Chapter 1

INTRODUCTION

The MS-5192 mainboard is a high-performance all-in-one mainboard based on Cyrix® GXM/GX-LV processor. It combines Audio/Video chip integrated with Realtek® 8139B 10/100M Ethernet .

1.1 Mainboard Features

CPU
- Cyrix® Media GXm/GXLV 200/233Mhz processor

Chipset
- Cyrix CX5530 chipset.
- NS PC97317 Super I/O

Main Memory
- Support one memory banks using 168-pin unbuffered DIMM.
- Support a maximum memory size of 64MB.
- Support 3.3v SDRAM DIMM.

Flash Memory
- 8MB Flash Disk

On-Board IDE
- Connect one IDE devices.

Video
- Chipset Integrated
  - Resolution up to 1280x1024 SVGA, 16 to 256 colors; 16 millions palette.
  - Support all VESA monitors
  - Flicker-free Refresh rate up to 75Hz
  - Graphics Utilizes system RAM

Audio
- Chipset Integrated
  - Full 16-bit stereo FM synthesizer
  - 8-bit mini Microphone port

Network
- Realtek 8139B 10/100M Ethernet
  - WFW baseline & NET PC specs compliant
  - ACPI
  - Magic packet filtering to wake-up on LAN
  - ARP & Flexible frame filtering
  - Software drivers are backwards compatible

Parallel Port
- One Parallel port bi-directional centronics compatible DB-25.

Two Serial Port Connectors Type
- Serial Port A: DB-9 male connector with RS-232C.
- Serial Port B: DB-9 male connector with RS-232C.
- Baud Rates: up to 115.2K bps

Display Port
- Analog VGA type video output (DB-15)

USB Ports
- Two USB ports

Audio Ports
- Audio Out
- Microphone In

Keyboard and Mouse Ports
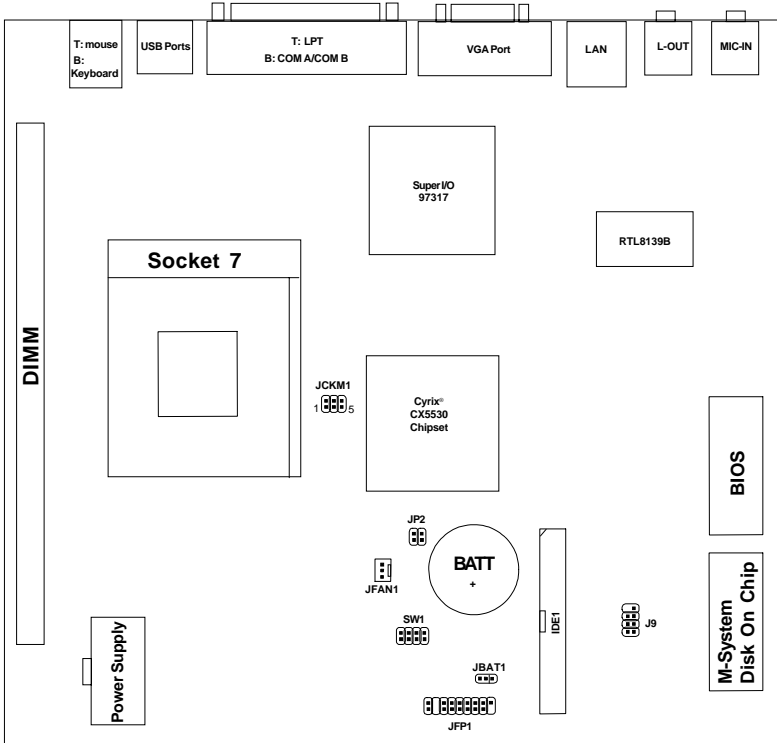- Interface: Enhanced PS/2 Keyboard and Mouse Interface

Dimension
- 20cm x 21cm x 4 layers PCB

Mounting Hole
- 5 Mounting Hole

1.2 Mainboard Layout

| T: mouse B: Keyboard | USB Ports | T: LPT B: COM A/COM B | VGA Port | LAN | L-OUT | MIC-IN |

Super I/O 97317

RTL8139B

Socket 7

DIMM

JCKM1
1 ⊡⊡⊡ 5

Cyrix®
CX5530
Chipset

BIOS

JP2

BATT
+

JFAN1

SW1

IDE1

J9

M-System
Disk On Chip

Power Supply

JBAT1

JFP1

MS-5192 Mainboard

Chapter 2

HARDWARE INSTALLATION

2.1 Central Processing Unit: CPU

The mainboard operates with **Cyrix® GXM/GX-LV processor.** The mainboard uses a CPU socket called Socket 7 for easy CPU installation. The CPU should always have a Heat Sink and a cooling fan attached to prevent overheating.

