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## Introduction

### System Overview

This manual was written to help you start using this product as quickly and smoothly as possible. Inside, you will find the answers to solve most problems. In order for this reference material to be of greatest use, refer to the “expanded table of contents” to find relevant topics.

This board provides a total PC solution by incorporating the System , I/O , and PCI IDE. The mainboard is designed for Intel PIII/Celeron/Coppermine processors base PC ATX system, support single processors with CNR Bus, PCI Local Bus, and AGP Bus to support upgrades to your system performance. It is ideal for multi-tasking and fully supports MS-DOS, Windows, Windows NT , Windows ME, Windows 2000 , Novell, OS/2, Windows95/98 , UNIX , Windows 98SE , SCO UNIX etc.

This manual also explains how to install the mainboard for operation, and how to setup your CMOS configuration with the BIOS setup program.

## 1. Motherboard Description

### 1.1 Features

#### 1.1.1 Hardware

##### CPU

- Socket 370 for Intel Celeron/PIII Processors.
- Intel FC-PGA/FC-PGA2/PPGA Celeron Processors 600MHz~900MHz or higher processor with 66/100MHz FSB.
- Intel FC-PGA Pentium III Processors 500MHz~1.13GHz or higher processor with 100/133MHz FSB.
- VIA Cyrix III Processor with 100/133MHz FSB.
- Intel Tualatin Processor with 1.13GHz or higher processor.

##### Chipset

- North Bridge System Chipset : Intel 815 B-step support 66/100/133 FSB.
- South Bridge System Chipset : Intel ICH2.

##### Biggest memory capacity

**6A815E1/6A815EP1** is equipped with three DIMM socket to support (8MB to 512MB) 168 pin 3.3v SDRAM SPD (Special Presence Detect).

Maximum memory up to 512MB.

- Supports up to 3 double sided DIMMs at 100MHz system memory bus.**
- Supports up to 2 double sided or 3 single sided DIMMs at 133MHz system memory bus.**

##### AGP for fast VGA solution

- AGP specification compliant.
- AGP 66 MHz 3.3v for 1X/2X/4X device support.

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**Bus Slot**

- Provides five 32 bit PCI slots.
- Provide one AGP slot and one CNR slot.

**On-Board IDE**

- An IDE controller on the ICH2 chipset provides IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA 33/66/100 operation modes.
- Can connect up to four IDE devices.

**On-Board Peripherals**

- 1 floppy port supports 2 FDD with 360K,720K,1.2M, 1.44M and 2.88M byte.
- 2 serial ports (COM1+COM2(10 pin) ).
- 4 USB ports.
- 1 VGA port.(**Only support by 6A815E1 motherboard**)
- 1 parallel port supports SPP/EPP/ECP mode.

**Audio**

- ICH2 chip integrated.
- AC'97 CODEC on board .

**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.
- BIOS support CD-ROM, SCSI, LAN BOOT, Temperature sensor, Wake on modem, Alarm Bus CLK setup with BIOS.

**Hardware Monitor Function**

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

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**Support Ring on by modem/Alarm on**

Support System power up from Modem ring up or timer of System. Required enabled in Ring on by modem and Alarm on in BIOS.

**Intel Accelerated Hub Architecture :**

Features a dedicated high speed hub link between the ICH2 and GMCH with a bandwidth of 266MB/sec-twice the maximum bandwidth of the PCI bus.

**Integrated Graphics :****(Only support by 6A815E1 motherboard)**

Controller supports 3D hyper pipelined architecture, parallel data processing and compression, precise pixel interpolation, full 2D hardware acceleration, and motion video acceleration.

**Suspend and Go :**

Suspend-to-RAM (STR) provides maximum power savings as an alternative to leaving the computer ON and Quickstart so that you do not have to wait for a long time for system boot.

**CNR Support :**

One Communication and Networking Riser(CNR) slots provide interface to support very affordable multichannel audio, V.90 analog modem, Home PNA, 10/100 Ethernet networking,USB hub, as well as future technologies such as XDSL .

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### 1.1.2 Software

#### **BIOS**

- AWARD legal BIOS.
- Supports APM 1.2.
- Supports USB Function.
- Supports ACPI.

