Chapter 1

1

Introduction

How This Manual is Organized

This manual is divided into the following sections:

Chapter 1 **Introduction** : Manual information and checklist.

Chapter 2 **Features** : Information and Specifications concerning this mainboard.

Chapter 3 **Installation** : Instructions on setting up the board.

The mainboard is a high-performance mainboard based on the advanced Socket 370 microprocessor, the VGA, Audio , PCI Bus and the VIA 694X chipset.

Package Checklist

Please check that your package is complete . If you discover any item damaged or missing , please contact with your retailer immediately.

- The 6VIA90A mainboard.
- The USB2 conector with bracket (option).
- 1 x IDE UDMA66 ribbon cable.
- 1 x floppy ribbon cable.
- CD drivers and utilities.
- This user's Manual .

Chapter 2

2

Features

Features of the 6VIA90A Mainboard

- VIA 694X chipset supports 66/100/133MHz FSB, UltraDMA66 AGP4X.
- Supports Intel's processor designed for socket 370 and package in PPGA/ FCPGA.
- **Integrated H/W monitor compensation engine.**
- **support "Touch Button Wake up" for soft power on/off and suspend mode multifunction.(option)**

- **support Resume by Ring through Modem.**
- **Use 168-Pin DIMM modules (supprts Intel PC100/133-compliant SDRAMs) x3 .**

- 5x PCI Bus slots, and 1 x AMR (Audio Modem Riser) slots.

- 1 x ISA Bus slots.

- All 5 PCI slots support Master mode.

- System BIOS support 4 IDE harddisk drivers that don't need device driver for S/W application.

- PCI Bus master IDE interface on board with two connectors support 4 IDE devices in 2 channel, the PCI IDE Controller supports PIO Mode 0 to Mode 4, Bus master IDE DMA Mode 2 and **Ultra DMA 66MB**

- Support PS/2™ mouse Connector.

- **System BIOS supports LS-120, ZIP driver firmware and Green feature function, Plug and Play Flash ROM.**

- **AC'97 DAC built into the audio CODEC reduces noise to improve audio quality and performance for a SNR (singal to noise ratio) of +90dB. These features greatly improve voice synthesis and recognition. If more quality is required, an optional on-board Cyrstal PCI audio improves audio quality beyond software audio.**

- Support Software Virus Warning in BIOS

- Support ACPI functionStatic Electricity Precautions

Chapter 3

3

Installation

Jumper

Jumper			Refer to pages
◆ JBAT1	-	CMOS Clear	10
◆ BSEL0-1	-	CPU Type selection	15
◆ JCK1-4	-	CPU bus frequency selection	16
◆ J2	-	AMR Type Selection	17
◆ J3, J4	-	Onboard AC'97 Selection	17
◆ FAN1	-	FAN Connector	21
◆ FAN2	-	FAN Connector	21
◆ J6	-	IrDA Connector	22
◆ WOL1	-	Lan Card Wake Up	26

Expansion Slot — Refer to pages

- PCI SLOT 1,2,3,4,5 -32bits PCI SLOT 19
- ISA SLOT 1 -16bits ISA SLOT 19
- AMR SLOT - Audio Modem Riser Slot 19

