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## 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 is designed for Intel PIII/Celeron/Coppermine processors base PC ATX system, support single processors with AMR Bus, PCI Local Bus to support upgrades to 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 , UNIX , Windows 98SE , 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.

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## 1.Motherboard Description

### 1.1 Features

#### 1.1.1 Hardware

##### CPU

- Socket 370 for Intel Celeron/PIII Processors.
- Intel FC-PGA/PPGA Celeron Processors 600MHz~900MHz or higher processor with 66/100MHz FSB.
- Intel Coppermine Pentium III Processors 500MHz~1GHz or higher processor with 100/133MHz FSB.
- VIA Cyrix III Processor with 100/133MHz FSB.

##### DRAM Memory

- Supports 8/16/32/64....MB DIMM module socket.
- Supports Synchronous DRAM(3.3V)
- Supports a maximum memory size of 1GB with SDRAM.

##### Flash Memory

- Support 2/4MB flash memory.
- Support ESCD Function.

##### 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.

##### Universal Serial Bus

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

##### Bus Slots

- Provide one AMR slot.
- Two 32-bit PCI bus.

**Hardware Monitor Function**

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

**TV-OUT**

- Onboard VIA VT1621.
- Support NTSC/PAL TV output.
- Support composite, S-Video output.
- support 600\*480 / 800\*600 resolution.

**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.

**Network**

- Onboard Realtek 8100.
- Support 10/100Mb/s operation.
- Support wake on LAN function and remote wake up.

**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.

**Smart Panel**

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

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**I/O Bulit-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.
- Support VGA Port Interface.
- 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**

- Supporting the highest performance for MS-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**

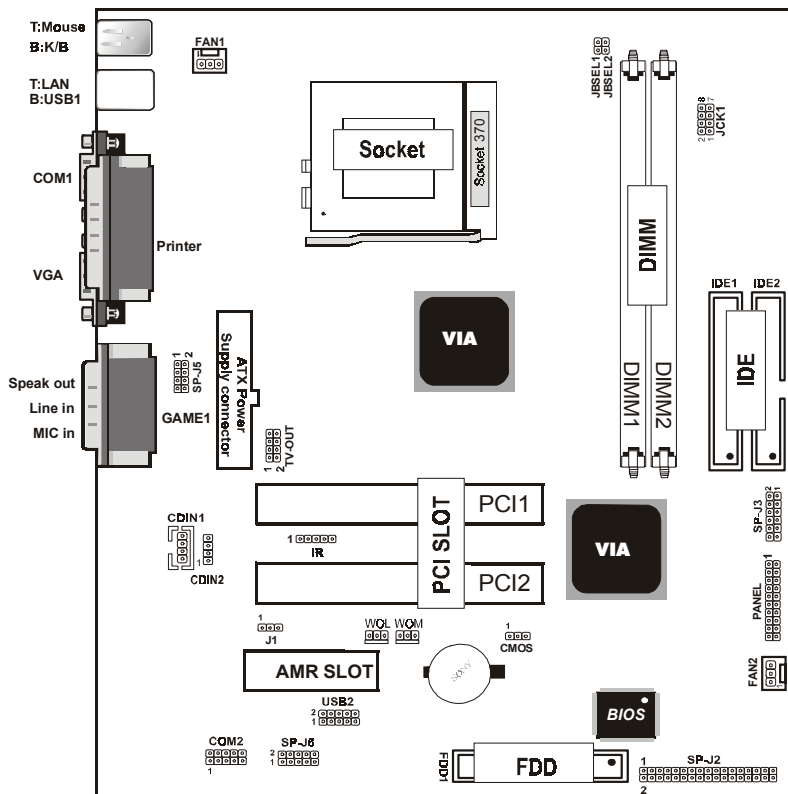
- HDD UDMA66/100 Cable.
- FDD Cable.
- Flash Memory Written for BIOS Update.
- USB2 Cable **(Option)**.
- TV-OUT Cable **(Option)**.
- Fully Setup CD Driver built in Utility(Ghost, Anitivirus, Adobe Acrobat).
- This Manual.

