PENTIUM PCI/ISA

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

R541

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Users Manual

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Introduction

Welcome to the M-Technology next generation high performance
Pentium system mainboard --- **R-541.** The R-541 using the high
performance Intel 430TX 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 assumes no responsibility for any
inaccuracies that may still be contained in this manual. We reserves
the right to make changes to this material at any time without notice.

※ All Brand names are trademarks of their owners.

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

Table of Contents

Chapter 4   AWARD BIOS SETUP

1. INTRODUCTION

1.1. Preface

Welcome to use the R-541 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-541 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, P55CT (MMX).
- Cyrix / IBM 6x86, 6x86L, 6x86MX (M2),
- AMD K5, K6 .
  and other compatible CPUs.

❑ Chipset : Intel 430TX (82439TX, 82371AB).

❑ 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 3 x 168-pin DIMM SDRAM or DRAM Sockets.
- The Memory size from 4MB to 128MB.
- Supports FP(Fast Page), EDO(Extended Data Out) Mode DRAM
  and SDRAM.

❑ Five 16-bit ISA Slots and Four 32-bit PCI Master Mode Slots.

【1】

❑ Fast PCI Bus Master Mode IDE Interface:
  - 2 x IDE Connectors for up to 4 IDE Drives.
  - PIO Mode 4 transfers & Ultra IDE Mode.

❑ On-board I / O support :
  - 2 Serial Ports (16550 Fast UART compatible).
  - 1 Parallel Port (with EPP and ECP capabilites).
  - 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.

❑ Pentium PCI BIOS with Green, Plug and Play Features

❑ Licensed BIOS, 1MB FLASH EEPROM for BIOS update.

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

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1.3 R-541 Mainboard Layout
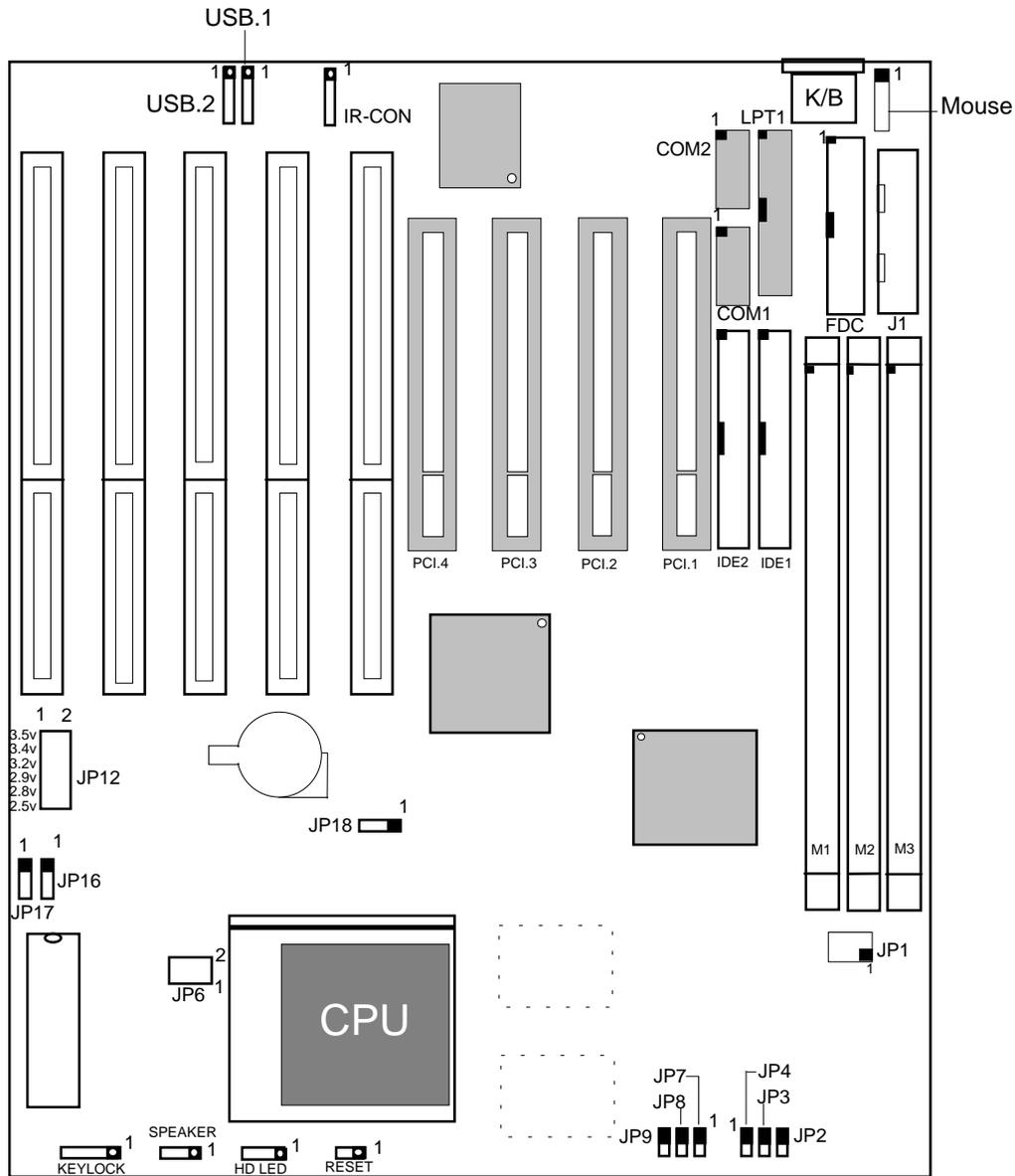
2 HARDWARE INSTALLATION

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-541** mainboard.

♦ USER'S MANUAL for R-541 mainboard.

♦ Cable set for IDE, Floppy and I/O device.

♦ Diskette for BUS MASTER ATAPI device (Ver 3.6).

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-atatic 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.

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【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 jumper 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 locks.

Jumpers and caps
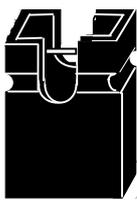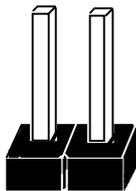
Jumper cap   **2-Pin Jumper**   **3-Pin Jumper**   **Jumper block**
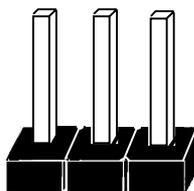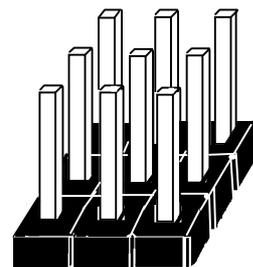
Most jumper setting are printed on the board in a stylized bird's-eye view, with which pins to connect for each setting marked by a bar connecting two pins. For example, if a jumper has three pins, connecting or "closing", the first and second pins creates one setting and closing the second and third 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

(Open)
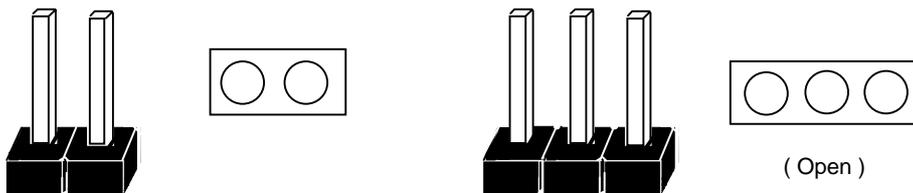
Jumper caps like this
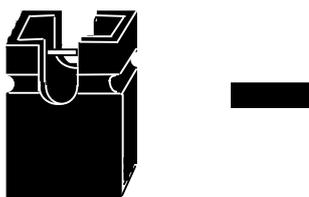
Jumper settings like this

3   1

(Pin 1 & 2 Close)
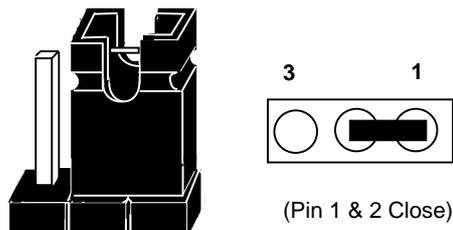
※ The Red colors Jumper for system Voltage setting, and the yellow colors Jumper for system Clock setting, please careful to change it.

【2】

2.3 CPU Installation

T he mainboard supports Pentium class processors up to 233 MHz, If you install the CPU on this board, you must set the **System Frequency** (JP2, JP3, JP4, JP7), **Frequency Ratio** (JP8, JP9) and **CPU Power Voltage** (JP6, JP12) to meet variable CPU specifications.
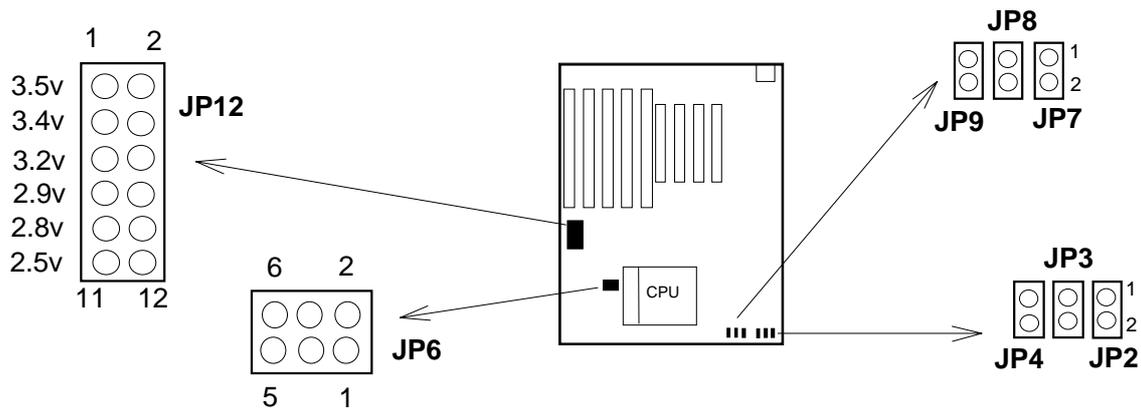
2.3.1. CPU Speed Configuration:

Freq ratio	JP9, JP8
1.5	
2	
2.5	
3	
3.5	

System freq (MHz)	JP7	JP4,JP3,JP2
55		
60		
66		
75 **		

∗ CPU Speed = (Frequency ratio) x (System Frequency).

∗∗ PCI has a maximum bandwidth of 33MB --- one half of the 66 MHz System Frequency. The 75MHz System Frequency are not supported by the Intel TX chipset & 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	2.5v		

【2】

2.3.3. The CPU Speed & Jumper setting.

(a) Intel Pentium CPU.

CPU Speed	Clock Reference	Frequency Ratio			System Clock			
	JP7	/	JP8	JP9	MHz	JP2	JP3	JP4
90MHz	Close	3/2	Open	Open	60	Close	Open	Open
100MHz	Open		Open	Open	66	Open	Open	Open
120MHz	Close	2/1	Open	Close	60	Close	Open	Open
133MHz	Open		Open	Close	66	Open	Open	Open
150MHz	Close	5/2	Close	Close	60	Close	Open	Open
166MHz	Open		Close	Close	66	Open	Open	Open
180MHz	Close	3/1	Close	Open	60	Close	Open	Open
200MHZ	Open		Close	Open	66	Open	Open	Open
233MHz	Open	7/2	Open	Open	66	Open	Open	Open

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

CPU Speed	Clock Reference	Frequency Ratio			System Clock			
	JP7	/	JP8	JP9	MHz	JP2	JP3	JP4
PR133+	Open		Open	Close	55	Close	Close	Open
PR150+	Close	2/1	Open	Close	60	Close	Open	Open
PR166+	Open		Open	Close	66	Open	Open	Open
* PR200+	Open		Open	Close	75	Open	Close	Open

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

CPU Speed	Clock Reference	Frequency Ratio			System Clock			
	JP7	/	JP8	JP9	MHz	JP2	JP3	JP4
PR166	Close		Close	Close	60	Close	Open	Open
PR200	Open	5/2	Close	Close	66	Open	Open	Open
PR233	Open	3/1	Close	Open	66	Open	Open	Open
* PR233	Open	5/2	Close	Close	75	Open	Close	Open
PR266	Open	7/2	Open	Open	66	Open	Open	Open
* PR266	Open	3/1	Close	Open	75	Open	Close	Open

※ 1. We recommend the end user to choose the version 2.7 or later of Cyrix/
     IBM 6x86 processor.
   2. "＊" For reference only.

