
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 in either single or dual CPU operation. The mainboard is designed for Intel PIII/Celeron/Coppermine processors in either single or dual CPU 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

- Dual Socket 370 for Intel PIII C&D-Step Processor.
- Singal Intel FC-PGA/PPGA Celeron Processors
300MHz~800MHz or higher processor with 66/100MHz
FSB.
- Singal Intel FC-PGA/FC-PGA2 Pentium III C&D-Step
Processors 500MHz or higher processor with 100/133MHz
FSB.
- VIA Cyrix III Processor with 100/133MHz FSB.

Chipset

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

Biggest memory capacity

6A815EPD 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.

AGP for fast VGA solution

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

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 parallel port supports SPP/EPP/ECP mode.

Audio (Option)

- 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, LAN, Alarm Bus CLK setup with BIOS.

Hardware Monitor Function

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

Smart Panel

- Supports BIOS Port 80H POST Code output to debug LED.

WOL (Wake On LAN) & WOM (Wake On MODEM)

Supports system power up from LAN ring up and Modem ring up.

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.

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 .

RAID Chip :

The motherboard provide onboard RAID function. If you would like more information about function of RAID, please refer to Fully Setup CD Driver.

On-board ATA/100 IDE RAID (IDE3/IDE4 only)

-Supports data striping (RAID 0) and mirroring (RAID 1). Provides dramatic increase in drive performance and/or fault tolerant options. Offers performance customization and data rebuilds from the BIOS menu. Mirroring supports automatic background rebuilds. Fault tolerance can be restored automatically without rebooting.

-Supports up to four IDE drives which capacities are more than 8.4GB on the two IDE RAID connectors while still supporting four IDE devices on the motherboard. The burst data transfer rates can up to 100MB/s from ATA/100 drives to boast overall system performance.

-Supports IDE Bus Master operation allows multi-tasking during disk drives transfer which increase CPU efficiency, then the CPU is free to process task during IDE data transfer through PCI bus interface to/from system memory.

1.1.2 Software

BIOS

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

Operation System

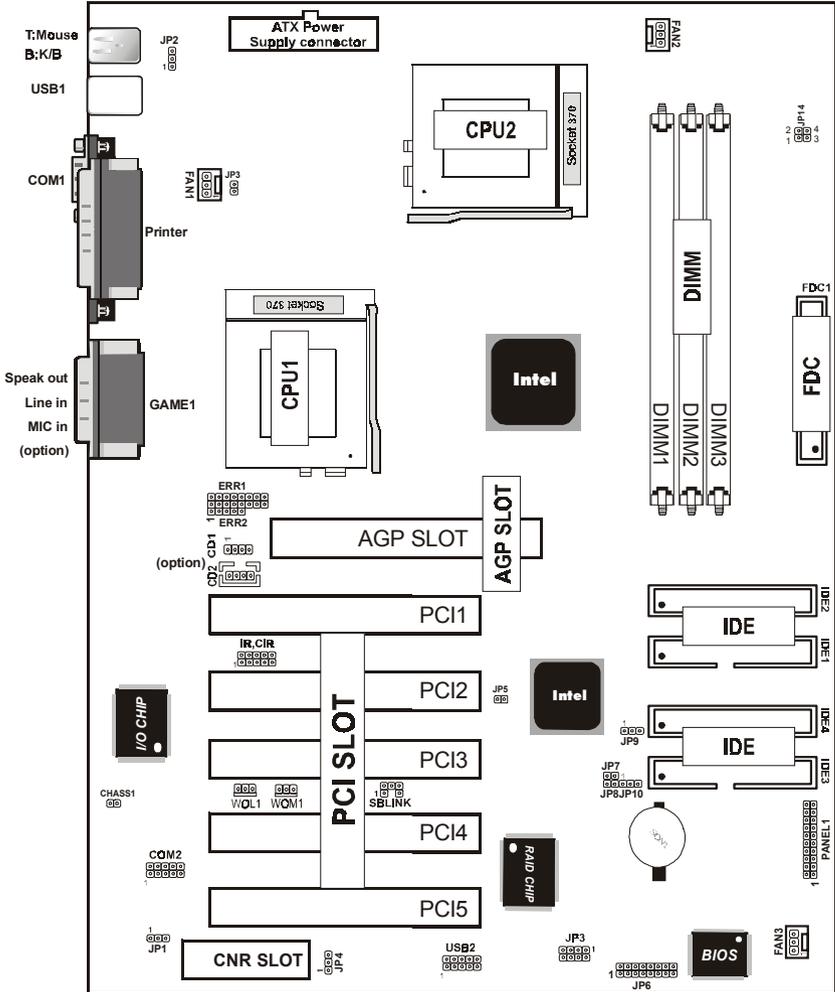
-Offers the highest performance for MS-DOS, Windows, Windows NT, Windows ME, Windows 2000, Novell, OS/2, Windows95/98, Windows 98SE, UNIX, Linux SCO UNIX etc.

