NOTICE TO END USERS

This User's Guide & Technical Reference is for assisting system manufacturers and end users in setting up and installing the mainboard.

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CONTENT

Chapter 1
INTRODUCTION

F E A T U R E S

CPU

1. Supports Intel Pentium II, Pentium III and Celeron CPUs using SLOT 1 at 233 ~ 800MHz or higher.
2. Supports CPU voltage auto detect circuit.
3. Supports 66/100/133MHz Bus Clock with auto detect(BIOS provides 75/83/103/124/133/140/150MHz Bus Clock without auto detect).

Chipset

1. VIA 693A North Chipset.
2. VIA 686A South Chipset.
3. PCI Rev 2.1, APM 1.1/1.2 compliant.
4. Chipset includes UltraATA33/66 EIDE, USB, and Keyboard/PS2-Mouse Interfaces plus RTC/CMOS on chip.
5. Supports two 32-bit 3.3/5V system buses(one AGP and one PCI).
6. Supports 66/100/133MHz CPU Front Side Bus(FSB).
7. Supports PC-133MHz. (67FV1$^+$)
8. Windows 95 OSR-2 VxD and integrated Windows 98/NT5 miniport driver support.

L2 Cache

- Pentium II / Pentium III supports 512K write back cache with Pipelined Burst SRAMs.
- Celeron supports 128K write back cache with Pipelined Burst SRAMs.

Main Memory

1. Memory range from 8MB to 768MB(SDRAM) with DRAM Table Free configurations.
2. Supports SDRAM with 12/10/8/6ns speed.
3. Supports 3pcs 168pin DIMM sockets(3.3V Unbuffered and 4 clock type).
4. DRAM supports ECC or Parity function.
5. DRAM interface may be faster than CPU by 33MHz to allow use of PC100 with 66MHz Celeron or use of PC133 with 100MHz Pentium II or Pentium III.
6. Supports PC-133 spec.

BIOS

1. AWARD Plug and Play BIOS.
2. Supports ACPI and legacy APM.
3. Vcore voltage setting by BIOS for overing clocking.
4. Flash Memory for easy upgrade.
5. Supports CPU Core Voltage setting. (67FV1$^+$)
6. Supports BIOS Writing Protection. (67FV1$^+$)

Sound Chip

• Integrated AC '97 sound controller.

Super I/O Function

1. Integrated USB(Universal Serial Bus) controller with 4USB ports.
2. Supports 2IDE channels with 4IDE devices.(including ZIP/LS-120 devices)
3. Provides PCI IDE Bus Master function and supports UATA33/66 function.
4. One floppy port.
5. Two high speed 16550 FIFO UART ports.
6. One parallel port with EPP/ECP/SPP capabilities.
7. PS/2 mouse connector.
8. Infrared module connector.

Other Functions

1. ATX size 17cm x 30.5cm.
2. 5 PCI Master slots, 1 ISA slots, 1 AGP slot and 1 AMR slot.
3. Supports Wake On LAN(WOL) function.
4. Supports SCSI CD-ROM, ZIP/LS-120 boot up function.
5. Supports jumperless setting.
6. Supports Power Lost Recovery function.

Note: 1. Make sure that the SDRAM module not only has to be 168pin DIMM but designed for 3.3V unbuffered SDRAM as well. Double check with the SDRAM supplier before install any SDRAMs. The mainboard manufacturer has no obligation to any damage of the board by using the incorrect specification of SDRAM.

2. For 100MHz CPU encironment, the SDRAM must compliant PC-100 specification, otherwise, the system maybe unstable.(67FV$^+$)

3. For 133MHz CPU encironment, the SDRAM must compliant PC-133 specification, otherwise, the system maybe unstable. (67FV1$^+$)

4. For support WOL, the ATX power supply has to have at least 5V/720mA standby current.

Mainboard Layout with Default Settings

The default setting of the following figure is for the Intel Celeron 300A/66MHz.
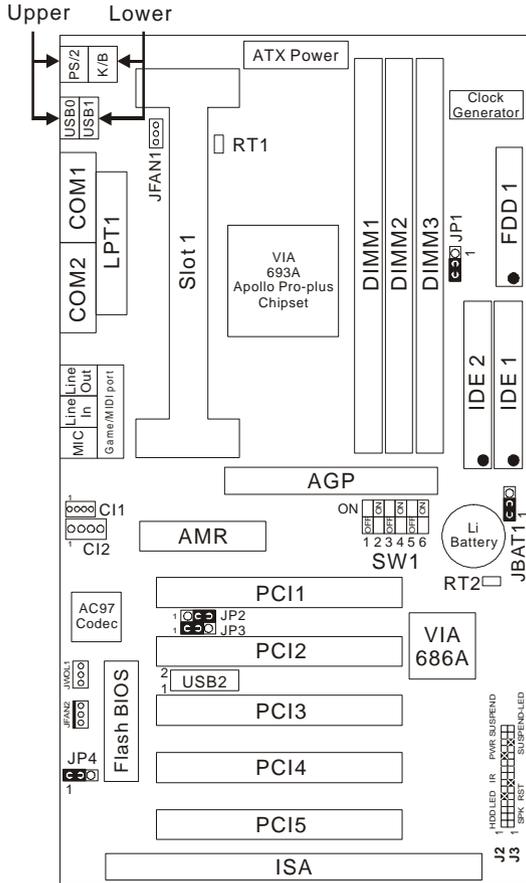
67FV⁺ / 67FV1⁺ Motherboard layout

NOTE 1: JP1 is only for 67FV1⁺.
NOTE 2: FOR 100/133MHz CPU ENVIRONMENT, THE SDRAM SPECIFICATION MUST COMPLY WITH PC-100/133 SPEC.

