

PENTIUM PCI/ISA

**AT Form PCI & ISA Bus Pentium Mainboard
On Board PCI BUS IDE, Multi-I/O**

R548

Users Manual

Introduction

Welcome to the M-Technology next generation high performance Pentium system mainboard --- **R-548**. The R-548 using the high performance SiS 5582 Chipset that will deliver superior performance on your personal computer.

About This User's Guide

This User's Guide is for assisting system manufacturers and end users in setting up and installing the mainboard. Information in this guide has been carefully checked for reliability; however, there may still be inaccuracies and information in this document is subject to change without notice.

DISCLAIMER

The information in this manual has been carefully checked and is believed to be accurate. We assume no responsibility for any inaccuracies that may still be contained in this manual. We reserve the right to make changes to this material at any time without notice.

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* Our home page on Internet "<http://www.mtiusa.com>"

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Chapter 5 Q & A

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1. INTRODUCTION

1.1. Preface

Welcome to use the R-548 Pentium system mainboard. This manual explains how to use this mainboard and install upgrades. It has overview of the design and features of the board and provides useful information on the configuration of the board, or a system in which.

1.2. Key Features

The R-548 Pentium system mainboard is a high-performance system board that support Intel Pentium family CPUs, Cyrix, AMD and other compatible CPUs.

There has many performance and system features integrated onto the mainboard, including the following :

- ❑ CPU : Supports Socket 7 for
 - Intel Pentium 90 to 233 MHz, P55C (MMX).
 - Cyrix / IBM 6x86, 6x86L, 6x86MX (M2),
 - AMD K5, K6 .and other compatible CPUs.
- ❑ Chipset : SiS 5582
- ❑ Supports true 64 bits CACHE and DRAM access mode.
- ❑ Supports 512K Pipelined Burst SRAM in second Level Cache.
- ❑ CPU L1/L2 Write-Back cache operation.
- ❑ Supports 4x72-pin SIMM Sockets and 2 x 168-pin DIMM SDRAM or DRAM Sockets.
 - The Memory Capacity from 4MB to 384MB.
 - Supports FP(Fast Page), EDO(Extended Data Out) Mode DRAM and SDRAM.
- ❑ Four 16-bit ISA Slots and Four 32-bit PCI Master Mode Slots.

【1】

- ❑ 2 x IDE Connectors for up to 4 IDE Drives.
 - PIO Mode 4 transfers.
 - PCI Bus Master Mode IDE interface.
 - Supports Ultra DMA.

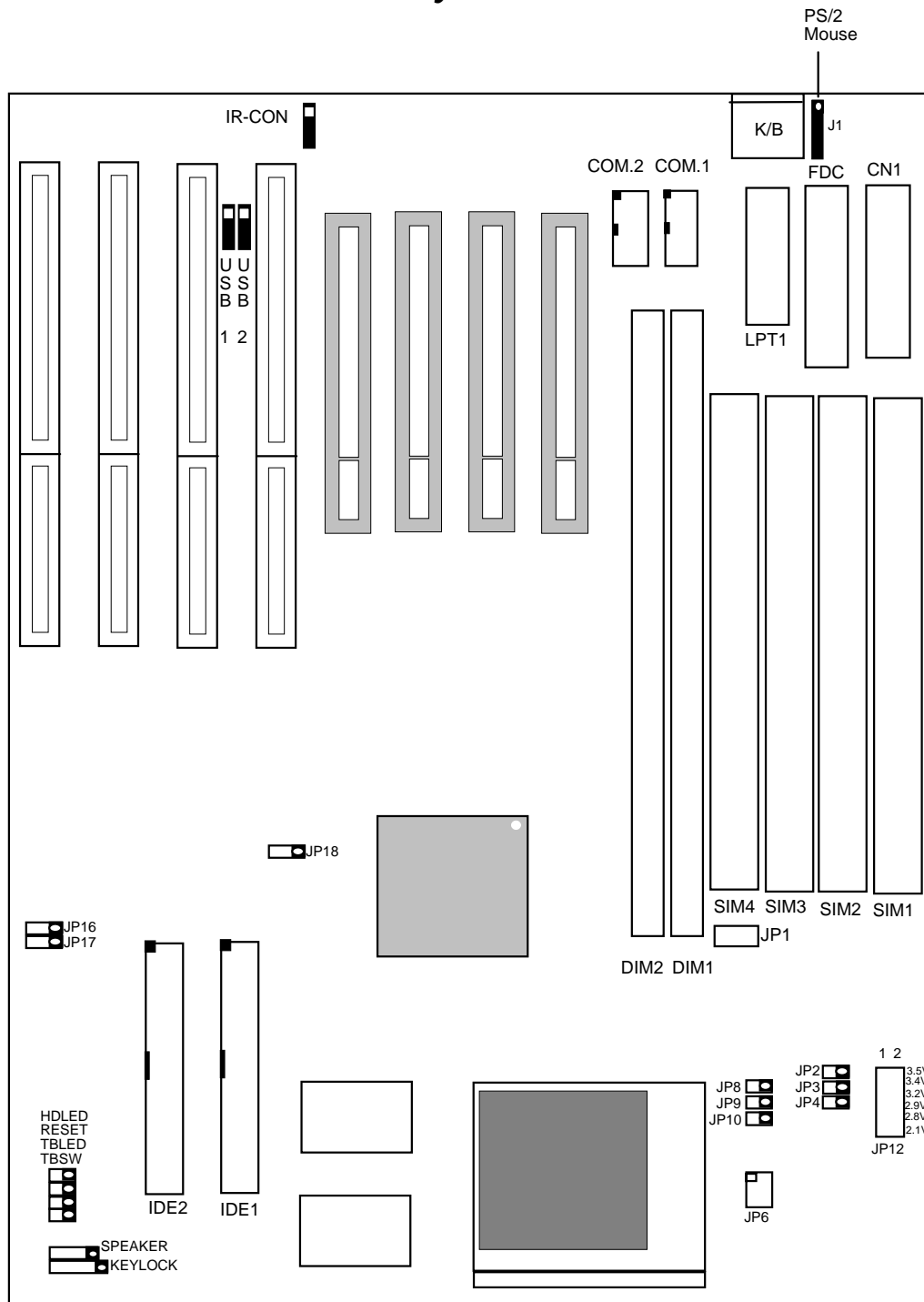
- ❑ On-board I / O support :
 - 2 Serial Port Connectors (16550 Fast UART compatible).
 - 1 Parallel Port Connect (with EPP and ECP capabilities).
 - 1 Floppy Disk Connector (Supports 2 FD Drives).
 - 1 PS/2 Mouse Connector.
 - 1 IrDA Connector.

- ❑ Universal Serial Bus Controller.
 - Host / HUB Controller.
 - Two USB Ports.
 - ※ Now under compatibility testing with different peripheral.

- ❑ Flash ROM BIOS with Green, Plug and Play Features

- ❑ Baby AT Form Factor : 22cm x 28cm or 8.7" x 11" (4 Layers).

1.3 R-548 Mainboard Layout



2 HARDWARE INSTALLATION

This chapter explains how to configure the system main board hardware. After you install the main board, you can set jumpers and make case connections. Refer to this chapter whenever you upgrade or reconfigure your system.

2.1 Unpacking

The mainboard package should contain the following:

- ◆ The **R-548** mainboard.
- ◆ USER'S MANUAL for R-548 mainboard.
- ◆ Cable set for IDE, Floppy , I/O device.
- ◆ IDE Driver

The mainboard contains sensitive electric components which can be easily damaged by static electricity, so the mainboard should be left in its original packing until it is installed.

Unpacking and installation should be done on a grounded anti-static mat.

The operator should be wearing an anti static wristband, grounded at the same point as the anti-static mat.

Inspect the mainboard carton for obvious damage. Shipping and handling may cause damage to your board. Be sure there are no shipping and handling damages on the board before proceeding.

After opening the mainboard carton, extract the system board and place it only on a grounded anti-static surface component side up. Again inspect the board for damage.

Press down on all of the socket IC's to make sure that they are properly seated. Do this only on with the board placed on a firm flat surface.

【2】



Do not apply power to the board if it has been damaged.

You are now ready to install your mainboard. The mounting hole pattern on the mainboard matches the system board.

It is assumed that the chassis is designed for a standard AT mainboard mounting. Place the chassis on the anti-static mat and remove the cover.

Take the plastic clips, Nylon stand-off and screws for mounting the system board, and keep them separate.

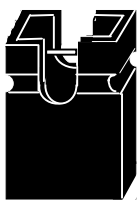
2.2 Jumper Setting Summary

Regarding hardware settings on the board. They specify configuration options for various features. The settings are made using something called a "Jumper". A jumper is a set of two or more metal pins in a plastic base attached to the mainboard. A plastic jumper "cap" with a metal plate inside fits over two pins to create an electrical contact between them. The contact establishes a hardware setting.

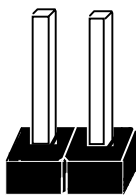
Some jumpers have two pins, other have three or more. The jumpers are sometimes combined into sets called jumper "blocks", where all the jumpers in the block must be set together to establish a hardware setting.

The next figures show how this works.

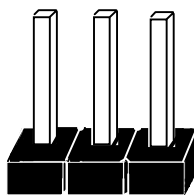
Jumpers and caps



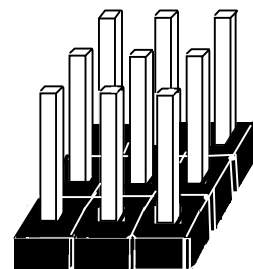
Jumper cap



2-Pin Jumper



3-Pin Jumper

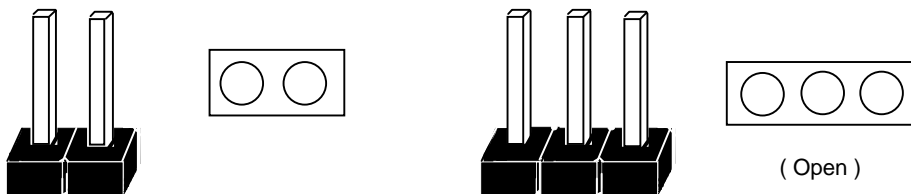


Jumper block

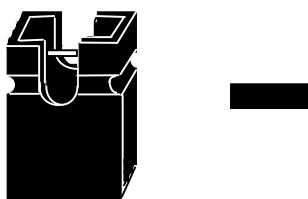
Most jumper settings are printed on the board in a stylized bird's-eye view, with which pins to connect for each setting marked by a bar connecting two pins. For example, if a jumper has three pins, connecting or "closing", the first and second pins creates one setting and closing the second and third pins creates another. The same type of diagrams are used in this manual. The jumpers are always shown from the same point of view as shown in the whole board diagram in this chapter.

Jumpers diagrams

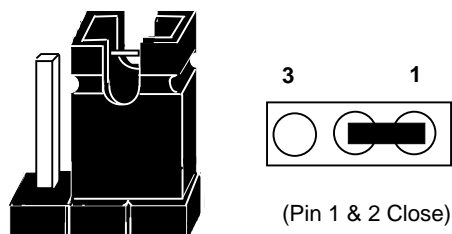
Jumpers are shown like this



Jumper caps like this



Jumper settings like this

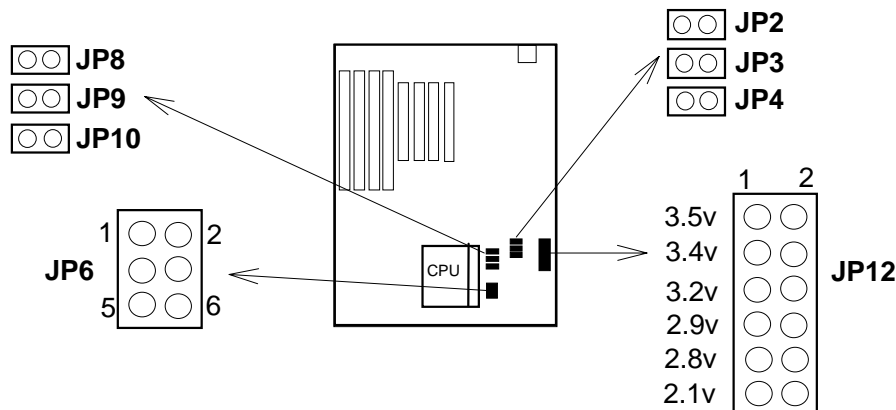


※ The Red colors Jumper for system Voltage setting, and the Yellow colors Jumper for system Clock setting, please careful to change it.

【2】

2.3 CPU Installation

The mainboard supports Pentium class processors up to 233 MHz, If you install the CPU on this board, you must set the **System Clock** (JP2, JP3, JP4), **Frequency Ratio** (JP8, JP9) and **CPU Power Voltage** (JP6, JP12) to meet variable CPU specifications. **(JP10, for Feature Function, default is open)**



2.3.1. CPU Speed Configuration:


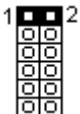

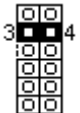
Freq ratio	JP8, JP9,
1.5	
2	
2.5	
3	
3.5	

System freq (MHz)	JP2,JP3,JP4
60	
66	
75	
83**	




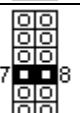



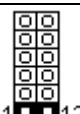
- * CPU Speed = (Frequency ratio) x (System Frequency).
- ** PCI has a maximum bandwidth of 33MHz --- one half of the 66 MHz System Frequency. The 83MHz System Frequency are not supported by the current PCI Rev.2.1 Specification.

