

# Introduction

## How This Manual is Organized

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This manual is divided into the following sections:

**Chapter 1 Introduction** : Manual information and checklist.

**Chapter 2 Features** : Information and Specifications concerning this mainboard.

**Chapter 3 Installation** : Instructions on setting up the board.

The mainboard is a high-performance mainboard based on the advanced Socket 370 microprocessor, the VGA, Audio , PCI Bus and the Intel 810E chipset (**6M810E**) / Intel 810-DC100 chipset (**6M810D**) / Intel 810 chipset (**6M810CN**).

## Package Checklist

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Please check that your package is complete . If you discover any item damaged or missing , please contact with your retailer immediately.

- ☒ The 6M810E/810D/810CN mainboard.
- ☒ Serial COM2 conector with bracket
- ☒ 1 x IDE UDMA 66 ribbon cable.
- ☒ 1 x floppy ribbon cable.
- ☒ 6M810E/810D/810CN drivers and utilities
- ☒ This user's Manual

## Chapter 2

# 2

# Features

### Features of the 6M810E/810D/810CN Mainboard

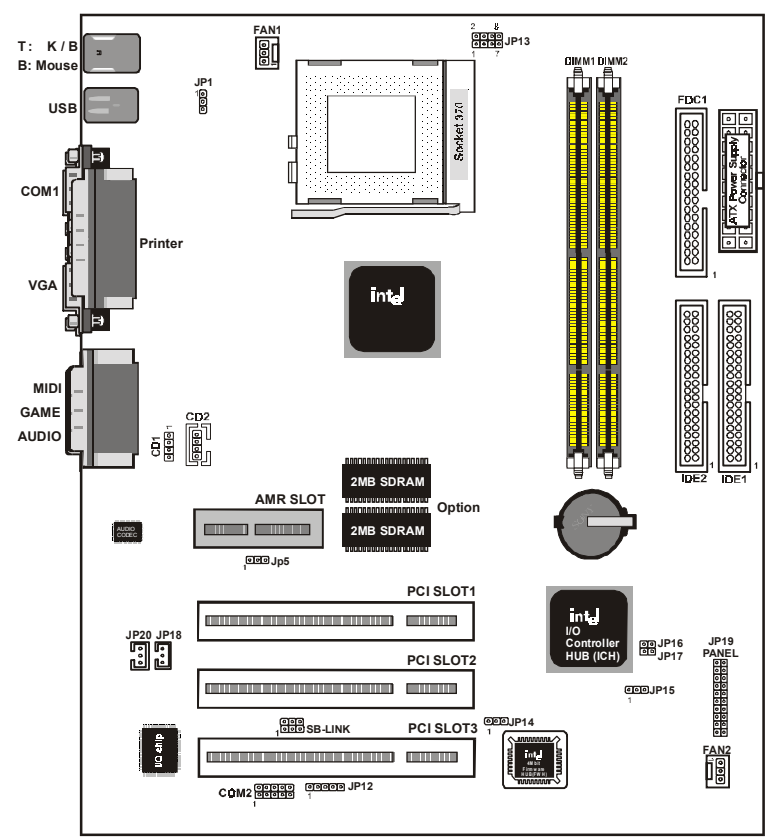
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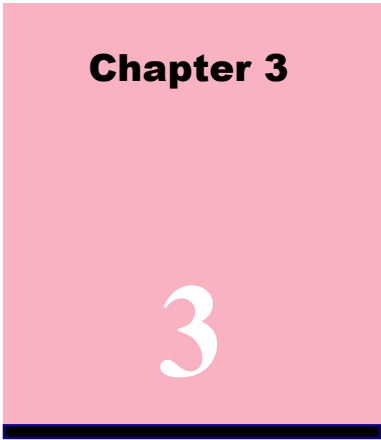
- ⌘ Intel 810-DC100 (GMCH+ICH) chipset supports 66/100MHz FSB, UltraDMA 66. **(6M810D)**
- ⌘ Intel 810 (GMCH+ICH) chipset supports 66/100MHz FSB, UltraDMA 66. **(6M810CN)**
- ⌘ Intel 810E (GMCH+ICH) chipset supports 66/100/133MHz FSB, UltraDMA 66. **(6M810E)**
- ⌘ Supports Intel's Celeron and Coppermine processor designed for socket 370 package in PPGA,FC-PGA.
- ⌘ Socket 370 Celeron / Coppermine up to 700MHz/1GMHz processor.

- ⌘ Integrated Graphics controller supports 3D hyper pipelined architecture, parallel data processing and compression, precise pixel interpolation, full 2D hardware acceleration , and motion video acceleration. Optional on board 4MB SDRAM display cache allows upto 1024x768x16 bit color for 3D graphics and 1600x1200x8 bit color for 2D graphics.
- ⌘ Support "Touch Button Wake up" for soft power on/off and suspend mode multifunction.
- ⌘ Support Windows 95/98 system Software shutdown (power off) automatically.
- ⌘ Support CPU FAN ON/OFF and LED indicator under SUSPEND mode.
- ⌘ Support Resume by Ring through Modem.
- ⌘ Uses 168-Pin DIMM modules(supports Intel **PC100** compliant SDRAMs) x2 auto banking in multiple configuration up to 512MB. (**6M810D/810CN**)
- ⌘ Uses 168-Pin DIMM modules(supports Intel **PC100/133** compliant SDRAMs) x2 auto banking in multiple configuration up to 512MB. (**6M810E**)
- ⌘ 3 x PCI Bus slots, and 1 x AMR (Audio Modem Riser) slots.
- ⌘ All 3 PCI slots support Master mode.
- ⌘ PCI Bus master IDE interface on board with two connectors support 4 IDE devices in 2 channel, the PCI IDE Controller supports PIO Mode 0 to Mode 4, Bus master IDE DMA Mode 2 and Ultra DMA 66MB.