#### **Operation System**

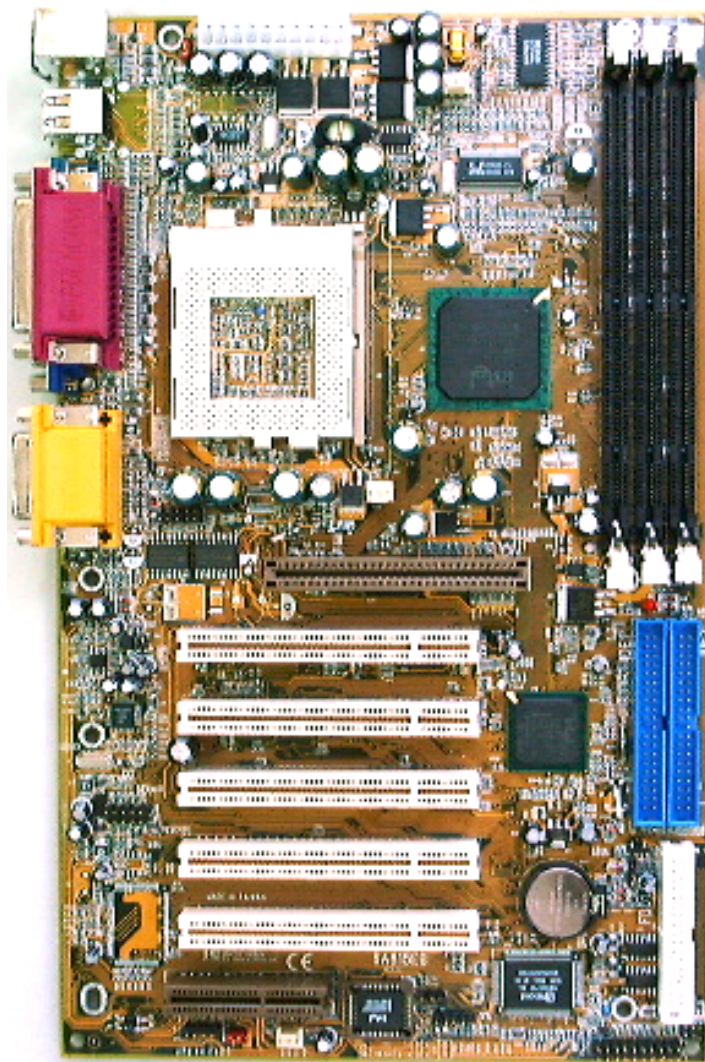
- Offers the highest performance for MS-DOS, Windows, Windows NT, Windows ME, Windows 2000, Novell, OS/2, Windows95/98, Windows 98SE, UNIX, Linux SCO UNIX etc.

### 1.1.3 Attachments

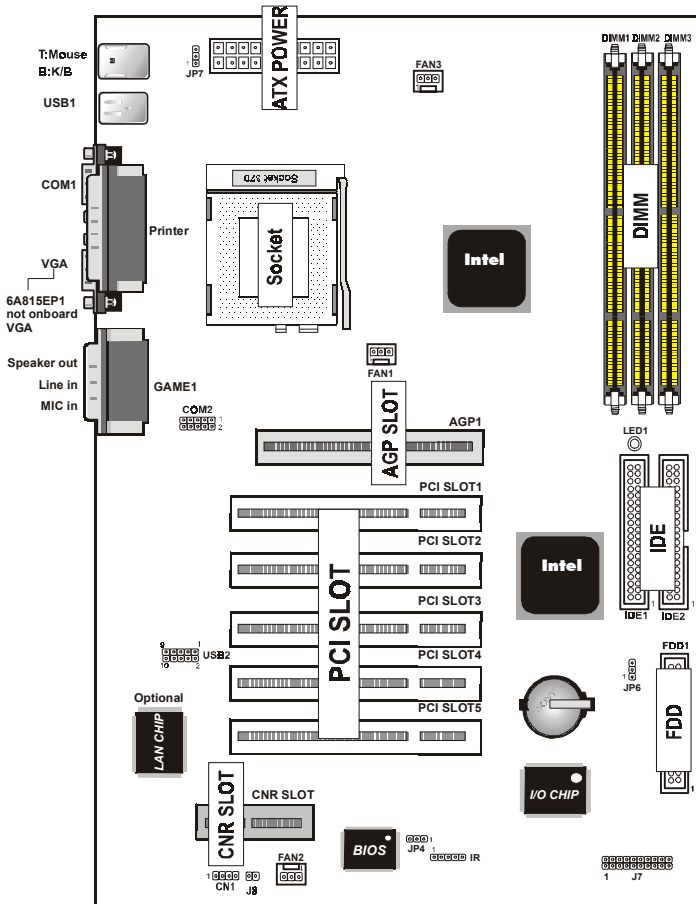
- HDD UDMA66/100 Cable.
- FDD Cable.
- Flash Memory Written for BIOS Update.
- COM2 Cable. (**Only support by 6A815E1 motherboard**)
- Fully Setup CD Driver built in Utility(Ghost, Anitivirus, Adobe Acrobat).
- This manual.

