FC

Declaration of Conformity

According to 47 CFR, Parts 2 and 15 of the FCC Rules

The following designated product:

EQUIPMENT: MAINBOARD

MODEL NO. : 6VIA5T

is a Class B digital device that complies with 47 CFR Parts 2 and 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

This declaration is given to the manufacturer:

CHAINTECH-EXCEL COMPUTER INC.

4427 Enterprise St. Fremont, CA 94538, U.S.A.

http://www.chaintech-excel.com

Chaintech President: Simon Ho

Signature:

Federal Communications Commission Statement

This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:

- This device may not cause harmful interference
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy. If this equipment is not installed and used in accordance with the manufacturer's instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for audio noise emissions from digital apparatusses set out in the Radio Interference Regulations of the Canadian Department of Communications.

Manufacturer's Disclaimer Statement

Printed in Taiwan

August 2001

100% POST-CONSUMER RECYCLED PAPER

Table of Contents

Chapter 1

Introduction

1-1 Product Specifications

❏ **Processor**
- Supports Intel Socket 370 processors
- System clock 66/100/133MHz

⚠ This mainboard does not support PPGA Celeron processor

❏ **Chipset**
- VIA VT82C694T + VT82C686B dual chip AGPset

❏ **DRAM Memory**
- Two 168-pin DIMM sockets support up to 1GB for SDRAM
- Supports PC100/PC-133 SDRAM

❏ **Expansion Slots**
- One Universal-AGP slot for both 2X/4XAGP (v2.0 compliant)
- Three 32-bit PCI slots (Rev 2.2 compliant)
- One ISA slot shared with PCI slot

❏ **Boot-Block Flash ROM**
- **Award BIOS**, supports PnP, APM, DMI, ACPI & Multi-device booting features i.e. floppy, LS120, CD-ROM, HDD(IDE, SCSI), ZIP-ATAPIetc.
- Includes **Trend ChipAway Virus** protection for virus-free boot and virus-free operating system.

❏ **Embedded Ultra DMA-66/100 PCI IDE controller**
- Supports two IDE ports up to 4 ATAPI devices
- Supports up to PIO Mode 4 up to 16.6MBps, Multi Mode 4 up to 66MBps and Multi Word Mode 5 up to 100MBps with bus mastering

❏ **Onboard Ultra I/O**
- Two UARTs support serial port and IR function
- One parallel supports SPP/ECP/EPP
- One floppy disk drive connector supports up to 2.88MB

❏ **Double Stack Back-Panel I/O Connectors**
- PS/2 Mini-DIN keyboard and mouse port
- Two USB ports
- Two 9-pin D-SUB male Serial port
- One 25-pin D-SUB female Printer port
- Audio Line-in/out and Mic-in jacks
- One 15-pin D-SUB female Game/MIDI port

❒ **Embedded Audio Subsystem AC-link**
- Full-duplex operation for simultaneous recording and plackback
- Built-in FM-emulation music synthesizer
- External high quality AC97 CODEC provides 90dB+SNR CD quality audio

❒ **Embedded System Monitor Hardware**
- 5 external voltage inputs (internal detecting)
- 1 temperature sensor with thermistor for CPU
- 2 Fan speed (CPU and System) monitoring with CPU Fan ON/OFF control in suspend

❒ **Embedded USB Controller**
- UHCI compliant USB host controller with Root Hub
- Four USB ports (UHCI v1.0 compliant)
- Optional USB riser with additional 2 USB ports

❒ **Board Dimensions**
- Micro-ATX form factor, 244mm x 194mm, 4 Layers

1-2 Package Contents

This product comes with the following components:

❒ One mainboard

❒ One 40-pin (80-wire) UDMA-66/100 IDE connector ribbon cable (Figure 1-1)
* Color coded connection for UDMA-66/100 cable
Blue to mainboard, Gray to Master and Black to slave

❒ One 34-pin floppy disk drive ribbon cable (Figure 1-2)

❒ One User's Manual

❒ One CD-ROM that includes
- Award Flash Utility
- Award DMI Utility for DOS
- Audio driver and utility for Win9x/ME, NT and Win2000
- VIA Service Pack for Win9x/WinNT including Bus Master IDE drivers, AGP VxD and etc.
- Optional **Value Pack 2001** software group including Norton AntiVirus, AutoSave, ADOBE ActiveShare, Acrobat Reader, Imagemore, X-stop, Appio and Ewalla.

✎ See the Readme.txt file in the CD-ROM's root directory for installation instructions of all driver and software utilities.

Figure 1-1 IDE UDMA-66/100 cable
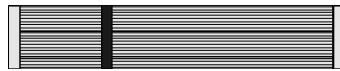
Figure 1-2 Standard Floppy cable

1-3 Mainboard Layout

CN2, CN3, CN4, CN5
CN20, CN22,
IR1,JP6A

JP6, FAN1
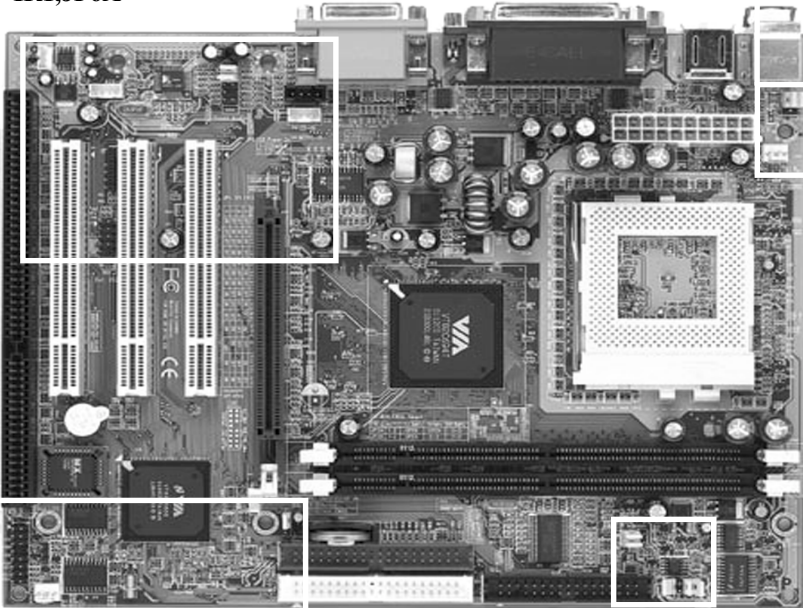
CN1A, CN17,JP1, FAN2

JP2A/B, JP4

PS/2 Mouse　　　　**Printer Port**　　　　**Game Port**

PS/2 Keyboard　**USB 0/1**　**COM1**　　**COM2**　**Line-out**　**Line-in**　**MIC**
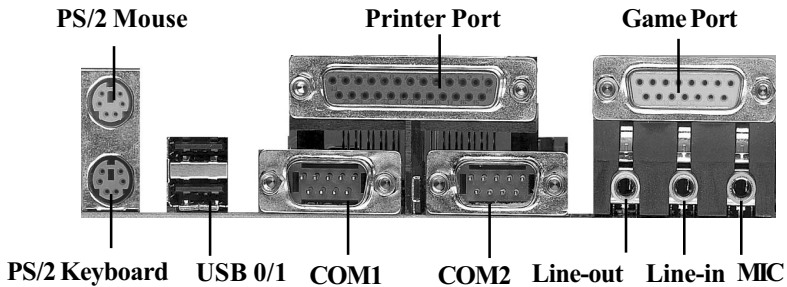
1-4 Connector and Jumper Reference Chart