- ☒ System BIOS support 4 IDE hard disk drivers that don't need device driver for S/W application.
- ☒ Support PS/2™ mouse Connector.
- ☒ Support the Universal Serial Bus (U.S.B).
- ☒ Support Floppy A.
- ☒ System BIOS supports LS-120, ZIP driver firmware and Green feature function, Plug and Play Flash ROM.
- ☒ AC'97 DAC built into the audio CODEC reduces noise to improve audio quality and performance for a SNR (signal to noise ratio) of +90dB. These features greatly improve voice synthesis and recognition. If more quality is required, an optional onboard Crysial PCI audio improves audio quality beyond software audio.
- ☒ Support Software Virus Warning in BIOS.
- ☒ Support ACPI functionStatic Electricity Precautions.
- ☒ Thermal detect (GL520SM) : **(option)**  
The system's BIOS will sense CPU's temperature through GL520SM on board. The User can watch what current temperature of CPU is & current CPU FAN status is from BIOS. To Using LDCM software (optional) . The user will watch the indication on Win 95/98 environment.

The 6M810E/810D/810CN Mainboard Layout





# Installation

**Jumper**

Jumper		Refer to page
♦ JP15	- CMOS Clear	11
♦ JP13	- CPU bus frequency selection	16
♦ JP1	- Wake On Keyboard	17
♦ JP14	- BIOS Flash protection	17
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MS	- PS/2 Mouse port (UP) 22
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COM1	- COM 1 serial port 22
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JP19	- ATX Power switch 27
PW1	- ATX Power Connector 27
CD1	- Audio Connector 28
CD2	- Audio Connector 28



## System Installation Setup

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Before using your computer, you must finish the following steps:

1. Set jumpers on mainboard
2. Install SDRAM module.
3. Install the Processor.
4. Connect Ribbon Cables, Cabinet Wires, and Power supply.
5. Install Add on Cards.
6. Setup the BIOS software.

## Static Electricity Precaution

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
- ⌘ Keep the mainboard and other system components in their anti-static packaging until you are ready to install them.
- ⌘ Do all preparative work on a static-free surface with the main board components facing up.
- ⌘ Unplug your computer when working on the inside.
- ⌘ Wear an Anti-static wrist strap.
- ⌘ Hold the system components, boards or cards by its edges only. Be careful not to touch any of IC chips, circuitry, contacts or connections, especially gold contacts on the mainboard.



## Jumper Settings

### Jumpers

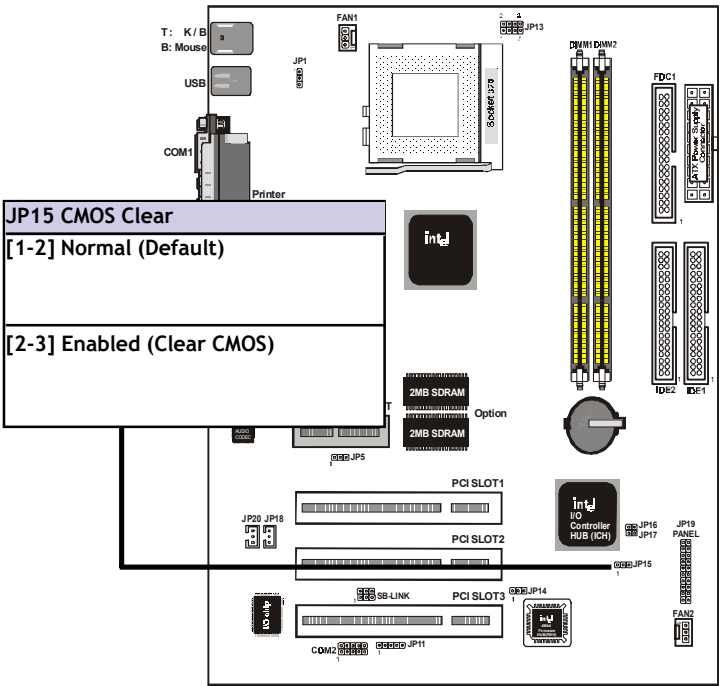
Several hardware setting are made through the use of jumper caps to connect jumper pins (Jxx) on the mainboard. See " Map of the mainboard" for the location of the jumpers.

The jumper settings will be described numerically such as [----], [1-2], [2-3] for no connection, connect pins 1 & 2, and connect pins 2 & 3 respectively. Pin 1 for our mainboard is always on top one or on the left when holding the mainboard with the keyboard away from yourself. "P1" is written besides pin 1 on jumper with three pins. The jumpers will also be shown graphically such as  to connect pin 1&2 and  to connect 2&3. Jumpers with two pins will be shown as  for Short (off) and  for Open (on).For manufacturing simplicity it may be sharing pins from other groups. Use the diagrams in this manual instead of following the pin layout on the board. Settings with two jumper numbers require that both jumpers be moved together. To connect the pin, simply place a plastic jumper cap over the two pins as diagrammed.

**Real Time Clock (RTC) RAM - JP15 :**

The CMOS RAM is powered by the onboard button cell battery. To clear the RTC data:

(1) Turn off your computer, (2) Move this jumper to "2-3Pin Clear Data", (3) Move the jumper back to "Default", (4) Turn on your computer, (5) Hold down <Delete> during bootup and enter BIOS setup to re-enter user Preferences.



