Federal Communications Commission Statement

This device complies with FCC Rules Part 155. 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

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February 1998

100% POST-CONSUMER RECYCLED PAPER

Table of Contents

PART II Deutsche Anleitung (German Edition)

Appendices

Memo

Chapter 1

Introduction

1-1 Product Specifications

❏ **Processor**
- **-** Supports up to 333 MHz Intel **Pentium**® **II** processors
- - Slot 1 CPU socket with retention mechanism
- - High efficiency Switching Power Module (1.8v ~ 3.5v, 0.1v increments)
- - Supports 60/66 MHz system clock speeds
- - Innovative *SeePU* technology (software CPU installation with no jumper settings)

  ⚠ Supports 68 (Turbo mode), 75/83MHz system clock for over-clocking possibility.

❏ **Chipset**
- **-** Intel **82440LX** two chip PCIset

❏ **DRAM Memory**
- - Three 3.3V 168-pin DIMM sockets support up to 384MB
- - Supports 8/16/32/64/128MB, 64/72-bit EDO and Synchronous DIMM modules
- - Provides single-bit ECC capability

  ⚠ Because 128MB DIMM modules are not yet mainstream, the compatibility of 128MB DIMM can not be 100% guaranteed. (See Section 2-5 for details.)

❏ **Expansion Slots**
- - One 32-bit AGP slot (Rev 1.0 compliant)
- - Four 32-bit PCI slots (Rev 2.1 compliant)
- - Three 16-bit ISA slots (one PCI/ISA shared slot)

❏ **BIOS**
- - 2Mb Boot-block Flash ROM
- - Award System BIOS, supports PnP, APM, DMI & Multi-device booting features i.e. floppy, LS120, CD-ROM, HDD(IDE, SCSI), ZIP-ATAPI etc.
- - Built-in Trend ChipAway Virus to provide a 100% virus-free system boot-up

❒ **Two Ultra DMA-33 PCI IDE Ports**
- Supports up to PIO Mode 4, Multi-word Mode 2 and Ultra DMA-33 timings
- Bus Mastering software drivers for all well known multi-task operating systems

❒ **On board Ultra I/O**
- WB83977TF I/O chip (built-in AMI KBC software and RTC)
- One Parallel (SPP/ECP/EPP) and two Serial (16550A compliant) ports
- One floppy disk drive connector supports up to 2.88MB, 3-Mode, and 1Mbps transfer rate
- IrDA IR function supports up to 115.2Kbps

❒ **Two Channel USB Ports**

⚠ Now under compatibility testing with different peripherals

❒ **Board Dimensions**
- ATX form factor, 305mm x 190mm, 4 Layers
- Six mounting holes

❒ **Advanced Management Features**
- Optional *SMART* (System Monitoring & Alert) technology with **LDCM**™ utility
- Software power off control, Power-on by modem, Power-on by keyboard, Power-on by alarm, Over-ride power button, Power failure recovery, Blinking LED in Suspend, etc.
- Poly-fuse over current protection for USB and keyboard
- Hardware reset protect and Flash BIOS protect via BIOS

⚠ If your mainboard has the optional LM78 chip (PC Health monitor IC) located in the corner near the ISA slots, your mainboard includes the *SMART* feature.

❒ **Green PC**
- Meets EPA Green PC standard: power consumption under 30W in Doze, Standby, and Suspend modes

1-2 Package Contents

This product comes with the following components:

❑ One mainboard

❑ CPU Slot 1 retention mechanism and four retention mechanism pins (Figure 2-4)

❑ One 40-pin IDE connector ribbon cable (Figure 1-1)

❑ One 34-pin floppy disk drive ribbon cable (Figure 1-2a) or (Figure 1-2b)

❑ One User's Manual

❑ One CD-ROM that includes

- Award Flash EPROM Utility, Award DMI Utility

- Intel Bus Master IDE drivers for Win95, WinNT, and OS/2

- Exclamation Mark Remover Utility

- Optional Shepherd Utility, System Health Monitoring Software

- Trend PC-cillin Anti-virus v3.0(OEM version) Utility in eight different languages

IDE cable
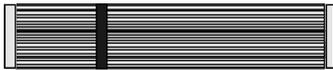
Figure 1-1

Figure 1-2a Standard Floppy cable   **Figure 1-2b** Optional 5.25 in. floppy cable

1-3 Mainboard Layout
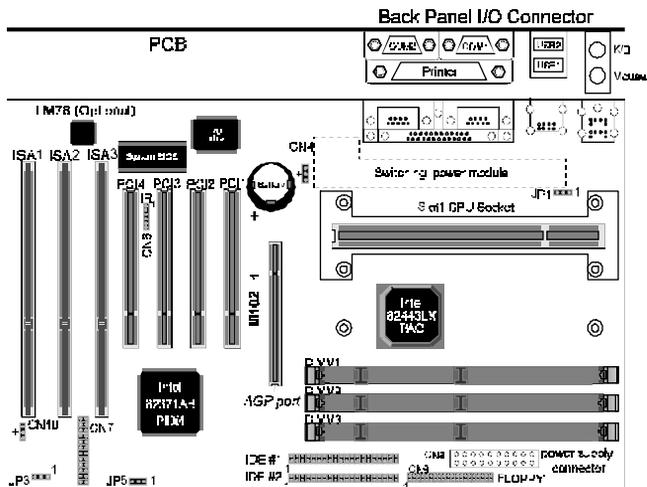
1-4 Connector and Jumper Reference Chart

Jumper & Connector No.	Function	Ref. page
CN10	System cooling fan connector	13
CN4	CPU cooling fan connector	13
CN6	Infrared connector	13
CN7	Green switch connector	12
	Green LED connector	12
	System reset switch connector	12
	Turbo LED connector	12
	Keyboard lock & power indicator LED connector	11
	Speaker connector	12
	IDE activity LED connector	12
	Over-ride power button connector	11
CN8	ATX power supply connector	10
JP1	Power-on by keyboard jumper	14
JP3	Chassis intrusion monitoring connector	14
JP5	Clear CMOS data jumper	14
Ports	PS/2 mouse and keyboard ports	15
Ports	USB (Universal Serial Bus) ports	15

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.

> ⚠ **Be sure to disconnect the power cable from the power source before performing any work on your mainboard, i. e. installing a CPU, memory module, changing a jumper setting, etc. Not doing so may result in electrical shock!**

2-1 Introduction to Jumpers

Jumpers are used to select between various operating modes. A jumper consists of a row of gold colored pins that protrude from the surface of the mainboard. It is important not to confuse jumpers with connectors or headers.