Jumper & Connector No.	Function	Page
PW1	ATX Power Supply Connector	6
CN1A	Over Ride Power Button Connector	7
	Power Indicator LED Connector	
	Green Switch/GreenLED Connector	
	System Reset Switch Connector	
	Speaker Connector	
	IDE Activity LED Connector	
JP1	Clear CMOS Data	8
JP2A/JP2B	External Clock Frequency	8
JP4	CPU Frequency Ratio	8
JP6/JP6A	Power On By USB	8
CN2	CD-ROM Audio in Connector	9
CN3	Auxilliary Audio-in Connector	9
CN4	Audio Mono-in/out Connector	9
CN5	WOL (Wake-on-LAN) Connector	9
CN17	Blue Led Connector	9
USB1/CN20	USB 0/1 Ports and USB 2/3 Connectors	9
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Chapter 2

Hardware Setup

If your mainboard has already been installed in your computer you may still need to refer to this chapter if you plan to upgrade your system's hardware.

2-1 Installing a CPU in a Socket 370

The Intel Socket 370, designed for the Celeron/Coppermine processor, has been incorporated as a standard mainboard specification   To insert your CPU into Socket 370 please do the following:

1. Locate a small dot marked on the top surface of the CPU close to one if it's corners. The same corner will also be cut off, leaving a noticeable notch in the CPU's corner. These markings indicate Pin 1 of the CPU.
2. Pull up the lever of Socket 370 so that it is perpendicular with the surface of the mainboard. Gently insert the CPU with Pin 1 at the same corner of Socket 370 that contains the end of the lever. Allow the weight of the CPU to push itself into place. Do not apply extra pressure as doing so may result in damaging your CPU. Snap the lever back into place.

> **Installing a heat sink with cooling fan is necessary for proper heat dissipation from your CPU. Failing to install these items may result in overheating and possible burn-out of your CPU.**

> **The use of a Heatsink and Fan designed for the FC-PGA on a FC-PGA2 can cause damage to the socket or motherboard and will void any warranty. The extra thickness created by the IHS will cause the Heatsink and fan retention clip to exert extra stress on the Socket, Processor or Motherboard.**
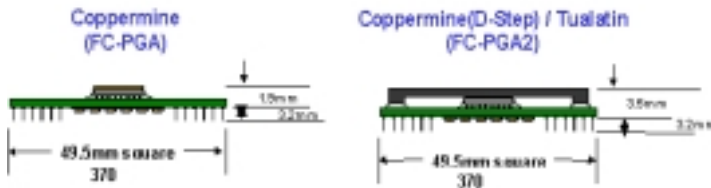
2-2 Setting Your CPU's Parameter

Frequency Configuration

If you install a CPU on this mainboard, you must set CPU Frequency Ratio(JP4) and JP2A/JP2B for External Clock Frequency.

* CPU Speed = Frequency ratio x External clock (System) Frequency

> **You do not need to make voltage settings because SeePU automatically sets your CPU voltage.**

2-3 Connector and Jumper Settings

Connectors are used to link the system board with other parts of the system, including the power supply, the keyboard, and the various controllers on the front panel of the system case.

⚠️ **The power supply connector is the last connection to be made while installing a mainboard. Before connecting the power supply, please make sure it is not connected to the power source.**

ATX Power Supply Connector (PW1)

12V	⑳ ⑩	5V
5VSB	⑲ ⑨	5V
PW-OK	⑱ ⑧	-5V
Ground	⑰ ⑦	Ground
5V	⑯ ⑥	Ground
Ground	⑮ ⑤	Ground
5V	⑭ ④	PS-ON
Ground	⑬ ③	Ground
3.3V	⑫ ②	-12V
3.3V	⑪ ①	3.3V
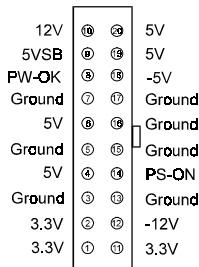
The power cord leading from the system's power supply to the external power source must be the very last part connected when assembling a system.

The ATX power supply provides a single 20-pin connector interface which incorporates standard +/-5V, +/-12V, optional 3.3V and Soft-power signals. The Soft-power signal, a 5V trickle supply is continuously supplied when AC power is available. When the system is in the Soft-Off mode, this trickle supply maintains the system in it's minimum power state.

Software Power-Off Control

This mainboard can be powered down using the Windows 95 Software Power-Off function. To power down your computer, click the START button on the Windows 95 task bar. Select "Shut Down The Computer" and the system turns off. The message "It is now safe to turn off your computer" will not be shown when using this function.

Power-On By Modem

While in Soft-off state, if an external modem ring-up signal occurs, the system wakes up and can be remotely accessed. You may enable this function in BIOS's Power Management Setup menu. (See section 3-5)

Blinking LED in Suspend Mode

While in Suspend mode, the LED light on the front panel of your computer will flash. Suspend mode is entered by pressing the Override Power Button, pushing the Green button on your ATX case, or enabling the Power Management and Suspend Mode options in BIOS's Power Management menu. (See section 3-5)

Poly-fuse Over Current Protection

The poly-fuse protects the system from dangerous voltages the system might be exposed to via the keyboard or USB connectors. In case of such exposure, the poly-fuse will immediately be disconnected from the circuit, just like a normal fuse. After being disconnected for a certain period of time, the poly-fuse will return to its normal state, after which the keyboard or USB can function properly again. Unlike conventional fuses, the poly-fuse does not have to be replaced, relieving the user wasted time and inconvenience.

Front Panel Connector Set (CN1A) A through F
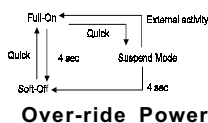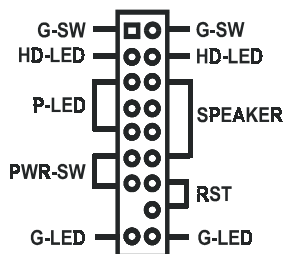
A. Over-ride Power Button Connector

The power button on the ATX chassis can be used as a normal power switch as well as a device to activate Advanced Power Management Suspend mode. This mode is used for saving electricity when the computer is not in use for long periods of time. The Soft-OFF by PWR-BTN function in BIOS's Power Management Setup menu must be set to "Delay 4 Sec." to activate this function.

When the Soft-OFF by PWR-BTN function is enabled, pushing the power button rapidly will switch the system to Suspend mode. Any occurence of external activities such as pressing a key on the keyboard or moving the mouse will bring the system back to Full-On. Pushing the button while in Full-On mode for more than 4 seconds will switch the system completely off. See Over-ride Power Button Operation diagram.

Over-ride Power

B. Power Indicator LED Connector

The power indicator LED shows the system's power status. It is important to pay attention to the correct cables and pin orientation (i.e., not to reverse the order of these two connectors.)