System Memory ( DIMM Module)

This 6M810E/810D/810CN main board supports two 168 pins DIMM of 16 MB, 32 MB, 64 MB, 128 MB ,256MB to form a memory size between 16MB to 256MB.  
The DRAM can be either Intel PC100 compliant SDRAMs.  
(6M810D/810CN)  
The DRAM can be either Intel PC100/133 compliant SDRAMs.  
(6M810E)  
Install memory in any or all Banks in Combination:

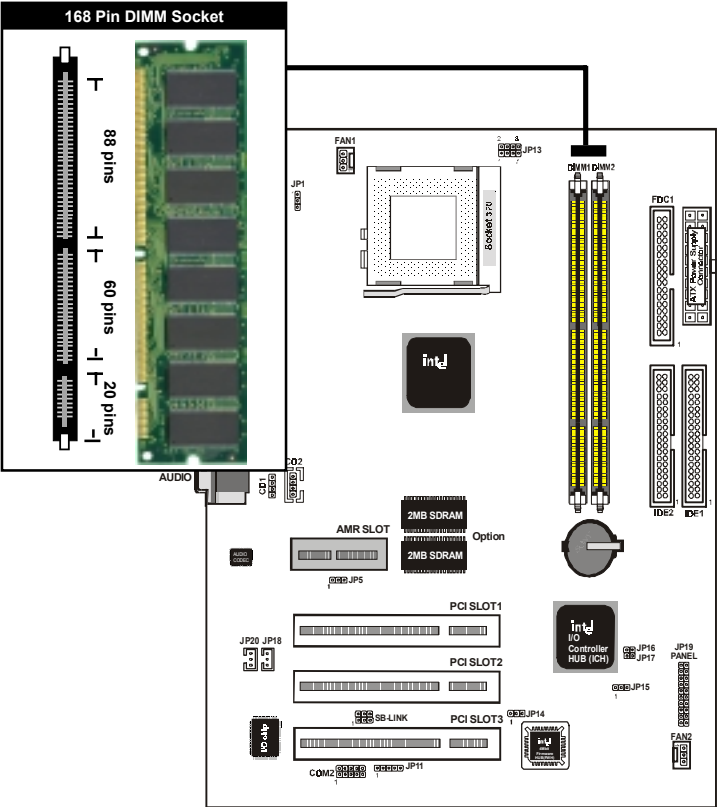
Bank	Memory module
DIMM 1	16MB,32MB,64MB,128MB,256MB
( Bank 0-1 )	168 pin,3.3v SDRAM
DIMM 2	16MB,32MB,64MB,128MB,256MB
( Bank 2-3 )	168 pin 3.3v,SDRAM
	Total System Memory(Max 512MB)

Note :

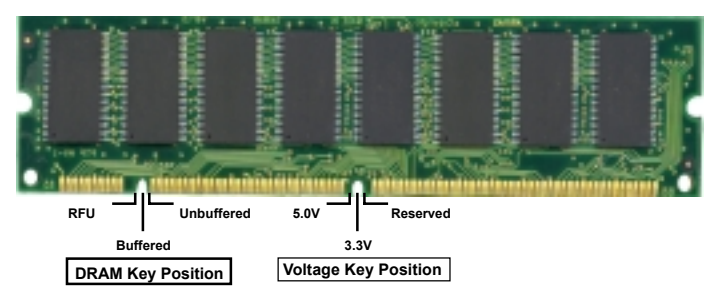
- ♦ The DIMM Slot does not support any 5v EDO DIMM module.
- ♦ The DIMM Slot does not support any 5v SDRAM DIMM module.
- ♦ Memory speed setup is required through "Auto Configuration" in BIOS chipset Setup of BIOS SOFTWARE. If several speed memories are used, You must set Auto Configuration to low. Example If both 50ns, 60ns are used, Please set Auto configuration to 60ns.
- ♦ It's allowed any DIMM module put in any DIMM slot. It's allowed there are different capacity DIMM module in all DIMM slot.

DIMM Memory Installation

Insert the module (s) as shown. Because the number pins are different on either side of the breaks, the module will only fit in the orientation as shown. SDRAM DIMM modules have different pin contacts on each side and therefore have a higher pin density.



The Dual Inline Memory Module (DIMM) memory module must be 3.3v SDRAM. You can identify the type of DIMM module by the illustration below:



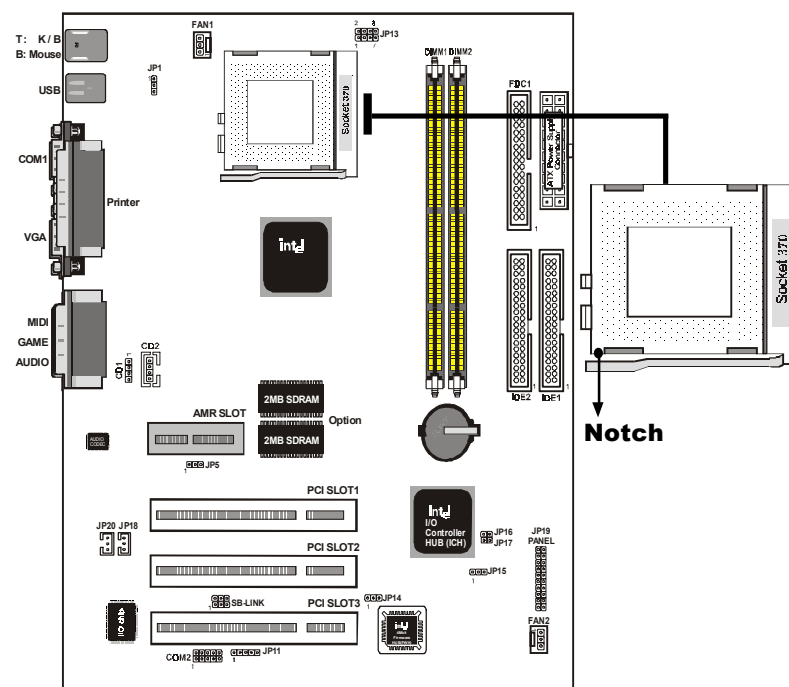
**168 Pin DRAM DIMM Notch Key Definitions**

