

Chapter 1

1.1 Introduction

The 4D845A motherboard is designed for use Intel P4 Front Side Bus Frequency 400MHz CPU, which utilize the Socket-478 design and the memory size expandable to 2.0GB.

This motherboard use the newest Intel I82845 chipset, applying 266MHz (Double Data Rate) Front Side Bus frequency and 266MHz memory interface delivers a clear upgrade path to the future generation of 266MHz processors, PC-1600/PC-2100 DDR DRAM. The 4D845A motherboard offers ULTRA ATA 100 to provide speedier HDD throughout that boosts overall system performance.

It is ideal for multi-tasking and fully supporting MS-DOS, Windows, Windows NT , Windows ME, Windows 2000, Novell, OS/2, Windows95/98, Windows 98SE, Windows XP, UNIX, Liunx , 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.

1.2 Package Contents

- HDD UDMA66/100 Cable.
- FDD Cable.
- -Flash Memory written for BIOS update.
- USB2 Cable **(Optional)**.
- Fully Setup CD Driver built in utility(Ghost, Anitivirus, Adobe Acrobat).
- Manual.

1.3 Features

CPU Processor

- 400MHz System Interface speed.
- Single Socket 478 for Intel P4™ up to 2.2GHz or higher (Northwood Processor).
- Support Intel Netburst™ Micro-architecture.

Chipset

- Intel I82845 North Bridge.
- Intel I82801BA South Bridge.

PCI/AGP Speed

- Supports 33MHz PCI Bus speed.
- Supports AGP 66 MHz/1.5V for 4X device.

**DDR DRAM Memory**

- Supports 64/128/256/512....MB DDR module socket.
- Supports Synchronous DRAM(2.5V)
- Supports a maximum memory size of 2GB with DDR SDRAM.

Bus Slots

- Provide one AGP slot.
- Six 32-bit PCI bus.

Universal Serial Bus

- Supports two back Universal Serial Bus(USB)Ports and two front Universal serial Bus(USB)Ports.

Flash Memory

- Support 4 or 2MB flash memory.
- Support ESCD Function.

1.3 Features

BIOS

- The mainboard BIOS provides Plug & Play BIOS which detects the peripheral devices and expansion cards of the board automatically.
- BIOS support CD-ROM, SCSI, LAN BOOT, Temperature sensor, LAN, Alarm Bus CLK setup with BIOS.
- The mainboard provides a Desktop Management Interface (DMI) function which records your mainboard specifications.

IDE Built-in On Board

- Supports four IDE devices.
- Supports PIO Mode 5, Master Mode, high performance hard disk drives.
- Support Ultra DMA 33/66/100 Bus Master Mode.
- Supports IDE interface with CD-ROM.
- Supports high capacity hard disk drives.
- Support LBA mode.

PCI-Based AC 97 Digital Audio Processor

- AC 97 2.1 interface.
- 16 channels of high-quality sample rate conversion.
- 16x8 channel digital mixer.
- Stereo 10 band graphic equalizer.
- Sound Blaster and Sound Blaster Pro emulation.

WOL (Wake On LAN)

- Supports system power up from LAN ring up.

