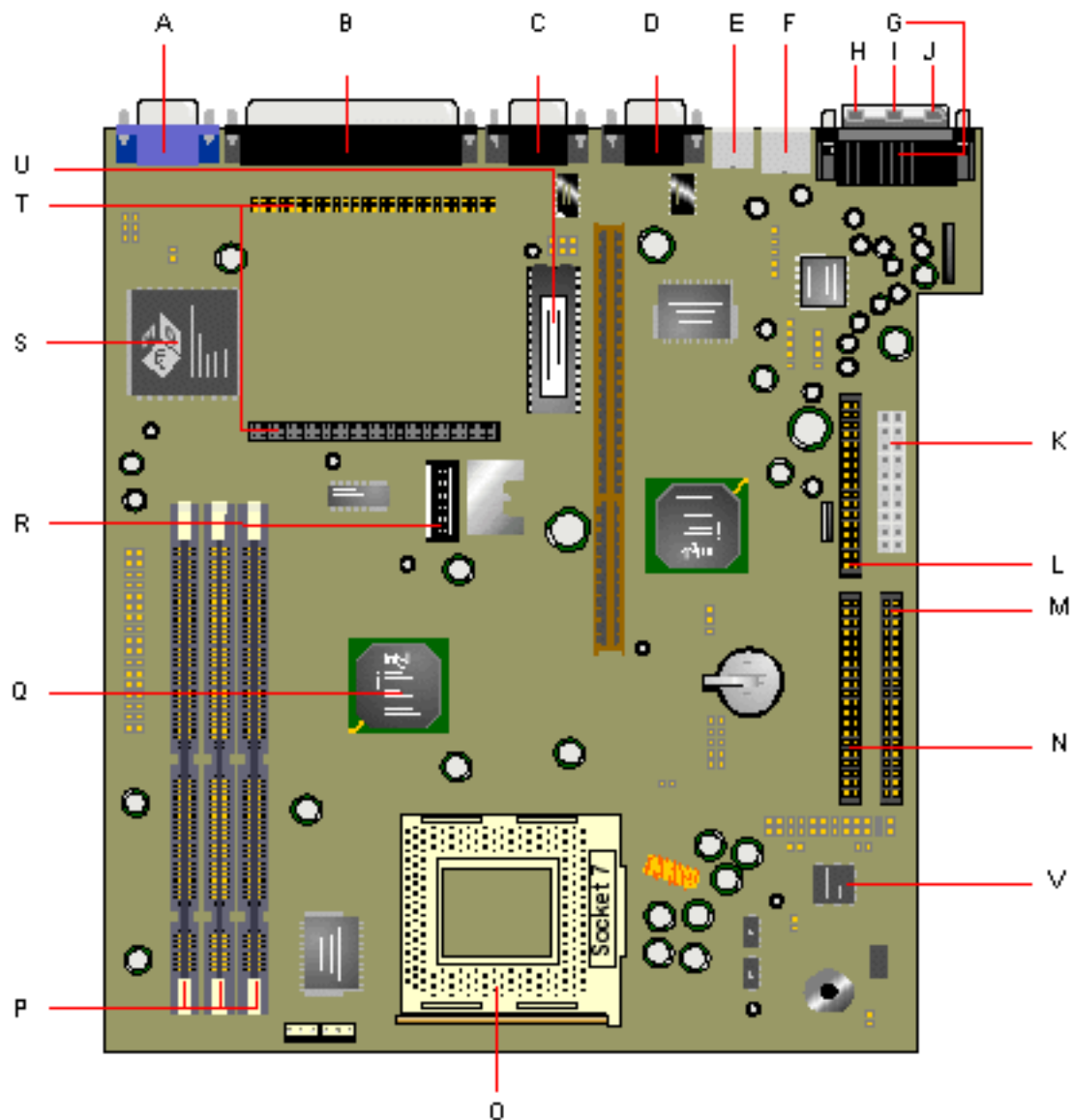


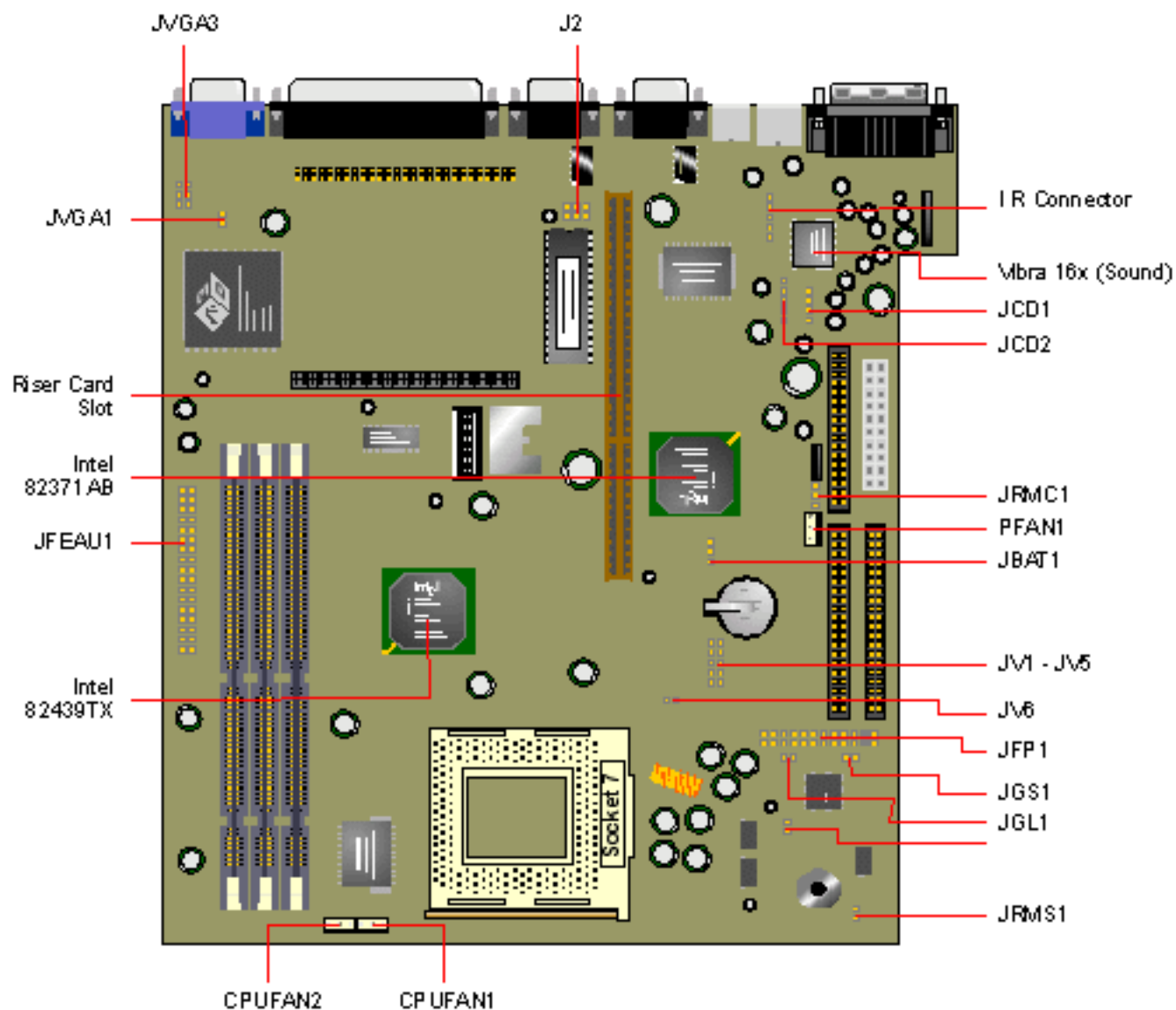
TTX System Board Connectors



Connector Descriptions

A	VGA Connector			K	ATX 20-Pin Power Connector
B	Parallel Port			L	FDD Connector
C	Serial Port (COM1)			M	IDE1 Connector
D	Serial Port (COM2)			N	IDE2 Connector
E	USB Ports	Top:	Port 1	O	CPU Socket 7
		Bottom:	Port 2	P	Three 168-PIN DIMM SOCKETS
F	PS/2 Ports	Top:	Mouse	Q	Intel-82489 TX
		Bottom:	Keyboard	R	Switch Block SW1
G	Game Port (Top) (optional)			S	ATI 3D Rage II+ DVD Controller Chip
H	Microphone (optional)			T	SGRAM Memory Module Connectors
I	Line In (optional)			U	Award Flash BIOS
J	Line Out (optional)			V	Hardware Monitoring Chip (optional)

TTX System Board (Jumpers)

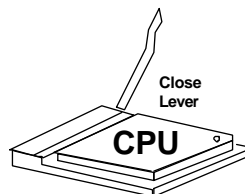
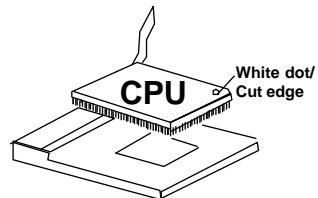
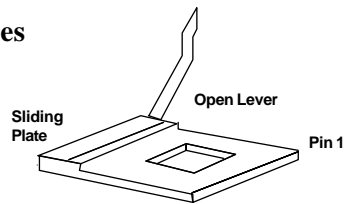


2.1 Central Processing Unit: CPU

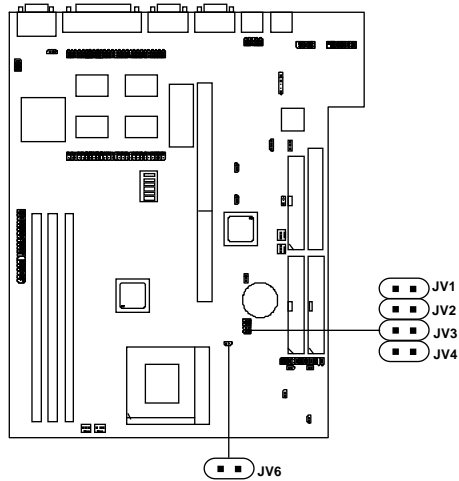
The LPX TX6 mainboard operates with Intel® Pentium® processor/
Pentium® processor w/MMX™ technology, Cyrix® 6x86/6x86L/6x86MX
and AMD® K5/K6 processors. It could operate with 2.0V to 3.5V proces-
sors. The mainboard provides a 321-pin ZIF Socket 7 for easy CPU
installation, a DIP switch (SW1) to set the proper speed for the CPU and a
Jumper block (JV1~JV4, JV6) for setting the CPU voltage. The CPU
should always have a cooling fan attached to prevent overheating.

2.1-1 CPU Installation Procedures



1. Pull the lever sideways away from the socket. Then raise the lever up 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. It should insert easily.
3. Press the lever down to complete the installation.



2.1-3 CPU Voltage Setting: JV1~JV4, JV6



V I/O	Vcore	JV1~JV4
3.5	3.5	
3.3	3.3	
3.3	3.2	
3.3	2.9	

V I/O	Vcore	JV1~JV4
3.3	2.8	
3.3	2.1	



JV6 is shorted, only if you're using an **Intel® Pentium® Overdrive®** processor.

2.1-4 CPU Speed and Voltage Setting: SW1 & JV1~JV4

To adjust the speed and voltage of the CPU, you must know the specifications of your CPU (*always ask the vendor for CPU specifications*). Then refer to **Table 2.1 (Intel® Pentium® processor)**, **Table 2.2 (Cyrix® processor)** and **Table 2.3 (AMD® processor)** for proper setting.

