Getting Started *1*

Thank you for purchasing the MS-6367 v1.X M-ATX mainboard. The MS-6367 mainboard is a superior computer mainboard based on nVIDIA Crush 11 & MCP-D chipsets for optimal system efficiency. Designed to fit the advanced AMD® Duron/Athlon processors in the 462 pin package, the MS-6367 mainboard delivers a high performance and professional desktop platform solution.

Mainboard Specification

CPU
❏ Supports Socket A for AMD® Duron™/Athlon™ processor
❏ Supports 650MHz, 700MHz, up to 1.5GHz or higher

Chipset
❏ nVIDIA® Crush 11 chipset
    - AGP 4x (**1.5V only**)
    - Supports 200/266 MHz FSB
    - 64-bit / 128-bit DDR memory controller
    - Integrated GeForce2 MX-class advanced Graphics Processing Unit
    - LDT interface to MCP (800MB/sec max)
    - Multiplex DVI / TV Interface with AGP Slot

❏ nVIDIA® nFORCE MCP-D (Media Communications Processor)
    - Dual ATA/100 controller
    - USB OHCI 1.0a up to 6 ports
    - IEEE 802.3 compatible MAC (MII)
    - Integrated Audio Processor Unit
    - AC '97 2.1 Compliant Interface
    - Dolby Digital S/PDIF output function

Main Memory
❏ Supports 2 DDR DIMM
❏ Supports a maximum memory size of 1GB
❏ Supports either 64- or 128-bit system memory

Slots
❏ One AGP 2.0 4x **1.5V** slot
❏ Three 32-bit Master PCI 2.2 Slots
❏ Supports 3.3/5V PCI bus Interface

On-Board IDE
❏ An IDE controller on the MCP/MCP-D chipset provides IDE HDD/CD-
  ROM with PIO, Bus Master and Ultra DMA 100 operation modes.
❏ Can connect up to four IDE devices

Audio
- Chip integrated (6 channels audio)
- APU integrated in MCP-D (Audio Processing Unit)
    - Supports up to 256 hardware-processed voices or 64 hardware voices in 3D
    - Supports multi-speaker 3D audio (2/4 channel)
    - S/PDIF interface (MCP-D)

Video
- 256-bit 3D and 2D graphics accelerator
- 2nd generation T & L engine, nVIDIA Shading Rasterizer-NSR
- Multiplex DVI/TV interface with the AGP slot
- PC2001 compliant SMA and operates with either 64-bit or 128-bit system memory installed

Network (Optional)
- Chip Integrated
    - 10/100 BaseT Ethernet/Fast Ethernet

On-Board Peripherals
- On-Board Peripherals include:
    - 1 floppy port supports 2 FDDs with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes.
    - 1 serial port (COMA)
    - 1 parallel port supports SPP/EPP/ECP mode
    - 6 USB ports (2 rear connectors and 2 USB front pin headers- 4 ports)
    - 1 IrDA connector
    - 1 Audio/Game Port
    - 1 VGA Port

BIOS
- The mainboard BIOS provides "Plug & Play" BIOS which detects the peripheral devices and expansion cards of the board automatically.
- The mainboard provides a Desktop Management Interface (DMI) function which records your mainboard specifications.

Chapter 1

Dimension
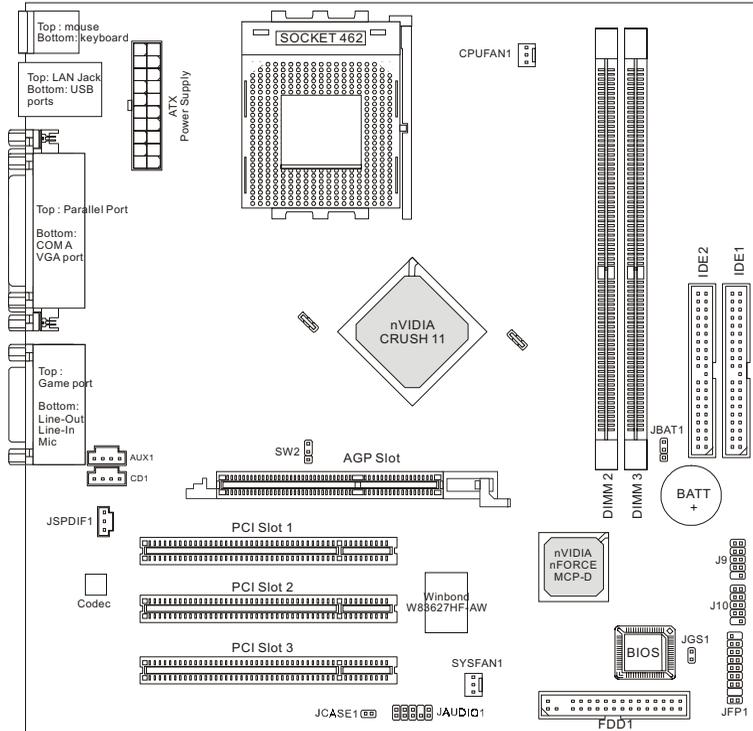   M-ATX Form Factor: 9.6 inch x 9.6 inch