Connectors — Refer to pages

PS1	- PS/2 Mouse port (UP)	20
PS1	- PS/2 AT (mini DIM) Keyboard port (DOWN)	20
COM1	- COM 1 serial port	20
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USB2	- Universal Serial BUS Ports 3 & 4	20
PRINT	- Parallel port	20
FDC	- FLOPPY connector	20
IDE1	- Primary IDE connector	21
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PANEL1	- HDD LED	23
PANEL1	- SMI Switch	23
PANEL1	- Reset Switch	24
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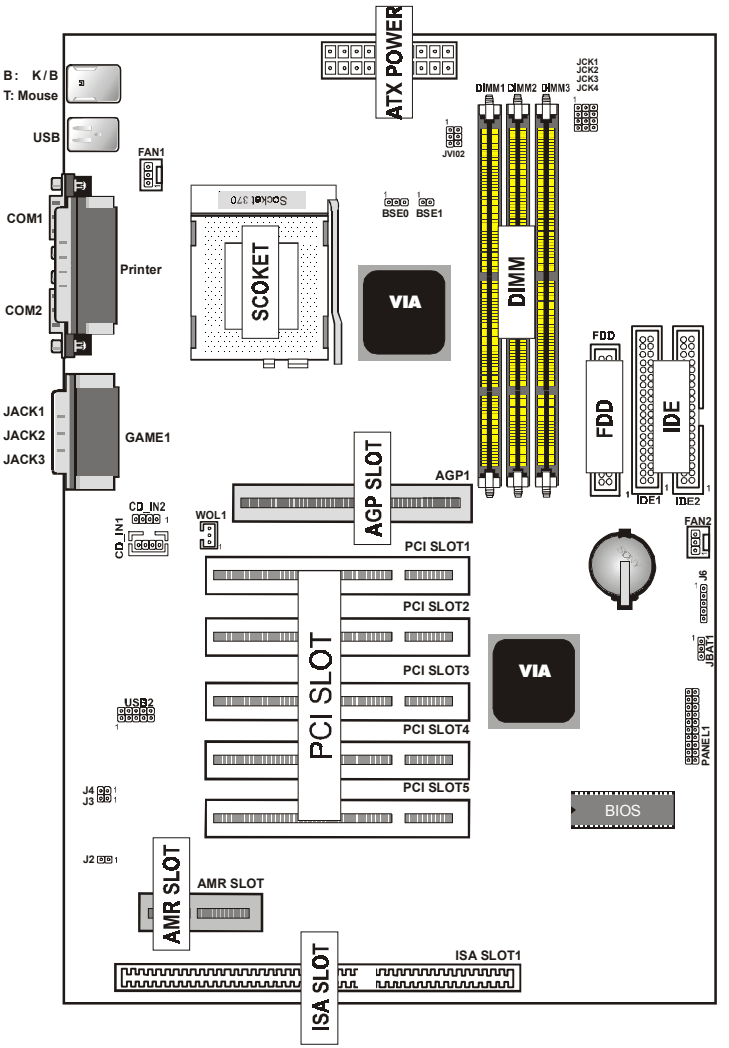
PANEL1	- ATX Power switch	24
CD_IN1	- Audio Connector	25
CD_IN2	- Audio Connector	25

The 6VIA90A Mainboard Layout



The 6VIA90A Mainboard Layout
System Installation Setup

Before using your computer, you must finish the following steps:

1. Set jumpers on mainboard
2. Install SDRAM module.
3. Install the Processor.
4. Connect Ribbon Cables, Cabinet Wires, and Power supply.
5. Install Add on Cards.
6. Setup the BIOS software.

Static Electricity Precaution

- Keep the mainboard and other system components in their anti-static packaging until you are ready to install them.
- Do all preparative work on a static-free surface with the main board components facing up.
- Unplug your computer when working on the inside.
- Wear an Anti-static wrist strap.
- Hold the system components, boards or cards by its edges only. Be careful not to touch any of IC chips, circuitry, contacts or connections, especially gold contacts on the mainboard.

Jumper Settings

Jumpers

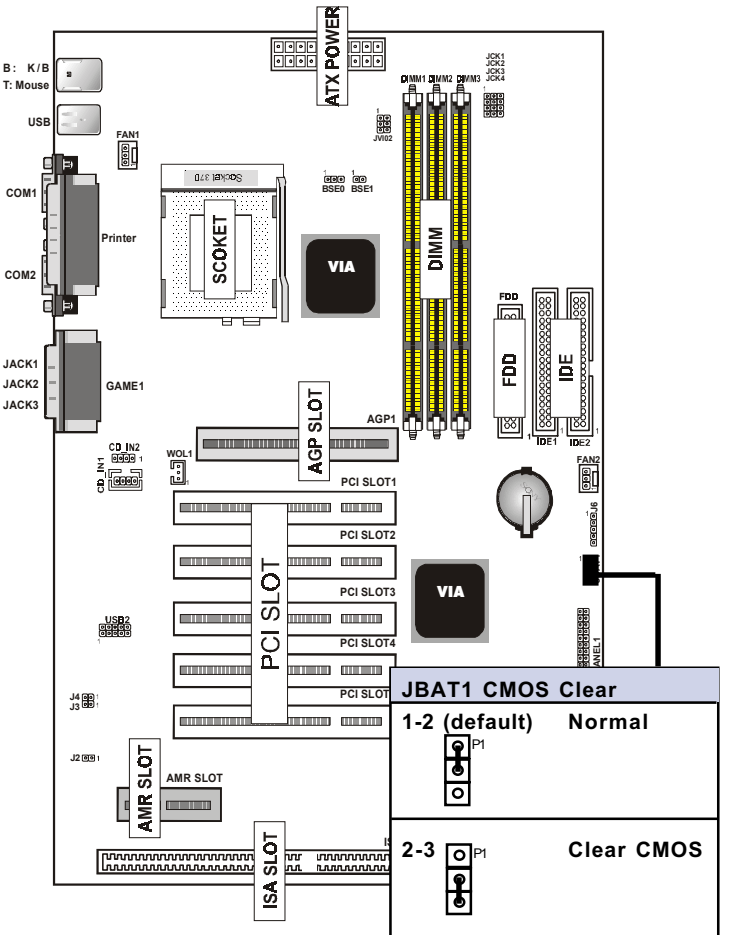
The several hardware setting are made through the use of jumper caps to connect jumper pins (Jxx) on the mainboard. See " Map of the mainboard" for locations of jumpers.