> ⚠ **Putting jumper caps on anything that is not a jumper may result in damaging your mainboard. Please refer to Section 1-3, Mainboard Layout, for the location of jumpers on your mainboard.**

As indicated in Figure 2-1 below, a cap is used to cover the pins of a jumper, resulting in shorting those pins that it covers. If the cap is removed from the top of the pins, the jumper is left "open." The number 1 shown both in the diagram below and in all multiple pin jumper and header diagrams in this manual indicates the pin designated with the number 1. The numbering of the remaining pins follows in sequence.

Pins   Cap   Setting

1   1
A 3-pin jumper   A cap over pin 1 and
                  pin 2 shorts these pins
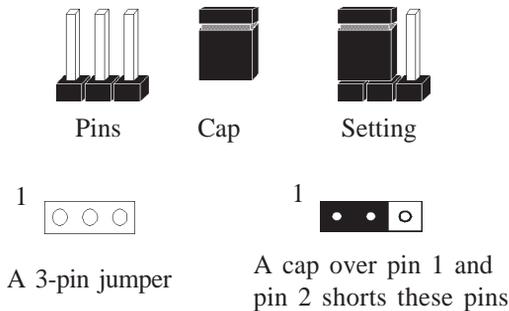
Figure 2-1

2-2 Installing an S.E.C. Processor in Slot 1

To Install the retention mechanism on Slot 1 refer to the figures and instructions below:

1. Locate the protruding, toothed edge at the end of Slot 1 (Figure 2-3). Find the complementary indentation at the bottom of the retention mechanism (Figure 2-2) and insert the retention mechanism onto Slot 1 until the plastic clips at the bottom of the retention mechanism completely protrude through the bottom of the mainboard.

2. Insert the retention mechanism pins into the four holes at the base of the retention mechanism (Figure 2-4), pushing down until they click into place.

Indentation to fit toothed edge of Slot 1

Figure 2-2 Bottom view of the retention mechanism

Toothed edge of Slot 1

Figure 2-3 Top view of Slot 1
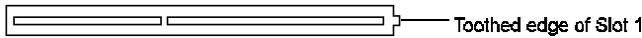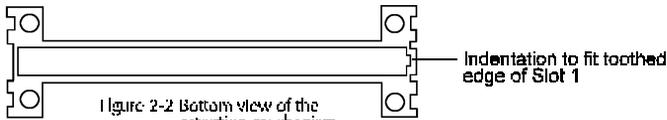
3. Insert the Pentium II processor into the retention mechanism. Press evenly and gently until the snaps on the upper side of the processor have been inserted into the holes at the top of the retention mechanism. Note that when removing the processor, these snaps can be clicked into a completely vertical position, leaving your hands free to stabilize the board. Pull the processor evenly and gently out of the retention mechanism. Also note that like PCI and ISA slots, Slot 1 has a divider that prevents backwards insertion of the CPU.

⚠ Installing a heat sink and 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.
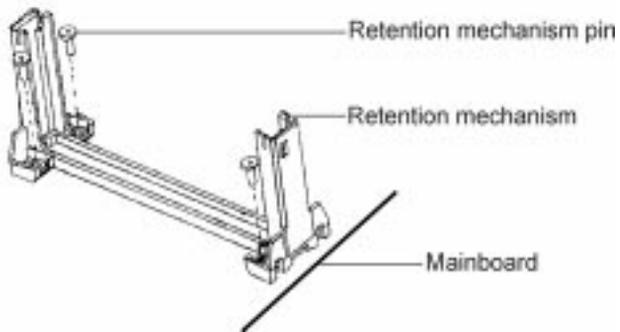
Figure 2-4 The retention mechanism for Slot1

2-3 Setting Your CPU's Parameters(*SeePU* Technology)

SeePU is a new user friendly technology that enables the user to setup a mainboard's CPU parameters through an easy to use BIOS setup procedure. It is no longer necessary to make many jumper settings as on conventional mainboards.

1. After installing all your hardware into your PC system, turn on your system's power. Enter the CMOS Setup Utility by pressing the Delete key when your BIOS identification screen appears.

2. Move the cursor to SeePU & Chipset Setup menu and press Enter. Find the CPU Setup commands at the lower right hand part of the BIOS screen (Figure 2-5) Commands for operating the cursor in BIOS are found at the bottom of the BIOS screen.

```
        ROM PCI / ISA BIOS (2A69JC39)
           SeePU & CHIPSET SETUP
           AWARD SOFTWARE, INC.

Auto Configuration      : Enabled    SDRAM CAS Latency Time    : 3
DRAM Speed Selection    : 60ns       Power Failure Recovery    : Disabled
MA Wait State           : Slow       Spectrum Spread           : Disabled
EDO RAS# To CAS# Delay  : 3          Flash BIOS Protection     : Disabled
EDO RAS# Precharge Time : 3          Hardware Reset Protect    : Disabled
EDO DRAM Read Burst     : x333
EDO DRAM Write Burst    : x222
DRAM Data Integrity Mode : Non-ECC
CPU-To-PCI IDE Posting  : Enabled    *****    CPU Setup    *****
System BIOS Cacheable   : Disabled   CPU Type                  : Pentium-II-233
Video BIOS Cacheable    : Disabled
Video RAM Cacheable     : Disabled
8 Bit I/O Recovery Time : 1
16 Bit I/O Recovery Time : 1
Memory Hole At 15M-16M  : Disabled
Passive Release         : Enabled
Delayed Transaction     : Disabled   ESC: Quit       ↑↓→←      :Select Item
AGP Aperture Size (MB)  : 64         F1 : Help       PU/PD/+/- : Modify
SDRAM RAS-to-CAS Delay  : Slow       F5 : Old Values (Shift) F2 : Color
SDRAM RAS Precharge Time : Slow      F7 : Load Setup Defaults
```

Figure 2-5

3. Change the CPU Type according to the speed of your Pentium II processor. See Figure 2-6 for frequency specifications.

CPU Type	CPU Speed		
	External Clock	Frequency Ratio	Internal Clock
Pentium II processor	66	3.5	233
		4	266
		4.5	300
		5	333

Figure 2-6

4. If you have a Pentium II processor that exceeds 300MHz, use the User Define option to set your CPU's parameters. Set the frequency ratio (also known as external clock multiplier factor) and CPU bus frequency according to your processor's specifications. See Figure 2-7.

> ⚠ Please note that this mainboard supports up to 300MHz Pentium II processors. Processors with higher clock speeds were not released at the time this mainboard was designed. If you are using a processor with 333MHz or above clock speeds and you are experiencing problems, please contact your mainboard provider for a BIOS update.

