EC Declaration of Conformity

We

    Iwill Corp.

    No. 9-1, Kong 6th RD.,

    Lin Kou 2nd Industrial

    Park, Taipei, Taiwan R.O.C.

declare under sole responsibility that the

    PIINS motherboard

meets the intent of Directive 89/336/ECC for Electromagnetic Compatibility. Compliance was demonstrated to the following specifications as listed in the official Journal of the European Communities:

    EN 50081-1 Emissions:

        EN 55022   Radiated, Class B

        EN 55022   Conducted, Class B

        EN 60555-2 Power Harmonics

    EN 50082-1 Immunity:

        IEC   801-2 Electrostatic Discharge

        IEC   801-3 RF Radiat

        IEC   801-4 Fast Transient

About This Manual

This manual will guide the user how this SCSI motherboard was consisted. All useful information will be described in later chapters. Keep this manual for your future upgrade or system configuration changed.

The chapter Quick Installation ---

This chapter's description is suitable for most user, Just follow step by step in installing the system.

The chapter Overview ---

Describe the feature and specificaton of this SCSI motherboard.

The chapter Manufacture Default ---

This SCSI motherboard has pre-setting before ship out and this pre-setting default is suitable for most user.

The Hardware Installation ---

Describes the hardware detail specification and connection.

The ATX Form-Factor Overview ---

The ATX is the new generation form-factor.

The Award BIOS Setup ---

Detail description of this SCSI motherboard, no need to change the manufacture default unless you have conflict in your system.

The SCSI BIOS Setup ---

The Adaptec SCSI BIOS setup.

Trademark

Intel / Pentium is trade mark of Intel Corporation and all other product names are trademarks and registered trademarks of their respective owners.

Warning

This motherboard is carefully designed with Intel spec. to fully support P54C processor up to 200Mhz and the new P55C. Since Intel is not shiping the new P55C CPU with 200Mhz at the point that we deliver this motherboard so we hold the responsibility on if Intel change any spec. that cause the new processor not function properly in this motherboard.

Contents

CHAPTER 0
Quick Installation

Several easy installation steps will be described in this chapter to help the experienced users for quick installation. If you are new user and need to know more about this motherboard, please start from Chapter 1.
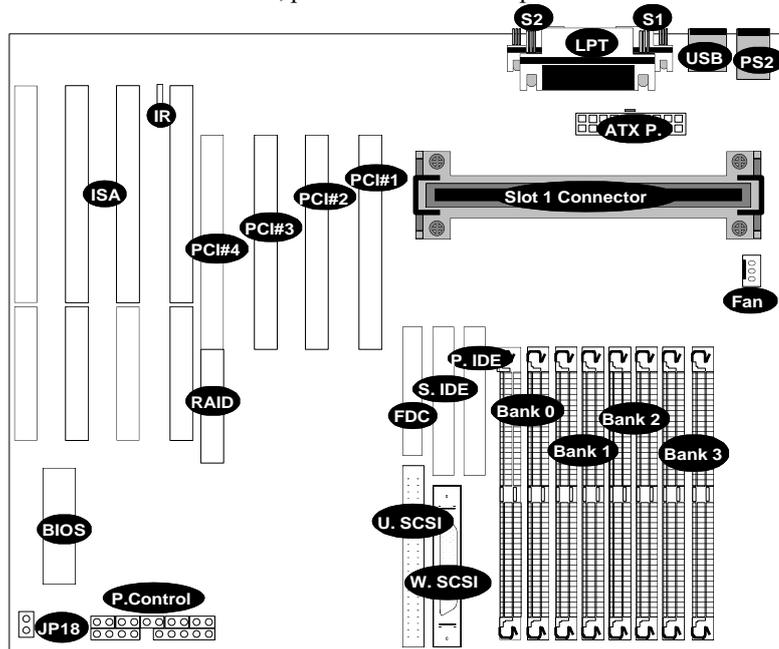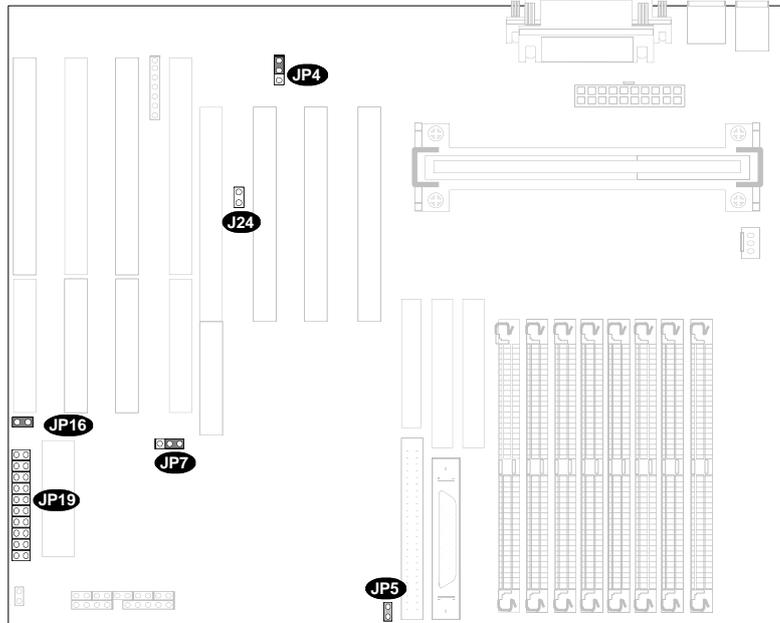
Figure 1:Connectors for PIINS

Figure 3 : Jumpers location

Connector Function Description

ATX P.   20 pin Standard ATX power input connector
BIOS   BIOS (Basic Input Output System)
Bank 0   SIMM Socket(Single In-line Memory Module) J15, J16
Bank 1   SIMM Socket(Single In-line Memory Module) J14, J9
Bank 2   SIMM Socket(Single In-line Memory Module) J8, J7
Bank 3   SIMM Socket(Single In-line Memory Module) J6, J5
Slot1   Processor Retention Mechanism
FDD   34 pin Floppy Disk Drive with key protect connector
LPT   25 pin Parallel D-Sub connector
IR   6 pin pin-header connector
ISA   4 x ISA(Industrial Standard Architecture) 98 pin expansion slot
FAN   JP1 Fan Power connector
JP18   Remote Power On/Off connector
KB   6 pin PS2 keyboard Mini-DIN connector
P. IDE 40 pin Primary IDE with key protect connector
PCI   3 x PCI version 2.1 compliance 120 pin PCI (Peripheral
                 Component Interface)expansion slot
RAIDBUS   60 pin extension slot for working with RAIDBUS 1130 adapter
P. Control   Front panel signal control connector
                 RST—Reset Switch
                 SCSI—SCSI detect LED
                 IDE—IDE detect LED
                 SMI—System Management Interface switch
                 LED—Power-on LED
                 Speaker—Speaker connector
                 Keylock—Keylock switch connector
PS2   6 pin PS2 mouse Mini-DIN connector
S. IDE   40 pin Secondary IDE with key protect connector
S1   9 pin Serial 1 D-Sub connector
S2   9 pin Serial 2 D-Sub connector
U. SCSI   50 pin Ultra SCSI with key protect connector
USB   Two 4 pin Universal Serial Bus connector for USBA & USBB
W. SCSI   68 pin Wide SCSI with key protect connector

Jumper Setting

JP4   CMOS Normal/Clear select
JP5   Auto Terminator select
JP7   SCSI Enabled/Disabled select
JP   PCI#3&4
JP16   Modem Ring-In Enabled
J24   Diamond VGA Enabled

Quick Installation

Step 1.   Install CPU card

Follow following to screw the Processor Rentention Mechanism.

Threaded Studs

This area will touch the bottom of the baseboard (see next two foils)

Bridge
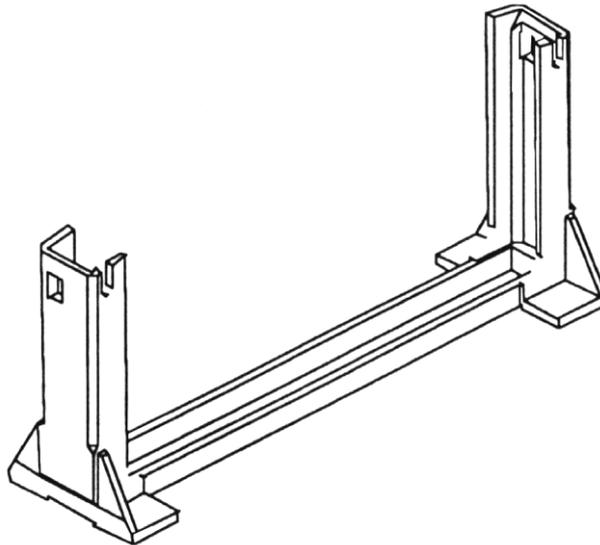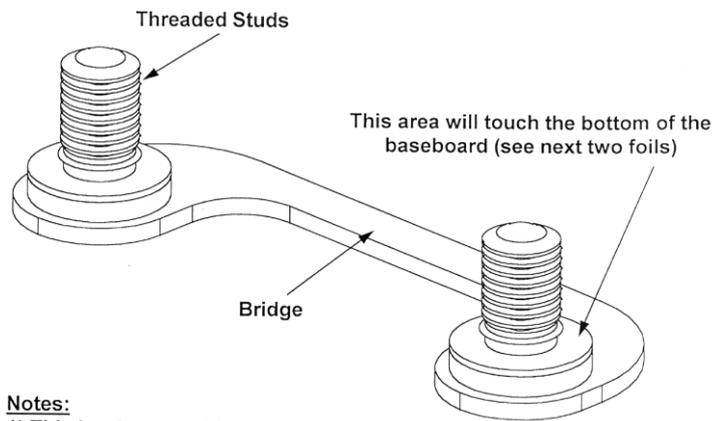
Notes:
1) This is a bottom side integration piece
2) Will be preinstalled on OPSD boards

There are two sets of the Thread Studs need to screw to the Slot1's Processor Retention Mechanism by a criss-cross screw driver.

Plug the Slot1 CPU card into the Slot1 Rentention Mechanism in horizontal direction down to make sure that were contact correctly.

JP1
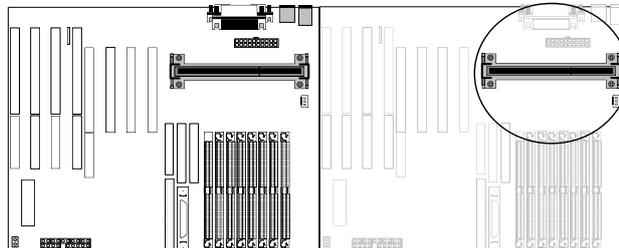
Step 2. Install CPU Cooler's power
Hook the CPU Cooler's power cable to JP1 that marked "FAN".

Step 4. Adjust the CPU frequency
With the special design on this motherboard. Once the jumper cap was inserted, it will automatically caculate the Internal/External Clock and CLKMUL (Clock Multiplier). Just insert the jumper cap to the CPU real frequency.
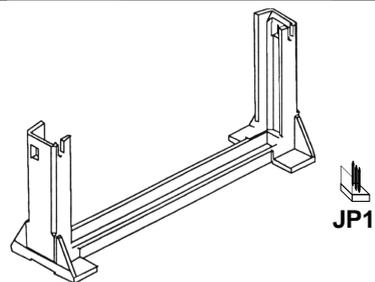
JP19
233
240
266
270
300

.
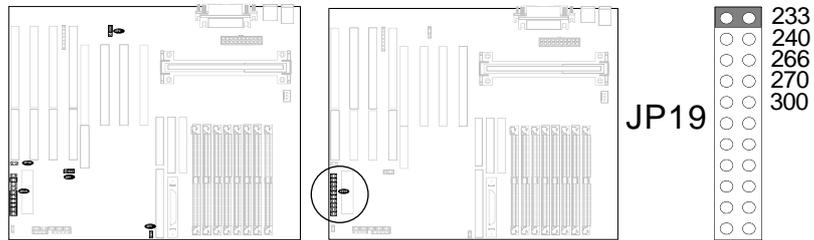
Step 5. Install the Memory Module
For at least two pieces 72 pin SIMM(Single In-line Memory Module) must inserted in this 64 bit motherboard.

The J15/J16 were combined as Bank0, J9/J14 were combined as Bank1, J7/J8 were as Bank2, J5/J6 were combined as Bank3. Any Bank can be powered on by the same pair (two pieces) of SIMM memory module. The maximum capacity of this motherboard is 1024 MByte.