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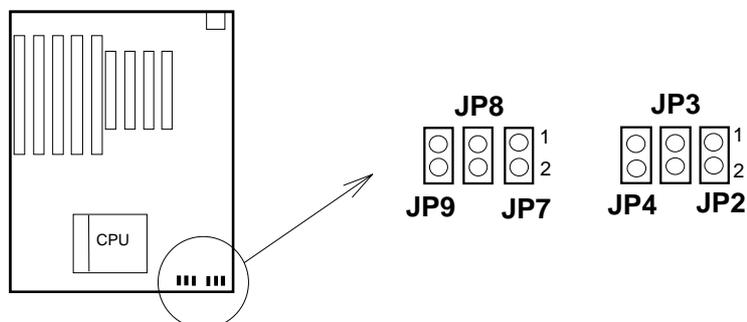
(d) AMD 5k86 CPU.

CPU Speed	Clock Reference	Frequency Ratio			System Clock			
	JP7	/	JP8	JP9	MHz	JP2	JP3	JP4
P90	Close	3/2	Open	Open	60	Close	Open	Open
P100	Open		Open	Open	66	Open	Open	Open
P166	Open	5/2	Close	Close	66	Open	Open	Open

(e) AMD K6 CPU.

CPU Speed	Clock Reference	Frequency Ratio			System Clock			
	JP7	/	JP8	JP9	MHz	JP2	JP3	JP4
PR166	Open	5/2	Close	Close	66	Open	Open	Open
PR200	Open	3/1	Close	Open	66	Open	Open	Open
PR233	Open	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.

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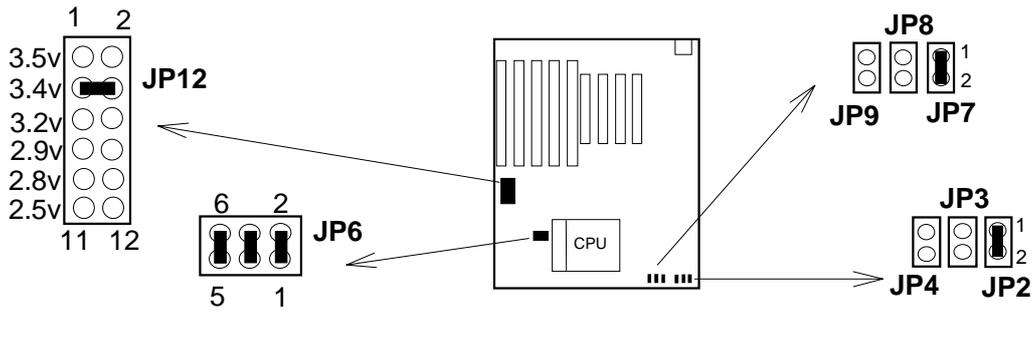
(2) Intel P54C-100MHz.

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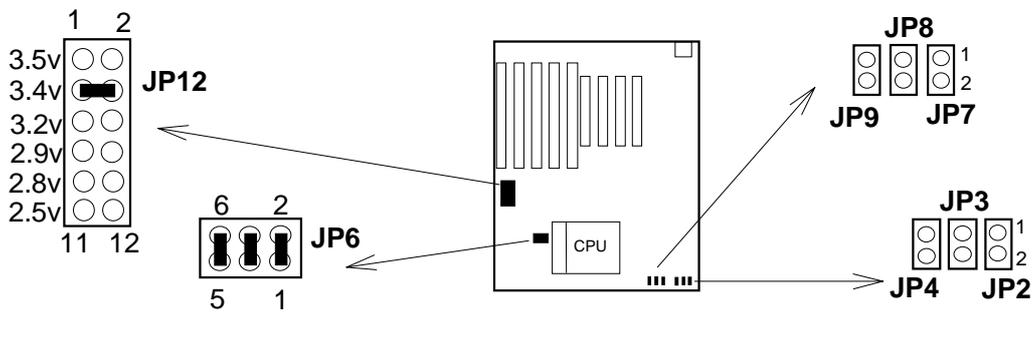
(3) Intel P54C-120MHz.

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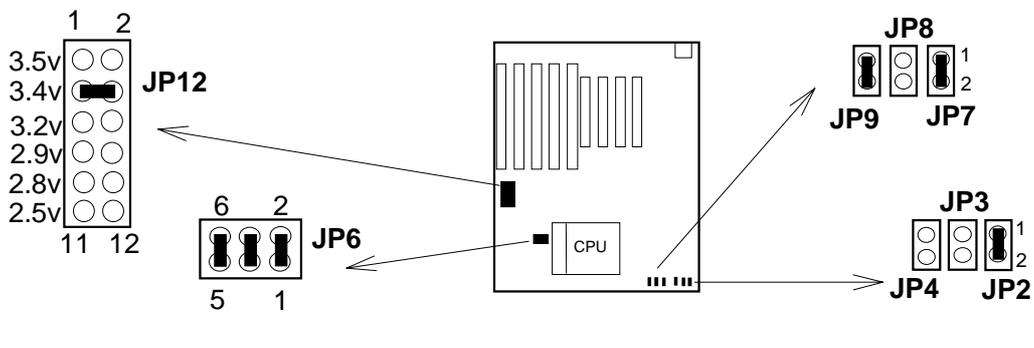
(4) Intel P54C-133MHz.
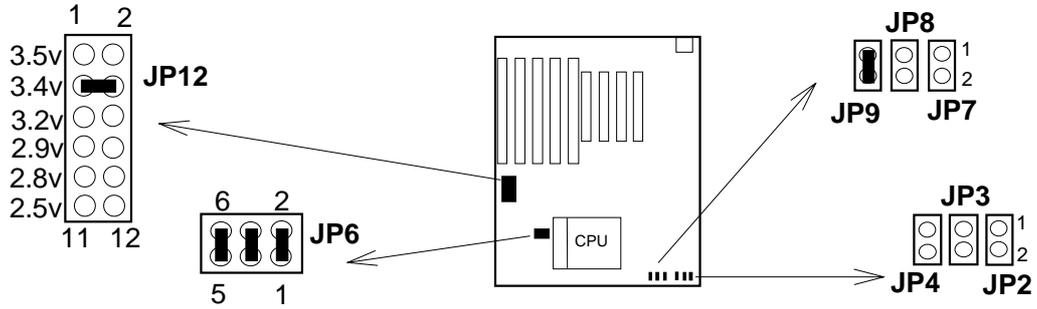
(5) Intel P54C-150MHz.
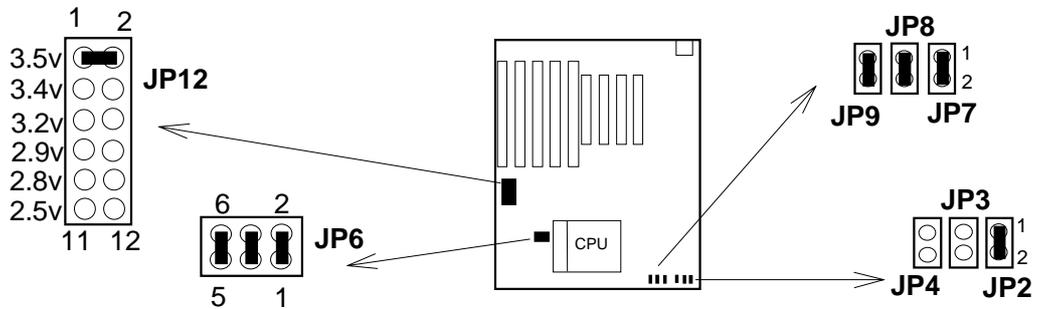
(6) Intel P54C-166MHz.
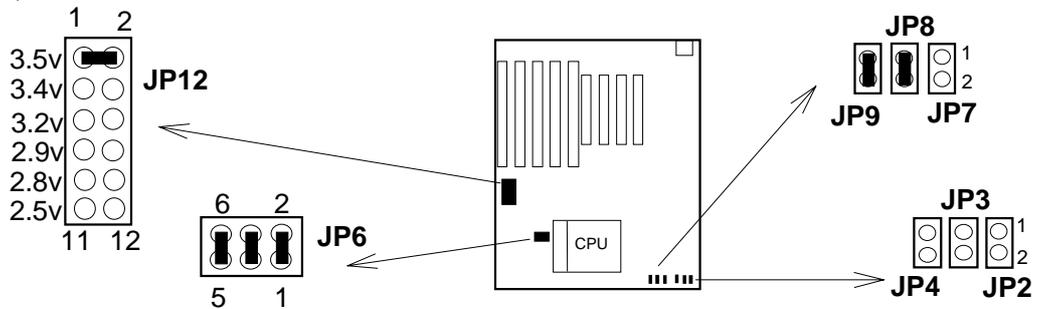
(7) Intel P54C-180MHz.

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(8) Intel P54C-200MHz.

```
     1  2
3.5v ●━● │ JP12
3.4v ○ ○
3.2v ○ ○
2.9v ○ ○
2.8v ○ ○
2.5v ○ ○
    11 12
```

```
   6     2
  ● ● ● │ JP6
   5     1
```

```
CPU
```

```
JP8
○ ●  ○│1
○ ●  ○│2
JP9  JP7
```

```
JP3
○ ○ ○│1
○ ○ ○│2
JP4  JP2
```

---

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

```
     1  2
3.5v ○ ○ │ JP12
3.4v ○ ○
3.2v ○ ○
2.9v ○ ○
2.8v ●━●
2.5v ○ ○
    11 12
```

```
   6     2
  ○ ○ ○ │ JP6
   5     1
```

```
CPU
```

```
JP8
●  ●  ○│1
○  ○  ○│2
JP9  JP7
```

```
JP3
○ ○ ○│1
○ ○ ○│2
JP4  JP2
```

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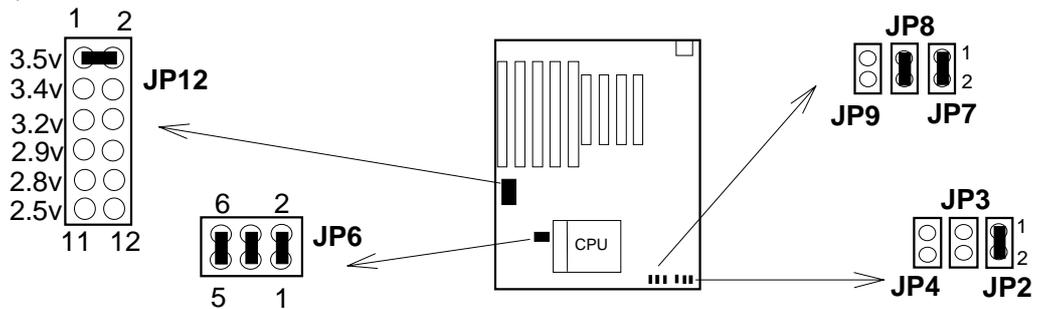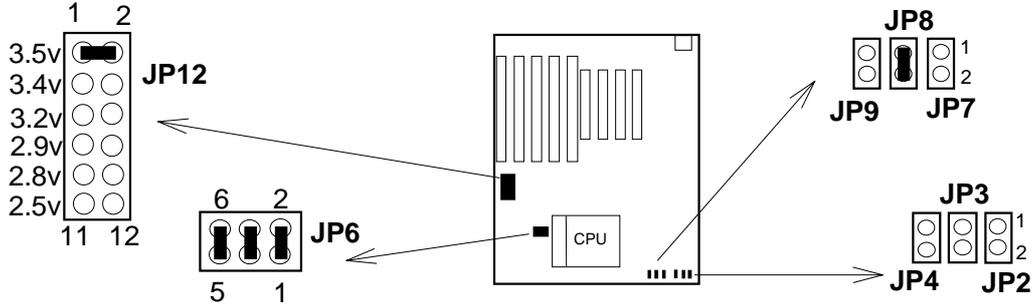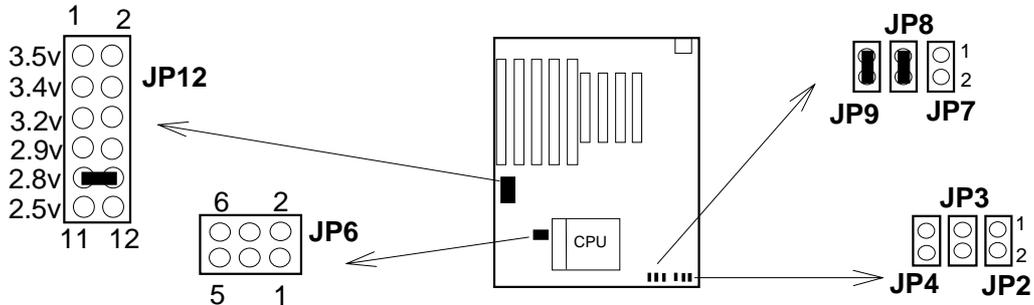
(10) Intel P55C (MMX) -200MHz.

```
     1  2
3.5v ○ ○ │ JP12
3.4v ○ ○
3.2v ○ ○
2.9v ○ ○
2.8v ●━●
2.5v ○ ○
    11 12
```

```
   6  2
  ○ ○ ○ │ JP6
   5  1
```

```
CPU
```

```
JP8
○ ●  ○│1
○ ●  ○│2
JP9  JP7
```

```
JP3
○ ○ ○│1
○ ○ ○│2
JP4  JP2
```