## 1.2 Motherboard Installation

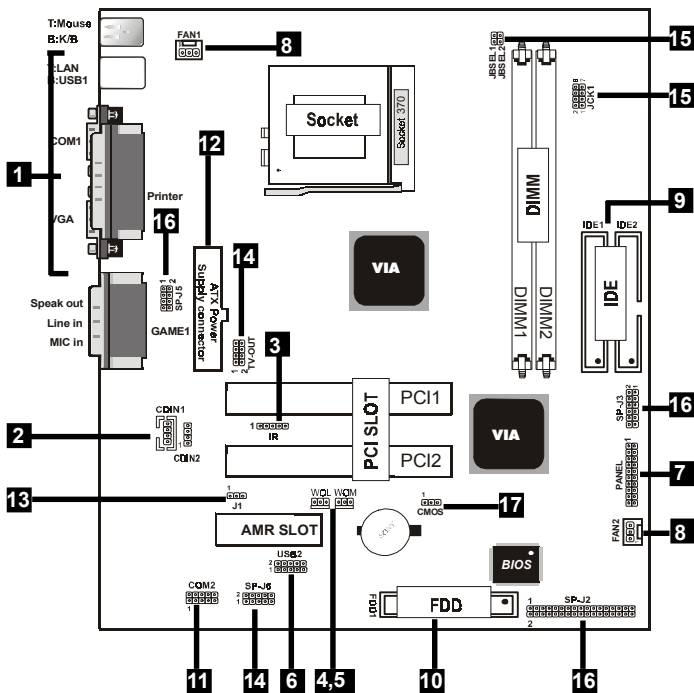
### 1.2.1 Motherboard Map



### 1.2.2 Motherboard Layout

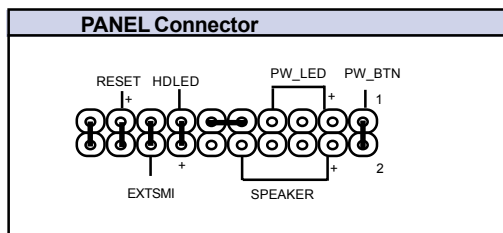


## 1.3 Motherboard Connectors



- |  |                          |
|--|--------------------------|
| 1.Back Panel I/O Connectors                        | 2.CD Audio-In Connector  |
| 3.IR Connector                                     | 4.Wake-On-LAN Connector  |
| 5.Wake-On-MODEM Connector                          | 6.Front USB2 Connector   |
| 7.Front Panel Connector                            | 8.Fan Connectors(Fan1/2) |
| 9.IDE Connectors                                   | 10.Floppy Connector      |
| 11.Front COM2 Connector                            | 12.ATX Power Connector   |
| 13.AC' 97 CODEC Selection(J1)                      | 14.TV-OUT Connector      |
| 15.CPU Clock Setting(JCK1/JBSEL1/JBSEL2)           |                          |
| 16.Smart Panel Function(SP-J2/SP-J3/SP-J6)(option) |                          |
| 17.CMOS Function Selection(CMOS)                   |                          |

### 1.3.1 Front Panel Connector (PANEL)



#### 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.



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**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.

**Reset Switch Lead (RESET)**

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.

**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)

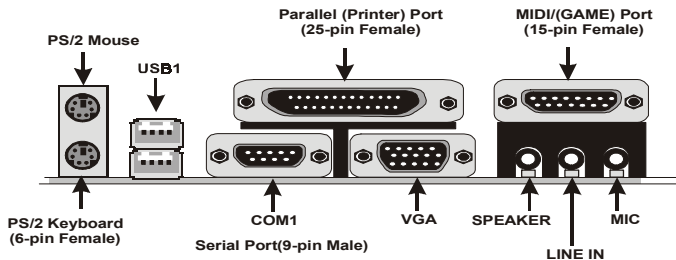
This connector supports the power button on-board. Using the ATX power supply, functions such as Modem Ring Wake-Up and Soft Power Off are supported on this motherboard. This power connector supports instant power-on functionality, which means that the system will boot up instantly when the power connector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

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.