The jumper settings will be described numerically such as [----], [1-2], [2-3] for no connection, connect pins 1 & 2, and connect pins 2 & 3 respectively. Pin 1 for our mainboard is always on top one or on the left when holding the mainboard with the keyboard away from yourself. "P1" is written besides pin 1 on jumper with three pins. The jumpers will also be shown graphically such as to connect pin 1&2 and to connect 2&3. Jumpers with two pins will be shown as for Short (on)and for Open (off).For manufacturing simplicity may be sharing pins from other groups. Use the diagrams in this manual instead of following the pin layout on the board. Settings with two jumper numbers require that both jumpers be moved together. To connect the pin, simply place a plastic jumper cap over the two pins as diagrammed.

Real Time Clock (RTC) RAM - JBAT1 :

The CMOS RAM is powered by the onboard button cell battery. To clear the RTC data:

(1)Turn off your computer, (2) Move this jumper to "2-3Pin Clear Data", (3) Move the jumper back to "Default", (4) Turn on your computer, (5) Hold down <Delete > during bootup and enter BIOS setup to re-enter user Preferences.



System Memory (DIMM Module)

This **6VIA90A** main board supports three 168 pin DIMM of 16 MB, 32 MB, 64 MB, 128 MB ,256MB to form a memory size between 16MB to 256MB.
The DRAM can be either Intel PC133-compliant SDRAMs.
Install memory in any or all Banks in Combination:

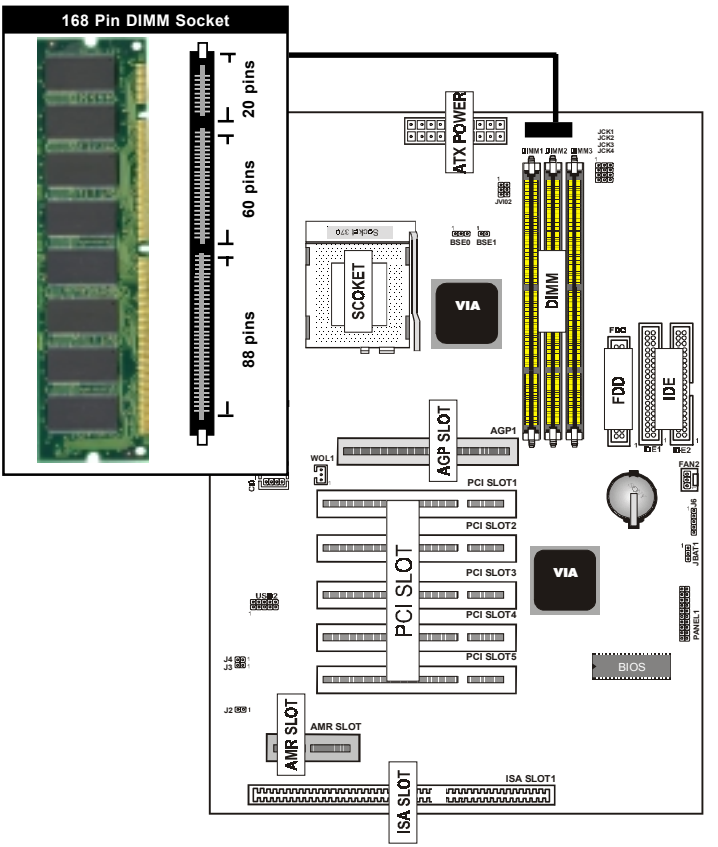
Bank	Memory module
DIMM 1	16MB,32MB,64MB,128MB,256MB
(Bank 0-1)	168 pin,3.3v SDRAM / EDO RAM
DIMM 2	16MB,32MB,64MB,128MB,256MB
(Bank 2-3)	168 pin 3.3v,SDRAM / EDO RAM
DIMM 3	16MB,32MB,64MB,128MB,256MB
(Bank 4-5)	168 pin 3.3v,SDRAM / EDO RAM
Total System Memory(Max 768MB)	

Note :

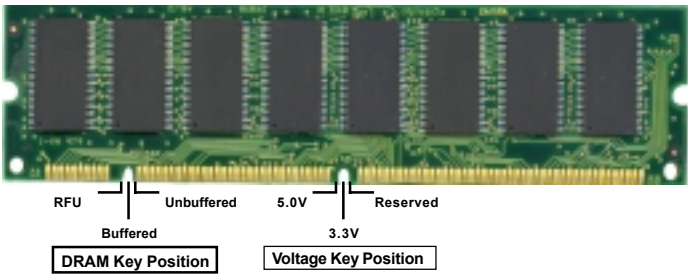
- **At the time this user's manual was written, 256MB DIMM's are only available as double-sided registered memory (128Mbit cells). Using 2x2x2x SDRAM can greatly improve the onboard graphics' performance.**
- **The motherboard operates at 100MHz, therefore PC100-compliant modules must be used because of the strict timing issues involved under this speed.**

DIMM Memory Installation

Insert the module (s) as shown. Because the number pins are different on either side of the breaks,the module will only fit in the orientation as shown. SDRAM DIMM modules have different pin contacts on each side and therefore have a higher pin density.