---

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

```
     1  2
3.5v ○ ○ │ JP12
3.4v ○ ○
3.2v ○ ○
2.9v ○ ○
2.8v ●━●
2.5v ○ ○
    11 12
```

```
   6  2
  ○ ○ ○ │ JP6
   5  1
```

```
CPU
```

```
JP8
○ ○ ○│1
○ ○ ○│2
JP9  JP7
```

```
JP3
○ ○ ○│1
○ ○ ○│2
JP4  JP2
```
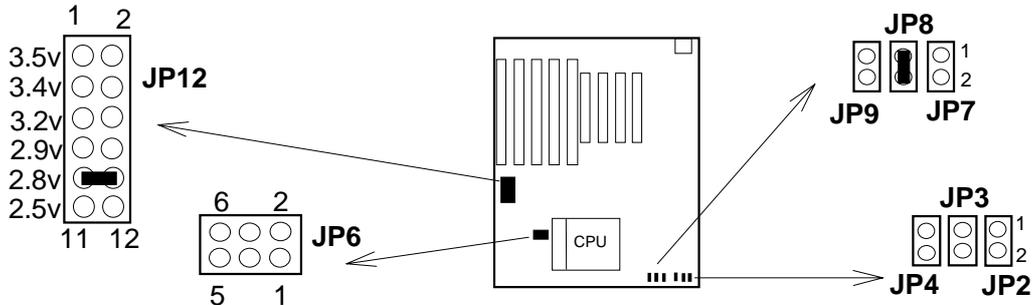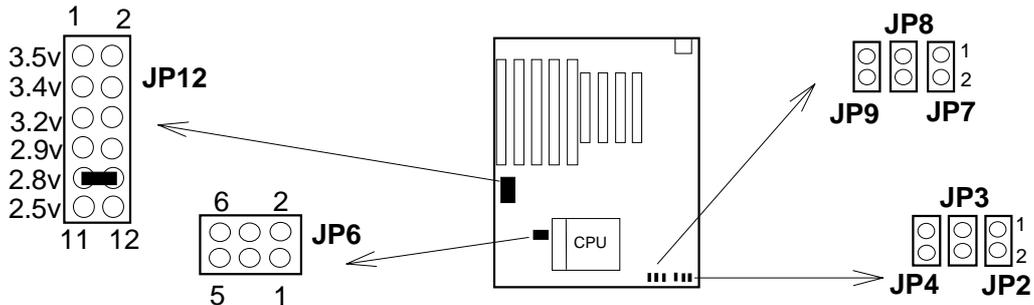
(b) Cyrix 6x86, IBM 6x86 CPU.

(1) 6x86 - PR133+

1 2
3.5v
3.4v JP12
3.2v
2.9v
2.8v
2.5v
11 12

6 2
JP6
5 1

JP8
JP9 JP7

JP3
JP4 JP2

CPU

———————————————————————————————

(2) 6x86 - PR150+

1 2
3.5v
3.4v JP12
3.2v
2.9v
2.8v
2.5v
11 12

6 2
JP6
5 1

JP8
JP9 JP7

JP3
JP4 JP2

CPU

———————————————————————————————

(3) 6x86 - PR166+

1 2
3.5v
3.4v JP12
3.2v
2.9v
2.8v
2.5v
11 12

6 2
JP6
5 1

JP8
JP9 JP7

JP3
JP4 JP2

CPU

———————————————————————————————

(4) 6x86 - PR200+

1 2
3.5v
3.4v JP12
3.2v
2.9v
2.8v
2.5v
11 12

6 2
JP6
5 1

JP8
JP9 JP7

JP3
JP4 JP2

CPU

———————————————————————————————
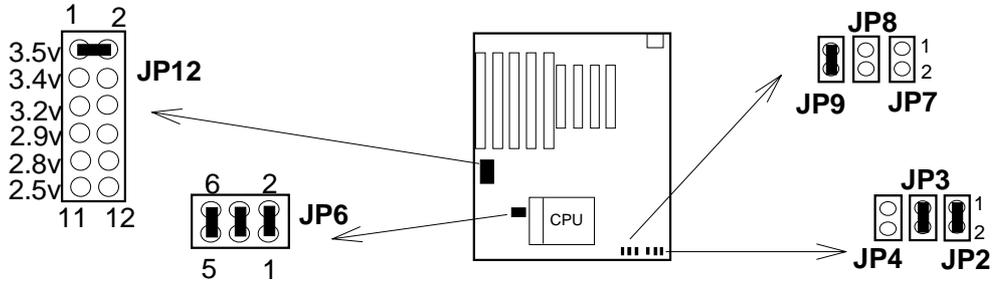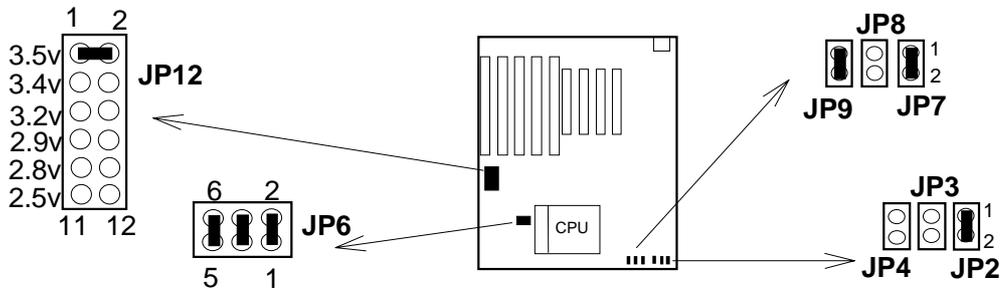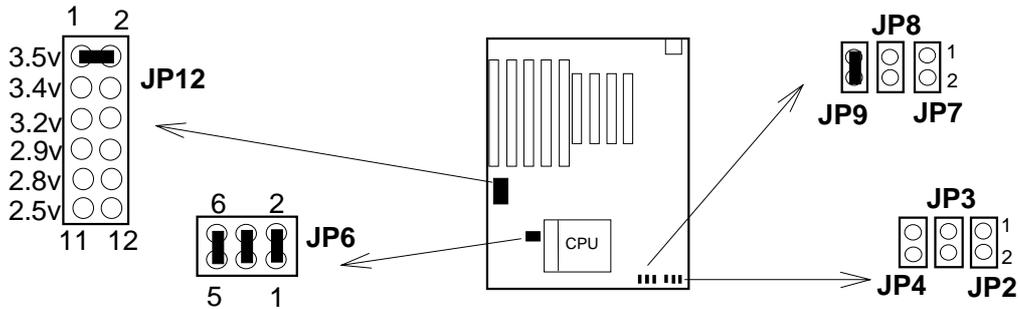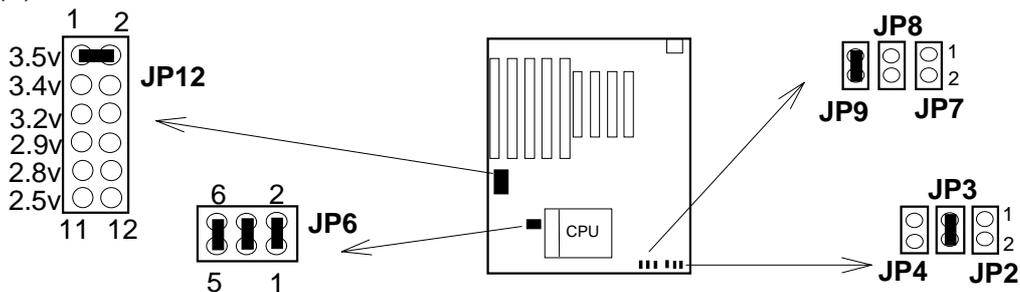
【2】

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

(1) 6x86L - PR166.
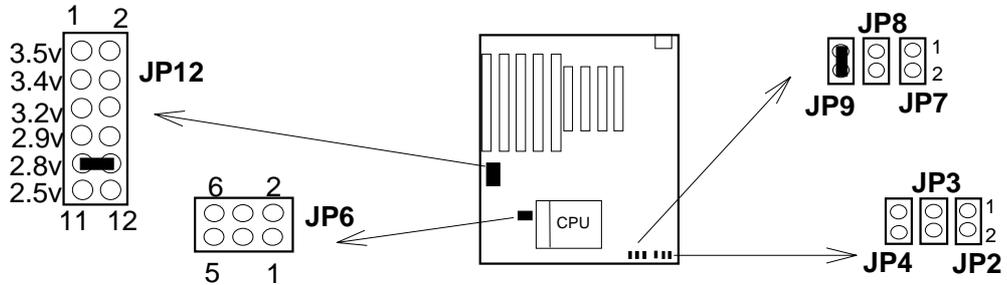
(2) 6x86L - PR200.
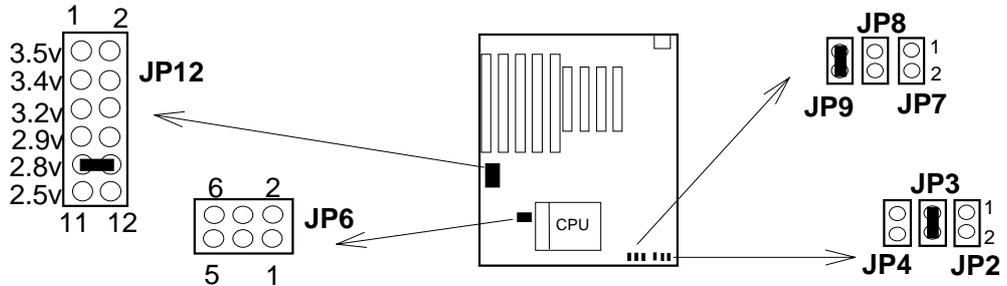
(3) 6x86MX - PR166.
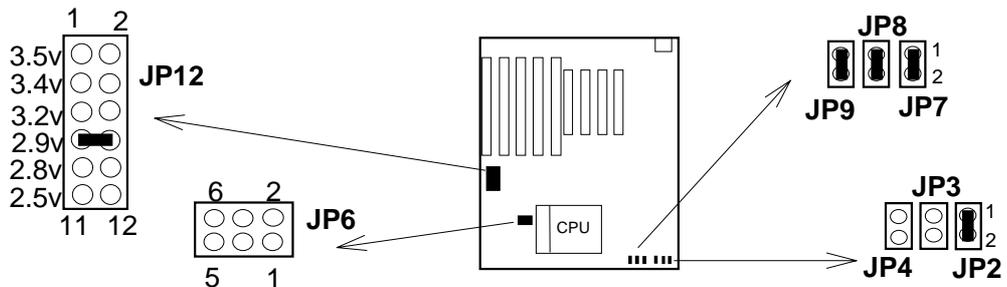
(4) 6x86MX - PR200.
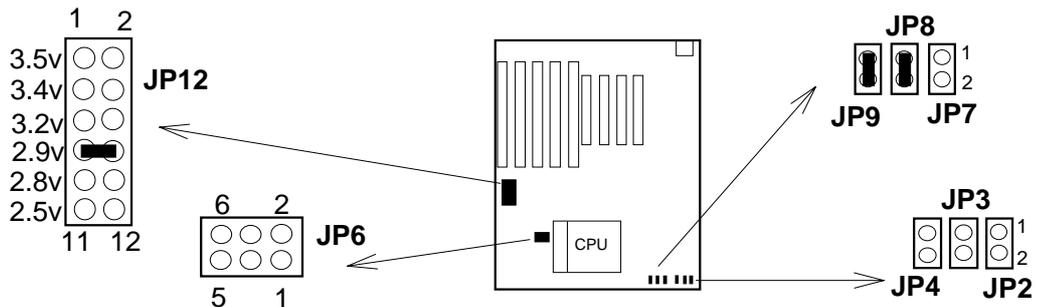
(5) 6x86MX - PR233 (66MHz)