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

```
        ROM PCI / ISA BIOS (2A69JC39)
           SeePU & CHIPSET SETUP
           AWARD SOFTWARE, INC.

Auto Configuration        : Enabled     SDRAM CAS Latency Time      : 3
DRAM Speed Selection      : 60ns        Power Failure Recovery      : Disabled
MA Wait State             : Slow        Spectrum Spread             : Disabled
EDO RAS# To CAS# Delay    : 3           Flash BIOS Protection       : Disabled
EDO RAS# Precharge Time   : 3           Hardware Reset Protect      : Disabled
EDO DRAM Read Burst       : x333
EDO DRAM Write Burst      : x222
DRAM Data Integrity Mode  : Non-ECC      *****    CPU Setup    *****
CPU-To-PCI IDE Posting    : Enabled     CPU Type              : Pentium-II-233
System BIOS Cacheable     : Disabled
Video BIOS Cacheable      : Disabled
Video RAM Cacheable       : Disabled
8 Bit I/O Recovery Time   : 1
16 Bit I/O Recovery Time  : 1
Memory Hole At 15M-16M    : Disabled
Passive Release           : Enabled     ESC: Quit         ↑↓→←      :Select Item
Delayed Transaction       : Disabled    F1  : Help         PU/PD/+/- : Modify
AGP Aperture Size (MB)    : 64          F5  : Old Values   (Shift) F2 : Color
SDRAM RAS-to-CAS Delay    : Slow        F7  : Load Setup Defaults
SDRAM RAS Precharge Time  : Slow
```

Figure 2-7

5. Press Esc to return to the CMOS Setup Utility, press F10 to Save and Exit Setup and choose 'Y' to confirm. The system will automatically reboot and during startup you will see the correct CPU type indicated on the start-up screen screen.

Overclocking

Operating a CPU at a higher frequency than it's specification allows is called overclocking. If the CPU frequency is set at a higher frequency than it's specification allows, it may or may not run at that freqency, depending on the quality of your CPU and the extent to which the frequency has been overset. The mainboard manufacturer highly discourages overclocking as it may result in data loss, CPU burn-out, system failure, etc.

2-4 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 (CN8)
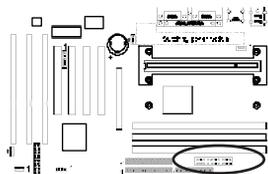
This mainboard requires a power supply of at least 200 watts. While installing the board, the power supply connector is usually the last part to be connected.
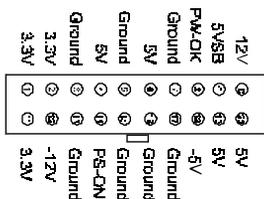
The ATX power supply provides a single 20-pin connector interface which incorporates standard +/-5V, +/-12V, optional 3.3V and Soft-power signals. The Soft-power signal, a 5V trickle supply of at least 10mA, is continuously supplied when AC power is available. When the system is in the Soft-Off mode, 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. Enable this function in BIOS's Power Management Setup menu (Section 3-4).

Front Panel Connector Set (CN7) A through G

Over-ride Power Button
Operation
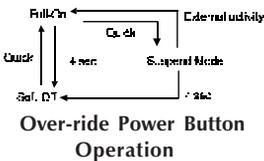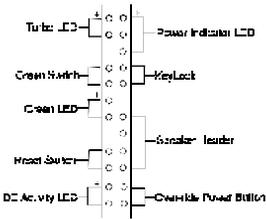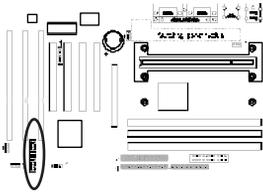
A. Over-ride Power Button Connector

The power button on the ATX chassis can be used as a normal power switch as well as a button 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-BTTN function in BIOS's Power Management Setup menu must be set to "Delay 4 Sec." to activate this function. See Section 3-4 for details.

When the Soft-OFF by PWR-BTTN function is enabled, pushing the power button rapidly will switch the system to Suspend mode. Any occurence of external activity 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.

B. Keyboard Lock & Power Indicator LED Connector

Plugging this connector into the lock on the front panel of the system case allows the lock to enable or disable the keyboard. This function provides limited security against casual intruders. The power indicator LED shows the system's power status. It is important to pay attention to the correct cable and pin orientation (i.e., not to reverse the order of these two connectors.)

Pin	Definition
1	+5V DC
2	No Connect
3	Ground
4	Keylock
5	Ground

Power Good LED — (pins 1, 2, 3)

Keyboard Lock — (pins 4, 5)

Blinking LED in Suspend

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 (both discussed in Section 2-4) or by setting Suspend in the Power Management menu (discussed in Section 3-4).

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.

Pin	Definition
1	System
2	GND

E. Speaker Connector

Pin	Definition
1	Speaker Signal
2	NC
3	NC
4	+5V DC

F. IDE Activity LED Connector

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

G. Turbo LED Connector

This mainboard does not have a Turbo/De-turbo speed modes. Even though this function does not exist, the turbo LED will light when the LED is connected and turbo button pressed.

Change CPU Speed with the Keyboard

Use the following commands to change the CPU speed between turbo/de-turbo.

Set to low speed   [CTRL][ALT][-]
Set to high speed (turbo)   [CTRL] [ALT] [+]

Infrared Connector (CN6)

If you enable the COM2 Mode in BIOS's Integrated Peripherals menu the COM2 port will support IR functions.
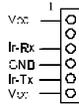
CPU/System Cooling Fan Connectors (CN4/CN10)
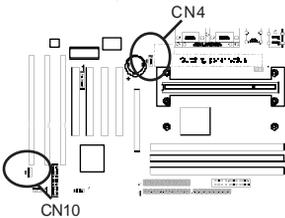
These added connectors allow the fan to draw their power from the mainboard instead of the disk drive connector. The board's management extension hardware is able to detect the CPU and system fan speed in rpm (revolutions per minute). These connectors supports 3-pin cooling fans with minimum of 3500 RPM. The wiring and plug may vary depending on the manufacturer. The red wire should be positive (+12V), the black should be ground and the yellow wire should be the rotation signal.

Management Extension Hardware for *SMART* Technology

The optional management extension hardware provides low-cost instrumentation capabilities. The hardware implementation is a single-chip ASIC (LM78) located in the corner of your mainboard near the ISA slots. Its features include an integrated temperature sensor, fan speed sensors, power supply voltage monitoring to detect levels above or below acceptable values, and a header for an external chassis security feature. If your mainboard does not have the LM78 chip, you can upgrade to LM78 status by obtaining a FAN78II-*SMART* technology upgrade kit. Contact your mainboard dealer for details about this kit.

Clear CMOS Data Jumper (JP5)
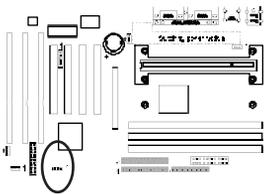
1 Normal (default)   1 Clear CMOS data

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 JP5cap at location 2~3 for 5 seconds, then set 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.