C. Green Switch/Green LED Connector

Some ATX cases provide a Green switch which is used to put the system in Suspend mode. In Suspend mode, the power supply to the system is reduced to a trickle, the CPU clock is stopped, and the CPU core is in it's minimum power state. The system is woken up whenever the keyboard or mouse is touched. The system resumes in different ways as defined by Power Management Setup screen in BIOS.

D. System Reset Switch Connector

This connector should be connected to the reset switch on the front panel of the system case. The reset switch allows you to restart the system without turning the power off.

E. Speaker Connector

This 4-pin connector connects to the case-mounted speaker

F. IDE Activity LED Connector

The IDE activity LED lights up whenever the system reads/writes to the IDE devices.

Clear CMOS Data (JP1)

Pin	Definition
1~2	Normal (default)
2~3	Clear CMOS Data

To clear the contents of the CMOS, please follow the steps below.

1. Disconnect the system power supply from the power source.

2. Set the jumper cap at location 2~3 for 5 seconds, then set it back to the default position.

3. Connect the system's power and then start the system.

4. Enter BIOS's CMOS Setup Utility and choose Load Setup Defaults. Type Y and press enter.

5. Set the system configuration in the Standard CMOS Setup menu.

External Clock Frequency (JP2A/JP2B)

FSB	JP2A	JP2B
Auto	1~2	1~2
66	2~3	2~3
100MHz	Open	2~3
133MHz	Open	Open

This jumper allows the system bus frequency to be determined either by CPU or the user. If set both JP2A/JP2B pins to 1-2, the CPU determines the system bus frequency speed. Set both JP2A/JP2B pins to 2-3 for 66MHz FSB, set only JP2B pins to 2-3 for 100MHz FSB and leave both JP2A/JP2B pins open for 133MHz FSB.

CPU Frequency Ratio (JP4)

RATIO	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	4/10.5	11	4.5/11.5	5/12
A	OFF	ON	ON	OFF	OFF	ON	OFF	OFF	ON	ON	ON	OFF	ON	OFF
B	OFF	ON	ON	ON	ON	OFF	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
C	OFF	ON	OFF	ON	OFF	ON	ON	OFF	OFF	OFF	ON	ON	OFF	ON
D	ON	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	OFF	ON	OFF	ON	ON

This feature allows you to set a CPU at a higher frequency clock ratio than it's specification allows. it may or may not run at that ratio, depending on the quality of your CPU and the extent to which the ratio has been overset.

⚠️ This option will not work with frequency lock CPU.

Power On By USB (JP6/JP6A)

Pin	Definition
1~2	Disable (default)
2~3	Enable

This board is able to be turned on by a USB keyboard hot key or a USB mouse click. To use this function, select a hot key of your choice at the USB Resume From S3 option under Wake Up Events in the BIOS's Power On Management screen. You must also set both jumper's cap to pins 2-3 to use this function.

CD-ROM Audio-in (CN2)

Use the audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your mainboard. This will enable your CD-ROM's audio function.

Auxiliary Audio-in (CN3)
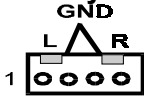
This connector is for use with a secondary CD-ROM, DVD-ROM or CDR/CDRW disk drive.

Audio Mono-in/out (CN4)
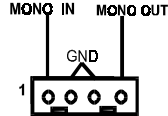
This connector is used for Add on Card e.g. modem with Mono in/out connector.

WOL (Wake-on-LAN) Connector (CN5)
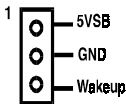
Enable the Wake Up On LAN selection in BIOS's Power Management Menu to use this function. This header is used to connect an add-in NIC (Network Interface Card) which gives WOL capability to the mainboard

Blue LED Connector(CN17)
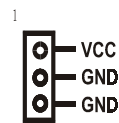
This feature work entirely the same as the power indicator LED, both shows the system's power status. The only difference is that this one is blue while the other is red LED.

USB 0/1 Ports and USB 2/3 Connector (USB1/CN20)
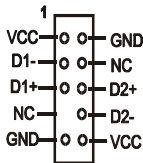
If you want to use a USB Keyboard, you must enable the USB keyboard support function in BIOS's Integrated Peripherals menu (See Section 3-4). This board contains a USB Host controller and includes a root hub with two USB 0/1 ports a connector for optional USB Adaptor (USB 2/3).

Front Panel Audio Connector (CN22)
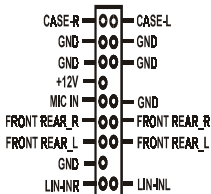
This connector give you the option of a front panel audio jack cable ext. to be plug into a special custom designed system case. Simply remove the two jumper cap at pin 6-13 and 7-12 then plug it into the (optional) cable ext. connector. Pin 6-13 and 7-12 are shorted (default) to enabled the back panel audio function.

IR Connector (IR1)
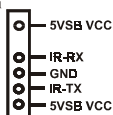
Select a UART Mode in BIOS's Integrated Peripherals menu the UART port to support IR/CIR functions. (See section 3-4)

CPU/System Cooling Fan Connectors (FAN1/FAN2)

GND
+12V
Rotation
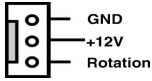
The board's management extension hardware is able to detect the CPU and system fan speed in rpm (revolutions per minute). These connectors supports 3-pin cooling fans with minimum of 4000 RPM. The wiring and plug may vary depending on the manufacturer. On standard fans, the red is positive (+12V), the black is ground, and the yellow wire is the rotation signal.

PS/2 Mouse and Keyboard Ports (PT1)

Pin	Definition
1	Data
2	No Connect
3	Ground
4	+5V (fused)
5	Clock
6	No Connect

If a PS/2 mouse is used, BIOS will automatically detect and assign IRQ12 to the PS/2 mouse.

2-4 Main Memory Configuration

The DRAM memory system consists two banks and the memory size ranges from **32~512MBytes**. If you only use one bank it does not matter which one you use and if you use two or more banks, it does not matter which bank you install first.

DRAM Specifications

FSB	SDRAM Type	SDRAM Type	Max Memory
66	FSB+33	10ns or faster	
100	FSB	10ns or faster	
	FSB+33	7.5ns or faster	1GB
133	FSB-33	10ns or faster	
	FSB	7.5ns or faster	

DIMM type: 3.3V, 64/72-bit Synchronous DRAM

Module size: Single/double-sided 32/64/128/256/ 512MBytes

DRAM speed: 7.5/10ns for Synchronous DRAM

Parity: Either parity or non-parity

This mainboard supports 3.3v, unbuffered, 4-clock, SDRAM DIMM only. Buffered, 5V, or 2-clock SDRAM DIMMs should not be used.

Due to loading anomalies, using DIMM with an 'n x 4' DRAM base on this mainboard is not recommended. For example, a DIMM that uses sixteen 16Mb x 4 devices should not be used.

Chapter 3

Award BIOS Setup Program

Award's BIOS ROM has a built-in setup program that allows users to modify the basic system configuration. This information is stored in CMOS RAM so that it can retain the setup information, even when the power is turned off.

When you turn on or restart the system, press the Delete key to enter the Award BIOS setup program. The primary screen as shown in Figure 3-1 is a list of the menus and functions available in the setup program. Select the desired item and press enter to make changes. Operating commands are located at the bottom of this and all other BIOS screens. When a field is highlighted, on-line help information is displayed on the right side of the screen.