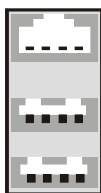
### 1.4.2 USB Connectors: USB1+RJ-45

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

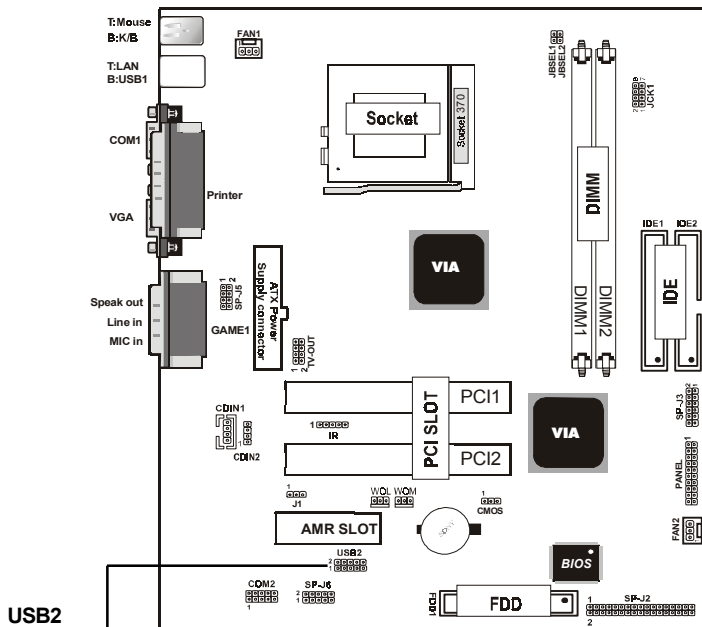
#### RJ-45



1 2 3 4  
USB1

Pin	Signal
1	+5V_SB
2	USBP0-(USBP1-)
3	USBP0+(USBP1+)
4	GND
RJ45	10/100M LAN Port

## Front Two USB Connectors: USB2



VCC	1		2	GND
P2-	3		4	GND
P2+	5		6	P3+
GND	7		8	P3-
GND	9		10	VCC

### 1.4.3 VGA Interface Connector:VGA(15 Pin)

This connector is for output to VGA-compatible devices.

VGA



### 1.4.4 RJ-45 Connector

Onboard 10/100MB PCI Fast Ethernet Network.

The RJ-45 connector is located on top of the USB connectors. The connector allows the motherboard to connect to a Local Area Network (LAN) through a network hub .

## 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.

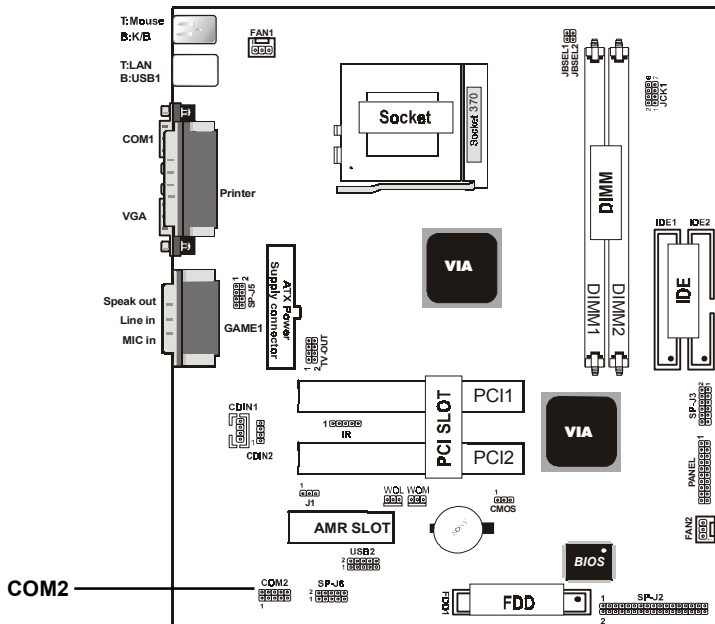
### The Serial Interfaces: COM1/COM2

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.



