
Introduction

System Overview

This manual was written to help you start using this product as quickly and smoothly as possible. Inside, you will find the answers to solve most problems. In order for this reference material to be of greatest use, refer to the “expanded table of contents” to find relevant topics.

This board provides a total PC solution by incorporating the System, I/O, and PCI IDE. The mainboard support single AMD Thunderbird and Duron processors base PC ATX system, ISA Bus, AMR Bus, PCI Local Bus, and AGP Bus to upgrades your system performance.

It is ideal for multi-tasking and fully supports MS-DOS, Windows, Windows NT , Windows ME, Windows 2000, Novell, OS/2, Windows95/98, Windows 98SE , UNIX , SCO UNIX etc.

This manual also explains how to install the mainboard for operation, and how to setup your CMOS configuration with the BIOS setup program.

1.Motherboard Description

1.1 Features

1.1.1 Hardware

CPU

- Single AMD Socket 462 Thunderbird™ / Duron™.
- 100/133MHz System Interface speed.
- AMD Duron™ processors 600~900MHz with 100MHz FSB.
- AMD Thunderbird™ processors 700~1.5GHz with in 100/133MHz FSB.

Speed

- Supports 33MHz PCI Bus speed.
- Supports 4X AGP Bus.

DRAM Memory

- Supports 8/16/32/64....MB DIMM module socket.
- Supports Synchronous DRAM(3.3V)
- Supports a maximum memory size of 1.536GB with SDRAM.

Shadow RAM

- A memory controller provide shadow RAM and supports 8-bit ROM BIOS.

Green Function

- Support power management operation VIA BIOS.
- Power down timer from 1 to 15 mins.
- Wakes from power saving sleep mode at the press of any key or any mouse activity.

Bus Slots

- Provide one ISA slot and one AMR slot and AGP slot.
- Five 32-bit PCI bus.

Universal Serial Bus

-Supports two back Universal Serial Bus(USB)Ports
and two front Universal serial Bus(USB)Ports.

Hardware Monitor Function

-CPU Fan Speed Monitor.
-CPU Temperature Monitor.
-System Voltage Monitor.

Flash Memory

-Support 2MB flash memory.
-Support ESCD Function.

IDE Bulit-in On Board

-Supports four IDE devices.
-Supports PIO Mode 5, Master Mode, high performance hard disk drives.
-Support Ultra DMA 33/66/100 Bus Master Mode.
-Supports IDE interface with CD-ROM.
-Supports high capacity hard disk drives.
-Support LBA mode.

PCI-Based AC 97 Digital Audio Processor

-AC 97 2.1 interface.
-16 channels of high-quality sample rate conversion.
-16x8 channel digital mixer.
-Stereo 10 band graphic equalizer.
-Sound Blaster and Sound Blaster Pro emulation.

WOL/WOM (Wake On LAN & Wake On Modem)

Supports system power up from LAN/Modem ring up .

Smart Panel

Supports BIOS Port 80H POST Code output to debug LED.

I/O Built-in On Board

- Supports one multi-mode Parallel Port.
 - (1)Standard & Bidirection Parallel Port
 - (2)Enhanced Parallel Port (EPP)
 - (3)Extended Capabilities Port
- Supports two serial ports, 16550 UART.
- Supports one Infrared transmission (IR).
- Supports PS/2 mouse and PS/2 Keyboard.
- Supports 360KB, 720KB, 1.2MB, 1.44MB, and 2.88MB floppy disk drivers.

