
IDE Secondary Master UDMA: Disabled
IDE Secondary Slave  PIO : Auto
IDE Secondary Slave  UDMA: Disabled

Onboard FDC Controller   : Enabled
Onboard COM Port 1       : 3F8/IRQ4
Onboard COM Port 2       : 2F8/IRQ3
OnBoard COM Port 2 Mode  : Standard
                                       ESC : Quit        ↑↓→← : Select Item
                                       F1  : Help        PU/PD/+/- : Modify
IDE HDD Block Mode       : Disabled    F5  : Old Values  (Shift)F2 : Color
                                       F6  : Load BIOS  Defaults
                                       F7  : Load Setup Defaults
```

On-Chip Primary PCI IDE (Enabled)
On-Chip Secondary PCI IDE (Enabled)
Disabling either of these channels will disable support for the respective IDE channel.

IDE Primary Master PIO (Auto)
IDE Primary Slave PIO (Auto)
IDE Secondary Master PIO (Auto)
IDE Secondary Slave PIO (Auto)
Setting this option to Auto activates the hard drive speed auto-detection function. The PIO mode specifies the data transfer rate of the hard drive.
> *Examples:*
> *Mode 0 data transfer rate is 3.3MB/sec*
> *Mode 1 data transfer rate is 5.2MB/sec*
> *Mode 2 data transfer rate is 8.3MB/sec*
> *Mode 3 data transfer rate is 11.1MB/sec*
> *Mode 4 data transfer rate is 16.6MB/sec*

If your hard drive's performance becomes unstable it may be necessary to set it to a slower rate instead of Auto.

Onboard FDC Controller (Enabled)
Enables or disables the on-board floppy drive support. Disable this function if you plan to use a controller card with floppy drive support.

NOTE: It is recommend that you do not use IDE/FDD controller cards on motherboards which support these functions natively.

AWARD BIOS SETUP

Onboard COM Port 1 (3F8/IRQ4)
Onboard COM Port 2 (2F8/IRQ3)
These options allow you to specify the input/output addresses and IRQs for the serial ports. You can also choose to disable them as well.

Onboard COM Port 2 Mode (Standard)
This function allows you to specify the COM Port 2 operation mode as Standard, HPSIR or ASKIR.

IDE HDD Black Mode (Disabled)
This feature enhances hard drive performance by making multi-sector transfer instead of one sector per transfer. Most IDE hard drives, except early designs, support this feature.

Onboard Print Port (378)
This option allows you to specify the input/output address of your printer port (LPT1). You can also choose to disable the printer port.

Onboard Print Port Mode (Normal)
This feature lets you select which mode the printer port will operate in:

Normal	Standard and Bi-Directional Printer Port
EPP	Enhanced Printer Port
ECP	Extended Printer Port

Normal mode is the IBM AT and PS/2 compatible mode. EPP mode enhances the printer port's throughput by directly writing/reading data to/from the printer port with latch. ECP mode supports DMA and RLE (Run Length Encoded) compression and decompression.

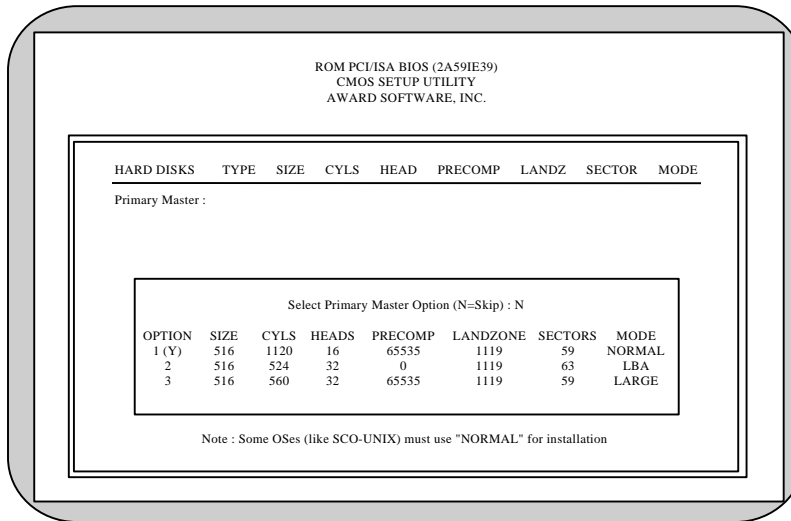## 4.11   Supervisor and User Password

You can use these two options to set the supervisor password (restricts access to the Award BIOS Setup) and the user password (restricts access to the system). Once you have entered the password the system will prompt you to re-enter the password to confirm the selection.

NOTE: If you have forgotten your password, you can clear the CMOS (refer to the Special Jumpers Chart) which will clear all user-defined settings and passwords in the BIOS.

4.12 IDE HDD Auto Detection

You can use this function to automatically configure your IDE hard drives and write the information in the Standard CMOS Setup menu.