CPU Type Jumper Configuration

CPU Model	SW1 Setting	CPU Ratio
Pentium II 350/100MHz	ON — 1 2 3 4 5 6	3.5x
Celeron 266/66MHz Pentium II 400/100MHz	ON — 1 2 3 4 5 6	4.0x
Celeron 300/66MHz Pentium II/III 450/100MHz	ON — 1 2 3 4 5 6	4.5 x
Celeron 333/66MHz Pentium II/III 500/100MHz	ON — 1 2 3 4 5 6	5.0x
Celeron366/66MHz Pentium II/III 550/100MHz	ON — 1 2 3 4 5 6	5.5 x
Celeron 400/66MHz Pentium II/III 600/100MHz	ON — 1 2 3 4 5 6	6.0 x
Celeron433/66MHz Pentium II/III 650/100MHz	ON — 1 2 3 4 5 6	6.5x
Celeron 466/66MHz Pentium II/III 700/100MHz	ON — 1 2 3 4 5 6	7.0x
Celeron 500/66MHz Pentium II/III 750/100MHz	ON — 1 2 3 4 5 6	7.5x
Celeron 533/66MHz Pentium II/III 800/100MHz	ON — 1 2 3 4 5 6	8.0x

System Memory Configuration

This VIA 693A motherboard supports 168 pin DIMM of 8MB, 16MB, 32MB, 64MB, 128MB or 256MB to form a memory size between 8MB to 768MB (SDRAM). VIA 693A chipsets provide " Table Free " function. It means that users can install DRAM with any configuration and in any bank, and that is why the DRAM table is not needed but do remember that the DRAM must be 3.3V type.

SW1 DIP5 ~ DIP6: Bus Clock Select
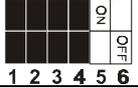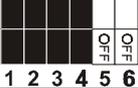
Bus Clock	SW1 DIP5 ~ DIP6	JP1
66MHz		3 ⬛⬛⭕ 1
100MHz		3 ⬛⬛⭕ 1
66/100/133MHz Auto Select(default)		3 ⬛⬛⭕ 1
133MHz		3 ⭕⬛⬛ 1

SW1 DIP1 ~ DIP4: Bus Ratio Select

Bus Ratio	SW: 1~4	Bus Ratio	SW: 1~4	Bus Ratio	SW: 1~4
3.0x		5.0x		7.0x	
3.5x		5.5x		7.5x	
4.0x		6.0x		8.0x	
4.5x		6.5x			

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Jumper Settings

■ JFAN#: Onboard FAN(12V) Connector

JFAN#	Function
JFAN1	CPU FAN
JFAN2	SYSTEM FAN

■ JP1: Auto Select

Bus Clock Status	JP1
66MHz	1 ◯🔗🔗 3
100MHz (Pentium II / III)	1 🔗🔗◯ 3 **133MHz**
	◯🔗🔗

Note: JP1 has an effect on 67FV1⁺ only.

■ JP2 / JP3: Onboard Sound Chip(AC'97 Codec) Select

AC'97 Codec Status	JP2 / JP3
Disabled	JP2 1🔗🔗◯3 / JP3 1◯🔗🔗3
Enabled(default)	JP2 1◯🔗🔗3 / JP3 1🔗🔗◯3

■ JP4: Power Lost Resume

This jumper allows you to use the switch of ATX power supply to control ON/OFF switch directly instead of using the power switch on the motherboard.

Power Lost Resume	JP4
Enabled	1 ◯🔗🔗 3
Normal (default)	1 🔗🔗◯ 3

NOTE: THIS JUMPER MUST WORK WITH BIOS.

■ JBAT1: Clear CMOS Data

CMOS Status	JBAT1
Clear CMOS	1 ⬜🔲🔲 3
Retain Data(default)	1 🔲🔲⬜ 3

■ JWOL1: Wake On LAN(WOL) Connector

This connector is designed to use LAN to boot up the system. Connect the wake on signal from LAN card to this connector.

For support WOL, the ATX power supply has to have at least 5V/720mA standby current.

■ C11 / C12: CD-ROM Audio Connector

■ Game / Midi Port

■ MIC: Microphone Jack

■ Line In: Audio In Jack

■ Line Out / Speaker Out: Audio Out Jack

■ RT2: Thermal Sensor Connector
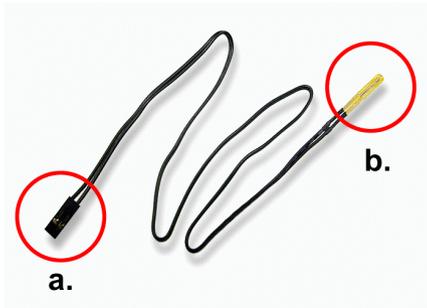
a. : Connect to RT2.
b. : Connect this thermal sensor to some device which generates heat such as Hard Disk, VGA chip etc. When connected, user could watch the temperature change from the BIOS program.

J2 Switch Signal Summary

J2	Pin	Signal Description
HDD LED Connector	1	+5V
	2	HDD LED Signal
	3	HDD LED Signal
	4	+5V
N.C.	5	No Connection
Infrared Connector	6	Infrared Transmit Signal
	7	GND
	8	Infrared Receive Signal (low speed)
	9	Infrared Receive Signal (high speed)
	10	+5V
N.C.	11	No Connection
PWR	12	5V Standby
	13	ATX Power Switch
SUSPEND Connector	14	SUSPEND Signal
	15	GND

IDE LED Activity Light (J2 pin1-4)
This connector connects to the hard disk activity indicatorlight on the case.

Infrared Port Module Connector (J2 pin6-10)
The system board provides a 5-pin infrared connector-R1 for an optional wireless transmitting and receiving module. Pin 6 through 10 are Transmit, GND, Receive (low speed), Receive (high speed), and Vcc, respectively.

Power Switch (J2 pin12, pin13)
Power Switch: Toggle this pin for turning on/off of the Power supply (for ATX power only).

SUSPEND Connector(J2 pin 14, pin15)

J3 Switch Signal Summary

J3	Pin	Signal Description
Speaker Connector	1	Speaker Signal
	2	No Connection
	3	GND
	4	+5V
Reset Switch	5	Reset Signal
	6	GND
N.C.	7	No Connection
Power LED Connector	8	+5V
	9	No Connection
	10	GND
Keylock Connector	11	Keylock Signal
	12	GND
N.C.	13	No Connection
SUSPEND LED	14	SUSPEND LED
	15	GND

Speaker Connector (J3 pin1-4)

The speaker connector is a 4-pin connector for connecting the system and the speaker. (See the following drawing for jumper position.)