1.1.2 Software**BIOS**

- AWARD legal BIOS.
- Supports APM 1.2.
- Supports USB Function.
- Supports ACPI

Operation System

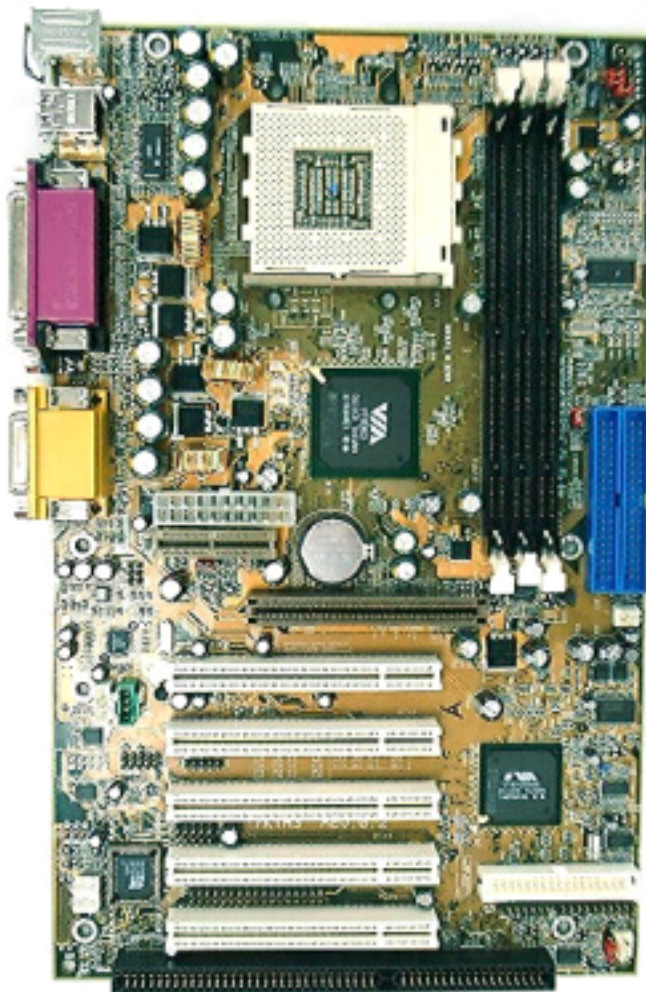
- Offers the highest performance forMS-DOS,Windows, Windows NT, Windows 2000, Windows ME, Novell, OS/2, Windows 95/98, Windows 98 SE, UNIX, SCO UNIX etc.

1.1.3 Attachments

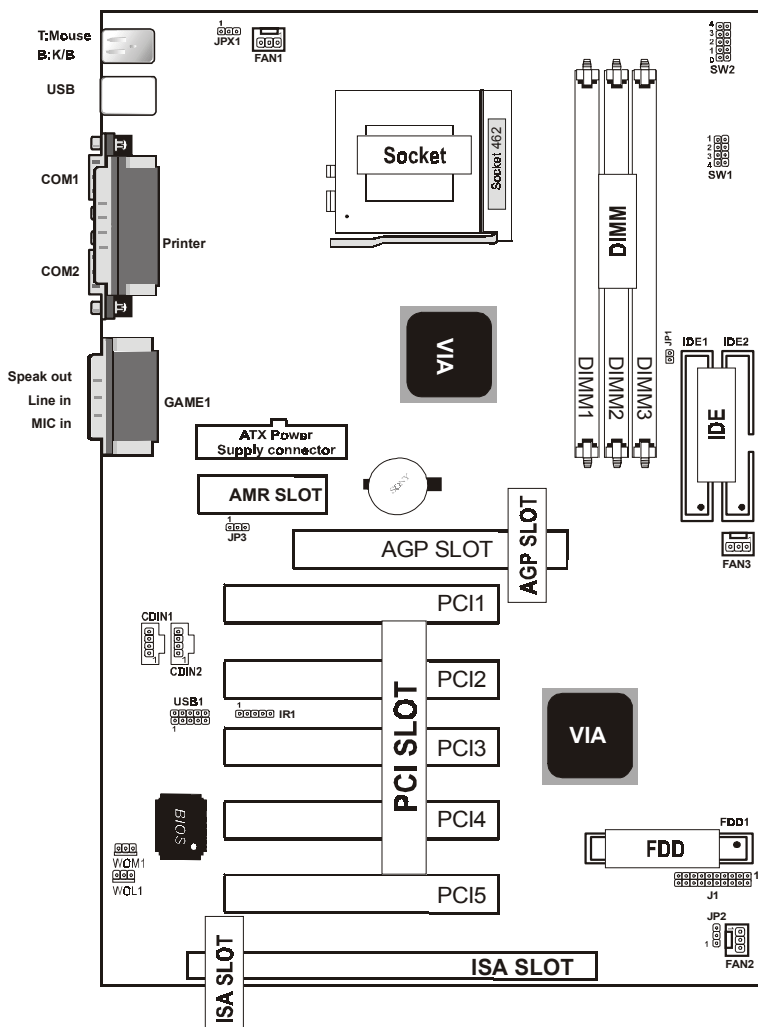
- HDD UDMA66/100 Cable.
- FDD Cable.
- Flash Memory Written for BIOS Update.
- USB2 Cable **(Option)**.
- Fully Setup CD Driver built in Utility(Ghost, Anitivirus, Adobe Acrobat).
- This Manual.