2.3.2. CPU Voltage Configuration:

(a) For Single Power CPU. (Intel P54C, Cyrix 6x86, IBM 6x86, AMD 5k86)

CPU Power Voltage		JP6	JP12
I/O	Core		
3.5 V			
3.4 V			

(b) For Dual Power CPU. (Intel P55C (MMX), Cyrix 6x86L/6x86MX(M2), IBM 6x86L/6x86MX(M2), AMD K6)

CPU Power Voltage		JP6	JP12
I/O	Core		
3.4v	3.2v		
3.4v	2.9v		
3.4v	2.8v		
3.4v	2.1v		

【2】

2.3.3. The CPU Speed & Jumper setting.

(a) Intel Pentium CPU.

CPU Speed	Frequency Ratio			System Clock			
	/	JP8	JP9	MHz	JP2	JP3	JP4
90MHz	3/2	Open	Open	60	Close	Open	Open
100MHz		Open	Open	66	Open	Open	Open
120MHz	2/1	Close	Open	60	Close	Open	Open
133MHz		Close	Open	66	Open	Open	Open
150MHz	5/2	Close	Close	60	Close	Open	Open
166MHz		Close	Close	66	Open	Open	Open
180MHz	3/1	Open	Close	60	Close	Open	Open
200MHz		Open	Close	66	Open	Open	Open
233MHz	7/2	Open	Open	66	Open	Open	Open

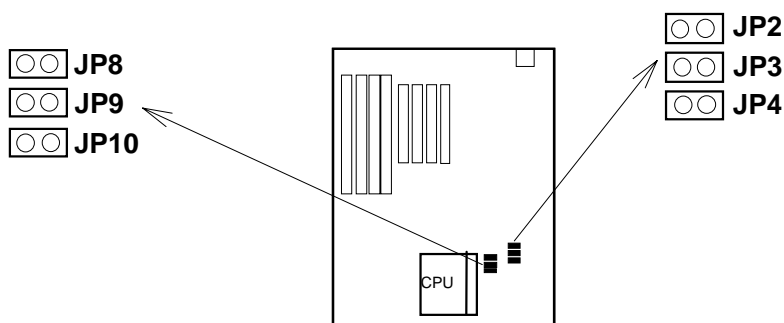
(b) Cyrix 6x86 & 6x86L and IBM 6x86 & 6x86L CPU.

CPU Speed	Frequency Ratio			System Clock			
	/	JP8	JP9	MHz	JP2	JP3	JP4
PR150+	2/1	Close	Open	60	Close	Open	Open
PR166+		Close	Open	66	Open	Open	Open
PR200+		Close	Open	75	Open	Close	Close

(c) Cyrix 6x86MX (M2) & IBM 6x86MX (M2) CPU.

CPU Speed	Frequency Ratio			System Clock			
	/	JP8	JP9	MHz	JP2	JP3	JP4
PR166	5/2	Close	Close	60	Close	Open	Open
PR200		Close	Close	66	Open	Open	Open
PR200	2/1	Close	Open	75	Open	Close	Close
PR233	3/1	Open	Close	66	Open	Open	Open
PR233	5/2	Close	Close	75	Open	Close	Close
PR266	7/2	Open	Open	66	Open	Open	Open
PR266	3/1	Open	Close	75	Open	Close	Close

※ We recommend the end user to choose the version 2.7 or later of Cyrix/
IBM 6x86 processor.



(d) AMD 5k86 CPU.

CPU Speed	Frequency Ratio			System Clock			
	/	JP8	JP9	MHz	JP2	JP3	JP4
P90	3/2	Open	Open	60	Close	Open	Open
P100		Open	Open	66	Open	Open	Open
P166	5/2	Close	Close	66	Open	Open	Open

(e) AMD K6 CPU.

CPU Speed	Frequency Ratio			System Clock			
	/	JP8	JP9	MHz	JP2	JP3	JP4
PR166	5/2	Close	Close	66	Open	Open	Open
PR200	3/1	Open	Close	66	Open	Open	Open
PR233	7/2	Open	Open	66	Open	Open	Open

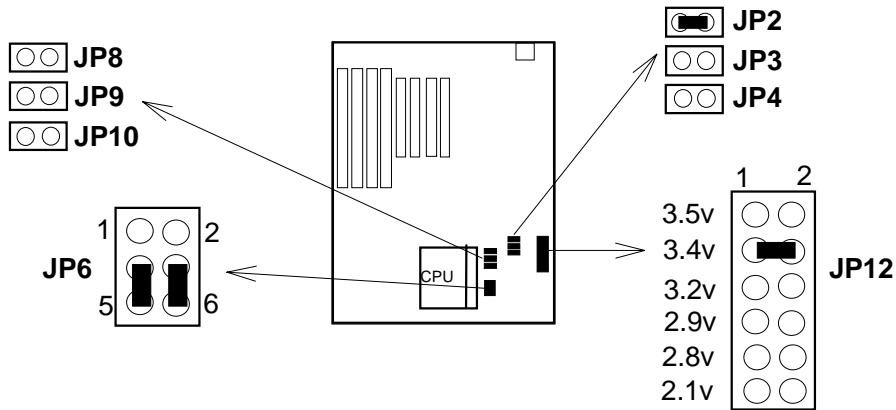
- ※ 1. For the AMD K5-PR120/133, it is also allowed to use ratio "x1.5", which is equal to the Intel Pentium 90/100MHz settings.
 2. For the AMD K5-150/160, it use the same settings as the Intel Pentium 150/166MHz processor.

【2】

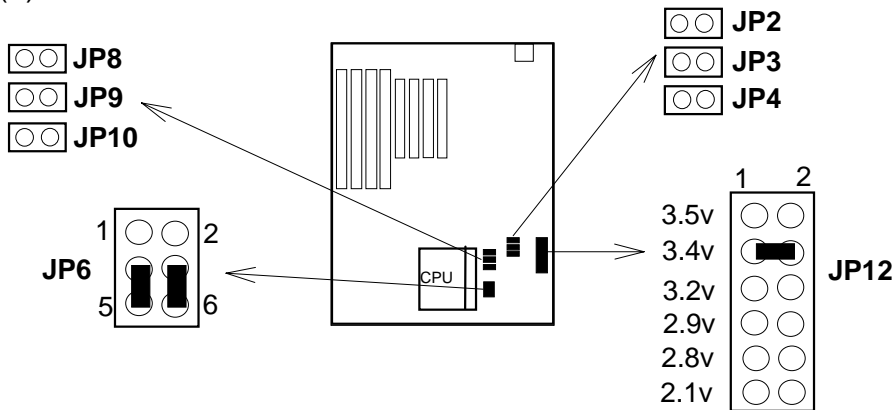
2.3.4. CPU Type Select Quick Reference :

(a) Intel Pentium CPU.

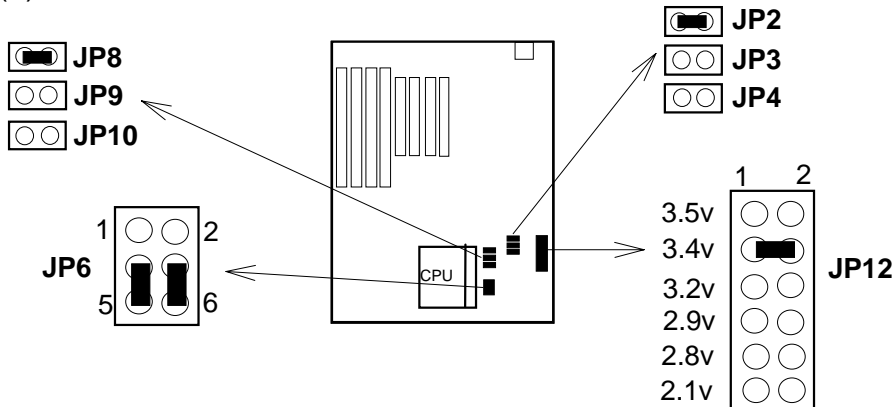
(1) Intel P54C-90MHz.



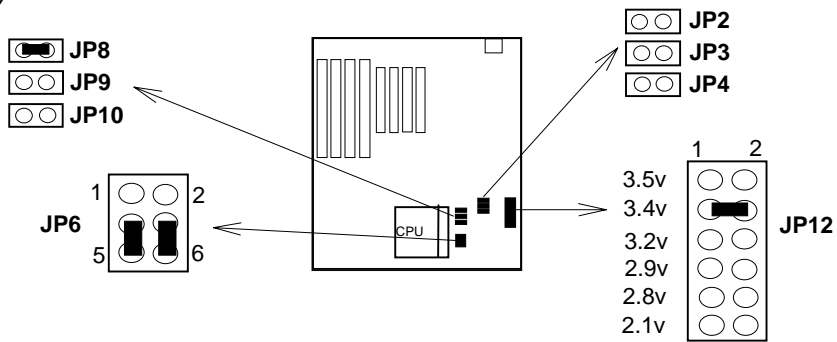
(2) Intel P54C-100MHz.



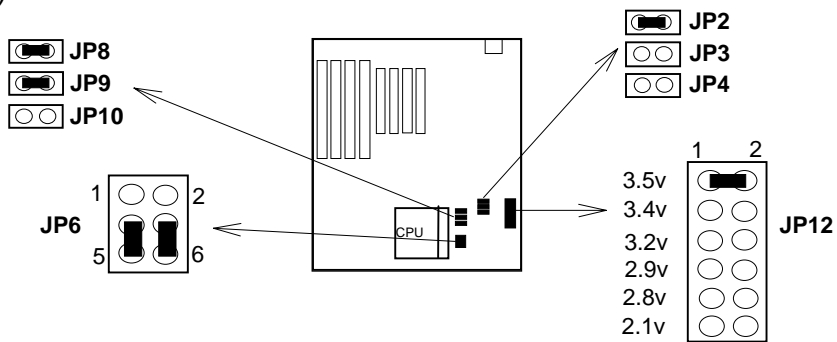
(3) Intel P54C-120MHz.



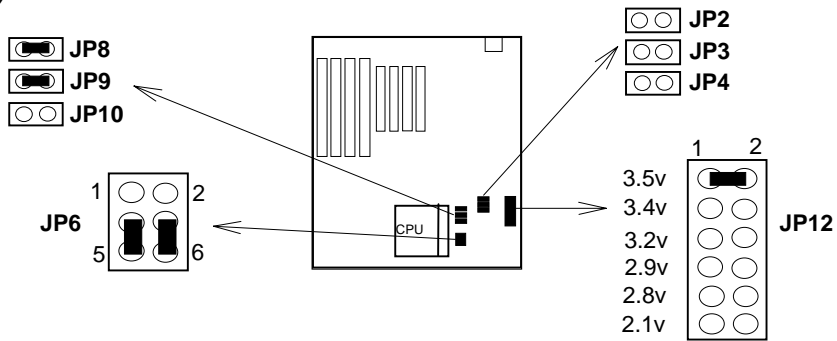
(4) Intel P54C-133MHz.



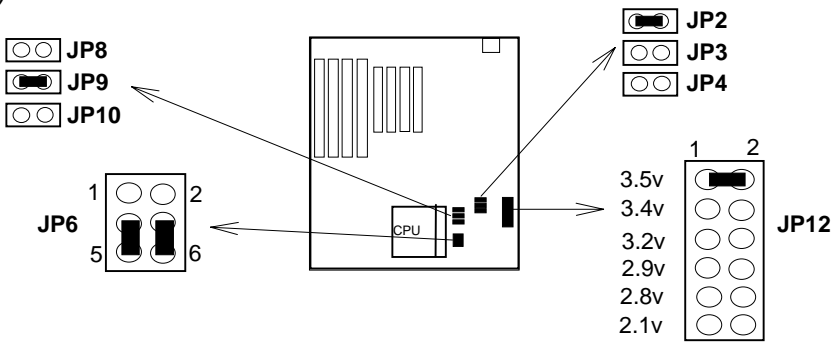
(5) Intel P54C-150MHz.



(6) Intel P54C-166MHz.

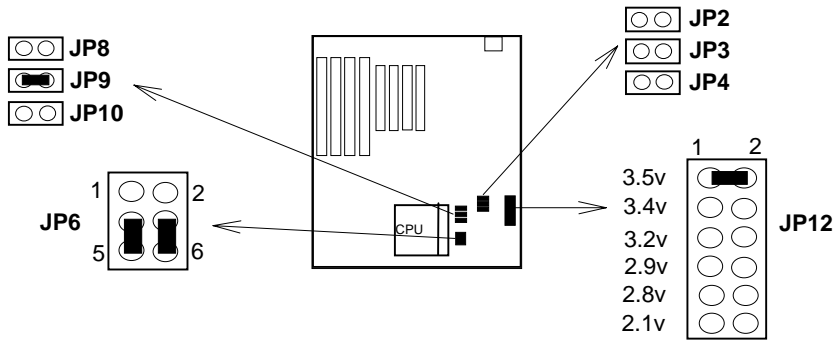


(7) Intel P54C-180MHz.

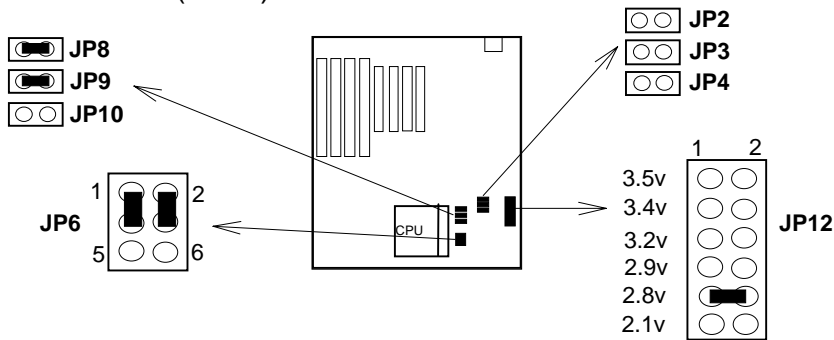


【2】

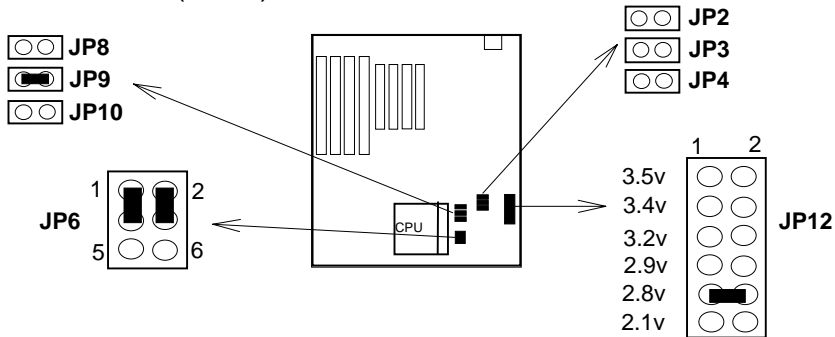
(8) Intel P54C-200MHz.