CMOS Setup Utility- Copyright (C) 1984-2001 Award Software	
▶ Standard CMOS Features	▶ Frequency/Voltage Control
▶ Advanced BIOS Features	Load Fail-Safe Defaults
▶ Advanced Chipset Features	Load Optimized Defaults
▶ Integrated Peripherals	Set Supervisor Password
▶ Power Management Setup	Set User Password
▶ PnP/PCI Configurations	Save & Exit Setup
▶ PC Health Status	Exit Without Saving
Esc : Quit F10 : Save & Exit Setup	↑↓→← : Select Item
Time, Date, Hard Disk Type...	

Figure 3-1 Setup Program Initial Screen

3-1 Standard CMOS Features

The Standard CMOS Features allows users to configure system components such as hard disk drive, floppy disk drive and video display as well as date, time and boot up error signaling. This configuration menu should be changed when installing a mainboard for the first time, changing hardware in your system such as the HDD, FDD, video display, or when the CMOS data has been lost or contaminated. Choose the Standard CMOS Setup option from the CMOS Setup Utility menu (Figure 3-1) to display the following screen. When a field is highlighted, on-line help information is displayed on the left bottom edge of the screen.

```
╔══════════════════════════════════════════════════════════════════════╗
║        CMOS Setup Utility- Copyright (C) 1984-2001 Award Software      ║
║                        Standard CMOS Features                         ║
╠══════════════════════════════════════════════════════════════════════╣
║   Date (mm : dd : yy)        Mon, Aug  13  2001  │    Item  Help       ║
║   Time (hh : mm : ss)        17 : 14 : 44        │                     ║
║                                                  │  Menu Level    ►    ║
║ ► IDE Primary Master         None                │                     ║
║ ► IDE Primary Slave          None                │                     ║
║ ► IDE Secondary Master       None                │                     ║
║ ► IDE Secondary Slave        None                │                     ║
║                                                  │                     ║
║   Drive A                    1.44M, 3.5  in.     │                     ║
║   Drive B                    None                │                     ║
║   Floppy 3 Mode Support      Disabled            │                     ║
║                                                  │                     ║
║   Video                      EGA/VGA             │                     ║
║   Halt On                    All Errors          │                     ║
║                                                  │                     ║
║   Base Memory                640K                │                     ║
║   Extended Memory            64512K              │                     ║
║   Total  Memory              65536K              │                     ║
╚══════════════════════════════════════════════════════════════════════╝
  ↑↓→← :Move  Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1:General Help
       F5:Previous Values       F6:Fail-Safe Defaults     F7:Optimized Defaults
```

Figure 3-2 Standard CMOS Features Screen

Date/Time
Set the date and time. Do not skip this function as all of your timed events such as power management, saving files, etc. are based on this timer.

Hard Disk Setup (Primary/Secondary; Master/Slave)
This category identifies up to four IDE hard disk drives that have been installed in the computer. This section does not show information on other IDE devices such as CD-ROM drives or other hard drive types such as SCSI drives.

Floppy Disk Drives

Choose the memory capacity and disk size that corresponds with that of your floppy disk drive(s).

Video

Select the type of video adapter present in your system. You can ignore this setting if you are using a VGA monitor since VGA BIOS automatically configures this setting.

Halt

When the system is powered on, BIOS performs a series of diagnosis tests called POST (Power On Self Test). This function stops the computer if BIOS detects a hardware error. You can tell BIOS to halt on all errors, no errors, or not to halt on specific errors.

3-2 Advanced BIOS Features

By choosing the Advanced BIOS Features option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard**.**

CMOS Setup Utility- Copyright (C) 1984-2001 Award Software Advanced BIOS Features		
		Item Help
Anti-Virus Protection	Disabled	
CPU Internal Cache	Enabled	Menu Level ▶
External Cache	Enabled	
CPU L2 Cache ECC Checking	Enabled	
Processor Number Feature	Enabled	
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	HDD-0	
Third Boot Device	LS120	
Boot Other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Enabled	
Boot Up NumLock Status	On	
Typematic Rate Setting	Disabled	
X Typematic Rate (Chars/Sec)	6	
X Typematic Delay (Msec)	250	
Security Option	Setup	
MPS Version Control For OS	1.4	
OS Select (For DRAM > 64MB)	Non-OS2	

↑↓→← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Figure 3-3 Advanced BIOS Features Screen

A. Anti-Virus Protection

Trend *ChipAway* Virus

Trend ChipAway Virus is a code incorporated in the mainboard's BIOS firmware. During the boot-up sequence, BIOS loads before loading of the partition table or boot sector. ChipAway Virus loads with BIOS and is able to detect boot-up viruses before they have a chance to infect the hard drive. ChipAway Virus employs rule-based logic that doesn't look for specific viruses but rather detects patterns found in every virus, eliminating the need to perform periodical version updates after new viruses have been found.

B. Cache Control

CPU Internal Cache/External Cache

Cache memory is much faster than conventional DRAM system memory. These fields allow you to enable or disable the CPUs Level 1 built-in cache and Level 2 external cache. Both settings are left enabled to significantly increase the performance of your computer.

C. Processor Number Feature

If you have Pentium III processor installed on the mainboard. Enable this option allows the serial code inside the Pentium III processor to be published on certain application.

D. Boot Up Features

After turning on the system, BIOS will perform a series of device initialization and diagnostic tests discussed below.

Quick Power On Self Test (POST)

Enable this function to reduce the amount of time required to run the POST (Power On Self Test). BIOS saves time by skipping some items during POST. It is recommended that you disable this setting. Discovering a problem during boot up is better than loosing data during your work.

First/Second/Third/Boot Other Device

This option sets the sequence of drives BIOS attempts to boot from after POST completes. BIOS will search these drives for an operating system.

Swap Floppy Drive

Enabling this function will swap the floppy drive assignment so that drive A will function as drive B, and drive B will function as drive A. Note that the boot sequence assignment mentioned directly above does not include booting from floppy drive B. This function is useful if floppy drives B and A are of a different format and you want to boot from floppy drive B.

Boot up Floppy Seek

During POST, BIOS will determine if the installed floppy disk drive has 40 or 80 tracks. A 360K drive has 40 tracks and 720K, 1.2M and 1.44M drives have 80 tracks. All modern floppy disk drives have 80 tracks.

Boot Up NumLock Status

This function defines the keyboard's number pad as number keys or arrow keys.

E. Keyboard Interface

Typematic Rate Setting

When enabled, you can set the following two typematic control items. When disabled, keystrokes are determined arbitrarily by the keyboard controller in your system.

Typematic Rate (Chars/Sec)

The typematic rate sets the rate at which characters on the screen repeat when a key is pressed and held down.

Typematic Delay (Msec)

The typematic delay sets how long after you press a key that a character begins repeating.

F. Security Option

The Supervisor and/or User Password functions shown in Figure 3-1 must be set to take advantage of this function. See Section 3-11 for password setting information. When the Security Option is set to System, a password must be entered to boot the system or enter the BIOS setup program. When the Security Option is set to Setup, a password is required to enter the BIOS setup program.

G. OS Select (For DRAM >64MB)

If your system's DRAM is larger than 64MB and you are running OS/2 , select OS/2 as the item value. Otherwise, set the item value to Non-OS/2 for all other operating systems.