3.5v
3.4v
3.2v
2.9v
2.8v
2.5v
JP12
1 2
11 12

JP6
6 2
5 1

CPU

JP8
JP9 JP7
1 2

JP3
JP4 JP2
1 2

---

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

3.5v
3.4v
3.2v
2.9v
2.8v
2.5v
JP12
1 2
11 12

JP6
6 2
5 1

CPU

JP8
JP9 JP7
1 2

JP3
JP4 JP2
1 2

---

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

3.5v
3.4v
3.2v
2.9v
2.8v
2.5v
JP12
1 2
11 12

JP6
6 2
5 1

CPU

JP8
JP9 JP7
1 2

JP3
JP4 JP2
1 2

---

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

3.5v
3.4v
3.2v
2.9v
2.8v
2.5v
JP12
1 2
11 12

JP6
6 2
5 1

CPU

JP8
JP9 JP7
1 2

JP3
JP4 JP2
1 2
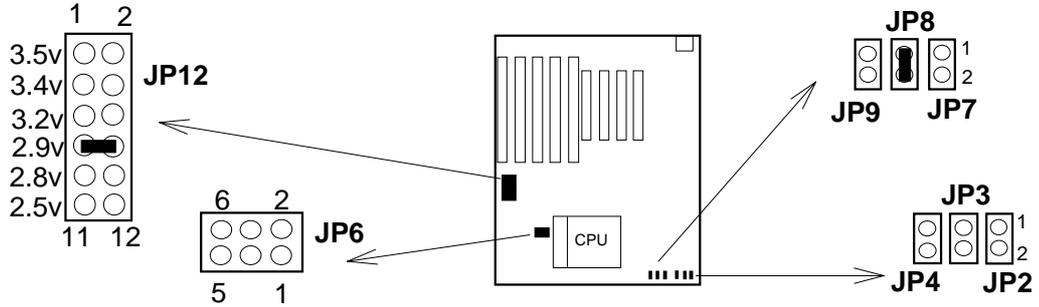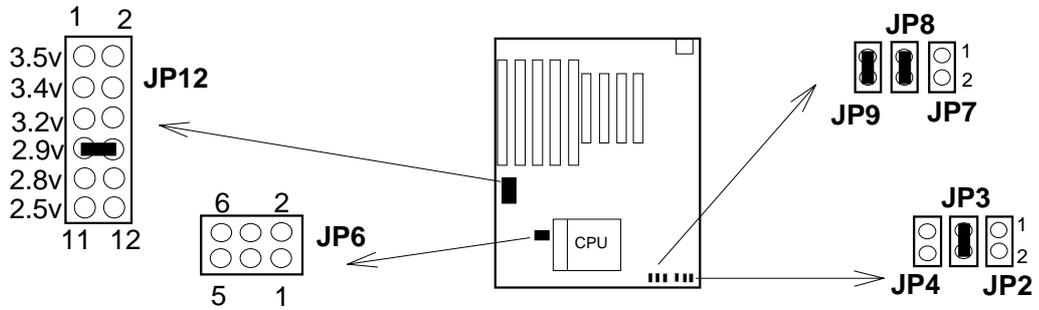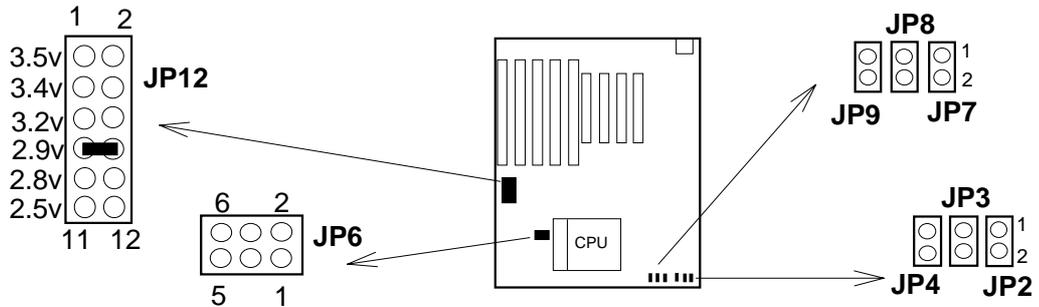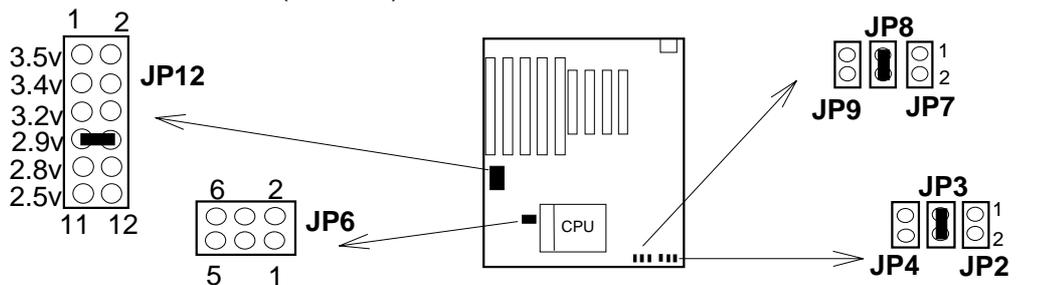
【2】

(d) AMD 5k86 & K6 CPU.

(1) AMD K5 - P90.
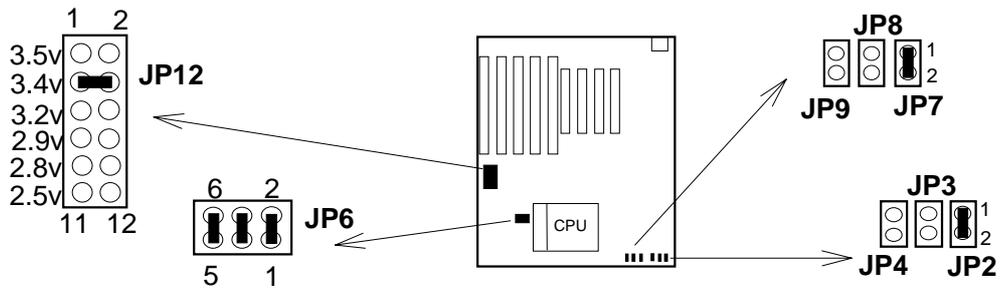
(2) AMD K5 - P100.
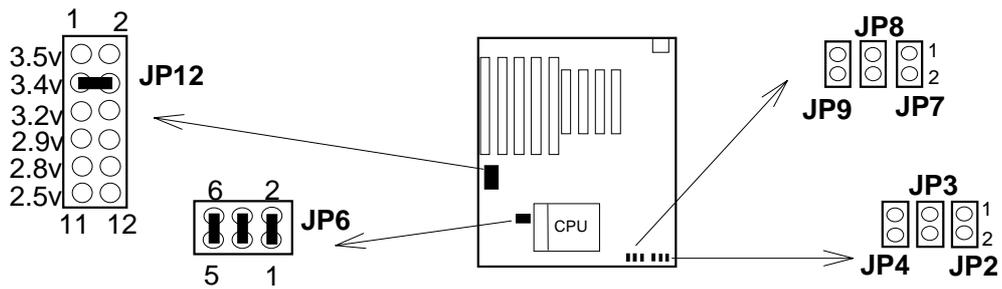
(3) AMD K5 - P166.
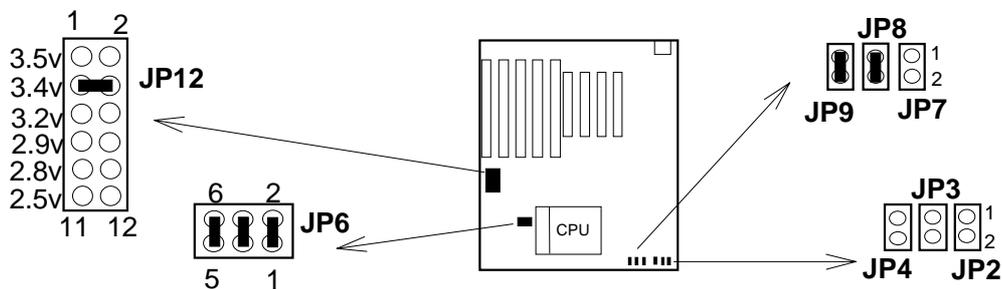
(4) AMD K6 - P166.
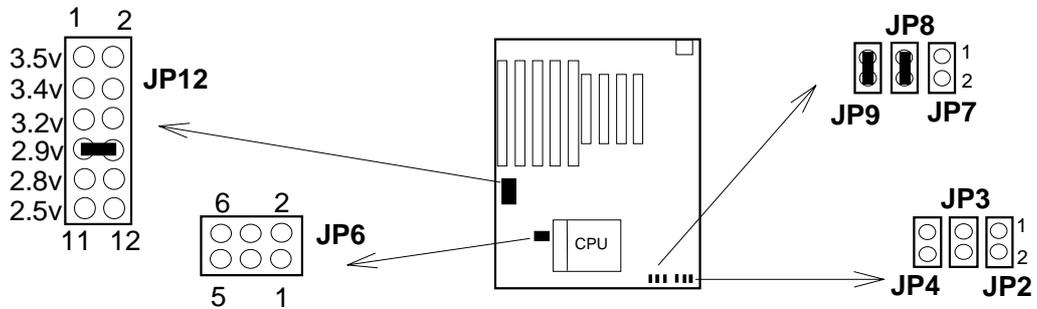
(5) AMD K6 - P200.
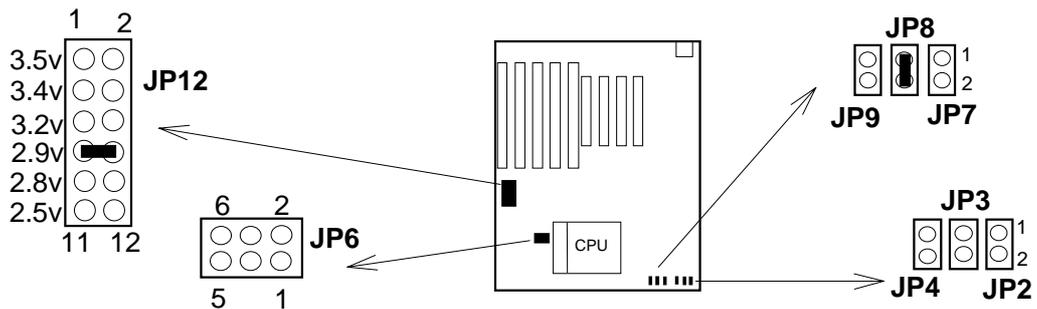
(6) AMD K6 - P233.
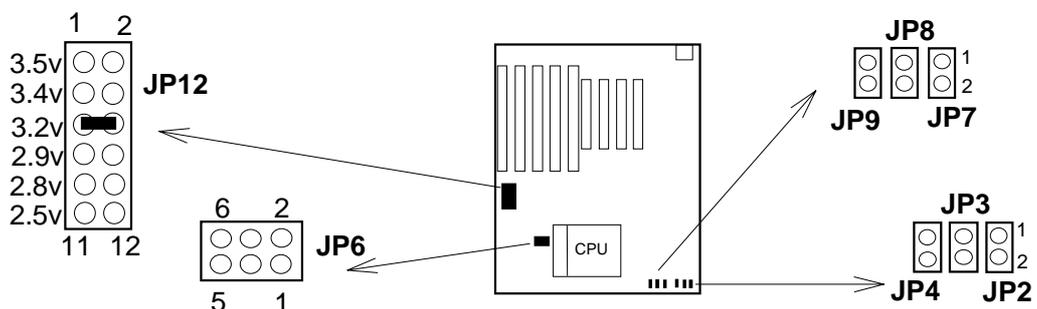
【2】 _____

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.

Pull lever out & up.