## 1.2 Motherboard Installation

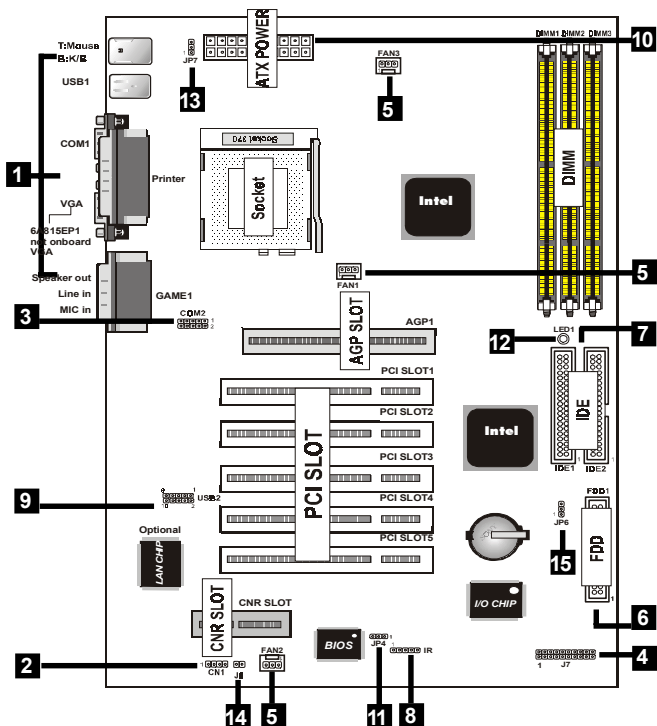
### 1.2.1 Motherboard Map



## 1.2.2 Motherboard Layout



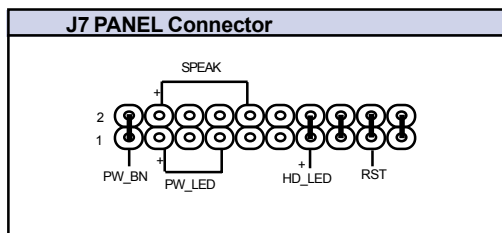
## 1.3 Motherboard Connectors



- |                                  |                         |
|----------------------------------|-------------------------|
| 1.Back Panel I/O Connectors      | 2.CD Audio-In Connector |
| 3.Front COM2 Connector           | 4.Front Panel Connector |
| 5.Fan Connectors(Fan1/2/3)       | 6.Floppy Connector      |
| 7.IDE Connectors                 | 8.IR Connector          |
| 9.Front USB2 Connector           | 10.ATX Power Connector  |
| 11.BIOS Flash(JP4)               | 12.STR LED(LED1)        |
| 13.Keyboard wake up Setting(JP7) |                         |
| 14.CNR Card Setting(J8)          |                         |
| 15.CMOS Function Setting(JP6)    |                         |



### 1.3.1 Front Panel Connector (J7)



#### Speaker Connector (SPEAK)

An offboard speaker can be installed onto the motherboard as a manufacturing option. An offboard speaker can be connected to the motherboard at the front panel connector. The speaker (onboard or offboard) provides error beep code information during the Power Self-Test when the computer cannot use the video interface. The speaker is not connected to the audio subsystem and does not receive output from the audio subsystem.

#### Hard Drive LED Connector (HDLED)

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

#### ATX Power Switch (PWBN)

The system power is controlled by a momentary switch connected to this lead. Pushing the button once will switch the system ON. The system power LED lights when the system's power is on.

#### Power LED Lead (PWLED)

The system Power LED lights when the system power is on.