Chassis Intrusion Monitoring Connector (JP3)
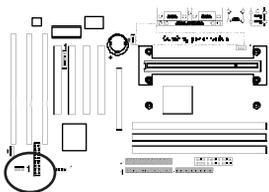
This board supports the chassis instruction monitoring feature of the management extension hardware by means of a mechanical or photo sensor switch attached to the motherboard through this 1x3-pin chassis security header. The mechanical switch is set to open for normal computer operation.

1
GND   VCC
Intrusion signal

Power-On By Keyboard Jumper (JP1)
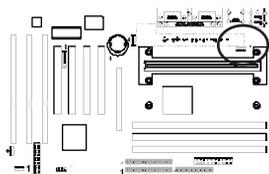
1 Disabled (default)   1 Enabled

This board supports a keyboard power on function defined by the Power On By Keybord option in BIOS's Power Management screen. Some out-of-date keyboards may require larger current than supplied by the Suspend 5V of modern power supplies. When using older keyboards disable this function.

PS/2 Mouse and Keyboard Ports
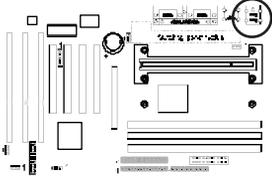
If a PS/2 mouse is used, it must be Enabled in BIOS's Integrated Peripherals menu. See section 3-7. BIOS will automatically detect and assign IRQ12 to a PS/2 mouse.

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

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. Unlike conventional fuses, the poly-fuse does not have to be replaced, relieving the user wasted time and inconvenience.

USB(Universal Serial Bus) Ports
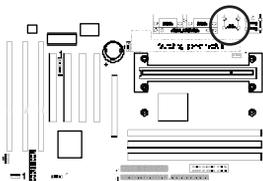
USB is an open industry standard, providing a simple and inexpensive way to connect up to 125 devices to a single computer port. Keyboards, mice, tablets, digitizers, scanners, bar-code readers, modems, printers and many more can all be used at the same time.

USB is a dynamically reconfigurable serial bus with an elementary data rate of 12Mbps. Based on off the shelf, low cost micro-controller technology, its modular layered software protocol supports sophisticated devices and application programs.

This board contains a USB Host controller and includes a root hub with two USB ports (meets USB Rev 1.0 spec.). Two USB peripherals or hub devices are able to be connected.

Compatibility with different USB peripherals is still being tested.

2-5 Main Memory Configuration

The DRAM memory system consists three banks (bank0, bank1, bank2) and the memory size ranges from **8~384 MBytes**.   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.

DIMM 1	Bank 0
DIMM 2	Bank 1
DIMM 3	Bank 2

DRAM Specifications

DRAM type: 3.3V, 64/72-bit EDO(Extended Data Output) Synchronous DRAM

Module size: Single/double-side 8/16/32/64/128 MBytes

DRAM speed: 60-ns or faster for EDO DRAM
10/12ns for Synchronous DRAM

Parity: Either parity or non-parity

⚠ The compatibility of 64/128MB DIMM is still under testing and cannot be 100% guaranteed.

⚠ 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.

ECC DRAM Capability

❧ **This mainboard can be configured to support ECC (Error Check and Correct) function when utilizing parity DIMM modules.** To utilize the chipset's ECC features, you must use a 72-bit DIMM module.These modules are automatically detected during bootup. However, the user must configure the DRAM Data Integrity Mode to "ECC" in BIOS's Chipset Features Setup menu to enable the ECC function. ECC detects double bit errors and detects and corrects single bit memory errors on the fly without user intervention. Errors may be generated by a defective memory module, conflicting memory speeds between different banks, DMA, etc.

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 reboot 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 left bottom edge of the screen.

✎ This mainboard's system BIOS includes SCSI BIOS for PCI SYMBIOS 810 based SCSI cards. In the case that such a SCSI card is installed, the system BIOS will auto-scan the ROM address and install BIOS in the first available address.

ROM PCI / ISA BIOS (2A69JC39)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
SeePU & CHIPSET SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING

ESC   : Quit   ↑↓→←   : Select Item
F10   : Save & Exit Setup   (Shift) F2   : Change Color

Time, Date, Hard Disk Type...

Figure 3-1 Setup Program Initial Screen

3-1 Standard CMOS Setup

The Standard CMOS Setup 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.

```
                    ROM PCI / ISA BIOS (2A69JC39)
                         STANDARD CMOS SETUP
                         AWARD SOFTWARE, INC.


Date (mm : dd : yy)  : Fri, Sep 19 1997
Time (hh : mm : ss) : 9 : 14 : 43

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

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

Figure 3-2 Standard CMOS Setup 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.

Type (Auto/User/None): Use the fields under the Type column to determine the method you will use to configure the IDE devices. If you choose Auto, BIOS will automatically detect and make optimal settings for most IDE hard drives.

⚠ The mainboard manufacturer recommends that you choose Auto for all drives.

Choose User to define your own drive type manually. You must enter values indicated in the table below into each drive parameter field. This information should be included in the documentation from your hard disk vendor or system manufacturer:

TYPE	Setting method
CYLS	Number of cylinders
HEAD	Number of heads
PRECOMP	Write precompensation cylinder
LANDZ	Landing zone
SECTOR	Number of sectors
MODE	Mode type

Table 3-1 Hard Disk Drive Parameters

Cyls/Head/Sector: The number of Cylinders, Heads, and Sectors can usually be found written on the top of the hard disk. If you have a relatively new hard drive, entering this information alone is usually sufficient for normal hard disk operation. The hard disk will not work properly if you enter improper information for these categories.

Precomp: Older hard drives (i.e., MFM or RLL drives) have the same number of sectors per track at the innermost tracks as at the outermost tracks. Thus, the data density at the innermost tracks is higher and the bits are lying closer together. Even though the physical size of a sector gets progressively smaller as the track diameter diminishes, each sector must still hold 512 bytes. Write precompensation circuitry compensates for the difference in sector size by boosting the write current for inner track sectors.

Landz: This defines the address of the landing zone and is only used for older hard drives which do not have an auto-parking feature.

Mode: If the Type value is not None for any device, you must set the Mode value for that device. There are four different Mode values: Auto, Normal, Large, and LBA.

> **Auto** - BIOS detects and enters the IDE drive type during bootup.

> **Normal** - for IDE drives that meet the old IDE specification which support a maximum capacity of 528MB (1024 cylinders, 16 heads, and 63 sectors).

Large - for IDE drives that do not support LBA and have more than 1024 cylinders. Try this setting if your hard disk does not operate properly with the LBA setting. Large mode is not supported by all operating systems, i.e., only certain versions of DOS support large mode.

LBA - (Large/Logical Block Addressing) With LBA, the IDE controller transforms the data address described by sector, head, and cylinder number into a physical block address, significantly improving data transfer rates. This mode is for drives with greater than 1024 cylinders and between 528MB and 8.4GB in size. This protocol is the current common standard.

Choose None for Type if there are no IDE HDD devices in your system.

✎You can use the IDE HDD Auto Detection function to auto detect your hard drive parameters. Using this function will automatically insert the parameters discussed under Hard Disk Setup and will indicate User for the Field value. Please see Section 3-9 for more information.

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 diagnotic 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 BIOS Features Setup

By choosing the BIOS Features 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.

