ITEM LIST CHECKUP

☒ Mainboard
☒ Support CD
☒ Bundled Bonus Pack CD
☒ Bundled Bonus Pack Manual
☐ Temperature Sensor Cable (Optional)
☒ ATA66/100 IDE Cable
☐ RS232 Cable
☒ FDD Cable
☒ User's Manual

Chapter *1* Specification

Introduction

• This chapter introduces the characteristics of this series of mainboards. It includes the information on the chipset, CPU types, built-in functions and layout. Users will have more ideas about this powerful series after reading this chapter.

The topics contained in this chapter are:

1-1 Mainboard Specifications

1-2 Mainboard Layout

1-3 Chipset Diagram

1-1 Mainboard Specifications

1-1.1 CPU Socket

• CPU Socket 478B on board, supporting Intel® Pentium 4 and Northwood
  processors in the 478-pin package for 400MHz System Bus.

1-1.2 Sysem Chipset Architecture

• INTEL 845-D Chipset Memory Control Hub (MCH):
  To work with Intel Pentium 4 Processor for managing and arbitrating
  between 4 interfaces:
  -- the System Bus (Host Interface);
  -- the memory Interface;
  -- the AGP Port and the Hub Interface;
• MCH Clockings:
  -- Asynchronous;
  -- System Bus target speed at 400MHz;
  -- AGP and Hub Interface constantly at 66MHz base;
• Intel ICH2 Chipset (Second generation I/O Controller Hub):
  Communicating with Intel 845-D by the Hub interface at 66MHz/266MB/s;
  -- Transmitting Interrupt related messages;
  -- Transmitting Power management events;
  -- Transmitting SMI, SCI, SERR indication messages;

1-1.3 Memory

2pcs of DIMM on board for single / double sided DIMMs, supported by
2.5V default voltage:
• Intel 845-D MCH directly supporting one channel of DDR SDRAM up to
  2GB capacity.

1-1.4 AMI BIOS V2.01A

• Supporting Plug & Play V1.0.
• FLASH MEMORY for easy upgrade.
• Supporting BIOS writing protection.
• Year 2000 compliant.

1-1.5 Hardware Monitoring

• Programmable control, status, to provide monitoring and alarm for flexible
  desktop management of hardware temperatures. Utility Software is
  enclosed in Support CD to help display monitoring statuses of:
  -- 6 positive voltages, 3 types of hardware temperatures, 3 Fan speeds;

1-1.6 Multi-I/O Function
 • Integrated IDE Controller, supporting:
    -- 2x Ultra ATA100 / 66 / 33 Connectors
    -- Two UARTs for Complete Serial Ports (2x COM).
 • Dedicated IR Connector:
    -- Third serial port dedicated to IR function either through the two complete serial
      ports or the third dedicated port Infrared-IrDA (HPSIR) and ASK (Amplitude Shift
      Keyed) IR.
 • Multi-mode parallel connector:
    -- Standard mode, ECP and EPP support.
 • Floppy Disk connector:
    -- One FDD connector with drive swap support.
 • Universal Serial Bus connector:
    -- USB V1.1 compliant.
    -- 2 built-in USB connectors and one USB Header (USB1) which requires an
      optional USB cable to provide 2 more optional USB ports.
 • PS/2 Keyboard connector.
 • PS/2 Mouse connector.

1-1.7 Expansion Slots
 • Six PCI bus Master slots.
 • One AGP 4x mode slot.
 • One CNR slot.
 • One SCR1 slot (optional).
 • Two DIMM slots.
 • One CMEM1 slot (optional).
  (Smart / Memory Stick / Secure Digital card reader function by
   SCR1 slot and CMEM1 slot is optional.)

1-1.8 Accelerated Graphics port (AGP) Interface
 • One AGP slot on board is supported by the Intel 845-D Chipset MCH
  AGP Interface in 1.5V mode (with AGP voltage selectable in BIOS Setup):
   -- AGP v2.0 compliant.

1-1.9 FORM FACTOR
 • ATX form factor.
 • This mainboard is compatible with both ATX Power Supply Version 2.03
  (with +12V Power Connector) and the older ATX Power Supply (with
 Peripheral Power Connector).
 • Mainboard size: 30.5cm x 21.0cm.