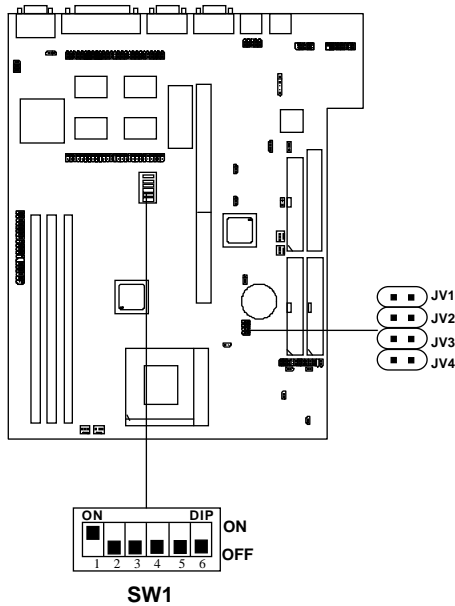


Table 2.1 Intel® Pentium® Processor

a. Intel® Pentium® Processors

CPU Type	CPU Voltage			CPU Speed
	VI/O	Vcore	JV1~JV4	SW1
90 MHz	3.38/3.52			
100 MHz				
120 MHz				
133 MHz				
150 MHz				
166 MHz				
200 MHz				

b. Intel® Pentium® Processors with MMX™ Technology



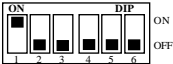

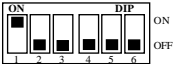


166 MHz	3.3	2.8		
200 MHz				
233 MHz				

Note: If you encounter a CPU with different voltage, just go to **Section 2.1-3** and look for the proper voltage settings.


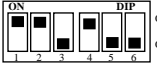
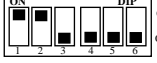

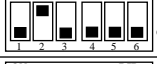


Table 2.2 Cyrix® Processor

Cyrix® processor uses PR to rate the speed of their processors based on Intel® Pentium® processor core speed. For example, PR150 (120MHz) has 150MHz core speed of Intel® Pentium® processor but has 120MHz core speed in Cyrix® processor. Cyrix® processor should always uses a more powerful fan (ask vendor for proper cooling fan).

a. Cyrix® 6x86/6x86L Processors

CPU Type	CPU Voltage			CPU Speed
	VI/O	Vcore	JV1~JV4	SW1
6x86 PR150	3.5			
6x86 PR166				
6x86L PR166	3.3	2.8		
6x86 PR200	3.5			
6x86L PR200				

b. Cyrix® 6x86MX Processors





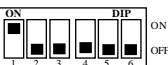

CPU Type	CPU Voltage			CPU Speed	
	VI/O	Vcore	JV1~JV4		
6x86MX PR166	3.3	2.9		60 x 2.5	
6x86MX PR200				66 x 2.5	
6x86MX PR233				75 x 2.5	
				66 x 3	
6x86MX PR266				75 x 3	
				66 x 3.5	

Note: If you encounter a CPU with different voltage, just go to **Section 2.1-3** and look for the proper voltage settings.

Table 2.3 AMD® Processor



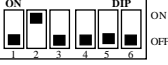

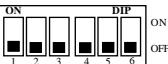
AMD® K5/K6 processor uses PR to rate the speed of their processors based on Intel® Pentium® processor core speed . For example PR133(100MHz) has 133MHz core speed of Intel® Pentium® processor but has 100MHz core speed in AMD® K5 processor.

a. AMD® K5 Processors

CPU Type	CPU Voltage			CPU Speed
	VI/O	Vcore	JV1~JV4	SW1
PR90	3.52			
PR100				
PR120				
PR133/PR150				
PR166				



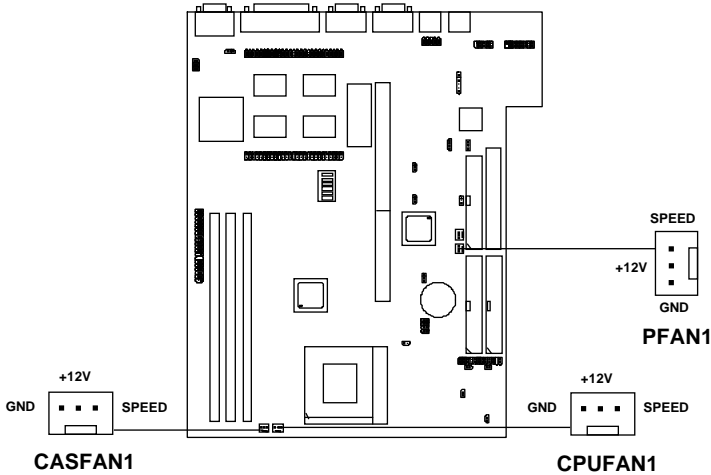
b. AMD® K6 Processors

PR166	3.3	2.9		
PR200				
PR233	3.3	3.2		

Note: If you encounter a CPU with different voltage, just go to **Section 2.1-3** and look for the proper voltage settings.


2.1-5 CPU Fan Power Connector: CPUFAN1 / PFAN1 & CASFAN1

These connectors support system cooling fan with +12V. It supports three pin head connector. When connecting the wire to the connector, always take note that the red wire is the positive and should be connected to the +12V, the black wire is Ground and should be connected to GND. If your mainboard has LM78 on board, you need to use a specially designed fan with speed sensor to take advantage of LM78’s CPU fan control function.



- CPUFAN1: CPU FAN**
- PFAN1: POWER FAN**
- CASFAN1: CHASSIS FAN**

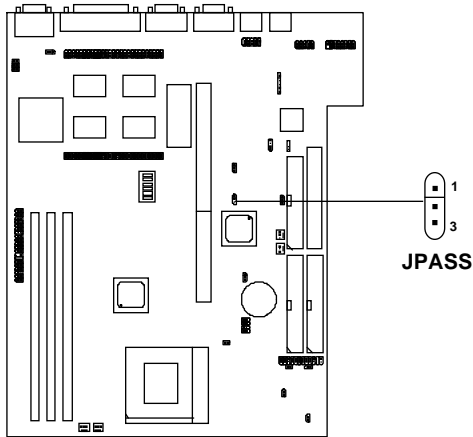
For fans with fan speed sensor, every rotation of the fan will send out 2 pulses. LM78 will count and report the fan rotation speed.