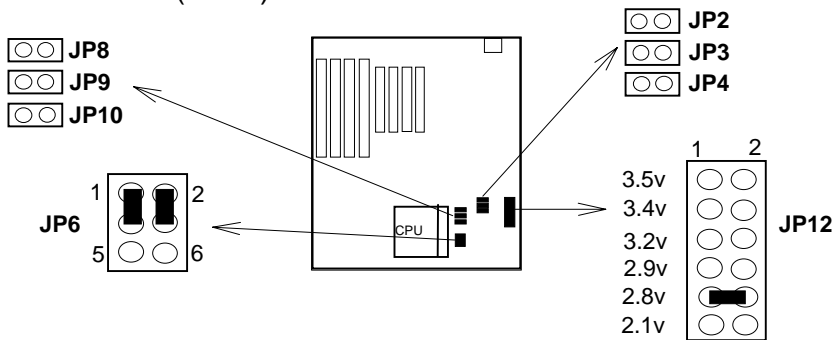
(9) Intel P55C (MMX) -166MHz.



(10) Intel P55C (MMX) -200MHz.

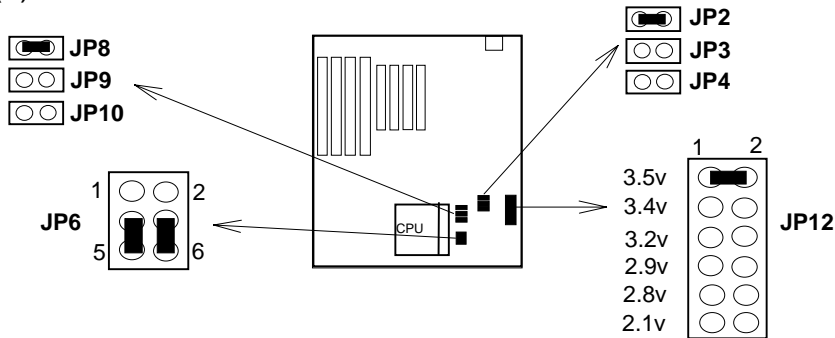


(11) Intel P55C (MMX) -233MHz.

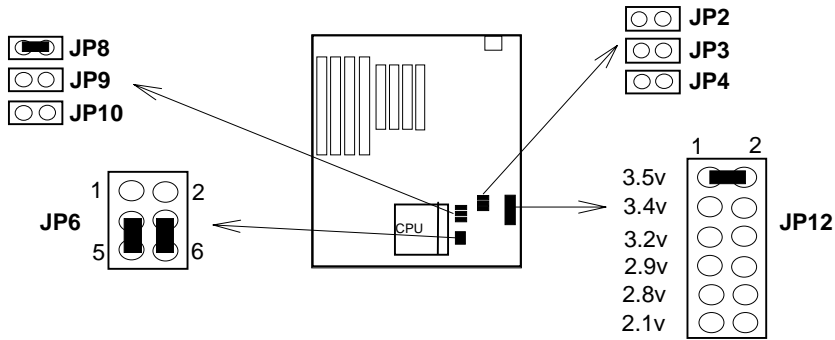


(b) Cyrix 6x86, IBM 6x86 CPU.

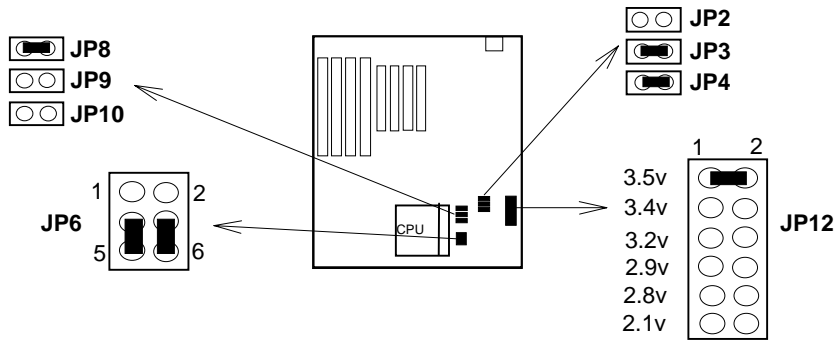
(1) 6x86 - PR150+



(2) 6x86 - PR166+

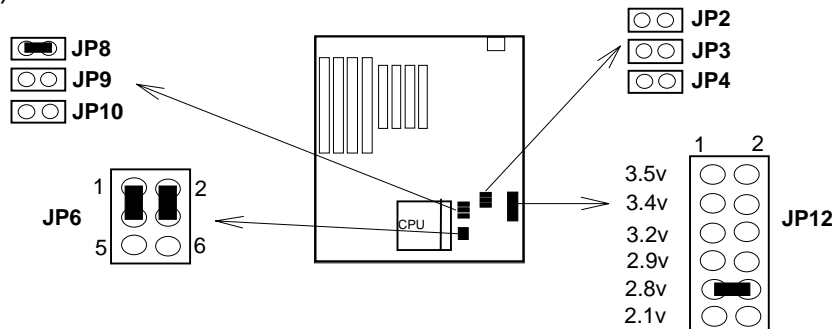


(3) 6x86 - PR200+



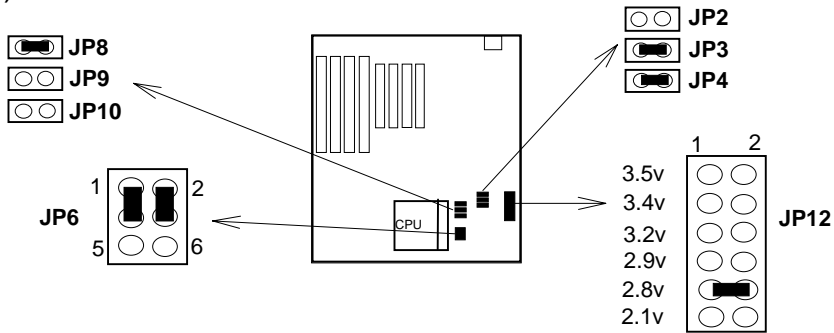
(c) Cyrix 6x86L & 6x86MX (M2), IBM 6x86L & 6x86MX (M2).

(1) 6x86L - PR166.

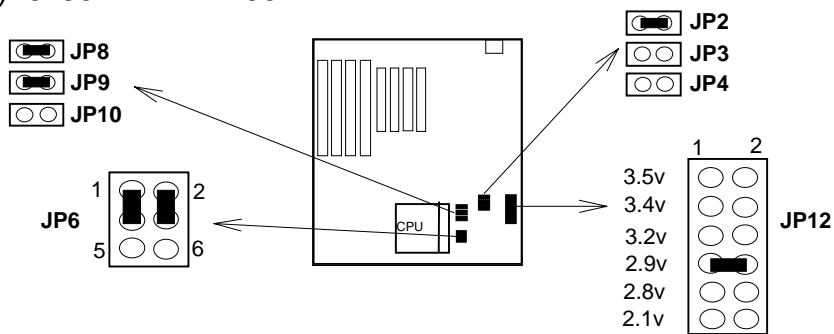


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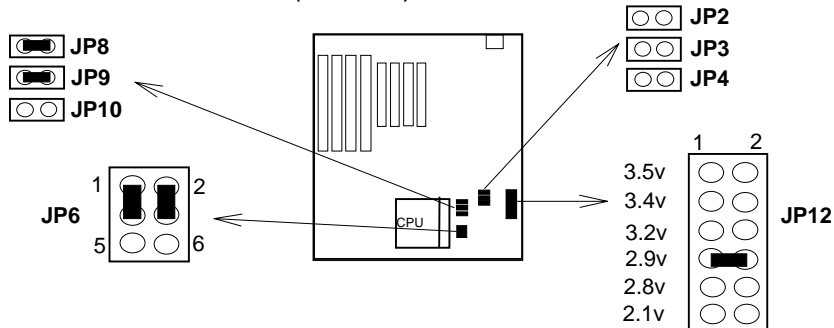
(2) 6x86L - PR200.



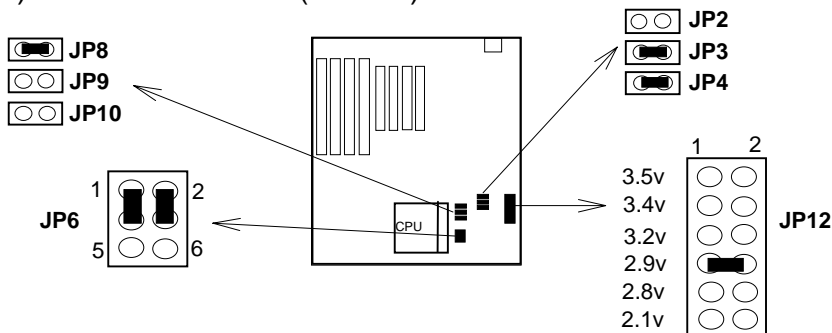
(3) 6x86MX - PR166.



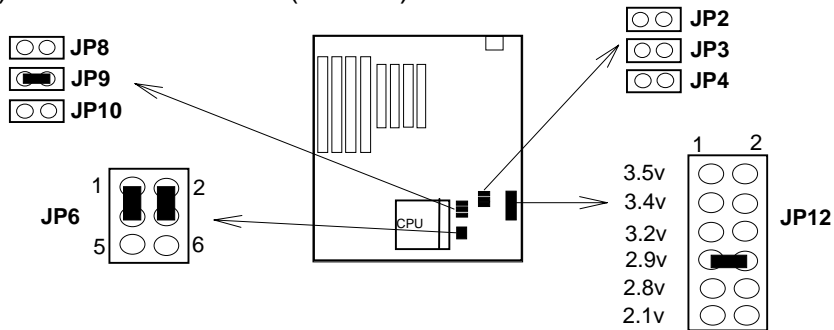
(4) 6x86MX - PR200. (66MHz)



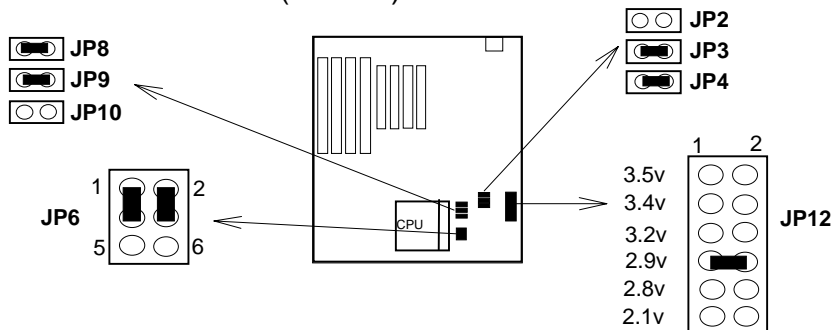
(5) 6x86MX - PR200. (75MHz)



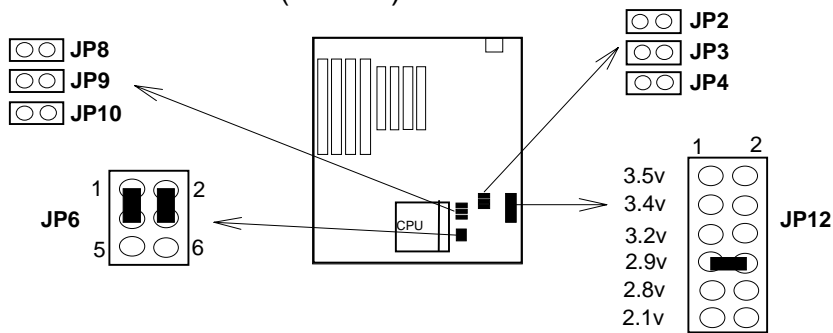
(5) 6x86MX - PR233 (66MHz)



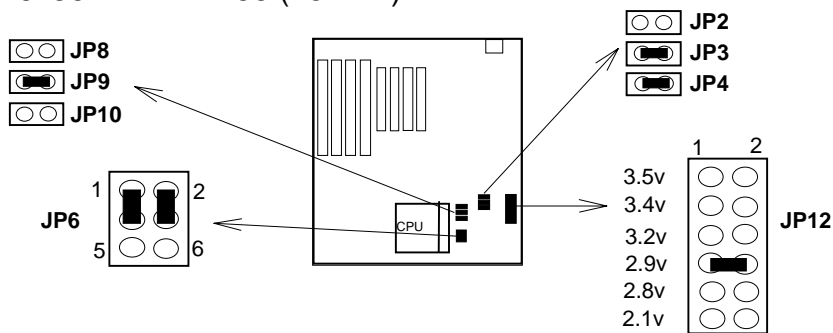
(6) 6x86MX - PR233 (75MHz).



(7) 6x86MX - PR266 (66MHz).