Mounting
❑ 6 mounting holes

Others
❑ LAN Wake Up function
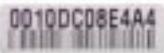❑ Modem (Internal/External) Ring Wake Up function
❑ PC99 Color Connector

Mainboard Layout

MS-6367 Micro ATX Mainboard

*Note: One unique **MAC Address** label is attached on PCI Slot 3 of the motherboard that supports LAN. The label looks like the picture below but its number varies depending on the board you purchased.*

0010DC08E4A4

MAC Address Label

Chapter 1

Quick Components Guide

Component	Function	Reference
SW2	CPU FSB Selection jumper	See p. 2-4
JWR1	ATX 20-pin Power Connector	See p. 2-7
JKBMS1	Mouse Connector	See p. 2-8
JKBMS1	Keyboard Connector	See p. 2-9
USB Connectors	Connecting to USB devices	See p. 2-9
COM A	Connecting to Serial port	See p. 2-10
VGA Connector	Connecting to VGA port	See p. 2-10
LPT1	Parallel port connector	See p. 2-11
Game/Audio Connectors	Connecting to Game/Audio devices	See p. 2-12
RJ-45 LAN Jack	Connecting to LAN devices	See p. 2-12
FDD1	Floppy disk drive connector	See p. 2-13
IDE1~ IDE2	Hard disk connectors	See p. 2-14
JFP1	Case connectors	See p. 2-15
CD1	CD-in connector	See p. 2-17
AUX1	Aux line-in connector	See p. 2-17
JGS1	Power Saving Switch Connector	See p. 2-17
JCASE1	Chassis intrusion switch	See p. 2-18
J9 & J10	Front USB connectors	See p. 2-18
CPUFAN1/SYSFAN1	Fan power connectors	See p. 2-19
JSPDIF1	SPDIF Connector	See p. 2-20
JAUDIO1	Front panel audio connector	See p. 2-21
JBAT1	Clear CMOS jumper	See p. 2-22
AGP Slot	Connecting to expansion cards	See p. 2-23
PCI Slots	Connecting to expansion cards	See p. 2-23

Hardware Setup 2

This chapter provides you with the information about hardware setup procedures. While doing the installation, be careful in holding the components and follow the installation procedures. For some components, if you install in the wrong orientation, the components will not work properly.

Use a grounded wrist strap before handling computer components. Static electricity may damage the components.

Central Processing Unit: CPU

The mainboard supports AMD® Athlon™ and Duron™ processors. It uses a CPU socket called Socket A for easy CPU installation. **Make sure the CPU has a Heat Sink and a cooling fan attached on the top to prevent overheating.** If you do not find the Heat Sink and cooling fan, contact your dealer to purchase and install them before turning on the computer.

CPU Installation Procedures

1. Pull the lever sideways away from the socket. Then, raise the lever up to a 90-degree angle.

2. Look for the cut edge. The cut edge should point towards the lever pivot. The CPU will only fit in the correct orientation.

3. Press the CPU down firmly into the socket and close the lever. As the CPU is likely to move while the lever is being closed, always close the lever with your finger pressing tightly on top of the CPU to make sure the CPU is properly & completely embedded into the socket.
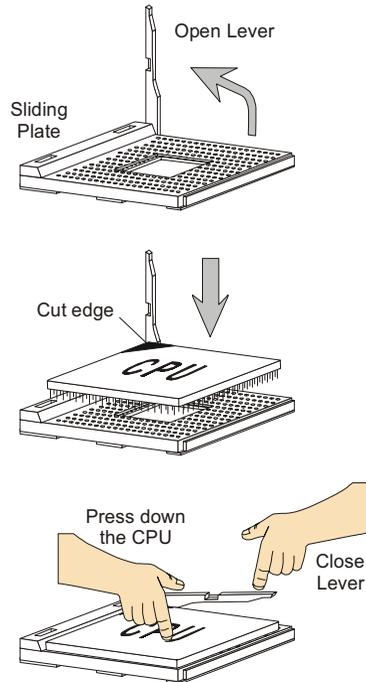
> **STOP WARNING!** *Overheating will seriously damage the CPU and system, always make sure the cooling fan can work properly to protect the CPU from overheating.*

STOP

WARNING! Thermal Issue for CPU

As processor technology pushes to faster speeds and higher performance, thermal management becomes increasingly crucial when building computer systems. Maintaining the proper thermal environment is key to reliable operation. As such, the processor must be maintained in the specified thermal requirements.