#### Reset Switch Lead (RST)

The connector can be connected to a momentary SPST type switch that is normally open. When the switch is closed, the motherboard resets and runs the POST.

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### **1.3.2 Floppy Disk Connector (FDD1)**

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

### **1.3.3 Hard Disk Connectors (IDE1/IDE2)**

These connectors support the provided IDE hard disk ribbon cable. After connecting the single end to the board, connect the two plugs at the other end to your hard disk .

If you install two hard disks, you must configure the second drive to Slave mode by setting its jumper settings. BIOS now supports SCSI device or IDE CD-ROM boot up (see "HDD Sequence SCSI/IDE First" & "Boot Sequence" in the BIOS Features Setup of the BIOS SOFTWARE) (Pin 20 is removed to prevent inserting in the wrong orientation when using ribbon cables with pin 20 plugged) .

### 1.3.4 ATX 20-pin Power Connector (PW1)

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

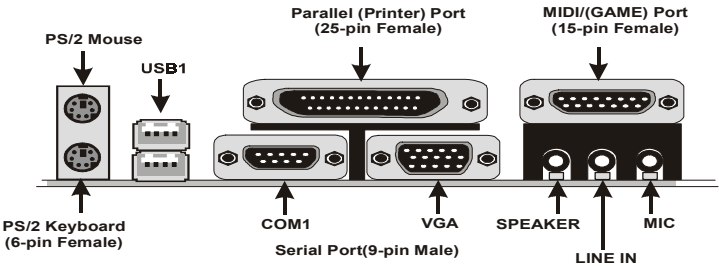
Pin	Signal	Pin	Signal
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	PS-ON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW-OK	18	-5V
9	5V_SB	19	5V
10	12V	20	5V

### 1.3.5 Infrared Connector (IR)

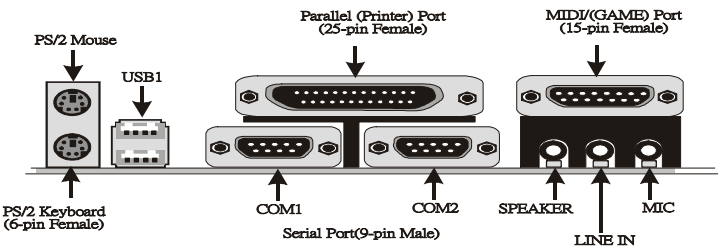
After the IrDA interface is configured, files can be transferred from or to portable devices such as laptops, PDAs, and printers using application software.

## 1.4 Back Panel Connectors

(Only support by 6A815E1 motherboard)



(Only support by 6A815EP1 motherboard)



### 1.4.1 PS/2 Mouse /Keyboard CONN.

The motherboard provides a standard PS/2 mouse / Keyboard mini DIN connector for attaching a PS/2 mouse. You can plug a PS/2 mouse / Keyboard directly into this connector.

### 1.4.2 USB Connectors: USB1/2

The motherboard provides a OHCI(Open Host Controller Interface)Universal Serial Bus Roots for attaching USB devices such as a keyboard, mouse and other USB devices. You can plug the USB devices directly into this connector.



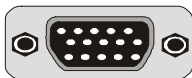
Pin	Signal
1	+5v
2	USBP0-(USBP1-)
3	USBP0+(USBP1+)
4	GND

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

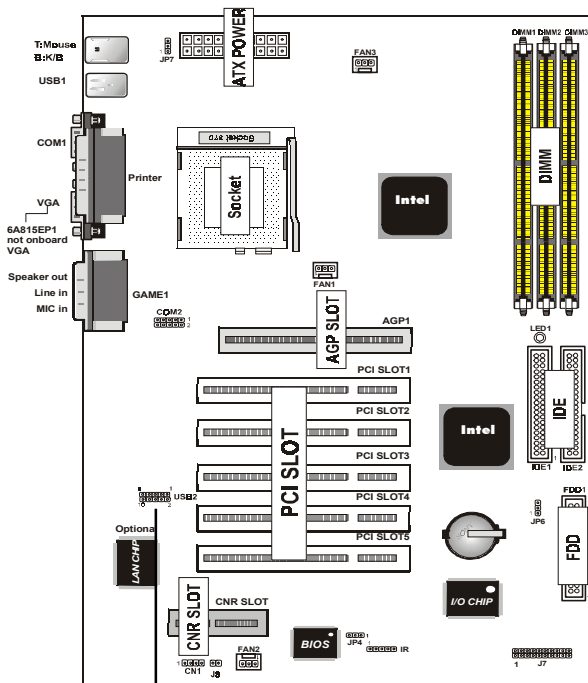
(Only support by 6A815E1 motherboard)

This connector is for output to VGA-compatible devices.