2.1-1 CPU Installation Procedure

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.
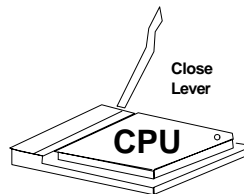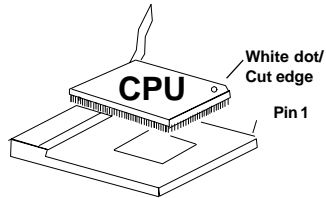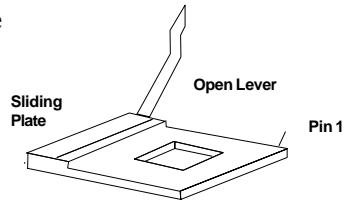
2.1-2   CPU Core Speed Derivation Procedure

1. The Jumper Switch JCKM1 (1-2, 3-4, and 5-6) is used to set the Core/Bus (Fraction) ratio of the CPU. The actual core speed of the CPU is the Host Clock Frequency multiplied by the Core/Bus ratio. For example:

If	CPU Clock	=	33.3MHz
	Core/Bus ratio	=	6
then	CPU core speed	=	Host Clock x Core/Bus ratio
		=	33.3MHz x 6
		=	200MHz

JCKM1			CPU
1-2	**3-4**	**5-6**	**Core/Bus Ratio**
short	short	short	4x
short	open	open	5x
open	short	open	6x
open	open	short	7x
open	open	open	8x
short	open	short	9x
short	short	open	10x

2. The jumper switch JP2 (1-2, 3-4)is used to adjust the CPU clock frequency.

JP2		CPU
1-2	**3-4**	**Clock**
open	open	33MHz
short	open	35MHz

2.1-3 CPU Voltage Setting: SW1

To adjust the voltage setting of the CPU, you must know the specifications of your CPU (*always ask the vendor for CPU spec.*).

SW1
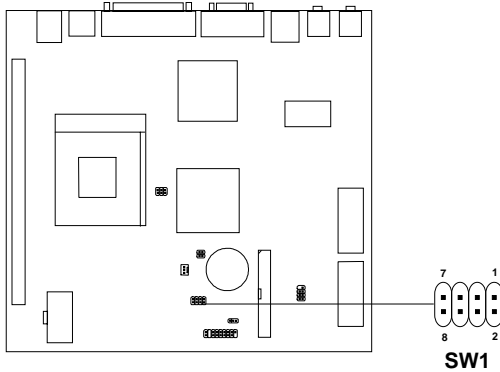
SW1	Voltage Setting (Vcore)
	2.2V
	2.9V

2.1-4 Fan Power Connector: JFAN1

This connector 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 had a System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.
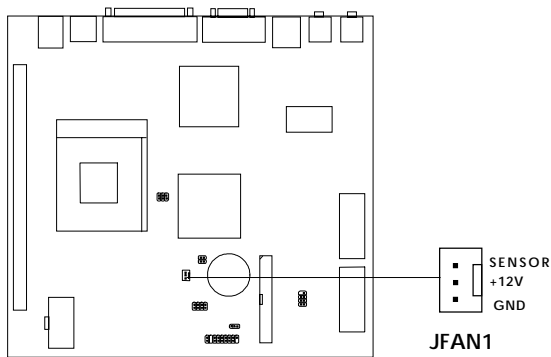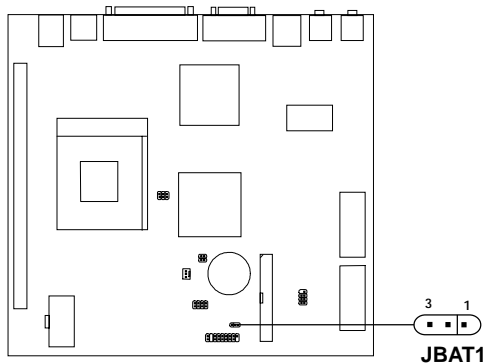

Note: For fans with speed sensor, every rotation of the fan will send out 2 pulses. System Hardware monitor will count and report the fan rotation speed.