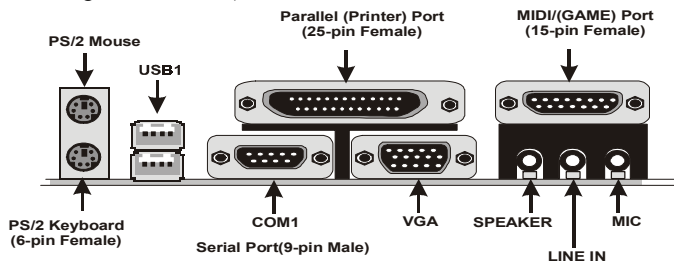
The serial port on this system has one 9-pin connector. Some older computer systems and peripherals used to be equipped with only a 25-pin connector. Should you need to connect your 9-pin serial port to an older 25-pin serial port, you can purchase a 9-to-25 pin adapter.

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

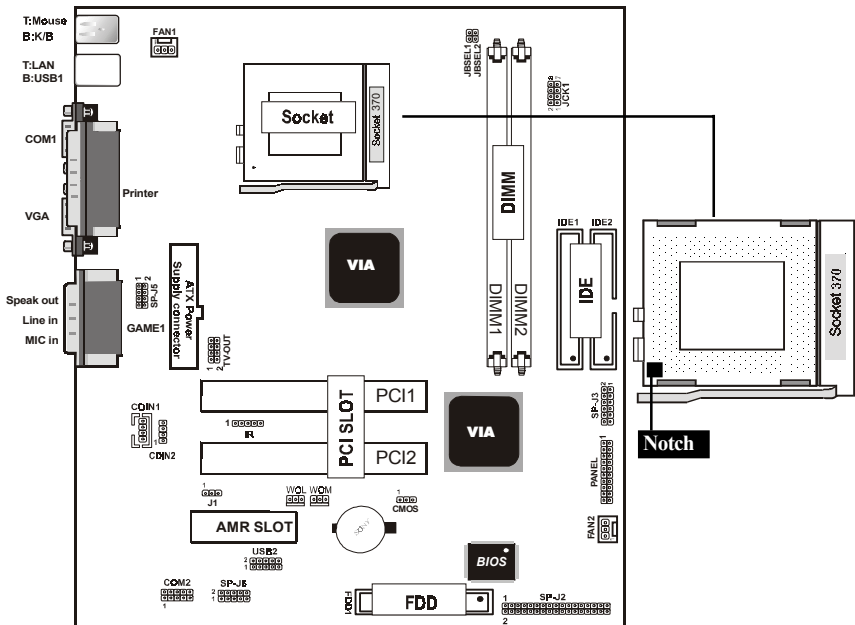
Unlike serial ports, parallel interface ports have been standardized and should not present any difficulty interfacing peripherals to your system. Sometimes called a Centronics port, the parallel port is almost exclusively used with printers. The parallel port on your system has a 25-pin, DB 25 connector(see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



## 1.6 CPU Installation

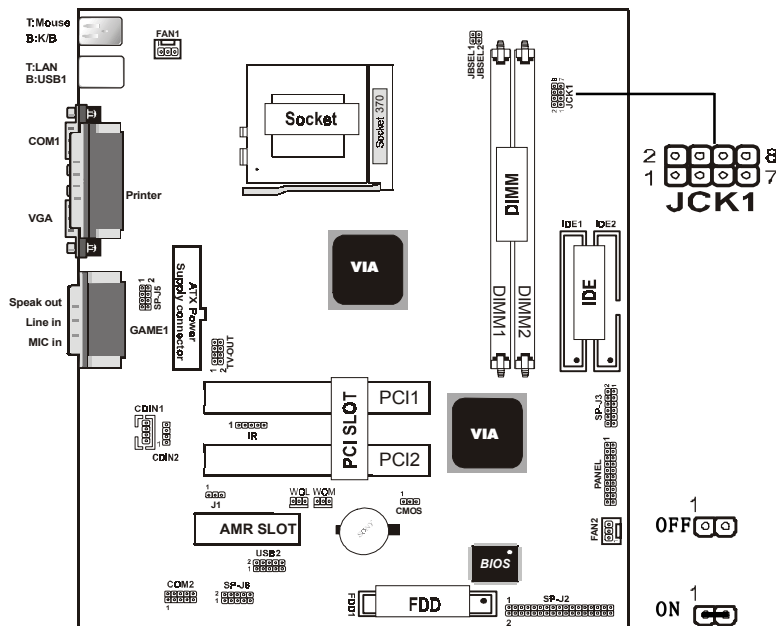
### 1.6.1 CPU Installation Procedure: Socket 370