1.2 Motherboard Installation

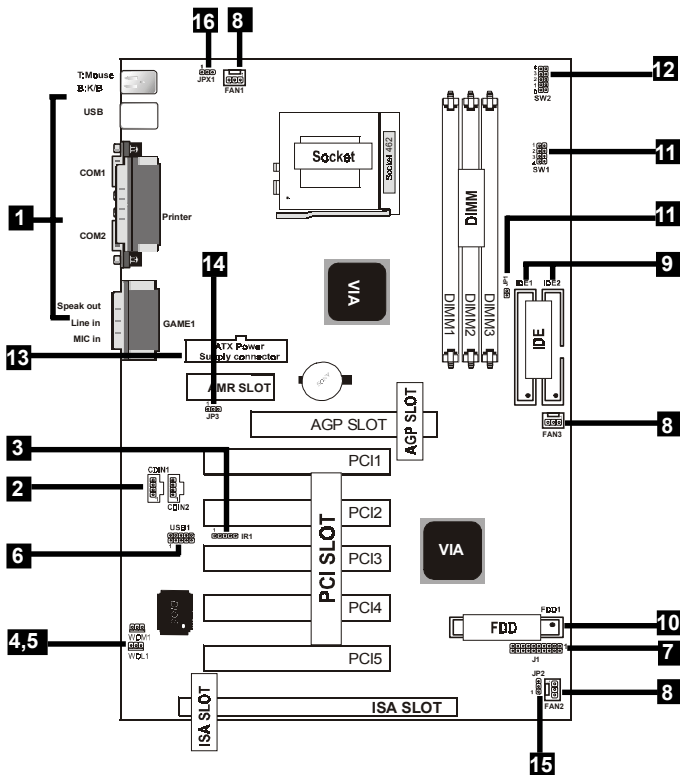
1.2.1 Motherboard Map



1.2.2 Motherboard Layout

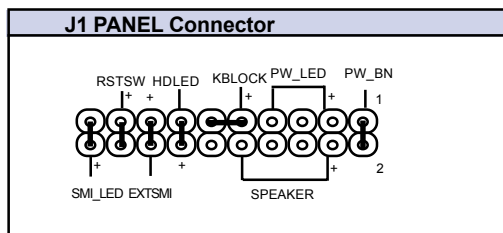


1.3 Motherboard Connectors



- | | |
|------------------------------------|------------------------------|
| 1. Back Panel I/O Connectors | 2. CD Audio-In Connector |
| 3. IR Connector | 4. Wake-On MODEM Connector |
| 5. Wake-On-LAN Connector | 6. Front USB2 Connector |
| 7. Front Panel Connector(J1) | 8. Fan Connectors(Fan1/2/3) |
| 9. IDE Connectors | 10. Floppy Connector |
| 11. CPU Freq. Setting(SW1/JP1) | 12. CPU Ratio Selection(SW2) |
| 13. ATX Power Connector | 14. AMR CODEC Selection(JP3) |
| 15. CMOS Function Selection(JP2) | |
| 16. Keyboard Wake up Setting(JPX1) | |

1.3.1 Front Panel Connector (J1)



Speaker Connector (SPEAKER)

An offboard speaker can be installed onto the motherboard as a manufacturing option. An offboard speaker can be connected to the motherboard at the front pannel connector. The speaker (onboard or offboard) provides error beep code information during the Power Self-Test when the computer cannot use the video interface. The speaker is not connected to the audio subsystem and does not receive output from the audio subsystem.