1.1.3 Attachments

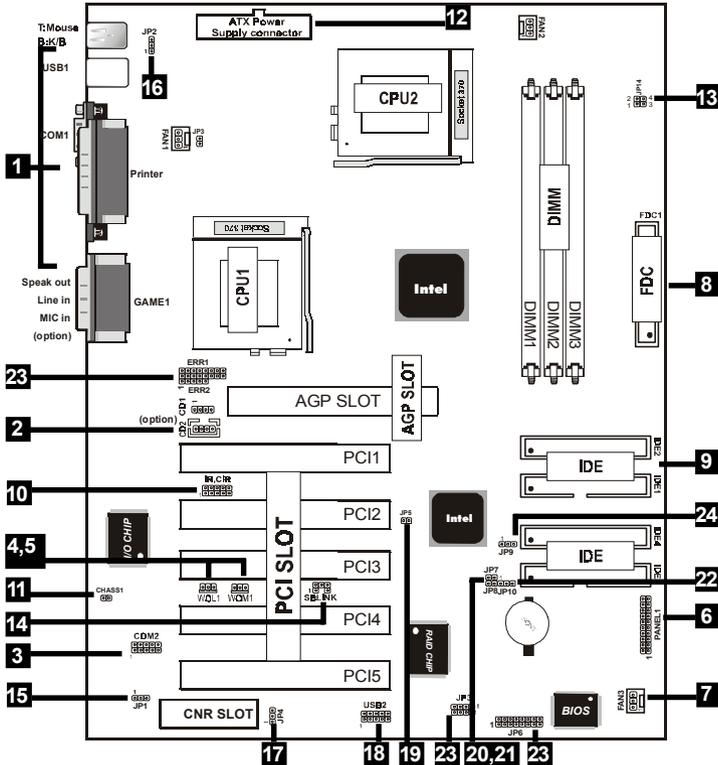
- HDD UDMA66/100 Cable.
- FDD Cable.
- Flash Memory Written for BIOS Update.
- COM2 Cable.
- Fully Setup CD Driver built in Utility(Ghost, Anitivirus, Adobe Acrobat).
- This manual.