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: JCK1/JBSEL1&2

Overclocking is operating a CPU/Processor beyond its specified frequency. JCK1 jumper is used for the CPU Front Side Bus Frequencies from 100MHz to 133MHz.

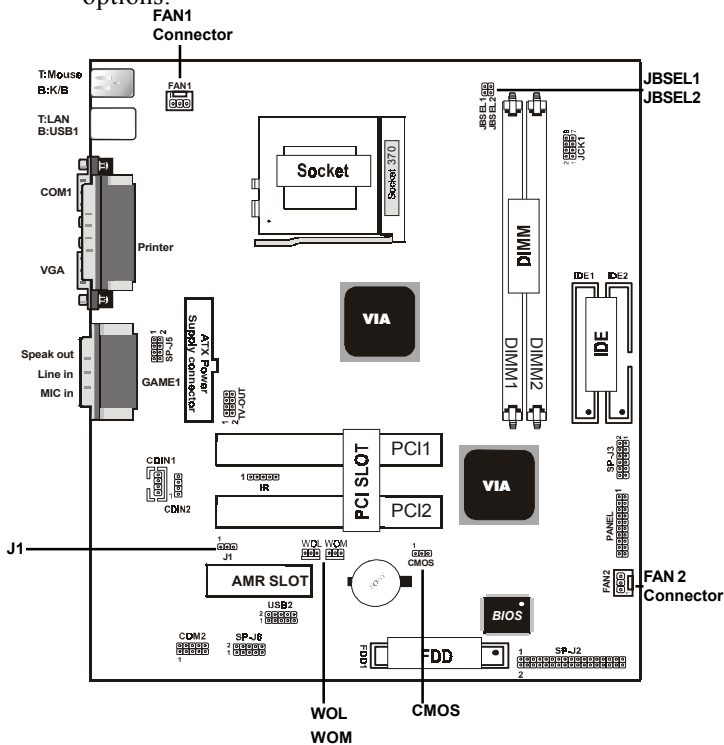


JBSEL1	JBSEL2	JCK1				Bus Freq.
		1-2	3-4	5-6	7-8	
OFF	OFF	OFF	OFF	OFF	OFF	133MHz
OFF	OFF	OFF	ON	OFF	OFF	100MHz
OFF	OFF	ON	ON	OFF	OFF	66MHz
ON	ON	OFF	OFF	ON	ON	Auto



## 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	Ground
2	+12VDC
3	Signal

**1.7.2 Wake-On Modem Header: WOM**

Pin	Assignment
 1	5V_SB
2	Ground
3	Signal

**1.7.3 Wake-On LAN Header: WOL**

Pin	Assignment
 1	5V_SB
2	Ground
3	Signal

**1.7.4 AC'97 CODEC Selection: J1**

Pin	Assignment
1-2	On board CODEC is used (Default)
2-3	Disabled

**1.7.5 CMOS Function Selection:CMOS**

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

## 1.8 DRAM Installation

### 1.8.1 DIMM

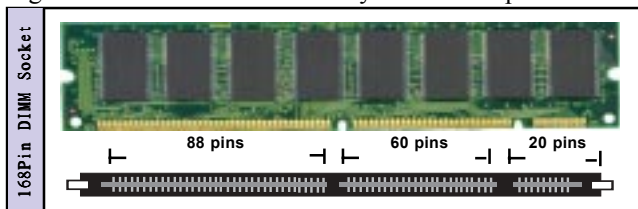
DRAM Access Time: 3.3V Unbuffered SDRAM/ PC66/  
PC100 and PC133 Type required.