VGA



### Front Two USB Connectors: USB2



USB2

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

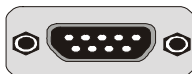
## 1.5 Serial and Parallel Interface Ports

This system comes equipped with two serial ports and one parallel port. Both types of interface ports will be explained in this chapter.

### The Serial Interfaces: COM1/COM2

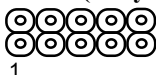
The serial interface port is sometimes referred to as an RS-232 port or an asynchronous communication port. Mice, printers, modems and other peripheral devices can be connected to a serial port. The serial port can also be used to connect your computer system. If you wish to transfer the contents of your hard disk to another system it can be accomplished by using each machine's serial port.

COM1/COM2



(Only support by 6A815EP1 M/B)

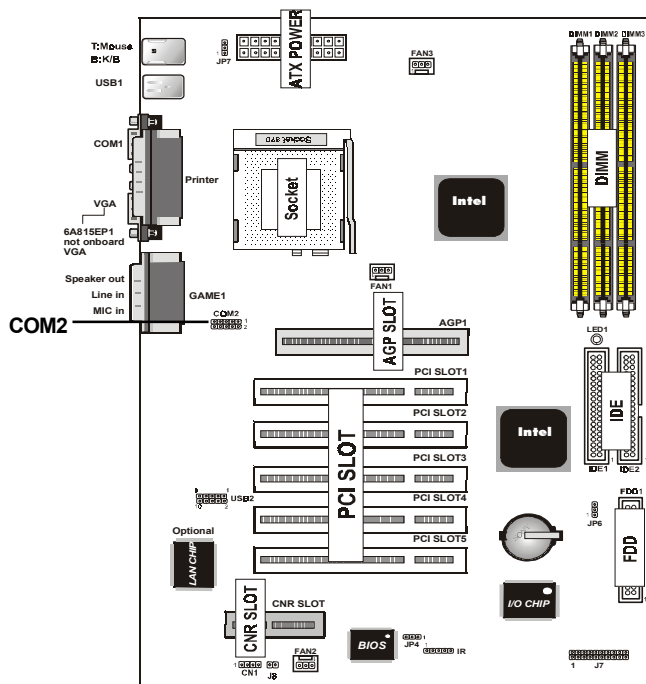
COM2



(Only support by 6A815E1 M/B)

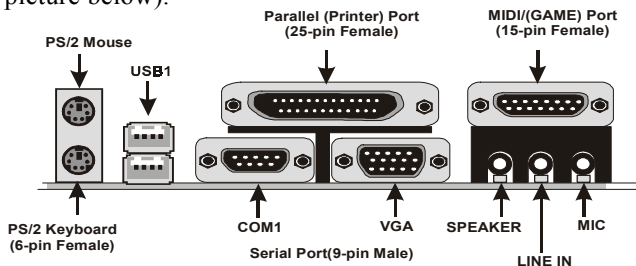
The serial port on this system has one 9-pin connector. Some older computer systems and peripherals used to be equipped with only a 25-pin connector. Should you need to connect your 9-pin serial port to an older 25-pin serial port, you can purchase a 9-to-25 pin adapter.

Signal	DB9 Pin	DB25 Pin
DCD	1	8
RX	2	3
TX	3	2
DTR	4	20
GND	5	7
DSR	6	6
RTS	7	4
CTS	8	5
RI	9	22