2.2 Clear CMOS Jumper: JBAT1

A battery must be used to retain the mainboard configuration in CMOS RAM.   If you use the on-board battery, you must short 1-2 pins of JBAT1 to keep the CMOS data.


JBAT1	Function
1 3	**Keep Data**
1 3	**Clear Data**

Note: You can clear CMOS by shorting 2-3 pin, while the system is off. Then, return to 1-2 pin position. To be able to clear the CMOS, you need to unplug the power plug of the system, because there's a 3V standby power for the chipset which is provided by the power supply. Otherwise, the CMOS will not be cleared.

2.3 Memory Installation

2.3-1 Memory Bank Configuration

The mainboard supports a maximum of 64MB of memory : It provides one 168-pin DIMMs (Double In-Line Memory Module) sockets. It supports 8 MB to 64 Mbytes DIMM memory module. The memory module can only support SDRAM(Synchronous DRAM) MODE DRAM.

DIMM1(Bank1)
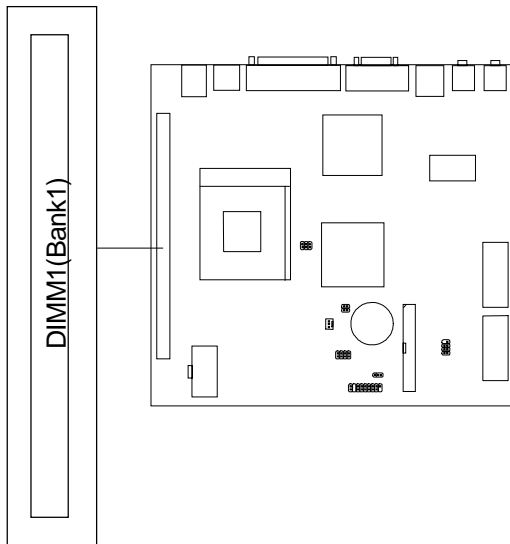
⚠️ **WARNING!**

There are two kinds of DIMM specification supported by this mainboard: PC100 and PC66. If you use 66MHz CPU Bus Frequency, these two DIMM Specs. is supported. If you use 100 MHz CPU Bus Frequency, only PC100 DIMM Specs. is supported.

2.3-2 Memory Installation Procedures:

A. How to install a DIMM Module
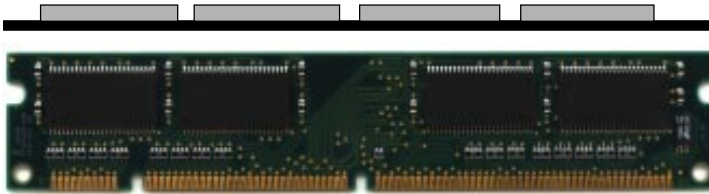
Single Sided DIMM
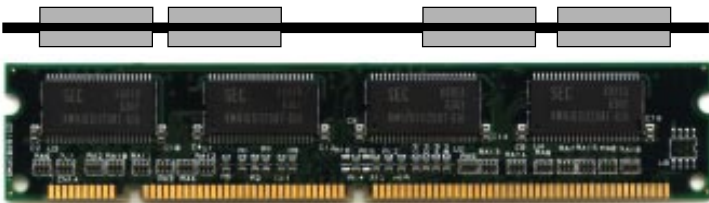
Double Sided DIMM

1. The DIMM slot has a two Notch Key "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.

DRAM   VOLT
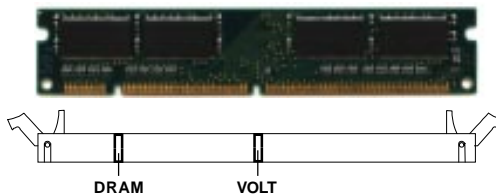
3. The plastic clip at the side of the DIMM slot will automatically close.