H. Shadow Memory

Software such as system BIOS, video BIOS, SCSI BIOS, etc that resides in ROM (Read Only Memory) chips is called firmware. Shadowing of firmware occurs when BIOS is copied to RAM address C0000h through DFFFFh. Video BIOS loads into the C0000-C7FFF memory area when video shadowing is enabled. If an expansion peripheral in your system contains ROM-based firmware, you need to know the address range the ROM occupies to shadow it into the correct area of RAM.

Shadowing improves the firmware's performance because the firmware can be read by the CPU through the 16- or 32-bit DRAM bus as opposed to the 8-bit XT bus. However, shadowing also results in reducing the amount of high memory (640 KB to 1 MB) for loading device drivers. Shadowing is used mostly for ROM chips on ISA cards and not for PCI cards. Shadowing and playing games at the same time may result in system instability as some games access the RAM memory area being shadowed.

3-3 Advanced Chipset Features

By choosing the Advanced Chipset Features option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard**.**
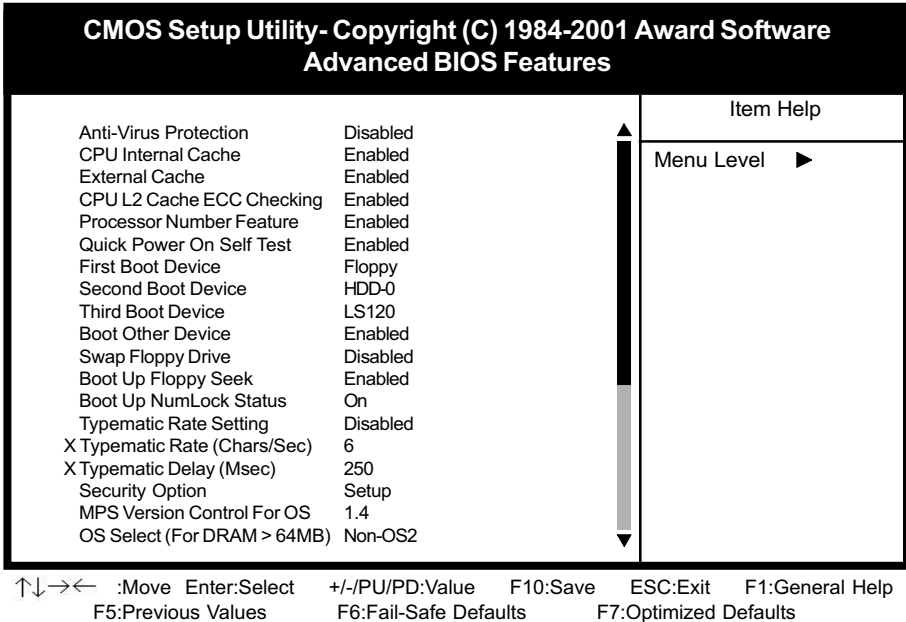
```
┌─────────────────────────────────────────────────────────────────────────┐
│         CMOS Setup Utility- Copyright (C) 1984-2001 Award Software        │
│                         Advanced Chipset Features                         │
├───────────────────────────────────────────────────┬─────────────────────┤
│   Bank 0/1 DRAM Timing       SDRAM 10ns         ▲  │      Item Help      │
│   Bank 2/3 DRAM Timing       SDRAM 10ns            │                     │
│   Bank 4/5 DRAM Timing       SDRAM 10ns            │   Menu Level    ▶   │
│   DRAM Clock                 Host CLK              │                     │
│   SDRAM Cycle Length         3                     │                     │
│   Memory Hole                Disabled              │                     │
│   P2C/C2P Concurrency        Enabled               │                     │
│   System BIOS Cacheable      Disabled              │                     │
│   Video RAM Cacheable        Disabled              │                     │
│   AGP Aperture Size          64M                   │                     │
│   AGP-4X Mode                Enabled               │                     │
│   AGP Driving Control        Auto                  │                     │
│ X AGP Driving Value          DA                    │                     │
│   Flash BIOS Protection      Disabled              │                     │
│   OnChip Sound               Auto                  │                     │
│   CPU to PCI Write Buffer    Enabled               │                     │
│   PCI Dynamic Bursting       Enabled               │                     │
│   PCI Master 0 WS Write      Enabled               │                     │
│   PCI Delay Transaction      Enabled            ▼  │                     │
└───────────────────────────────────────────────────┴─────────────────────┘
  ↑↓→←  :Move  Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1:General Help
        F5:Previous Values         F6:Fail-Safe Defaults      F7:Optimized Defaults
```

Figure 3-4 Chipset Features Setup Screen

⚠ All of the above settings have been determined by the mainboard manufacturer and should not be changed unless you are absolutely sure of what you are doing. Explanation of the DRAM timing and chipset features setup is lengthy, highly technical and beyond the scope of this manual. Below are abbreviated descriptions of the functions in this setup menu. You can look on the world wide web for helpful chipset and RAM configuration information including AWARD's web site at http://www.award.com.

A. DRAM Timing By SPD

The function allows you to enable or disable the DRAM timing by SPD. When Disabled, you can select the DRAM Clock, SDRAM Cycle Length and Bank Interleave configuration.

B. SDRAM Cycle Length

When synchronous DRAM is installed, the number of the clock cycles of CAS latency depends on the DRAM timing. Do not reset this setting from the default value specified by the system designer.

C. SDRAM Cycle Length

When synchronous DRAM is installed, the number of the clock cycles of CAS latency depends on the DRAM timing. Do not reset this setting from the default value specified by the system designer.

D. Memory Hole at 15M-16M

Enabling this function will reserve the memory address space between 15MB and 16MB for ISA expansion cards. However, enabling this function will result in not allowing the system to have access to memory above 16MB. Please note that some expansion cards require this setting to be enabled. The default setting is Disabled. If Auto Configuration is enabled, you must set the DRAM timing function to 60ns or 70ns, depending on the type of DRAM you install.

E. System BIOS Cacheable

Enabling this function allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result. Caching the system BIOS results in better performance than shadowing the system BIOS as discussed in Section 3-2.

F. Video RAM Cacheable

Enabling this function will allows caching of the video RAM, resulting in better system performance. However, if any programs write to this memory area, a system error may occur.

G. AGP Aperture Size

This function determines the amount of system memory that is given to the AGP card. Options range from 4MB to 128MB. This is a dynamic memory allotment in that the AGP card will only use the amount of memory that it needs. The remaining memory not in use will be available for the system to use. For example, if 16MB is allotted to the AGP card and the card only needs 8MB, the remaining 8MB will be available for system use.

H. Flash BIOS Protection

The mainboard manufacturer developed BIOS protection technology that protects the System BIOS from accidental corruption by unauthorized users or computer viruses. When enabled, the BIOS data cannot be changed when attempting to update BIOS with the FLASH utility. When disabled, the BIOS data can be updated by using the FLASH utility.

I. OnChip Sound

This function must be enabled in order to use the onboard audio function. To terminate this function set it to disabled.

J. PCI Master 0 WS Write

When Enabled, writes to the PCI bus are executed with zero wait states.

K. PCI Delay Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1.

3-4 Integrated Peripherals

This section provides information on setting peripheral devices. By choosing the Integrated Peripherals option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard.