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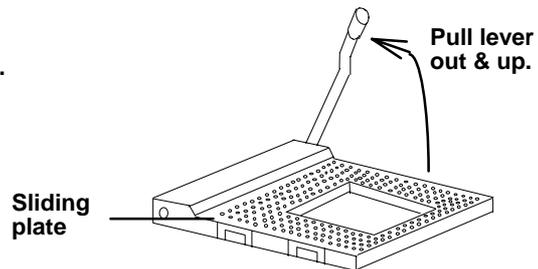
2. Align the CPU and socket pin 1 corners. match the processor corner containing the blunt edge and the white dot to the socket corner with the distinctive pin arrangement. The pins on the bottom should align with the inner 3 rings of holes in the socket, then place the CPU in the socket. It should insert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

Align CPU & insert it

mark Pin 1
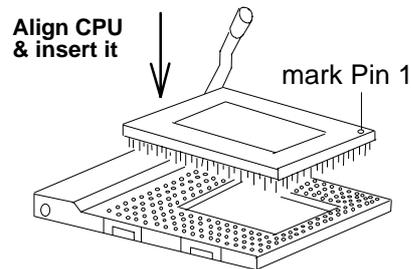
3. Press the lever down. The plate will slide forward. You will feel some resistance as the pressure starts to secure the CPU in the socket. When the CPU is installed, the lever should snap into place at the side of the socket

Press lever down

_____

【2】
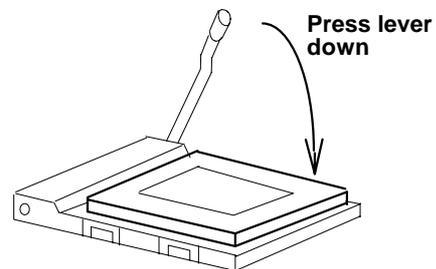
2.4 Upgrading System Memory

The R-541 mainboard can use up to Three-168pin DIMM sockets (M1, M2, M3), upgradable from 4MB to 128MB.

Each DIMM socket (M1, M2, M3) can use either Fast Page Mode (FP) or Extended Data Output Mode (EDO) DIMM Module. FP and EDO DIMM Module can be used concurrently.

If Synchronous DRAM Mode (SDRAM) DIMM Module is used, however, only SDRAM DIMM Module can be used in any DIMM sockets (M1, M2, M3).
If 64MB SDRAM DIMM Module is utilized, only DIMM sockets M1 and M2 can be used; M3 can not be used. In this case M3 socket can not be used for any SRAM DIMM Modules, even SDRAM DIMM Modules under 64MB.
(To utilize the maxmum capacity of 128MB SDRAM, two 64MB SDRAM DIMM Modules must be used in M1 and M2 sockets).

2.4.1. Installing a DIMM Module

A. Insert the DIMM module into the socket at an angle.

CPU   DIMM

B.   Put out the DIMM module from the DIMM socket.

Press down   **Press down**
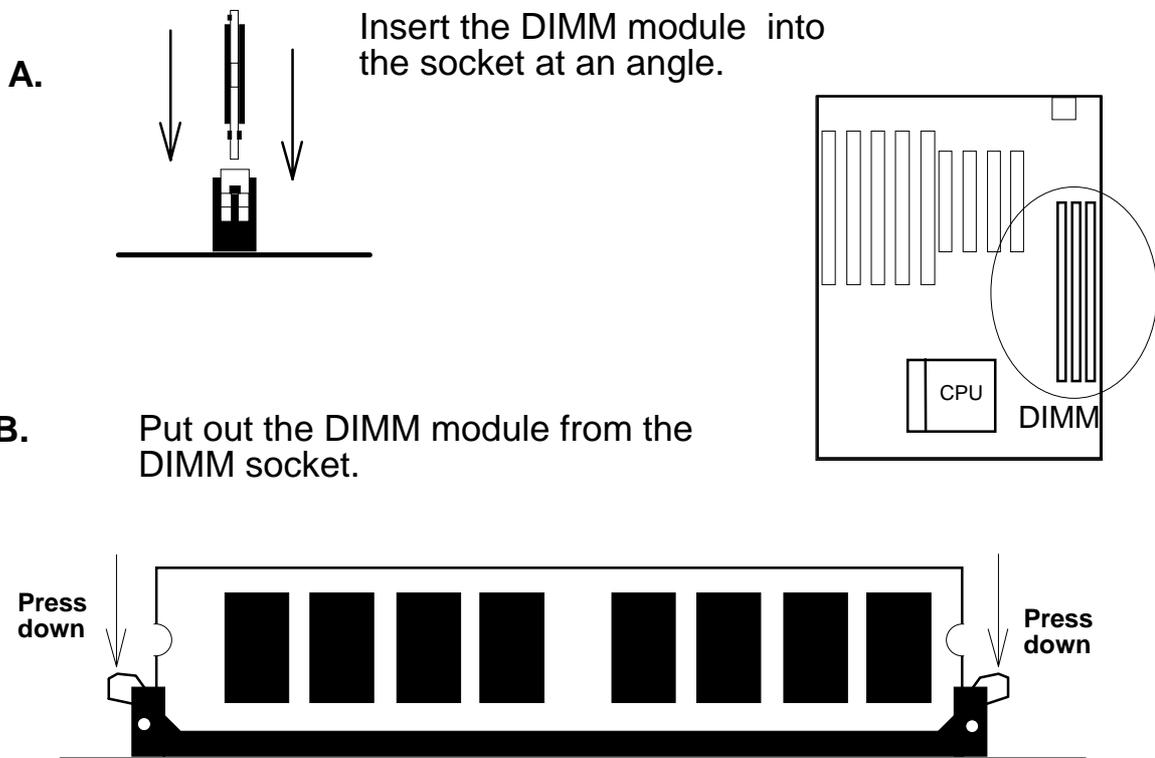
2.4.2. DIMM Voltage Select : JP1.

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	5 1 (jumpers on 5-3 and 6-4) 6 2
5v DIMM	5 1 (jumpers on 3-1 and 4-2) 6 2
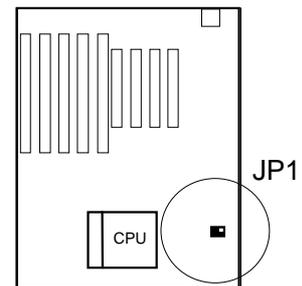
2.4.3. DIMM's Installing Table

(a) 3.3V SDRAM

DIMM 1	DIMM 2	DIMM 3	JP1 Setting
8MB or 16MB or 32MB	X	X	
X	8MB or 16MB or 32MB	X	
X	X	8MB or 16MB or 32MB	
8MB or 16MB or 32MB	8MB or 16MB or 32MB	X	5 ▭ ○ 1 6 ▭ ○ 2
X	8MB or 16MB or 32MB	8MB or 16MB or 32MB	
8MB or 16MB or 32MB	X	8MB or 16MB or 32MB	
8MB or 16MB or 32MB	8MB or 16MB or 32MB	8MB or 16MB or 32MB	
64 MB	8MB or 16MB or 32MB or 64MB	X	
8MB or 16MB or 32MB or 64MB	64 MB	X	

2-18

【2】 _____

(b) 3.3V EDO DRAM

DIMM 1	DIMM 2	DIMM 3	JP1 Setting
8MB or16MB or 32MB or 64MB	X	X	
X	8MB or16MB or 32MB or 64MB	X	
X	X	8MB or16MB or 32MB or 64MB	
8MB or16MB or 32MB or 64MB	8MB or16MB or 32MB or 64MB	X	5 ▦ ○ 1 6 ▦ ○ 2
X	8MB or16MB or 32MB or 64MB	8MB or16MB or 32MB or 64MB	
8MB or16MB or 32MB or 64MB	X	8MB or16MB or 32MB or 64MB	
8MB or16MB or 32MB or 64MB	8MB or16MB or 32MB or 64MB	8MB or16MB or 32MB or 64MB	

(c) 5V EDO/FP DRAM

DIMM 1	DIMM 2	DIMM 3	JP1 Setting
8MB or 16MB or 32MB	X	X	
X	8MB or 16MB or 32MB	X	
X	X	8MB or 16MB or 32MB	
8MB or 16MB or 32MB	8MB or 16MB or 32MB	X	5 ○ ▦ 1 6 ○ ▦ 2
X	8MB or 16MB or 32MB	8MB or 16MB or 32MB	
8MB or 16MB or 32MB	X	8MB or 16MB or 32MB	
8MB or 16MB or 32MB	8MB or 16MB or 32MB	8MB or 16MB or 32MB	

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

Flash ROM Type	Jumper Setting
(a) 2M/5V Flash ROM	JP17 JP16 1 2 3
(b) 1M/5V Flash ROM	JP17 JP16 1 2 3
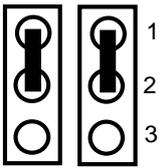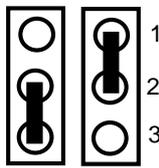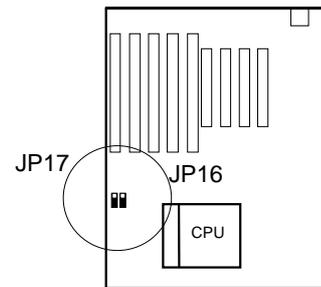
How to Update BIOS (Flash ROM)

1. Copy the Flash Utility to a bootable diskette.
   AWDFLASH.EXE : for AWARD BIOS.
   AMIFLASH.COM : for AMI BIOS.

2. Copy the new BIOS file to the diskette.
   ∗.BIN : is AWARD BIOS.
   ∗.ROM : is AMI BIOS.

3. Turn the system power off and make sure that the JP16 & JP17 are set to 1M/5V Flash.

4. Turn the system on, Boot from drive A: and run the Flash utility.

5. Follow the prompt and input the file name.

6. Save the old BIOS and when prompt to program hit " Y ".

7. After the BIOS is Flash, turn off the system and clear the CMOS.

8. Set the COMS Jumper (JP18) to default and power on.

2.6 *CMOS Clear Jumper:* JP18

Clear the CMOS memory by momentarily shorting the Jumper 3-4 pin, then Open the Jumper to retain new setting. (Normal Operation is 1-2 Close)

Function	JP18 Setting
(a) Normal	3 2 1 (Default)
(b) Clear CMOS	3 2 1
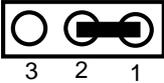
JP18

CPU

【2】
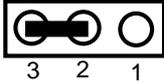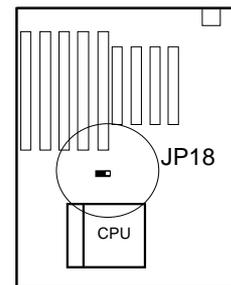
2.7 Connectors

The Connectors are made of the same component as the jumper switchs. There are connectors for the switchs 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.