```
ROM PCI / ISA BIOS (2A69JC39)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning                 : Disabled      Video   BIOS   Shadow  : Enabled
CPU Internal Cache            : Enabled       C8000 - CBFFF Shadow : Disabled
External Cache                : Enabled       CC000- CFFFF Shadow : Disabled
CPU L2 Cache ECC Checking     : Enabled       D0000 - D3FFF Shadow : Disabled
Quick Power On Self Test      : Enabled       D4000 - D7FFF Shadow : Disabled
Boot Sequence                 : A,C,SCSI      D8000 - DBFFF Shadow : Disabled
Swap Floppy Drive             : Disabled      DC000- DFFFF Shadow : Disabled
Boot Up Floppy Seek           : Enabled
Boot Up NumLock Status        : On
Boot Up System Speed          : High
Typematic Rate Setting        : Disabled
Typematic Rate (Chars/Sec)    : 6
Typematic Delay (Msec)        : 250
Security Option               : Setup         ESC : Quit          ↑↓→←        :Select Item
PCI/VGA Palette Snoop         : Disabled      F1   : Help          PU/PD/+/-   : Modify
OS Select (For DRAM>64MB)     : Non-OS2       F5   : Old Values    (Shift) F2  : Color
                                              F7   : Load Setup Defaults
```

Figure 3-3 BIOS Feature Setup Screen

A. VIRUS PROTECTION

Virus Warning

When Enabled, BIOS activates a warning message to the user when any program (i.e., a virus) attempts to access the boot sector or hard disk partition table. The user is able to intervene by running an anti-virus program. This function only protects the boot sector and not the entire hard drive.

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.

CPU L2 Cache ECC Checking
Enable this function to perform ECC (Error Check and Correct) on the CPU's L2 SRAM. ECC detects and corrects single-bit errors while it only detects double bit errors. Certain SDRAM modules also have ECC capability. For more information on SDRAM, see section 2-5. If you are using a 333MHz or higher CPU, this function must be enabled.

C. BOOT UP FEATURES

After turning on the system, BIOS will perform a series of device initializations 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 bootup is better than loosing data during your work.

Boot Sequence
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 inlcude 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 numberpad as number keys or arrow keys.

Boot Up System Speed
This function determines the CPU speed while in non-protected mode under DOS. Set to High for regular CPU speed and low for decreased CPU speed. This function is used for applications such as games that require decreased CPU speed.

D. 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.

E. 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 3-8 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.

F. PCI/VGA Palette Snoop

Some non-standard VGA cards or MPEG video cards may not show colors properly. Setting this function to Enabled can correct this problem.

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 *SeePU* & Chipset Setup

By choosing the *SeePU* & Chipset 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**.**

```
ROM PCI / ISA BIOS (2A69JC39)
SeePU & CHIPSET SETUP
AWARD SOFTWARE, INC.

AUTO Configuration        : Enabled      SDRAM CAS Latency Time    : 3
DRAM Speed Selection      : 60ns         Power Failure Recovery    : Disabled
MA Wait State             : Slow         Spectrum Spread           : Disabled
EDO RAS# To CAS# Delay    : 3            Flash BIOS Protection     : Disabled
EDO RAS# Precharge Time   : 3            Hardware Reset Protect    : Disabled
EDO DRAM Read Burst       : x333
EDO DRAM Write Burst      : x222           *****    CPU Setup    ******
DRAM Data Integrity Mode  : Non-ECC      CPU Type            : Pentium-II-233
CPU-To-PCI IDE Posting    : Enabled
System BIOS Cacheable     : Disabled
Video BIOS Cacheable      : Disabled
Video RAM Cacheable       : Disabled
8 Bit I/O Recovery Time   : 1
16 Bit I/O Recovery Time  : 1
Memory Hole At 15M-16M    : Disabled     ESC : Quit           ↑↓→←      :Select Item
Passive Release           : Enabled      F1  : Help           PU/PD/+/-  : Modify
Delayed Transaction       : Disabled     F5  : Old Values      (Shift) F2  : Color
AGP Aperture Size (MB)    : 64           F7  : Load Setup Defaults
SDRAM RAS-to-CAS Delay    : Slow
SDRAM RAS Precharge Time  : Slow
```

Figure 3-4 Chipset Features Setup Screen

⚠ **With the exception of the CPU Setup all of the above settings are standard for your mainboard and should not be changed.**

✍If professional engineers or customers would like to make some adjustments to gain even better system stability and performance, please visit http://www.award.com to search for helpful information.

A. Auto Configuration

When Auto Configuration is enabled, BIOS autodetects the DRAM module type (i.e. EDO, FP) and determines the relevant DRAM settings. Note that these DRAM settings become background print (unchangeable) once the Auto Configuration is enabled. If Auto Configuration is enabled, you must set the DRAM timing function to 60ns or 70ns, depeding on the type of DRAM you install.

B. DRAM Data Integrity Mode

BIOS automatically detects the presence of ECC DIMMs (72-bit modules). However, to take advantage of ECC you must set this function at "ECC." If any non-parity DIMMs are installed, the memory operates in non-parity mode only and this function must be set at "Non-ECC."

C. 8-bit I/O Recovery Time & 16-bit I/O Recovery Time

Back-to-back CPU or PCI master originated 8-bit and 16-bit cycles have an arbitrary delay of at least 3.5 system clock cycles. This category is used to add additional recovery delay between 8-bit and between 16-bit cycles. This delay takes place because the PCI bus is much faster than the ISA bus. The options are 1 to 8 and N/A.

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.

E. Spectrum Spread

When Enabled this function will cause lower EMI by spreading the system frequency spectrum. For normal operation, Disable this function.

F. Power Failure Recovery

Computers using an ATX power supply do not turn back on after the power source to the computer unexpectedly fails (i.e. electricity outage). Enabling this setting will allow the system to always turn back on after a power failure. This is especially important for computers that must be on 24 hours per day.

G. 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 the FLASH utility. When disabled, the BIOS data can be updated by using the FLASH utility.

To Pass the Windows 95 SCT testing, this item should be disabled.

⚠ Please note that when disabling this setting, the system BIOS is vulnerable by intrusion of computer viruses. It is recommended to disable this setting only temporarily while updating your system's BIOS.

H. Hardware Reset Protect

When this function is enabled, your PC's hardware reset button will not function. This function is especially useful to prevent accidental resets for file servers and routers, etc. which should be available 24 hrs/day. When disabled, your PC's hardware reset button will function normally.

I. CPU Setup

The mainboard manufacturer developed *SeePU* technology that allows you to easily change your CPU's **clock mulfiplier factor** and **CPU Bus frequency** in BIOS. Refer to Section 2-3 for details.

3-4 Power Management Setup

This section provides information on the Green PC power management funtcions. 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.