The Dual Inline Memory Module (DIMM) memory module must be 3.3v Extended Data Output (EDO) DRAM or SDRAM. You can identify the type of DIMM module by the illustration below:



168 Pin DRAM DIMM Notch Key Definitions

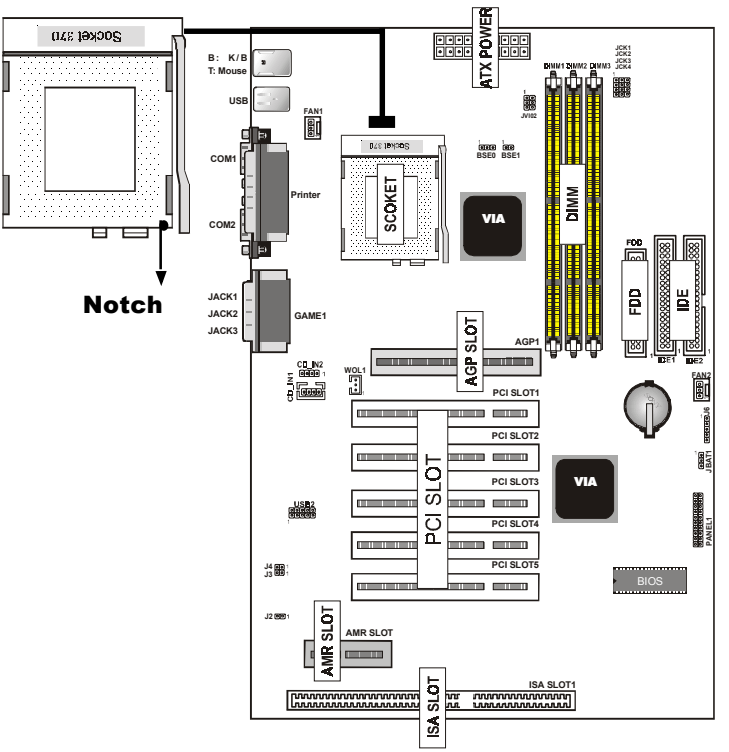
The notch on the DIMM module will shift between left, center, or right to identify the type and also to prevent the wrong type to be inserted into the DIMM slot on the Mainboard. You must ask your retailer for Specifications before purchasing.

Four clock signals are supported on this mainboard

CPU Installation

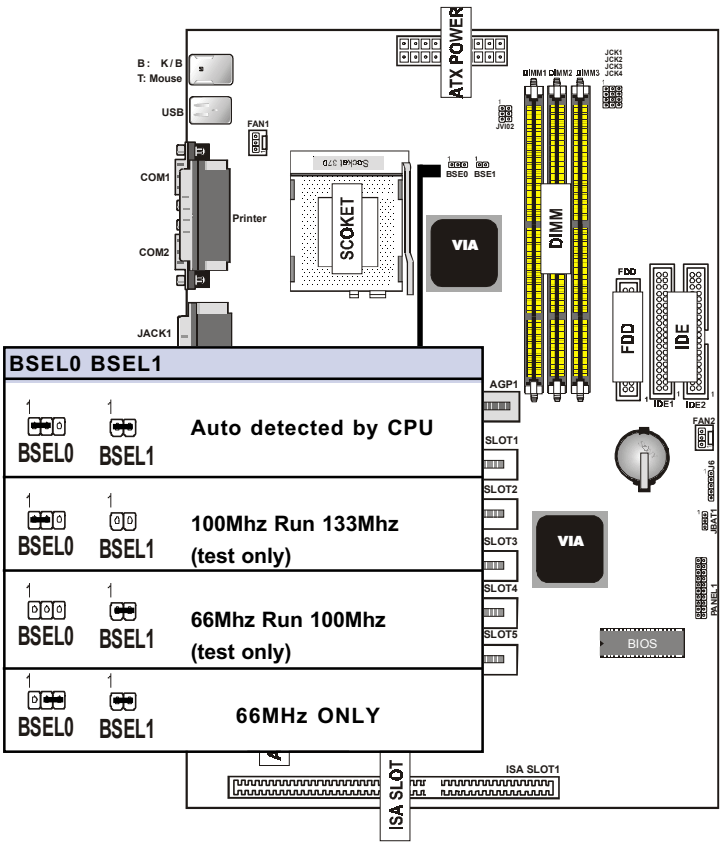
The motherboard provides a ZIF socket 370. The CPU that came with the motherboard should have a fan attached to it to prevent overheating . If this is not the case then purchase a fan before you turn on your system.