1.2 Motherboard Installation

1.2.1 Layout of Motherboard

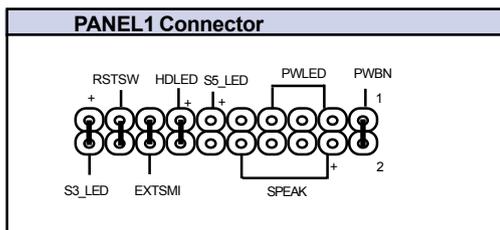


1.3 Motherboard Connectors



1. Back Panel I/O Connectors
2. CD Audio-In Connector
3. Front COM2 Connector
4. Wake-On MODEM Connector
5. Wake-On-LAN Connector
6. Front Panel Connector
7. Fan Connectors (Fan1/2/3)
8. Floppy Connector
9. IDE Connectors
10. IR, CIR Connector
11. Chassis Connector (CHASS1)
12. ATX Power Connector
13. CPU Clock Setting (JP14)
14. SB-LINK Connector
15. Watch Dog (JP1)
16. KB/MS Power on (JP2)
17. Wake on 2nd USB Port (JP4)
18. Front USB2 Connector
19. SB-LINK Setting (JP5)
20. Timeout Reboot (JP7)
21. CPU Safe Mode (JP8)
22. System Speaker (JP10)
23. For Smart Panel (JP6/JP3/ERR2) (option)
24. CMOS Function Setting (JP9)

1.3.1 Front Panel Connector(PANEL1)



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.

SMI Suspend Switch Lead (EXTSMI)

This allows the user to manually place the system into a suspend mode of Green mode. System 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) connects to the case-mounted suspend switch. If you do not have a switch for the connector, you may use the “Turbo Switch” instead since it does not have a function. SMI is activated when it detects a short. 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 Suspend Switch Lead cannot wake-up the system). If you want to use this connector, the "Suspend Switch" in the Power Management Setup of the BIOS SOFTWARE section should be on the default setting of Enable.

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.

S5_LED Lead (S5_LED)

The system S5_LED lights when the system suspend is on the S5 modle.

S3_LED Lead (S3_LED)

The system S3_LED lights when the system suspend is on the S3 modle.

Reset Switch Lead (RSTSW)

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.

1.3.2 Floppy Disk Connector(FDC1)

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

1.3.3 Hard Disk Connectors(IDE1/IDE2/IDE3/IDE4)

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)

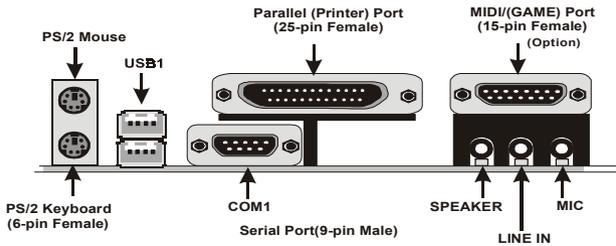
This connector supports the power button on-board. Using the ATX power supply, functions such as Modem Ring Wake-Up and Soft Power Off are supported on this motherboard . This power connector supports instant power-on functionality, which means that the system will boot up instantly when the power connector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

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

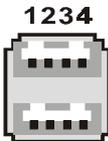


1.4.1 PS/2 Mouse /Keyboard CONN.

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.

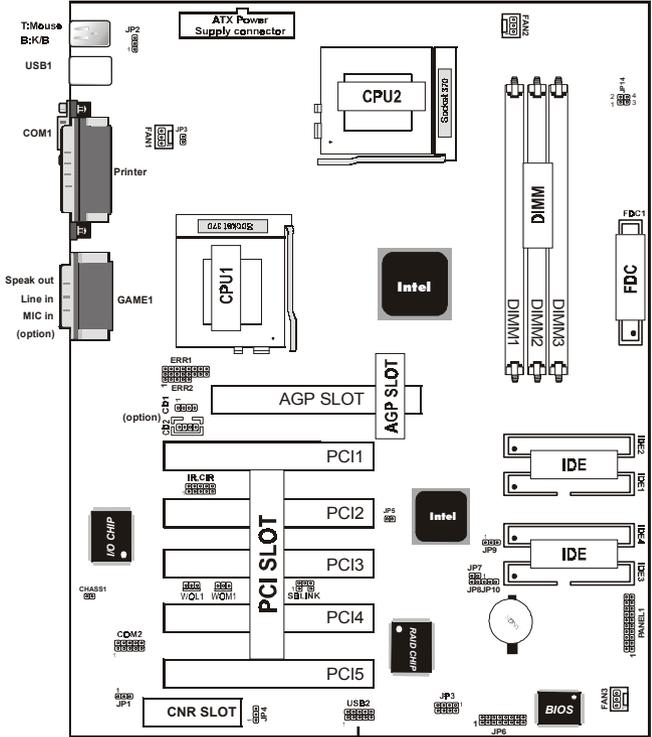
1.4.2 USB Connectors: USB1/2

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.