Reset Switch (J3 pin5, 6)

The system board has a 2-pin connector for rebooting your computer without having to turn off your power switch. This prolongs the life of the system's power supply.

Power LED and Keylock Switch (J3 pin8-12)

The keylock switch is a 5-pin connector for locking the keyboard for security purposes. (See the following drawing for jumper position, and pin1~3 is connected to power LED and pin 4~5 is connected to keylock switch.)

SUSPEND LED (J3 pin14, 15)

Connected to SUSPEND LED.

Other connectors
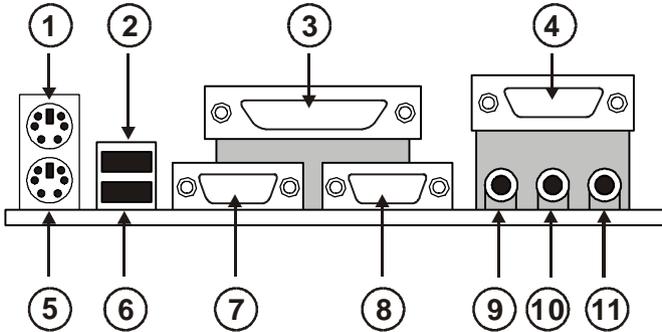
① : PS/2 MOUSE   ② : USB0
③ : LPT1   ④ : GAME/MIDI PORT
⑤ : PS/2 KEYBOARD   ⑥ : USB1
⑦ : COM1   ⑧ : COM2
⑨ : SPK/LINE OUT   ⑩ : LINE IN
⑪: MIC
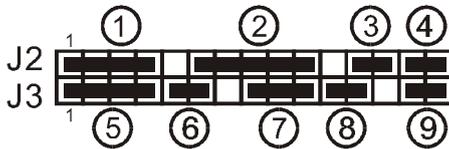
① : HDD LED   ② : INFRARED (IR)
③ : POWER SWITCH   ④ : SUSPEND CONNECTOR
⑤ : SPEAKER   ⑥ : RESET SWITCH
⑦ : POWER LED   ⑧ : NONE
⑨ : SUSPEND LED

Flash Memory: BIOS Update

1. Download BIOS files and flash utility from your board vendor. The files are **awdflash.exe** and ***.bin** file.
2. Copy them to bootable diskette and boot from the diskette. The diskette cannot include memory manager e.g. **emm386.exe**, **qemm** or **himem.sys** file, otherwise there will appear an error message "insufficient memory".
3. Type "**awdflash filename (XXXX.bin)**".
4. Next screen will ask you save current BIOS to file or not? Depends on your diskette capacity, choose **Y** or **N** for this option.
5. Then screen asks you programming the flash memory now? Type **Y** for this option.
6. Programming finished, utility will ask you to reboot system.
7. Reset system and press **DEL** key enter BIOS setup screen.
8. Select **"LOAD BIOS DEFAULTS"**, press **ENTER**, press **Y**, press **F10**, press **Y**. Finish update process.

Driver Installation

VIA Patch Code Installation

Windows95/Windows98:
1. Go to the CD-ROM disk, we suggest the CD-ROM title is D:\.
2. Find and run D:\Patch\Via\patch9x\Setup\Setup.exe
3. Select "Install VIA Chipset Functions' Registry", then it will automatically install this program.

Note! This program should be installed before any other VIA's drivers.

VIA AGP VxD Driver for Windows 9x Installation

Windows95/Windows98:
1. Go to the CD-ROM disk, we suggest the CD-ROM title is D:\.
2. Find and run D:\Driver\Via\Agp\Setup\Setup.exe
3. Select "Install VIA AGP VxD in turbo mode" or "Install VIA AGP VxD normal mode", then it will automatically install this program.

VIA PCI IRQ Routing Miniport for Windows 9x Installation

Windows95/Windows98:
1. Go to the CD-ROM disk, we suggest the CD-ROM title is D:\.
2. Find and run D:\Patch\Via\Virq9x\Setup.exe

Note: Before install Windows98, user must enable two functions for this miniport driver in the BIOS menu, one is "*OnChip USB*" in the "Chipset Features Setup" and another is "*Assign IRQ for USB*" in the "PNP/PCI Configuration Setup".

There is a convenient way to install all of VIA drivers:
1. Make sure that the CD is in the CD-ROM and we suggest the CD-ROM title is D:\.
2. Go and find the directory "D:\PATCH\VIA\", find a program "4in14xx.exe".
3. Run the program after copied it to your hard disk.
4. Then the program will unzip all files including "setup.exe".
5. Run "setup.exe". And the setup process will finish installation of all drivers automatically.

Onboard AC97 Audio Codec Controller Driver Installation for Windows95/Windows98

1. Go to CD-ROM driver, we suggest the CD-ROM title is D:\.
2. Find and run D:\DRIVER\AUDIO\VIA AC97\SETUP.EXE or 68USR1XX.EXE
3. Then the setup program will detect your O.S. to install relative files into your system.
4. Reboot the computer.