```
ROM PCI / ISA BIOS (2A69JC39)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management      : Disabled        **** System Monitoring & Alerting ****
PM Control by APM     : Yes             CPU Warning Temperature   : 60 °C/140°F
Video Off Method      : DPMS            Current CPU Temperature   : 25 °C/77 °F
Video Off After       : Standby         Current System Temp.      : 25 °C/77 °F
MODEM Use IRQ         : 3               Current CPUFAN1 Speed     : 3600 RPM
Doze Mode             : Disabled        Current CPUFAN2 Speed     : 3600 RPM
Standby Mode          : Disabled           +1.5V :1.48V    +2.5V :2.49V
Suspend Mode          : Disabled           +3.3V :3.32V    +5V   :4.83V
HDD Power Down        : Disabled           +12V :11.85V    -12V  :-11.14V
Throttle Duty Cycle   :62.5%               -5V   :-4.75V
VGA Active Monitor    : Disabled
Soft-Off by PWR-BTTN  : Delay 4 Sec.
CPUFAN Off In Suspend : Enabled
Power On By Modem     : Disabled
Power On By Alarm     : Disabled       ESC : Quit          ↑↓→←       :Select Item
                                       F1  : Help          PU/PD/+/-  : Modify
Power On By Keyboard  : Disabled       F5  : Old Values     (Shift) F2 : Color
                                       F7  : Load Setup Defaults
IRQ 8 Break Suspend   : Disabled
```

Figure 3-5 Power Management Setup Screen

A. 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.

Normal → Doze → Standby → Suspend (Green Mode)

Figure 3-6 Power Saving Mode Flow Chart

The computer runs in Normal operation mode until the Doze timer expires, at which point the computer enters Doze mode. If no external activity occurs, the computer will go into Standby and Suspend modes when their respective timers expire. If external activity occurs, the computer will wake up from Power Management and return to Normal mode. To activate the function, set Power Management to

Maximum Saving, User Define, or Minimum Saving described below. For a description of the power saving modes (Doze, Standby, and Suspend) see their descriptions below.

Disabled - Turns off the Power Management functions.

Max. Saving - All timers are set at the minimum value of one minute to maximize power saving.

Min. Saving - All timers are set at the maximum value of one hour for minimal power saving.

User Define - User can configure the timer to a desired time according to the values available.

✎ Note that enabling the Power Management function will result in enabling the HDD Power Down function (Max Saving = 15 min, Min Saving = 1 min). The HDD Power Down function is not part of the Power Management scheme as indicated in Figure 3-6 Refer to the Standby Mode, Suspend Mode, and HDD Power Down descriptions below for more informaiton on hard drive power management.

B. PM Control by APM

This function allows software other than BIOS to control Power Management features Enable this function in BIOS and make sure APM (Advanced Power Management) is present. For example, run the Power utility program located in the DOS directory, C:\DOS\POWER.EXE to use Power Management features under DOS. For Windows 3.1x and Windows 95, you need to install Windows with the APM feature.

C. 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 an electricity 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 your video subsystem to set video power management options.

D. Video Off After

This setting determines when the monitor enters power saving mode. As the function name indicates, the monitor enters the power saving mode after the chosen event expires. The Power Management function must be enabled to use this function.

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. Doze Mode

The Power Management function must not be set to disabled to enable this function. If no interrupts have occured and the Doze timer expires, system will enter Doze mode. In Doze mode, the CPU clock runs at a lower speed while all other devices operate normaly.

✎Power saving modes achieved in lower power saving states will either be maintained or enter higher power saving modes when switching to higher power saving states. For example, the CPU clock will not switch back to normal in Standby mode. It will maintain a decreased rate in Standby Mode and turn off in Suspend Mode.

G. Standby Mode

The Power Management function must not be set to disabled to enable this function. If the system runs in Doze mode and the Standby timer expires, the system will enter Standby mode. In Standby mode, the hard disk drive and the monitor shut off while all other devices still operate at full speed. Note that the Video Off and HDD Power Down functions in Figure 3-5 provide the same power saving options found in Standby mode. The priority for determining which function controls power saving for the monitor and hard drive is determined by which timer expires first.

H. Suspend Mode

The Power Management function must not be set to disabled to enable this function. If the system runs in Standby mode and the Suspend timer expires, all devices regulated by power management will shut off and the CPU speed will be 0 MHz.

I. HDD Power Down

The Power Management function must not be set to disabled to enable this function. When the HDD idle time has elapsed, BIOS sends a command to the hard disk to turn off the motor. Set a time between 1 and 15 to indicate time required to wait before the hard drive enters a power saving mode. Some old hard drives may not support this function.

J. Throttle Duty Cycle

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

K. VGA Active Monitor

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

L. Soft-Off by PWR-BTTN

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 over-ride power button operation wich 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.

M. CPU Fan Off in Suspend

When Enabled, the CPU fan turns off during Suspend mode. This does not damage the CPU because the CPU frequency is 0MHz in Suspend mode.

N. Power On By Modem

When enabled, a modem that receives a call 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.

O. Power On By Alarm

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. This function is only available when using an ATX power supply and the Software Power-Off function to turn off the computer. See the Software Power-Off feature in Section 2-4 of this manual for instructions.

P. Power On By Keyboard

Set the Power-on by keyboard jumper (discussed in Section 2-4) to its enabled position, and select a hot-key (i.e., Ctr-F1, Ctr-F2) or a password to turn the computer on from Soft-off state.

Q. IRQ8 Break Suspend

Enabling this setting turns the monitoring of IRQ8 (the Real Time Clock) On so it does not awaken the system from Suspend mode.

R. SMART (System Monitoring and Alerting) Technology (Optional)

The optional management extension hardware (LM78 chip) incorporates features that are compliant with Desktop Management Interface (DMI) as well as LANDesk® Client Manager software. The hardware implementation comes with the following features:

- Seven on board voltage monitors
  - Power supply voltage monitoring +/-12V, +/-5V
  - CPU voltage monitoring +1.5V, +2.5V, +3.3V
- Two fan speed sensing and On/Off control
- CPU and system overheat monitoring and alerting
- Security switch for detecting physical intrusion, such as when the chassis lid has been removed, even when power is off.

3-5 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.

```
ROM PCI / ISA BIOS (2A69JC39)
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.