To install a CPU , first turn off your system and remove its cover. Locate the ZIF socket and open it by first pulling the lever sideways away from the socket then upwards to a 90-degree right angle. Insert the CPU with the correct orientation shown . The notched corner should point towards the end of lever. Because the CPU has a corner pin for two of the four corners, the CPU will only fit in the orientation as shown.



CPU Type Selection -BSEL0, BSEL1

Current PCI bus is limited to 33MHz, socket370 Celeron processors limited to 66MHz, and SDRAM limited to the DIMM type 66/100/133MHz. Other settings are for experienced users only.



CPU External (Bus) Frequency Selection -JCK4, JCK3, JCK2, JCK1

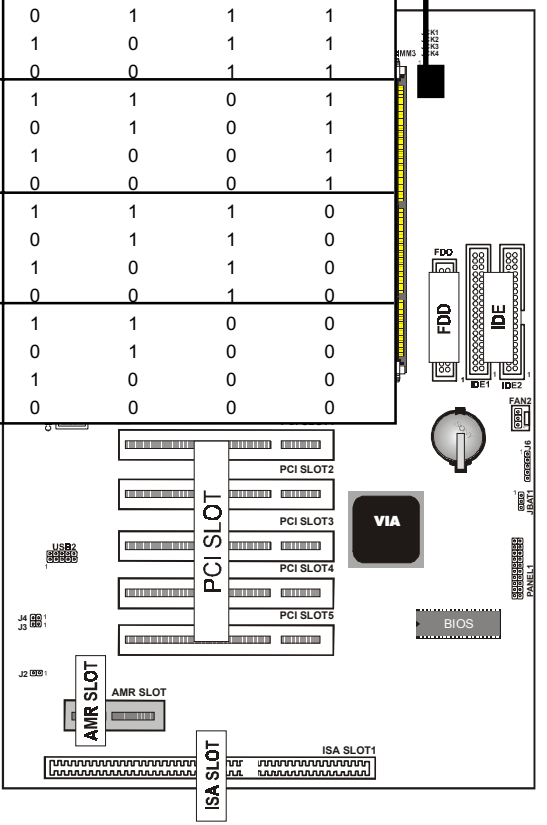
The JCK1~4 jumpers is used to set PCI and CPU external bus clock.

NOTE:

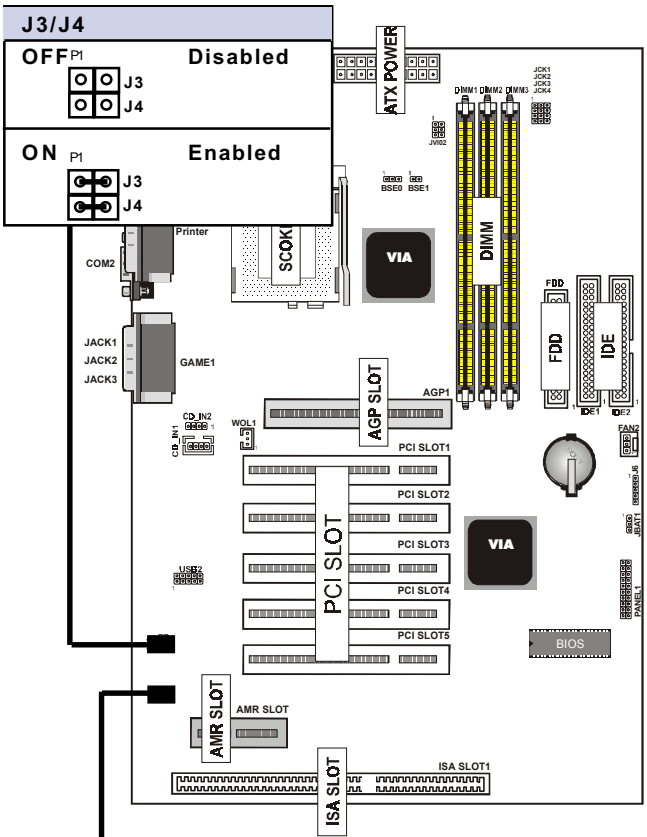
Most of the CPU frequency are locked by the manufacturer. This motherboard is able to auto-detect the CPU frequency.