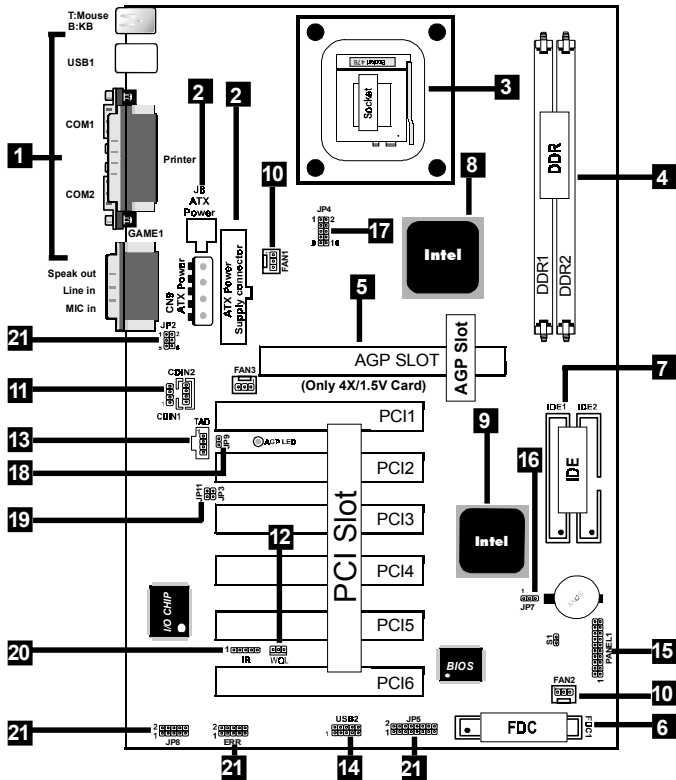
Smart Panel

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

1.4 4D845A Motherboard Layout



1.4 4D845A Layout



1. Back Panel I/O Connectors (Mouse, Keyboard, USB1, Printer, MIC in, Line in, Speaker out, Game stick)
2. ATX Power Connector (ATX/J8/CN9)
3. CPU Processor (Socket 478)
4. DDR DRAM Sockets (DDR1/DDR2)
5. AGP Slot

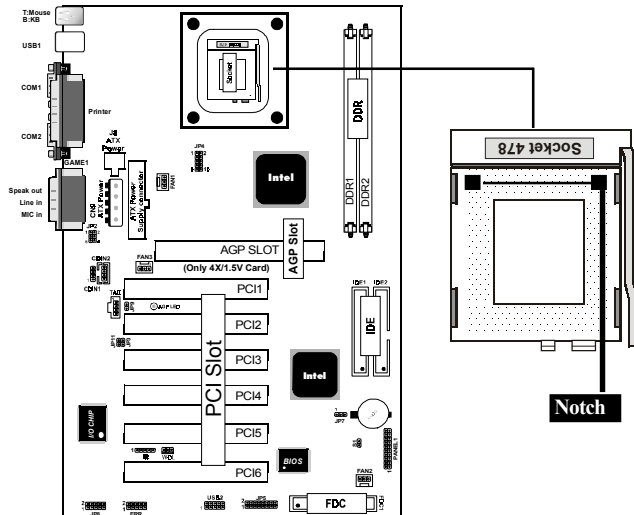
- 6. Floppy Connector**
- 7. IDE Connectors (IDE1/IDE2)**
- 8. North Bridge (Intel 82845)**
- 9. South Bridge (Intel 82801BA)**
- 10. Fan Connectors (Fan1/2/3)**
- 11. CD Audio-In Connector (CDIN1/CDIN2)**
- 12. Wake-On-LAN Connector**
- 13. Telephone in Connector (TAD)**
- 14. Front USB2 Connector**
- 15. Front Panel Connector (PANEL1)**
- 16. CMOS Function Selection (JP7)**
- 17. CPU Clock Freq. Setting (JP4)**
- 18. AGP 4X/1.5V Protect (JP9)**
- 19. Onboard AC'97 Setting (JP11)**
- 20. IR Connector**
- 21. Smart Panel Function (ERR/JP5/JP2/JP8)(optional)**

1.5 CPU Installation

The motherboard operates with Socket 478 for Intel P4™ processor. The CPU should always have a Heat Sink and cooling fan attached to prevent overheating.

CPU Installation Procedures: Socket 478

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 or the processor and motherboard will damage.**



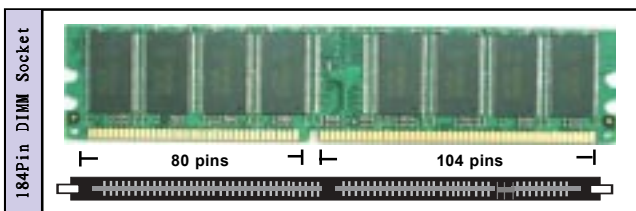
1.6 DDR DRAM Installation

The motherboard supports a maximized 2GB memory. It provides two 184-pin unbuffered DDR sockets. It supports 64MB to 1GB DDR memory module.