CMOS Setup Utility- Copyright (C) 1984-2001 Award Software Integrated Peripherals		
OnChip IDE Channel0	Enabled	Item Help
OnChip IDE Channel1	Enabled	
IDE Prefetch Mode	Enabled	Menu Level ▶
Primary Master PIO	Auto	
Primary Slave PIO	Auto	
Secondary Master PIO	Auto	
Secondary Slave PIO	Auto	
Primary Master UDMA	Auto	
Primary Slave UDMA	Auto	
Secondary Master UDMA	Auto	
Secondary Slave UDMA	Auto	
Init Display First	PCI Slot	
OnChip USB	Enabled	
USB Keyboard Support	Disabled	
IDE HDD Block Mode	Enabled	
Onboard FDD Controller	Enabled	
Onboard Serial Port 1	Auto	
Onboard Serial Port 2	Auto	
UART 2 Mode	Standard	

↑↓→← :Move Enter:Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:General Help
F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Figure 3-5 Integrated Peripherals Screen

A. On Board IDE Control

On-chip IDE channel 0/1
You can set this to disable the On-chip IDE controller if you are going to add a higher performance IDE board.

IDE Primary/Secondary Master/Slave PIO
The four IDE PIO (programmed Input/Output) fields let you set a PIO mode (0-4) for each IDE device that the internal PCI IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

B. Init Display First
This function allows user to choose between AGP slot or VGA slot to initialize Display first .

C. OnChip USB

Enable the on-board Universal Serial Bus (USB) controller if you want to connect a USB keyboard to your system. Note that if this setting is disabled, you can still temporarily use a USB keyboard during bootup so that you can enter BIOS and enable this setting. If you pass the bootup stage without enabling this function, your PS/2 keyboard will no longer work.

D. USB Keyboard Support

Select Enabled if your system has a USB keyboard installed on the system board. If your system has no USB keyboard, select Disabled in this field.

E. IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

F. Onboard FDC Controller

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install an add-in FDC or the system has no floppy drive, select Disabled in this field.

G. UART 2 Mode

This function allows you to select an operating mode for the second serial port. (**Standard** RS-232C serial port/**HPSIR** 1.0 specification/**ASKIR** 0.57-MB/sec infrared port)

H. Onboard Parallel Port

Select a logical LPT port address and corresponding interrupt for the physical parallel port.

I. Parallel Port Mode

Select an operating mode for the onboard parallel (printer) port. Select SPP unless you are certain your hardware and software support one of the other available modes.

3-5 Power Management Setup

This section provides information on the Green PC power management functions. By choosing the Power Management Setup option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard
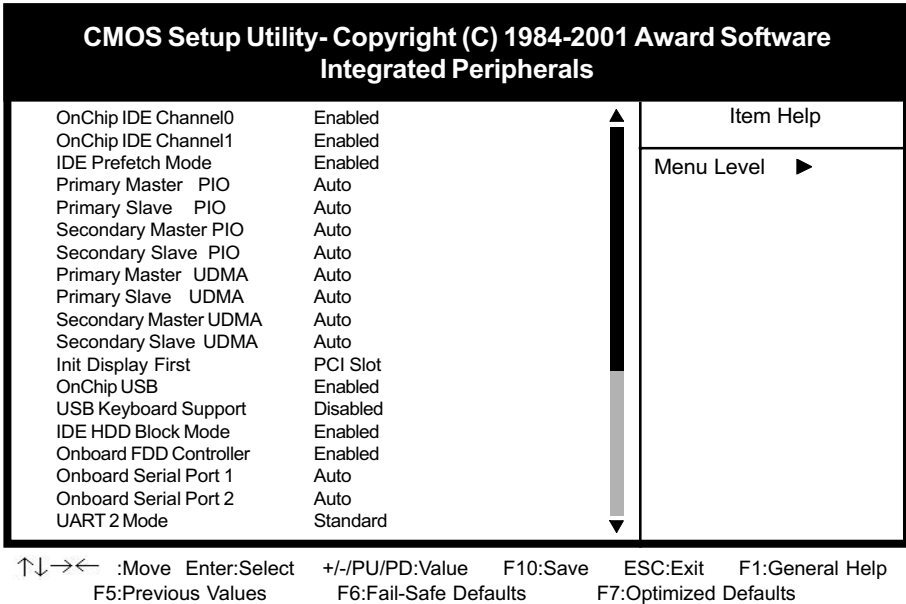
```
CMOS Setup Utility- Copyright (C) 1984-2001 Award Software
                   Power Management Setup
───────────────────────────────────────────────────────────────
                                              │      Item Help
   ACPI  function            Enabled          │
 ► Power  Management         Press Enter       │ Menu Level    ►
   ACPI Suspend Type         S1(POS)          │
   PM Control by APM         Yes              │
   Video Off Option          Suspend -> Off   │
   Video Off Method          DPMS Support     │
   MODEM Use IRQ             NA               │
   Soft-Off by PWRBTN        Instant  Off     │
   State After Power Failure Off              │
 ► Wake Up Events            Press  Enter      │
```
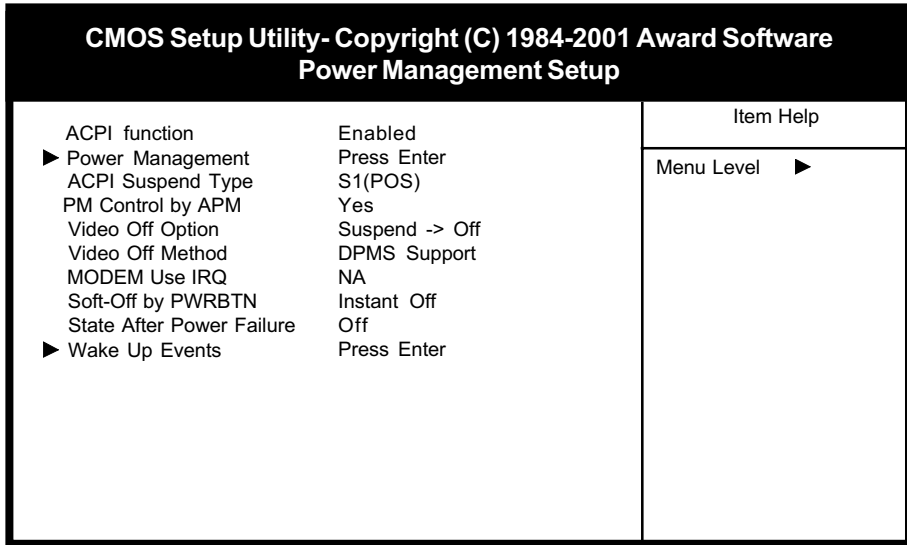
↑↓→← :Move Enter:Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:General Help
   F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Figure 3-6 Power Management Setup Screen

A. Advanced Configuration Power Interface (ACPI)

ACPI management enables the operating system to control the amount of power given to each device attached to the computer. With ACPI, the operating system can turn off peripherals devices, such as CD-ROM players, when they are not in use.

B. Power Management

Power management allows the computer to save electricity when it is not in use by entering increasingly deep power saving modes as shown by the diagram below.

C. Video Off Option

This setting allow you to selects the power-saving modes during which the monitor goes blank.