Hard Drive LED Connector (HDLED)

This connector supplies power to the cabinet IDE activity LED. Read and write activity by devices connected to the Primary or Secondary IDE connectors will cause the LED to light up.

SMI Suspend Switch Lead (EXTSMI)

This allows the user to manually place the system into a suspend mode of Green mode. System 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 use the "Turbo Switch" instead since it does not have a function. SMI is activated when it detects a short. 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 Suspend Switch Lead cannot wake-up the system). If you want to use this connector, the "Suspend Switch" in the Power Management Setup of the BIOS SOFTWARE section should be on the default setting of Enable.

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 .

Power LED Lead (PW_LED)

The system power LED lights when the system power is on.

Keyboard Lock (KBLOCK)

The header is for setting keyboard locked.

Reset Switch Lead (RSTSW)

The connector can be connected to a momentary SPST type switch that is normally open. When the switch is closed, the motherboard resets and runs the POST.

SMI_LED Lead (SMI_LED)

The system SMI_LED lights when the system suspend is on.

1.3.2 Floppy Disk Connector (FDD)

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

1.3.3 Hard Disk Connectors (IDE1/IDE2)

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.

If you install two hard disks, you must configure the second drive to Slave mode by setting its jumper settings. 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) .

1.3.4 ATX 20-pin Power Connector (ATX)

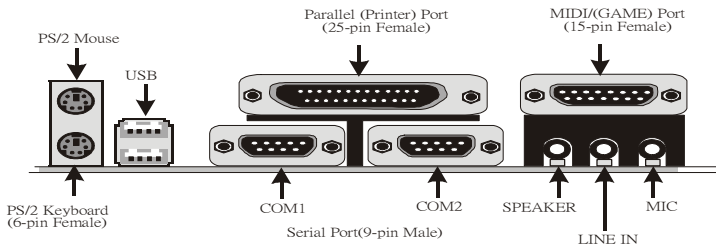
This connector supports the power button on-board. Using the ATX power supply, functions such as Modem Ring Wake-Up and Soft Power Off are supported on this motherboard. This power connector supports instant power-on functionality, which means that the system will boot up instantly when the power connector is inserted on the board.

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

1.3.5 Infrared Connector (IR1)

After the IrDA interface is configured, files can be transferred from or to portable devices such as laptops, PDAs, and printers using application software.

1.4 Back Panel Connectors



1.4.1 PS/2 Mouse /Keyboard CONN.

The motherboard provides a standard PS/2 mouse / Keyboard mini DIN connector for attaching a PS/2 mouse. You can plug a PS/2 mouse / Keyboard directly into this connector.