The notch on the DIMM module will shift between left, center, or right to identify the type and also to prevent the wrong type to be inserted into the DIMM slot on the Mainboard. You must ask your retailer for Specifications before purchasing.  
**Four clock signals are supported on this mainboard**

## CPU Installation

The motherboard provides a ZIF socket 370. The CPU that came with the motherboard should have a fan attached to it to prevent overheating. If this is not the case then purchase a fan before you turn on your system.

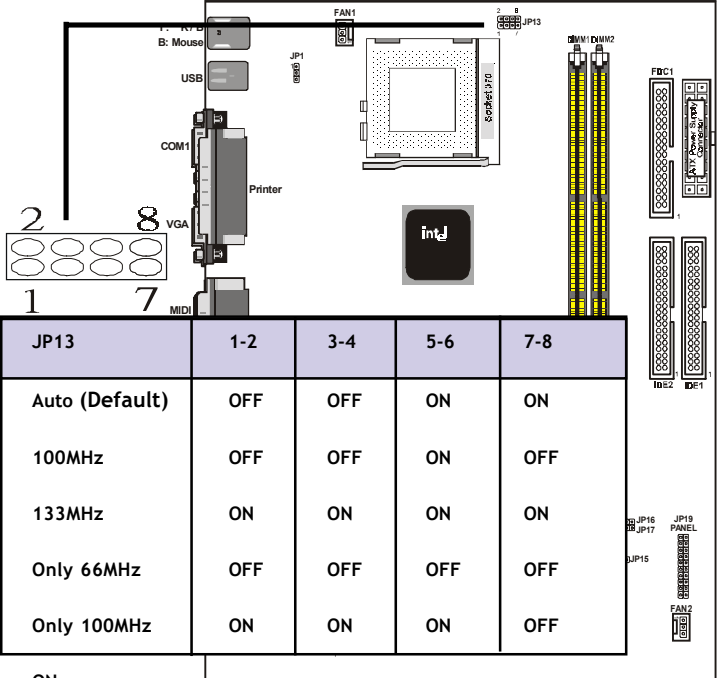
To install a CPU, first turn off your system and remove its cover. Locate the ZIF socket and open it by first pulling the lever sideways away from the socket then upwards to a 90-degree right angle. Insert the CPU with the correct orientation shown. The notched corner should point towards the end of the lever. Because the CPU has a corner pin for two of the four corners, the CPU will only fit in the orientation as shown.



CPU External (Bus) Frequency Selection -JP13


Current PCI bus in limited to 33MHz, socket370 processors limited to 66MHz,100MHz and 133MHz (6M810E only) and SDRAM limited to the DIMM type 100MHz,133MHz (6M810E only), 66MHz SDRAM is not supported on this motherboard. Other settings are for experienced users only.

**NOTE:**  
Most of the CPU frequency are locked by the manufacturer. This motherboard is able to auto-detect the CPU frequency.




JP13	1-2	3-4	5-6	7-8
Auto (Default)	OFF	OFF	ON	ON
100MHz	OFF	OFF	ON	OFF
133MHz	ON	ON	ON	ON
Only 66MHz	OFF	OFF	OFF	OFF
Only 100MHz	ON	ON	ON	OFF