AMD Athlon™/Duron™ processor with a speed of **600MHz and above** requires LARGER heatsink and fan. You also need to add thermal grease between the CPU and heatsink to improve heat dissipation. Then, make sure that the CPU and heatsink are securely fastened and in good contact with each other. These are needed to prevent damaging the processor and ensuring reliable operation. If you want to get more information on the proper cooling, you can visit AMD's website for reference.

CPU Core Speed Derivation Procedure

If	CPU Clock	=	100MHz
	Core/Bus ratio	=	7
then	CPU core speed	=	Host Clock x Core/Bus ratio
		=	100MHz x 7
		=	700MHz

CPU FSB Selection Jumper: SW2

To use a 133MHz CPU, you need to set the SW2 jumper to short 1-2 pin. To use a 100MHz CPU, set the SW2 jumper to short 2-3 pin.


SW2

FSB = 133MHz   FSB = 100MHz
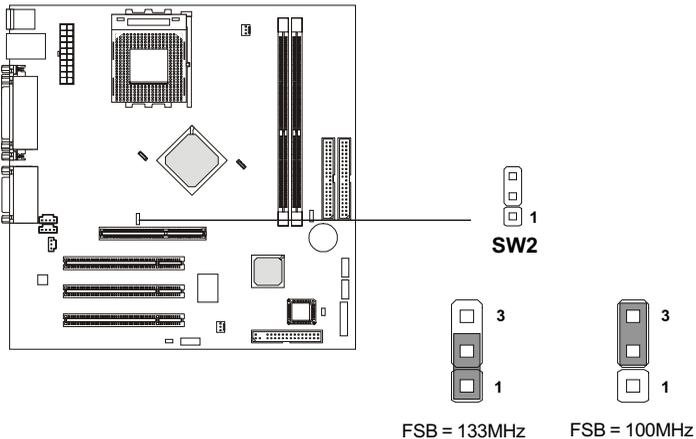
STOP
WARNING!

Overclocking
This motherboard is designed to support overclocking. However, please make sure your components are able to tolerate such abnormal setting, while doing overclocking. Any attempt to operate beyond product specifications is not recommended. ***We do not guarantee the damages or risks caused by inadequate operation or beyond product specifications.***

Memory

Depending on the model you have purchased, the mainboard provides 2 sockets for 184-pin DDR DIMM (Double In-Line Memory Module) modules and supports a maximum memory size of 1GB (2 DIMM slots). You can install PC1600/PC2100 DDR SDRAM modules on the DDR DIMM slots (DIMM 1~2).

DDR DIMM Slots
(DIMM 1~2)
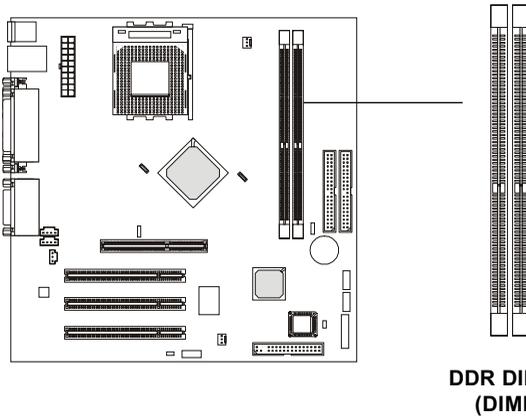
Introduction to DDR SDRAM

DDR (Double Data Rate) SDRAM is similar to conventional SDRAM, but doubles the rate by transfering data twice per cycle. It transfers data on both the rising and falling edges of the clock. Conventional SDRAM only uses the rising edge of the clock to transfer data. Therefore, conventional SDRAM is called SDR (Single Data Rate) SDRAM.

DDR SDRAM uses 2.5 volts as opposed to 3.3 volts used in SDR SDRAM, and requires 184-pin DIMM modules rather than 168-pin DIMM modules used by SDR SDRAM. DDR SDRAM is also known as SDRAM-II, DDR DRAM and DSDRAM (Double-Speed DRAM).

Two types of DDR are available at the time of writing: PC1600 & PC2100. PC1600 DDR SDRAM running at 100MHz will produce about 1.6GB/s memory bandwidth. PC2100 running at 133MHz will produce 2.1GB/s memory bandwidth. High memory bandwidth makes DDR an ideal solution for high performance PC, workstations and servers.

DIMM Modules Combination

At least one DIMM module should be installed on the motherboard. You can install memory modules in any combination as follows:

Slot	Momory Module	Total Memory
Slot 1 (Bank 0 & 1)	64MB, 128MB, 256MB, 512MB	64MB~512MB
Slot 2 (Bank 2 & 3)	64MB, 128MB, 256MB, 512MB	64MB~512MB
Maximum System Memory Supported		64MB~1GB

> **[STOP]** ***Warning: We don't recommend to install DOUBLE-SIDED DDR266 module on DDR 3 slot** because it will cause all memory modules to slower down and run at 200MHz.*

Installing DDR Modules

1. The DDR DIMM has only one notch on the center of module. The module will only fit in the right orientation.

2. Insert the DIMM memory module vertically into the DIMM slot. Then push it in until the golden finger on the memory module is deeply inserted in the socket.