## Parallel Interface Port

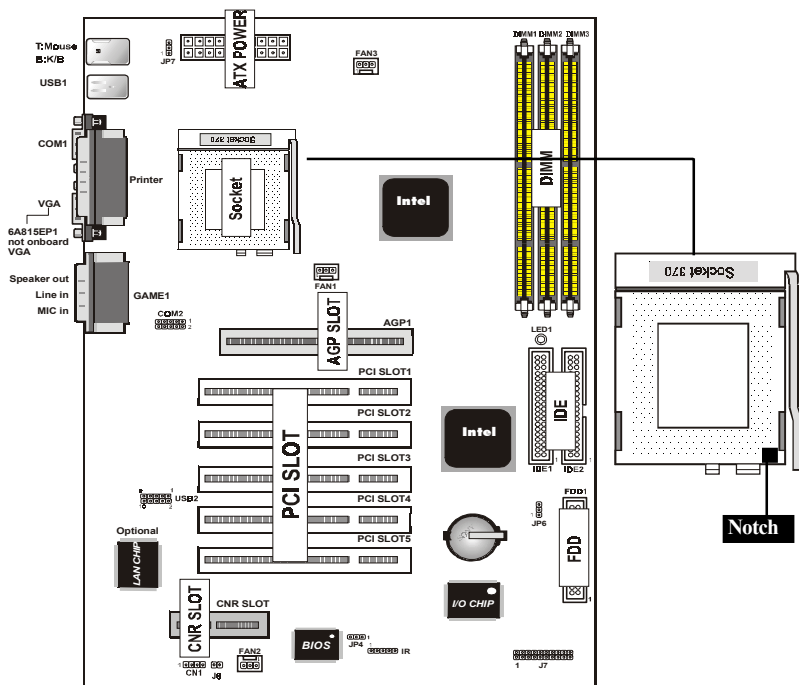
Unlike serial ports, parallel interface ports have been standardized and should not present any difficulty interfacing peripherals to your system. Sometimes called a Centronics port, the parallel port is almost exclusively used with printers. The parallel port on your system has a 25-pin, DB 25 connector(see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



## 1.6 CPU Installation

### 1.6.1 CPU Installation Procedure: Socket 370

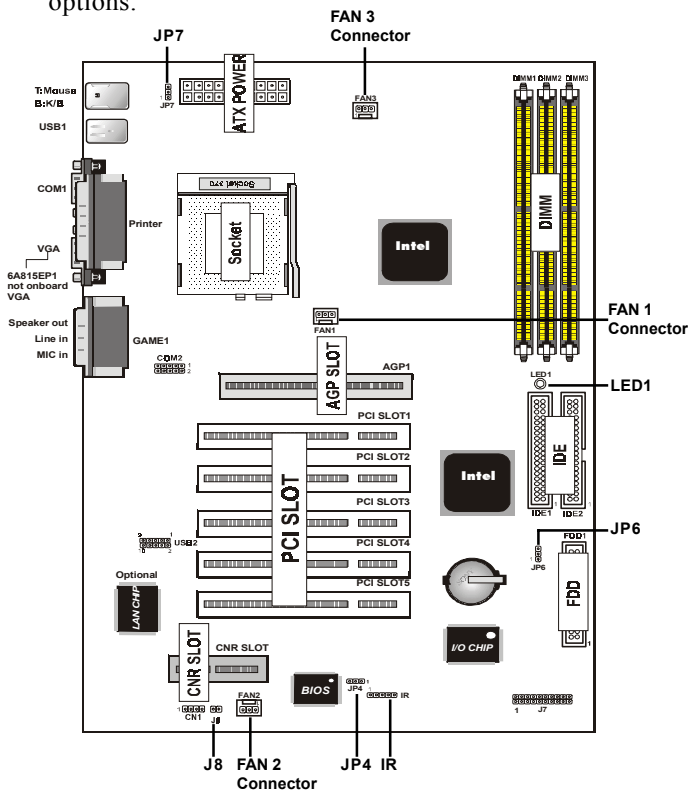
1. Pull the lever sideways away from the socket then raise the lever to a 90-degree angle.
2. Locate Pin 1 in the socket and look for the white dot or cut edge in the CPU. Match Pin 1 with the white dot/cut edge then insert the CPU.
3. Press the lever down to complete the installation.
4. Make sure the spec of the heatsink is good enough.





## 1.7 Jumper Setting

A jumper has two or more pins that can be covered by a plastic jumper cap, allowing you to select different system options.