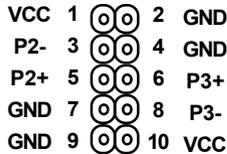


Pin	Signal
1	+5v
2	USBP0-(USBP1-)
3	USBP0+(USBP1+)
4	GND

Front Two USB Connectors: USB2



USB2



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.

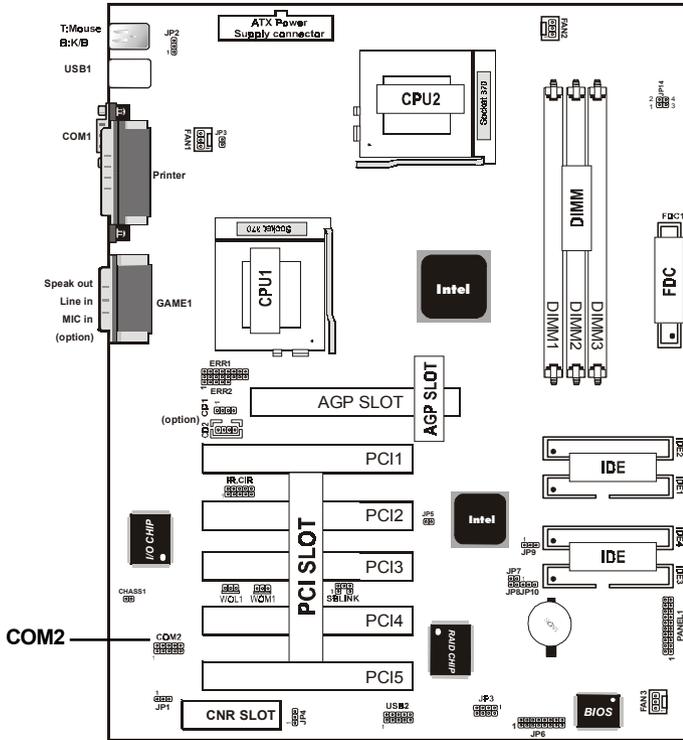
The Serial Interfaces: COM1/COM2

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.



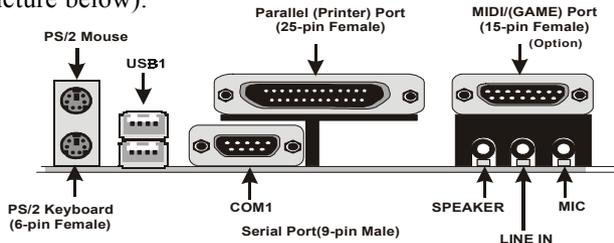
The serial port on this system has one 9-pin connector. Some older computer systems and peripherals used to be equipped with only a 25-pin connector. Should you need to connect your 9-pin serial port to an older 25-pin serial port, you can purchase a 9-to-25 pin adapter.