USB.1

USB.2   IR-CON   K/B   PS/2
                                              Mouse

COM2

COM1   FDC   J1
              LPT1

                               IDE1

IDE2

CPU

KEYLOCK
              SPEAKER   RESET
                   HD LED

2.7.1. I/O Ports .

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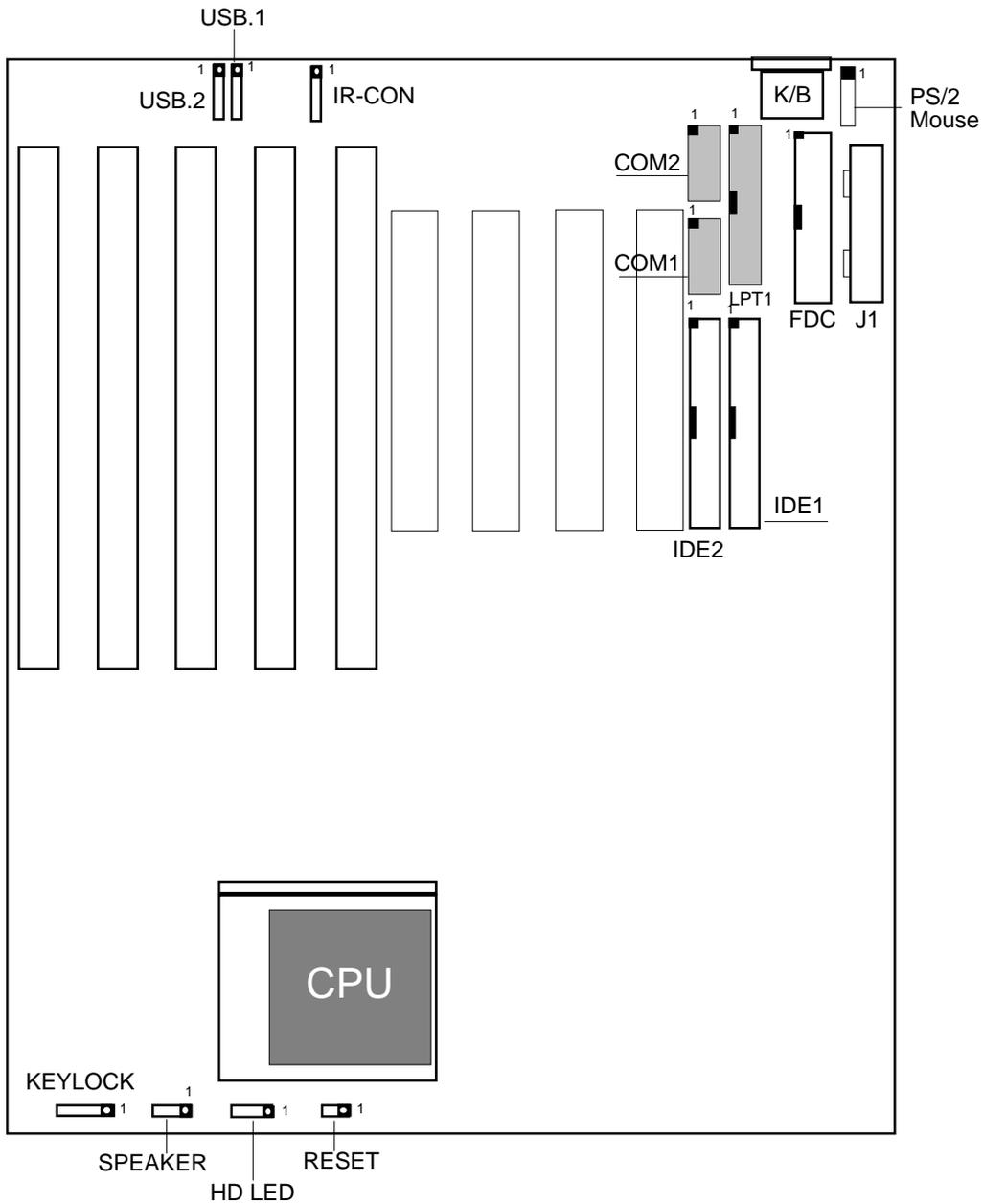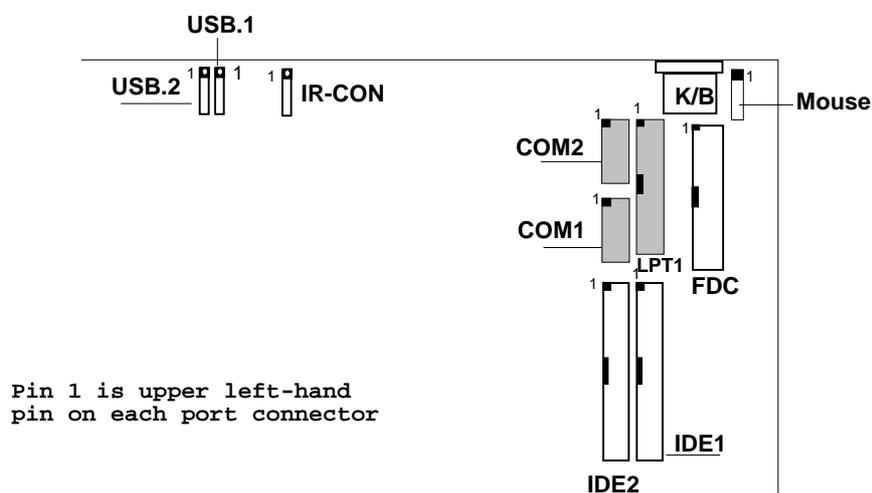
 When you connect a ribbon cable to any of these I/O connectors, you must orient the cable connector so that the Pin 1 edge of the cable is at the Pin 1 end of the on-board connector.

The pin 1 edge of the ribbon cable is colored to indentify 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
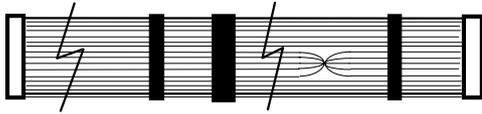
(2) Serial ribbon cable
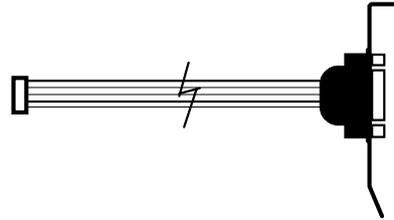
(3) IDE ribbon cable
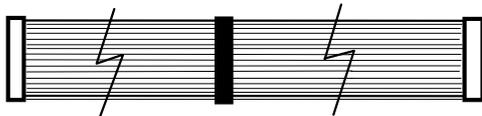
(4) Serial & Parallel ribbon cable
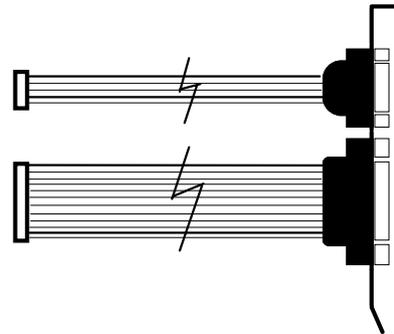
(5) PS/2 Mouse ribbon cabl
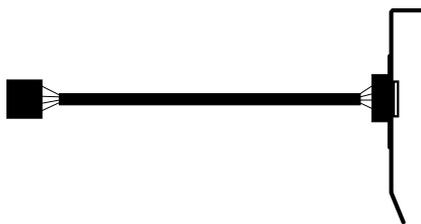
2.7.2. External Connections

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.

HD LED

SPEAKER

KEYLOCK

CPU

RESET
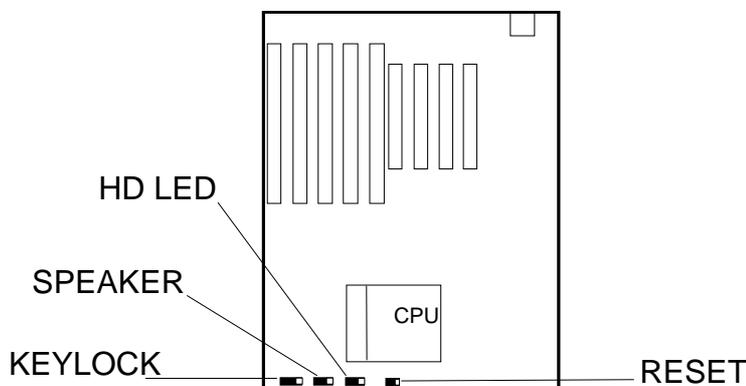
□ **Keyboard Lock Header** (KEYLOCK)

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

Pin	Function
1	+ 5v DC
2	No Connect
3	Ground
4	Keylock
5	Ground

Power ON LED

5   1

○ ○ ○ ○ ○

KEYLOCK
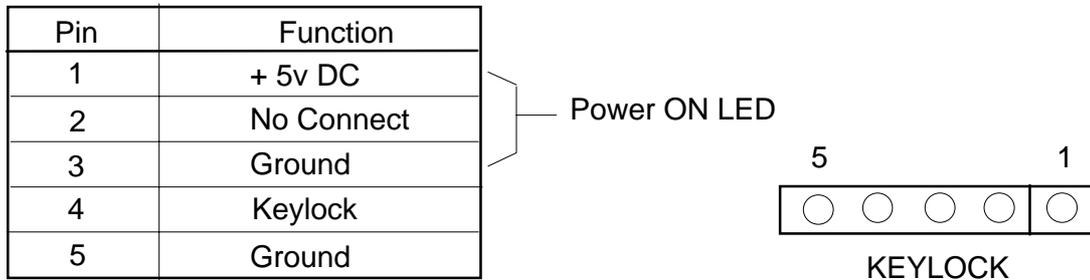
□ **Speaker Header** (SPEAKER)

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

Pin	Function
1	+ 5v DC
2	Ground
3	No Connect
4	Data

4   1

○ ○ ○ ○

SPEAKER
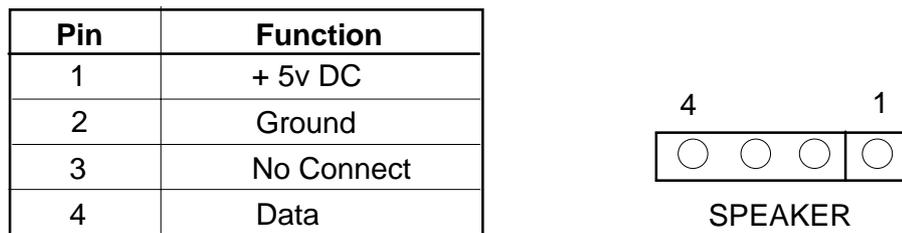
□ **IDE Activity LED Header** (HD LED)

Connector for IDE activity LED.

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

4   1

○ ○ ○ ○

HD LED
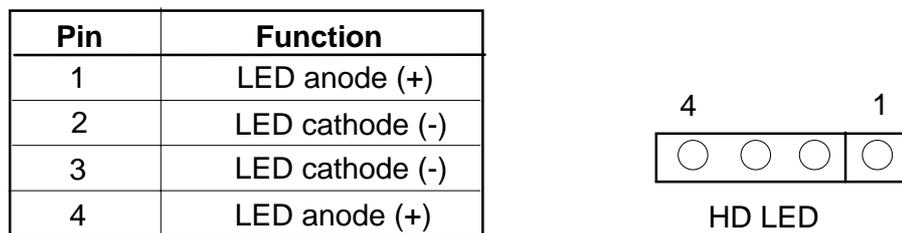
□ **Reset Switch Header**

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

【2】

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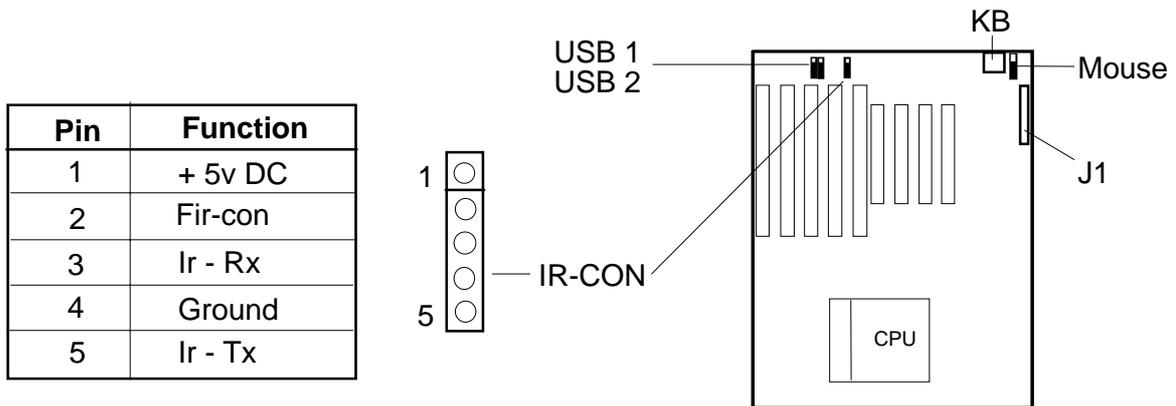
☐ **USB (Universal Serial Bus) Connector** (USB1, USB2)

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.

Pin Function	USB 2		USB 1	Pin Function
SBV1	1		1	SBV0
-SBD1	2		2	-SBD0
+SBD1	3		3	+SBD0
SBG1	4		4	SBG0
Ground	5		5	Ground
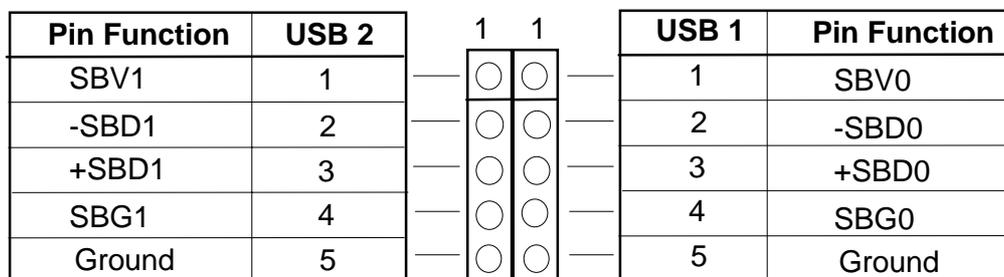
⚠ Now under testing of compatibility with different peripherals.