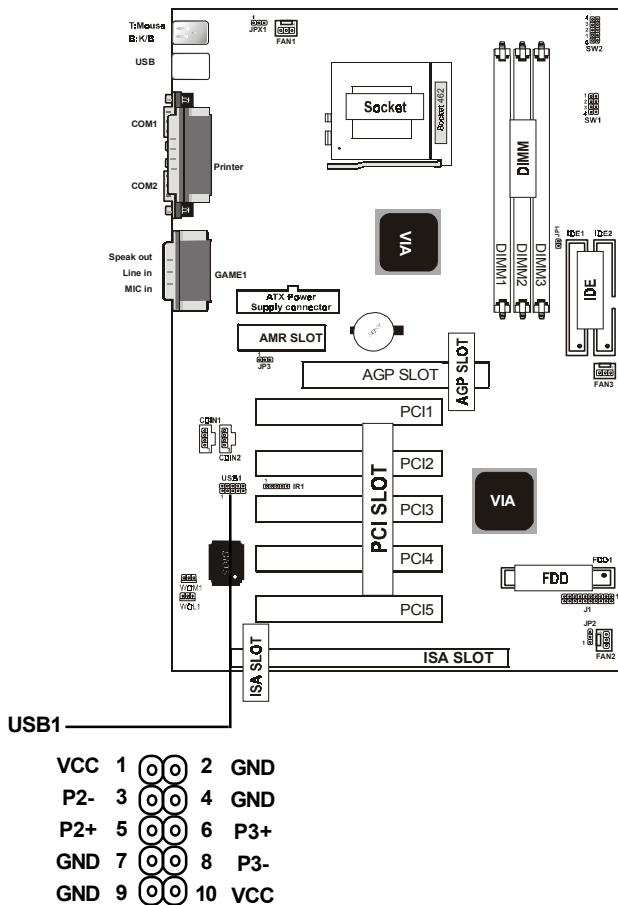
1.4.2 USB Connectors: USB & USB1

The motherboard provides a OHCI(Open Host Controller Interface)Universal Serial Bus Roots for attaching USB devices such as a keyboard, mouse and other USB devices. You can plug the USB devices directly into this connector.



| Pin | Signal |
|-----|----------------|
| 1 | +5V_SB |
| 2 | USBP0-(USBP1-) |
| 3 | USBP0+(USBP1+) |
| 4 | GND |

Front Two USB Connectors: USB1



1.5 Serial and Parallel Interface Ports

This system comes equipped with two serial ports and one parallel port. Both types of interface ports will be explained in this chapter.

The Serial Interfaces: COM1/COM2

The serial interface port is sometimes referred to as an RS-232 port or an asynchronous communication port. Mice, printers, modems and other peripheral devices can be connected to a serial port. The serial port can also be used to connect your computer system. If you wish to transfer the contents of your hard disk to another system it can be accomplished by using each machine's serial port.

COM1/COM2

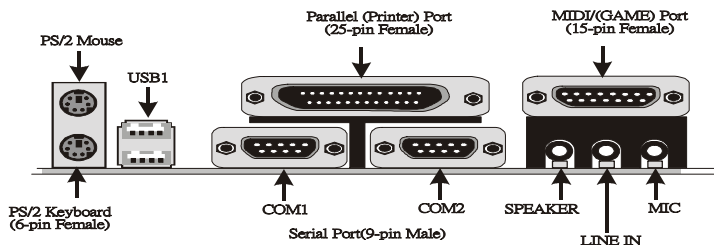


The serial port on this system has one 9-pin connector. Some older computer systems and peripherals used to be equipped with only a 25-pin connector. Should you need to connect your 9-pin serial port to an older 25-pin serial port, you can purchase a 9-to-25 pin adapter.

| Signal | DB9 Pin | DB25 Pin |
|--------|---------|----------|
| DCD | 1 | 8 |
| RX | 2 | 3 |
| TX | 3 | 2 |
| DTR | 4 | 20 |
| GND | 5 | 7 |
| DSR | 6 | 6 |
| RTS | 7 | 4 |
| CTS | 8 | 5 |
| RI | 9 | 22 |