### 1.7.1 CPU/System Fan Connector: Fan1/2/3

Pin	Assignment
1	Ground
2	+12VDC
3	Signal

**1.7.2 BIOS Flash: JP4**

Pin	Assignment
1-2	Unlocked (Default)
2-3	Locked

**1.7.3 Keyboard wake up Setting: JP7**

Pin	Assignment
1-2	Disabled
2-3	Enabled (Default) Keyboard Boot

**1.7.4 CMOS Function Setting: JP6**



Pin	Assignment
1-2	Normal (Default)
2-3	Clear CMOS

**NOTE:**

**(Please follow the procedure below to clear CMOS data.)**

- (1) Remove the AC power line.
- (2) JP6(2-3) Closed.
- (3) Wait five seconds.
- (4) JP6(1-2) Closed.
- (5) AC Power on.
- (6) Reset your desired password or clear CMOS data.

**1.7.5 CNR Card Setting: J8**

Pin	Assignment
	Close:secondary (Default)
	Open :primary

**1.7.6 STR LED: LED1**

The LED is used for the STR ON/OFF state.

**1.7.7 IrDA Connector: IR**

Pin IR	Assignment
1	+5V
2	
3	IRRX1
4	GND
5	IRTX

## 1.8 DRAM Installation

### 1.8.1 DIMM

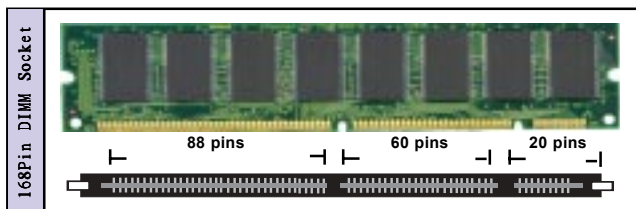
DRAM Access Time: 3.3V Unbuffered SDRAM/ PC66/  
PC100 and PC133 Type required.

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

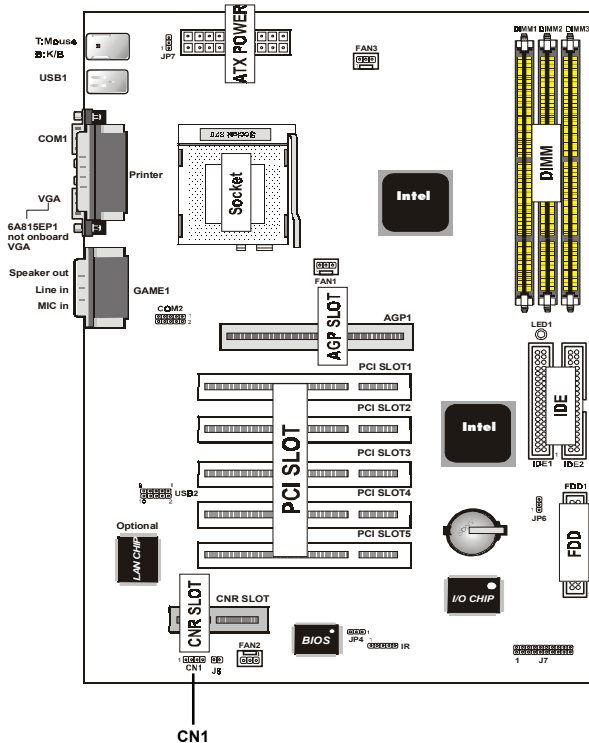
Bank	Memory module
DIMM 1	16MB, 32MB, 64MB, 128MB, 256MB
( Bank 0-1 )	168 pin, 3.3v SDRAM
DIMM 2	16MB, 32MB, 64MB, 128MB, 256MB
( Bank 2-3 )	168 pin, 3.3v SDRAM
DIMM 3	16MB, 32MB, 64MB, 128MB, 256MB
( Bank 4-5 )	168 pin, 3.3v SDRAM
	<b>Total System Memory(Max 512MB)</b>

### 1.8.2 How to install a DIMM Module

1. The DIMM socket has a “Plastic Safety Tab” and the DIMM memory module has an asymmetrical notch”, so the DIMM memory module can only fit into the slot in one direction.
2. Push the tabs out. Insert the DIMM memory modules into the socket at a 90-degree angle then push down vertically so that it will fit into place.
3. The Mounting Holes and plastic tabs should fit over the edge and hold the DIMM memory modules in place.



## 1.9 Audio Subsystem



### 1.9.1 CD Audio-In Connector: CN1

Pin CN1	Assignment
1	CD-R
2	GND
3	GND
4	CD-L