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

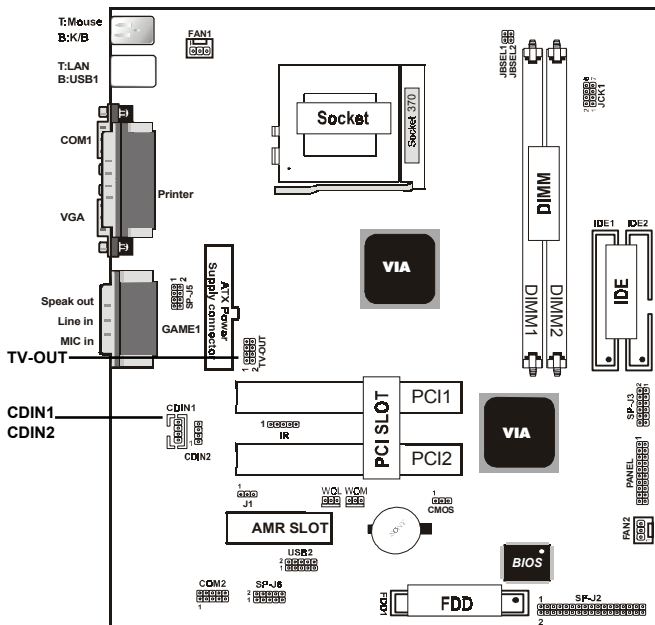
Bank	Memory module
DIMM 1 ( Bank 0-1 )	16MB, 32MB, 64MB, 128MB, 256MB, 512MB 168 pin,3.3v SDRAM
DIMM 2 ( Bank 2-3 )	16MB, 32MB, 64MB, 128MB, 256MB, 512MB 168 pin 3.3v,SDRAM
<b>Total System Memory (Max 1GB)</b>	

### 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	CD-L
2	GND
3	GND
4	CD-R



### 1.10.1 Port 80 Debug Function: SP-J6

For Smart Panel connector(SP-J6) to M/B (SP-J6)

Pin SP-J6	Assignment	Pin SP-J6	Assignment
1	ERD4	2	ERD0
3	ERD5	4	ERD1
5	ERD6	6	ERD2
7	ERD7	8	ERD3
9	GND	10	NC

### 1.10.2 Second BIOS Connector: SP-J2

For Smart Panel connector(SP-J2) to M/B (SP-J2)

Pin SP-J2	Assignment	Pin SP-J2	Assignment
1	SD0	2	+5V
3	SD1	4	SA0
5	SD2	6	SA1
7	SD3	8	SA2
9	SD4	10	SA3
11	SD5	12	SA4
13	SD6	14	SA5
15	SD7	16	SA6
17	GND	18	DISABLE
19	ROMCS-	20	SA7
21	MEMR-	22	SA8
23	MEMW-	24	SA9
25	SA18	26	SA10
27	SA17	28	SA11
29	SA16	30	SA12
31	SA15	32	SA13
33	+5V	34	SA14

### 1.10.3 Suspend Mode / Voice Debug: SP-J3

For Smart Panel connector(SP-J3) to M/B (SP-J3)

Pin SP-J3	Assignment	Pin SP-J3	Assignment
1	5V_SB	2	GND
3	GPO0	4	S3+
5	SUSA	6	GND
7	-PCISTP	8	S5+
9	SPEAKOUT	10	GPIOD
11	GND	12	-PCIRST

**1.10.4 AUX Line: SP-J5**

For Smart Panel connector(SP-J5) to M/B (SP-J5)

Pin SP-J5	Assignment	Pin SP-J5	Assignment
1	LINE_OUT_L	2	LINE_OUT_R
3	LINE_IN_L	4	LINE_IN_R
5	MIC_IN_L	6	MIC_IN_R

**1.10.5 FSB Adjust: JCK1**

For Smart Panel connector(JCK1) to M/B (JCK1)

Pin JCK1	Assignment	Pin JCK1	Assignment
5	133/100 ADJ	6	GND
3	GND	4	GND