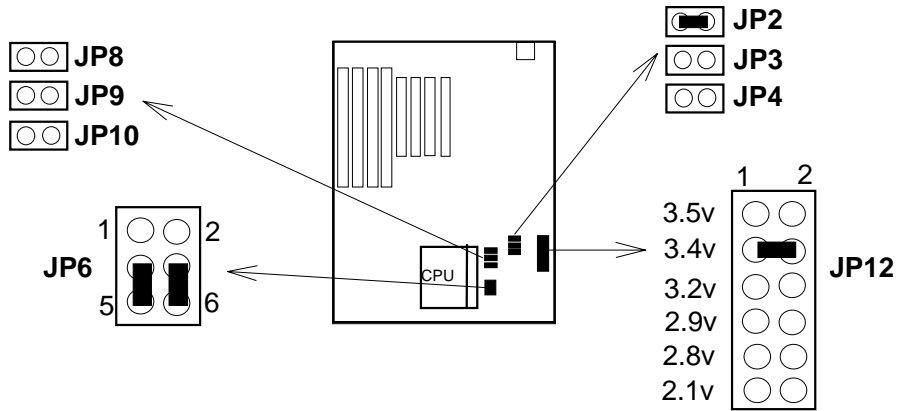
(8) 6x86MX - PR266 (75MHz).



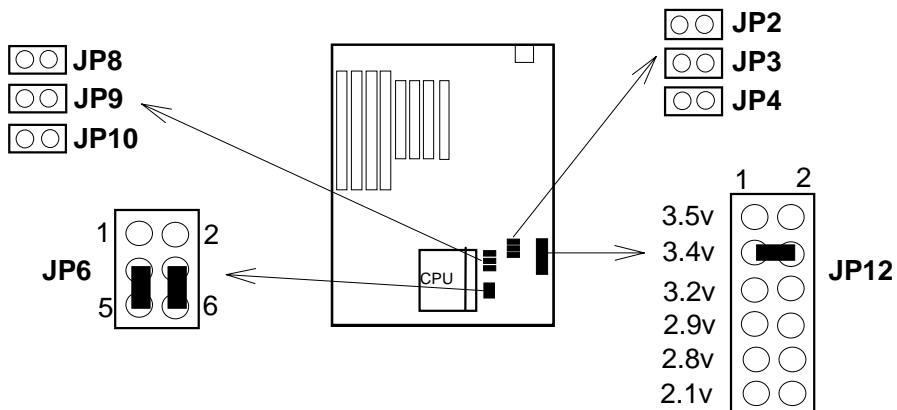
【2】

(d) AMD 5k86 & K6 CPU.

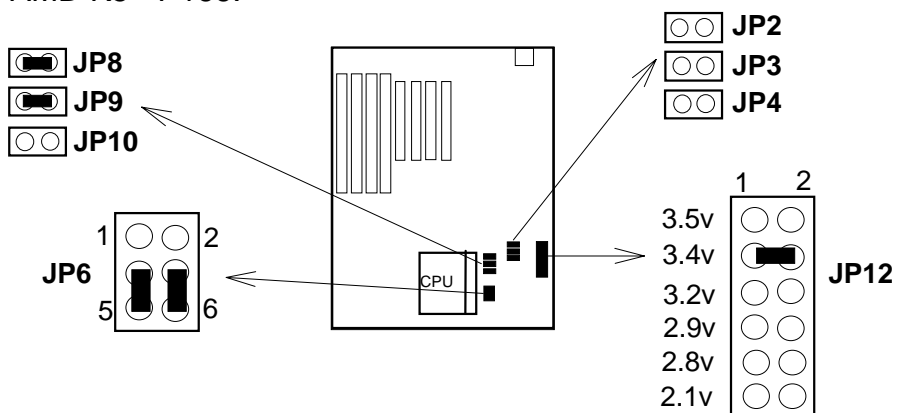
(1) AMD K5 - P90.



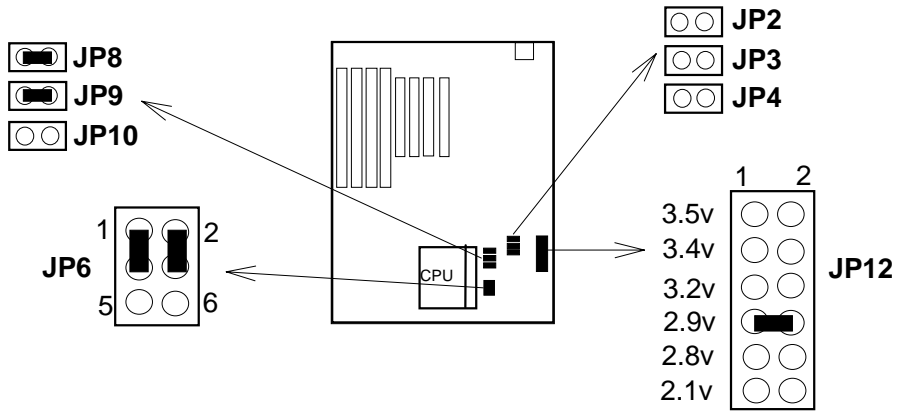
(2) AMD K5 - P100.



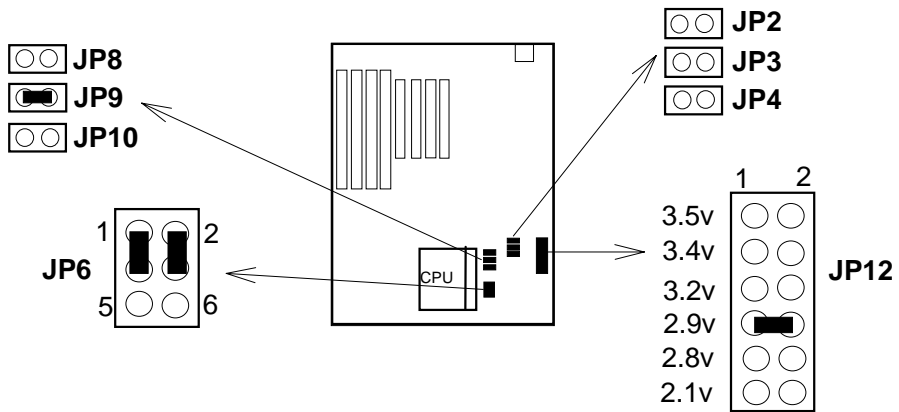
(3) AMD K5 - P166.



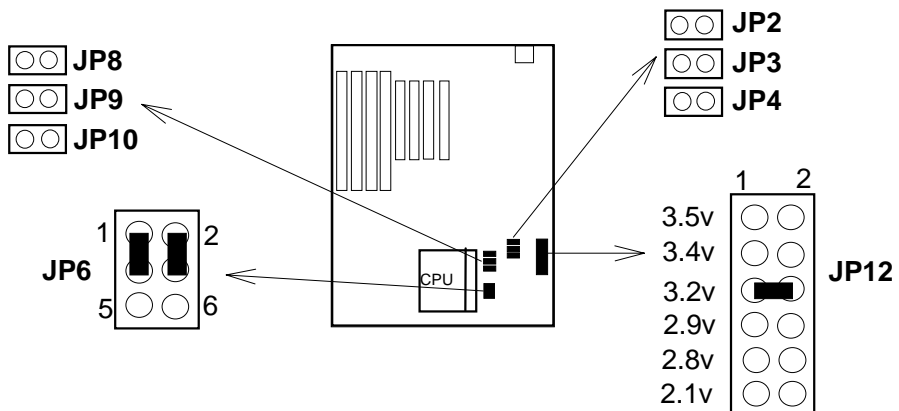
(4) AMD K6 - P166.



(5) AMD K6 - P200.



(6) AMD K6 - P233.

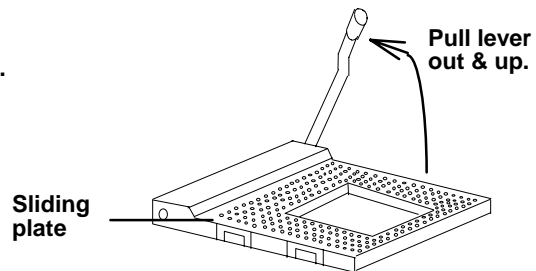


【2】

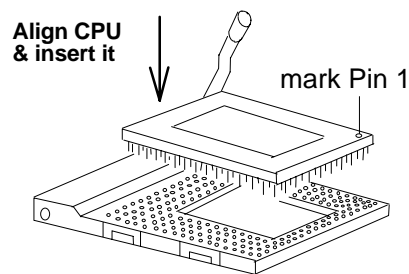
2.3.5. Installing a CPU in the ZIF Socket

The Intel Socket 7 incorporated in the mainboard specifications, is specially designed for the Pentium processor. While inserting the Pentium processor onto Socket 7, certain precautionary steps must be followed. The following diagrams of demonstration and explanation are worth of your note.

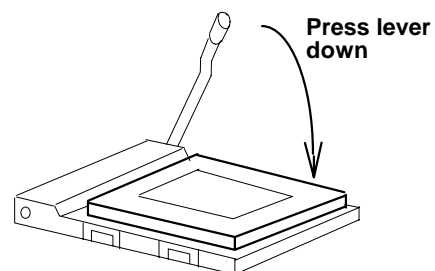
1. Make sure the ZIF socket level is up.
To raise the lever, pull it out to the side a little and raise it as far as it will go. Pin 1 is at the arm corner.



2. Align the CPU and socket pin 1 corners. match the processor corner containing the blunt edge and the white dot to the socket corner with the distinctive pin arrangement. The pins on the bottom should align with the inner 3 rings of holes in the socket, then place the CPU in the socket. It should insert easily. If it doesn't, pull the level up a little more.



3. Press the lever down. The plate will slide forward. You will feel some resistance as the pressure starts to secure the CPU in the socket. When the CPU is installed, the lever should snap into place at the side of the socket



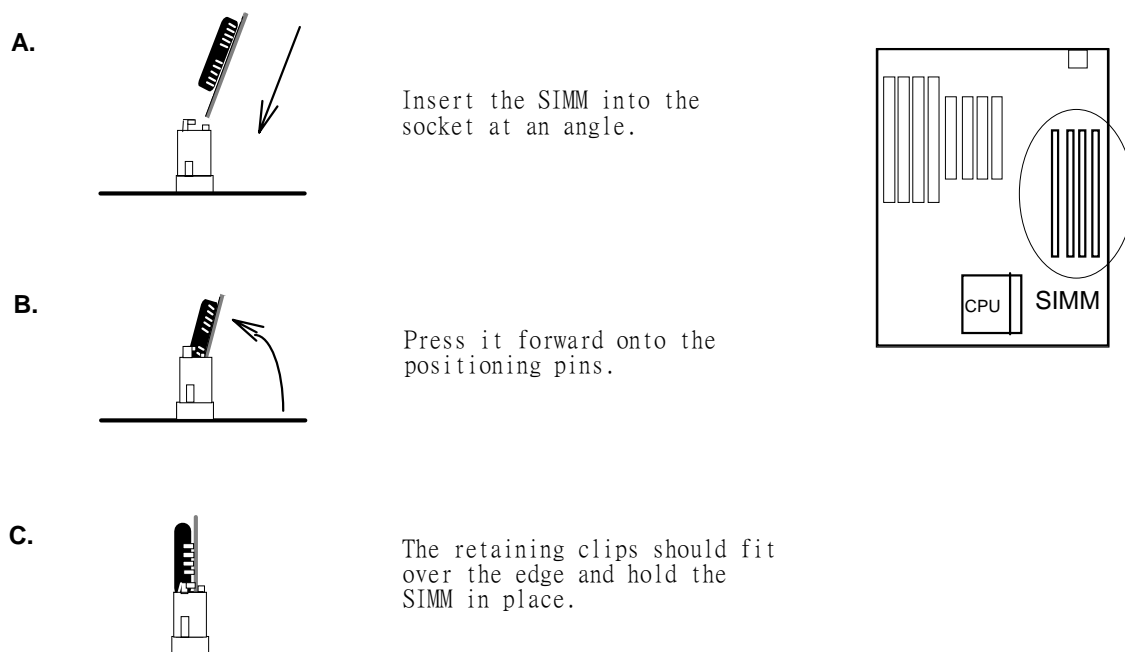
2.4 Upgrading System Memory

Upgrading System Memory, And Setting JP1.

The R547 mainboard can use up to two-168pin DIMM sockets(DIM 1, DIM 2), and four-72pin SIMM sockets (SIM 1, SIM 2, SIM 3, SIM 4). Upgradable from 2MB to 384MB.

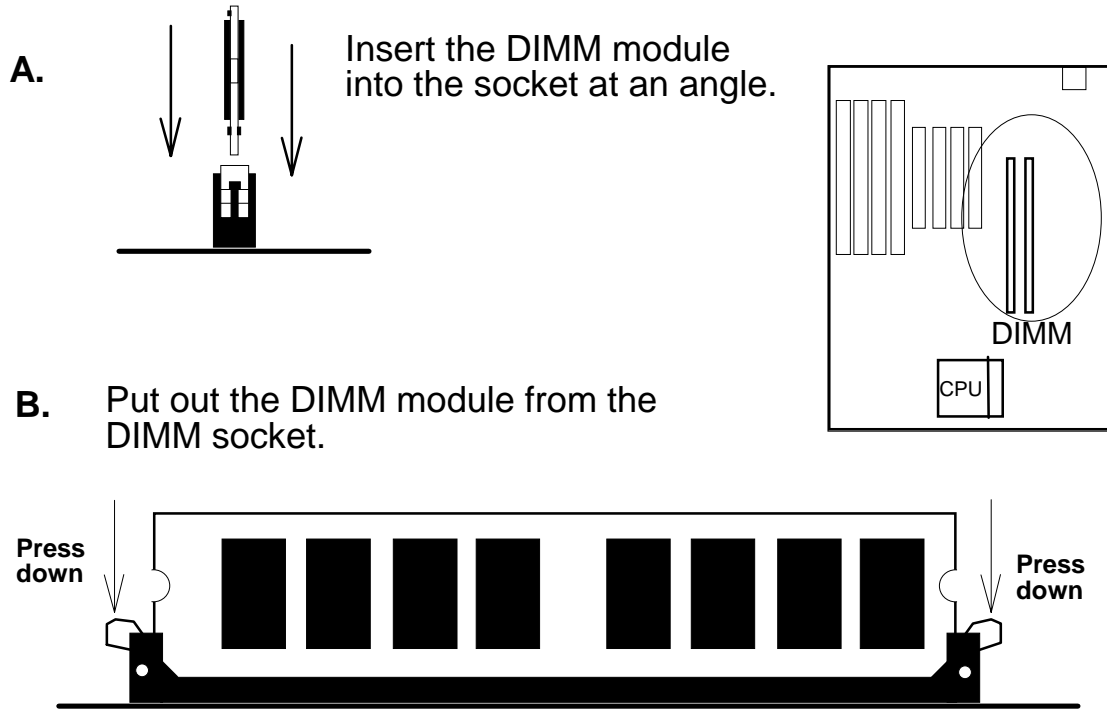
* The DIMM Sockets and SIMM Sockets can not used at a same time, except when you used the +5V EDO or FP DIMM Module.