Bank 0   Bank 2
Bank 1   Bank 3

J16 J15 J14 J9 J8 J7 J6 J5
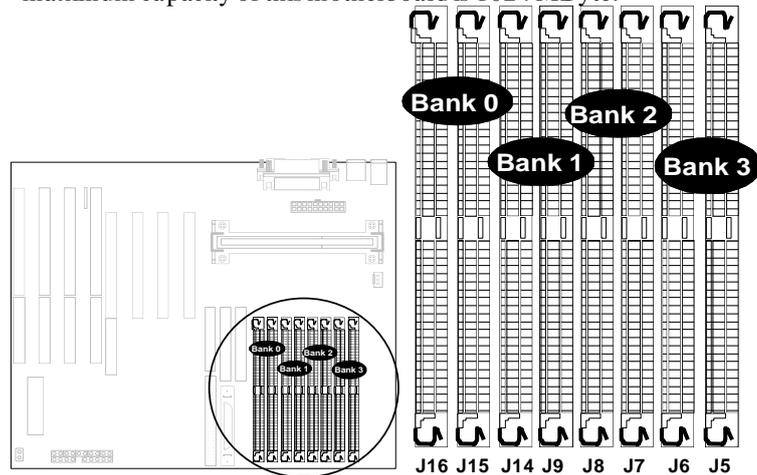
Step 6. Install the Internal Peripherals

The internal peripherals means devices that in the computer chassis like the Floppy Disk Drive, Hard Disk Drive, CD ROM Drive …etc. With this motherboard package, there are 34, 40, 50 and 68 pin flat cable. Use these cables to connect the motherboard and internal devices. All flat cable's connector housing have the key protect, this will guide you the correct direction when you insert.
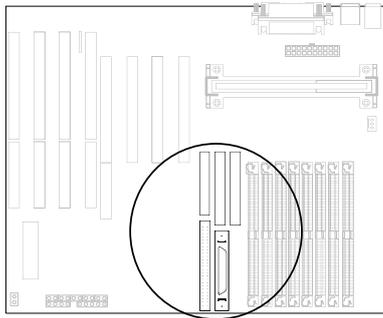
Step 7. Install the External Peripherals

The external device means devices that outside the computer chassis like the Serial mouse, Printer, PS/2 Mouse, External Modem…etc. With this motherboard's package there are two 10 pin cables convert to 9 and 25 pin D-Sub male connector cable are for Serial port, one 26 pin convert to 25 pin D-Sub female connector cable is for Parallel port, one 5 pin housing but 4 wires into a 6 pin Mini-DIN is for the PS/2 mouse.
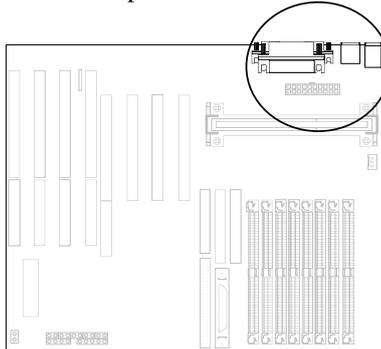
Step 8. Install the SMI(System Management Interrupt)

Some computer chassis provides a SMI switch to front pannel control. Use the chassis provides a 2 pin housing and connect to this SMI switch(any direction can function this).
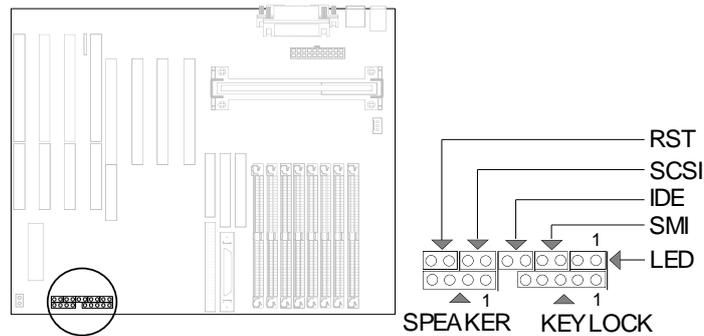
Step 9. Install the Reset switch

Most computer chassis provides a reset switch to front pannel control. Use the chassis provides a 2 pin housing and connect to this reset switch(any direction can function this). This will provides the system a hardware reset once the system was hang.

Step 10. Install the Keylock

Most computer chassis will provides a keylock switch. Normally connect the marked keylock connector to the motherboard keylock. This will cause the keyboard out of function once you switch the keylock to "Lock". This will prevent any un-authorized keyin.

Step 11. Install the Speaker

Connect the speaker to the motherboard's speaker connector. (normally the red cable is +5V power) Or follow the Chapter-0 Quick Installation Step 2, if you use the P55TV/TVS CPU cooler or reference to the CPU Cooler's operation manual)

Step 12. Install the Power LED

Some computer chassis provides a power LED for identify if the system is on or off. Connect the power LED to the motherboard's TB LED connector. (normally the red cable is +5V power)

Step 13. Install the Devices LED
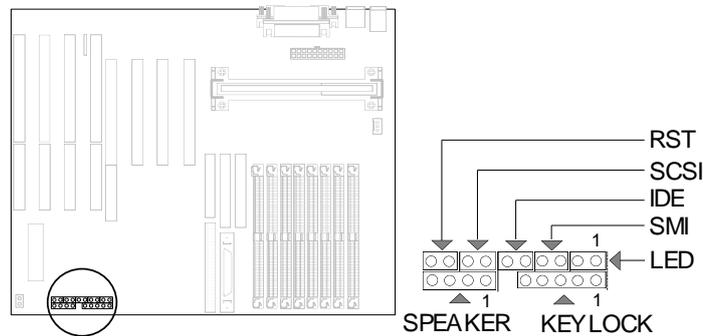
Some computer chassis provides a device LED(Like HDD LED) for identify if the device is under working or not. Connect the device LED to the motherboard's IDE/ SCSI LED connector. (normally the red cable is +5V power)

Step 14. Install the Power Input

This SCSI motherboard provides two type of power input, the AT & ATX for different choises.
The ATX power provides 1 set 20 pin cable for motherboard's power input. Once the ATX power was placed on this system,

the JP18(front panel power on/off switch) is necessory to be connected.

Step 15. Install the Keyboard

Follow the keyboard cable's key direction and connect to this motherboard.

Step 16. Install the Display Card

Finally, follow the display card you have and insert in horizontal direction into the PCI/ISA expansion slot.

Step 17. Power on the system

Once the system was power on, on the lower left corner of the screen will show "Press DEL to enter SETUP, ESC to skip memory test". Then press "DEL" to enter BIOS setup for the first time power on and choose the "LOAD SETUP DEFAULTS" then BIOS will responds "Load SETUP default(Y/N)?", press "Y" and "Enter". Final choose "SAVE to CMOS and EXIT (Y/N)?" by pressing "Y" and "Enter".

Step 18. Enjoy this power SCSI Motherboard

After these steps of installation, the system should prepared and can run most software. And you can follow the Operation System and Application software install procedule to run. Reference to the following Chapter for any un-normal on this system or more information.

CHAPTER 1
Overview

Thank you for purchasing this **PIINS SCSI Motherboard**. This operation manual will guide you to proper configure and install. It has an overview of the engineer design and feature of this motherboard. Also, this manual provides useful information for your later upgrade or change the configuration. Keep this, for your future need.

1.1 Featuress

This PIINS SCSI Motherboard is based on the Intel 82440FX chipset, is the newest member to our SCSI Motherboard solution products families that under ATX form factor. The processor support both the Pentium Pro and Slot1 processor. Onboard the Adaptec PCI Ultra Wide SCSI AIC-7880(AHA-2940UW) that four times the Fast SCSI speed. Eight SIMM module design support from 8Mbyte to the maximum 1Gbyte for memory. In order to support fully plug and play I/O, the USB (Universal Serial Bus) already considered. an Ultra I/O that conta in keyboard and real time clock is used for users to enjoy the plug and play function. This SCSI motherboard has designed with ATX form factor to improve the easy access memory module, long add-on card support and some of the new features that traditional AT form factor can not achieved.

Run with faster and use one single jumper cap to adjust the CPU speed is very important function that this SCSI Motherboard support.

Run with faster system memory is another plus on this SCSI Motherboard to outperform the whole system performance. It equipe 8 of the 72 pin SIMM that support both fast page and EDO DRAM.

■**CPU:**
CPU socket (socket 7) supports the flexibility of different type of current Cyrix (M1), AMD (K5) and future Intel Pentium processor. One easy jumper design, while choosing your CPU speed from 75 to 200MHz.

■**BIOS:**
Award BIOS, on-screen "Plug & Play" setup for Adaptec SCSI, Enhanced IDE, and Ultra Multi-IO. Support **Flash ROM** (This ROM provides better upgrade ability for user to update their BIOS data on the system

board, user can down-load/ update newer version BIOS from Internet or diskette file.

■Memories:

8 X 72-pin SIMM(Single In Line Memory Module)
Support up to **1024MB** (minimum of 8MB) on board. for both the Fast Page Mode and Extended Data Output (EDO) module.

■ Ultra Wide SCSI interface:

- **PIINS equipe with Adaptec PCI Ultra Wide SCSI (AIC-7880 chip) built in which is equilevent to Adaptec AHA-2940UW PCI SCSI controller. The data transfer rate up to 40MB/Sec.**
- **Support the Adaptec / IWILL RAIDBUS slot.**
- **Complete software driver from Adaptec Inc., include EZ-SCSI for DOS/Windows, Netware, Windows NT , OS/2 , SCO Unix , Unixware.**

■Expansion slots:

4 X 16-bits **ISA** slots, 4 X 32-bits **PCI** slots and **1 X RAID Port slot**.
(PCI#5 is occupied by the Adaptec SCSI, it is flexible for your choose while you install a prior or minor controller on this PCI bus.) **(PCI Rev 2.1)**

■IDE functions:

- Built in dual PCI Bus EIDE Channels.
- Support ATAPI (AT Attachment Packet Interface)

■USB interface (Universal Serial Bus):

- Plug and Play devices outside the computer box
- Up to 12Mbit
- Easy of use

■In-Put power:

- Support the ATX power supply connector
- Support the remote On/Off switch

■Floppy Interface:

- Support both 3 1/2" and 5 1/4" **floppy disk drives** and **Tape Drive** (360K / 720K/ 1.2M / 1.44M / **2.88MB**)

- • **Enabled/Disable** selectable from system BIOS
- • Non-Burst Mode DMA Option,16 Byte Data FIFO
- • 3 Mode Driver (option)

■Serial Port:

- • Two high speed 16550 UART serial port
- • IRQ selectable from BIOS.
- • Address changeable form system BIOS
- • NS16C550 compatible, Programmable Baud Rate Generator

■Parallel Port

- • IRQ selectable for IRQ5(278h), IRQ7(378h) from system BIOS.
- • **Standard mode**--Compatible with IBM PC/AT Printer port
- • **EPP Mode** --Enhanced Parallel Port compatible(EPP) compatible IEEE 1284
- • **ECP Mode** --Microsoft & Hewlett Packard Extended Capabilities Port (ECP) Compatible
- • Incorporates ChiProtect Circuit for protection against damage due to printer power-on

1.2 Specifications

■**Physical Dimensions:**Length: 305mm / Width: 245mm

■**Environmental Requirements:**

Temperature 0-55 degrees C (operating or storage)
5% to 95% non-condensing relative humidity

CHAPTER 2
Manufacture Default

This SCSI Motherboard is shipped with manufacture preset at :

1. CPU Clock at **233 MHz**
2. Adaptec SCSI Chip **Enabled**
3. Adaptec Wide SCSI Mode **Enabled**
4. SCSI Terminator **Control by BIOS**
5. Printer ECP Mode at **DMA3**
6. Printer at **IRQ7**, Address at **378h**
7. Serial 1 at **IRQ4,** Serial 2 at **IRQ3**
8. PS/2 MOUSE at **IRQ 12**

> Reference to the **Chapter 3** & **Chapter 4**, if you have devices conflict with the manufacture default.

CHAPTER 3

Hardware Installation

3.1 Preparation and Inspection

This **PIINS** SCSI Motherboard, like all electronic equipment is static sensitive. Please take the proper precautions when handling this board. You should avoid static up. If possible, You should ground yourself by touching a metal table or your computer frame. Keep the board in its conductive wrapping until it is configured and ready to be installed in your system.

For installation, you may need some or all of the following tools:

- SCSI HDD drive/devices manual(s).
- IDE HDD drive/devices and floppy drive manual(s).
- Peripherals that connect to your system's manual(s).
- MS DOS diskettes with FDISK and FORMAT programs.
- Medium size flat blade screwdriver.
- Medium sized Phillips head screwdriver.
- A 3/16 inch nut driver or wrench.

You should find the Following components when open the box :

1. PIINS SCSI Motherboard.
2. This Operation Manual
3. Adaptec software driver Diskette (EZ-SCSI).
4. Adaptec 7800 Family Manager Set software driver Diskettes.
5. Adaptec EZ-SCSI Manual (OEM).
6. Adaptec 7800 Family Manager Set Manual.
7. 68 pins Wide SCSI signal flat cable (P55AVW only).
8. 50 pins internal SCSI signal flat cable.
9. 40 pins internal IDE signal cable.
10. 34 pins internal Floppy Disk Drive signal cable.
11. External SCSI-2 port expansion kit (optional).
12. External Wide SCSI port expansion kit (optional).
13. High speed printer port software driver (optional).

3.2 Placement
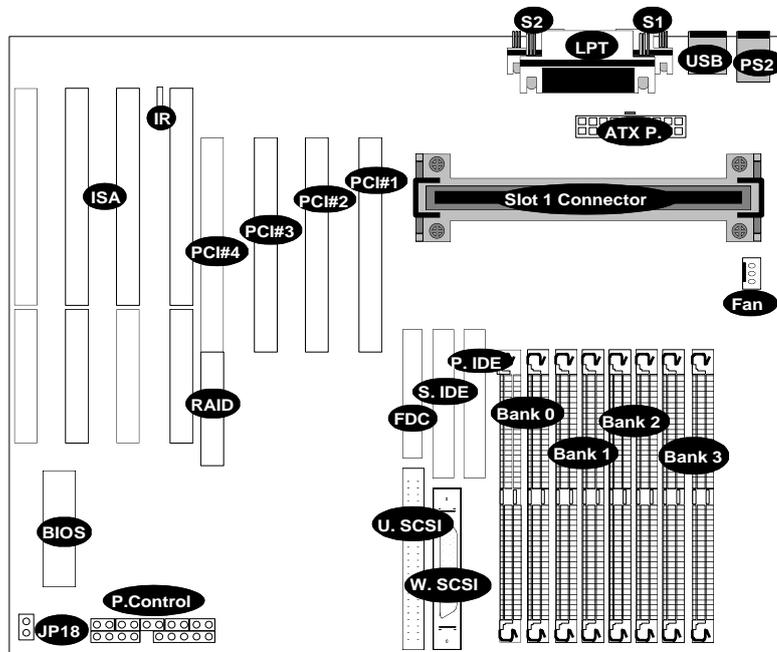
Figure 1 : Placement for PIINS
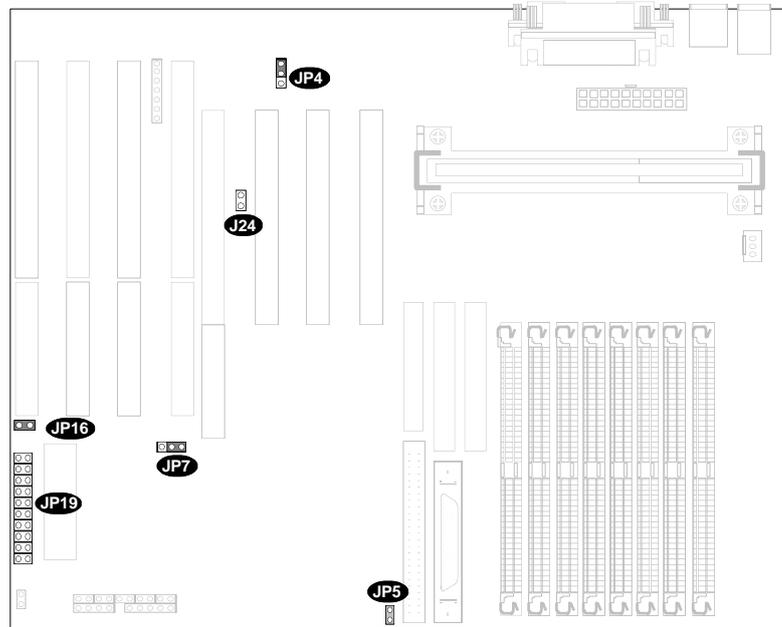
Figure 3 : Jumpers for PIINS

3.3 CPU group

3.3.1 CPU Connector

This CPU connector provides flexibility for Intel Pentium II processors family by this Slot1 Retention Mechanism. The manufacture will provide this mechanism in the packing box, care in screw this mechanism by criss-cross screw driver.