CLK	PCI	JCK1	JCK2	JCK3	JCK4
133.3	33.3	1	1	1	1
124	31	0	1	1	1
150	37.5	1	0	1	1
140	35	0	0	1	1
105	35	1	1	0	1
110	36.7	0	1	0	1
115	38.3	1	0	0	1
120	40	0	0	0	1
100	33.3	1	1	1	0
133.3	44.43	0	1	1	0
112	37.3	1	0	1	0
103	34.3	0	0	1	0
66.8	33.4	1	1	0	0
83.3	41.7	0	1	0	0
75	37.5	1	0	0	0
124	41.3	0	0	0	0

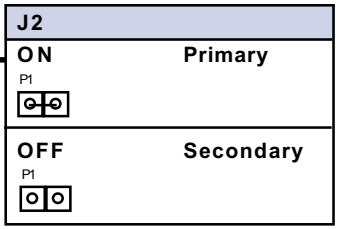
1:1-2 (SHORT)
0:2-3 (SHORT)



Onboard AC'97 Function Selection : J3, J4



Audio/Modem Riser (AMR) Function Selection :



Clearance Requirements

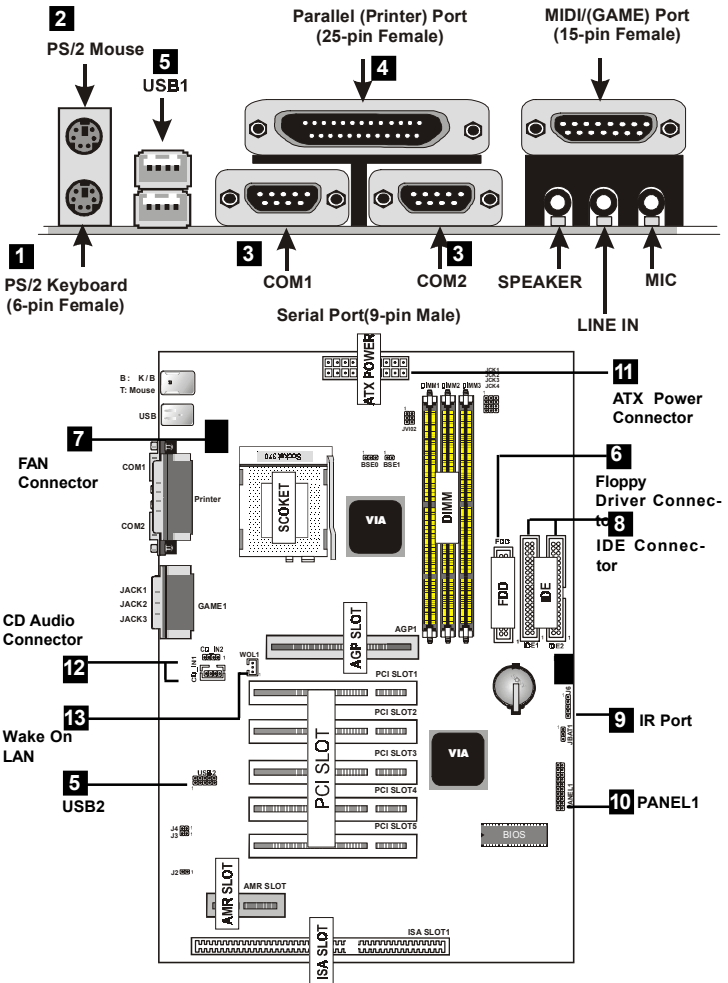
To maintain proper airflow once the processor is installed on the mainboard, the processor and fan heatsink require certain space clearances. The clearance above the processor must be at least 0.3 inches. The clearance on at least 3 of 4 sides of the processor and fan heatsink must be at least 0.2 inches. All cables (for Floppy drive,Hard drive,CD-ROM,and so on) must be routed clear of the processor and its airspace.

Fan Exhaust

The processor must be kept cool by using a processor with heatsink and fan attached . The temperature of the air filled with the fan/heatsink cannot exceed 45 ^{O}C(113 ^{O}F) . The ambient or room temperature must be below 37 ^{O}C (99 ^{O}F) .

EXTERNAL CONNECTORS

Both Ribbon cable and Connectors on board are with direction signs to avoid that user insert wrong direction. The ribbon cables should always be connected with the red stripe on the pin 1 of side of the connector.



1. **PS/2 AT Keyboard port**
   This connection is for a standard keyboard using an PS/2 plug (mini DIN) . This connector will not allow standard at AT size (large DIN) keyboard plugs. You may use a DIN to mini DIN adapter on standard AT keyboards.

2. **PS/2 Mouse port**
   This system will direct IRQ12 to PS/2 mouse.

3. **Serial Port COM 1 and COM 2 port**
   The COM1/2 serial ports can be used for pointing devices or other serial devices. See "Onboard Serial Port" in chipset Feature Setup of the BIOS SOFTWARE.

   NOTE:

   Serial {D-type 9pin (F) } must be connected to the serial port.