- a. PFAN1 & CASFAN1** are the Power and Chassis Cooling Fan Speed Connectors (reserved for LM78 System Hardware Monitor Option.)
- b.** Always consult vendor for proper CPU cooling fan.

2.2 BIOS Password Setup: JPASS

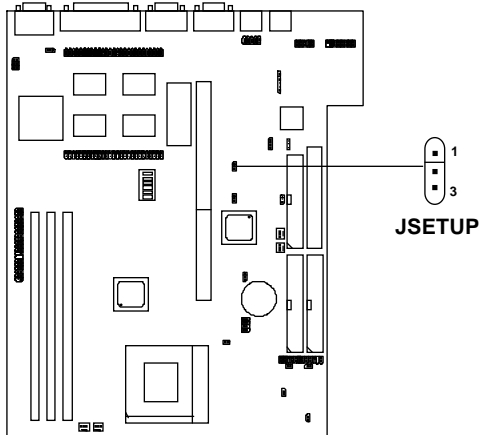
This jumper is used to set the BIOS password. Short 1-2 for normal operation. And Short 2-3 to clear the password on the BIOS.





Password	JPASS
Normal	
Password Clear	

2.3 BIOS Setup Function: JSETUP

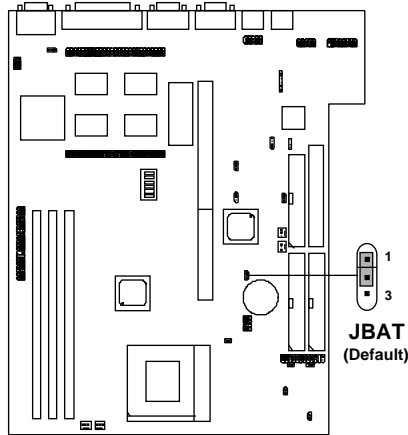
This jumper is used to set the BIOS setup.



BIOS Setup	JSETUP
Normal	
cannot enter BIOS Setup	

2.4 Battery Connector: JBAT

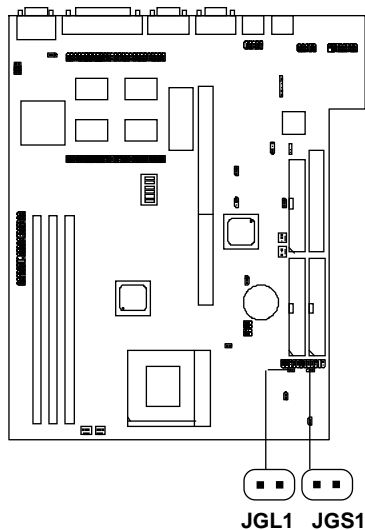
A battery must be used to retain the mainboard configuration in CMOS RAM. To retain the on-board battery you must always short pins 1-2 of JBAT.



You can clear CMOS by shorting 2-3 pin, while the system is off. Then, return to 1-2 pin position. Avoid clearing the CMOS while the system is on as it will damage the mainboard.

2.5 Power Saving Switch Connector: JGS1/ Power Saving LED Connector: JGL1

Attach a power saving switch to JGS1. When the switch is pressed, the system immediately goes into suspend mode. Press any key and the system wakes up. JGL1 can be connected with LED to monitor the JGS1. This will lit while the system is in suspend mode.

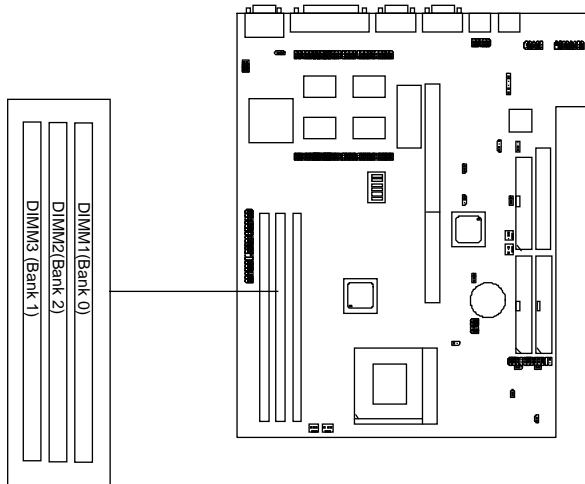


To make JGS1 function, you must go to the BIOS power management and enable it there.

2.6 Memory Installation

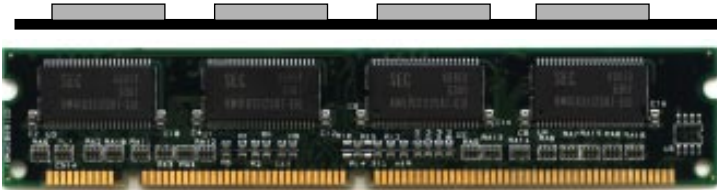
2.6-1 Memory Bank Configuration

The mainboard provides three 168-pin Unbuffered DIMM(Double In-Line Memory) sockets. It supports five memory banks for a maximum of 768MB memory. You can use DIMM from 8MB, 16MB, 32MB, 64MB, 128MB to 256MB.

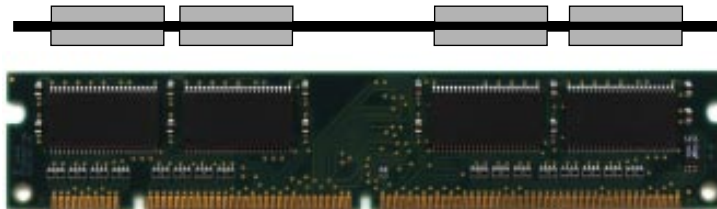


2.6-2 Memory Installation Procedures:

A. How to install DIMM Module

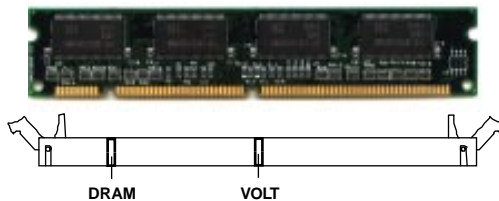


Single Sided DIMM



Double Sided DIMM

1. The DIMM slot has two keys marked “VOLT and DRAM”, so the DIMM memory module can only fit in one direction.
2. Insert the DIMM memory module vertically into the DIMM slot. Then, push it in.