D. Video Off Method

This function serves as both a screen saver and power saver for monitors. See the next function, Video Off After, for setting the video timer.

Blank - BIOS will only blank the monitor's screen. The electricity saved in this mode is negligible and this function is only used as a screen saver to prevent screen damage while the screen is on but not in use.

V/H SYNC+Blank - The system turns off the vertical and horizontal synchronization ports, writes blanks to the VGA buffer and the monitor's electron gun turns off. This function requires a monitor with Green features in order to take advantage of the power saving function. If you enable this function and do not have a Green monitor, the result will be the same as if you had selected Blank. This function serves as both a screen saver and a power saver.

DPMS Supported - Select this option if your video card supports the Display Power Management Signaling (DPMS) standard (i.e., you have a monitor that supports Green features). Use software supplied by your video subsystem to set video power management options.

E. Modem Use IRQ

If your computer has an modem, use this function to tell BIOS which IRQ is being occupied by the modem card. When the system is in Green mode, the modem requires an IRQ assignment to wake up the system and perform tasks. This assignment is compliant with the APM 1.2 specification and is to be used in coordination with APM 1.2 compliant operating systems.

F. Soft-Off by PWR-BTN

When set to Delay 4 Sec., this function allows the power button to put the system in Suspend, a power saving mode. See Section 2-4 for operation instructions of the override power button operation which puts the system in Suspend mode. When set to Instant-Off the Soft-Off by PWR-BTTN function is disabled and the computer turns completely off when the power button is pressed.

G. Wake Up Events

Wake Up On LAN/PCI Card

When enabled, a LAN/PCI Card interface that receives a signal will wake up the system from soft off and green mode.

Power On By Modem

When enabled, a modem that receives a ring signal will wake up the system from soft off and green mode. You should connect the modem to the COM port and turn on the resume event in green mode.

RTC Alarm Resume

When enabled, this setting allows the system to turn back on at a designated time of the month. User must designate date of month and time of day.

3-6 PNP/PCI Configuration

This section provides IRQ and DMA setting information. By choosing the PNP/PCI Configuration option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard.

```
CMOS Setup Utility- Copyright (C) 1984-2001 Award Software
                   PnP/PCI Configurations

   PNP OS Installed          No              Item Help
   Reset Configuration Data  Disabled
                                            Menu Level    ▶
   Resources Controlled By   Auto(ESCD)
 X IRQ Resources             Press Enter
 X DMA- Resources            Press Enter

   PCI/VGA Palette Snoop      Disabled
   Assign IRQ For VGA         Enabled
   Assign IRQ For USB         Enabled
   Slot 1   Use IRQ No.       Auto
   Slot 2   Use IRQ No.       Auto
   Slot 3   Use IRQ No.       Auto
```

↑↓→← :Move Enter:Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:General Help
         F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Figure 3-7 PnP/PCI Configurations Screen

A. PNP OS Installed

If you want to install a PNP compatible OS(such as Windows 95) set to Yes.

B. Resources Controlled By

When set to Manual the system BIOS will not refer to the ESCD for IRQ & DMA information. Instead, it will refer to the items in the setup menu for assigning IRQ & DMA. When set to Auto the system BIOS will refer to the ESCD for all legacy information.

⚠ ESCD (Extended System Configuration Data) provides a detailed format of the configuration data structures stored in flash memory. Each data structure defines the resources used by a device or a card in the system. This includes legacy and PCI/ISA PnP devices.

3-7 PC Health Status

By choosing the PC Health Status option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This field shows you the current system temperature/external voltages input and the current CPU FAN and System FAN operating speed.

```
┌────────────────────────────────────────────────────────────────┐
│   CMOS Setup Utility- Copyright (C) 1984-2001 Award Software    │
│                     PC Health Status                           │
├──────────────────────────────────────┬─────────────────────────┤
│                                      │      Item Help          │
│  Current CPU Temp.      48 ºC/87 ºF  ├─────────────────────────┤
│  Current System Temp.   37 ºC/71 ºF  │                         │
│  Current CPU FAN Speed  4500 RPM     │  Menu Level    ►        │
│  Current SYS FAN Speed  4500 RPM     │                         │
│  Vcore                  1.75V        │                         │
│   2.5V                  2.48V        │                         │
│   3.3V                  3.25v        │                         │
│    5V                   5.05V        │                         │
│   12V                   12.16V       │                         │
│                                      │                         │
└──────────────────────────────────────┴─────────────────────────┘
```

↑↓→← : Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Figure 3-8 PC Health Status Screen

3-8 Frequency/Voltage Control

By choosing the **Frequency/Voltage Control** option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard**.**

```
┌────────────────────────────────────────────────────────────────┐
│   CMOS Setup Utility- Copyright (C) 1984-2001 Award Software    │
│                  Frequency/Voltage Control                     │
├──────────────────────────────────────┬─────────────────────────┤
│                                      │      Item Help          │
│  Spectrum Spread        0.35%        ├─────────────────────────┤
│  CPU Host/PCI Clock     Default      │                         │
│                                      │  Menu Level    ►        │
│                                      │                         │
│                                      │                         │
│                                      │                         │
│                                      │                         │
└──────────────────────────────────────┴─────────────────────────┘
```

↑↓→← : Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Figure 3-9 Frequency/Voltage Control Screen

A. CPU Host/PCI Clock

Thie feature allow your to select a timing combination for the CPU and the PCI bus.

3-9 Load Fail-Safe Defaults

Load Fail-Safe Defaults loads the default BIOS values directly from the CMOS Setup Utility menu (Figure3-1). If the stored record created by the setup program becomes corrupted and therefore unusable, these defaults will be loaded automatically when you turn on the computer.

```
┌─────────────────────────────────────────────────────────────────┐
│      CMOS Setup Utility- Copyright (C) 1984-2001 Award Software  │
│                                                                  │
│   ▶ Standard CMOS Features           ▶Frequency/Voltage Control  │
│   ▶ Advanced BIOS Features            Load Fail-Safe Defaults    │
│   ▶ Advanced Chipset Features         Load Optimized Defaults    │
│   ▶ Integrated Peripherals            Set Supervisor Password    │
│   ▶ Power Management Setup            Set User Password           │
│   ▶ PnP/PCI Configur  ┌──────────────────────────┐      Setup    │
│   ▶ PC Health Status  │ Load Fail-Safe Defaults (Y/N) ? N │ Saving │
│                       └──────────────────────────┘             │
│   Esc    : Quit                                                  │
│   F10  : Save & Exit Setup        ↑↓→←    : Select Item          │
│                    Load Fail-Safe Defaults                       │
└─────────────────────────────────────────────────────────────────┘
```