2.4.1 Installing a SIMM Module



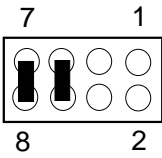
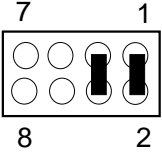
【2】

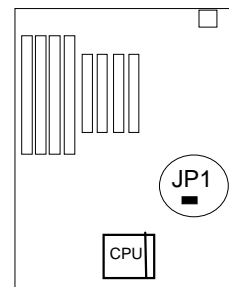
2.4.2. Installing a DIMM Module



2.4.3. DIMM Voltage Select : JP1.

The DIMM socket voltage must be set correctly to either 3.3v or 5v, depending on the voltage of the DRAM DIMM Module or SDRAM DIMM Module used. All SDRAM DIMM Modules are 3.3v and all Fast Page Mode (FPM) DIMM Modules are 5v. Extended Data Mode (EDO) DIMM Modules come in both 3.3v and 5v, so when using both FPM DIMM Module and EDO DIMM Module in the system, only 5v EDO DIMM Module can be used.

DIMM Type	JP1 Setting
3.3v DIMM	
5v DIMM	



2.4.4. Memory Module Installing Table

A. For EDO and FPM SIMM or DIMM Module.

The DIMM sockets (DIM 1, DIM 2) can be used either :

Mode 1: +5V FPM(Fast Page Mode) or +5V EDO (Extended Data Mode) SIMM Module or DIMM Module. (FPM and EDO SIMM Module or DIMM Module can be used concurrently.)

Bank 1 SIM 3 & SIM 4	Bank 1 DIM 2	Bank 2 SIM 1 & SIM 2	Bank 3 DIM 1	JP1 Setting
4MB or 8MB or 16MB or 32MB	X	X	X	
4MB or 8MB or 16MB or 32MB	X	4MB or 8MB or 16MB or 32MB	X	
4MB or 8MB or 16MB or 32MB	X	X	8MB or 16MB or 32MB	
4MB or 8MB or 16MB or 32MB	X	4MB or 8MB or 16MB or 32MB	8MB or 16MB or 32MB	
X	8MB or 16MB or 32MB	X	X	
X	8MB or 16MB or 32MB	4MB or 8MB or 16MB or 32MB	X	
X	8MB or 16MB or 32MB	X	8MB or 16MB or 32MB	
X	8MB or 16MB or 32MB	4MB or 8MB or 16MB or 32MB	8MB or 16MB or 32MB	

Mode 2: +3.3V EDO (Extended Data Mode) DIMM Module.

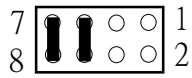
Bank 1 SIM 3 & SIM 4	Bank 1 DIM 2	Bank 2 SIM 1 & SIM 2	Bank 3 DIM 1	JP1 Setting
X	8MB / 16MB / 32MB / 64MB	X	X	
X	8MB / 16MB / 32MB / 64MB	X	X	
X	8MB / 16MB / 32MB / 64MB	X	8MB / 16MB / 32MB / 64MB	
X	8MB / 16MB / 32MB / 64MB	X	8MB / 16MB / 32MB / 64MB	

【2】

B. For SDRAM DIMM Module.

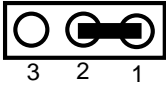
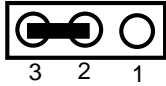
If Synchronous DRAM Mode(SDRAM) DIMM Module is used, however, only SDRAM DIMM Module can be used in any of DIMM sockets (DIM 1, DIM 2).

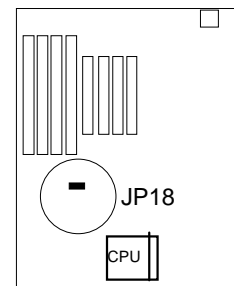
Mode 3: +3.3V SDRAM DIMM Module.

Bank 1 SIM 3 & SIM 4	Bank 1 DIM 2	Bank 2 SIM 1 & SIM 2	Bank 3 DIM 2	JP1 Setting
X	8MB / 16MB / 32MB / 64MB	X	X	
X	8MB / 16MB / 32MB / 64MB	X	X	
X	8MB / 16MB / 32MB / 64MB	X	8MB / 16MB / 32MB / 64MB	
X	8MB / 16MB / 32MB / 64MB	X	8MB / 16MB / 32MB / 64MB	

2.5 CMOS Clear Jumper: JP18

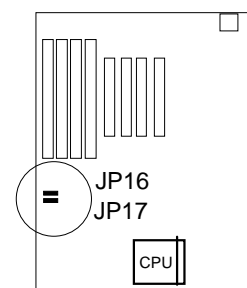
Clear the CMOS memory by momentarily shorting the Jumper 2-3 pin, then Open the Jumper to retain new setting. (Normal Operation is 1-2 Close)

Function	JP18 Setting
(a) Normal	 (Default)
(b) Clear CMOS	



2.6 Flash EPROM Selector : JP16 , JP17. (Factory setting only)

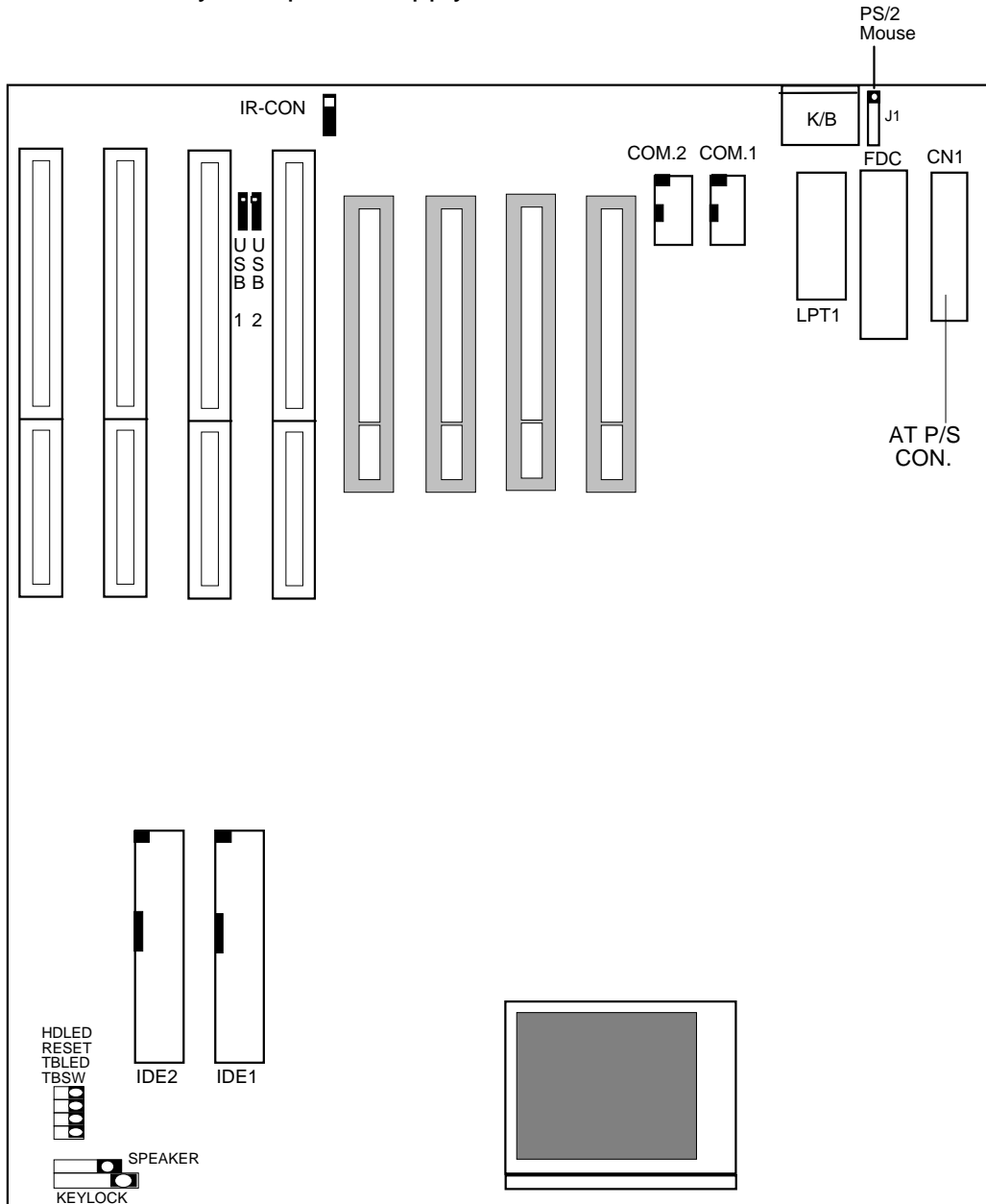
Flash ROM Type	Jumper Setting
(a) 1M/12V Flash ROM	<p>3 2 1 ○ ● ○ JP16 ○ ● ○ JP17</p>
(b) 1M/5V Flash ROM	<p>3 2 1 ○ ● ○ JP16 ● ○ ○ JP17</p>

**How to Update BIOS (Flash ROM)**

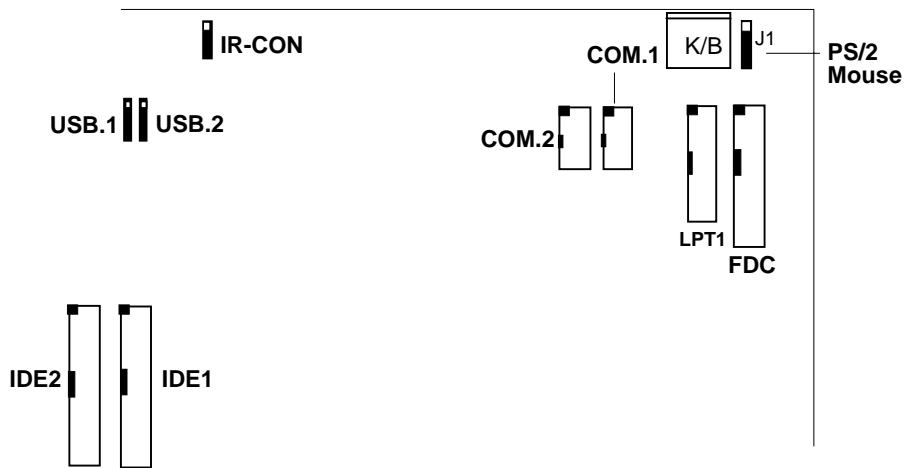
- Copy the Flash Utility to a bootable diskette.
AWDFLASH.EXE : for AWARD BIOS.
AMIFLASH.COM : for AMI BIOS.
- Copy the new BIOS file to the diskette.
***.BIN : is AWARD BIOS.**
***.ROM : is AMI BIOS.**
- Turn the system power off and make sure that the JP16 & JP17 are set to 1M/5V Flash.
- Turn the system on, Boot from drive A: and run the Flash utility.
- Follow the prompt and input the file name.
- Save the old BIOS and when prompt to program hit " Y ".
- After the BIOS is Flash, turn off the system and clear the CMOS.
- Set the COMS Jumper (JP18) to default and power on.

2.7 Connectors

The Connectors are made of the same component as the jumper switches. There are connectors for the switches and indicator lights from the system case. There are also connectors for the on-board I/O port and the leads from a system power supply.



2.7.1. I/O Ports .



Pin 1 is upper left-hand
pin on each port connector

When you connect a ribbon cable to any of these I/O connectors, you must orient the cable connector so that the Pin 1 edge of the cable is at the Pin 1 end of the on-board connector.

The pin 1 edge of the ribbon cable is colored to identify it.

Port & Controller Cables

The mainboard comes with the following cables:

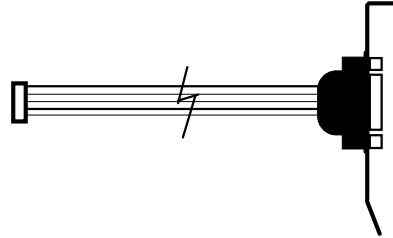
- * 1 serial port and 1 parallel port ribbon cables attached to one mounting bracket.
- * 1 serial port ribbon cable with mounting bracket.
- * 1 IDE ribbon connector cables.
- * 1 floppy disk drive ribbon connector cable.
- * 1 PS/2 Mouse ribbon cable with mounting bracket.