First separate the Slot1 Retention Mechanism into three parts. For the Slot1 Retention Mechanism main body and two pieces of the Retention Mechanism Attach Mount (this is for fix whole Retention Mechanism). Once the Slot1 CPU card was inserted into this mechanism in horizontal direction, a "Click" sound will be heard by locking this Slot1 CPU card to this mechansim. Reference to the Intel Pentium II Processor Installation Guide.
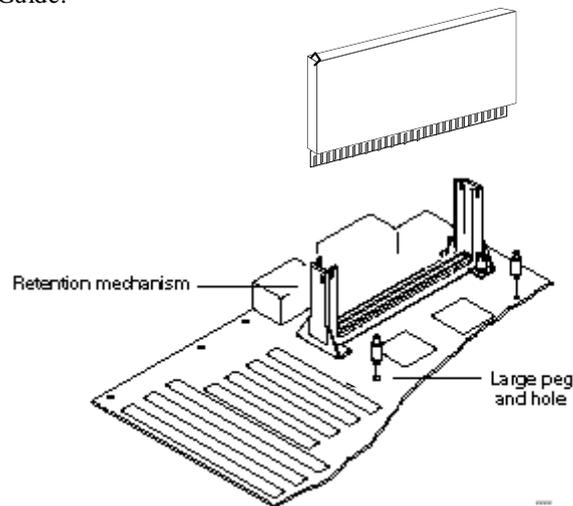
3.3.2 J1 CPU Cooler Fan Power Connector

Warning !!!　　　Warning !!!　Warning !!!

> **CPU Cooler is required to be placed on top of the CPU all the times to prevent CPU over-heat.**

The CPU fan power is a 1 x 3 pin connector(J1).
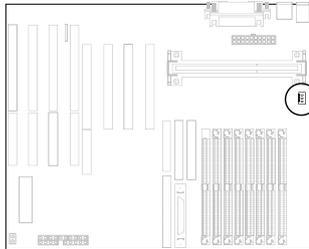
3.3.3 CPU Clock Select

JP19 is a 2 X 11 pin jumper, with one "colored" jumper cap on it. One and only one jumper cap need to put on this connector for selecting the CPU clock. Just put the colored yellow jumper cap to the speed your CPU really is (the CPU internal/external clock ratio and ISA clock will be automatically selected by setup the JP13). The other jumper pins are reserved for future use.

JP19

```
233
240
266
270
300
```
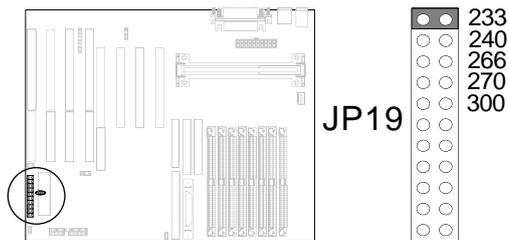
3-4   D-RAM Configuration

This motherboard's memory bank was separated into four Banks, there are Bank0, Bank1, Bank2, Bank3. For maximum support upto 1024 MByte (1 GByte).

For at least two pieces 72 pin SIMM(Single In-line Memory Module) must inserted in this 64 bit motherboard. The J15/J16 were combined as Bank0, J9/J14 were combined as Bank1, J7/J8 were as Bank2, J5/J6 were combined as Bank3. Any Bank can be powered on by the same pair (two pieces) of SIMM memory module.

Bank 0

Bank 2

Bank 1

Bank 3

Bank 0
Bank 2
Bank 1
Bank 3

J16 J15 J14 J9 J8 J7 J6 J5
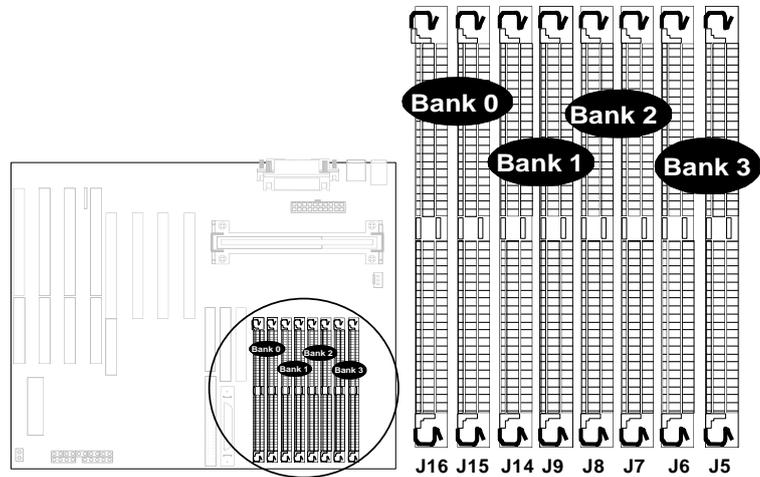
Install the SIMM
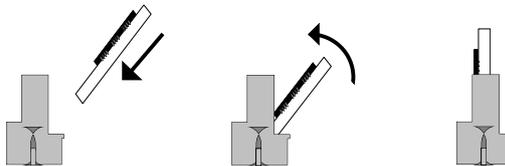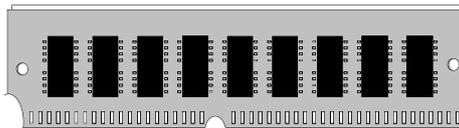
The PIINS supports different type of system memory. No jumper needed for this function or configure.

> **NOTE:** PIINS support both Fast Page DRAM or EDO DRAM, but they cannot be mixed within the same memory bank.
> The 70 ns Fast Page Mode or 60 ns EDO DRAM recommended.

3.5 SCSI Interface

SCSI (Small Computer System Interface) is one of the standard interface controller. The higher level syetm always control most its peripherals in one singles controller like HDD, CD-ROM, Scanner, Tape Drive, CD-R…etc. For using the Multi-Tasking Protocol can drive several devices to work in the same time and this can increase the peripherals performance. Devices not in the same speed can be connected together and this will not postpone system overall performance, even more devices that connect to the same controller will perform better.

This PIINS is a Ultra Wide SCSI and use the 16 bit Bus, this can connect the maximum 15 devices. And perform the 40MB/Sec transfer speed by this Ultra Wide SCSI.

Like every house got its own address number, the SCSI Controller/ Peripherals also got their own IRQ and SCSI ID numbers. This onboard SCSI controller default is using IRQ11 and ID7. Others SCSI devices also got their own ID number. The lower ID will be get higher precedential, the bootable SCSI HDD normally set to ID0.

SCSI Bus is a series/ non-stop and cabled together. And they use Terminators in both ends. So remove away all terminators that between the two ends.(reference to each devices operation manual for detail)

Care must taken for the terminators and each devices ID number.

3.5.1 Ultra Wide SCSI Connector

W. SCSI is a 68 pins 16 bit Ultra Wide SCSI connector. It attaches the SCSI cable(s) from the controller to the SCSI peripherals. The external Wide SCSI port expansion kit is an optional for your connecting external devices. Be-sure the cable's colored side should align to pin #1 of this connector.
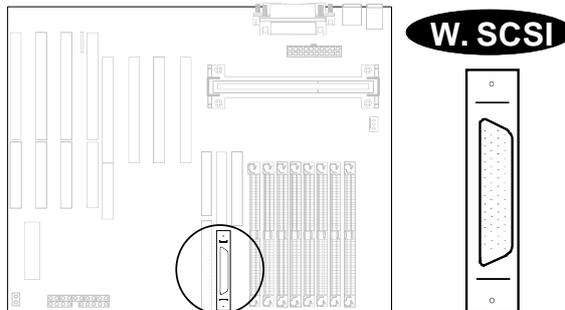
3.5.2 Ultra SCSI Connector

U. SCSI is a 50 pins 16 bit Ultra SCSI connector. It attaches the SCSI cable(s) from the PIINS SCSI controller to the SCSI peripherals. The external SCSI port expansion kit is a optional for your connecting external

devices. Be-sure the cable's colored side should align to pin #1 of this connector.

U. SCSI
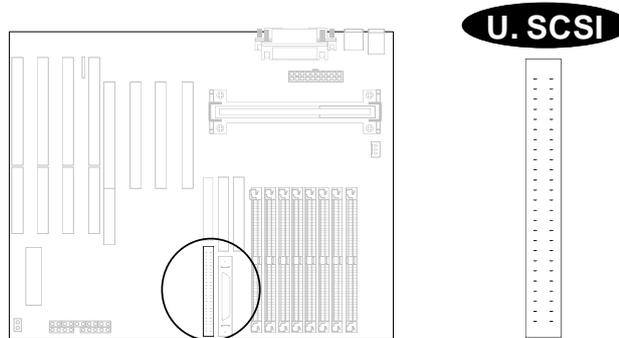
3.5.3 Link Internal Ultra & Ultra Wide SCSI devices

The SCSI devices are cabled together in a single, connected series. This SCSI cable must run sequentially from one device to the next, with no branches.

Internal SCSI Connection

Ultra Wide SCSI devices

Host=ID7

68pin flat SCSI cable

50pin flat SCSI cable

Ultra SCSI devices
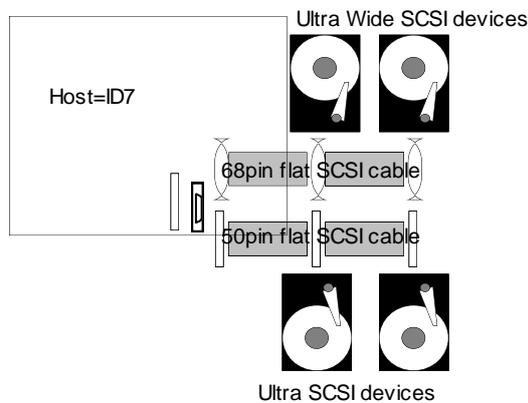
Note: The 50 pin SCSI is an 8 bit SCSI bus, the 68 pin SCSI is a 16 bit SCSI bus which has a pin-to- pin connected to the 50 pins SCSI connector.

Note: The SCSI termination must be on for the both side. The beginer and end must set the terminator on - otherwise the SCSI bus will not operate properly. For linking both the 50 & 68 pin SCSI together, the High byte terminator must set to on and Low byte set to off.

3.5.4 Link Internal & External SCSI devices

The concept of linking the internal and external SCSI devices is still the same--- cabled together in a single, connected series. This SCSI cable must run sequentially from one device to the next, with no branches. The manufacture provides two kinds of option --- Fast SCSI and Wide SCSI external expansion kit for user's multiple choices.
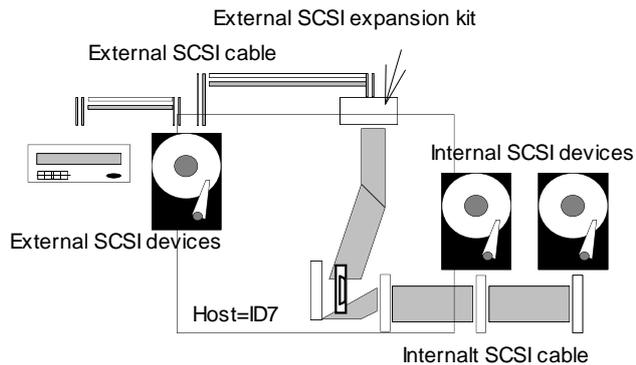
External SCSI expansion kit

External SCSI cable

Internal SCSI devices

External SCSI devices

Host=ID7

Internalt SCSI cable

The manufacture provides two kinds of SCSI external
expansion kit for user's choices.
*SCSI-2 external expansion kit
*Wide SCSI external expansion kit

External SCSI expansion kit

External SCSI cable

Internal SCSI devices

External SCSI devices

Host=ID7

Internalt SCSI cable
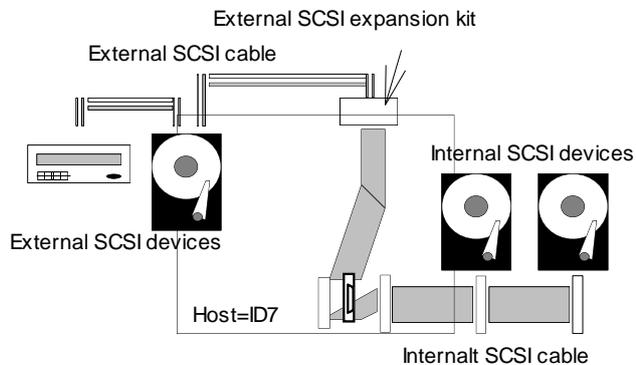
The manufacture provides two kinds of SCSI external
expansion kit for user's choices.
*SCSI-2 external expansion kit
*Wide SCSI external expansion kit

*Reference to Chapter 5. SCSI Select Utility for software setup.

3.5.5 Set SCSI IDs

You must assign a different SCSI ID to each device on the SCSI bus connected to this motherboard. See your SCSI device documentation for directions on how to determine the ID and change it.

■ Ultra/ Fast SCSI devices that connect to this mainboard's SCSI connector can be assigned ID from 0 to 7. Normally, the host will use ID7. Or reference to Chapter 5 for more information.