PNP OS Installed              : No          PCI IDE IRQ Map To    : ISA
Resources Controlled By       : Manual
Reset Configuration Data      : Disabled    FDD IRQ Can Be Free   : No
                                            Assign IRQ For USB    : Enabled
IRQ-3 assigned to     : Legacy ISA          Assign IRQ For VGA    : Enabled
IRQ-4 assigned to     : Legacy ISA          Used MEM base addr    : N/A
IRQ-5 assigned to     : PCI/ISA PnP
IRQ-7 assigned to     : PCI/ISA PnP
IRQ-9 assigned to     : PCI/ISA PnP
IRQ-10 assigned to    : PCI/ISA PnP
IRQ-11 assigned to    : PCI/ISA PnP
IRQ-12 assigned to    : PCI/ISA PnP
IRQ-14 assigned to    : Legacy ISA
IRQ-15 assigned to    : Legacy ISA
DMA-0 assigned to     : PCI/ISA PnP     ESC : Quit          ↑↓ →←      :Select Item
DMA-1 assigned to     : PCI/ISA PnP     F1    : Help         PU/PD/+/-  : Modify
DMA-3 assigned to     : PCI/ISA PnP     F5    : Old Values   (Shift) F2 : Color
DMA-5 assigned to     : PCI/ISA PnP     F7    : Load Setup Defaults
DMA-6 assigned to     : PCI/ISA PnP
DMA-7 assigned to     : PCI/ISA PnP
```

Figure 3-7 PCI & ONBOARD I/O Setup Screen

A. PNP OS Installed

If you want to install a PNP compatible OS (such as Windows 95, Windows NT 4.x), please 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.

C. Reset Configuration Data

When enabled the system BIOS will clear/reset the ESCD during POST. After clearing the ESCD, the BIOS will then change this item's value to Disabled. Otherwise, the ESCD data will become useless.

D. IRQ#/DMA# assign to

When resources are controlled manually, you can assign each system interrupt & DMA channel for "Legacy ISA" or "PCI/ISA PnP" card used.

While using **Legacy ISA Card**(non-PnP ISA card), please set it's necessary corresponding resources (INT#, DMA#) from "PCI/ISA PnP" to "Legacy ISA."

✍ All ISA non-PnP devices are legacy devices that select resources (I/O Addr., INT# or DMA#) by using hardware jumpers.

✍ IRQ-3/4/7/12/14/15 have been set as default for on board devices (COM2, COM1, Printer port, PS/2 mouse, IDE1 and IDE2).

E. PCI IDE IRQ Map to

This function allows user to select PC AT (ISA) interrupts or PCI IDE IRQ mapping.

ISA: BIOS does not designate any IRQ signal to the PCI slot. This is the default setting.

PCI-SLOT 1-4: User can designate which PCI slot (1-4) the IDE card is inserted into. This setting is suitable for use with older PCI IDE cards that BIOS is not able to recognize.

PCI-AUTO: BIOS automatically detects which PCI slot the PCI IDE card is inserted into.

F. FDD IRQ Can Be Free

This function allows user to choose if the FDD IRQ is able to be freed up. The default setting is NO and this does not allow the IRQ to be free.

G. Assign IRQ For USB

If USB is employed this function must be Enabled. Otherwise, disable this function to optimize Windows 95 IRQ resources for other IRQ usage.

H. Assign IRQ For VGA

This function allows BIOS to make an IRQ available to VGA cards. Most current VGA card models do not require this function to be enabled.

I. Used MEM base addr

This function devotes a space of memory (8K, 16K, 32K, 64K) for any peripheral that has a high memory requirement. This is also used to designate memory space for legacy ISA cards. The settings C800~DC00 are used to to designate point at which the memory will start being used. The default setting is N/A (disabled.)

J. Used MEM Length

8K~64K: Determines the amount of memory to be used by ISA cards mentioned in the Used MEM base addr function above.

3-6 Load Setup Defaults

Load Setup 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.

```
ROM PCI / ISA BIOS (2A69JC39)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.
```

STANDARD CMOS SETUP	INTERGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FE⌐	
	Load SETUP Defaults <Y/N>? N
POWER MAN⌐	
PNP/PCI CONFIGURATION	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING

ESC : Quit F10: Save & Exit Setup	↑↓→← : Select Item (Shift) F2 : Color

Load SETUP Defaults except Standard CMOS SETUP

Figure 3-8 Load Setup Defaults Screen

3-7 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.

```
ROM PCI / ISA BIOS (2A69JC39)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

IDE HDD Block Mode        : Enabled       Onboard Parallel Port     : 378/IRQ7
IDE Primary Master PIO    : Auto          Parallel Port Mode        : SPP
IDE Primary Slave PIO     : Auto
IDE Secondary Master PIO  : Auto          USB Keyboard Support      : Disabled
IDE Secondary Slave PIO   : Auto
IDE Primary Master UDMA   : Auto
IDE Primary Slave UDMA    : Auto
IDE Secondary Master UDMA : Auto
IDE Secondary Slave UDMA  : Auto
On-Chip Primary PCI IDE   : Enabled
On-Chip Secondary PCI IDE : Enabled