ON



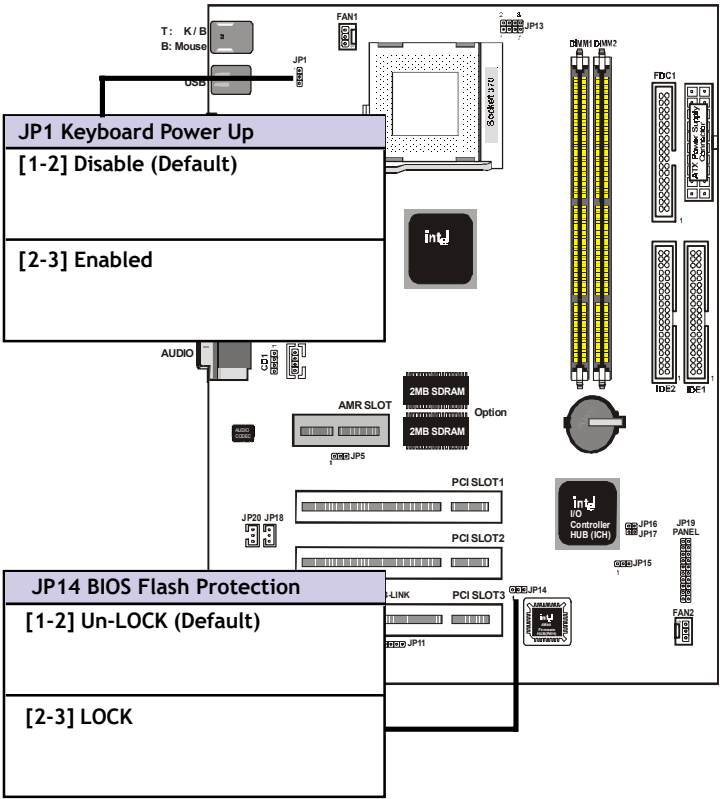
OFF





Wake On Keyboard -JP1

This allows you to disable or enable the keyboard power up function. Set to enable if you want to use your keyboard (by press <Spacebar> to power up your computer. This feature requires an ATX power supply that can supply at least 500mA on the +5VSB lead and the new ACPI BIOS support. The default is set to Disable because not all computers have the appropriate ATX power supply. Your computer will not function if you set this to Enable and if you do not have the right ATX Power supply.

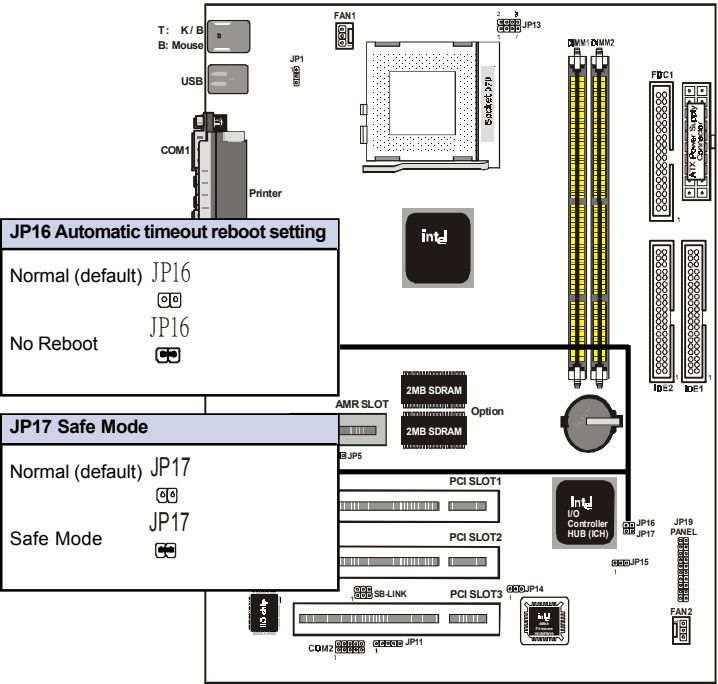


BIOS Flash Protection -JP14

The jumper is used to locked/unlocked BIOS Flash. This jumper should be unlock when flashing/programming the BIOS.

**Automatic Timeout Reboot Setting (NO\_REBOOT) -JP16**

The motherboard is set that when the BIOS detects a hang(timeout) during bootup, the motherboard will automatically reboot in order to try rebooting again. If rebooting is repeating ineffectively, set this jumper to "No Reboot" so that auto reboot will be disabled.

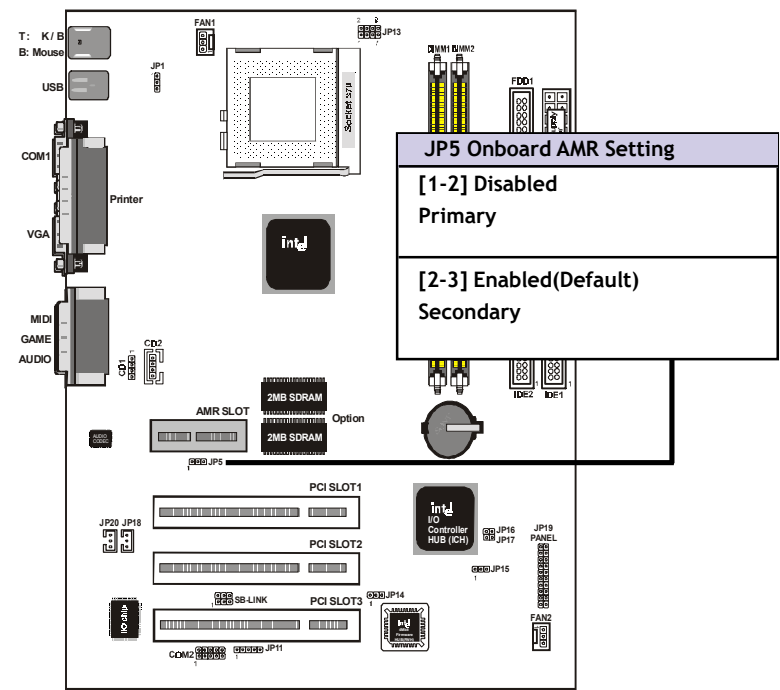


**Safe Mode (SAFE\_MD) -JP17**

Usually socket 370 processors have locked frequency multiples. In this case, there is no way to exceed the specified multiple whether through motherboard setting or BIOS setup. With unlocked socket 370 processors, exceeding the specified multiple is possible through BIOS setup. Exceeding the specified multiple may result in hanging during bootup. If this occurs, enable Safe Mode to force a multiple of 2 in order to enter BIOS setup to correct the problem.

Onboard AMR Setting -JP5

The onboard Audio Codec may be enabled or disables using all of these jumpers. Disable the onboard Audio Codec if you are using PCI Audio card on any of the expansion slots or a primary AMR on the AMR slot. If using an PCI Audio expansion card, onboard AC'97 Audio controller must also be disabled.