TIP: You can barely see the golden finger if the module is properly inserted in the socket.

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


Volt   notch
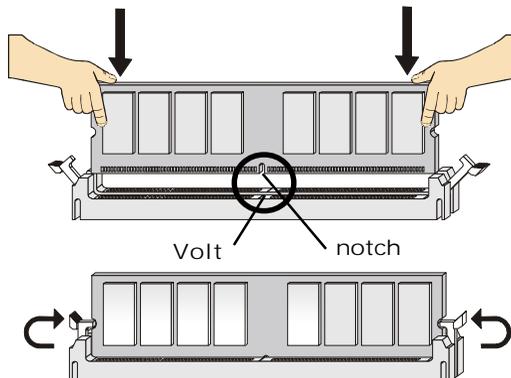
Power Supply

The mainboard supports ATX power supply for the power system. Before inserting the power supply connector, always make sure that all components are installed properly to ensure that no damage will be caused.

ATX 20-Pin Power Supply

This connector allows you to connect to an ATX power supply. To connect to the ATX power supply, make sure the plug of the power supply is inserted in the proper orientation and the pins are aligned. Then push down the power supply firmly into the connector.
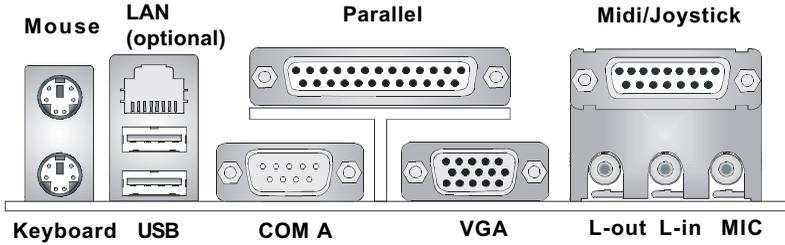
**ATX
Power Connector**
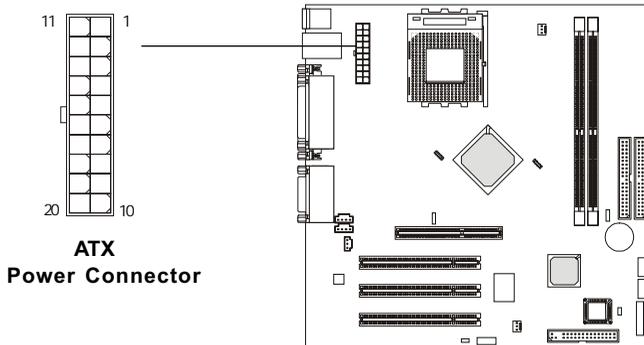
PIN	SIGNAL	PIN	SIGNAL
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	PS_ON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW_OK	18	-5V
9	5V_SB	19	5V
10	12V	20	5V

Back Panel

The Back Panel provides the following connectors:

Mouse Connector: JKBMS1

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 assignments are as follows:

PS/2 Mouse (6-pin Female)

Pin Definition

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

Keyboard Connector: JKBMS1

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.

Pin Definition

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

PS/2 Keyboard (6-pin Female)

USB Connectors

The mainboard provides an OHCI (Open Host Controller Interface) Universal Serial Bus root for attaching USB devices such as keyboard, mouse or other USB-compatible devices. You can plug the USB device directly into the connector.
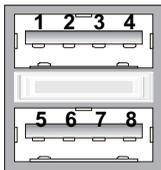
USB Port Description

PIN	SIGNAL	DESCRIPTION
1	VCC	+5V
2	-Data 0	Negative Data Channel 0
3	+Data0	Positive Data Channel 0
4	GND	Ground
5	VCC	+5V
6	-Data 1	Negative Data Channel 1
7	+Data 1	Positive Data Channel 1
8	GND	Ground

USB Ports

Serial Port Connector: COM A

The mainboard offers one 9-pin male DIN connector as serial port COM A. The port is a 16550A high speed communication port that sends/receives 16 bytes FIFOs. You can attach a serial mouse or other serial devices directly to it.