Port & Controller Cables

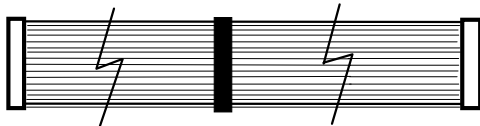
(1) Floppy Drive ribbon cable



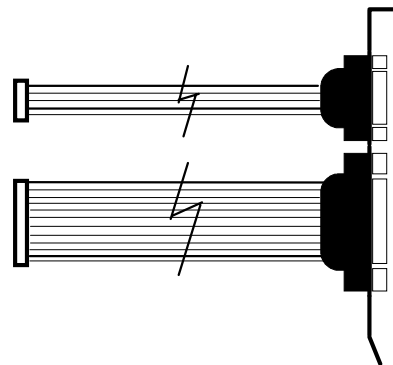
(2) Serial ribbon cable



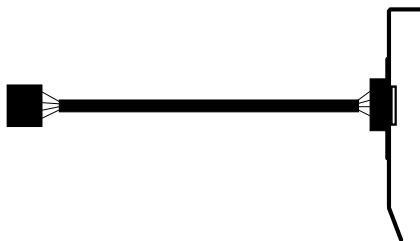
(3) IDE ribbon cable



(4) Serial & Parallel ribbon cable



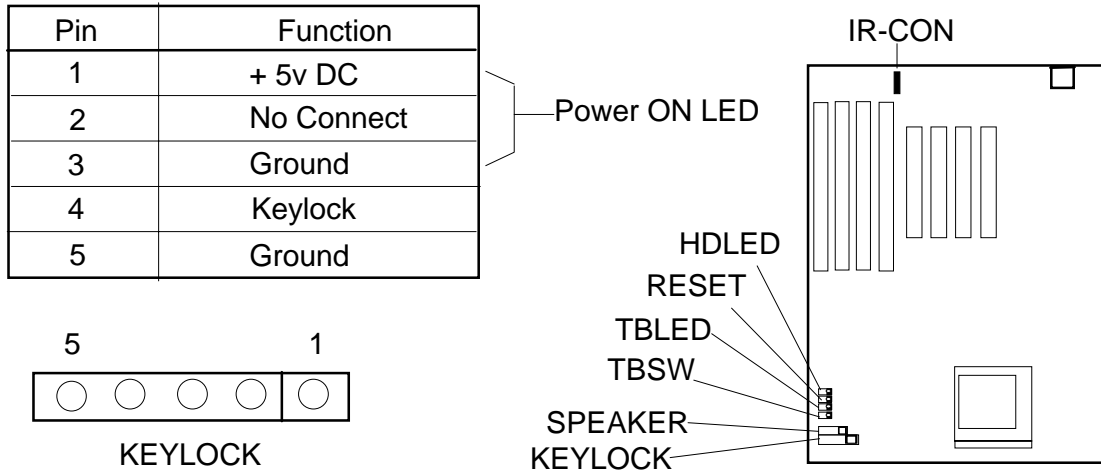
(5) PS/2 Mouse ribbon cable

**2.7.2. External Connections**

Connectors are used to link the system board with other parts of the system, including the keyboard, the power supply, and the various controllers on the front panel of the system case. When connecting connect-wires to the connectors, you should remember that some of them must be aligned in a specific way in order to have proper functions.

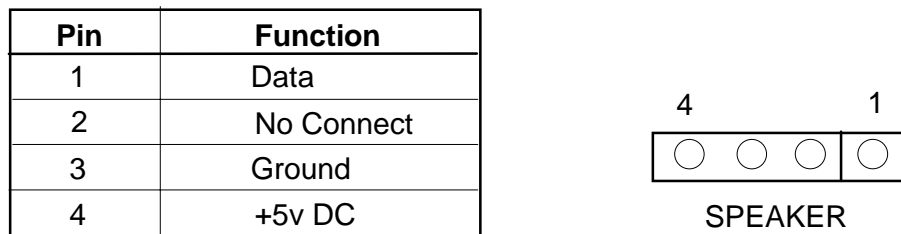
Keyboard Lock Header (KEYLOCK)

Connector for both a case-mounted lock and a Power-On LED.



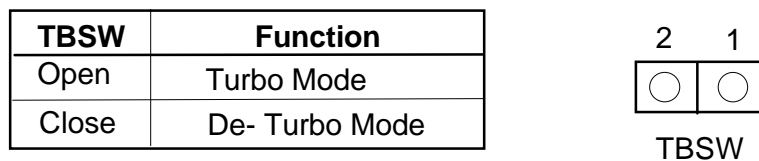
Speaker Header (SPEAKER)

Connector for the lead from a speaker mounted inside the system case.



Turbo Switch Header (TBSW)

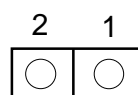
Connector for the lead from a Turbo switch mounted on the System case.



【2】 **Turbo activity LED Header (TB LED)**

Connector for Turbo activity LED.

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



TB LED

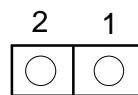
 Reset Switch Header (Reset)

Connector for the lead from a Reset switch mounted on the system case.

 IDE Activity LED Header (HD LED)

Connector for IDE activity LED.

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

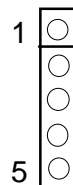


HD LED

 Infrared Connector (IR-CON)

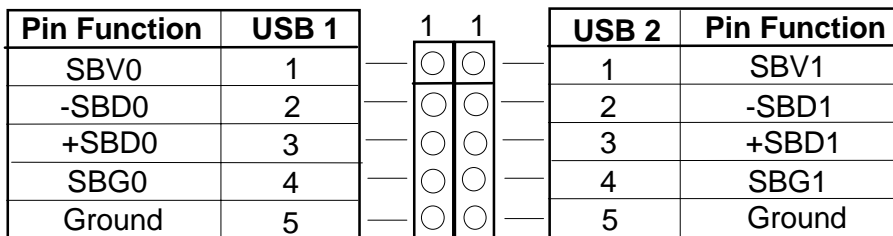
If you set the BIOS's item "IR Function" to "HP SIR" or "ASK IR", the COM2 port will be switched to support IR function.

Pin	Function
1	+ 5v DC
2	Fir-con
3	Ir - Rx
4	Ground
5	Ir - Tx



USB (Universal Serial Bus) Connector (USB1, USB2)

USB is an open industry standard, providing a simple and inexpensive way to connect up to 125 devices to a single computer port. Keyboards, Mouse tablets, digitizers, scanners, bar-code readers, modems, printers and many more can all run at the same time. USB is a dynamically reconfigurable serial bus with an elementary data rate of 12Mbps, based on off the shelf, low cost micro-controller technology. Its modular layered software protocol supports sophisticated devices and application programs. This board contains a USB Host controller and includes the root hub with two USB ports (meet USB Rev 1.0 spec.), which permits the connection of two USB peripherals or hub devices directly.



Now under testing of compatibility with different peripherals.

PS/2 Mouse Header (Mouse)

A PS/2 mouse adapter with bracket is optional. You can connect it with the Mouse header directly.

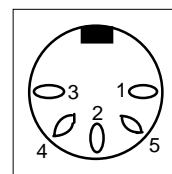
- 1 ■ Data
- 2 ■ N.C.
- 3 ■ Ground
- 4 ■ Vcc
- 5 ■ Clock
- 6 ■ N.C.



If a PS/2 Mouse is used, you should enable PS/2 function from BIOS, then BIOS will assign IRQ12 to PS/2 Mouse. Otherwise, the IRQ12 will be assigned to other adapters (Disable PS/2 Mouse function in BIOS)

Keyboard Connector (KB)

Pin	Definition
1	Keyboard Clock
2	Keyboard Data
3	No Connect
4	Ground
5	+ 5v DC



【2】

□ AT (CN 1) Power Supply Connector:

The main board requires a power supply with 200W at least. While installing the board, the power supply connector is usually the last one to be connected. Before connected to power supply, make sure it is not connected to power source.

Most AT power supplies have two set of six-wire connector. Plug the AT or connectors onto the board connector.

For AT Power Supply (CN1)

CN1		Wire Color
1	■ Power GOOD	Orange
2	■ +5V	Red
3	■ +12V	Yellow
4	■ -12V	Blue
5	■ Ground	Black
6	■ Ground	Black
1	■ Ground	Black
2	■ Ground	Black
3	■ -5V	White
4	■ +5V	Red
5	■ +5V	Red
6	■ +5V	Red

Power Supply requirement :

Output voltage	Regulation tolerance
+5V dc	+− 5%
- 5V dc	+− 10%
+12X dc	+− 5%
- 12V dc	+− 10%

3. Award BIOS Setup Program

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

When you turn on (or reboot) the system, press the Delete key to enter the Award BIOS setup screen as following:

ROM PCI / ISA BIOS CMOS SETUP UTILITY AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
ESC : Quit	↑↓→← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Time, Date, Hard Disk Type...	

Initial Setup Program Screen

【3】

3-1 Standard CMOS Setup

Choose the **Standard CMOS Setup** option from the **CMOS Setup Utility** menu shown below to display the following screen. The Standard CMOS Setup allows users to configure system components such as date, time, hard disk drive, floppy disk drive, display and memory. When a field is highlighted, on-line help information is displayed on the left bottom edge of the screen.

ROM PCI / ISA BIOS STANDARD CMOS SETUP AWARD SOFTWARE, INC.								
Date(mm:dd:yy) : Tue, Jun 10 1997 Time (hh:mm:ss) : 9:14:43								
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	: Auto	0	0	0	0	0	0	Auto
Primary Slave	: Auto	0	0	0	0	0	0	Auto
Secondary Master	: Auto	0	0	0	0	0	0	Auto
Secondary Slave	: Auto	0	0	0	0	0	0	Auto
Drive A	: 1.44M, 3.5 in							
Drive B	: None							
Video	: EGA/VGA							
Halt On	: ALL Errors							
					Base Memory : 640K Extended Memory : 15360K Other Memory : 384K ----- Total Memory : 16384K			
ESC	: Quit	↑↓→←			: Select Item	PU/PD/+/- : Modify		
F1	: Help	(Shift) F2			: Change Color			

Standard CMOS Setup Screen

Primary/Secondary;Master/Slave Types

This category identifies the types of hard disks that have been installed in the computer. There are 45 predefined types and 4 user defineable types for Enhance IDE BIOS. Type 1 to Type 45 are predefined. Type User is user-defineable. 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 category. If your hard disk drive type is not matched or listed, you can use "User" to define your own drive type manually.

If you select **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 of your hard disk vendor or the system manufacturer.

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

If you select type **Auto**, BIOS will Auto-Detect the HDD & CD-ROM drives at the POST stage and show the IDE for HDD & CD-ROM drives.

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 a hard disk has not been installed, select **None** and press Enter.

* **Write Pre compensation** - The size of a sector gets progressively smaller as the track diameter diminishes, but each sector must still hold 512 bytes. Write Pre compensation circuitry on the hard disk compensates for the physical difference in sector size by boosting the write current for sectors on inner track.

* **Landing Zone** - The cylinder location where the heads will normally park when the system is shut down.

* **Capacitor** = (Number of heads) x (Number of cylinders) x (Number of sectors per track) x (512 Bytes per sector)

* **Mode**

For IDE hard drives, the BIOS provides three modes to support both normal IDE hard disks and drives larger than 528MB:

Auto mode (default) - detect and enter the IDE device type during bootup.

Normal mode - for IDE drives smaller than 528MB.

LBA mode - provides LBA (Large Block Addressing) function for mass capacity hard disk that larger than 528MB and up to 8.4GB (Giga Bytes).

Large mode - some mass capacity hard disks operate in large mode and do not support LBA function for above mentioned mass capacity hard disks. Large mode is a new specification which may not be fully supported by all operation systems (MS-DOS does support it now, but is uncommon)

3-2 BIOS Features Setup

By choosing the **BIOS FEATURES SETUP** option from the **CMOS SETUP UTILITY** menu, the screen below is displayed. This sample screen contains the manufacturer default values for the mainboard.

ROM PCI / ISA BIOS BIOS FEATURES SETUP AWARD SOFTWARE, INC.		
Virus Warning	:Disabled	Video BIOS Shadow :Enabled
CPU Internal Cache	:Enabled	C8000 - CBFFF Shadow :Disabled
External Cache	:Enabled	CC000 - CFFFF Shadow :Disabled
Quick Power On Self Test	:Enabled	D0000 - D3FFF Shadow :Disabled
Boot Sequence	:C,A,SCSI	D4000 - D7FFF Shadow :Disabled
Swap Floppy Drive	:Disabled	D8000 - DBFFF Shadow :Disabled
Boot Up Floppy Seek	:Enabled	DC000 - DFFFF Shadow :Disabled
Boot Up Numblock Status	:On	
Boot Up System Speed	:High	
Typematic Rate Setting	:Disabled	
Typematic Rate (Chars/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 : Color
		F7 : Load Setup Defaults

BIOS Features Setup Screen

A. VIRUS PROTECTION

Virus Warning

After Enabled, BIOS activates a warning message to the user when any program attempts to access the boot sector or hard disk partition table and allows the user to intervene.

B. CACHE CONTROL

CPU Internal Cache/External Cache

These fields allow you to enable or disable the CPUs "Level 1" built-in cache and "Level 2" secondary cache.

C. BOOT UP FEATURES

After power on the system, BIOS will perform a series of device initializations and diagnostic tests.

Quick Power On Self Test (POST)

If this is set to Enabled, BIOS will skip some check items during the Power On Self Test (POST).

Boot Sequence

This option sets the sequence of boot drives (either floppy drive A: or hard disk drive C:) that BIOS attempts to boot from after POST completes.

- * CD-ROM drives are becoming a standard device on computer systems. They have a large storage capacity and can store different operating systems with which the system can boot up from. A CD-ROM boot-up function is provided with this mainboard and the user is able to select from booting options A:, C:, or the CD-ROM. Regardless of whether using an IDE or SCSI CD-ROM, the system will look for the operating system on the first available bootable device.