**Note:**

The 6M810E/810D/810CN Disable Onboard AC'97 Sound. You must configure the setting for "Integrated Peripherals" in BIOS.

Choose "Integrated Peripherals" from BIOS menu:

AC97 Audio	: Enabled ==>	Disabled
MIDI Port Address	: 330 ==>	Disabled

## **Clearance Requirements**

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To maintain proper airflow once the processor is installed on the mainboard, the processor and fan heatsink require certain space clearances. The clearance above the processor must be at least 0.3 inch. The clearance on at least 3 of 4 sides of the processor and fan heatsink must be at least 0.2 inch. All cables (for Floppy drive, Hard drive, CD-ROM, and so on) must be routed clear of the processor and its airspace.

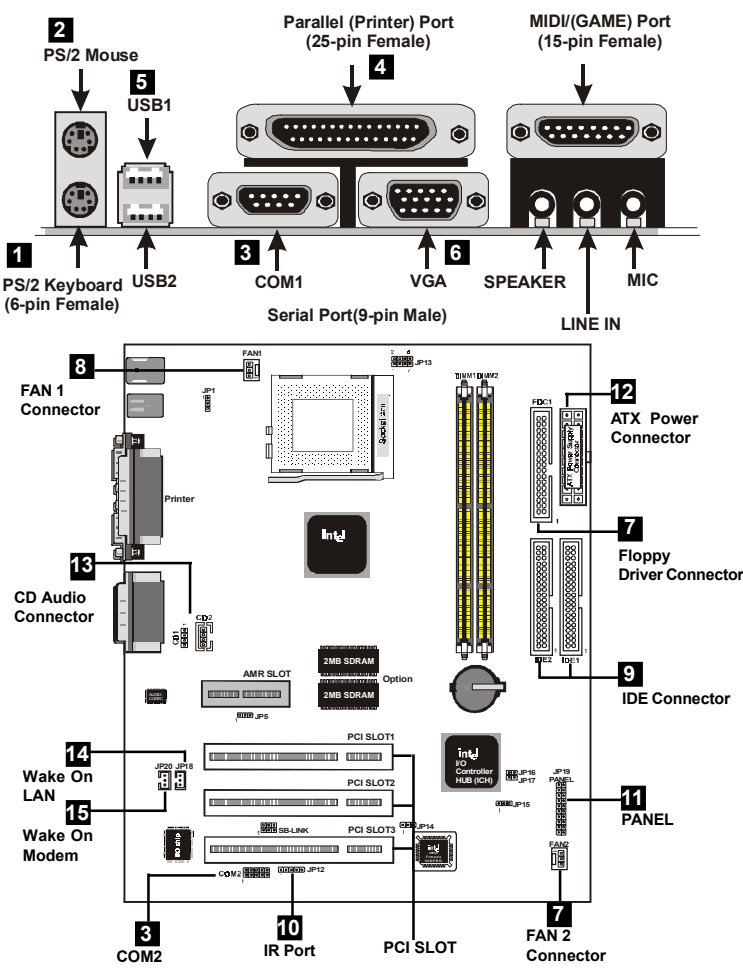
## **Fan Exhaust**

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The processor must be kept cool by using a processor with heatsink and fan attached. The temperature of the air filled with the fan/heatsink cannot exceed 45 °C (113 °F). The ambient or room temperature must be below 37 °C (99 °F).

EXTERNAL CONNECTORS

Both Ribbon cable and Connectors on board are with direction signs to avoid that user insert wrong direction. On other hand, the ribbon cables should always be connected with the red stripe on the pin 1 of side of the connector.



**1. PS/2 AT Keyboard port**

This connection is for a standard keyboard using an PS/2 plug (mini DIN) . This connector will not allow standard AT size (large DIN) keyboard plugs. You may use a DIN to mini DIN adapter on standard AT keyboards.

**2. PS/2 Mouse port**

This system will direct IRQ12 to PS/2 mouse.

**3. Serial Port COM 1 and COM 2 port**

The COM1 serial ports can be used for pointing devices or other serial devices. See "Onboard Serial Port" in chipset Feature Setup of the BIOS SOFTWARE.

The COM2 serial port header (10-1 pin ) : The optional serial port bracket can be used to add an additional serial port for additional serial devices.

**NOTE:**

**Serial {D-type 25pin (F) } must be connected to the serial port.**

**4. Parallel Printer port**

You can enable the parallel port and choose the IRQ through " Onboard Parallel Port" in Chipset. Feature Setup of the BIOS SOFTWARE.

**5. Universal Serial BUS Ports 1 & 2**

Two USB ports are available for connecting USB devices.

**6. VGA Connectors (15-pin)**

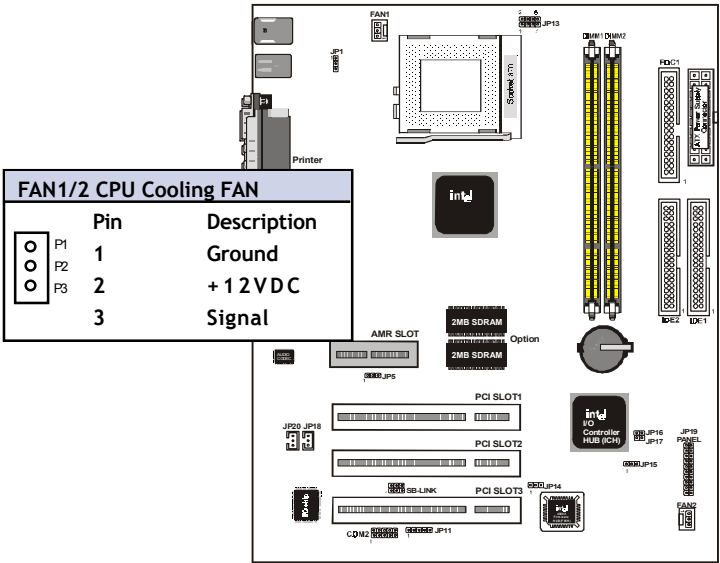
This connectors support monitor.