DDR DRAM Installation Procedures:

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

Bank	Memory module
DDR 1	64MB, 128MB, 256MB, 512MB, 1GB
(Bank 0-1)	184 pin, 2.5V DDR DRAM
DDR 2	64MB, 128MB, 256MB, 512MB, 1GB
(Bank 2-3)	184 pin , 2.5V DDR DRAM
	Total System Memory (Max 2GB)



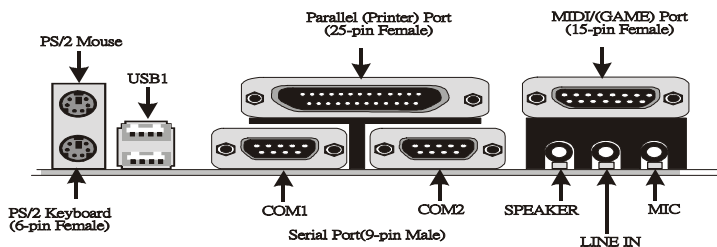
Note:

When you plug or unplug DDR module, you must check your power supply is off.

1.7 Connectors & Jumpers Setting

1.7.1 Back Panel I/O Connectors

The motherboard provides the following back panel connectors:



1.7.1.1 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.

1.7.1.2 USB Connector: USB1

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.

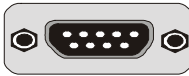


Pin	Signal
1	+5V_SB
2	USBP0-(USBP1-)
3	USBP0+(USBP1+)
4	GND

1.7.1.3 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 like to transfer the contents of your hard disk to another system, it can be accomplished by serial port.

COM1/COM2



1.7.1.4 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.

1.7.1.5 Joystick / Midi Connector

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

1.7.1.6 Audio Port Connectors

Speaker 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 the microphones.

1.7.2 ATX Power Connectors: ATX/J8/CN9

-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.

-ATX 4-pin power connector only support +12V voltage.

Pin J8	Signal	Pin J8	Signal
1	GND	2	GND
3	+12V	4	+12V

Pin ATX	Signal	Pin ATX	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

Pin CN9	Signal	Pin CN9	Signal
1	NC	2	NC
3	GND	4	+12V

Note:

1. When you use PIII power supply, you must plug CN9 & ATX power connector on your system.
2. Make sure that the ATX PIII power supply can take at least 1Amp load on the 5Volt standby lead (5VSB).
3. When you use P4 power supply, you must plug J8 & ATX power connector on your system.

Important:

Before you switch on your power supply, please make sure:

1. Memory Module installing is OK.
2. Power supply setting is OK.
3. AGP card 4X/1.5V is OK.

1.7.3 Floppy Disk Connector: FDC

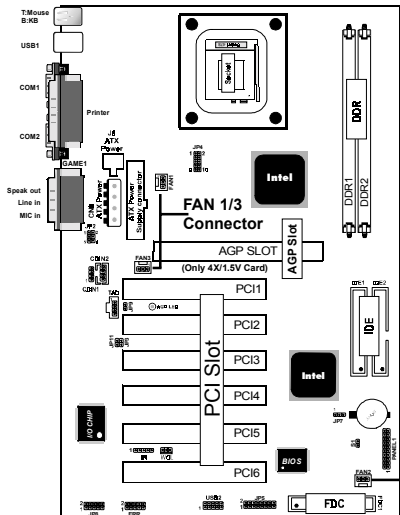
This connector supports the provided floppy drive ribbon cable. After connecting the single end to the board, connect the two plugs on the other end to the floppy drives.

1.7.4 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).

1.7.5 Fan Connectors: Fan1/2/3



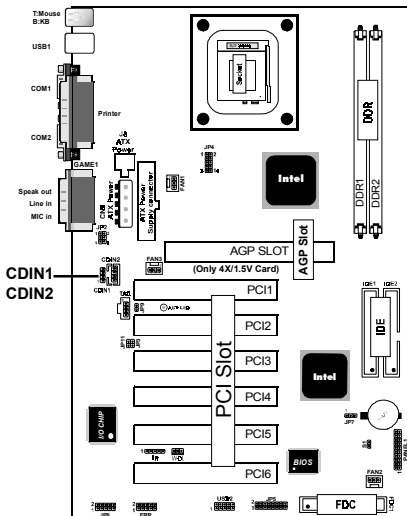
Pin Fan1/2/3	Definition
1	Ground
2	+12VDC
3	Signal

FAN 2 Connector

These connectors support cooling fans of 1Amp or less. Orientate the fans so that the heatsink fins 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 the this connector.