Swap Floppy Drive

Enabled - The system will swap the floppy drive assignment so that drive A will function as drive B, and drive B will function as drive A.

Boot Up Floppy Seek

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

Boot Up NumLock Status

Defines the keyboard as number keys or arrow keys.

Boot Up System Speed

This option can be used to select CPU speed at system boot.

D. KEYBOARD INTERFACE

Typematic Rate Setting

When enabled, you can set the following two typematic controls items.

Typematic Rate (Chars/Sec)

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

Typematic Delay (Msec)

Sets how long after you press a key that a character begins repeating.

【3】

E. Security Option

System: When entering a wrong password, the system will not boot and will deny any access to the BIOS Setup.

Setup: When entering a wrong password, the system can boot, but will not allow access to the BIOS Setup.

F. PCI/VGA Palette Snoop

A system may have two display devices present: a VGA-compatible interface and another graphics controller. In this case, both devices implement the color palette registers at the same I/O addresses. The configuration software must program one of the devices to actively act as the target, while the other device is programmed to quietly "snarf" the write data from the bus as the data flies by on its way to the target.

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

G. OS Select (For DRAM > 64MB)

If your system DRAM is larger than 64MB and you are running OS/2, please select "**OS/2**" as the item value. Otherwise, set the item value to "**Non-OS/2**."

H. Shadow Memory

BIOS can copy adapter ROM from address C0000h through DFFFFh to RAM for faster execution. Shadow setting is chipset specific and dependent on system hardware.

3-3 Chipset Features Setup

By choosing the **CHIPSET FEATURES SETUP** option from the **CMOS SETUP UTILITY** menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard.

A. Auto Configuration: Enabled (default)

If Auto Configuration is enabled, BIOS can autodetect the DRAM module type (EDO or FP) and set the optional timings for items.

ROM PCI / ISA BIOS CHIPSET FEATURES SETUP AWARD SOFTWARE, INC			
AUTO Configuration	:Enabled	CPU to PCI Burst Mem. WR	:Disable
L2 (WB) Tag Bit Length	:8bits	ISA Bus Clock Frequency	:PCICLK/4
SRAM Back-to-Back	:Enabled	System BIOS Cacheable	:Enabled
Starting Point of Paging	:1T	Video BIOS Cacheable	:Enabled
Refresh Cycle Time (us)	:15.6	Memory Hole at 15M-16M	:Disabled
RAS Pulse Width Refresh	:6T	Linear Mode SRAM Support	:Disabled
RAS Precharge Time	:4T		
RAS to CAS Delay	:4T		
CAS# Pulse Width (FP)	:2T		
CAS# Pulse Width (EDO)	:1T		
CAS Precharge Time (FP)	:1T/2T		
CAS Precharge Time (EDO)	:1T/2T		
SDRAM WR Retire Rate	:X-2-2-2	ESC : Quit	↑↓→← : Select Item
SDRAM Wait State Control	:1WS	F1 : Help	PU/PD/+/- : Modify
Read Prefetch Memory RD	:Enabled	F5 : Old Values	(Shift) F2 : Color
CPU to PCI Post Write	:4T	F7 : Load Setup Defaults	

Chipset Features Setup Screen

※ **All of the above entries on the screen are standard settings for this mainboard and should not be changed unless you are absolutely sure of what you are doing.**

B. ISA Bus Clock Frequency

The PCI clock speed is the CPU bus speed divided in half. The ISA bus speed is derived from the PCI clock speed and has a maximum bandwidth of 8MHz. Select the value that results in the closest number to 8 when dividing the PCI clock by 3 or 4. If you are using a frequency higher than 66 MHz bus speed use the 7.159MHz option.

C. System/Video BIOS Cacheable

This function allows BIOS values to be temporarily placed into the system's cache memory. System performance slightly increases when these functions are enabled.

D. Memory Hole at 15M-16M

Enabling this feature will reserve the 15MB to 16MB memory address space for ISA expansion cards. However, enabling this function will result in not allowing the system to have access to memory above 16MB. Please note that some expansion cards require this setting to be enabled. The default setting is Disabled.

F. Linear Mode SRAM Support

When use the Cyrix CPU or IBM CPU; System support Linear mode.

3- 4 Power Management Setup

This section provides information on the Green PC power management features. In order to enable the power management function, please select **POWER MANAGEMENT SETUP** option from the **CMOS SETUP UTILITY** menu.

ROM PCI / ISA BIOS POWER MANAGEMENT SETUP AWARD SOFTWARE, INC			
Power Management	:Disable	VGA Activity	:Disabled
PM Control by APM	:Yes	IRQ3 (COM 2)	:Enabled
Video Off Option	:Susp, Stby-> Off	IRQ4 (COM 1)	:Enabled
Video Off Method	:V/H SYNC + Blank	IRQ5 (LPT 2)	:Enabled
Switch Function	:Deturbo	IRQ6 (Floppy Disk)	:Enabled
MODEM Use IRQ	: 3	IRQ7 (LPT 1)	:Enabled
		IRQ8 (RTC Alarm)	:Disabled
		IRQ9 (IRQ2 Redir)	:Enabled
		IRQ10 (Reserved)	:Enabled
		IRQ11 (Reserved)	:Enabled
		IRQ12 (PS/2 Mouse)	:Enabled
		IRQ13 (Coprocessor)	:Enabled
		IRQ14 (Hard Disk)	:Enabled
		IRQ15 (Reserved)	:Enabled
		ESC : Quit	↑↓→← : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift) F2 : Color
		F7 : Load Setup Defaults	
** PM Timers **			
HDD Off After	:Disable		
Doze Mode	:Disable		
Standby Mode	:Disable		
Suspend Mode	:Disable		
** PM Events **			
COM Ports Activity	:Enabled		
LPT Ports Activity	:Enabled		
HDD Ports Activity	:Enabled		

Power Management Setup Screen

A. Selecting Power Management (PM) Modes:

Power Management (Doze, Standby, and Suspend modes)

User Define - User can configure her/his own PM functions.

Disabled - Disables the power management functions. (Default setting)

For Minimum. Saving - All timers use the following value --

Doze - 40min, Standby - 40min, Suspend - 40min.

For Max. Saving - all timers use the following value--

Doze - 20sec, Standby - 20sec, Suspend - 20sec.

PM Control by APM

This mainboard supports the Intel and Microsoft INT 15h APM BIOS function which creates an interface to allow the OS to communicate with the SMM code.

If APM is not installed, this option has no effect.

- * APM (Advanced Power Management) should be installed to keep the time updated when the computer enters suspend mode activated by the BIOS Power Management. For DOS environment, you need to add DEVICE = C:\DOS\POWER.EXE. For Windows 3.1 x and Windows 95, you need to install Windows with the APM feature.

Video Off Option

This item determines the power management modes the monitor will enter before entering the Off-state as defined by the Video Off Method below. The Video Off Option moves from low (doze) to medium (standby) to high (suspend) power saving modes.

Video Off Method

This is the highest power saving mode and is defined by the following options. V/H SYNC + Blank mode saves more power than Blank mode.

Blank - BIOS will blank the screen when disabling video.

V/H SYNC + Blank - BIOS will blank the screen and turn off V/H SYNC signals from VGA card to the monitor. If a Green monitor detects that the V/H-SYNC signals have been turned off, the electron gun will be cut to save power.

DPMS Supported - Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard. Use software supplied by your video subsystem to set video power management options.

B. Switch Function

This option determines the TURBO SW(TBSW), are functional -Deturbo or Break or Break/ wake.

Deturbo: Set the "TBWS" is a Turbo or Deturbo switch.

Break or Break/wake: Set the "TBSW" is a suspend switch.

C. Modem Use IRQ

While modem rings up, that will wake up the system from green mode. You must connect the Modem to COM2 (default INT=3) and turn on the resume event in green mode.

E. PM Time Setting

HDD Off After

Select times between 15 and 1 minutes to power manage the HDD. The hard disk drive will enter sleep mode where no power is supplied to the hard drive. Any read /write activity to the hard drive will bring it back to full-on state. This function is only valid for IDE HDDs that support the power saving function.

Doze Mode

Enabling this function allows the system to enter Doze mode if no activity occurred during specified expiration time.

Standby Mode

Enabling this function allows the system to enter Standby mode if no activity occurred during specified Doze mode time. The CPU speed of Standby mode is CPU clock/8MHz.

- * The CPUCLK (external CPU clock) refers to the system clock mentioned in this manual.

Suspend Mode

Enabling this function allows the system to enter Suspend mode if no activity occurred during specified Standby mode time. The CPU speed of Suspend mode is 0 MHz.

- * In Standby or Suspend mode, the system may also turn off the video signal and power down the hard disk driver (depending on HDD Power Down setting).

D. PM Events Mask Control

Individual IRQ wake up Event:

If a device generates an interrupt request, the system will wake up to normal mode.

Power Down Activities:

If any event happens when the system is running at Suspend mode the system will return to normal mode.

If any event happens When the system is running at Doze or Standby mode the timer will start recounting from zero.

3-5 PNP/PCI Configuration

ROM PCI / ISA BIOS PNP/PCI CONFIGURATION AWARD SOFTWARE, INC.			
Resources Controlled By	:Manual	PCI IRQ Actived By	: Level
Reset Configuration Data	:Disabled	PCI IDE 2nd Channel	: Enabled
		PCI IDE IRQ Map To	: ISA
IRQ-3 assigned to	: Legacy ISA		
IRQ-4 assigned to	: Legacy ISA		
IRQ-5 assigned to	: PCI/ISA PnP		
IRQ-7 assigned to	: Legacy ISA		
IRQ-9 assigned to	: PCI/ISA PnP		
IRQ-10 assigned to	: PCI/ISA PnP		
IRQ-11 assigned to	: PCI/ISA PnP		
IRQ-12 assigned to	: PCI/ISA PnP		
IRQ-14 assigned to	: Legacy ISA		
IRQ-15 assigned to	: Legacy ISA		
DMA-0 assigned to	: PCI/ISA PnP		
DMA-1 assigned to	: PCI/ISA PnP	ESC : Quit	↑↓→← : Select Item
DMA-3 assigned to	: PCI/ISA PnP	F1 : Help	PU/PD/+/- : Modify
DMA-5 assigned to	: PCI/ISA PnP	F5 : Old Values	(Shift) F2 : Color
DMA-6 assigned to	: PCI/ISA PnP	F7 : Load Setup Defaults	
DMA-7 assigned to	: PCI/ISA PnP		

PCI & ONBOARD I/O Setup Screen

A. Resource Controlled By

Manual : The system BIOS will not refer to the ESCD for IRQ & DMA information. Instead, it will refer to the items in the setup menu for assigning IRQ & DMA.

Auto : The system BIOS will refer to the ESCD for all legacy information.

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

B. Reset Configuration Data

Enable: The system BIOS will clear/reset the ESCD during the POST.

- ※ After clearing the ESCD, the BIOS will then change this item's value to "Disabled" , otherwise, the ESCD data would become useless.

C. IRQ#/DMA# assign to

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

- ※ While using **Legacy ISA Card** (non-PnP ISA card), please set its necessary corresponding resources (INT#, DMA#) from "PCI/ISA PnP" to "Legacy ISA"
- * All ISA non-PnP devices are legacy devices that select resources (I/O Addr. INT# or DMA#) by using hardware jumpers.
- * IRQ-3/4/7/14/15 have been set as default for on board devices (COM2, COM1, Printer port, IDE1 AND IDE2).

D. PCI Slot IDE 2nd Channel

If you designate a higher performance IDE board into the physical PCI slot you must disable On-chip IDE controller. This item allows you to turn on the 2nd channel of this external board.

E. PCI IDE IRQ Map to

This function allows user to select PC AT (ISA) interrupts or PCI IDE IRQ mapping. ISA: BIOS does not designate any IRQ signal to the PCI slot. This is the default setting.

PCI-SLOT 1-3: User can designate which PCI slot (1-3) the IDE card is inserted into. This setting is suitable for use with older PCI IDE cards that BIOS is not able to recognize.

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

"**LOAD SETUP DEFAULTS**" loads the default system values directly from "**CMOS SETUP UTILITY**" menu(Figure 3-1). If the stored record created by the setup program becomes corrupted (and therefore unusable), these defaults will be loaded automatically when you turn on the computer.

ROM PCI / ISA BIOS CMOS SETUP UTILITY AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES	<div style="border: 1px solid black; width: 100%; height: 100%; display: flex; align-items: center; justify-content: center;"> Load SETUP Defaults <Y/N>? N </div>
POWER MANAGEMENT	
PNP/PCI CONFIGURATION	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
ESC : Quit	↑↓→← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Load SETUP Defaults except Standard CMOS SETUP	

Load Setup Defaults Screen

3-7 Integrated Peripherals

A. On Board IDE Control

Internal PCI/IDE

To use the internal PCI IDE controller, set this to Primary (IDE 1), Secondary (IDE 2), or Both. If you want to use your own external PCI IDE external controller card disable the IDE port(s) you are using with the Disable command.

IDE Primary/Secondary; Master/Slave; PIO/UltraDMA

The eight IDE PIO/UltraDMA fields let you set PIO mode (0-4) or UltraDMA mode (Enabled/ Disabled) for each IDE device that the internal PCI IDE interface supports. Modes 0 through 4 provide successively increased PIO performance. In Auto mode, the system automatically determines the best mode for each device.