Onboard FDC Controller    : Enabled
FDC Write Protect         : Disabled      ESC : Quit               ↑↓→←      :Select Item
Onboard Serial Port 1     : 3F8/IRQ4      F1  : Help
Onboard Serial Port 2     : 2F8/IRQ3      F5  : Old Values         PU/PD/+/-  : Modify
COM2 Mode                 : Normal        F7  : Load Setup Defaults (Shift) F2 : Color
```

Figure 3-9 Integrated Peripherals Setup Screen

A. On Board IDE Control

IDE HDD Block Mode
Specify the maximum number of sectors that can be transferred at a time.

PCI Slot IDE 2nd Channel
This item allows you to turn on the 2nd channel of this external board when designating a high performance IDE board into a PCI slot. You must disable On-chip IDE controller when enabling this function.

On-chip Primary/Secondary PCI IDE
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) filed 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. COM2 Mode

When this function is Enabled, then the COM port will be redirected to support IR function.

C. USB Keyboard Support

If your current operating system doesn't support USB drivers (i.e., DOS) this function must be enabled for USB keyboard operation in these operating systems.

✎ When using a USB keyboard this function is automatically Enabled during bootup regardless of its setting in BIOS.

3-8 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 3-3). When the Security Option function is set to Setup, a password is required to enter BIOS and change BIOS settings. When the Securitiy Option function is set to System, a password is required to to enter both BIOS and the the computer's operating system (for example Windows 95) found on the boot drive. This is shown in Figures 3-9 and 3-10.

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 passorword in BIOS (See Figure 3-10 below). Note that when there is no supervisor password set, the user password controls access to all BIOS settings (See Figure 3-9 below).

A. Set Either Supervisor Password or User Password
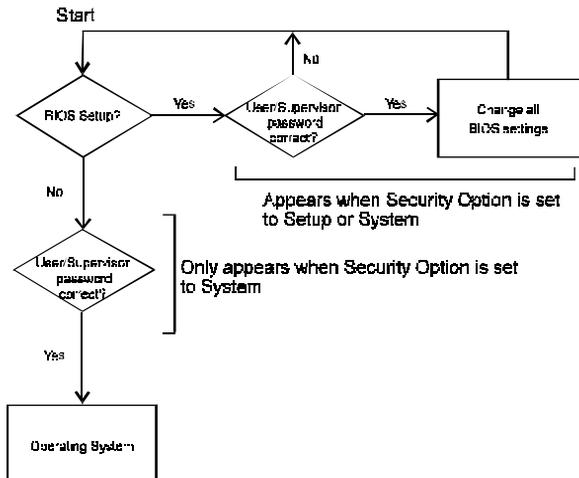
Figure 3-9 Set Either Supervisor or User Password

B. Set Both Supervisor Password and User Password
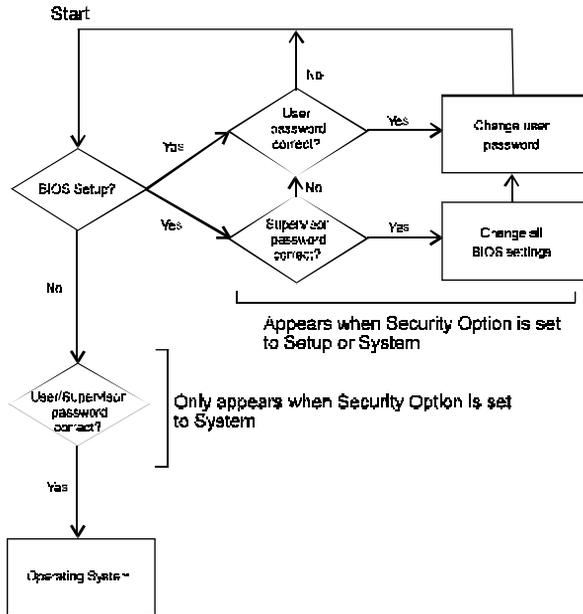
Figure 3-10 Set Both Supervisor and User Password

3-9 IDE HDD Auto Detection

This utility can automatically detect IDE hard disk type and parameters. The detection process take about 5 seconds for each physical drive. After the utility detects the disk drive, type Y and press [Enter] to automatically load the parameters in the Hard Disk section of the Standard CMOS Setup menu. Otherwise, leave the option set at N and press [Enter] or the [Esc] key to skip the detected drive. After detecting your hard drive(s), return to the Standard CMOS menu to check your settings.

```
ROM PCI / ISA BIOS (2A69JC39)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

HARD DISKS       TYPE  SIZE   CYLS   HEAD   PRECOMP  LANDZ   SECTOR   MODE
Primary Master       :


              Select Primary Master Option (N=Skip) : N
OPTIONS    SIZE    CYLS     HEAD    PRECOMP     LANDZ    SECTOR     MODE

2 (Y)      547     530      32          0       1059      63        LBA
1          547     1060     16      65535       1059      63        NORMAL
3          547     530      32      65535       1059      63        LARGE

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

Figure 3-11 IDE HDD Auto Detection Screen

3-10 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.

3-11 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.

Memo

Chapter 4

Brief Software Driver Guide

The Software Driver guide is found on disk 1 that is enclosed with the mainboard. The English version of the guide is the **readme.pdf** file located in the diskettes root directory. The German version of the guide is the **readmegm.pdf** file located in the root directory of disk 2. If a CD-ROM disk came with your mainboard, these files are found in the root directory of the CD-ROM disk. These are PDF files which must be viewed with Adobe's freeware called Acrobat Reader. The Acrobat Reader can be downloaded from many sites on the world wide web. Adober offers this free reader at http://www.adobe.com.

The following items are discussed in the PDF files:

- Bus Master/PIO IDE Driver Installation
- USB Driver Installation
- Removing the Exclamation and/or Question Marks From the Windows 95 Device
  Manager Menu
- Updating Your System BIOS
- Installing and Using a Desktop Management Interface (DMI) Utility

Memo

Appendix I

On Board I/O Addresses & IRQ Maps

System Resource	IRQ	I/O Address
1. Timer	IRQ0	040, 043
2. Keyboard	IRQ1	060, 064
3. Programmable INT	IRQ2	0020, 0021, 00A0, 00A1
4. COM2(B)	IRQ3	2F8, 2FF
5. COM1(A)	IRQ4	3F8, 3FF
6. Floppy	IRQ6	3F0, 3F7
7. LPT1	IRQ7	378, 37F
8. Real Time Clock	IRQ8	070, 071
9. PS/2 Mouse	IRQ12	060, 064
10. Math coprocessor	IRQ13	0F0, 0FF
11. IDE 1	IRQ14	1F0, 1F7
12. IDE 2	IRQ15	170, 177

✎ **IRQ 5, 9, 10 and 11 are available for interface cards.**

✉ *Memo*

Quick Connector and Jumper Reference

CN6: Infrared connector

CN7: Front panel connector set
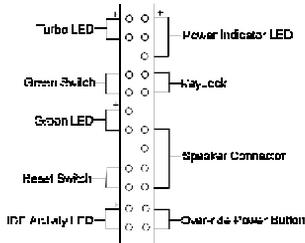
CN4: CPU cooling fan connector
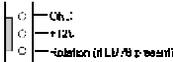
JP1: Keyboard Power on jumper
    1~2 short: disabled (default)
    2~3 short: Enabled

CN10: System cooling fan connector
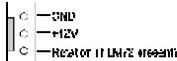
JP3: Chassis intrusion monitoring
    connector (if LM78 present)

JP5: Clear CMOS data jumper
    1~2 short : Normal (default)
    2~3 short : Clear CMOS data
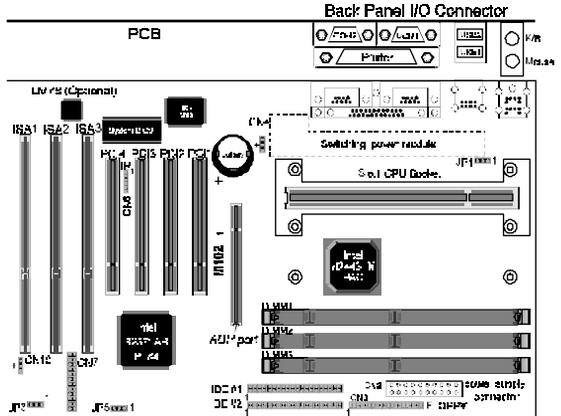
SeePU (Jumper free CPU installation) setting table

CPU Type	CPU Speed		
	External Clock	Frequency Ratio	Internal Clock
Pentium II processor	66	3.5	233
		4	266
		4.5	300
		5	333

🖂 *Memo*