2.3-3   Memory Population Rules

1. Supports SDRAM DIMM.

2. Supports 3.3 volt DIMM.

3. The DRAM addressing and the size supported by the mainboard is
   shown below:

Table 2.3-1 SDRAM Memory Addressing

DRAM Tech.	DRAM Density & Width	DRAM Addressing	Address Size		MB/DIMM	
			Row	Column	Single Side(S)	Double Side(D)
16M	1Mx16	ASYM	12	8	8MB	16MB
	2Mx8	ASYM	12	9	16MB	32MB
	4Mx4	ASYM	12	10	32MB	64MB
64M	2Mx32	ASYM	12	9	32MB	64MB
	2Mx32	ASYM	13	8	16MB	32MB
	4Mx16	ASYM	12	10	32MB	64MB
	4Mx16	ASYM	14	8	32MB	64MB
	8Mx8	ASYM	14	9	64MB	128MB
	16Mx4	ASYM	14	10	128MB	256MB

2.4 Case Connector: JFP1

The Keylock, Power Switch, Reset Switch, Power LED, Speaker, and HDD
LED are all connected to the JFP1 connector block.

JFP1
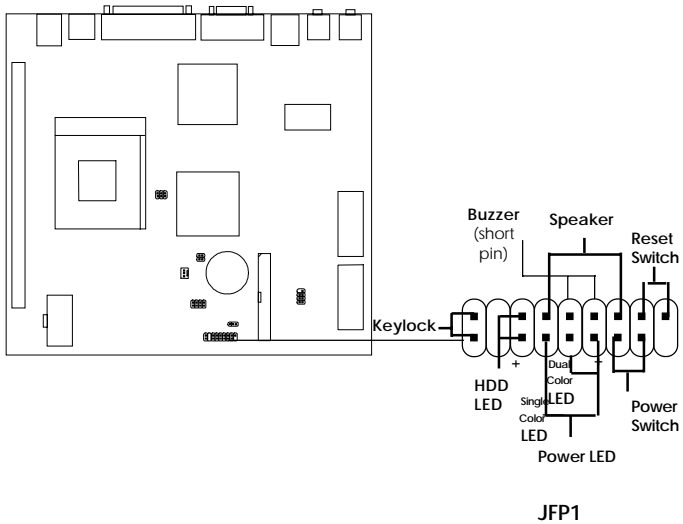
2.4-1 Power Switch
Connect to a 2-pin push button switch. This switch has the same feature with JRMS1.

2.4-2 Reset Switch
Reset switch is used to reboot the system rather than turning the power ON/OFF. Avoid rebooting while the HDD LED is lit. You can connect the Reset switch from the system case to this pin.

2.4-3 Power LED
The Power LED is lit while the system power is on. Connect the Power LED from the system case to this pin. There are two types of LED that you can use: 3-pin single color LED or 2-pin dual color LED(ACPI request).

      a. 3 pin single color LED connect to pin 4, 5, & 6. This LED will lit when the system is on.

      b. 2 pin dual color LED connect to pin 5 & 6.

            GREEN Color: Indicate the system is in full on mode.

            ORANGE Color: Indicate the system is in suspend mode.

2.4-4 Speaker
Speaker from the system case is connected to this pin.
If on-board Buzzer is available:
Short pin 14-15:   On-board Buzzer Enabled.
Open pin 14-15:   On-board Buzzer Disabled.

2.4-5 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.

2.4-6 Keylock
Keylock allows you to disable the keyboard for security purposes. You can connect the keylock to this pin.

2.5 Front Panel Connector: J9

The Power LED, LAN LED, and Power Swich are all connected to the J9 connector block.
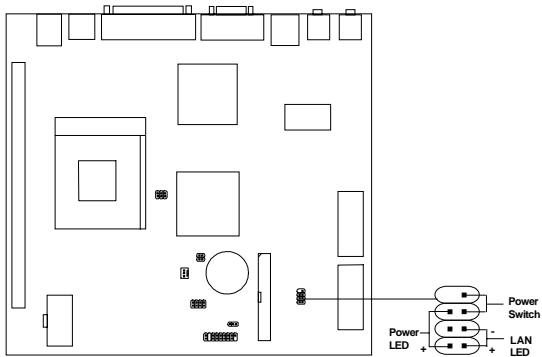
2.6 Serial Port Connector: COM A & COM B

The mainboard provides two 9-pin male DIN connectors for serial port COM
A and COM B. These port are 16550A high speed communication ports
that send/receive 16 bytes FIFOs. You can attach a mouse or a modem cable
directly into this connector.