Parallel Interface Port

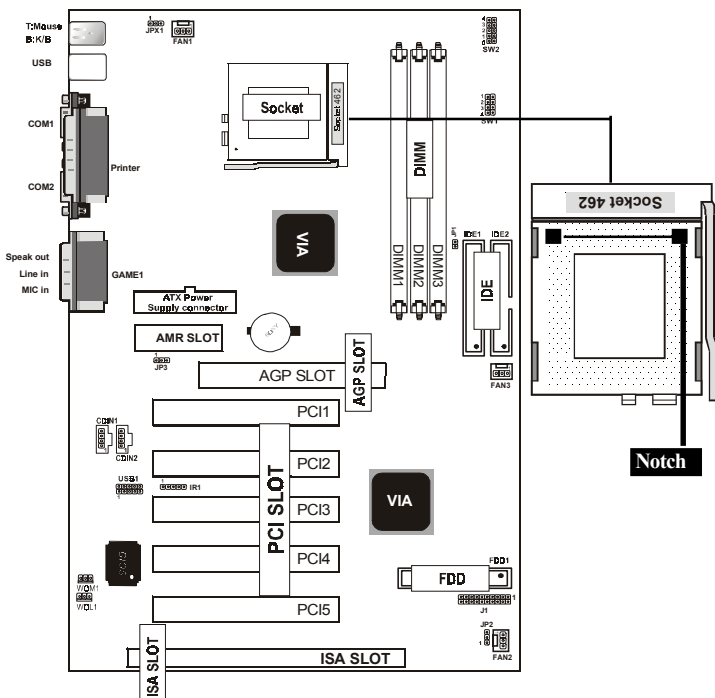
Unlike serial ports, parallel interface ports have been standardized and should not present any difficulty interfacing peripherals to your system. Sometimes called a Centronics port, the parallel port is almost exclusively used with printers. The parallel port on your system has a 25-pin, DB 25 connector(see the picture below).



1.6 CPU Installation

1.6.1 CPU Installation Procedure: Socket 462

1. Pull the lever sideways away from the socket then raise the lever to a 90-degree angle.
2. Locate Pin 1 in the socket and look for the white dot or cut edge in the CPU. Match Pin 1 with the white dot/cut edge then insert the CPU.
3. Press the lever down to complete the installation.
4. Make sure the spec of the heatsink is good enough.



1.6.2 CPU Clock Frequency Setting: SW1/JP1

Overclocking is operating a CPU/Processor beyond its specified frequency. JP1 jumper is used for the CPU Front Side Bus Frequencies from 100MHz to 133MHz.

The diagram shows a top-down view of a motherboard. Key components labeled include: CPU Socket, DIMM slots (DIMM1, DIMM2, DIMM3), AGP SLOT, PCI SLOTS (PCI1, PCI2, PCI3, PCI4), AMR SLOT, ATX Power Supply connector, GAME1, COM1, COM2, USB, and various connectors like Telephone R/K/B, USB, COM1, COM2, Speaker out, Line In, MIC In, and FDD1. Two VIA chips are indicated. Jumper SW1 is located near the DIMM slots, and JP1 is near the AMR slot. A 4-pin header is shown with pins numbered 1 to 4.


| SW1 | 1 | 2 | 3 | 4 | CPU (MHz) | PCI (MHz) |
|-----|---|---|---|---|-----------|-----------|
| | 0 | 1 | 0 | 0 | 100 | 33.33 |
| | 0 | 1 | 1 | 0 | 133 | 33.33 |


















| Pin JP1 | Assignment |
|---------|--------------------------|
| On | CPU FSB=100MHz (Default) |
| Off | CPU FSB=133MHz |





1.6.3 CPU Ratio Selection: SW2

SW2 jumper is used for the CPU Ratio selection.