1.7.6 CD Audio-In Connectors: CD-IN1/CDIN2

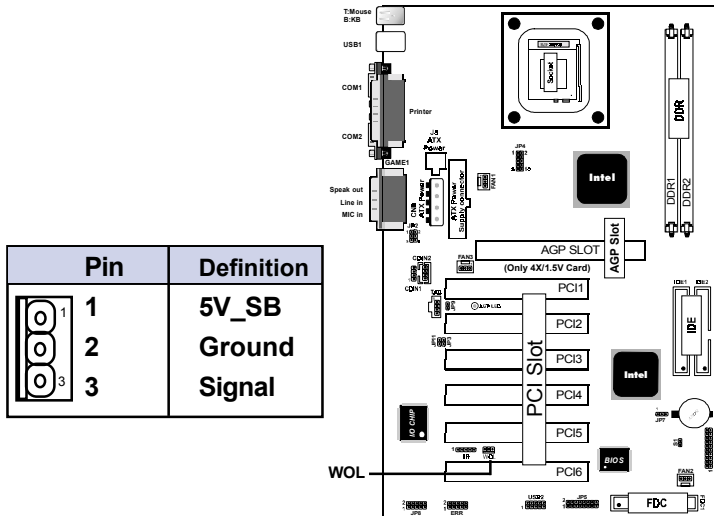
CDIN1 and CDIN2 are the connectors for CD-Audio Input signal. Please connect it to CD-ROM CD-Audio output connector.



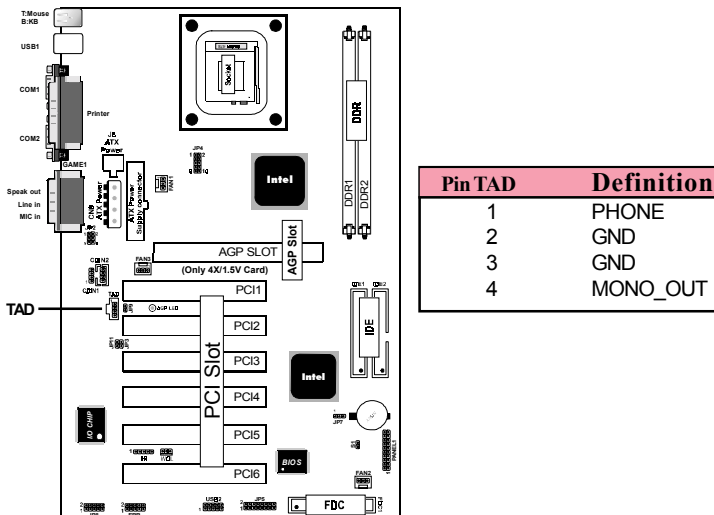
Pin CDIN1	Definition
1	CD-L
2	GND
3	GND
4	CD-R

Pin CDIN2	Definition
1	GND
2	CD-L
3	GND
4	CD-R

1.7.7 Wake-On-LAN Connector: WOL



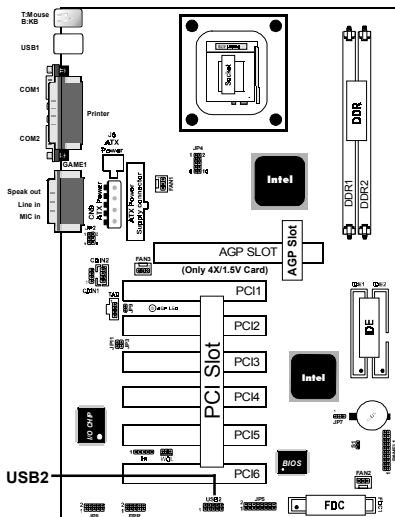
1.7.8 Telephone in Connector: TAD(optional)



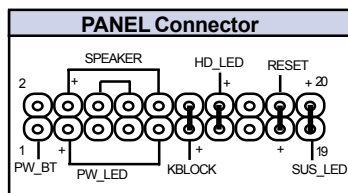
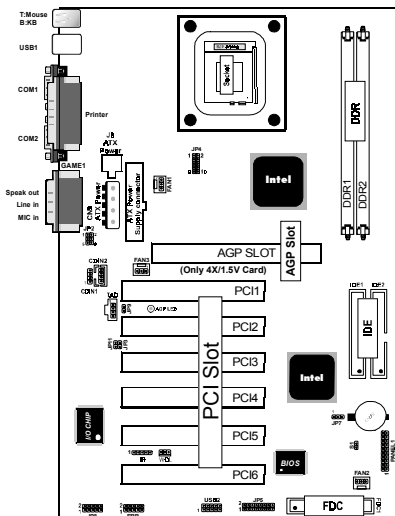
1.7.9 Front USB2 Connector: USB2

USB2

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



1.7.10 Front Panel Connector: PANEL1



ATX Power Switch (PW_BT)

The system power is controlled by a momentary switch connected to this lead. Pushing the button once will switch the system ON.