3. Close the plastic clip at the side of the DIMM slot.

2.6-3 Memory Population Rules

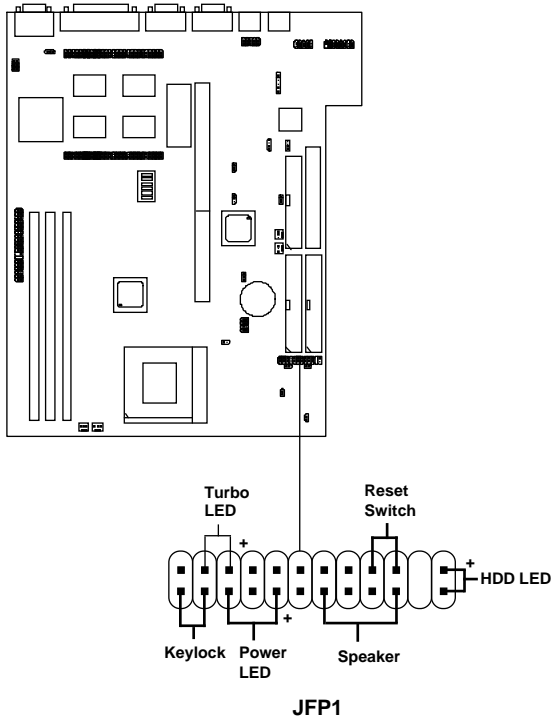
1. You may use any kind of DIMM except for **BEDO(Burst EDO)**.
2. You may only use an unbuffered DIMM.
3. To operate properly, at least one 168-pin DIMM module must be installed.
4. This mainboard supports table free memory, so memory can be installed on DIMM1, DIMM2, or DIMM3 in any order.
5. If you use a 64M DRAM on DIMM1 & DIMM2, then you may not use DIMM3.
6. The DRAM Addressing and the size supported by the mainboard is shown below:

DRAM Tech.	DRAM Density & Width	DRAM Addressing	Address Size		MB/DIMM	
			Row	Column	Single no. Side(S) pcs.	Double no. Side(D) pcs.
16M	1Mx16	ASYM	12	8	8MBx4	16MBx8
	2Mx8	ASYM	12	9	16MBx8	32MBx16
	4Mx4	ASYM	12	10	32MB	64MB
64M	2Mx32	ASYM	12	10	32MBx2	64MBx4
	2Mx32	ASYM	13	8	16MBx2	32MBx4
	4Mx16	ASYM	14	8	32MB	64MB
	8Mx8	ASYM	14	9	64MB	128MB
	16Mx4	ASYM	14	10	128MB	256MB

Table 2.6-3
Minimum (upgradeable) and Maximum Memory Size for each configuration for DIMM

2.7 Case Connector: JFP1

The Reset Switch, Keylock, Power LED, Turbo LED, Speaker and HDD LED are all grouped in JFP1 connector block for easy installation.



2.7-1 Reset Switch

Reset switch is used to reboot the system rather than turning the power ON/OFF. Avoid rebooting the system while the HDD LED is lit. You can connect the Reset switch from the system case to this pin.

2.7-2 Keylock

Keylock allows you to disable the keyboard for security purposes. You can connect the keylock to this pin.

2.7-3 Power LED

The Power LED is always lit while the system power is on. You can connect the Power LED from the system case to this pin.

2.7-4 Speaker

Speaker from the system case are connected to this pin.

2.7-5 HDD LED

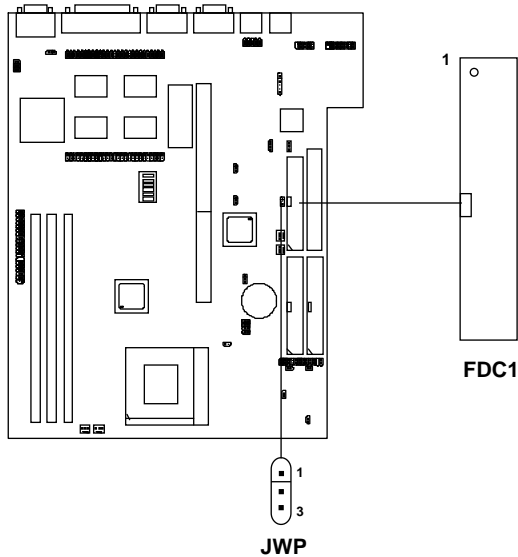
HDD LED shows the activity of a hard disk drive. Avoid turning the power off while the HDD LED is lit. You can connect the HDD LED from the system case to this pin.

2.7-6 Turbo LED

The Turbo LED is always lit while the system power is on. You can connect the Turbo LED from the system case to this pin.



2.8 Floppy Disk Connector: FDC1

The mainboard also provides a standard floppy disk connector, FDC1 that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. You can attach a floppy disk cable directly to this connector.



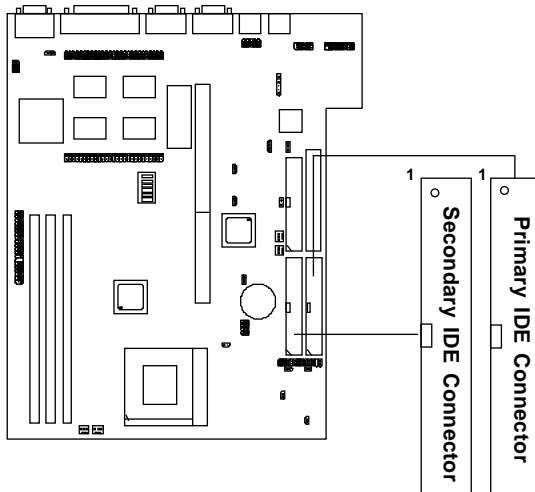
Floppy Drive Write-Protect Setup: JWP

This is use for FDC write protection.