```
                        ROM PCI/ISA BIOS (2A59IE39)
                           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

      OPTION   SIZE   CYLS   HEADS   PRECOMP   LANDZONE   SECTORS   MODE
      1 (Y)    516    1120    16      65535      1119       59     NORMAL
        2      516    524     32        0        1119       63      LBA
        3      516    560     32      65535      1119       59     LARGE


       Note : Some OSes (like SCO-UNIX) must use "NORMAL" for installation
```

When this utility detects an IDE hard drive, it will list the parameters for that drive in the lower section of the display where you can choose which set of parameters and mode you wish to use by selecting the corresponding number. Entering a "Y" instead of a number will use a default setting and will put the drive into LBA mode if supported by the drive. This option is generally recommended for most applications. Pressing the "N" key will instead skip to the next drive.

Once the auto-detection process is completed the selected parameters will be written into the Standard CMOS Setup menu.

NOTE: If your hard drive was already formatted on an older system incorrect parameters may be detected. You will either need to enter in the correct parameters in the Standard CMOS Setup menu or re-format the drive using a Low Level Format utility. Using a Low Level Format utility will erase all information that may be on the drive.

4.13 Save and Exit Setup

Select this option to save all changes made in the Setup utility and reboot the system.

4.14 Exit Without Saving

Select this option to reboot the system without saving any of the changes made in the Setup utility. It may be necessary to do this if you have made some changes that you are either unsure of, or if you have forgotten which parameters you have changed and are not sure if you want to keep them.

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TROUBLESHOOTING

I keep hearing about people overclocking their CPUs. What does this mean and how do I do it?
Overclocking your CPU means that you are setting the jumpers to make the CPU run faster (e.g. setting jumpers to 166MHz to make your 133MHz CPU run faster). Okay so now it's running at 166MHz, but the heat buildup increases and you will shorten the life of your CPU. EFA Corporation does not condone overclocking your CPU on our motherboards, doing so WILL VOID THE WARRANTY ON YOUR MOTHERBOARD. If your CPU was designed to run at 133MHz you should keep it at 133MHz.

I recently upgraded my motherboard on my Windows 95 system and when I started using it, I got a blue screen that popped up telling me that my system is now using "Compatibility Mode Drivers". My system is now running slow because of them and I can't figure out how to get them off my system.
Typically Windows 95 will use Compatibility Mode Drivers when you change the chipset and your motherboard. This occurs because the old IDE device drivers that Windows 95 was using on the previous motherboard are incorrect, so Windows will try to compensate for this by using 16-bit Compatibility Mode Drivers. This will make your system's performance slower since 16-bit drivers are slower than the 32-bit drivers. In order to correct this, you can reinstall Windows 95 on top of the current installation and it SHOULD load the correct 32-bit drivers for your IDE devices. However, this does not always happen, in that case the only solution is to remove Windows 95 and reinstall it from scratch. This will ensure that you do not have Compatibility Mode Drivers anymore. It is EFA Corporation's recommendation that you reinstall Windows 95 whenever you change your motherboard's chipset.

My system has all the necessary components installed but I cannot get a display on my monitor.
If you have a speaker connected to your motherboard then listen for beeps when you power on the system. If you hear any beeps then refer to the POST Error Beeps to determine what is causing the problem.

If you do not hear any beeps then pull all components out of your system and take the following steps:
- Reinstall the processor, making sure it is seated firmly in the CPU socket.
- Reinstall the DIMM memory modules and make sure they are securely fastened in the DIMM sockets.
- Reinstall the VGA card, again making sure that it is sitting correctly in the PCI or AGP slot.
- Reconnect the power cables to the motherboard, making sure that the AT power cables have the black ground wires next to eachother when they are installed. For ATX power cables the connector can only go in one way. Make sure that the power cables are firmly seated in the socket.
- Reconnect the keyboard.
- Reconnect the monitor cable to your VGA card and make sure that the connection is secure.
- Double-check all jumper settings against the Jumper Setting charts to make sure that you have the correct jumper settings for your processor and power supply.
- Turn on the Power without any floppy or hard drives installed.

If your system boots, then you will be able to install other components one at a time to determine which component is causing your system to fail.

If you still cannot get the system to boot, refer to the Special Jumper Settings chart and clear the CMOS and try to reboot again.

If I am using a 100MHz bus speed processor, such as AMD's K6-2 300MHz processor do I have to use PC100 compliant SDRAM?
Absolutely, although some 66MHz SDRAM modules have been able to tolerate the increased bus speed, it is not recommended to use them as you will shorten the life of the DIMM module and open your system up to the possibility of a crash.

I tried pulling out all the expansion cards in my system but I'm still not getting a display, what next?

With a PC Speaker connected to the motherboard (refer to the Multifunction Connector Chart) power off the system, remove all DIMM modules from the motherboard and power the system on. You should hear a repeating loop of beeps. If you do not, then you can contact our technical support department.

POST Errors

Beeps:

Repetitive Long Beeps	Memory either not installed or bad.
One Long, 3 Short (repeats)	Video card not installed or bad.
One Long, 2 Short (Repeats)	BIOS bad.
Repetitive Short Beeps	Keyboard not detected.

Error Messages:

CHECKSUM ERROR BIOS DEFAULTS LOADED	Either bad battery or you have just cleared the CMOS.
FLOPPY DRIVE ERROR	Floppy drive cable not installed properly, floppy drive is bad or BIOS setup is incorrect.
HARD DISK FAIL	IDE cable not installed properly, hard drive is bad, or BIOS setup is incorrect.
KEYBOARD ERROR	Keyboard not plugged in.
CMOS BATTERY FAIL	The CMOS battery's (coin battery, 3 Volts) voltage is too low.
MEMORY TEST FAIL	Memory is not installed properly, or is bad.

Technical Support Contact Information

FAQ	www.efacorp.com
Email	support@efacorp.com
FAX	(408) 987-5415
Voice	(408) 987-5412