■ Ultra Wide SCSI devices that connect to this mainboard's SCSI connector can be assigned ID from 0 to 15. Normally, the host will use ID7. Or reference to Chapter 5 for more information.

■ The SCSI ID0 is best use for SCSI hard disk to be used as your computer's boot device, ID1 is best reserved for a secondary SCSI hard disk.(This is only when you use the SCSI hard disks and devices.)

3.5.6 SCSI Chip Select

JP7 is a 3 pin jumper connector.

Function	JP7	Note
Enabled	1-2	*Default
Disabled	2-3	

3.5.7 SCSI LED
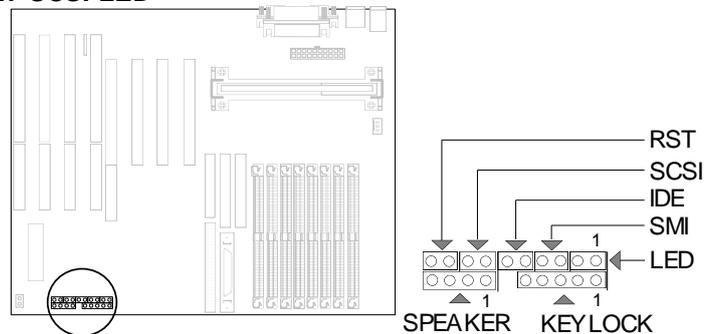
A 2 pins SCSI device detect LED connector.

Pin	Assignment
1	LED anode (+)
2	LED cathode (-)

3.6 RAIDBUS slot (P55AVW only)

3.6.1 SCSI RAIDPort

Turn this SCSI embedded motherboard to be hardware assist RAID ready by adding the RAIDBUS 1130 adapter.

This RAIDBUS slot by adding the RAIDBUS 1130 adapter can support :

■ Bus Master DMA
■ Up to 133 Mbyte/Sec Burst rate
■ RAID level :5,1,0 and 0/1
■ Fully Netware 3.11, 3.12, 4.x & WinNT 3.51 supported by Adaptec

The PCI solt #1 uses the 120 pin for PCI Local Bus with 60 pin RAIDBUS slot option.
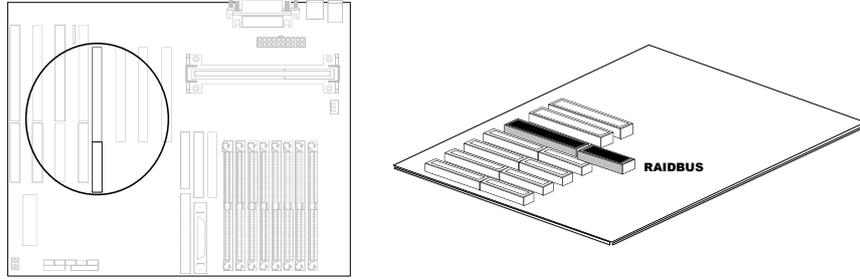
3.7   IDE Interface

3.7.1 Primary, Secondary IDE Connectors

Primary / Secondary IDE are 40 pins internal IDE port connectors. Use a 40 pins flat cable to connect between this connector and the IDE devices. Normally put the boot-up hard disk at the primary IDE channel and other IDE devices at the secondary IDE channel (like CD-ROM). Each IDE connector can connect for two IDE devices. For easy installation, set the first IDE device to "Master" and second IDE device to "Slave" when you connect two IDE devices in one connector.

3.7.2 IDE LED

RST
SCSI
IDE
SMI
LED

SPEAKER   KEY LOCK
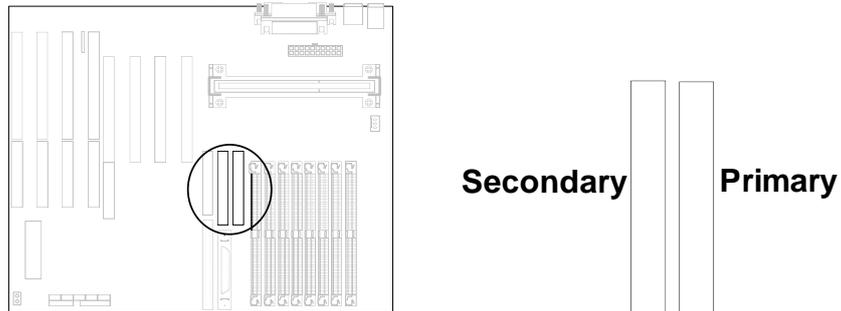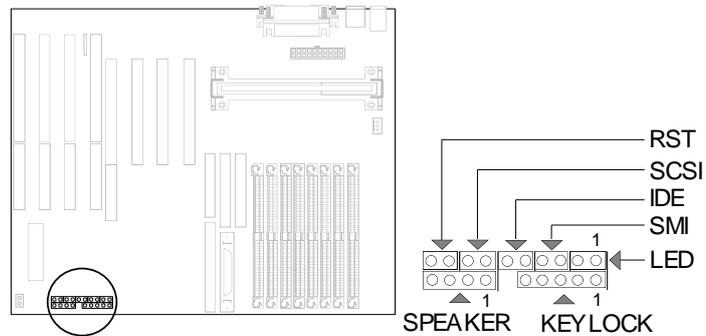
A 2 pins IDE detect LED connector.

Pin	Assignment
1	LED anode (+)
2	LED cathode (-)

3.9 USB (Universal Serial Bus)

Basically the USB is suitable for middle low speed devices like Mouse,
Keyboard, Joystick..etc. In before, all these were using different connectors,
and it is complicated for end user in installing the system. A 4 pin standard
USB connector was designed on this motherboard, user just plug all their
USB peripherals on these kinds of connector and just run.

This USB riser card transfer rate up to 12Mbit per second and will provide
better performance that compare to a cable type USB.

Reference to the following figure for USB connector,

J6 is a 2 x 10 pin connector, connect this with the USB riser card and fix on
the computer chassis's backplane.
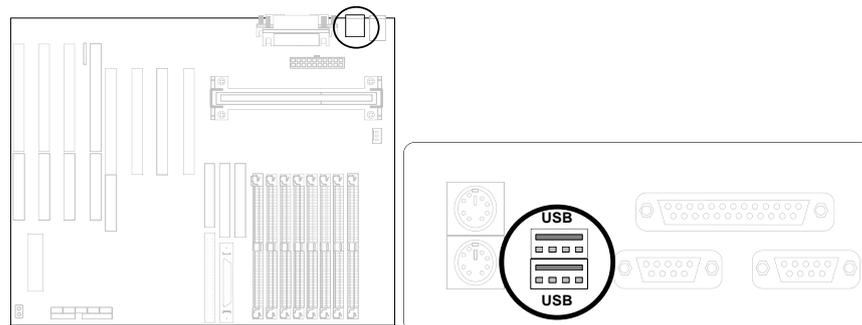
3.10 Enhanced Multi-IO

3.10.1 FDC Connector

The IBM compatible floppy disk drive has 360KB, 720KB, 1.2KB, 1.44KB and 2.88KB. The most popular is 1.44MB in 3.5 inch. There is also one kind of 2.88MB FDD is using on the Japan NEC PC98 series computer.

This motherboard can support for up to two different kind FDD in same connector and also support QIC-80 Tape Driver under floppy interface. FDC is a 34 pins internal Floppy port connector. Use 34 pins flat cable to connect between this connector and floppy drives.
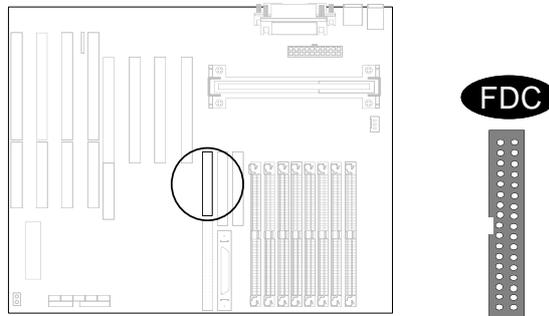
3.10.2 Parallel Port Connector

The parallel port is using the parallel signal transfer, Byte per unit is the data input/ output. The speed is faster than serial port and most this was used on the parallel printer or other parallel devices.

Parallel port is a 25 pins female external DB25 connector for parallel port.
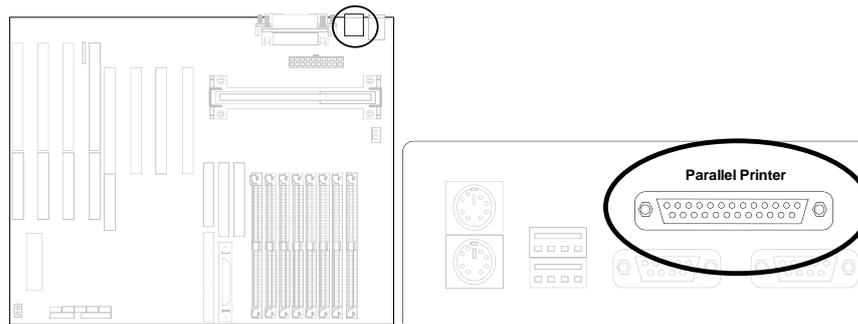
Following selection is all controled by the BIOS:

ECP Mode DMA Channel Select by BIOS
printer Port Address and IRQ Select by BIOS
(378h/3BC with IRQ7, 278h with IRQ5.)

Printer and IEEE 1284 cable
The IEEE 1284 compliant cables have better features on the following:

> Twisted pairs of conductors
> Full foil shield
> Wire braid
> Controlled impedance -- 62 ohm
> Limited cross-walk

With these features will guarantee the IEEE 1284 cable perform at much higher bandwidth rates that the fast Centronics, EPP and ECP modes perform at.
If you are using the ordinary parallel cables running at the EPP or ECP mode that this controller provided, you may experience that the data efforts.

3.10.3 Serial Port

The serial port is using the serial transfer. Because it transfer data input/output by bit per unit, the speed is slower than a parallel port. This ofen use in serial mouse, serial printer, fax modem...etc. This provides a 16550 compatible serial port and this is faster in transfer speed than a traditional 16450 compatible serial port.
Serial 1 & Serial 2 are 9 pins pins male external DB9 port..
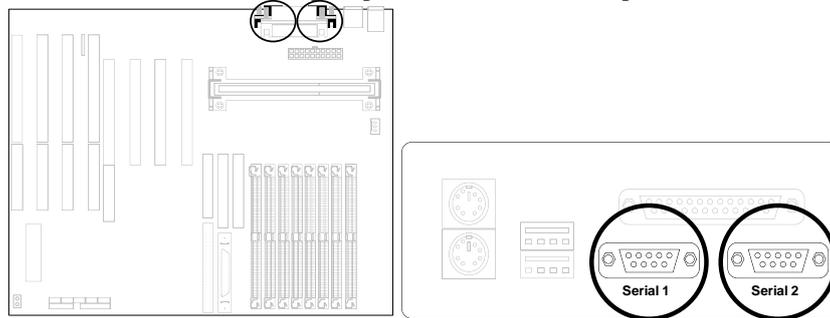
3.11 Others

3.11.1 Keyboard Connector

The keyboard connector is a 6-pin, circular-type Mini-DIN socket. It is used to connect this SCSI motherboard keyboard interface to any standard PS/2 keyboard. The pin assignment are as follows:
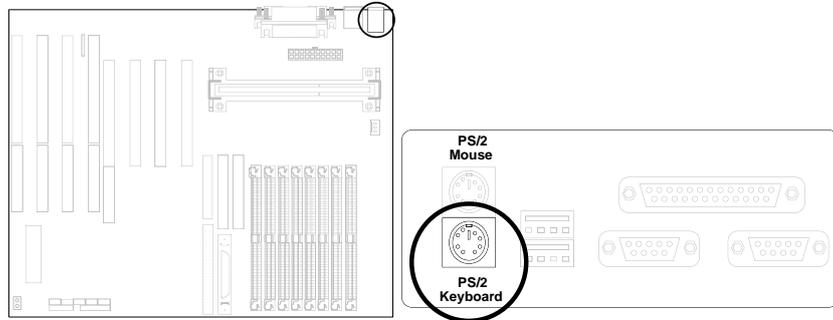
3.11.2 Power Supply Connector

There are two types of power connector provided by this SCSI motherboard. **The 20 pin box header is ATX standard power connector. (will describe this on next chaptor ATX Form Factor).**
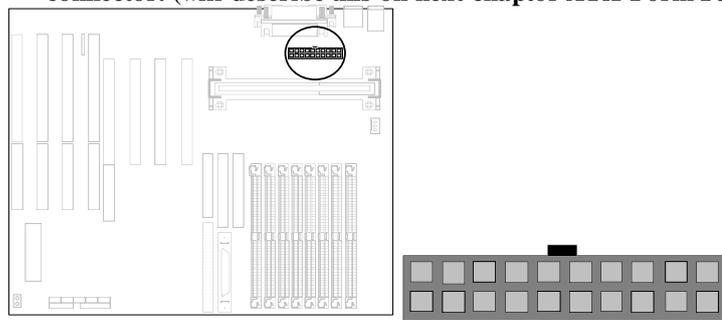
Note: The standard AT power supply will not power-up from JP18 for it doesn't has the "POWER O.K." signal.

3.11.3 Reset, SCSI LED, IDE LED, SMI Switch, LED, Speaker, Keylock Connectors

33
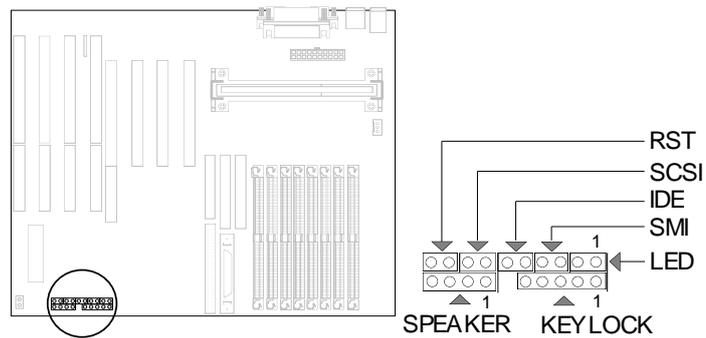
	Left pin	Right pin
Reset Switch	On = Reset	Off = Normal
SCSI LED	Cathode	Anode
IDE LED	Cathode	Anode
SMI Switch	On=SMI	Off = Normal
LED	Cathode	Anode
Speaker	VCC, GND, NC, Sound	
Keylock	LED Anode, NC, GND, Keylock, GND	

Note: This mainbaord has no Turbo function, it will not support Turbo switch. The Power LED will light-on when you connect a computer case that mounted Turbo LED and power on this system.