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

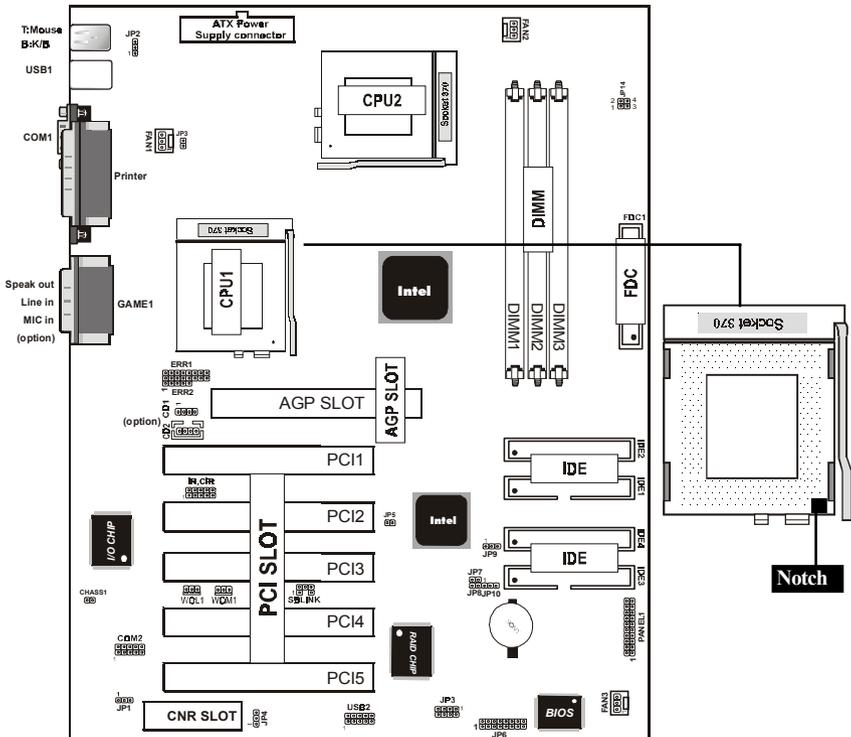
Unlike serial ports, parallel interface ports have been standardized and should not present any difficulty interfacing peripherals to your system. Sometimes called a Centronics port, the parallel port is almost exclusively used with printers. The parallel port on your system has a 25-pin, DB 25 connector(see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



1.6 CPU Installation

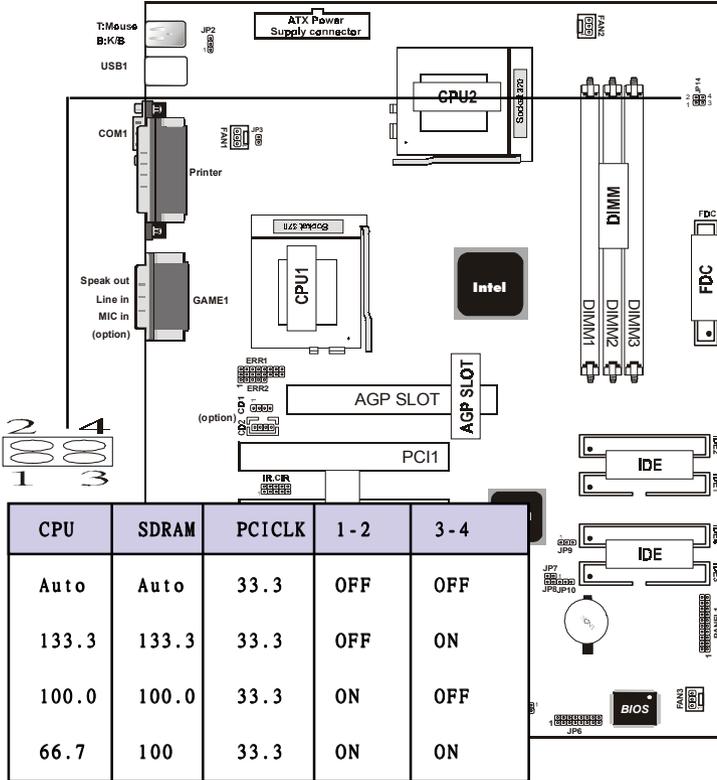
1.6.1 CPU Installation Procedure: Socket 370

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.**
5. **2 same frequency of CPU recommended if you want to install dual CPU.**
6. **Please make sure your CPU is able to support dual CPU.**



1.6.2 CPU Clock Frequency Setting: JP14

Overclocking is operating a CPU/Processor beyond its specified frequency. JP14 jumper is used for overclocking.