Floppy Drive	JWP
Normal	
Write-Protect	

2.9 Hard Disk Connectors: IDE1 & IDE2

The mainboard has a 32-bit Enhanced PCI IDE Controller that provides for two HDD connectors IDE1 (primary) and IDE2 (secondary). You can connect up to four hard disk drives, CD-ROM, LS120, ATAPI ZIP Drive and other devices to IDE1 and IDE2.



IDE1(Primary IDE Connector)

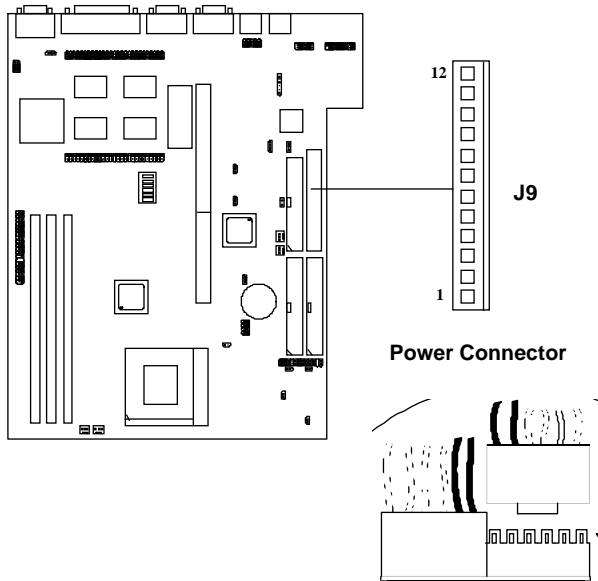
The first hard disk should always be connected to IDE1. IDE1 can connect a Master and a Slave drive.

IDE2(Secondary IDE Connector)

IDE2 can connect a Master and a Slave drive.

2.10 Power Supply Connector: JPW1

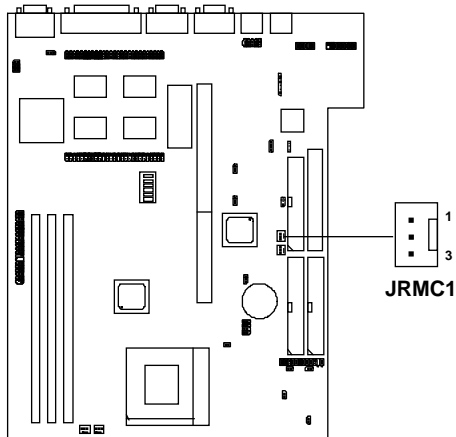
JPW1 is a standard 12-pin AT-type or PS/2 type connector. Be sure to attach the connectors with the two black wires at the center.



Pin	Description	Pin	Description
1	Power Good	7	Ground
2	+5V DC	8	Ground
3	+12V DC	9	-5V DC
4	-12V DC	10	+5V DC
5	Ground	11	+5V DC
6	Ground	12	+5V DC

2.11 Remote Power Connector: JRMC1

Some PS/2® power supply support 3-pin remote power connector. This 3-pin connector should be connected to JRMC1. Then use JRMS1 to switch ON/OFF the system.



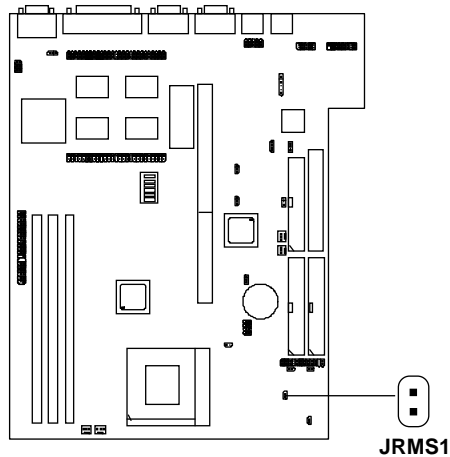
Pin#	Description
1	GND
2	5V Standby
3	PS-



The pin definition of the PS/2 power supply remote power connector should be the same as shown above.

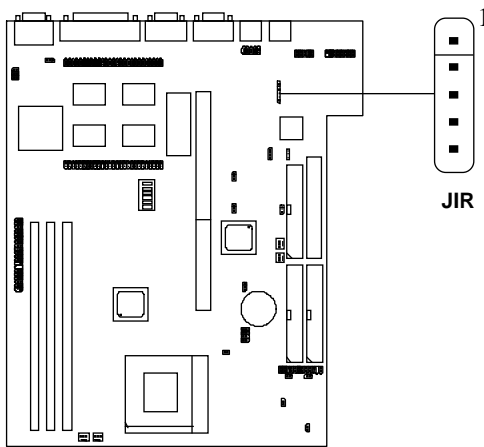
2.12 Remote Power On/Off Switch: JRMS1

Connect to a 2-pin push button switch to JRMS1. Every time the switch is shorted by pushing it once, the power supply will change its status from OFF to ON. During ON stage: push once and the system goes to sleep mode; pushing it more than 4 seconds will change its status from ON to OFF. This is used for ATX type power supply or PS/2® power supply with Remote Power Connector. You can program this through BIOS. Refer to Soft-Off by PWR-BTTN in BIOS.



2.13 Infrared Module Connector: JIR

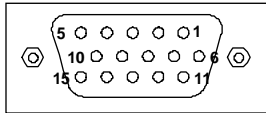
The mainboard provides a 5-pin infrared connector(JIR) for IR module. This connector is for optional wireless transmitting and receiving infrared module. If you want to use this function, you must configure the setting through BIOS setup.