3.11.4 PS/2 Mouse
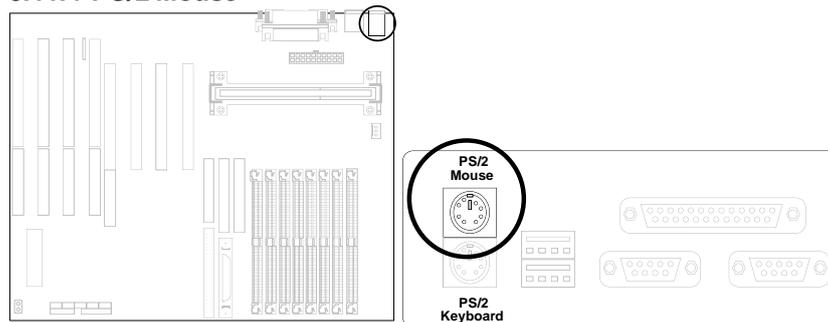
PS/2 Mosuse is a 6 pin Mini-DIN PS/2 mouse connector, the manufacture default is IRQ12.

CHAPTER 4
ATX Form-Factor Overview

The PIINS has been designed with ATX form-factor. The board size is 12" x 9.6" (305mm x 244mm). The ATX form-factor improves over Baby AT and LPX in a number of ways. By using the ATX chassis then the power supply orientation and specification and rotating the Baby AT baseboard through 90 degrees, the Pentium Pro processor can be relocated away from the expansion slots, and the longer side of Add-on card can be used to host more on board I/O. From Figure 3-1: Summary of ATX chassis features layout the user can gain a great deal improved functionality.

- Enhance the PC ease-of-use
- Supports full Length Slots for ISA and PCI Card
- Easy to install the SIMM Memory
- Better Support for the processor located
- Great blows air into the chasis with ATX power Supply
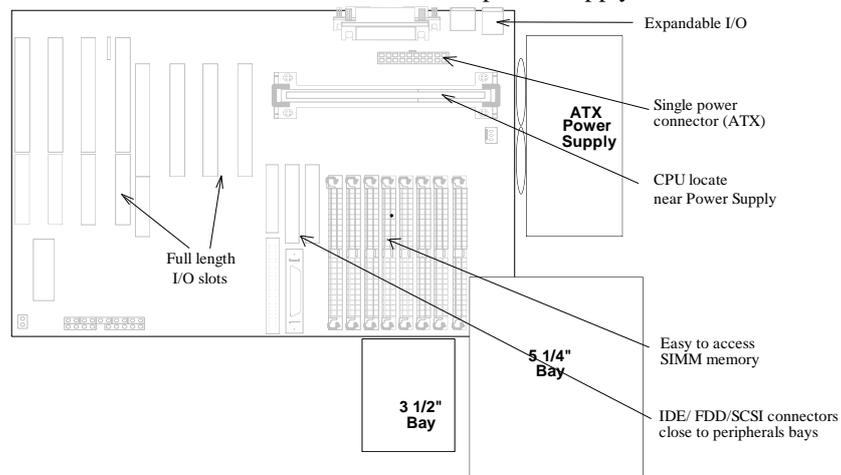
The PIINS is equipped with a standard I/O back panel, featuring a Primary Serial port, PS/2 Mouse port, PS/2 Keyboard port, Parallel port, and Secondary Serial port.

PS/2 Mouse

USB

Parallel Port

USB

PS/2 Keyboard

Serial 1

Serial 2
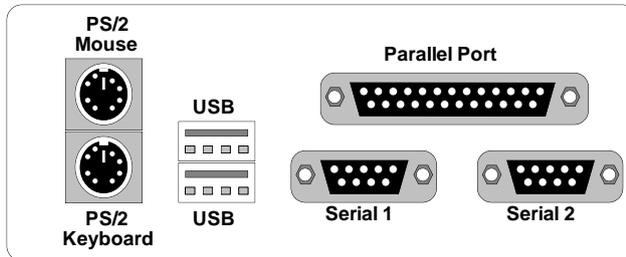
The PIINS supports two power input connectors. Two 6-PIN connectors (for AT power supply) and a single 20-PIN connectors (for ATX power supply). For ATX power supplies that support the **Remote ON/OFF** feature, this should be connected to the system front panel for system power ON/OFF switch. The system power ON/OFF button should be a momentary Switch or togle switch, depends on the JP12 setting .

The **PIINS** has been designed with "soft off" functions. You can turn OFF the system from one of two sources: One is the front panel power ON/OFF switch, and the other is "Soft off" function (coming from the **PIINS** on-board's circuit controller) that can be controlled by operating system. Such as Windows 95: When the user clicks on the Shutdown icon, power can be turned off directly.

ATX Power Supply

JP18

System On/Off switch
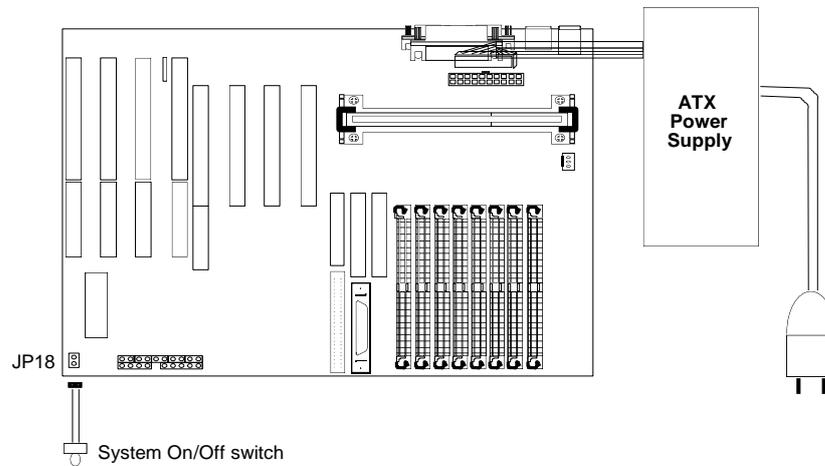
ATX Power Supply Connector :
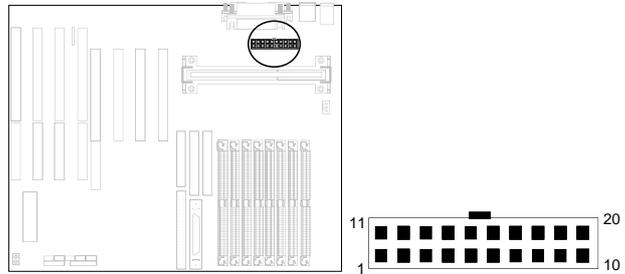
Single Name	Pin	Pin	Single Name
3.3V	10	20	3.3V
-12.0V	9	19	3.3V
GND	8	18	GND
PS-ON	7	17	5.0V
GND	6	16	GND
GND	5	15	5.0V
GND	4	14	GND
-5.0V	3	13	PW-OK
5.0V	2	12	5VSB
5.0V	1	11	12.0V

CHAPTER 5
Award BIOS Setup

Notice

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Introduction

This section discusses Award's Setup program built into the ROM BIOS. The Setup program allows users to modify the basic system configuration. This special information is then stored in battery-backed RAM so that it retains the Setup information when the power is turned off.

The Award BIOS installed in your computer system ROM (Read Only Memory) is a custom version of an industry standard BIOS. This means that it supports Intel/ Cyrix/ AMD processors in a standard IBM-AT compatible input/output system. The BIOS provides critical low-level support for standard devices such as disk drives and serial and parallel ports.

The Award BIOS has been customized by adding important, but non-standard, features such as virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

The rest of this manual is intended to guide you through the process of configuring your system using Setup.

Starting Setup

The Award BIOS is immediately activated when you first power on the computer. The BIOS reads the system information contained in the CMOS and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:

1. By pressing <Del> immediately after switching the system on, or

2. by pressing the <Del> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test).

    Press DEL to enter SETUP.

    If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to...

    Press <F1> to continue, <DEL> to enter SETUP

Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item in the left hand
Right arrow	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into CMOS
	Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes

+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
(Shift)F2 key	Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward
F3 key	Calendar, only for Status Page Setup Menu
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the default
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the F1 key again.

In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the Award BIOS supports an override to the CMOS settings which resets your system to its defaults.

The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

5.1 Main Menu

Once you enter the Award BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

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

STANDARD CMOS SETUP              SUPERVISOR PASSWORD
BIOS FEATURES SETUP              USER PASSWORD
CHIPSET FEATURES SETUP           IDE HDD AUTO DETECTION
POWER MANAGEMENT SETUP           HDD LOW LEVEL FORMAT
PNP/ PCI CONFIGURATIONI/O SETUP  SAVE & EXIT SETUP
INTEGRATED PHERALS               EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS

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

            Time, Date, Hard disk Type.....
```

Note that a brief description of each highlighted selection appears at the bottom of the screen.

Setup Items

The main menu includes the following main setup categories. Recall that some systems may not include all entries.

Standard CMOS Setup

This setup page includes all the items in a standard, AT-compatible BIOS.

BIOS Features Setup

This setup page includes all the items of Award special enhanced features.

Super / User Password Setting

Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.

Chipset Features Setup

This setup page includes all the items of chipset special features.

Power Management Setup

This entry only appears if your system supports Power Management, screen PC", standards.

PNP / PCI Configuration Setup

This entry appears if your system supports PNP / PCI.

Integrated Peripherals

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

Load Setup Defaults

The chipset defaults are settings which provide for maximum system performance. While Award has designed the custom BIOS to maximize performance, the manufacturer has the right to change these defaults to meet their needs.

IDE HDD AutoDetection

Automatically detect and configure hard disk parameters. The Award BIOS includes this ability in the event you are uncertain of your hard disk parameters.

HDD Low Level Format

If supported by your system, this provides a hard disk low level format utility.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Save

Abandon all CMOS value changes and exit setup.

5.2 Standard CMOS Setup

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

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

    Date (mm:dd:yy) : Fri, Nov 1996
    Time (hh:mm:ss) : 11:15:7

    HARD DISKS          TYPE  SIZE  CYLS HEAD PRECOMP LANDZ SECTOR SECTOR

    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   :    640 K
    Floppy 3 Mode Support  : Disabled Extended Memory : 15360 K
                                        Other Memory  :    384 K
    Video  : EGA/VGA
    Halt On : All Errors                Total Memory  : 16384 K

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

Date

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

day	The day, from Sun to Sat, determined by the BIOS and is display-only
date	The date, from 1 to 31 (or the maximum allowed in the month)
month	The month, Jan through Dec.
year	The year, from 1900 through 2099

Time

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

Daylight saving

The category adds one hour to the clock when daylight-saving time begins. It also subtracts one hour when standard time returns.

Enabled	Enable daylight-saving
Disabled	Disable daylight-saving

Primary Master/

Primary Slave/

Secondary Master/

Secondary Slave

The categories identify the types of 2 channels that have been installed in the computer. There are 45 predefined types and 4 user definable types are for Enhanced IDE BIOS. Type 1 to Type 45 are predefined. Type user is user-definable.

Press PgUp or PgDn to select a numbered hard disk type or type the number and press <Enter>. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Type "User" to define your own drive type manually.

If you select Type "User", you will need to know the information listed below. Enter the information directly from the keyboard and press <Enter>. This information should be included in the documentation from your hard disk vendor or the system manufacturer.

If the controller of HDD interface is ESDI, the selection shall be "Type 1".

If the controller of HDD interface is SCSI, the selection shall be "None".

If you select Type"Auto", BIOS will Auto-Detect the HDD & CD-ROM Drive at the POST stage and showing the IDE for HDD & CD-ROM Drive.

TYPE	drive type
CYLS.	number of cylinders
HEADS	number of heads
PRECOMP	write precom
LANDZONE	landing zone
SECTORS	number of sectors
MODE	mode type

Drive A Type / Drive B Type

If a hard disk has not been installed Select NONE and press <Enter>.

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

None	No floppy drive installed
360K, 5.25 in	5-1/4 inch PC-type standard drive; 360 kilobyte capacity
1.2M, 5.25 in	5-1/4 inch AT-type high-density drive; 1.2 megabyte capacity
720K, 3.5 in	3-1/2 inch double-sided drive; 720 kilobyte capacity
1.44M, 3.5 in	3-1/2 inch double-sided drive; 1.44 megabyte capacity
2.88M, 3.5 in	3-1/2 inch double-sided drive; 2.88 megabyte capacity

Video

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

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

Error Halt

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

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

Memory

The category is display-only which is determined by POST (Power On Self Test) of the BIOS.

Base Memory

The POST will determine the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 512K for systems with 512K memory installed on the motherboard, or 640K for systems with 640K or more memory installed on the motherboard.

Extended Memory

The BIOS determines how much extended memory is present during the POST. This is the amount of memory located above 1MB in the CPU's memory address map.

Other Memory

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

5.3 BIOS Features Setup

This section allows you to configure your system for basic operation. You have the opportunity to select the system default speed, boot-up sequence, keyboard operation, shadowing and security.

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

Virus Warning            : Disabled     Video BIOS Shadow    : Enabled
CPU Internal Cache       : Enabled      C800-CBFFF Shadow    : Disabled
External Cache           : Enabled      CC00-CFFFF Shadow    : Disabled
Quick Pow er On Self Test: Enabled      D000-D3FFF Shadow    : Disabled
Boot Sequence            : A, C, SCSI   D400-D7FFF Shadow    : Disabled
Sw ap Floppy Drive       : Disabled     D800-DBFFF Shadow    : Disabled
Boot Up Floppy Seek      : Enabled      DC00-DFFFF Shadow    : Disabled
Boot Up NumLock          : On
Boot Up System Speed     : High
Gate A20 option          : Fast
Typematic Rate Setting   : Disabled
Typematic Rate (Char/Sec): 6
Typematic Delay (Msec)   : 250
Security Option          : Setup
PCI/VGA palette Snoop     : Disabled     Esc : Quit      ↑↓→← : Select Item
OS Select For DRAM > 64MB: Non-OS2      F1 : Help        PU/PD/+/-  : Modify
                                        F5 : Old Values (Shift)F2 :Change Color
                                        F7 : Load Setup Def aults
```

Virus Warning

When this item is enabled, the Award BIOS will monitor the boot sector and partition table of the hard disk drive for any attempt at modification. If an attempt is made, the BIOS will halt the system and the following error message will appear. Afterwards, if necessary, you will be able to run an anti-virus program to locate and remove the problem before any damage is done.

```
! WARNING !
Disk boot sector is to be modified
Type "Y" to accept write or "N" to abort write
Award Software, Inc.
```

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

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

These two categories speed up memory access. However, it depends on CPU/chipset design. **The default value is enable.**

Enabled	Enable cache
Disabled	Disable cache

Quick Power On Self Test

This category speeds up Power On Self Test (POST) after you power up the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.