> **NOTE: 1. IF USER WANT TO USE EXTERNAL SOUND CARD, USER MUST RUN BIOS PROGRAM TO DISABLE "Onchip Sound" option in the "Chipset Feature Setup" and "Onboard Legacy Audio" option in the "Integrated Peripherals".**
> **2. UNDER WINDOWS95, USER HAS TO INSTALL DirectX FOR AGP ENVIRONMENT.**

■ **IF USER'S HARD DISK SUPPORTS Ultra ATA66, THEN USER MUST SELECT THE SPECIFIC CABLE FOR THE BEST TRANSMISSION TO Ultra ATA66!**

Chapter 3
BIOS SETUP

This 693 Apollo motherboard comes with the AWARD BIOS from AWARD Software
Inc. Enter the Award BIOS
program Main Menu by:

> 1. Turn on or reboot the system. After a series of diagnostic checks, the
>   following message will appear:

    PRESS <DEL> TO ENTER SETUP

> 2. Press the <DEL> key and the main program screen will appear as follows.

```
                    ROM PCI/ISA BIOS
                   CMOS SETUP UTILITY
                  AWARD SOFTWARE, INC.
┌─────────────────────────────────────────────────────────────┐
│                                                               │
│   STANDARD CMOS SETUP            CPU SPEED SETTING            │
│                                                               │
│   BIOS FEATURES SETUP            INTEGRATED PERIPHERALS       │
│                                                               │
│   CHIPSET FEATURES SETUP         SUPERVISOR PASSWORD          │
│                                                               │
│   POWER MANAGEMENT SETUP         USER PASSWORD                │
│                                                               │
│   PNP/PCI CONFIGURATION          IDE HDD AUTO DETECTION       │
│                                                               │
│   LOAD SETUP DEFAULTS            SAVE & EXIT SETUP            │
│                                                               │
│                                  EXIT WITHOUT SAVING          │
│                                                               │
├─────────────────────────────────────────────────────────────┤
│                                                               │
│ Esc : Quit                  ¡ Ô Õ † Ö:Select Item            │
│ F10 : Save & Exit Setup         (Shift) F2 : Change Color     │
├─────────────────────────────────────────────────────────────┤
│                                                               │
│              Time, Date, Hard Disk Type...                    │
│                                                               │
└─────────────────────────────────────────────────────────────┘
```

3. Using the arrows on your keyboard, select an option, and press <Enter>. Modify the system parameters to reflect the options installed in your system.
4. You may return to the Main Menu anytime by pressing <ESC> .
5. In the Main Menu, "SAVE AND EXIT SETUP" saves your changes and reboots the system, and "EXIT WITHOUT SAVING" ignores your changes and exits the program.

Standard CMOS Setup

Standard CMOS Setup allows you to record some basic system hardware configuration and set the system clock and error handling. You only need to modify the configuration values of this option when you change your system hardware configuration or the configuration stored in the CMOS memory gets lost or damaged.

Run the Standard CMOS Setup as follows:

1. Choose "STANDARD CMOS SETUP" from the Main Menu and a screen with a list of options will appear.

```
                    ROM PCI/ISA BIOS
                   STANDARD CMOS SETUP
                  AWARD SOFTWARE, INC.
Date (mm:dd:yy) : Thu, May 9 1996
Time (hh:mm:ss) : 15 : 45 : 10

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
                               Extended  Memory:  15360K
                                 Other Memory:      384K
Video : EGA/VGA
Halt On : All Errors              Total Memory: 16384K

Esc : Quit        ↑ ↓ → ←¡ Select Item     PU/PD/+/- : Modify

F1  : Help        (Shift) F2 : Change Color
```

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys.

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A short description of the screen options is as follows:

Date (mm:dd:yy)   Set the current date and time.
Time (hh:mm:ss)

Primary   This field records the specifications
(Secondary)   for all non-SCSI hard disk drives
Master/Slave   installed in your system. Refer to
                the respective documentation on
                how to install the drives.

Drive A/B   Set this field to the type(s) of floppy
                disk drive(s) installed in your system.
                The choices are:
                360KB, 5.25 in.,
                1.2MB, 5.25 in.,
                720KB, 3.5 in.,
                1.44M, 3.5 in. (default),
                2.88MB, 3.5 in., or None

Video   Set this field to the type of video
                display card installed in the system.
                The choices are: Monochrome;
                Color 40x25; VGA/EGA (default);
                or Color 80x25

Halt On   Set this warning feature for the type of
                errors that will cause the system to halt.
                The choices are: All Errors (default);
                No Errors; All, But Keyboard;
                All, But Diskette; or
                All, But Disk/Key

3. Press <ESC> to return to the Main Menu when you finish setting up the
   "Standard CMOS Setup"

BIOS Features Setup

BIOS Features Setup allows you to improve your system performance or set up system features according to your preference.

Run the BIOS Features Setup as follows:

1. Choose "BIOS FEATURES SETUP" from the Main Menu and a screen with a list of options will appear.

```
                    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     │
│Quick Power on Self Test   : Enabled   D4000-D7FFF Shadow   : Disabled     │
│Boot Sequence              : A,C,SCSI  D8000-DBFFF Shadow   : Disabled     │
│Swap Floppy Drive          : Disabled  DC000-DFFFF Shadow   : Disabled     │
│Boot Up Floppy Seek        : Disabled                                      │
│Boot Up NumLock Status     : On                                            │
│IDE HDD Block MODE         : Enabled                                       │
│Gate A20 Option            : Fast      ───────────────────────────────────│
│Memory Parity/ECC Check    : Disabled  ESC :Quit   ¡ ÔÕ † ö Select Item    │
│Typematic Rate Setting     : Disabled  F1  :Help        PU/PD/+/-: Modify  │
│Typematic Rate (Chars/Sec) : 6         F5  :Old Values(Shift)F2 : Color    │
│Typematic Delay (Msec)     : 250       F6  :Load BIOS Defaults             │
│Security Option            : Setup     F7  :Load Setup Defaults            │
│PCI/VGA Palette Snoop      : Disabled                                      │
│OS Select for DRAMs>64MB   : Non-OS/2                                      │
└─────────────────────────────────────────────────────────────────────────┘
```

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys. An explanation of the <F> keys follows:

<F1>: "Help" gives options available for each item.
Shift <F2>: Change color.

<F5>: Get the previous values. These values are the values with which the user started in the current session.

<F6>: Load all options with the BIOS default values.

<F7>: Load all options with the Setup default values.

A short description of screen options follows:

Virus Warning   Enabled: Activates automatically
                                 when the system boots
                                 up causing a warning
                                 message to appear if
                                 there is anything
                                 attempting to access the
                                 boot sector or hard disk
                                 partition table.