Power LED Lead (PW_LED)

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

Speaker Connector (SPEAKER)

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 (HD_LED)

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.

Keyboard Lock (KBLOCK)

The header is for setting keyboard locked.

Reset Switch Lead (RESET)

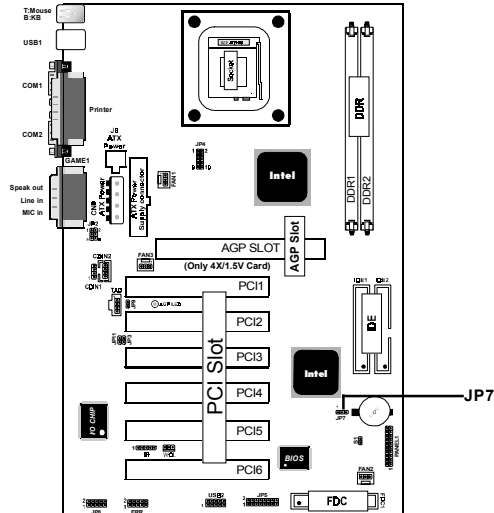
The connector can be connected to a momentary SPST type switch that is normally open. When the switch is closed, the motherboard resets and runs the POST.

SMI Suspend Switch Lead (SUS_LED) (Disabled)

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. 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.

1.7.11 CMOS Function Selection: JP7

A battery be used to retain the mainboard configuration in CMOS RAM.



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

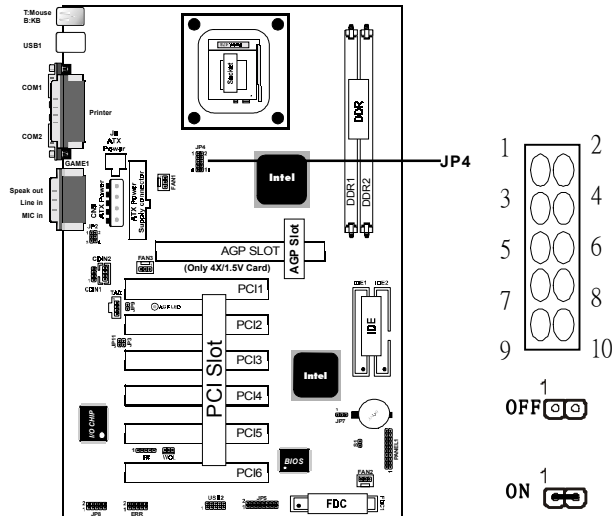
NOTE:

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

- (1) Remove the AC power line.
- (2) JP7(2-3) Closed.
- (3) Wait five seconds.
- (4) JP7(1-2) Closed.
- (5) AC Power on.
- (6) Reset your desired password or clear CMOS data.

1.7.12 CPU Clock Freq. Setting: JP4

Overclocking is operating a CPU/Processor beyond its specified frequency. JP4 jumper is used for the CPU Front Side Bus Frequencies from 100MHz to 133MHz.





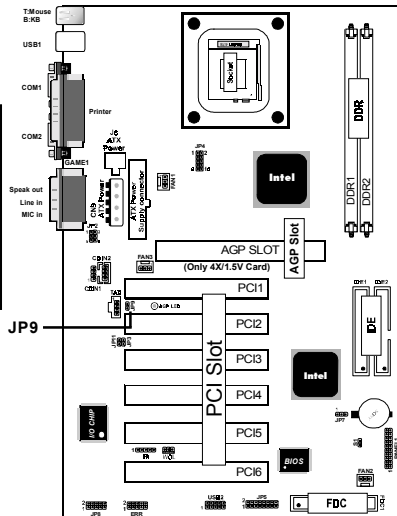
1-2	3-4	5-6	7-8	9-10	CPU(MHz)	PCI(MHz)
ON	ON	ON	ON	OFF	100	33.3
OFF	ON	ON	ON	OFF	33.3	33.3
OFF	ON	ON	ON	OFF	Auto	Auto

Note:



We don't recommend you overclocking, since it will make the CPU life short and get the risk of CPU damage.