1 2 3 4 5

6 7 8 9
9-Pin Male DIN Connectors
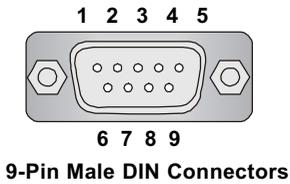
Pin Definition

PIN	SIGNAL	DESCRIPTION
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	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicate

VGA Connector

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

5   1

15   11

VGA Connector
(DB 15-pin)

Pin	Signal Description
1	RED
2	GREEN
3	BLUE
4	N/C
5	GND
6	GND
7	GND
8	GND
9	+5V
10	GND
11	N/C
12	SDA
13	Horizontal Sync
14	Vertical Sync
15	SCL

Parallel Port Connector: LPT1

The mainboard provides a 25-pin female centronic connector for LPT. A parallel port is a standard printer port that supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP) mode.
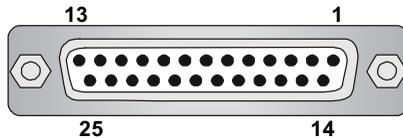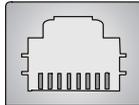
Pin Definition

PIN	SIGNAL	DESCRIPTION
1	STROBE	Strobe
2	DATA0	Data0
3	DATA1	Data1
4	DATA2	Data2
5	DATA3	Data3
6	DATA4	Data4
7	DATA5	Data5
8	DATA6	Data6
9	DATA7	Data7
10	ACK#	Acknowledge
11	BUSY	Busy
12	PE	Paper End
13	SELECT	Select
14	AUTO FEED#	Automatic Feed
15	ERR#	Error
16	INIT#	Initialize Printer
17	SLIN#	Select In
18	GND	Ground
19	GND	Ground
20	GND	Ground
21	GND	Ground
22	GND	Ground
23	GND	Ground
24	GND	Ground
25	GND	Ground

RJ-45 LAN Jack (optional)

The mainboard provides one standard RJ-45 jack for connection to Local Area Network (LAN). You can connect a network cable to the LAN jack.
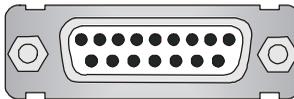
Pin Definition

RJ-45 LAN Jack

PIN	SIGNAL	DESCRIPTION
1	TDP	Transmit Differential Pair
2	TDN	Transmit Differential Pair
3	RDP	Receive Differential Pair
4	NC	Not Used
5	NC	Not Used
6	RDN	Receive Differential Pair
7	NC	Not Used
8	NC	Not Used

Joystick/Midi Connectors

You can connect a joystick or game pad to this connector.

Audio Port Connectors

Line Out is a connector for Speakers or Headphones. **Line In** is used for external CD player, Tape player, or other audio devices. **Mic** is a connector for microphones.
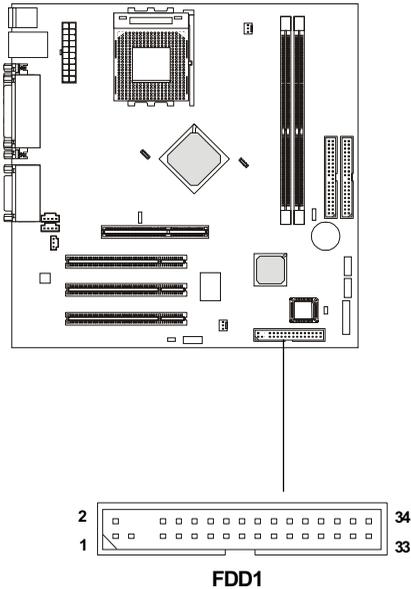
1/8" Stereo Audio Connectors
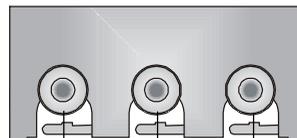
Line Out   Line In   MIC

Connectors

The mainboard provides connectors to connect to FDD, IDE HDD, case, USB Ports, IR module and CPU/System FAN.

Floppy Disk Drive Connector: FDD1

The mainboard provides a standard floppy disk drive connector that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types.


FDD1

Hard Disk Connectors: IDE1 & IDE2

The mainboard uses an IDE controller on the nVIDIA® MCP-D chipset that provides PIO mode 0-4, Bus Master, and Ultra DMA 33/66/100 modes. It has two HDD connectors IDE1 (Primary) and IDE2 (Secondary). You can connect up to four hard disk drives, CD-ROM or 120MB Floppy to IDE1 and IDE2.

IDE1 (Primary IDE Connector)
 - The first hard disk drive should always be connected to IDE1. You can
   connect a Master and a Slave drive to IDE1.
IDE2 (Secondary IDE Connector)
 - You can connect a Master and a Slave drive to IDE2.