                     Disabled: No warning message
                                 will appear when there is
                                 something attempting to
                                 access the boot sector or
                                 hard disk partition table

                     *Note: Many diagnostic (or boot
                     manager) 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 disable the
                     virus protection first.*

CPU Internal   Choose Enabled (default) or
Cache   Disabled. This option allows you to
                     enable or disable the CPU's internal
                     cache.

External Cache   Choose Enabled (default) or
                     Disabled. This option allows you to
                     enable or disable the external cache
                     memory.

CPU L2 Cache   Use default setting.
ECC Checking

Quick Power On Self Test	Choose Enabled (default) or Disabled. This option allows you to speed up the Power-On Self-Test routine.
Boot Sequence	Default is "A, C, SCSI" This option determines which drive to look at first for an operating system.
Swap Floppy Drive	Choose Enabled or Disabled (default). This option swaps floppy drive assignments when it is enabled.
Boot Up Floppy Seek	Enabled (default): During POST, BIOS checks the track number of the floppy disk drive to see whether it is 40 or 80 tracks. Disabled: During POST, BIOS will not check the track number of the floppy disk drive.
Boot Up NumLock Status	Choose On (default) or Off. This option lets user activate the NumLock function at boot-up.
IDE HDD Block Mode	Choose Enabled (default) or Disabled. If your hard disk size is larger than 540MB, choose Enabled, and, if you are using the IDE HDD Auto Detection option, the BIOS will choose this option automatically. *Note: Some older model HDDs don't provide this feature.*

Gate A20 Option   Choose Normal or Fast (default).
                        This option allows the RAM to
                        access the memory above 1MB by
                        using the fast gate A20 line.

Memory Parity   Choose Enabled or Disabled
/ECC Check

Typematic Rate   Choose Enabled or Disabled
Setting   (default). Enable this option to
                        adjust the keystroke repeat rate.

Typematic Rate   Range between 6 (default) and 30
(Chars/Sec)   characters per second. This option
                        controls the speed of repeating
                        keystrokes.

Typematic Delay   Choose 250 (default), 500, 750, and
(Msec)   1000. This option sets the time
                        interval for displaying the first and
                        the second characters.

Security Option   Choose System or Setup (default).
                        This option prevents
                        unauthorized system boot-up or use
                        of BIOS Setup.

PCI/VGA palette   Choose Enabled or Disabled
Snoop   (default). It determines whether or not the
                        MPEG ISA cards can work with
                        PCI/VGA.

OS Select for DRAM > 64MB	Non-OS2 (default): For Non-OS/2 system. OS: For OS/2 system.
Video BIOS Shadow	Enabled (default): Map the VGA BIOS to system RAM. Disabled: Will not map the VGA BIOS to system RAM.
C8000-CBFFF to	These options are used to shadow
DC000-DFFF Shadow	other expansion card ROMs.

3. Press <ESC> and follow the screen instructions to save or disregard your
   settings.

Chipset Features Setup

Chipset Features Setup changes the values of the chipset registers. These registers control the system options.

Run the Chipset Features Setup as follows:

1. Choose "CHIPSET FEATURES SETUP" from the Main Menu and a screen with a list of options will appear.

```
                    ROM PCI/ISA BIOS
                 CHIPSET FEATURES SETUP
                  AWARD SOFTWARE, INC.
┌──────────────────────────────────────────────────────────────────┐
│Bank 0/1 DRAM Timing    : SDRAM 10ns │CPU Vcore Select    : Default │
│Bank 2/3 DRAM Timing    : SDRAM 10ns │                              │
│Bank 4/5 DRAM Timing    : SDRAM 10ns │                              │
│SDRAM Cycle Length      : 3          │                              │
│DRAM Clock              : Host CLk   │                              │
│Memory Hole             : Disabled   │                              │
│Read Around write       : Disabled   │                              │
│Concurrent PCI/Host     : Disabled   │                              │
│System BIOS Cacheable   : Disabled   │                              │
│Video RAM Cacheable     : Disabled   │                              │
│AGP Aperture Size       : 64M        │                              │
│AGP-2X Mode             : Enabled    │                              │
│OnChip USB              : Enabled    ├──────────────────────────────│
│OnChip USB1             : Enabled    │ESC: Quit   ↑ ↓ → ←: Select Item│
│USB Keyboard Support    : Disabled   │F1 : Help      PU/PD/+/-: Modify│
│OnChip Sound            : Enabled    │F5 : Old Values (Shift)F2 : Color│
│OnChip Modem            : Disabled   │F6 : Load BIOS Defaults        │
│                                     │F7 : Load Setup Defaults       │
└──────────────────────────────────────────────────────────────────┘
```

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys.

A short description of screen options follows:

Bank 0/1 2/3 4/5 DRAM Timing   This item allows you to select the value in this field, depending on whether the board has paged DRAMs or EDO (extended data output) DRAMs. The Choice: EDO 50ns, EDO 60ns,Slow, Medium, Fast, Turbo.

SDRAM Cycle
Length Time

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

DRAM Clock

Use default setting.

Memory Hole

Choose Enabled or Disabled(default). In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory's space below 16MB.

Read Around Write

DRAM optimization feature: If a memory read is addressed to a location whose latest write is being held in a buffer before being written to memory, the read is satisfied through the buffer contents, and the read is not sent to the DRAM
The Choice: Enabled, Disabled.

Concurrent
PCI/HOST

When disabled, CPU bus will be occupied during the entire PCI operation period.
The Choice: Enabled, Disabled

System BIOS
Cacheable

Choose Enabled or Disabled (default). When Enabled, the access to the system BIOS ROM addressed at F0000H-FFFFFH is cached.