**7. Floppy drive connector**

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

8. FAN1 , FAN2 CPU Cooling Fan (FAN1,2)

These connectors support cooling fans of 500mAmp (6Watt) or less. Orientate the fans so that the heatsink fans allow airflow to go across the onboard heat sink(s) instead of the expansion slots. Depending on the fan manufacturer, the wiring and plug may be different. The red wire should be positive, while the black should be ground. Connect the fan's plug to the board taking into consideration the polarity of this connector.



**NOTE :**  
The "Rotation" signal is to be used only by a specially designed fan with rotation signal.

**WARNING :**  
The CPU and/or motherboard will overheat if there is no air flowing across the CPU and onboard heatsinks. Damage may occur to the motherboard and/or the CPU fan if these pins are incorrectly used. These are not jumpers, do not place jumper caps over these pins.

9. **Primary / Secondary IDE connectors (Two 40-pin Blocks)**

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)

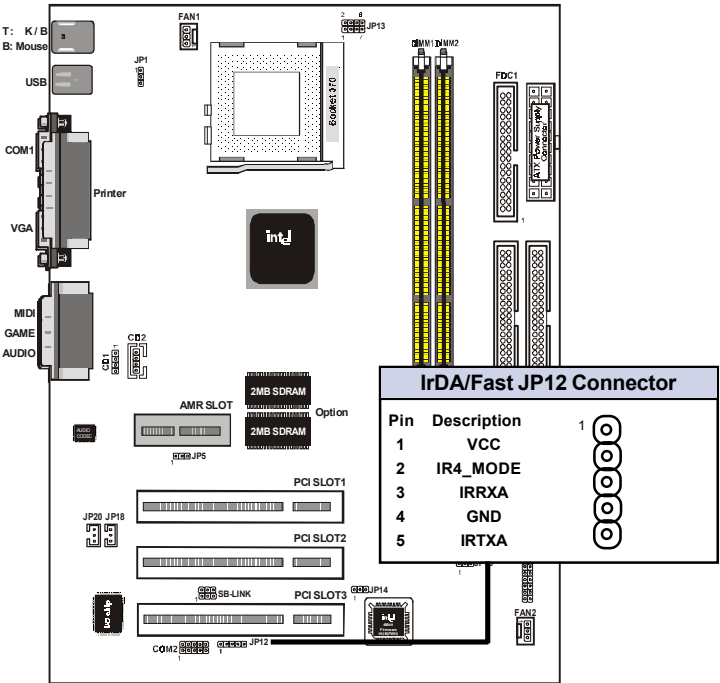
**Tip :**

**You may configure two hard disks to be both Masters using one ribbon cable on the primary IDE connector. You may install one operating system on an IDE drive and another on a SCSI drive and select the right one through BIOS Feature Setup.**

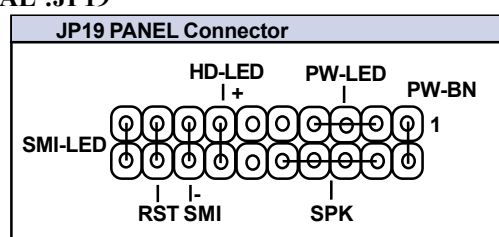


10. IrDA / Fast IR-Compliant infrared module connector - JP12

This connector supports the optional wireless transmitting and receiving infrared module. This module mounts to a small opening on system cases that support this feature. You must also configure the setting through UART2 Use Infrared” in Chipset Feature Setup to select whether UART2 is directed for use with COM2 or IrDA. Use the five pins as shown on the Back View and connect a ribbon cable from the module to the motherboard according to the pin definitions.



## 11. PANAL :JP19



### a. IDE activity LED (HD-LED)

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

### b. Power LED Lead (PW\_LED)

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

### c. SMI Suspend Switch Lead (SMI)

This allows the user to manually place the system into a suspend mode or "Green" mode where systematic 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 below) connects to the case-mounted suspend switch. If you do not have a switch for the connector, you may use the "Turbo Switch" since it does not have a function. SMI is activated when it detects a short to open moment and therefore leaving it shorted will not cause any problems. 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 lead cannot wake-up the system). If you want to use this connector, "Suspend Switch" in the Power Management Setup of the BIOS SOFTWARE section should be on the default setting of Enable

### d. Reset Switch Lead (RST)

This 2-pin connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the life of the system's power supply.