1.7.2 Wake-On Modem Header: WOM1

Pin	Assignment
 1	5V_SB
2	Ground
3	Signal

1.7.3 Wake-On LAN Header: WOL1

Pin	Assignment
 1	5V_SB
2	Ground
3	Signal

1.7.4 Watch DOG: JP1

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

1.7.5 CMOS Function Setting: JP9

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)JP9(2-3)Closed.(3)Wait five seconds.(4)JP9(1-2) Closed.(5)AC Power on.(6)Reset your desired password or clear CMOS data.

1.7.6 KB/MS PWR-ON: JP2

The JP2 Jumper is for setting keyboard power. This function is provided by keyboard and PS/2 mouse Wake-up function.

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

1.7.7 Wake on 2nd USB Port: JP4

Pin	Assignment
1-2	Disabled
2-3	Enabled

1.7.8 SB-LINK Setting: JP5

Pin	Assignment
	Top Swap Override
	Normal

1.7.9 Timeout Reboot: JP7

Pin	Assignment
	No Reboot on Timeout
	Reboot on Timeout

1.7.10 CPU Safe Mode: JP8

Pin	Assignment
ON 	Force CPU to Safe Mode
OFF 	Normal Use Register

1.7.11 Chassic Connector: CHASSIC1

Pin	Assignment
1	CHASI
2	GND

1.7.12 IrDA Connectors: IR/CIR

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

Pin CIR	Assignment
1	
2	CIRRX
3	5VSB
4	

1.7.13 SBLINK Connector

The motherboard provides one infrared SB-LINK feature connector for support PCI sound cards.

Pin	Assignment
1	GNT#
2	GND
3	KEY
4	REQ#
5	GND
6	SERIRQ



1.8 DRAM Installation

1.8.1 DIMM

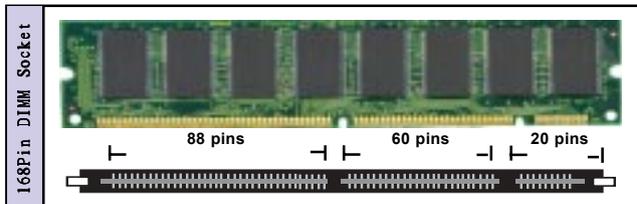
DRAM Access Time: 3.3V Unbuffered SDRAM/ PC66/
PC100 and PC133 Type required.

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

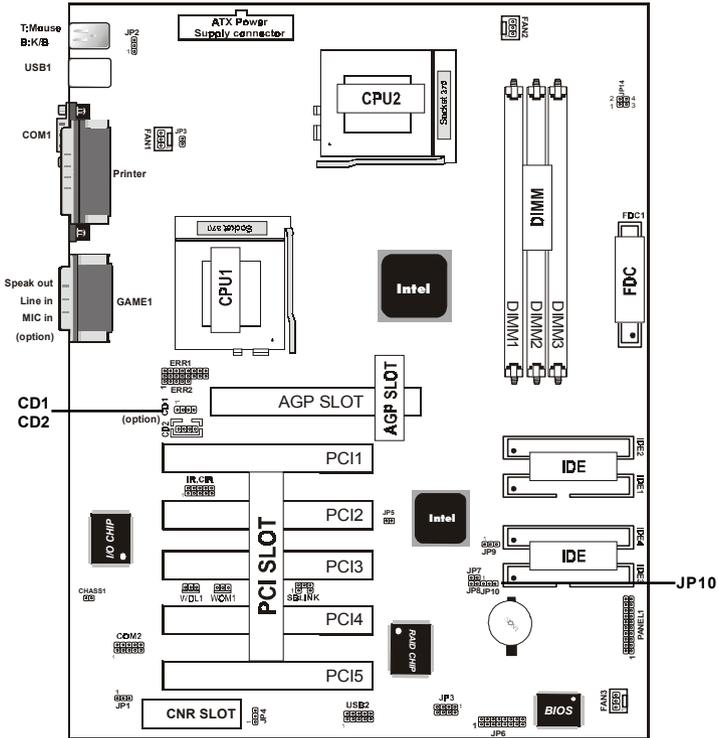
Bank	Memory module
DIMM 1	16MB, 32MB, 64MB, 128MB, 256MB
(Bank 0-1)	168 pin, 3.3v SDRAM
DIMM 2	16MB, 32MB, 64MB, 128MB, 256MB
(Bank 2-3)	168 pin, 3.3v SDRAM
DIMM 3	16MB, 32MB, 64MB, 128MB, 256MB
(Bank 4-5)	168 pin, 3.3v SDRAM
	Total System Memory(Max 512MB)