PIN	DEFINITION
1	VCC
2	NC
3	RX
4	GND
5	TX

2.14 VGA DB 15 Pin Connector

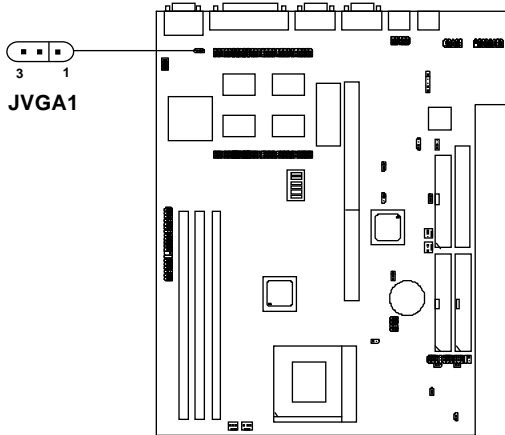
The mainboard provides a DB 15-pin connector to connect to a VGA monitor.





Analog Video Display Connector(DB15-S)	
Pin	Signal Description
1	Red
2	Green
3	Blue
4	Not used
5	Ground
6	Ground
7	Ground
8	Ground
9	Not used
10	Ground
11	Not used
12	SDA
13	Horizontal Sync
14	Vertical Sync
15	SCL

2.15 VGA Jumper Setting: JVGA1

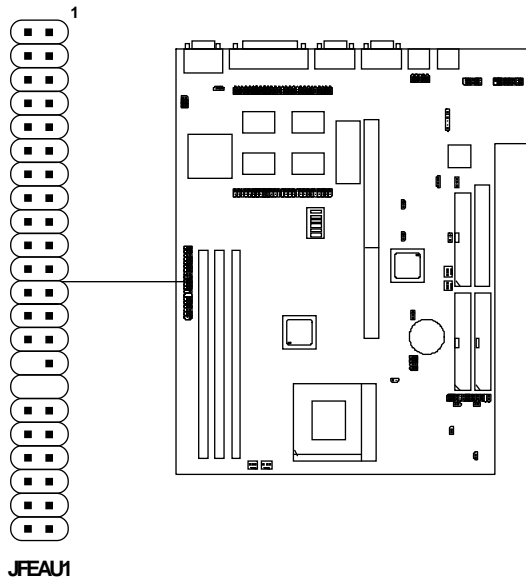
JVGA1 is used to enable or disable the onboard VGA.



On-Board VGA	JVGA1
Enable	
Disable	

2.16 VGA Feature Connector: JFEAU1

This is a VGA feature connector.



2.17 VGA Memory Upgrade: JVG3

This connectors is used to upgrade the on-board VGA memory.

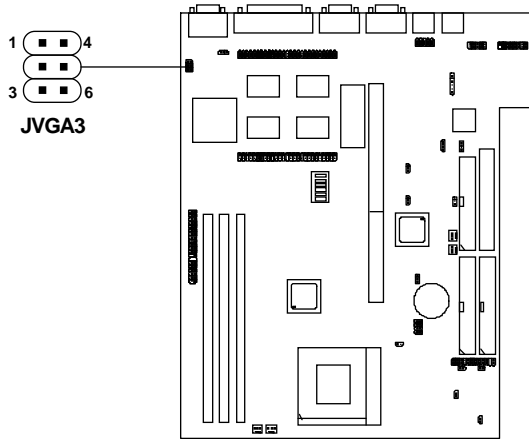












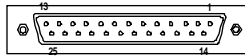


Table 2.17-1: VGA Memory Upgrade Chart

VGA Memory			JVGA3	JM1 of MS-5936
On-board	MS-5936	Total		
0MB	2MB	2MB		
0MB	4MB	4MB		
2MB	-	2MB		
2MB	2MB	4MB		
4MB	-	4MB		
4MB	2MB	6MB		
4MB	4MB	8MB		

2.18 Parallel Port Connector: LPT

The mainboard provides a connector for LPT. A parallel port is a standard printer port that also supports Enhanced Parallel Port(EPP) and Extended capabilities Parallel Port(ECP).



Parallel Port (25-pin Female)

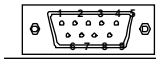
LPT

LPT PIN DEFINITION

PIN #	DEFINITION	PIN #	DEFINITION
1	STROBE	14	AUTO FEED#
2	DATA0	15	ERR#
3	DATA1	16	INIT#
4	DATA2	17	SLIN#
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	ACK#	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SELECT		

2.19 Serial Port Connectors: COM 1 & COM 2

The mainboard has two serial ports COM 1 and COM 2. These two ports are 16550A high speed communication ports that send/receive 16 bytes FIFOs. You can attach a mouse or a modem cable directly into these connectors.



Serial Ports (9-pin Male)

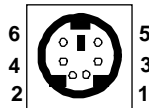
COM 1/COM 2

SERIAL PORT PIN DEFINITION

Pin #	Definition
1	DCD (Data Carry Detect)
2	SIN (Serial In or Receive Data)
3	SOUT (Serial Out or Transmit Data)
4	DTR (Data Terminal Ready)
5	GND
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	RI (Ring Indicate)

2.20 Mouse Connector: JMS1

The mainboard provides a standard PS/2[®] mouse mini DIN connector for attaching a PS/2[®] mouse. You can plug a PS/2[®] mouse directly into this connector.



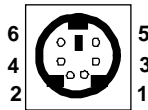
PS/2[®] Mouse (6-pin Female)

PIN	SIGNAL	DESCRIPTION
1	Mouse DATA	Mouse DATA
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Mouse Clock	Mouse clock
6	NC	No connection

PS/2[®] Mouse Pin Definition

2.21 Keyboard Connector: JKB1

The mainboard provides a standard PS/2[®] keyboard mini DIN connector for attaching a PS/2[®] keyboard. You can plug a PS/2[®] keyboard directly into this connector.