Enabled	Enable quick POST
Disabled	Normal POST

Boot Sequence

This category determines which drive to search first for the disk operating system (i.e., DOS). Default value is A,C.

C,A	System will first search for hard disk drive then floppy disk drive.
A,C	System will first search for floppy disk drive then hard disk drive.
CDROM, C, A	System will first search for CDROM drive, then hard disk drive and then floppy disk drive.
C, CDROM, A	System will first search for hard disk drive , then CDROM drive, and then floppy disk drive.

Swap Floppy Drive

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

Boot Up Floppy Seek

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks.

Enabled	BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks. Note that BIOS can not tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks.
Disabled	BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360K.

Boot Up NumLock Status

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

On	Keypad is number keys
Off	Keypad is arrow keys

Boot Up System Speed

Selects the default system speed -- the normal operating speed at power up.

High	Set the speed to high
Low	Set the speed to low

Gate A20 Option

This entry allows you to select how the gate A20 is handled. The gate A20 is a device used to address memory above 1 Mbytes. Initially, the gate A20 was handled via a pin on the keyboard. Today, while keyboards still provide this support, it is more common, and much faster, for the system chipset to provide support for gate A20.

Normal	keyboard
Fast	chipset

Typematic Rate
Setting

This determines if the typematic rate is to be used. When disabled, continually holding down a key on your keyboard will generate only one instance. In other words, the BIOS will only report that the key is down. When the typematic rate is enabled, the BIOS will report as before, but it will then wait a moment, and, if the key is still down, it will begin the report that the key has been depressed repeatedly. For example, you would use such a feature to accelerate cursor movements with the arrow keys.

Enabled	Enable typematic rate
Disabled	Disable typematic rate

Typematic Rate
(Chars/Sec)

When the typematic rate is enabled, this selection allows you select the rate at which the keys are accelerated.

6	6 characters per second
8	8 characters per second
10	10 characters per second
12	12 characters per second
15	15 characters per second
20	20 characters per second
24	24 characters per second
30	30 characters per second

Typematic Delay
(Msec)

When the typematic rate is enabled, this selection allows you to select the delay between when the key was first depressed and when the acceleration begins.

250	250 msec
500	500 msec
750	750 msec
1000	1000 msec

Security Option

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

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

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

OS Select for DRAM > 64

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

PCI / VGA Palette Snoop

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

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

Video BIOS Shadow

Determines whether video BIOS will be copied to RAM. However, it is optional depending on chipset design. Video Shadow will increase the video speed.

Enabled	Video shadow is enabled
Disabled	Video shadow is disabled

C8000 - CBFFF DC000 - DFFFF

These categories determine whether option ROMs will be copied to RAM. An example of such option ROM would be support of on-board SCSI.

Enabled	Optional shadow is enabled
Disabled	Optional shadow is disabled

5.4 Chipset Features Setup

```
                    ROM PCI/ISA BIOS (XXXXXXXX)
                    CHIPSET FEATURES SETUP
                    AWARD SOFTWARE, INC.

Auto Configuration      : Enabled    Delay Transaction    : Disabled
DRAM Timing             : 60 ns

DRAM RAS# Precharge Time: 4
DRAM R/W Leadoff Timing : 6
Fast RAS To CAS Delay   : 3
DRAM Read Burst (EDO/FP) : x222/x333
DRAM Write Burst Timing : x333
Fast MA to RAS# Delay CLK : 1
Fast EDO Path Select    : Disabled
Refresh RAS# Assertion  : 5 Clks
ISA Bus Clock           : PCICLK/4
SDRAM (CAS Lat/RAS-to-CAS) : 3/3
System BIOS Cacheable   : Disabled
Video BIOS Cacheable    : Enabled    Esc : Quit        ↑↓→← : Select Item
8 bit I/O Recovery Time : 1
16 bit I/O Recovery Time : 1         F1 : Help        PU/PD/+/- : Modify
Memory Hole At 15M-16M  : Disabled   F5 : Old Values (Shift)F2 :Change Color
Peer Concurrency        : Enabled    F7 : Load Setup Defaults
Passive Release         : Enabled
```

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

DRAM Settings

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

Auto Configuration

Pre-defined values for DRAM, cache.. timing according to CPU type & system clock.
The Choice: Enabled, Disabled.
Note: When this item is enabled, the pre-defined items will become SHOW-
ONLY.

DRAM Timing

The DRAM timing is controlled by the DRAM Timing Registers. The timings programmed into this register are dependent on the system design. Slower rates may be required in certain system designs to support loose layouts or slower memory.

60ns	DRAM Timing Type.
70ns	DRAM Timing Type.

DRAM RAS# Precharge Time

DRAM must continually be refreshed or it will lose its data. Normally, DRAM is refreshed entirely as the result of a single request. This option allows you to determine the number of CPU clocks allocated for the **R**ow **A**ddress **S**trobe to accumulate its charge before the DRAM is refreshed. If insufficient time is allowed, refresh may be incomplete and data lost.

3	Three clocks.
4	Four clocks.

Four clocks is the default.

DRAM R/W Leadoff Timing

This sets the number of CPU clocks allowed before reads and writes to DRAM are performed.

7/6	Seven clocks leadoff for reads and six clocks leadoff for writes.
6/5	Six clocks leadoff for reads and five clocks leadoff for writes.

7/6 Leadoff timing **is the default.**

Fast RAS# to CAS# Delay

When DRAM is refreshed, both rows and columns are addressed separately. This setup item allows you to determine the timing of the transition from Row Address Strobe (RAS) to Column Address Strobe (CAS).

3	Three CPU clock delay.
2	Two CPU clock delay.

3 CPU clocks **is the default.**

DRAM Read <EDO/FPM>

This sets the timing for burst mode reads from two different DRAM(EDO/FPM). Burst read and write requests are generated by the CPU in four separate parts. The first part provides the location within the DRAM where the read or write is to take place while the remaining three parts provide the actual data. The lower the timing numbers, the faster the system will address memory.

x222/x333	Read DRAM (EDO/FPM) timings are 2-2-2/3-3-3
x333/x444	Read DRAM (EDO/FPM) timings are 3-3-3/4-4-4
x444/x444	Read DRAM (EDO/FPM) timings are 4-4-4/4-4-4

x222/x333 timings **is the default.**

DRAM Write Burst Timing

This sets the timing for burst mode writes from DRAM. Burst read and write requests are generated by the CPU in four separate parts. The first part provides the location within the DRAM where the read or write is to take place while the remaining three parts provide the actual data. The lower the timing numbers, the faster the system will address memory.

x222	Write DRAM timings are 2-2-2-2
x333	Write DRAM timings are 3-3-3-3
x444	Write DRAM timings are 4-4-4-4

x222 timings **is the default.**

Turbo Read Leadoff

The turbo read leadoff may be required in certain system designs to support layouts or faster memories.
Disabled **is the default.**

DRAM Speculative Leadoff

The 430HX chipset is capable of allowing a DRAM read request to be generated slightly before the address has been fully decoded. This can reduce all read latencies.

More simply, the CPU will issue a read request and included with this request is the place (address) in memory where the desired data is to be found. This request is received by the DRAM controller. When the peculative Leadoff' is enabled, the controller will issue the read command slightly before it has finished determining the address.

Disabled **is the default.**

Turn-Around Insertion

When this is enabled, the chipset will insert one extra clock to the turn-around of back-to-back DRAM cycles.

Disabled **is the default.**

ISA Clock

This item allows you to select the PCI clock type.

PCI CLK/3	PCI clock type
PCI CLK/4	PCI clock type

Cache Features

System BIOS Cacheable

When enabled, accesses to the system BIOS ROM addressed at F0000H-FFFFFH are cached, provided that the cache controller is enabled.

Enabled	BIOS access cached
Disabled	BIOS access not cached

Disabled **is the default.**

Video BIOS Cacheable

As with caching the System BIOS above, enabling the Video BIOS cache will cause access to video BIOS addressed at C0000H to C7FFFH to be cached, if the cache controller is also enabled

Enabled	Video BIOS access cached
Disabled	Video BIOS access not cached

Disabled **is the default.**

PCI and IDE Configuration

Bit I/O Recovery Time

The recovery time is the length of time, measured in CPU clocks, which the system will delay after the completion of an input/output request. This delay takes place because the CPU is operating so much faster than the input/output bus that the CPU must be delayed to allow for the completion of the I/O.

This item allows you to determine the recovery time allowed for 8 bit I/O. Choices are from NA, 1 to 8 CPU clocks.

1 **clock is the default.**

Bit I/O Recovery Time

This item allows you to determine the recovery time allowed for 16 bit I/O. Choices are from NA, 1 to 4 CPU clocks.

1 **clock is the default.**

Memory Hole At 15M-16M

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16 MB.

Enabled	Memory hole supported.
Disabled	Memory hole not supported.

Disabled **is the default.**

Peer Concurrency

Peer concurrency means that more than one PCI device can be active at a time.

Enabled	Multiple PCI devices can be active.
Disabled	Only one PCI device can be active at a time.

Enabled **is the default.**

Chipset Special Features

When disabled, the chipset behaves as if it were the earlier

DRAM ECC/PARITY Select

This item allows you to select between two methods of DRAM error checking, *ECC and Parity (default).*

Memory Parity / ECC Check

This item allows you to select between three methods of memory error checking, Auto, Enabled and Disabled

Single Bit Error Report

L2 Cache Cacheable Size

When a single bit error is detected, the offending DRAM row ID is latched. The latched Valued is held until software explicit clears the error status flag. You can select Enabled or Disabled.

This item determines the size of the L2 cacheability: 64MB / 512MB.

Chipset NA# Asserted

This item allows you to select between two method of chipset NA# asserted during CPU write cycles /CPU line fills, Enabled and Disabled.

Pipeline Cache Timing

This item allows you to select two timing of pipeline cache, Faster and Fastest.

5.5 Power Management Setup

The Power Management Setup allows you to configure you system to most effectively save energy while operating in a manner consistent with your own style of computer use.

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

Pow er Management      :Enabled    **Pow er Dow n & Resume Events  **
PM Control by APM      :60 ns
Video Off Method       :Enabled    IRQ3   (COM 2)          :On
MODEM Use IRQ          :4          IRQ4   (COM 1)          :On
                                   IRQ5   (LPT 2)          :On
Doze Mode              :3          IRQ6   (Floppy Disk)    :On
Standard Mode          :x222/x333  IRQ7   (LPT1)           :Off
Suspend Mode           :x333       IRQ8   (RTC Alarm)      :Off
HDD Pow er Dow n        :1          IRQ9   IRQ2 Redir)      :On
                                   IRQ10  (Reserved)       :On
                                   IRQ11  (Reserved)       :On
** Wake Up Event In Doze & Standard **  IRQ12  (PS/2 Mouse)     :On
IRQ3   (Wake-Up Event)    :On      IRQ13  (Coprocessor)    :On
IRQ4   (Wake-Up Event)    :On      IRQ14  (Hard Disk)      :On
IRQ8   (Wake-Up Event)    :On      IRQ15  (Reserved)       :On
IRQ12  (Wake-Up Event)    :On
                                   Esc : Quit        ↑↓→← : Select Item
                                   F1 : Help         PU/PD/+/-  :  Modify
                                   F5 : Old Values (Shift)F2 :Change Color
                                   F7 : Load Setup Defaults
```

Power Management

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

1. Doze Mode

2. Standby Mode

3. Suspend Mode

4.   HDD Power Down

There are four selections for Power Management, three of which have fixed mode settings.

Disable (default)	No power management. Disables all four modes
Min. Power Saving	Minimum power management. Doze Mode = 1 hr. Standby Mode = 1 hr., Suspend Mode = 1 hr., and HDD Power Down = 15 min.
Max. Power Saving	Maximum power management -- **ONLY AVAILABLE FOR SL CPU**. Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Defined	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

PM Control APM

When enabled, an Advanced Power Management device will be activated to enhance the Max. Power Saving mode and stop the CPU internal clock.

If the Max. Power Saving is not enabled, this will be preset to *No*.

Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Initial display power management singaling.

PM Timers

The following four modes are Green PC power saving functions which are only user configurable when *User Defined* Power Management has been selected. See above for available selections.

Doze Mode

When enabled and after the set time of system inactivity, the CPU clock will run at slower speed while all other devices still operate at full speed.

Standby Mode

When enabled and after the set time of system inactivity, the fixed disk drive and the video would be shut off while all other devices still operate at full speed.

Suspend Mode

When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

HDD Power Down

When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

Power Down & Resume Events

Power Down and Resume events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything which occurs to a device which is configured as *On*, even when the system is in a power down mode.

The following is a list of IRQ, **I**nterrupt **R**e**Q**uests, which can be exempted much as the COM ports and LPT ports above can. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.

As above, the choices are *On* and *Off*. *Off* is the default.

When set *On*, activity will neither prevent the system from going into a power management mode nor awaken it.

- **IRQ3 (COM 2)**

- **IRQ4 (COM 1)**

- **IRQ5 (LPT 2)**

- **IRQ6 (Floppy Disk)**

- **IRQ7 (LPT 1)**

- **IRQ8 (RTC Alarm)**

- **IRQ9 (IRQ2 Redir)**

- **IRQ10 (Reserved)**

- **IRQ11 (Reserved)**

- **IRQ12 (Reserved)**

- **IRQ13 (Coprocessor)**

- **IRQ14 (Hard Disk)**

- **IRQ15 (Reserved)**

5.6 PnP/ PCI Configuration Setup

This section describes configuring the PCI bus system. PCI, or **P**ersonal **C**omputer **I**nterconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

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

 Resources Controlled By    : Enabled     PCI IRQ Actived By      : Level
 Reset Configuration Data   : 60 ns       PCI IRQ Map To          : PCI-AUTO
                                            Primary    IDE Int#   : A
 IRQ-3    Assigned to : Legacy ISA          Secondary IDE Int#    : B
 IRQ-4    Assigned to : Legacy ISA
 IRQ-5    Assigned to : PCI/ISA PnP       Onboard PCI SCSI Chip      : Enabled
 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 : PCI/ISA PnP
 IRQ-15   Assigned to : PCI/ISA PnP
 DMA-0    Assigned to : PCI/ISA PnP
 DMA-1    Assigned to : PCI/ISA PnP
 DMA-3    Assigned to : PCI/ISA PnP     Esc : Quit        ↑↓→← : Select Item
 DMA-5    Assigned to : PCI/ISA PnP     F1 : Help         PU/PD/+/- : Modify
 DMA-6    Assigned to : PCI/ISA PnP
 DMA-7    Assigned to : PCI/ISA PnP     F5 : Old Values (Shift)F2 :Change Color

                                        F7 : Load Setup Defaults
```

Resource Controlled by

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows® 95.