Video RAM Cacheable	Choose Enabled or Disabled (default). When Enabled, the access to the VGA RAM addressed is cached.
AGP Aperture Size (MB)	Choose 4 , 8, 16, 32, 64 (default), 128, or 256 MB. Memory mapped and graphics data structures can reside in a Graphics Aperture. This area is like a linear buffer. BIOS will automatically report the starting address of this buffer to the O.S.
AGP-2X Mode	this item allows you to enable / disable the AGP-2X (Clock 133MHz) Mode.
OnChip USB OnChip USB1	This should be enabled if your system has a USB installed on the system board and you wish to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature. The choice: Enabled, Disabled.
USB Keyboard Support	Enable: Enable function when the USB keyboard is being used. Disabled (default) : When the AT keyboard is being used.
OnChip Sound	Enabled (default) : Turn on AC'97 chip controller. Disabled: Turn off AC'97 chip controller.

OnChip Modem   Enabled: Turn on MC99 feature.
Disabled (default) : Disable AC'97 chip
              controller or user can external
              add-on modem.

CPU Vcore Select   The Choice: default, -0.05V, -0.1V, +0.05V,
+0.1V, +0.2V, +0.3V, +0.4V.

NOTE: Wrong setting of CPU Vcore may cause damage to CPU. In consequence of such a potential risk, we strongly recommend user to leave DEFAULT setting unless user does comprehend how to set accurate CPU Vcore.

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

Power Management Setup

Power Management Setup sets the system's power saving functions.

> 1. Choose "POWER MANAGEMENT SETUP" from the Main Menu and a screen with a list of options will appear.

```
                      ROM PCI/ISA BIOS
                    POWER MANAGEMENT SETUP
                    AWARD SOFTWARE, INC.
┌─────────────────────────────────┬─────────────────────────────────┐
│ACPI Function      :Disabled      │Primary INTR          : ON        │
│Power Management   :User Define    │IRQ3  (COM2)          : Primary   │
│PM Control by APM  :Yes           │IRQ4  (COM1)          : Primary   │
│Video Off After    :Suspend       │IRQ5  (LPT2)          : Primary   │
│Video Off Method   :V/H SYNC+Blank│IRQ6  (Floppy Disk)   : Primary   │
│Modem Use IRQ      :3             │IRQ7  (LPT 1)         : Primary   │
│Soft-Off by PWRBTN :Instant-Off   │IRQ8  (RTC Alarm)     : Disabled  │
│HDD Power Down     :Disabled      │IRQ9  (IRQ2 Redir)    : Secondary │
│Doze Mode          :Disabled      │IRQ10 (Reserved)      : Secondary │
│Suspend Mode       :Disabled      │IRQ11 (Reserved)      : Secondary │
│       **PM Events**              │IRQ12 (RS/2 Mouse)    : Primary   │
│VGA                :OFF           │IRQ13 (Coprocessor)   : Primary   │
│LPT&COM            :LPT/COM       │IRQ14 (Hard Disk)     : Primary   │
│HDD&FDD            :ON            │IRQ15 (Reserved)      : Disabled  │
│DMA/master         :OFF           ├─────────────────────────────────┤
│Modem Ring Resume  :Disabled      │ESC : Quit  ↑ ↓ → ←: Select Item  │
│RTC Alarm  Resume  :Enabled       │F1 : Help     PU/PD/+/- : Modify  │
│Date(of Month)     : 0            │F5 : Old Values (Shift)F2 : Color │
│Timer(hh:mm:ss)    : 0: 0: 0      │F6 : Load BIOS Defaults           │
│                                  │F7 : Load Setup Defaults          │
└─────────────────────────────────┴─────────────────────────────────┘
```

> 2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys.

A short description of screen options follows:

ACPI Function   Enabled: Turn on ACPI Function
Disabled(default):Turn off ACPI Function

Power Management   Choose Max. Saving, User Define (default), Disabled, or Min. Saving.

PM Control by APM   Choose Yes (default) or No. You need to choose Yes when the operating system has the APM functions, otherwise choose No.

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Video Off Method   Choose Blank , DPMS, or V/H
                        Sync+Blank (default). You can
                        choose either DPMS or V/H
                        Sync+Blank when the monitor has
                        the Green function. You need to
                        choose Blank when the monitor has
                        neither the Green function.

Video Off After   Choose NA, Suspend, Standby
                        (default), or Doze.

MODEM Use IRQ   Assign the IRQ number to the
                        modem which is being used so that
                        the ring signal can wakeup the
                        system. The default setting is 3
                        (COM2).

Soft-Off by PWR-   Instant-off: (default) turns off the
BTTN   system power at once
                                      after pushing the
                                      power button.
                        Delay 4 Sec: turns off the system
                                      power 4 seconds after
                                      pushing the power
                                      button (to meet PC97/98
                                      spec.)

Doze Mode   This mode sets the CPU
                        speed down to 33MHz.

Standby Mode **Suspend Mode**	These two options allow you to choose the mode for the different timers. The Standby Mode turns off the VGA monitor, and the Suspend Mode turns off the CPU and saves the energy of the system.
HDD Power Down	Time is adjustable from 1 to 15 minutes. When the set time has elapsed, the BIOS sends a command to the HDD to power down, which turns off the motor.
Modem Ring **Resume**	An input signal on the serial Ring Indicator (RI) Line (in other words, An incoming call on the modem) Awakens the system from a soft off state
IRQ (#), NMI; **Primary IDE 0** **Primary IDE 1;** **Secondary IDE 0** **Secondary IDE 1;** **Floppy Disk;** **Serial Port;** **Parallel Port**	Enabled: (default) The system can not enter the power saving mode when I/O ports or IRQ # is activated Disabled: The system still can enter the power saving mode when I/O ports or IRQ# is activated.

*Note: These functions can only be activated when the power
management option is Enabled*

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

PnP/PCI Configuration Setup

PnP/PCI Configuration Setup configures the PCI bus slots.