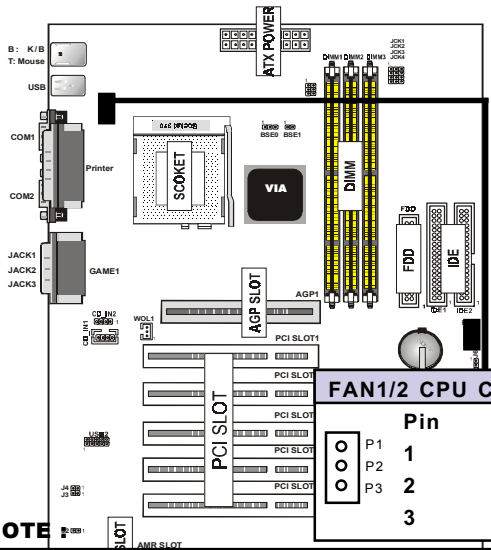
4. **Parallel Printer port**
   You can enable the parallel port and choose the IRQ through " Onboard Parallel Port" in Chipset. Feature Setup of the BIOS SOFTWARE.

5. **Universal Serial BUS Ports 1 & 2**
   Two USB ports are available for connecting USB devices.

6. **Floppy drive connector**
   This connector supports the provided floppy drive ribbon cable. After connecting the single end to the board, connect the two plus on the other end to the floppy drives.

7. **FAN1 , FAN2 CPU Cooling Fan (FAN1,2)**
   These connectors support cooling fans of 500mAmp (6Watt) or less. Orientate the fans so that the heat sink fins allow airflow to go across the onboard heat sink(s) instead of the expansion slots. Depending on the fan

manufacturer, the wiring and plug may be different. The red wire should be positive, while the black should be ground. Connect the fan's plug to the board taking into consideration the polarity of this connector.



NOTE

The "Rotation" signal is to be used only by a specially designed fan with rotation signal.

WARNING :

The CPU and/or motherboard will overheat if there is no air flowing across the CPU and onboard heatsinks. Damage may occur to the motherboard and/or the CPU fan if these pins are incorrectly used. These are not jumpers, do not place jumper cap over these pins.

8. **Primary / Secondary IDE connectors (Two 40-pin Block)**
These connectors support the provided IDE hard disk ribbon cable. After connecting the single end to the board, connect the two plugs at the other end to your hard disk (s) . If you install

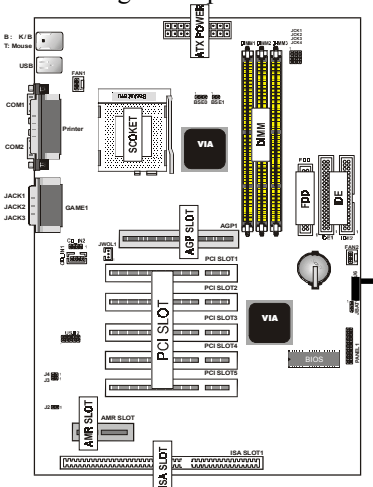
two hard disks, you must configure the second drive to Slave mode by setting its jumper setting. BIOS now supports SCSI device or IDE CD-ROM boot up (see "HDD Sequence SCSI/ IDE First" & "Boot Sequence" in the BIOS Features Setup of the BIOS SOFTWARE) (Pin 20 is removed to prevent inserting in the wrong orientation when using ribbon cables with pin 20 plugged) .

Tip :

You may configure two hard disks to be both Masters using one ribbon cable on the primary IDE connector. You may install one operating system on an IDE drive and another on a SCSI drive and select right one the through BIOS Feature Setup.

9. **IrDA / Fast IR-Compliant infrared module connector - J6**

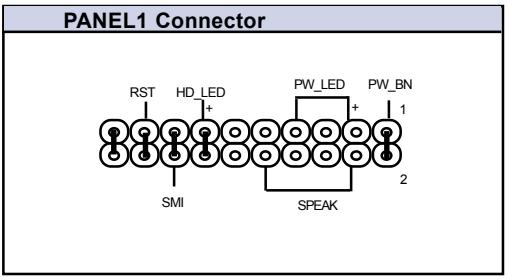
This connector supports the optional wireless transmitting and receiving infrared module. This module mounts to a small opening on system cases that support this feature. You must also configure the setting through UART2 Use Infrared" in Chipset Feature Setup to select whether UART2 is directed for use with COM2 or IrDA. Use the five pins as shown on the Back View and connect a ribbon cable from the module to the motherboard according to the pin definitions.