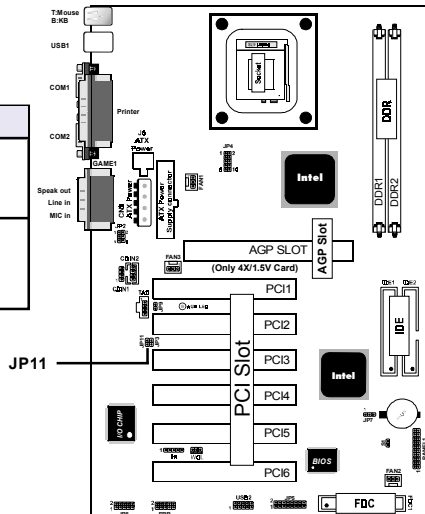
1.7.13 AGP 4X/1.5V Protect: JP9

Pin JP9	Definition
On 	Enabled (Default)
Off 	Disabled



1.7.14 Onboard AC'97 Setting: JP11

Pin JP11	Definition
On 	Enabled
Off 	Disabled (Default)

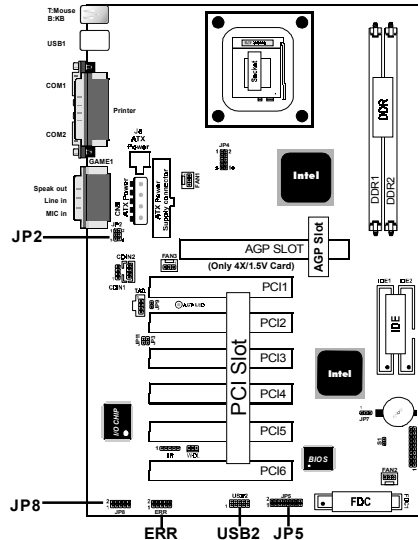


1.7.15 Smart Panel Function: SP-J1/SP-J6/SP-J5/SP-J7

(optional)

Note:

The motherboard provides the pin leads for Smart Panel II. If you want POST Error Code or Smart Panel II function, please refer to Smart Panel II (S P D 8 4 5 A) manual.



The Smart Panel provides the following panel connectors:



1.7.15.1 Port 80 Debug Function: SP-J6

For Smart Panel connector(SP-J6) to M/B (ERR).

Pin SP-J6	Assignment	Pin SP-J6	Assignment
1	ERD4	2	ERD0
3	ERD5	4	ERD1
5	ERD6	6	ERD2
7	ERD7	8	ERD3
9	GND	10	NC

1.7.15.2 Second BIOS Connector: SP-J1

For Smart Panel connector(SP-J1) to M/B (JP5).

Pin SP-J1	Assignment	Pin SP-J1	Assignment
1	VCC3	2	+5V
3	PCI_RST#	4	33MHz
5	CLAD0	6	P66DET
7	CLAD1	8	S66DET
9	GND	10	GND
11	CLAD2	12	HINT
13	CLAD3	14	FWH_IDD1
15	CLAD4	16	VCC3

1.7.15.3 AUX Line Connector: SP-J5

For Smart Panel connector(SP-J5) to M/B (JP2).

Pin SP-J5	Assignment	Pin SP-J5	Assignment
1	LINE_OUT_L	2	LINE_OUT_R
3	LINE_IN_L	4	LINE_IN_R
5	MIC_IN_L	6	MIC_IN_R

1.7.15.4 Front COM2 Header Conn.: SP-J7

For Smart Panel connector(SP-J7) to M/B (JP8).

Pin SP-J7	Assignment	Pin SP-J7	Assignment
1	DCD	2	RX
3	TX	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

1.7.15.5 Front USB3,4 Header Conn.: SP-J8(USB2)

For Smart Panel connector(SP-J8) to M/B (USB2).

Pin SP-J8	Assignment	Pin SP-J8	Assignment
1	VCC	2	GND
3	P2-	4	GND
5	P2+	6	P3+
7	GND	8	P3-
9	GND	10	VCC