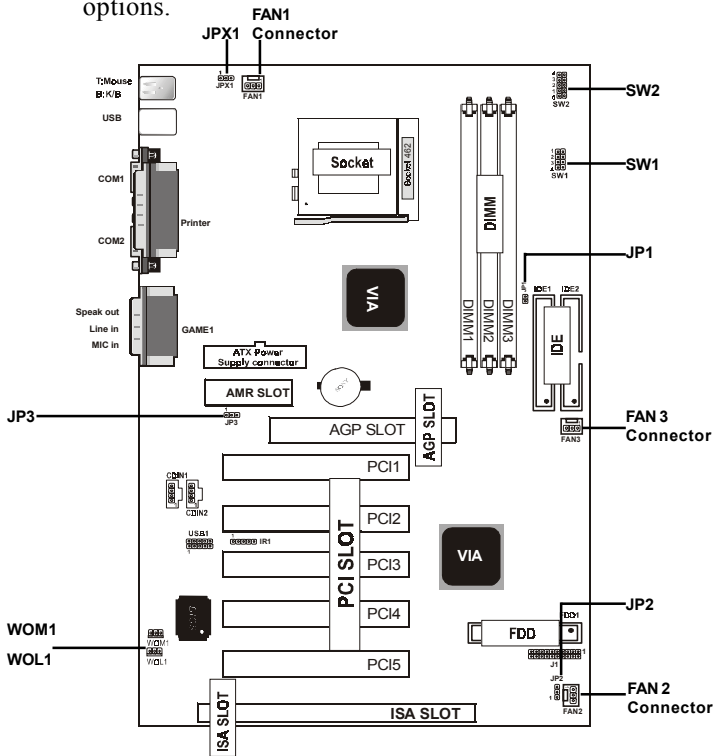
| Ratio | SW2 | 0 | 1 | 2 | 3 | 4 |
|---------|--|---|---|---|---|---|
| Auto ** |  0 1 2 3 4 | 1 | 0 | 0 | 0 | 0 |
| Manual | | | | | | |
| 5.0 |  0 1 2 3 4 | 0 | 1 | 1 | 0 | 1 |
| 5.5 |  0 1 2 3 4 | 0 | 0 | 1 | 0 | 1 |
| 6.0 |  0 1 2 3 4 | 0 | 1 | 0 | 0 | 1 |
| 6.5 |  0 1 2 3 4 | 0 | 0 | 0 | 0 | 1 |
| 7.0 |  0 1 2 3 4 | 0 | 1 | 1 | 1 | 0 |
| 7.5 |  0 1 2 3 4 | 0 | 0 | 1 | 1 | 0 |
| 8.0 |  1 1 2 3 4 | 0 | 1 | 0 | 1 | 0 |
| 8.5 |  0 1 2 3 4 | 0 | 0 | 0 | 1 | 0 |
| 9.0 |  0 1 2 3 4 | 0 | 1 | 1 | 0 | 0 |
| 9.5 |  0 1 2 3 4 | 0 | 0 | 1 | 0 | 0 |
| 10.0 |  0 1 2 3 4 | 0 | 1 | 0 | 0 | 0 |
| 10.5 |  0 1 2 3 4 | 0 | 0 | 0 | 0 | 0 |
| 11.0 |  0 1 2 3 4 | 0 | 1 | 1 | 1 | 1 |
| 11.5 |  0 1 2 3 4 | 0 | 0 | 1 | 1 | 1 |
| 12.0 |  0 1 2 3 4 | 0 | 1 | 0 | 1 | 1 |
| 12.5 |  0 1 2 3 4 | 0 | 0 | 0 | 1 | 1 |

*** is default.

1 1
0:  1: 
Off On

1.7 Jumper Setting

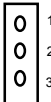
A jumper has two or more pins that can be covered by a plastic jumper cap, allowing you to select different system options.




1.7.1 CPU/System Fan Connector: Fan1/2

| Pin | Assignment |
|-----|------------|
| 1 | Signal |
| 2 | +12VDC |
| 3 | Ground |


1.7.1 CPU/System Fan Connectors: Fan3

| Pin | Assignment |
|---|------------|
|  1 | NA |
| 2 | +12VDC |
| 3 | Ground |

1.7.2 Wake-On Modem Header: WOM1

| Pin | Assignment |
|---|------------|
|  1 | 5VSB |
| 2 | Ground |
| 3 | Signal |

1.7.3 Wake-On LAN Header: WOL1

| Pin | Assignment |
|---|------------|
|  1 | 5VSB |
| 2 | Ground |
| 3 | Signal |

1.7.4 AMR CODEC Selection: JP3

| Pin | Assignment |
|-----|----------------------------|
| 1-2 | Onboard CODEC (Default) |
| 2-3 | AMR Primary CODEC |

1.7.5 CMOS Function Select: JP2

| Pin | Assignment |
|-----|------------------|
| 1-2 | Normal (Default) |
| 2-3 | Clear CMOS |

NOTE:

(Please follow the procedure below to clear CMOS data.)