J6 IR Connector

Pin	Description
1	+5V
2	NC
3	IRRX
4	Ground
5	IRTX

10. **PANEL1**



a. **IDE activity LED (HD-LED)**
This connector supplies power to the cabinet's IDE activity LED. Read and write activity by devices connected to the Primary or Secondary IDE connectors will cause the LED to light up.

b. **Power LED Lead (PW_LED)**
The system power LED lights when the system's power is on.

c. **SMI Suspend Switch Lead (SMI)**
This allows the user to manually place the system into a suspend mode or "Green" mode where systematic activity will be instantly decreased to save electricity and expand the life of certain components when the system is not in use. This 2-pin connector (see the figure) connects to the case-mounted suspend switch. If you do not have a switch for the connector, you may apply the "Turbo Switch" since it does not have a function. SMI is activated when it detects a short to open moment and therefore leaving it shorted will not cause any problems. It may require one or two pushes depending on the position of the switch. Wake-up can be controlled by settings in the BIOS but the keyboard will always allow wake-up (the SMI lead cannot wake-up the system). If you want to use this connector,"Suspend Switch" in the Power Management Setup of the BIOS SOFTWARE section should be on the default setting of Enable.

d.**Reset Switch Lead (RST)**
This 2-pin connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the life of the system's power supply.

e. **Speaker Connector (SPEAKER)**
This 4-pin connector connects to the case-mounted speaker.

f. **ATX Power Switch (PW_BN)**
The system power is controlled by a momentary switch connected to this lead. Pushing the button once will switch the system ON. The system power LED lights when the system's power is on

11. **ATX Power Supply Connector (20-pin block) - PW1**
This connector connects to a ATX power supply. The plug from the power supply will only insert in one orientation because of the different hole sizes. Find the proper orientation and push down firmly making sure that the pins are aligned.

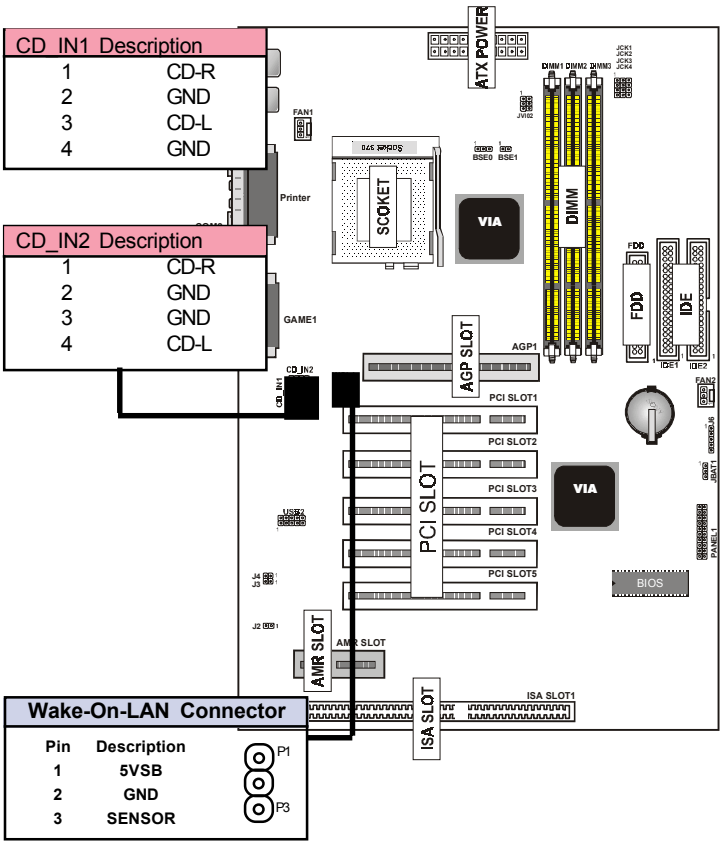
IMPORTANT:

Make sure that the ATX power supply can take at least 10mAmp load on the 5Volt standby lead (5VSB). You may experience difficulty in powering on your system without this.

Pin	Description	Pin	Description
1	3.3V	2	3.3V
3	GND	4	5V
5	GND	6	5V
7	GND	8	PW-OK
9	5VSB	10	12V
11	3.3V	12	-12V
13	GND	14	PS-ON
15	GND	16	GND
17	GND	18	-5V
19	5V	20	5V

12. **CD Audio Connector- CDIN1/CDIN2**

The 4-pin connectors enable the system to receive the audio output from the CD-ROM.



13. **Wake Up On LAN : WOL1**

This connector connects LAN cards and a Wake On LAN output. When the system is in soft-off mode LAN activity will power on the system.

Date : / /

Guarantee Sheet/Technical Fault Report

M/B Model No.:_____ **Vender**

Serial No. :_____

Date of Purchasing: _____

Hardware Configuration Used :

CPU	
RAM	
Video Card	
Hard Drive	
Other Card	

Diagnostic Software Used :

Fault Description :

Technical Support :

WWW : www.acorp.com.tw

FAE : fae@acorp.com.tw