40 39 40 39

2   1   2   1

IDE2 IDE1
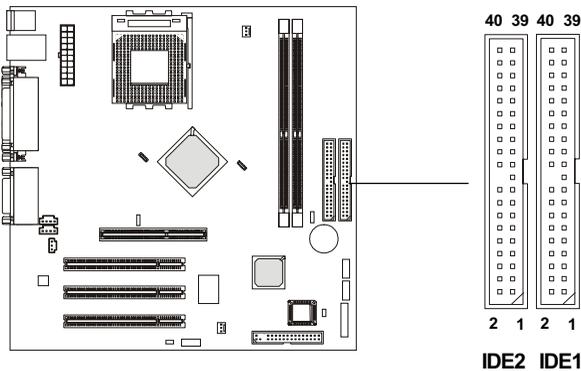
> *If you install two hard disks on cable, you must configure the second drive to Slave mode by setting its jumper. Refer to the hard disk documentation supplied by hard disk vendors for jumper setting instructions.*
>
> **TIP**

Case Connector: JFP1

The case connector block JFP1 allows you to connect to the Power Switch, Reset Switch, Keylock, Speaker, Power LED, and HDD LED on the case.
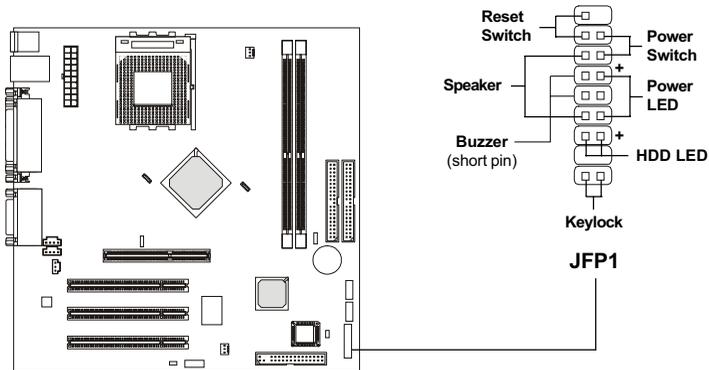
Power Switch

Connect to a 2-pin push button switch.

Reset Switch

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

Power LED

The Power LED is lit while the system power is on. Connect the Power LED from the system case to this pin.

Speaker

Speaker from the system case is connected to this pin.
If on-board Buzzer is available, then:

Short pin 14-15:   On-board Buzzer Enabled.
Open pin 14-15:   On-board Buzzer Disabled

HDDLED

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

Keylock

Keylock allows you to disable the keyboard for security purpose. You can connect the keylock to this pin.
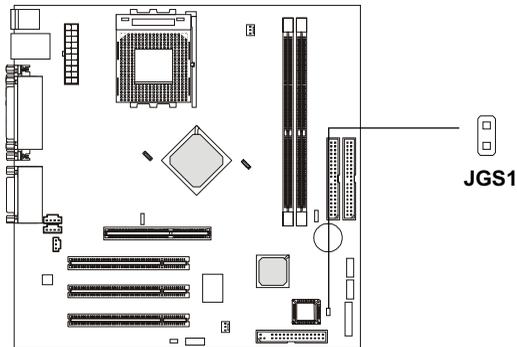
CD-In/Aux Line-In Connectors: CD1/AUX1

AUX1 is for DVD add-on card with Line-in connector.
CD1 is for CD-ROM audio connector.
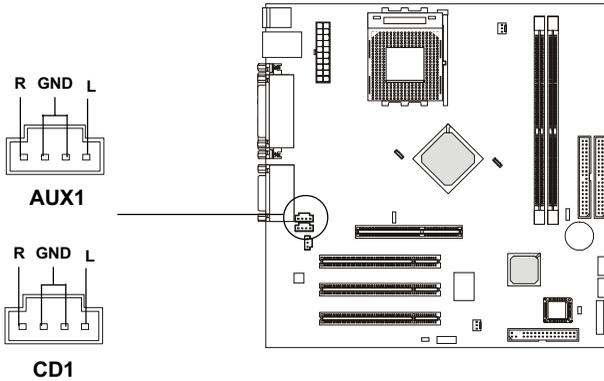
Power Saving Switch Connector: JGS1

Attach a power saving switch to this connector. Pressing the switch once will have the system enter the sleep/suspend state. Press any key to wake up the system.
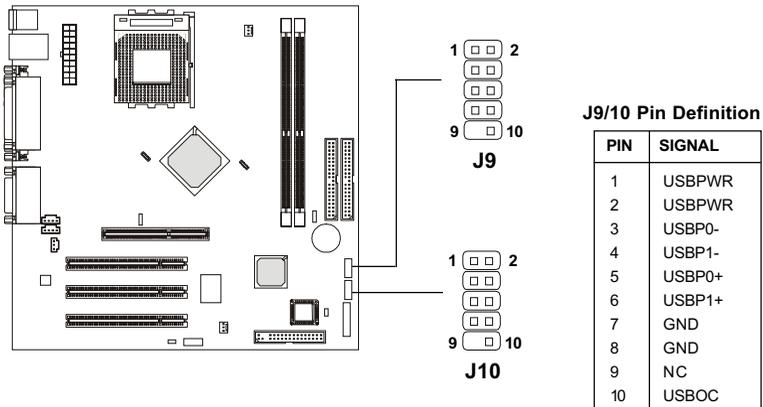
Chassis Intrusion Switch Connector: JCASE1

This connector is connected to a 2-pin chassis switch. If the chassis is opened, the switch will be short. The system will record this status and show a warning message on the screen. To clear the warning, you must enter the BIOS utility and clear the record.