COM B   **COM A**
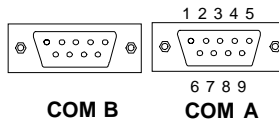
PIN DEFINITION

PIN	SIGNAL
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)

2.7 Parallel Port Connector: LPT

The mainboard provides a 25 pin female centronic connector for LPT. A parallel port is a standard printer port that also supports Enhanced Parallel Port(EPP) and Extended capabilities Parallel Port(ECP). See connector and pin definition below:
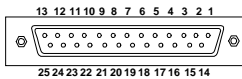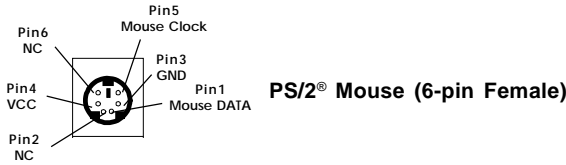

LPT

PIN DEFINITION

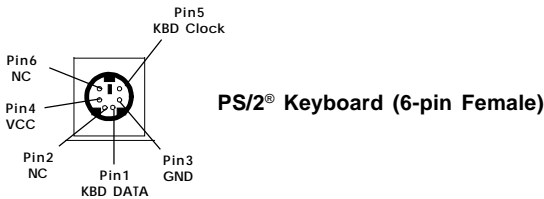| PIN	SIGNAL	PIN	SIGNAL
1	STROBE	14	AUTO FEED#
2	DATA0	15	ERR#
3	DATA1	16	INIT#
4	DATA2	17	SLIN#
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	ACK#	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SELECT		

2.8 Mouse Connector

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. The connector location and pin definition are shown below:

```
                          Pin5
                       Mouse Clock
            Pin6
             NC              Pin3
                             GND
            Pin4                          PS/2® Mouse (6-pin Female)
            VCC              Pin1
                          Mouse DATA
            Pin2
             NC
```
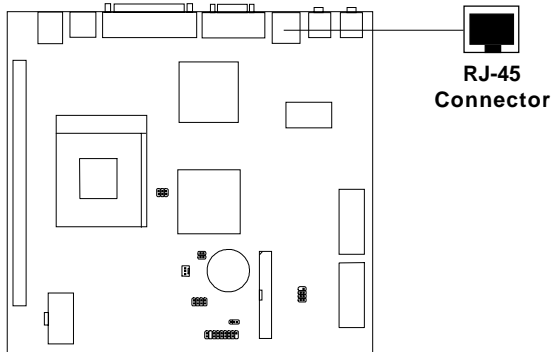
2.9 Keyboard Connector

The mainboard provides a standard PS/2® keyboard mini DIN connector for attaching a keyboard. You can plug a keyboard cable directly to this connector.
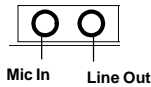
```
                          Pin5
                        KBD Clock
            Pin6
             NC
                                         PS/2® Keyboard (6-pin Female)
            Pin4
            VCC
            Pin2              Pin3
             NC      Pin1     GND
                   KBD DATA
```

2.10 LAN Connector

The mainboard provides a RJ-45 connector for your network need.

RJ-45
Connector

2.11 Audio Port Connectors

Line Out is a connector for Speakers or Headphones. **Mic In** is used for inserting External Maicrophone.
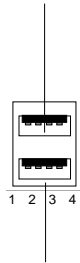
Mic In   Line Out

1/8" Stereo Audio Connectors

2.12 USB Connectors

The mainboard provides a **UHCI(Universal Host Controller Interface) Universal Serial Bus root** for attaching USB devices like: keyboard, mouse and other USB devices. You can plug the USB device directly to this connector.

USB Port 2

1 2 3 4

USB Port 1

PIN	SIGNAL
1	VCC
2	-Data0
3	GND
4	+Data0