Choices are *Auto* and **Manual (default).**

Reset Configuration Data

This item allows you to determine reset the configuration data or not.

Choices are *Enabled* and ***Disabled* (default).**

IRQ3/4/5/7/9/10/11/12/14/15, DMA0/1/3/5/6/7 assigned to

This item allows you to determine the IRQ / DMA assigned to the ISA bus and is not available to any PCI slot.

Choices are *Legacy ISA* and ***PCI/ISA PnP*.**

PCI IRQ Activated by

This sets the method by which the PCI bus recognizes that an IRQ service is being requested by a device. Under all circumstances, you should retain the default configuration unless advised otherwise by your system manufacturer.

Choices are *Level* (default) and *Edge*.

PCI IDE IRQ Map to

This allows you to configure your system to the type of IDE disk controller in use. By default, Setup assumes that your controller is an ISA (Industry Standard Architecture) device rather than a PCI controller. The more apparent difference is the type of slot being used.
If you have equipped your system with a PCI controller, changing this allows you to specify which slot has the controller and which PCI interrupt (A, B,C or D) is associated with the connected hard drives.

Remember that this setting refers to the hard disk drive itself, rather than individual partitions. Since each IDE controller supports two separate hard drives, you can select the INT# for each. Again, you will note that the primary has a lower interrupt than the secondary as described in • *lot x Using INT#*" above.

Selecting "*PCI Auto*" allows the system to automatically determine how your IDE disk system is configured.

Award's ROM BIOS provides a built-in Setup program which allows user modify the system configuration and hardware parameters. The modified data will be stored in a battery-backed CMOS RAM, so data will be retained even the system power is off. In general, you are not required to change any data. Unless there is a conflict or you re-configuring system, this will need to enter new setup information. Following section describes how to use this program and propriate entries.

The "LOAD SETUP DEFAULT" is recommended in your first time setup this system or you change the system's configuration. You will need "LOAD SETUP DEFAULT" first and re-confirure your system. This will be described in later chapter.

And, it is possible that battery failed which might cause data lose in CMOS RAM, then you need to re-enter the system's CMOS RAM and re-configure to get the suitable parameters.

5.7 Integrated Peripherals

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

IDE HDD Block Mode          : Enabled
IDE Primary Master PIO      : Auto
IDE Primary Slave PIO       : Auto
IDE Secondary Master PIO    : Auto
IDE Secondary Slave PIO     : Auto
On-Chip Primary PCI IDE     : Enabled
On-Chip Secondary PCI IDE   : Enabled
PCI Slot IDE 2nd Channel    : Enabled
USB Controller              : Disabled

Onboard FDC Controller      : Enabled
Onboard Serial Port 1       : 3F8/IRQ4
Onboard Serial Port 2       : 2F8/IRQ3
Onboard Parallel Port       : 278/IRQ7
Parallel Port Mode          : ECPEPP1.7
ECP Mode Use DMA            : 3
                                            Esc : Quit        ↑↓→← : Select Item
                                            F1 : Help         PU/PD/+/- : Modify
                                            F5 : Old Values (Shift)F2 :Change Color
                                            F7 : Load Setup Defaults
```

IDE HDD Block Mode

This allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive (HDD).

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

Enabled is the default.

PCI Slot IDE 2nd Channel

This item allows you designate an IDE controller board inserted into one of the physical PCI slots as your secondary IDE controller.

Enabled	External IDE controller designated as the secondary controller
Disabled	No IDE controller occupying a PCI slot.

Disabled is the default.

IDE PIO

IDE hard drive controllers can support up to two separate hard drives. These drives have a master/slave relationship which are determined by the cabling configuration used to attach them to the controller. Your system supports two IDE controllers--a primary and a secondary--so you have to ability to install up to four separate hard disks.

PIO means Programmed Input/Output. Rather than have the BIOS issue a series of commands to effect a transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by themselves. This simpler and more efficient (and faster).

Your system supports five modes, numbered from 0 (default) to 4, which primarily differ in timing. When *Auto* is selected, the BIOS will select the best available mode. This is true for the next four setup items:

1.   IDE Primary Master PIO

2.   IDE Primary Slave PIO

3.   IDE Secondary Master PIO

4.   IDE Secondary Slave PIO

On-Chip Primary PCI IDE

As stated above, your system includes two built-in IDE controllers, both of which operate on the PCI bus. This setup item allows you either to enable or disable the primary controller. You might choose to disable the controller if you were to add a higher performance or specialized controller.

Enabled	Primary HDD controller used -- Default
Disabled	Primary HDD controller not used.

On-Chip Secondary PCI IDE

As above for the Primary controller, this setup item you either to enable or disable the secondary controller. You might choose to disable the controller if you were to add a higher performance or specialized controller.

| Enabled | Primary HDD controller used |
| Disabled | Primary HDD controller not used. |

Enabled **is the default.**

5.8 LOAD SETUP DEFAULTS

The chipset defaults are settings which provide for maximum system performance. While Award has designed the custom BIOS to maximize performance, the manufacturer has the right to change these defaults to meet their needs.

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

STANDARD CMOS SETUP            SUPERVISOR PASSWORD
BIOS FEATURES SETUP            USER PASSWORD
CHIPSET FEATURES SETUP         IDE HDD AUTO DETECTION
POWER MANAGEM                            EL FORMAT
PNP/ PCI CONFIGUR   LOAD SETUP DEFAULTS (Y/N) ?  N    ETUP
INTEGRATED PHER                          SAVING
LOAD SETUP DEFAULTS

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

Time, Date, Hard disk Type.....
```

5.9 Supervisor/User Password Setting

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

STANDARD CMOS SETUP          SUPERVISOR PASSWORD
BIOS FEATURES SETUP          USER PASSWORD
CHIPSET FEATURES SETUP       IDE HDD AUTO DETECTION
POWER MANAGEM                        EL FORMAT
PNP/ PCI CONFIGUR  Enter Password :    ETUP
INTEGRATED PHER                       SAVING
LOAD SETUP DEFAULTS

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

          Time, Date, Hard disk Type.....
```

You can set either supervisor or user password, or both of them. The differences between are:

supervisor password : can enter and change the options of the setup menus.
user password   : just can enter but do not have the right to change the
            options of the setup menus.

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

5.10 IDE HDD AUTO DETECTION

Automatically detect and configure hard disk parameters. The Award BIOS includes this ability in the event you are uncertain of your hard disk parameters.

5.11 HDD LOW LEVEL FORMAT

If supported by your system, this provides a hard disk low level format utility.

5.12 SAVE & EXIT SETUP

Save CMOS value changes to CMOS and exit setup.

5.13 EXIT WITHOUT SAVING

Abandon all CMOS value changes and exit setup.

CHAPTER 6
SCSI BIOS Setup

Like the system BIOS, the SCSI BIOS is responsible for management/ control the
SCSI hardware parameters setting. These paramenters include the SCSI ID,
Terminator setting, and SCSI devices behavior pattern on the SCSI system.
During system power on or warm reset the SCSI BIOS will scan all SCSI devices
that connect to the SCSI bus and according to each setting default perform its
behavior pattern.

During system power on and after boot system BIOS, the screen will show:

> Adaptec AIC-78XX Ultra BIOS vx.xx
>
> (c) Adaptec, Inc. All Rights Reserved.
>
> ***Press <Ctrl> <A> for SCSISelect(TM) Utility !***.

6.1 When to Use the SCSISelect Utility

Use the SCSISelect utility if you need to
- Change any of the default values.
- Check and / or change SCSI device settings that may conflict with
  those of other devices (e.g., SCSI ID).
- Perform low - level formatting on new SCSI disk devices.

Running the SCSISelect Utility
You will see a banner similar to the one shown in b elow when you turn on
or reboot your computer. The BIOS banner lists the model number and
SCSI ID of each SCSI device connected to the host adapter.

```
Adaptec AIC-78XX BIOS vx.xx

(c) 1954 Adaptec, Inc. All Rights Reserved.

◀◀◀    Press <Ctrl><A> for SCSISelect (TM) Utility!    ▷▷▷


SCSI ID #0    - MAXTOR      P1-17S              -Drive C:   (80h)
SCSI ID #2    - QUANTUM     P40S-94-40-04xx     -Drive D:   (81h)
SCSI ID #3    - Toshiba     CD_ROM: XX3355
SCSI ID #4    - ARCHIVE     VIPER 150 21247

BIOS Installed Successfully!
```
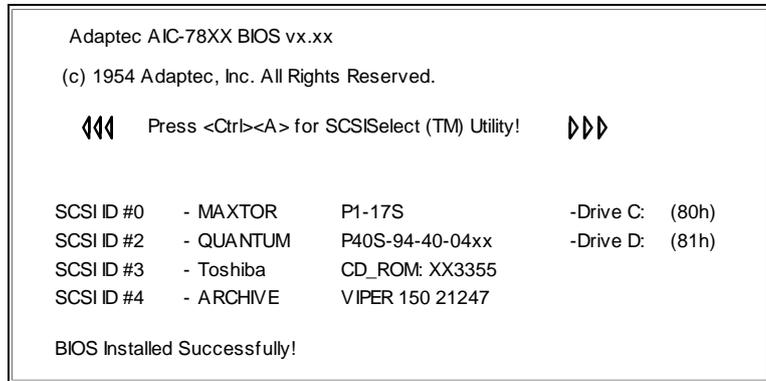
To start SCSI Select, press **Ctrl + A** when the BIOS banner first appears on the screen.

Note: If you only connect a non-bootable device, this BIOS can not be installed.

6.2 SCSISelect Utility Options

After you press Ctrl + A then it will displays the Options menu as below.

```
Adaptec AIC-78xx < SCSISelect(TM) > Utility v1.XX




                    AIC-78xx at Bus: Device xx:xxh
            Would you like to configure the host adapter, or run
            the SCSI disk utilities? Select the option and press
            <Enter>. Press<F5> to switch between color and
            monochrome modes.
                        ─── Options ───
            Configure/View Host Adapter Setting
                    SCSI Disk Utilities




Arrow keys to move cursor, <Enter> to select option, <Esc> to Exit (*=default)
```
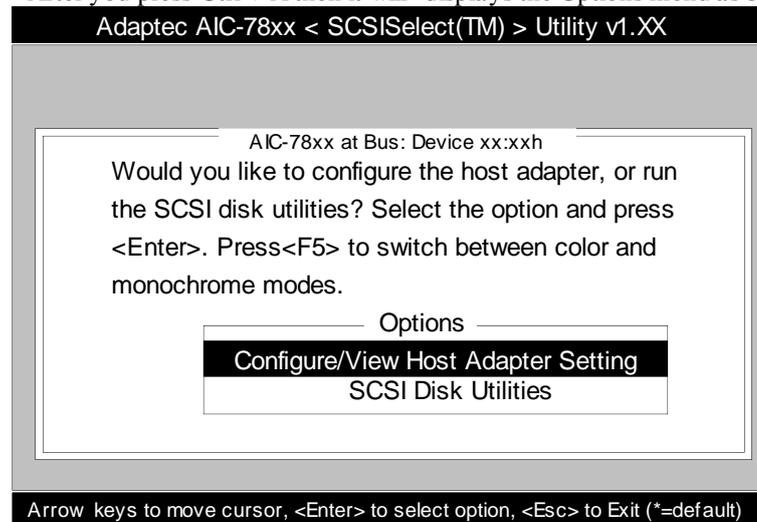
Use the Up and Down keys and the **Enter** key to make selections in the SCSI Select utility . Press **Esc** at any time to return to the previous menu .

Note: You can press **F5** to toggle the display between color and monochrome modes . (This feature may not work on some kinds of monitors.)

6.3 Configure/View Host Adapter   Settings

The Configure / View Host Adapter Settings menu lists three settings
under SCSI Channel Interface Definitions , as shown in following Figure.