JCASE1
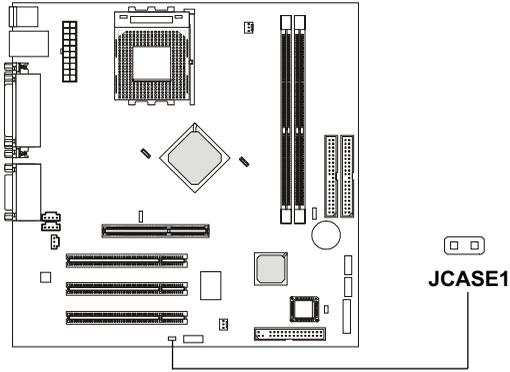
Front USB Connectors: J9 & J10

The mainboard provides two USB (Universal Serial Bus) pin headers, that allow you to connect optional USB ports for front panel. These connectors are **compliant with Intel Front Panel I/O Connectivity Design Guide.**

1 [ ] 2
9 [ ] 10
J9

1 [ ] 2
9 [ ] 10
J10

J9/10 Pin Definition

PIN	SIGNAL
1	USBPWR
2	USBPWR
3	USBP0-
4	USBP1-
5	USBP0+
6	USBP1+
7	GND
8	GND
9	NC
10	USBOC

Fan Power Connectors: CPUFAN1/SYSFAN1

The CPUFAN1 (processor fan) and SYSFAN1 (system fan) support system cooling fan with +12V. It supports three-pin head connector. When connecting the wire to the connectors, 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 the mainboard has 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.
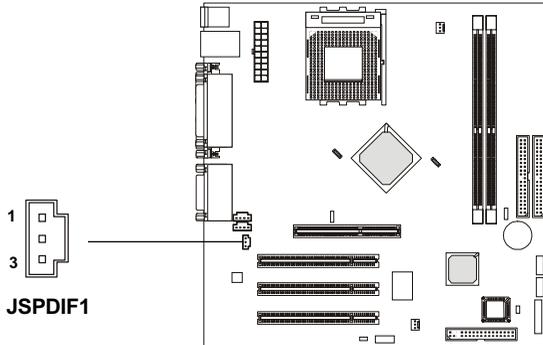
SENSOR
+12V
GND

CPUFAN1

SENSOR
+12V
GND

SYSFAN1
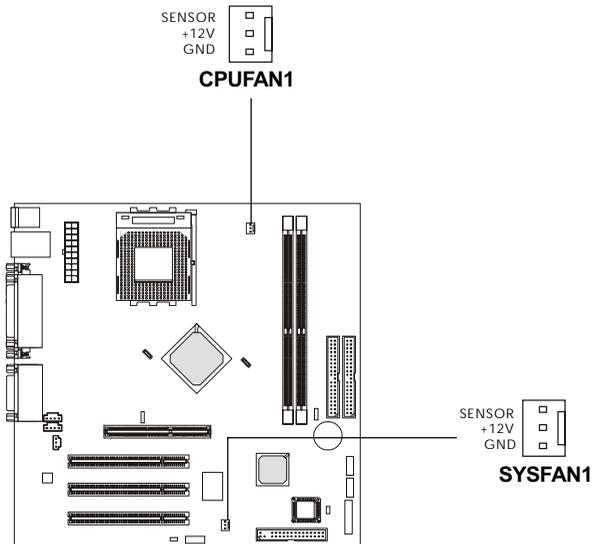
🔎 *Note:*
   1*. Always consult the vendor for proper CPU cooling fan.*
   2*. CPU Fan supports the fan control.*

SPDIF Connector: JSPDIF1

The connector is used to connect SPDIF (Sony & Philips Digital Inter-connect Format) interface for digital audio transmission.

JSPDIF1 Pin Definition

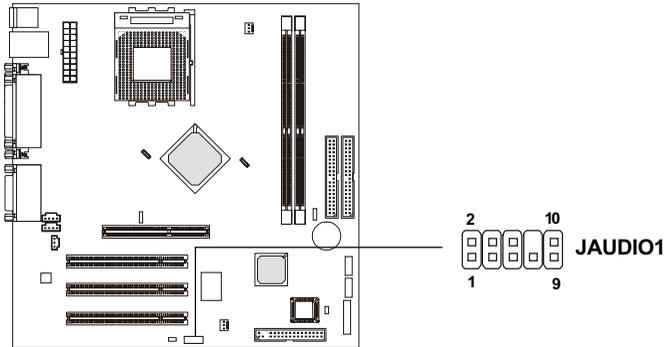| PIN	SIGNAL
1	VCC
2	SPDIF
3	GND

Connected to JSPDIF1

SPDIF Bracket

Front Panel Audio Connector: JAUDIO1

The front panel audio connector allows you to connect to the front panel audio and is **compliant with Intel Front Panel I/O Connectivity Design Guide**.