> Run the Chipset Features Setup as follows:

> 1. Choose "PnP/PCI CONFIGURATION SETUP" from the Main Menu and a screen with a list of options will appear.

```
                 ROM PCI/ISA BIOS
                PNP/PCI CONFIGURATION
                AWARD SOFTWARE, INC.
```

```
PNP OS Installed       : No        CPU to PCI Write Buffer : Enabled
Resources Controlled By : Auto     PCI Dynamic Bursting    : Enabled
Reset Configuration Data: Disabled PCI Master 0 WS Write    : Enabled
                                   PCI Delay Transaction    : Enabled
IRQ-3  assigned to     : PCI/ISA PnP  PCI#2 Access #1 Retry   : Disabled
IRQ-4  assigned to     : PCI/ISA PnP  AGP Master 1 WS Write   : Enabled
IRQ-5  assigned to     : PCI/ISA PnP  AGP Master 1 WS Read    : Disabled
IRQ-7  assigned to     : PCI/ISA PnP
IRQ-9  assigned to     : PCI/ISA PnP  Assign IRQ For VGA     : Enabled
IRQ-10 assigned to     : PCI/ISA PnP  Assign IRQ For USB     : Enabled
IRQ-11 assigned to     : PCI/ISA PnP
IRQ-12 assigned to     : PCI/ISA PnP
IRQ-14 assigned to     : PCI/ISA PnP
IRQ-15 assigned to     : PCI/ISA PnP
DMA-0  assigned to     : PCI/ISA PnP
DMA-1  assigned to     : PCI/ISA PnP  ESC : Quit   ¡ Ô Õ † ö Select Item
DMA-3  assigned to     : PCI/ISA PnP  F1  : Help        PU/PD/+/- : Modify
DMA-5  assigned to     : PCI/ISA PnP  F5  : Old Values (Shift)F2 : Color
DMA-6  assigned to     : PCI/ISA PnP  F6  : Load BIOS Defaults
DMA-7  assigned to     : PCI/ISA PnP  F7  : Load Setup Defaults
```

> 2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys.

A short description of screen options follows:

PNP OS Installed   Yes: OS supports Plug and Play function.
No (default): OS doesn't support Plug and Play function.

> *Note: BIOS will automatically disable all PnP resources except the boot device card when you select Yes on Non-PnP OS..*

Resources Controlled By	Choose Manual (default) or Auto. The BIOS checks the IRQ/DMA channel number on the ISA and PCI card manually if you choose Manual and the IRQ/DMA channel number will be checked automatically if you choose Auto.
Reset Configuration Data	Choose Enabled or Disabled (default). Disabled retains PnP configuration data in BIOS and Enabled resets the PnP configuration data in the BIOS.
IRQ-x assigned to DMA-x assigned to	Legacy ISA: Manually assigns IRQ/DMA to device. PCI/ISA PnP: BIOS assigns IRQ/DMA to device automatically.
CPU to PCI Write Buffer	Use default setting.
PCI Dynamic Bursting	Use default setting.
PCI Master O WS Write	Use default setting.
PCI Delay Transaction	Use default setting.

PCI#2 Access #1 Retry	Use default setting.
AGP Master 1 WS Write	Use default setting.
AGP Master 1 WS Read	Use default setting.
Assign IRQ for VGA	Choose Enabled (default) or Disabled. Enabled: Add one IRQ to VGA controller. Disabled: Remove IRQ from VGA controller. The system will have extra IRQ for other devices but the VGA controller will still not be disabled (only IRQ will b removed.)
Assign IRQ for USB	Choose Enabled (default) or Disabled. Enabled: Add one IRQ to USB controller. Disabled: Remove IRQ from USB controller. The system will have extra IRQ for other devices but the USB controller will still not be disabled (only IRQ was removed).

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

Load Setup Defaults

Load Setup Defaults option loads the default system values to the system
configuration fields. If the CMOS is corrupted the defaults are loaded automatically.

Choose this option and the following message will appear:

```
"Load Setup Defaults (Y/N)? N"
```

To use the Setup defaults, change the prompt to "Y" and press <Enter>.

CPU SPEED SETTING

```
                      ROM PCI/ISA BIOS
                      CPU FEATURE SETUP
                     AWARD SOFTWARE, INC.
┌──────────────────────────────────┬─────────────────────────────┐
│CPU Host Clock          :Default   │                             │
│Current CPU Temp        :29C/86F   │                             │
│Current System Temp     :0C/32F    │                             │
│Current CPU Fan1 Speed  :0rpm      │                             │
│Current CPU Fan2 Speed  :5242rpm   │                             │
│Vcore   :1.95V      2.5V:2.50V     │                             │
│3.3V    :3.36V                     │                             │
│12V     :11.94V     5V  :5.00V     │                             │
│                                   │                             │
│                                   │                             │
│                                   ├─────────────────────────────│
│                                   │ESC : Quit  ¡ ô õ † ö Select Item│
│                                   │F1  : Help      PU/PD/+/- : Modify│
│                                   │F5  : Old Values (Shift)F2 : Color│
│                                   │F6  : Load BIOS Defaults     │
│                                   │F7  : Load Setup Defaults    │
│                                   │                             │
└──────────────────────────────────┴─────────────────────────────┘
```

Press <ESC> and follow the screen instructions to save or disregard your settings.

Integrated Peripherals

Integrated Peripherals option changes the values of the chipset registers. These registers control system options in the computer.