_____

☐ **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)

☐ **AT Power Supply Connector** (J1)

The mainboard requires a power supply with 200 W at least. While installing the board, the power supply connector is usually the last one to be connected. **Before connecting the power supply, please make sure it is not connected to power source.**
Most power supplies have two sets of six-wire connectors. Plug the dual connectors onto the board connector and make sure the black leads are in the center.

```
                    Wire Color
                    _____
6 ■  +5V            Red
5 ■  +5V            Red
4 ■  +5V            Red
3 ■  -5V            White
2 ■  Ground         Black
1 ■  Ground         Black

6 ■  Ground         Black
5 ■  Ground         Black
4 ■  -12V           Blue
3 ■  +12V           Yellow
2 ■  +5V            Red
1 ■  Power GOOD     Orange
```

Power Supply requirement :

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

☐ **Keyboard Connector** (KB)

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

_____
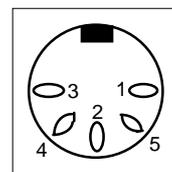
4. AWARD BIOS Setup

The mainboard's BIOS setup program is the ROM PCI/ISA BIOS from Award Software Inc. Enter the Award BIOS program's Main Menu as follows:

1. Turn on or reboot the system. After a series of diagnostic checks, you are asked to press DEL to enter Setup.

2. Press the <DEL> key to enter the Award BIOS program and the main screen appears:

```
                    ROM PCI/ISA BIOS
                    CMOS SETUP UTILITY
                    AWARD SOFTWARE, INC.
┌─────────────────────────────┬─────────────────────────────┐
│STANDARD CMOS SETUP          │INTEGATED PERIPHERALS        │
│BIOS FEATURES SETUP          │SUPERVISOR PASSWORD          │
│CHIPSET FEATURES SETUP       │USER  PASSWORD               │
│POWER MANAGEMENT SETUP       │IDE HDD AUTO DETECTION       │
│PNP / PCI CONFIGURATION      │HDD LOW LEVEL FORMAT         │
│                             │SAVE & EXIT SETUP            │
│LOAD SETUP DEFAULTS          │EXIT WITHOUT SAVING          │
├─────────────────────────────┴─────────────────────────────┤
│ Esc: Quit                            : Select Item         │
│ F10: Save & Exit Setup       (Shift)F2: Change Color       │
├────────────────────────────────────────────────────────────┤
│             Abandon all  Datas & Exit SETUP                │
└────────────────────────────────────────────────────────────┘
```

3. Chosse an option and press <Enter>. Modify the system parameters to reflect the options installed in the system. (See the following sections.)

4. Press <ESC> at anytime to return to the Main Menu.

5. In the Main Menu, choose "SAVE AND EXIT SETUP" to save your changes and reboot the system. Choosing "EXIT WITHOUT SAVING" ignores your changes and exits the program.

The Main Menu options of the Award BIOS are described in the sections that follow.

【4】 _____

4.1 AWARDBIOS - Standard CMOS Setup

Run the Standard CMOS Setup as follows.

1. Choose "STANDARD CMOS SETUP" from the Main Menu. A screen appears.

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

Date (mm:dd:yy):      Fri,Feb 1    1995
Time (hh:mm:ss):      7:30:33

HARD DISK            TYPE  SIZE    CYLS    MEAD    PRECOMP   LANDZ     SECTOR MODE
Primary Master  :    Auto   0       0       0         0       0          0  ----
Primary Slave   :    Auto   0       0       0         0       0          0  ----
Secondary Master:    Auto   0       0       0         0       0          0  ----
Secondary Slave :    Auto   0       0       0         0       0          0  ----

Drive A: 1.44M,      3.5in.          ┌──────────────────────────────────────
Drive B: None                        │      Base    Memory:       640K
                                     │  Extended    Memory:      3328K
                                     │      Other   Memory:       128K
Video:EGA/VGA                        │      Total   Memory:      4096K
Halt On:All Errors                   └──────────────────────────────────────
ESC:Quit                        :Select   Item              PU/PD/+/-  :Modify
F11:Help             (Shift)F2  :Change   Color             F3:Toggle  Calendar
```

2. Use arrow keys to move between items and select values. Modify selected fields using PgUg/PgDn/+/- keys. Some fields let you enter values directly.

Date (mm/dd/yy)	Type the current date.
Time (hh/mm/ss)	Type the current time.
Primary (Secondary)	Choose from the standard hard disk types 1 to 46.
Master & Slave	Type 47 is user definable. If a hard disk is not installed choose "Not installed". (defaut)
Drive A & B	Choose 360KB, 5 1/4" 1.2MB, 5 1/4" 720KB, 3 1/2" 1.4MB, 3 1/2" (Default), 2.88MB, 3 1/2" or None
Video	Choose Monochrome, Color 40 X 25, VGA/EGA (Default), Color 80 X 25

3. When you finish, press the <ESC> key to return to the Main Menu.

_____

4.2 AWARDBIOS Features Setup

Run the BIOS Features Setup as follows.

1. Choose "BIOS FEATURES SETUP" from the Main Menu and a screen with a list of items appears. (The screen below shows the BIOS default settings.)

```
                    ROM PCI/ISA BIOS (2A59IR09)
                         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-C#FFF Shadow  : Disabled        │
│Boot Sequence             : C,A      │D4000-C7FFF Shadow  : Disabled        │
│Swap Floppy Drive         : Disabled │D8000-CBFFF Shadow  : Disabled        │
│Boot Up Floppy Seek       : Enabled  │DC000-CFFFF Shadow  : Disabled        │
│Boot Up Numlock Status    : On       │                                      │
│Boot Up System Speed      : High     │                                      │
│Typematic Rate Setting    : Disabled │                                      │
│Typematic Rate (Chars/Sec): 6        │                                      │
│Typematic Delay (Msec)    : 250      │                                      │
│Security Option           : Setup    │                                      │
│PCI/VGA Palette Snoop     : Disabled │                                      │
│OS Select for DRAM >64MB  : Non-OS2  ├──────────────────────────────────────┤
│                                     │ESC: Quit              :Select Item   │
│                                     │F1: Help      PU/PD/+/- :Modify       │
│                                     │F5: Old Values (Shift)F2:Color        │
│                                     │F6: Load BIOS Defaults                │
│                                     │F7: Load Setup Defaults               │
└─────────────────────────────────────┴──────────────────────────────────────┘
```

2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUg/PgDn/+/- keys. <F> keys are explained below:

   <F1>: "Help" gives options available for each item.

Shift<F2>: Change color.

   <F5>: Get the old values. These values are the values with which the user stanted the current session.

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

   <F7>: Load all options with the Power-On default values.

_____

A short description of screen items follows:

CPU Internal Cache   This option enables/desables the CPU's internal cache. (The Default setting is Enabled.)

External Cache   This option enables/disables the external cache memory. (The Default setting is Enabled.)

Quick Power On Self Test   Enabled provides a Fast POST at boot-up.

Boot Sequence   The default setting attempts to first boot from drive C:and then from Floppy disk A: You can reverse this sequence with C,A --- C,CDROM,A --- CDROM,C,A --- A,C --- C,A

Swap Floppy Drive   Enabled changes the sequence of the A: and B: drives. (The Default setting is Disabled.)

Boot Up Num Lock Status   Choose On or Off. On puts numeric keypad in Num Lock mode at boot-up. Off puts this keypad in arrow key mode at boot-up.

Typematic Rate Setting   Enable this option to adjust the keystroke repeat rate.

Typematic Rate (Chars/Sec)   Choose the rate a character keeps repeating.

Typematic Rate (Msec)   Choose how long after you press a key that a character begins repeating.

Security Option   Choose Setup or System. Use this feature to prevent unauthorized system boot-up or use of BIOS Setup.

"System"-Each time the system is booted the password prompt appears.

"Setup"- If a passward is set, The passeord Prompt only appears if you attempt to enter the Setup program.

PCI/VGA Palette Snoop   Enable : The color of the monitor may be incorrect if uses with MPEG card. Enable this option to make the monitor normal.

                                Disable: Default setting.

OS Select for DRAM >64MB   OS2:   Choosing this when you are using OS/2 operation system.

                  Non-OS/2: Choosing this when you are using no-OS/2 operation system.

Video or Adapter BIOS Shadow   BIOS shadow copies BIOS code from slower ROM to faster RAM. BIOS can then execute from RAM.16K segments can be shadowed from ROM to RAM. BIOS is shadowed in a 16K segment if it is enable and it has BIOS present.

3. After you have finished with the BIOS Features Setup program, Press the <ESC> key and follow the screen instructions to save or disregard your settings.

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4.3 AWARDBIOS - Chipset Features Setup

The Chipset Features Setup option changes the values of the Chipset registers. These registers control system options in the computer.

Note: Change these settings only if you are familear with the Chipset.

Run the Chipset Features Setup as follows.

1. Choose "CHIPSET FEATURES SETUP" from the Main Menu and the following screen appears. (The screen below shows default settings.)

```
                      ROM PCI/ISA BIOS
                   CHIPSET FEATURES SETUP
                   AWARD SOFTWARE, INC

 Auto Configuration        : Enabled   PCI Delayed Transation    : Disabled
 DRAM Timing               : 70 ns

 DRAM Leadoff Timing       : 10/6/4
 DRAM Read Burst (EDO/FP)  : x333/x444
 DRAM Write Burst Timing   : x333
 Fast EDO Lead Off         : Disabled
 Refresh RAS# Assertion    : 5 Clks
 Fast RAS To CAS Delay     : 3
 Fast MA to RAS# Delay     : 2 Clks
 SDRAM (CAS Lat/RAS-to-CAS): 3/3
 SDRAM Speculative Read    : Disabled
 System BIOS Cacheable     : Disabled  ESC : Quit             :Select Item
 Video BIOS Cacheable      : Disabled  F1  : Help      PU/PD/+/-:Modify
 Memory Hole At 15M-16M    : Disabled  F5  : Old Values (Shift)F2:Color
 PCI Passive Release       : Disabled  F6  : Load BIOS Defaults
                                       F7  : Load Setup Defaults
```

2. Use the arrow keys to move between items and select values. Modify selected fields using the PgUg/PgDn/+/- keys.

A short description of screen items follows:

Auto Configuration   Enable this option (strongly recommended) and the system automatically sets all options on the left side of the screen (except cache update mode & BIOS cacheable.

DRAM Timing   Choose the right speed to fit your DRAM's spec.

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DRAM Leadoff Timing   : 10/6/4, 11/7/3, 10/6/3, 11/7/4.

The Slower Leadoffs may be required in slower EDO/PF memories.

DRAM Read Burst Timing : x333/x444, x222/x333, x444/x444.
The Slower Rates may be required in slower memories.

DRAM Write Burst Timing : x444, x333, x222.
The Slower Rates may be required in slower memories.

Fast EDO Lead off **:** Enabled/Disabled.
If set to Enabled, will enables fast timing EDO read cycles.
This Bit has to be set to Disable, if any of the DRAM rows is populated with FP DRAMs.

Refresh RAS# Assertion : 5, 4 clks.
This Bit controls the number of clock RAS# is asserted for refresh cycles.

Fast RAS to CAS Delay : 3, 2.
The Slower Rates may be required in slower memories.

Fast MA to RAS# Delay : 2, 1.
Controlled the Dram Row Miss timing. If set to 1, then one clock is allowed for MA set up time to RAS# assertion.

SDRAM (CAS Lat/RAS -to-CAS) : 3/3, 2/2.
Set CAS# Latency used for all SDRAM cycles.

SDRAM Speculative Read : Enabled/Disabled.
When set to Enable the SDRAM speculative read logic is enabled.

System BIOS Cacheable : Enabled/Disabled.
Enabled : The ROM area F0000H-FFFFFH is cachable if cache controller is enable.
Disabled : The ROM area F0000H-FFFFFH is not cached.

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Video BIOS Cacheable : Enabled/Disabled.

Enabled : The Video BIOS area C0000H-C7FFFH is cachable if cache controller is enable.
Disabled : The Video BIOS area F0000H-FFFFFH is not cached.

Memory Hole At 15M-16M **:** Enabled / Disabled.
Some interface cards will map their ROM address to this area. If this occurs, you should select Enabled, otherwise use Disabled.

PCI Passive Release **:** Enabled / Disabled.

PCI Delayed Transaction **:** Enabled / Disabled.

3. After you have finished with the Chipset Features Setup, press the <ESC> key and follow the screen instructions to save or disregard your settings.

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4.4 AWARDBIOS - Power Management Setup

The Power Management Setup option sets the system's power saving function. Run the Power Management Setup as follows.

1. Choose "POWER MANAGEMENT SETUP" from the Main Menu and a screen with a list of items appears.