- e. **Suspend LED (PANEL)**  
The system suspend LED lights when the system’s suspend is on
- f. **Speaker Connector (SPEAKER)**  
This 4-pin connector connects to the case-mounted speaker.
- g. **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

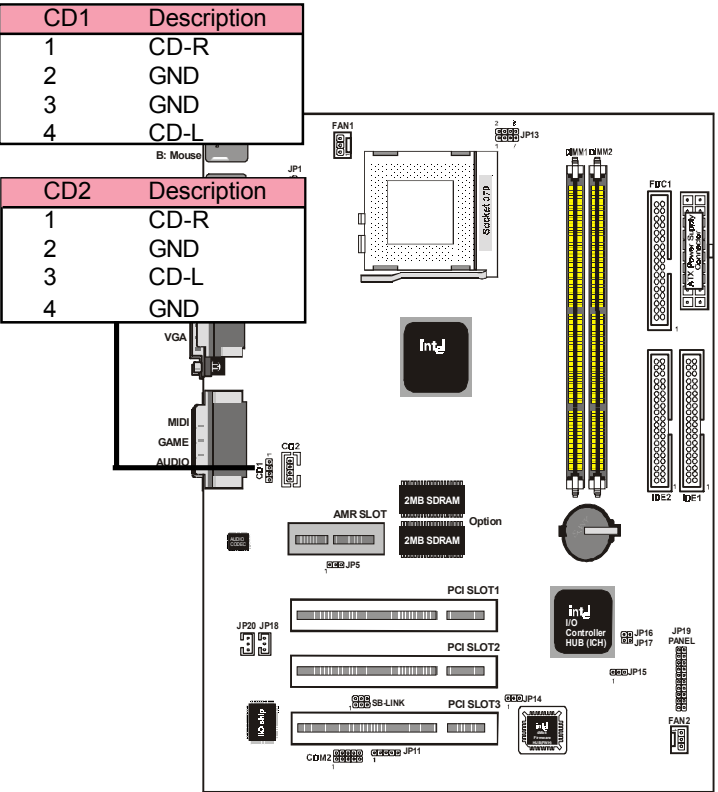
12. **ATX Power Supply Connector (20-pin block) - PW1**  
This connector connects to a ATX power supply. The plug from the power supply will only insert in one orientation because of the different hole sizes. Find the proper orientation and push down firmly making sure that the pins are aligned.

**IMPORTANT:**  
Make sure that the ATX power supply can take at least 10mAmp load on the 5Volt standby lead (5VSB). You may experience difficulty in powering on your system without this.

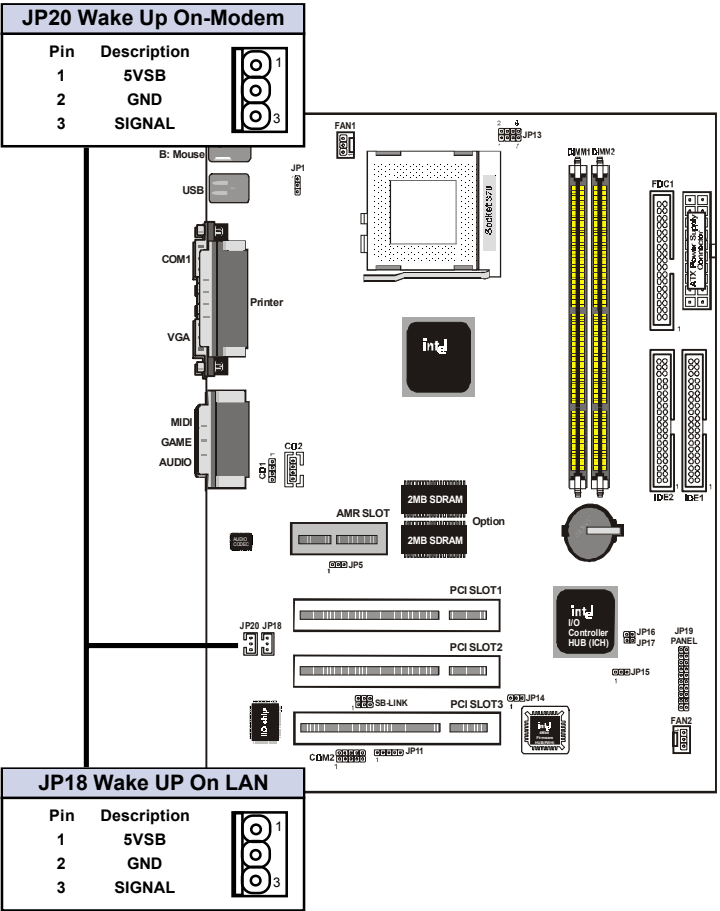
Pin	Description	Pin	Description
1	3.3V	2	3.3V
3	GND	4	5V
5	GND	6	5V
7	GND	8	PW-OK
9	5VSB	10	12V
11	3.3V	12	-12V
13	GND	14	PS-ON
15	GND	16	GND
17	GND	18	-5V
19	5V	20	5V

12. CD Audio Connector- CD1,CD2

The 4-pin connectors enable the system to receive the audio output from the CD-ROM.



**13. Wake Up On MODEM Connector : JP20**  
This connector connects Modem and a Wake On Modem output.



**14. Wake Up On LAN Connector : JP18**  
This connector connects LAN cards and a Wake On LAN output.  
When the system is in soft-off mode LAN activity will power on the system.

15. **SB-LINK : JP10**

“SB-Link” originated from Creative to propose a standard which can be a bridge between the mainboard and PCI sound card to deliver Sound Blaster 16 compatibility under DOS real-mode environment. Sound Blaster 16 was almost the standard of the ISA Bus sound cards, a lot of games were Programmed for Sound Blaster especially under DOS environment. If the users are still interested in playing these game titles, they might have compatibility problems with the new upgraded PCI Bus sound card. This header adopts Intel’s PC/PCI technology to deliver Sound Blaster 16 compatibility to PCI Bus sound card, enabling users to play real-mode DOS games. Connect the cable provided by PCI sound card to this connector.