    1. Choose "INTEGRATED PERIPHERALS" from the Main
       Menu and a screen with a list of options will appear.

```
                        ROM PCI/ISA BIOS
                     INTEGRATED PERIPHERALS
                      AWARD SOFTWARE, INC.
┌─────────────────────────────────────┬──────────────────────────────────────┐
│OnChip IDE Channel0    : Enabled      │Onboard Parallel Port  : 378/IRQ7      │
│OnChip IDE Channel1    : Enabled      │Onboard Parallel Mode  : SPP           │
│IDE Pretetch Mode      : Enabled      │Onboard Legacy Audio   : Enabled       │
│Primary Master PIO     : Auto         │Sound Blaster          : Disabled      │
│Primary Slave PIO      : Auto         │SB I/O Base Address    : 220H          │
│Secondary Master PIO   : Auto         │SB IRQ Select          : IRQ 5         │
│Secondary Slave PIO    : Auto         │SB DMA Select          : DMA 0         │
│Primary Master UDMA    : Auto         │MPU-401                : Disabled      │
│Primary Slave UDMA     : Auto         │MPU-401 I/O Address    : 330-333H      │
│Secondary Master UDMA  : Auto         │Game Port (200-207H)   : Enabled       │
│Secondary Slave UDMA   : Auto         │                                       │
│Init Display First     : PCI Slot     │                                       │
│Power On Function      : ButtonOnly   │                                       │
│KBC Input Clock        : 8MHz         │                                       │
│Onboard FDC Controller : Enabled      ├───────────────────────────────────────┤
│Onboard Serial Port 1  : 3F8/IRQ4     │                                       │
│Onboard Serial Port 2  : 2F8/IRQ3     │ESC : Quit    ¡ ô õ ╪ ö Select Item    │
│UART Mode Select       : Normal       │F1  : Help      PU/PD/+/- : Modify     │
│UART2 Duplex Mode      : Half         │F5  : Old Values (Shift)F2: Color      │
│RxD, TxD Active        : Lo, Lo       │F6  : Load BIOS Defaults               │
│IR Transmission Delay  : Disabled     │F7  : Load Setup Defaults              │
└─────────────────────────────────────┴──────────────────────────────────────┘
```

    2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/-keys.

    A short description of screen options is as follows:

IDE Primary   Choose Auto (default) or Mode 0~4.
Master/Slave PIO   The BIOS will detect the HDD Mode
IDE Secondary   type automatically when you
Master/Slave PIO   choose Auto. You need to set to a
                    lower mode than Auto when your
                    hard disk becomes unstable.

On-Chip Primary/ Enabled: (default)Turn on the
Secondary PCI IDE   onboard IDE function.
                    Disabled: Turn off the onboard IDE
                         function.

Power On Function	Choose BUTTON ONLY(default), Password, Mouse Left or Mouse Right. **Mouse Left:** Use the PS/2 mouse left to boot the system. **Mouse Right:** Use the PS/2 mouse right to boot the system. **Password:** Choose a special password which is defined by the user or use one of the HOT keys(from CTRL-F1 to CTRL-F12)to boot the system.
KBC Input Clock	Choose 6MHz, 8MHz(default), 12MHz or 16MHz. There might be a compatible problem when is above 8MHz.
Onboard FDC Controller	Choose Enabled (default) or Disabled. Choose Disabled when you use an ISA card with FDD function, or , choose Enabled to use the onboard FDD connector.
Onboard Serial Port 1	Choose Auto (default), 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, or Disabled. Do no set port 1 & 2 to the same value, except when setting at Disabled.
Onboard Serial Port 2	Choose Auto (default), 3F8/IRQ4 , 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, or Disabled.
UART Mode Select	Use default setting.

UART2 Duplex Mode   Use default setting.

RxD, TxD Active   Use default setting.

IR Transmission Delay   Enabled: Enable delay when transfers data.
Disabled (default): Disable delay when transfers data.

Onboard Parallel Port   Choose the printer I/O address: 378H/IRQ7 (default), 3BCH/IRQ7, 278H/IRQ5, Disabled

Onboard Parallel Mode   Choose Normal (default), ECP/EPP EPP, or ECP mode. The mode depends on the external device connected to this port.

ECP Mode Use DMA   Choose DMA3 (default) or DMA1. Most sound cards use DMA1. Check with your sound card configuration to make sure that there is no conflict with this function.

: This option will not be displayed unless the EPP/ECP function is selected..

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Parallel Port EPP Type	Choose EPP1.7 (default) or EPP1.9. EPP1.9 supports hardware handshake. This setting is dependent upon your EPP device.

Note: The above 2 options will not be displayed unless the EPP/ECP function is selected.

Onboard Legacy Audio	Use default setting.
Sound Blaster	Use default setting.
SB I/O Base Address	Use default setting.
SB IRQ Select	Use default setting.
SB DMA Select	Use default setting.
MPU-401	Use default setting.
MPU-401 I/O Address	Use default setting.
Game Port (200-207H)	Use default setting.

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

Supervisor/User Password

These two options allow you to set your system passwords. Normally, the supervisor has a higher ability to change the CMOS setup option than the user. The way to set up the passwords for both Supervisor and User are as follows:

1. Choose "Change Password" in the Main Menu and press <Enter>. The following message appears:

   `"Enter Password:"`

2. The first time you run this option, enter your password up to 8 characters and press <Enter>. The screen does not display the entered characters.

3. After you enter the password, the following message appears prompting you to confirm the password:

   `"Confirm Password:"`

4. Enter the same password "exactly" as you just typed again to confirm the password and press <Enter>.

5. Move the cursor to Save & Exit Setup to save the password.

6. If you need to delete the password you entered before, choose the Supervisor Password and press <Enter>. It will delete the password that you had before.

7. Move the cursor to Save & Exit Setup to save the option you did, otherwise the old password will still be there the next time you turn your machine on.

8. Press <ESC> to exit to the Main Menu.

Note: If you forget or lose the password, the only way to access the system is to clear the CMOS RAM by setting JBAT1. All setup information will be lost and you need to run the BIOS setup program again.

IDE HDD Auto Detection

IDE HDD Auto Detection detects the parameters of an IDE hard disk drive and automatically enters them to the Standard CMOS Setup screen.

The screen will ask you to select a specific hard disk for Primary Master after you select this option. If you accept a hard disk detected by the BIOS, you can enter "Y" to confirm and then press <Enter> to check next hard disk. This function allows you to check four hard disks and you may press the <ESC> after the <Enter> to skip this function and go back to the Main Menu.

Save & Exit Setup

Save & Exit Setup allows you to save all modifications you have specified into the CMOS memory. Highlight this option on the Main Menu and the following message appears:

> SAVE to CMOS and EXIT (Y/N)? Y

> Press <Enter> key to save the configuration changes.

Exit Without Saving

Exit Without Saving allows you to exit the Setup utility without saving the modifications that you have specified. Highlight this option on the Main Menu and the following message appears:

> Quit Without Saving (Y/N)? N

> You may change the prompt to "Y" and press the <Enter> key to leave this option.