```
                    ROM PCI/ISA BIOS (2A59IR09)
                    POWER MANAGEMENT SETUP
                    AWARD SOFTWARE, INC
┌─────────────────────────────────────┬──────────────────────────────────────┐
│Power Management     :Disabled        │ ** Reload Global Timer Events **     │
│PM Control by APM    :Yes             │IRQ [3-7,9-15],NMI       :Enabled     │
│Video Off Method     :V/M SYNC+Blank  │Primary IDE 0            :Enabled     │
│Video Off After      :Standby         │Primary IDE 1            :Enabled     │
│                                      │Secondary IDE 0          :Enabled     │
│Doze Mode            :Disabled        │Secondary IDE 1          :Enabled     │
│Standby  Mode        :Disabled        │Floppy Disk              :Enabled     │
│Suspend Mode         :Disabled        │Serial Port              :Enabled     │
│HDD Power Down        :Disable        │Parallel Port            :Enabled     │
│                                      │                                      │
│                                      │                                      │
│VGA Active Monitor   :Enabled         │ESC: Quit              :Select Item   │
│Soft-Off by PWR-BTTN :Instant-Off     │F1 : Help        PU/PD/+/- :Modify    │
│** Break Event From Suspend **        │F5 : Old Values (Shift)F2 : Color     │
│IRQ 8 Clock Event    :Disabled        │F6 : Load BIOS Defaults               │
│                                      │F7 : Load Setup Defaults              │
└─────────────────────────────────────┴──────────────────────────────────────┘
```

2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUg/PgDn/+/- keys.

A short description of selected screen items follows:

Power Management   Options are as follows:

User Define   Let's you define the HDD and system Power down times.

Disabled   Disabled the green PC Features.

Min Saving   Doze timer = 1 Hour
Standby timer = 1 Hour
Suspend timer = 1 Hour
HDD Power Down timer = 15 Min

Max Saving   Doze timer = 1 Min
Standby timer = 1 Min
Suspend timer = 1 Min
HDD Power Down timer = 1 Min

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PM Control by APM   Choose Yes or No (default). APM stands for advanced Power Management. To use APM you must run "power.exe" under DOS V6.0 or later version.

Video Off Method	Choose V/H Sync + Bland (default), Bland screen, or DPMS for the selected PM mode.
Doze Mode	When the set time has elapsed, the BIOS sends a command to the system to enter doze mode. Time is adjustable from 1 Min to 1 Hour.
Standby Mode	The default is Disabled. Time is adjustable from 1 Min to 1 Hour.
Suspend Mode	The default is Disabled. Only an SL-Enhanced (or SMI) CPU can enter this mode. Time is adjustable from 1 Min to 1 Hour. Under Suspend mode, the CPU stops completely (no instructions are executed).
HDD Power Down	When the set time has elapsed, the BIOS sends a command to the HDD to power down, which turns. off the motor. Time is adjustable from 1 to 15 minutes. the default setting is Disabled. Some older model HDDs may not supports this advanced function.

Soft-Off by
PWR-BTTN

Instant-Off: Turn the power Off immediately after
               Booted OS.
Delay 4 Sec. : Turn the Power Off after 4 Sec.

(Note: See the section 2.1.4)

Break Event From   The BIOS monitors these items for activity. If activity
Suspend   occurs from the Enabled item the system wakes up.
Reload Global   The BIOS monitors these items for no activity. If no
Timer Events   activity occurs from the Enabled item the system will
                           enter power saving mode (Doze/Standby/Supend/HDD
                           Power Down mode)

3. After you have finished with the Power Management Setup, Press the
    <ESC> key to return to the Main Menu.

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4.5 AWARDBIOS - PNP/PCI Configuration Setup

This option sets the mainboard's PCI Slots. Run this option as follows:

1. Choose "PNP/CPI CONFIFURATION SETUP" from the Main Menu and the following screen appears. (The screen below shows default settings.)

```
                        ROM PCI/ISA BIOS (2A59IRO9)
                           PNP/PCI CONFIGURATION
                           AWARD SOFTWARE, INC.
┌──────────────────────────────────────┬───────────────────────────────────────┐
│ NPN OS Installed       : No          │ PCI IDE IRQ Map To       : PCI-Auto   │
│ Resources Controlled By : Manual     │  Primary   IDE INT#      : A          │
│ Reset Configuration Data: Disabled   │  Secondary IDE INT#      : B          │
│                                      │                                       │
│ IRQ-3  assigned to : Legacy ISA*     │ Used MEM base addr       : N/A        │
│ 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 : PCI/ISA PnP*    │                                       │
│ IRQ-15 assigned to : PCI/ISA PnP*    ├───────────────────────────────────────┤
│ DMA-0  assigned to : PCI/ISA PnP*    │                                       │
│ DMA-1  assigned to : PCI/ISA PnP*    │ ESC: Quit            :Select Item     │
│ DMA-3  assigned to : PCI/ISA PnP*    │ F1 : Help        PU/PD/+/- :Modify    │
│ DMA-5  assigned to : PCI/ISA PnP*    │ F5 : Old Values (Shift)F2 : Color     │
│ DMA-6  assigned to : PCI/ISA PnP*    │ F6 : Load BIOS Defaults               │
│ DMA-7  assigned to : PCI/ISA PnP*    │ F7 : Load Setup Defaults              │
└──────────────────────────────────────┴───────────────────────────────────────┘
```

* These items will disappear when Resource Controlled is Audo.

2. Use the arrow keys to move between items and select values. Modify selected fields using the PgUp/PgDn/+/- keys.

A short description of screen items follows:

Resources Controlled By   Manual: BIOS doesn't manage PCI/ISA PnP card (i.e.,IRQ) automatically.
Auto :   BIOS auto manage PCI/ISA PnP card (recommended)

Reset Configuration Data   Disabled: Retain PnP configuration data in BIOS.
Enabled: Reset PnP configuration data in BIOS.

IRQX and DMAX assigned to   Choose PCI/ISA PnP or Legacy ISA, If the first item is set Manual, you could choose IRQX and DMAX assigned to PCI/ISA PnP card or ISA card.
PCI/ISA PnP: BIOS auto assigns IRQ/DMA to the device.
Legacy ISA: User assigns IRQ/DMA to the device.

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4-11

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PCI IRQ Activated By   Choose Edge or Level. Most PCI trigger signals are Level. This setting must match the PCI card.

PCI IDE IRQ Map To   Select PCI-AUTO, ISA, or assign a PCI SLOT number

(depending on which slot the PCI IDE is insertd.)
The default setting is PCI-AUTO. If PCI-AUTO does
not work, then assign an individual PCI SLOT number.

Primary IDE INT#   Choose INTA#, INTB#, INTC#, or INTD#. the default
setting is INTA#

Secondary IDE INT#   Choose INTA#, INTB#, INTC#, or INTD#. the default
setting is INTB#.

3. After you have finished with the PCI Slot configuration, press the <ESC>
key and follow the screen instructions to save or disregard your settings.

4.6 AWARDBIOS - Load Setup Detaults

This item loads the system values you have pereviously saved.
Choose this item and the following message appears:

"Load SETUP Defaults (Y/N)? N"

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

This item is recommended if you need to reset the system setup.

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4.7 AWARDBIOS - Integrated Peripherals

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

Note: Change these settings only if you are familear with the Chipset.

Run the Integrated Peripherals as follows.

1. Choose "Integrated Peripherals" from the Main Menu and the following screen appears. (The screen below shows default settings.)

```
                        ROM PCI/ISA BIOS
                     INTEGRATED PERIPHERALS
                      AWARD SOFTWARE, INC.
┌──────────────────────────────────┬───────────────────────────────┐
│IDE HDD Block Mode      :Enabled   │ECP Mode Use DMA          : 3  │
│IDE Primary Master PIO  :Auto      │                               │
│IDE Primary Slave  PIO  :Auto      │                               │
│IDE Secondary Master PIO :Auto     │                               │
│IDE Secondary Slave  PIO :Auto     │                               │
│IDE Primary Master UDMA  :Auto     │                               │
│IDE Primary Slave UDMA   :Auto     │                               │
│IDE Secondary Master UDMA:Auto     │                               │
│IDE Secondary Slave UDMA :Auto     │                               │
│On-Chip Primary  PCI IDE :Enabled  │                               │
│On-Chip Secondary PCI IDE:Enabled  │                               │
│                                   │                               │
│Onboard FDD Controller   :Enable   ├───────────────────────────────┤
│Onboard Serial Port 1    :Auto     │ESC: Quit          :Select Item│
│Onboard Serial Port 2    :Auto     │F1 : Help      PU/PD/+/- :Modify│
│UART2 Mode               :IrDA     │F5 : Old Values   (Shift)F2 : Color│
│Duplex Select            :Half     │F6 : Load BIOS Defaults        │
│TxD, RxD Active          :Hi, Lo   │F7 : Load Setup Defaults       │
│Onboard Parallel Port    :378/IRQ7 │                               │
│Onboard Parallel MODE    :ECP+EPP1.9│                              │
└──────────────────────────────────┴───────────────────────────────┘
```

2. Use the arrow keys to move between items and select values. Modify selected fields using the PgUp/PgDn/+/- keys.

A short description of screen items follows:

IDE HDD Block Mode
Choose Enabled (default) or Disabled. Enabled invokes multi-sector transfer instead of one sector per transfer. Not all HDDs support this function.

IDE Primary Master PIO
IDE Primary Slave PIO
IDE Secondary Master PIO
IDE Secondary Slave PIO
IDE Primary Master UDMA
Choose Auto (default) or mode 0-4 & Ultra DMA Mode 0 is the slowest speed, and HDD mode 4 is the fastest speed. For better performance and we stability, suggest you use the Auto setting to set the HDD control timing.

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4-13

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IDE Primary Slave UDMA
IDE Secondary Master UDMA
IDE Secondary Slave UDMA

On-chip Primary PCI IDE   Enable: Use the on-board IDE (default)

On-chip Secondary PCI IDE Disable: Turn off the on-board IDE.

Onboard FDD Controller   Enable: Use the on-board floppy controller
                                  (default).
                         Disable: Turn off the on-board floppy controller

Onboard Serial Port 1   Choose Serial port 1 & 2's I/O address. Do not
Onboard Serial Port 2   set port 1 & 2 to the same value except for
                         Disabled.

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

Onboard Parallel Mode   Choose ECP + EPP, SPP(default) or EPP,
                         ECP mode. The mode depends on your
                         external device that connects to this port.

3. After you have finished with the Integrated Peripherals, press the <ESC>
   key and follow the screen instructions to save or disregard your settings.

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4.8 AWARDBIOS - Supervisor Password

Base on the setting you made in the "security Option" of the "BIOS FEATURES
SETUP", This Main Menu item lets you configure the system so that a password

is required every time the system boots or an attempt is made to enter the Setup program. Change the password as follows:

1. Choose "SUPERVISOR PASSWORD " in the Main Menu and Press <Enter>. The following message appears:

"Enter Password:"

2. Enter a password and press <Enter>.
   (If you do not wish to use the password function, you can just press <Enter> and a "Password disabled" message appears.)

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

"Confirm Password"

4. Re-enter your password and then Press <ESC> to exit to the Main Menu.

5. You have the right to change any changeable settings in the "COMS SETUP UTILITY."

Important : If you forget or lose the password, the only way to access
the system is to set jumper JP38 to clear the CMOS RAM.
all setup information is lost and you must run the BIOS
setup program again.

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4.9 AWARDBIOS - User Password

Base on the setting you made in the "security Option" of the "BIOS FEATURES

SETUP", This Main Menu item lets you configure the system so that a password is required every time the system boots or an attempt is made to enter the Setup program. Change the password as follows:

1. Choose "USER PASSWORD " in the Main Menu and Press <Enter>. The following message appears:

"Enter Password:"

2. Enter a password and press <Enter>.
   (If you do not wish to use the password function, you can just press <Enter> and a "Password disabled" message appears.)

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

"Confirm Password"

4. Re-enter your password and then Press <ESC> to exit to the Main Menu.

5. You are not allowed to change any settings in the "COMS SETUP UTILITY." except change user's password.

Important : If you forget or lose the password, the only way to access the system is to set jumper JP38 to clear the CMOS RAM. all setup information is lost and you must run the BIOS setup program again.

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4.10 AWARDBIOS - IDE HDD Auto Detection

This Main Menu item automatically detects the hard disk type and

configures the STANDARD CMOS SETUP accordingly.

Note: This function is only valid for **IDE** hard disks.

```
                        ROM PCI/ISA BIOS
                        CMOS SETUP UTILITY
                        AWARD SOFTWARE, INC.
HARD DISK          TYPE  SIZE  CYLS  HEAD  PRECOMP  LANDZ  SECTOR   MODE

Primary Master   :None    0     0     0      0       0      0       0
Primary Slave    :None    0     0     0      0       0      0       0
Secondary Master:None     0     0     0      0       0      0       0
Secondary Slave :None     0     0     0      0       0      0       0


          ┌─────────────────────────────────────────────┐
          │Do your accept this drive C (Y/N)?N           │
          │                                              │
          │                                              │
          └─────────────────────────────────────────────┘

                        ESC : Skip
```