Figure 3-10 Load Fail-Safe Defaults Screen

3-10 Load Optimized Defaults

Load Optimized Defaults loads the default system values directly from the CMOS Setup Utility menu (Figure3-1). If the stored record created by the setup program becomes corrupted and therefore unusable, these defaults will be loaded automatically when you turn on the computer.
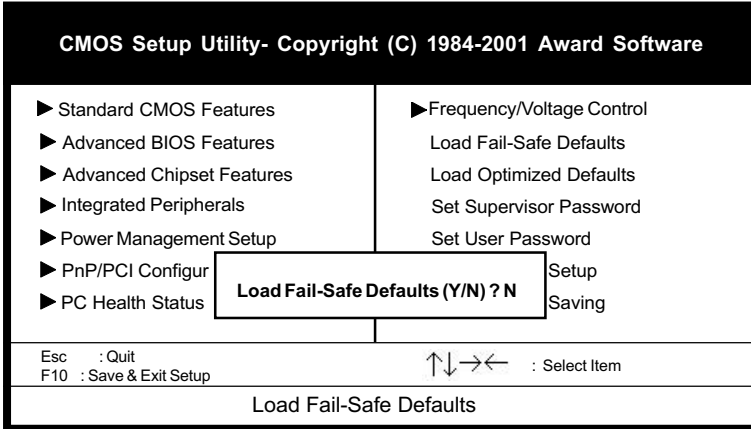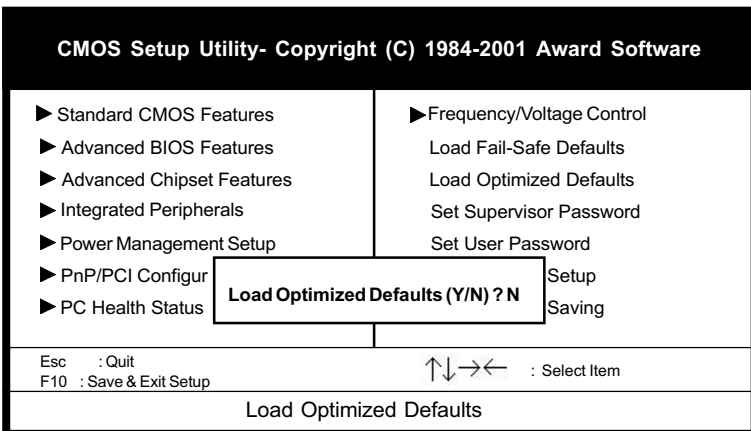
```
┌─────────────────────────────────────────────────────────────────┐
│      CMOS Setup Utility- Copyright (C) 1984-2001 Award Software  │
│                                                                  │
│   ▶ Standard CMOS Features           ▶Frequency/Voltage Control  │
│   ▶ Advanced BIOS Features            Load Fail-Safe Defaults    │
│   ▶ Advanced Chipset Features         Load Optimized Defaults    │
│   ▶ Integrated Peripherals            Set Supervisor Password    │
│   ▶ Power Management Setup            Set User Password           │
│   ▶ PnP/PCI Configur  ┌──────────────────────────┐      Setup    │
│   ▶ PC Health Status  │ Load Optimized Defaults (Y/N) ? N │ Saving │
│                       └──────────────────────────┘             │
│   Esc    : Quit                                                  │
│   F10  : Save & Exit Setup        ↑↓→←    : Select Item          │
│                    Load Optimized Defaults                       │
└─────────────────────────────────────────────────────────────────┘
```

Figure 3-11 Load Optimized Defaults Screen

3-11 Supervisor Password & User Password Setting

There are four different variables that control password settings. The first two are located under the Security Option function in BIOS Features Setup Menu (Figure 3-1). When the Security Option function is set to Setup, a password is required to enter BIOS and change BIOS settings. When the Security Option function is set to System, a password is required to enter both BIOS and the computer's operating system (for example Windows 98) found on the boot drive.

The third and fourth variables are user password and supervisor password selected in BIOS (Figure 3-1). The main purpose of separating user and supervisor is to allow only the supervisor to have control over the settings in BIOS. The user, on the other hand, is only allowed to access the computer's operating system and change the user password in BIOS. Note that when there is no supervisor password set, the user password controls access to all BIOS settings.

3-12 Save and Exit Setup

If you select this and type Y (for yes) followed by the [Enter] key, the values entered in the setup utilities will be recorded in the CMOS memory of the BIOS chip.

3-13 Exit Without Saving

Selecting this option and pressing Y followed by the [Enter] key lets you exit the Setup program without recording any new values or changing old ones.
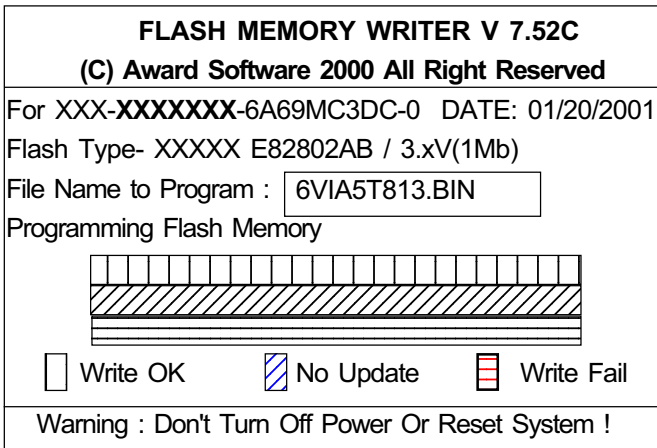
Appendix

Embedded Flash Utility

This mainboard is equipped with an Erasable Flash ROM and an Embedded Flash Utility which allows the user to update the BIOS to a newer version. Embedded Flash Utility eases BIOS upgrade and eliminate the compatibility issue between different Flash ROM type and version of Flash utility.

Update Your System BIOS

1. Start computer, upon post, press ALT+F2 Keys to enter AWDFLASH setup.

2. Insert the floppy disk with the latest BIOS file into the floppy drive A(or B)

   and then press Enter to start programming.

FLASH MEMORY WRITER V 7.52C
(C) Award Software 2000 All Right Reserved
For XXX-**XXXXXXX**-6A69MC3DC-0   DATE: 01/20/2001
Flash Type- XXXXX E82802AB / 3.xV(1Mb)
File Name to Program : 6VIA5T813.BIN
Programming Flash Memory
□ Write OK   ▨ No Update   ▤ Write Fail
Warning : Don't Turn Off Power Or Reset System !

Sample of Programing Flash Memory Screen

3. When finished, the system will automatically restart.

Note:

✎ Flash BIOS Protection must be set to Disabled in the Advance Chipset Feature from the CMOS Setup Utility menu. See Chapter 3.

✎ Don't turn off or restart your system during programming process.

✎ Make sure that your floppy diskette have only one BIN file to aviod confussion.

User's Reference

Fill up this form and keep it in a safe place, for your future reference use only.

Item	Brand/Model	Description	Speed
CPU			____GHz □ MHz □
Memory		Bank1□ Bank2□ Bank3 □	____GB □ MB □
VGA/AGP		AGP□ PCI□ Onboard □	□ 1x □ 2x □ 4x
Sound		□ ACR □ CNR □ PCI □ Onboard	□ 2 □4 □ 6Channel
LAN		□ ACR □ CNR □ PCI □ Onboard	
Modem		□ ACR □ CNR □ PCI □ External	□ 56K □ Other_____
CD-ROM			____X
DVD-ROM			____X
CD-RW			R___x W___x RW___x
Pri. Hard Drive		___GBytes	_____RPM
Sec. Hard Drive		___GBytes	_____RPM
Floppy Drive		____MB	
ZIP Drive		____MB	
LS120		____MB	
Power Supply		□200W □250W □ 300W _____Voltage output	
Other			