JAUDIO1

Pin Definition

PIN	SIGNAL	DESCRIPTION
1	AUD_MIC	Front panel microphone input signal
2	AUD_GND	Ground used by analog audio circuits
3	AUD_MIC_BIAS	Microphone power
4	AUD_VCC	Filtered +5V used by analog audio circuits
5	AUD_FPOUT_R	Right channel audio signal to front panel
6	AUD_RET_R	Right channel audio signal return from front panel
7	HP_ON	Reserved for future use to control headphone amplifier
8	KEY	No pin
9	AUD_FPOUT_L	Left channel audio signal to front panel
10	AUD_RET_L	Left channel audio signal return from front panel

Note:
If you don't want to connect to the front audio header, pins 5 & 6, 9 & 10 have to be jumpered in order to have signal output directed to the rear audio ports. Otherwise, the Line-Out connector on the back panel will not function.
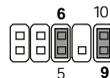
Jumpers

The motherboard provides the following jumpers for you to set the computer's function. This section will explain how to change your motherboard's function through the use of jumpers.

Clear CMOS Jumper: JBAT1

There is a CMOS RAM on board that has a power supply from external battery to keep the data of system configuration. With the CMOS RAM, the system can automatically boot OS every time it is turned on. If you want to clear the system configuration, use the JBAT1 (Clear CMOS Jumper) to clear data. Follow the instructions below to clear the data:

JBAT1

Clear Data

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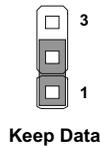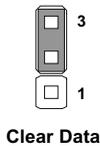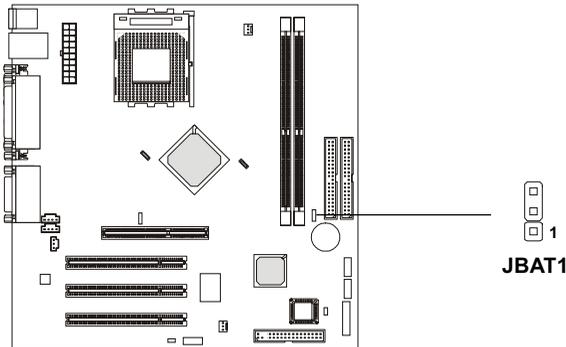
> *You can clear CMOS by shorting 2-3 pin while the system is off. Then return to 1-2 pin position. Avoid clearing the CMOS while the system is on; it will damage the mainboard.*

STOP
WARNING!

Slots

The motherboard provides one AGP slot and three 32-bit Master PCI slots.
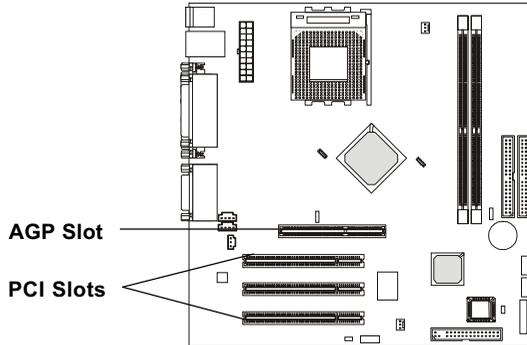
AGP (Accelerated Graphics Port) Slot

The AGP slot allows you to insert the AGP **1.5V** graphics card. AGP is an interface specification designed for the throughput demands of 3D graphics. It introduces a 66MHz, 32-bit channel for the graphics controller to directly access main memory and provides three levels of throughputs: 1x (266Mbps), 2x (533Mbps) and 4x (1.07Gbps).

> ⬛ **STOP**
> **WARNING**
>
> *The AGP slot **only supports 4x 1.5V AGP card**. Use of 3.3V AGP card may cause damages to the mainboard.*

PCI Slots

The PCI slots allow you to insert the expansion cards to meet your needs. When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to make any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.

PCI Interrupt Request Routing

The IRQ, abbreviation of interrupt request line and pronounced I-R-Q, are hardware lines over which devices can send interrupt signals to the microprocessor.

The "AGP/PCI" IRQ pins are typically connected to the PCI bus INTA#-INTE# pins as follows:

	Order 1	Order 2	Order 3	Order 4
AGP	INT E#	INT A#	/	/
PCI Slot 1	INT A#	INT B#	INT C#	INT D#
PCI Slot 2	INT B#	INT C#	INT D#	INT A#
PCI Slot 3	INT C#	INT D#	INT A#	INT B#

PCI Slot 1~3: Bus Master.