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 Connectors: CD1/CD2 (option)

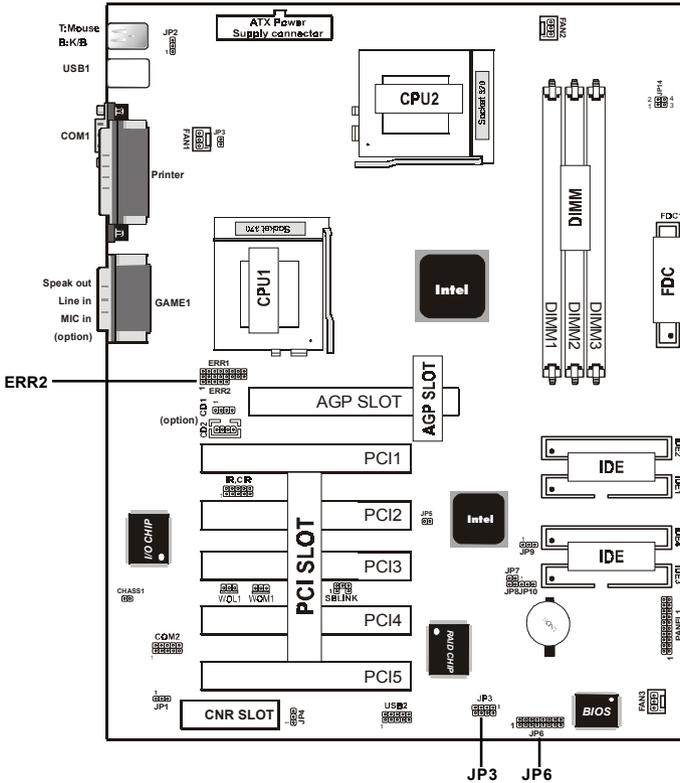
Pin CD1	Assignment
1	CD-L
2	GND
3	GND
4	CD-R

Pin CD2	Assignment
1	GND
2	CD-L
3	GND
4	CD-R

1.9.2 System Speaker: JP10

Pin	Assignment
1-2	PC Speaker
2-3	AC CODEC

1.10 Smart Panel Onboard Connector (option)



Note:

The motherboard provides the pin leads for Smart Panel. If you want POST Error Code or Smart Panel function, please refer to Smart Panel (SPA815EPD) manual.

1.10.1 Port 80 Debug Function: ERR2 (option)

Pin	Signal	Pin	Signal
1	ERD4	2	ERD0
3	ERD5	4	ERD1
5	ERD6	6	ERD2
7	ERD7	8	ERD3
9	GND	10	GND

1.10.2 Second BIOS Connector: JP6 (option)

Pin	Signal	Pin	Signal
1	VCC	2	NC
3	PCIRST#	4	PCLK_FWH
5	CAD_FWH0	6	P66DTCT
7	CAD_FWH1	8	S66DTCT
9	GND	10	GND
11	CAD_FWH2	12	HINIT#
13	CAD_FWH3	14	FWH_ID0T
15	CAD_FWH4	16	VCC

1.10.3 GPIO Port Connector: JP3 (option)

Pin	Signal	Pin	Signal
1	5VSB	2	SLP_S3
3	GP27	4	5VSB(R)
5	GP28	6	SLP_S5
7	GP21	8	5VSB(R)