- (1) Remove the AC power line.
- (2) JP2(2-3) Closed.
- (3) Wait five seconds.
- (4) JP2(1-2) Closed.
- (5) AC Power on.
- (6) Reset your desired password or clear CMOS data.

1.7.6 Keyboard Wake up Setting: JPX1

The JPX1 Jumper is for setting keyboard power. This function is provided by keyboard wake-up function.

| Pin | Assignment |
|-----|--------------------------------|
| 1-2 | Keyboard on enabled |
| 2-3 | Keyboard on disabled (Default) |

1.8 DRAM Installation

1.8.1 DIMM

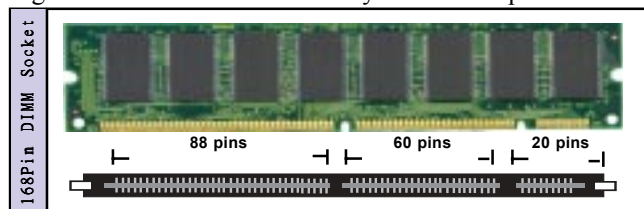
DRAM Access Time: 3.3V Unbuffered SDRAM PC100 and PC133 Type required.

DRAM Type: 8MB, 16MB, 32MB, 64MB, 128MB, 256MB, 512MB DIMM Module.(168 pin)

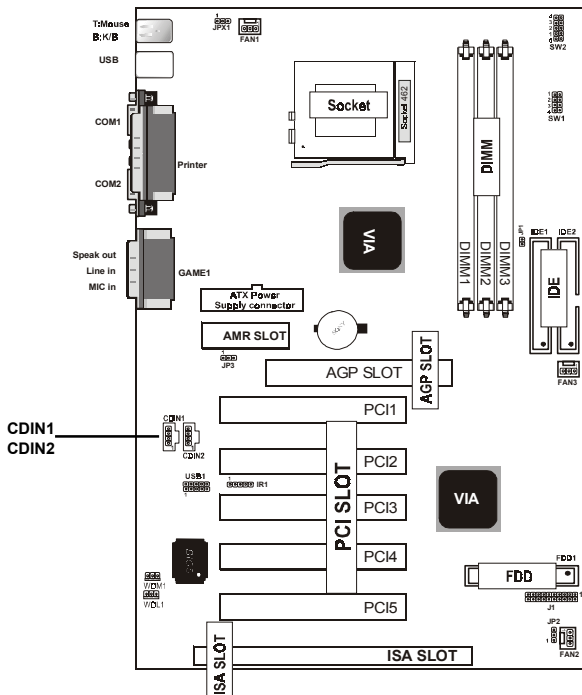
| Bank | Memory module |
|------------------------|---|
| DIMM 1 (Bank 0-1) | 16MB,32MB, 64MB, 128MB, 256MB, 512MB 168 pin, 3.3v SDRAM |
| DIMM 2 (Bank 2-3) | 16MB,32MB, 64MB, 128MB, 256MB, 512MB 168 pin, 3.3vSDRAM |
| DIMM 3 (Bank 4-5) | 16MB,32MB, 64MB, 128MB, 256MB, 512MB 168 pin, 3.3v SDRAM |
| | Total System Memory(Max 1.536GB) |

1.8.2 How to install a DIMM Module

1. The DIMM socket has a “Plastic Safety Tab” and the DIMM memory module has an asymmetrical notch”, so the DIMM memory module can only fit into the slot in one direction.
2. Push the tabs out. Insert the DIMM memory modules into the socket at a 90-degree angle then push down vertically so that it will fit into place.
3. The Mounting Holes and plastic tabs should fit over the edge and hold the DIMM memory modules in place.



1.9 Audio Subsystem



1.9.1 CD Audio-in Connectors: CDIN1/CDIN2

| Pin CDIN1 | Assignment |
|-----------|------------|
| 1 | CD-L |
| 2 | GND |
| 3 | GND |
| 4 | CD-R |

| Pin CDIN2 | Assignment |
|-----------|------------|
| 1 | GND |
| 2 | CD-L |
| 3 | GND |
| 4 | CD-R |