```
┌─────────────────────────────────────────────────────────────────┐
│ Adaptec AIC-78xx < SCSISelect(TM) > Utility v1.XX                 │
├─────────────────────────────────────────────────────────────────┤
│                                                                   │
│                                                                   │
│        ┌────────────── AIC-78xx at Bus: Device xx:xxh ──────────┐ │
│        │ Configuration                                          │ │
│        │                                                        │ │
│        │   SCSI Channel Interface Definitions                   │ │
│        │                                                        │ │
│        │     Host Adapter SCSI ID          ───────────   7      │ │
│        │     SCSI Parity Checking          ───────────   Enabled│ │
│        │     Host Adaptec SCSI Termination ──────── Low ON/High ON│
│        │   Additional Options                                   │ │
│        │                                                        │ │
│        │     Boot Device Configuration     ──────── Press <Enter>│ │
│        │     SCSI Device Configuration     ──────── Press <Enter>│ │
│        │     Advanced Configuration Options ─────── Press <Enter>│ │
│        │                                                        │ │
│        │        <F6> -Reset to Host Defaults                    │ │
│        │                                                        │ │
│        └────────────────────────────────────────────────────────┘ │
│                                                                   │
├─────────────────────────────────────────────────────────────────┤
│ Arrow keys to move cursor, <Enter> to select option, <Esc> to Exit (*=default)│
└─────────────────────────────────────────────────────────────────┘
```

Use the cursor (Up, Down) to move to your selection. Press **Enter** to
display a pop-up menu of choices or to make selections . Press **Esc** at any
time to return to the previous menu.

Note :   Press F6 to reset all settings to the host adapter defaults. Host
adapter default settings are marked with an asterisk (*)
throughout the selection submenus.

6.3.1 Host Adapter SCSI ID

This option allows you to change the host adapter SCSI ID. There are 8
available IDs for the P55TV/TVS. The default is ID 7 , which has the
highest priority on the SCSI bus. (We recommend that you not to change
this setting).
Each SCSI device on the SCSI bus, including the host adapter , must be
set to a unique SCSI ID.
The SCSI ID serves two purposed : it uniquely identifies each SCSI device
on the bus , and it determines the device's priority on the bus during the
Arbitration phase. The Arbitration phase determines which device controls
the bus when two or more devices request use of it .
Use the cursor (⇧ ⇩)and Enter keys to select the SCSI ID, if you need to
change it . Press Esc at any time to return to the previous menu.

When selecting the host adapter SCSI ID, consider the following:

- If you install more than one SCSI host adapter in the computer, each board has its own SCSI bus. This means devices can have duplicate SCSI IDs, as long as they are not on the same SCSI bus (e.g. each SCSI bus can have a device with SCSI ID 0 , ets.).
- If you plan to connect two host adapters in two different computers to the same SCSI bus to they can share SCSI devices (see Appendix C, Multiple Computer Configuration), set the host adapters to different SCSI IDs . IDs 6 and 7 are preferable , since they have the highest priority on the SCSI bus.

6.3.2 SCSI Parity Checking

Select this option to enable or disable SCSI Parity Checking on the host adapter. **The default setting is Enable.**

The host adapter always checks parity when reading from the SCSI bus to verify the correct transmission from your SCSI devices . You should disable SCSI Parity Checking if any attached SCSI devices do not support SCSI parity . (Most currently available SCSI devices do support SCSI parity.)

Use the cursor (⇧ ⇩) and **Enter** keys to make selections . Press **Esc** at any time to return to the previous menu.

6.3.3 Host Adapter SCSI Termination

This option allows you to configure host adapter SCSI termination.. The default setting for the is **Enabled**.

Use the cursor (⇧ ⇩) and **Enter** keys to make your selection .
The Termination is determined by which of the SCSI connectors on the board have devices attached to them . The possible P54TV termination settings are as follows:

Host Adapter Termination	Devices Are Attached to
Enabled	Internal connector only
Enabled	External connector only
Disabled	Internal and external connectors

6.3.4 Boot Device Configuration

This option allows you to choose which SCSI ID device has the Boot right for system O.S.

6.3.5 SCSI Device Configuration

This option allows you to configure certain parameters of each SCSI device on the SCSI bus.

Use the cursor keys (⇧ ⇩) to move between options. Press **Enter** to display a pop-up menu with a selection of values. Use the cursor keysx (⇧ ⇩) to select a value, and press **Enter** to make your selection.

■ **Initiate Sync Negotiation**

This option determines whether the host adapter initiates synchronous negotiation with the SCSI device.

When set to **yes,** the host adapter initiates synchronous negotiation with the SCSI device . When set to **no** , the host adapter does not initiate synchronous negotiation. The host adapter, however, always responds to synchronous negotiation if the SCSI device initiates it . The default setting is yes.

Data is transferred in asynchronous mode if neither the on board SCSI nor the SCSI peripheral negotiates for synchronous data transfers.

> **Note:** Some older SCSI-1 devices do not support synchronousnegotiation. This may cause your computer to operate erratically or hang if Initiate Sync Negotiation is enabled . Set Initiate Sync Negotiation to **no** for these devices.

■ **Maximum Sync Transfer Rate**

This option determines the maximum synchronous data transfer rate that the host adapter can support. The host adapter supports rates up to the Ultra SCSI maximum of 20.0 MBytes / sec.

■ **Enable Disconnection**

This option determines whether the host adapter allows a SCSI device to disconnect from the SCSI bus (sometimes called Disconnect / Reconnect). Disconnect / Reconnect allows the host adapter to perform other operations on the SCSI bus while the SCSI device is temporarily disconnected.

When set to **yes**, the SCSI device may disconnect from the SCSI bus . The SCSI device , however ,may choose not to disconnect , even if permitted by the host adapter (this can usually be configured on the SCSI device). When set to **no** , the SCSI device is not allowed to disconnect from the SCSI bus . The default setting is **yes.**

You should leave Enable Disconnection set to **yes** if two or more SCSI devices are connected to the on board SCSI port . This optimizes SCSI bus performance. If only one SCSI device is connected to SCSI port , set Enable Disconnection to **no** to achieve slightly better performance.

■ **Send Start Unit Command**

This option , which is supported by some SCSI devices, determines whether the Start Unit Command (SCSI command 1B) is sent to the SCSI device (most devices do not require this). Enabling this option reduces the load on your computer's power supply by allowing the host adapter to power -up SCSI devices one - at - a-time when you boot your computer. Otherwise , the devices all power -up at the same time . Most devices require you to set a jumper before they can respond to this command .

When set to **yes**, the Start Unit Command is sent to the SCSI device during bootup. When set to **no**,
each SCSI device powers -up in its normal fashion. The default setting is no .

Note: The Send Start Unit Command setting is valid only if the host adapter BIOS is enabled.

If this option is enabled for more than one SCSI device , the Start Unit Command is sent first to the device with the lowest SCSI ID. When this device responds to the host adapter , the Start Unit Command is sent to the next highest SCSI ID with a setting of **yes**. The process continues until all supported devices responds to the host adapter.

Note : If many drivers are set to **yes** for Send Start Unit Command , the boot time varies depending on how long it takes each drive to spin up.

6.3.6 Advanced Configuration Options

When you select Advanced Configuration Options. Do not change these five options unless absolutely necessary.
Use the cursor keys (⇧ ⇩) to move between options . Press **Enter** to display a pop-up menu with a selection of options . Use the cursor keys (⇧ ⇩) to select an options , and press **Enter** to make your selection.

■ **Plug & Play SCAM Support**
This SCSI port provides the Plug & Play specification, this is different with Microsoft Windows 95's specification.
When the SCAM function is enabled, the devices ID & Termination will be automatically done. Of course, this need both the devices and Host have the SCAM function. Otherwise, keep this function disabled.
The SCAM is a Plug & Play specification

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● **Host Adapter BIOS**

This option enables or disables the on board SCSI BIOS . The default
setting is Enabled.
The host adapter BIOS must be enabled if you want the computer to boot
from a SCSI hard disk drive connected to the host adapter . Several
SCSISelect options cannot be used unless the SCSI BIOS is enabled .

● **Support Removable Disk Under BIOS as Fixed Disks**

This option allows you to control which removable - media drives are
supported by the SCSI BIOS . It is only valid if the SCSI BIOS is
enabled . The default setting is Boot Only. The following choices are
available :

Boot Only - Only the removable - media drive designated as the boot
device are treated as a hard disk drive .

All Disks - All removable - media drives supported by the BIOS are
treated as hard disk drives.

Disabled - No removable - media drives are treated as hard disk drives .
In this situation , software drives are needed because the
drive are not controlled by the BIOS.

Caution: Support for removable - media drives means only that the
host adapter BIOS allows you to use a removable - media drive as if it
were a hard disk drive ; it does not mean you can remove the disk media
during operation . If a removable - media SCSI device is controlled by the
host adapter BIOS , do not remove the media while the drive is powered -
on or you may lose data. If you want to be able to remove media while
the power is on , install the removable - media device driver and set this
option to Disabled.

● **Extended BIOS Translation for DOS Drives > 1 GByte**

This option allows you to enable or disable extended translation for SCSI
hard disks with a capacity greater than 1 GByte. It is only valid if the host
adapter BIOS is enabled . The default setting is Enabled.
If this option is enabled , the following translation schemes are used:
SCSI hard disks 1 GByte use a translation schema of 64 heads , 32 sectors
per track
SCSI hard disks 1 GByte use a translation schema of 255 heads , 63
sectors per track

● **Display <Ctrl-A> Message Durig BIOS initialization.**
This option allows you to enable or disable the BIOS prompt for the SCSI utility.

● **Multiple Lun Support**
This option allows you to enable or disable the SCSI Lun support

■ **BIOS Support for Int13 Extensions**
This option allows you to Enabled or Disabled the Int13 Extensions. The SCSI BIOS need to change the Int13h to make the SCSI been recognized by O.S.

■ **Support for Ultra SCSI speed**
Enabled the Ultra SCSI functin by change this option. The maximum Data Transfer Rate of this SCSI Bus is 20MB/Sec. For support this function, check your SCSI device vendor to make sure your SCSI device support the Ultra function.

● **BIOS Support for More Than 2 Drives**
This option allows you to enable or disable BIOS support for more than two , and up to eight, SCSI hard disk drives . It is only valid if the host adapter BIOS is enabled . This feature is supported by BIOS 5.0 and above . The default setting is Enabled.

6.4 SCSI Disk Utilities

When you select SCSI Disk Utilities from the Options menu the SCSI Select utility scans the SCSI bus and lists all SCSI devices installed on the SCSI bus. You can easily determine from this screen which SCSI ID is assigned to each device on the SCSI bus.

When you highlight a disk drive by moving to it with the cursor keys and press **Enter** , a small menu window appears . You then select **Format Disk** or **Verify Media** from this menu .

Use the cursor keys (⇧ ⇩) to move between options . Press **Enter** to display a pop- up menu with a selection of values . Use the cursor keys (⇧ ⇩) to select a value , and press **Enter** to make your selection.

● **Format Disk**
The Format Disk utility performs a low - level format on disk devices . Your fixed disk media must be low-level formatted before you can use your operating system's partitioning and file preparation utilities, such as MS- DOS fdisk and format.

Most SCSI disk devices are pre-formatted and do not need to be formatted again. The Adapter Format Disk utility is compatible with the vast majority of SCSI disk drives. Run it on hard disk drives or removable - media drives that were previously used with a non - Adaptec host adapter.

Caution : A low - level format destroy all data on the drive. Be sure to back up your data before performing this operation. You cannot abort a low - level format once it is started.

● **Verify Disk Media**
The Verify Disk Media utility scans the selected device's media for defects. If the utility finds bad blocks, it prompts you to reassign them ; if you select **yes**, those blocks will no longer be used.

Note: You can press **Esc** at any time to abort the Verity Disk Media utility.

Appendix A—CPU Confluence

Intel CPU

CPU	CPU Spec.	Internal Clk	J15	Voltage
Pentium 75	Full Series	75Mhz	75	3.38V
Pentium 90	Full Series	90Mhz	90	3.38V
Pentium 100	Sx886, Sx910, Sx956, Q0656, Q0657, Q0697/S, Sx963, Q0784, SY007	100Mhz	100	3.38V
Pentium 100	Sx960, Q0658, Sx962, Q0698/S, Sx970	100Mhz	100	3.52V
Pentium 120	Sk110, Q0776, Q0708, Q0730, Sk084, SY033, Q031, SY062	120Mhz	120	3.38V
Pentium 120	Q0707, Q0711, Sk086, Sx994, Q0732/S, Q0785, SY008	120Mhz	120	3.52V
Pentium 133	Q0772, Q0773, Sk106,S106J, Sk107, 0843, SY022, Q0844, SY023, Q0733, Sk098, Q0751	133Mhz	133	3.38V
Pentium 133	Q0774, Q0877, Q0775	133Mhz	133	3.52V
Pentium 150	Full Series	150Mhz	150	3.38V
Pentium 166	Full Series	166Mhz	166	3.52V
Pentium 200	Full Series	200Mhz	200	3.52V
P55C 150	Full Series	150Mhz	150	2.83V
P55C 166	Full Series	166Mhz	166	2.83V
P55C 200	Full Series	200Mhz	200	2.83V

AMD CPU

There are only two kinds of AMD CPU available in present market.(**SSA/5 5k86 CPU and K5**).

The printing on **SSA/5 CPU** :
   AMD5k86-P90
   AMD-SSA/5-90Abxxx

A: Behind the AMD5k86 is the processor speed.
The value behind the SSA/5 is the internal clock (for example 90). There are 75 and 90 MHz clock available today's market. The J15 should adjust to the same address that your clock really are.
The second digits behind is the CPU working voltage(for example B). Following is the description:
B: CPU working voltage range 3.45—3.6 V
C: CPU working voltage range 3.3—3.465 V
F: CPU working voltage range 3.135—3.38 V

B: The printing on the chip's is:
   AMD-K5-PR100ABxxx
   100MHz
The value behind the K5 is the processor speed. The J15 should adjust to the same position as your CPU really is.
Behind the CPU speed is the working voltage:
   B : working voltage :3.45--3.6V, suggest use 3.52V
   C : working voltage :3.3--3.465V, suggest 3.38V
   F : working voltage 3.135--3.465V, suggest 3.38V
   H : dual working voltage CPU, Vcore range 2.86--3.0V, suggest use
     2.83V
   J: dual working voltage CPU, Vcore range 2.57--2.84V, suggest use
     2.70V
   K : dual voltage CPU, Vcore range 2.38--2.63V,suggest use 2.50V

Cyrix CPU

The Cyrix CPU's printing is:

6x86-P166+GP

133Mhz

3.52V (028)

The first lineP166 processor index.

The second line is internal clock. (for example P133 is 133 Mega Hertz) The J15 should adjust to the same value as the CPU really are.

The third line is CPU working voltage index.

016 : working voltage is 3.15--3.45V, suggest to use 3.38V on JP8

028 : working voltage is 3.4--3.7V, suggest to use 3.52V on JP8