**ROM PCI / ISA BIOS
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.**

Internal PCI/IDE	: Both	Onboard Parallel Mode	: SPP
IDE Primary Master PIO	: Auto		
IDE Primary Slave PIO	: Auto		
IDE Secondary Master PIO	: Auto		
IDE Secondary Slave PIO	: Auto	PS/2 mouse function	: Enabled
Primary Master UltraDMA	: Auto	USB Controller	: Enabled
Primary Slave UltraDMA	: Auto	USB Keyboard Support	: Disabled
Secondary Master UltraDMA	: Auto		
Secondary Slave UltraDMA	: Auto		
IDE Burst Mode	: Disabled		
IDE Data Port Post Write	: Enabled		
IDE HDD Block Mode	: Enabled		
Onboard FDD Controller	: Enabled		
Onboard Serial Port 1	: Auto		
Onboard Serial Port 2	: Auto		
UART 2 Mode	: Standard		
Onboard Parallel Port	: 378/IRQ7	ESC : Quit	↑↓→← : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift) F2 : Color
		F7 : Load Setup Defaults	

PCI & ONBOARD I/O Setup Screen

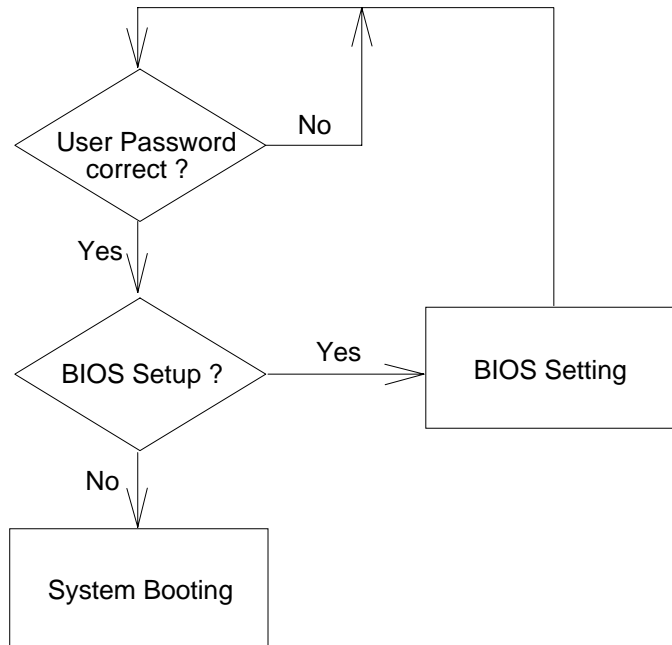
IDE HDD Block Mode

This function maximizes the number of sectors that can be transferred to and from the hard disk drive at that time. The default setting is Enabled.

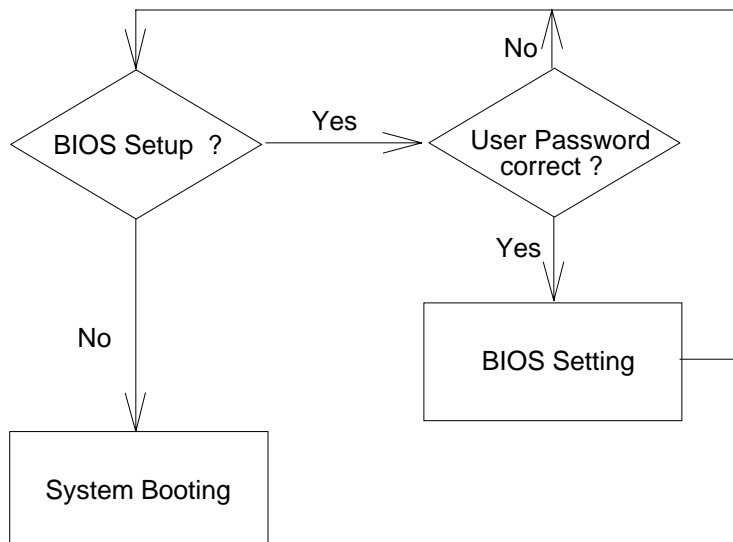
3-8 Supervisor Password & User Password Setting

A. Set "User password" Only

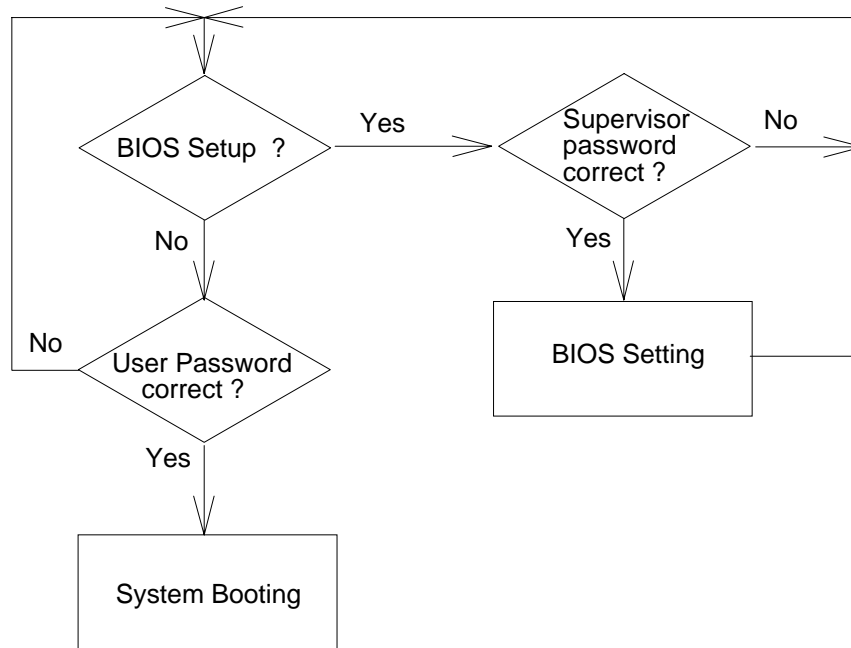
If "Security Option" (located in BIOS features Setup Screen) is set to "System"



If "Security Optional" is set to "Setup"



B. Set both "Supervisor password" and "User password"



3-9 IDE HDD Auto Detection

This utility can AUTO DETECT IDE hard disk type.

**ROM PCI / ISA BIOS
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.**

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master :								
Select Primary Master Option (N=Skip):N								
OPTIONS	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE	
2(Y)	547	530	32	0	1059	63	LBA	
1	547	1060	16	65535	1059	63	NORMAL	
3	547	530	32	65535	1059	63	LARGE	

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

IDE HDD Auto Detection Screen

3-10 Save and Exit Setup

"SAVE & EXIT SETUP" If you select this and press the [Enter] key, the values entered in the setup utilities will be recorded in the CMOS memory of the chip set. The microprocessor will check this whenever you turn on your system, and compare this to what it finds as it checks the system. This record is required for the system operation.

3-11 Exit Without Saving

"EXIT WITHOUT SAVING" Selecting this option and pressing the [Enter] key let you exit the Setup program without recording any new values or changing old ones.

4-1 Introduction

IDE drivers for this mainboard are included as a part of the floppy diskette that is enclosed in the mainboard package. These drivers support Ultra DMA-33 timings and you may refer to the SiS website at <http://www.sis.com.tw> for more information.

The following application programs are supported by the enclosed diskette:

- ⊙ DOS
- ⊙ Windows 3.x
- ⊙ Windows 95
- ⊙ Windows NT 3.5x/4.x
- ⊙ OS2 Warp 3.0
- ⊙ Netware 3.x/4.x

4-2 SiS IDE Driver Installation For DOS

1. Run A:\>IDE\INSTALL.EXE from the enclosed diskette to install SiS IDE DOS PIO mode driver or SiS IDE DMA mode driver.
2. INSTALL.EXE program will add the following line in CONFIG.SYS file:
"DEVICE=C:\SISIDE\SISDR.SYS" for PIO mode driver or
"DEVICE=C:\SISIDE\SISDR.SYS/M" for DMA mode driver.
3. Users can use /A /R parameters to set the wait states and IDE BUS MASTER CONFIGURATION SPACE BASE ADDRESS manually.
For example:
"DEVICE=C:\SISIDE\SISDR.SYS/A3456/R6543"
means active time for channel 0 master is 3 *30ns
channel 0 slave is 4*30ns
channel 1 master is 5 *30ns
channel 1 slave is 6 *30ns

channel 1 master is 4 * 30ns
channel 1 slave is 3 * 30ns

4. Hard Drives' default wait states are set by using Hard Drive internal information automatically. The recommended value table for different mode Hard Drives is as follows:

Hard Disk Mode	4	3	2	1	0
Recovery Time	1	3	8	A	0
Active Time	3	3	6	6	0

Note that the range for Recovery Time is 0-F
and for Active Time is 0-7.

5. After IDE DOS driver installed. Some mode 4 hard disks may cause the system hang when we reboot the system. Users can avoid this by downing the speed in manual way as described in 03)04).
For example, change
"DEVICE=C:\SISIDE\SISDR.SYS" into
"DEVICE=C:\SISIDE\SISDR.SYS/A3/R3"

4-3 SiS IDE Driver Installation For Windows 3.x

1. Run A:\>IDE\INSTALL.EXE from the enclosed diskette to install the SiS IDE WINDOWS PIO mode driver or SiS IDE Windows DMA mode driver.
2. The INSTALL.EXE program will add the following lines in the [386Enh] section of the SYSTEM.INI file in your Windows directory:

For PIO mode driver
"device=siswindv.386"
"device=intl3.386"

For DMA mode driver
"device=siswindv.386"
"device=int13.386"
"sis_master=on"

You can Uninstall the SiS IDE Windows driver by using the INSTALL.EXE program's uninstall function or directly adding a " ; " or " * " symbol in the

above lines after the first quotation marks.

For example: "siswindv.386" change to " ;device=siswindv.386"

Also, you can run a PIO mode driver after installing a DMA mode driver by changing the setting "sis_master=on"

into " ;sis_master=on"
or " sis_master=off"

3. After installing the IDE driver, you can turn on the 32-Bit Disk Access and 32-bit File Access(32-Bit File Access only available in Windows for Workgroups to improve performance.

To change disk access and file access:

- a) Enter WINDOWS and choose the "386 Enhance" icon from "Control Panel"
 - b) Choose the "Virtual Memory" button
 - c) Choose the "Change" button
 - d) Change the appropriate settings
 - e) Choose the "OK" button
 - f) In the "Virtual Memory" dialog box, choose the "Yes" button
4. The hard disk cannot work with the CD-ROM on the same channel when 32-Bit File Access is on. You should either install the devices in different channels or turn the 32-Bit File Access off.

4-4 SiS IDE Driver Installation For Windows 95

1. Put SiS IDE Drivers diskette into the drive.
2. Run the file "setup.exe" under "A:\>IDE\WIN95" directory and follow the instructions to install the SiS IDE Windows 95 PIO/DMA drivers.

4-5 SiS IDE Driver Installation For Windows NT 3.5x

1. From the Options menu in " ^Windows NT setup," choose "Add /Remove SCSI Adapters"
2. In the SCSI Adapter Setup dialog box, choose the "Add" button

3. In the " ^Adapter:" list dialog box, choose " ^Other(Requires a disk from a hardware manufacturer)"

4. Next, you will see the "Insert Diskette" dialog box. Insert the diskette into the Floppy drive, and change path to "A:\IDE\NT" in dialog box.
5. Next, In "Select OEM Option " dialog box, choose SiS PCI MASTER IDE Miniport Driver " and click " OK "
6. In the " Select SCSI Adapter Option " dialog box, click on the "Install" button in the dialog box.
7. When the "SCSI Adapter Setup " dialog box reappears, check whether " IDE CR-ROM [ATAPI 1.2]/Dual_channel PCI IDE " is listed. If yes, select it with the mouse and click the " ^Remove" button.
8. Installation is successful if the "SCSI Adapter Setup " dialog box reappears, and "SiS PCI MASTER IDE Miniport Driver " is listed as an installed driver.
9. Reboot your system.

4-6 SiS IDE Driver Installation For Windows NT 4.0

1. Enter Windows NT 4.0 System
2. Double click the "My Computer" icon on the Desktop
3. Double click the "Control Panel" icon in "My Computer"
4. Double click the "SCSI Adapters" icon in "Control Panel"
5. Select "Drivers" option in "SCSI Adapters" and click "Add"
6. Insert the SiS IDE Driver diskette into the Floppy Drive and click "Have Disk" in "Install Driver" window
7. Change path to "A:\IDE\NT" and click "OK" in "Install From Disk" window
8. Choose "SIS PCI MASTER IDE Miniport DRIVER" in "Install Driver" and click "OK"
9. Change path to "NT" and click "Continue" in "windows NT Setup" window
10. Click "Yes" to restart computer in "System Settings Change" window

4-7 SiS IDE Driver Installation For OS/2

-
-
1. Put the diskette in Floppy Drive.
 2. Open OS2 Windows or OS2 Full Screen.
 3. Change Drive to Floppy Drive.
 4. Change Directory to\IDE\OS2.
 5. Run INSTOS2.EXE
 6. Reboot OS/2 system.
-
-

[Note 1] Default Transfer Mode is Master DMA Mode
[Note 2] Add!/Moption after BASEDEV=SSIDE.ADD in
CONFIG.SYS to disable ^Master DMA Mode

1. Why will the Novell Netware Server will hang when client is trying to login?
Please remember to use Uninstall function to remove the SiS IDE DOS Driver after the SiS IDE Netware Driver installed.
2. How does one use 32-bit file access for Hard Disk and CD-ROM working at the same channel in WFW 3.11 environment?
You should either put the devices in a different channel or turn the 32-bit file access off.
3. How does the DOS driver adjust the HD speed?
The DOS Driver adjusts HD speed by parameters. For example, you can write the following line in config.sys "device=c:\siside\sisdr.sys/Rxxxx/Axxxx" where x could be 0 .. 9, A.. F for speed. R stands for recovery time and A stands for active time.
4. After an SiS IDE DOS driver is installed some Mode 4 hard disks will cause a system hang at the IDE driver loading procedure when the system is rebooted.
Why does this occur?
Users can avoid this by slowing the speed manually as described in question 3 above.

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