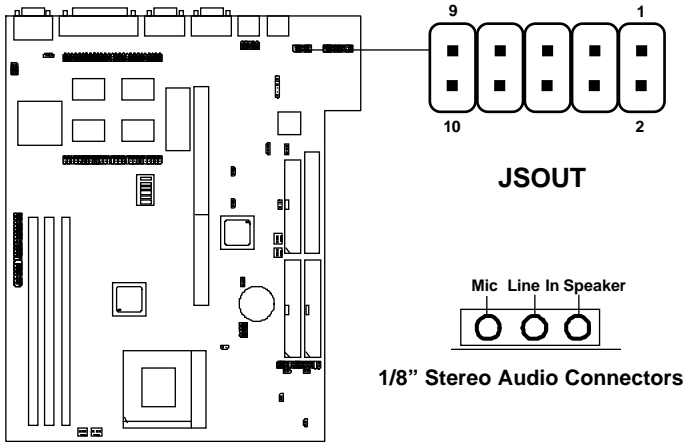
PS/2[®] keyboard (6-pin Female)

PIN	SIGNAL	DESCRIPTION
1	KBD DATA	Keyboard DATA
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	KBD Clock	Keyboard clock
6	NC	No connection

PS/2[®] keyboard Pin Definition

2.22 Audio Out Connector: JSOUT (optional)

This connector is used with the audio connectors cable provided by this mainboard. You can plug the cable directly into this connector.

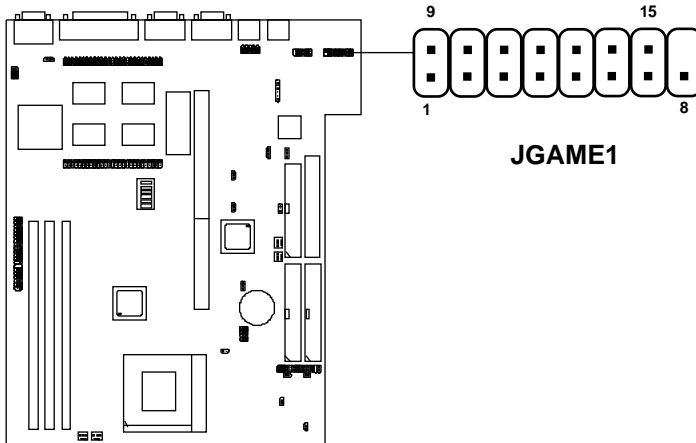


JSOUT Connector Description

PIN	SIGNAL	DESCRIPTION
1	AG	Analog Ground
2	SPKR	Speaker Right Channel
3	SPKL	Speaker Left Channel
4	AG	Analog Ground
5	LINRIN	Line-in right channel
6	LINLIN	Line-in left channel
7	AG	Analog Ground
8	MIC2	Mic-VCC
9	MIC1	Mic-in
10	NC	No Connection

2.23 Midi/Joystick Connector: JGAME1(optional)

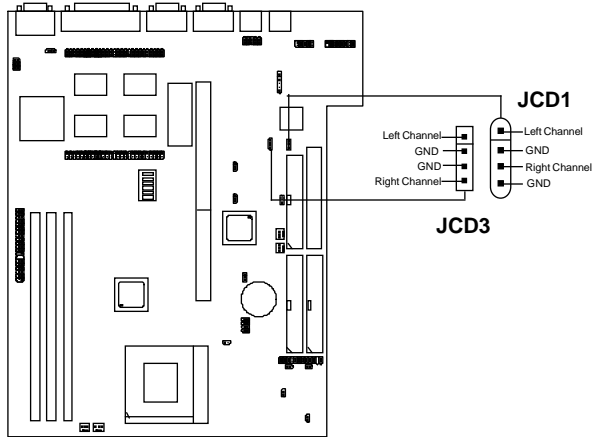
This connector is used with the Midi/Joystick connector cable provided by this mainboard. You can plug the cable directly into this connector.



PIN	SIGNAL	DESCRIPTION
1	VCC	+5v
2	JOYF0	Game Port Firing Button
3	JRC0	Game Port
4	GND	Ground
5	GND	Ground
6	JRC1	Game Port
7	JOYF1	Game Port Firing Button
8	VCC	+5v
9	VCC	+5v
10	JOYF2	Game Port Firing Button
11	JRC2	Game Port
12	MIDI OUT	Serial MIDI Data Output
13	JRC3	Game Port
14	JOYF3	Game Port Firing Button
15	MIDI IN	Serail MIDI Data Output

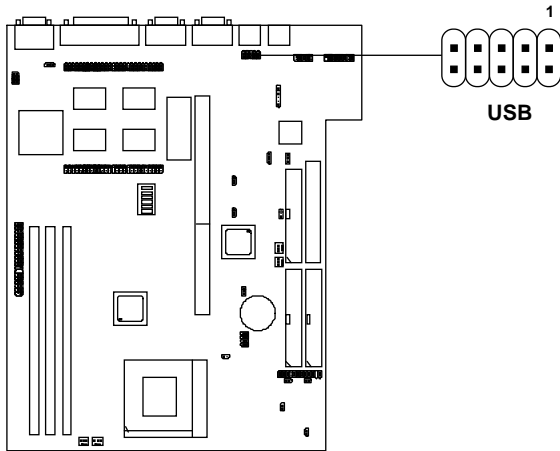
2.24 CD-ROM Audio Connectors: JCD1/JCD3 (optional)

This can be connected to the audio cable provided by the CD-ROM.



2.25 USB Connector: USB

Connect a USB cable to support USB device, such as keyboard and mouse.



PIN	SIGNAL	DESCRIPTION
1	VCC	+5V
2	-Data 0	Negative Data Channel 0
3	GND	Ground
4	+Data 0	Positive Data Channel 0
5	VCC	+5V
6	+Data 1	Positive Data Channel 1
7	-Data 1	Negative Data Channel 1
8	GND	Ground

2.26 Riser Card Slot: EISA1

The mainboard provides a riser card slot.