1-1.10 Sound Controller
  • SoundBlaster Pro Hardware and Direct Sound Ready AC97 Digital Audio
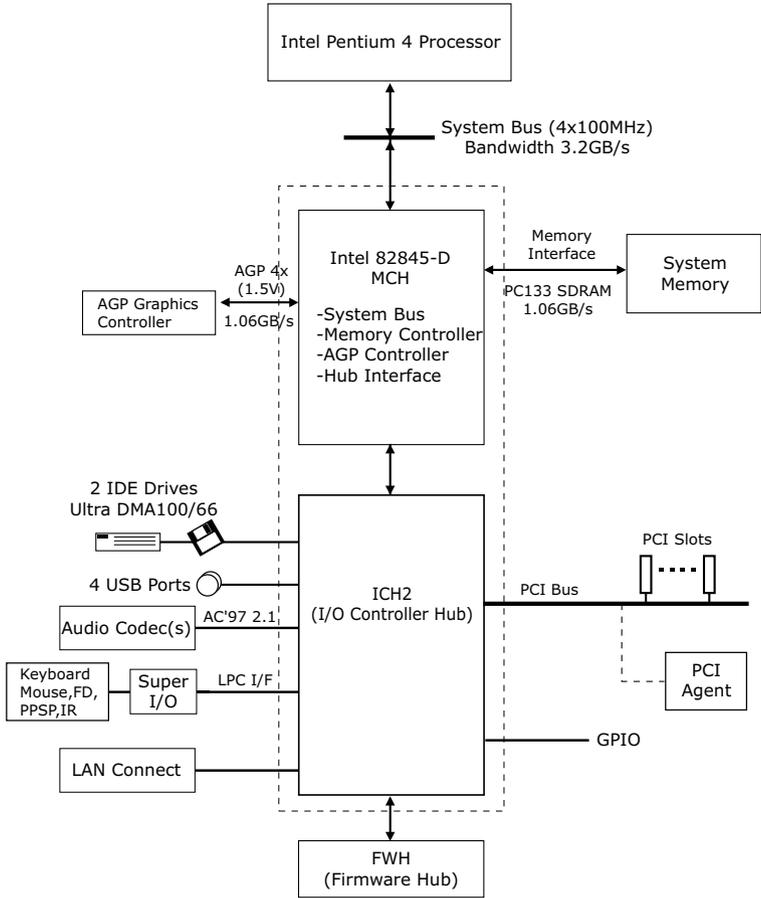   Controller with Codec onboard.

1-1.11 Power Management
  • ACPI 1.0B compliant (Advanced Configuration and Power Interface).
  • APM V1.2 compliant (Legacy power management).
  • Supporting ACPI suspend POS mode (Power On Suspend).
  • System event monitoring with two event classes.
  • Supporting Wake On LAN (WOL) & Wake On Ring.
  • Supporting real time clock (RTC) with date alarm, month alarm, and
   century field.

1-2 Mainboard Layout
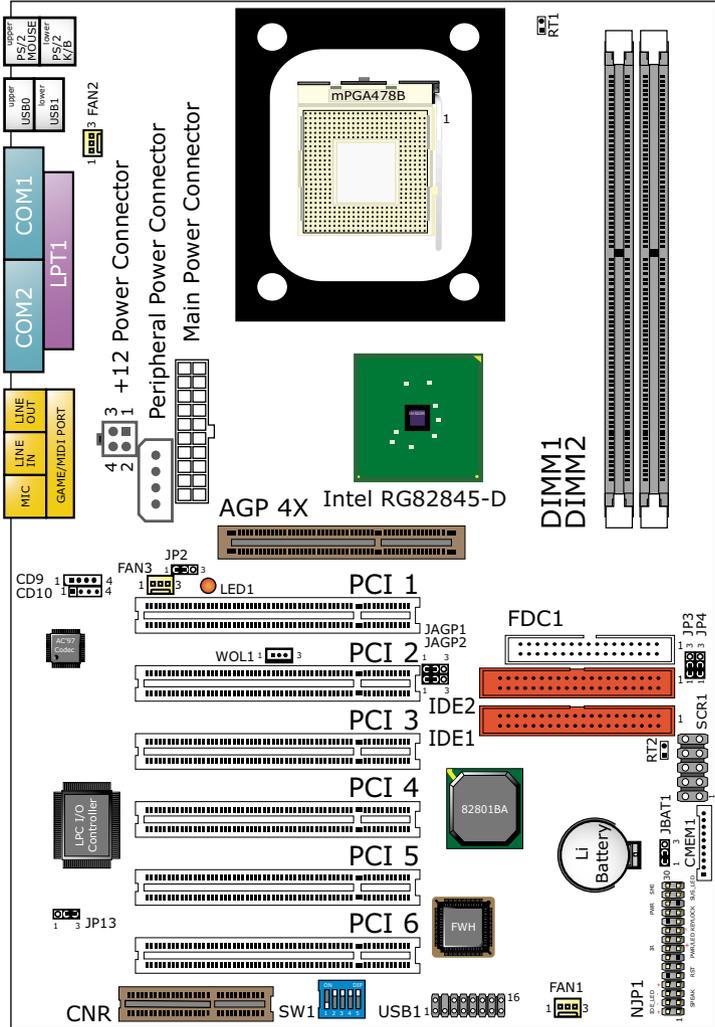
1-3 Chipset System Block Diagram

```
                    ┌─────────────────────────────┐
                    │  Intel Pentium 4 Processor  │
                    └─────────────────────────────┘
                              ↕
                         System Bus (4x100MHz)
                         Bandwidth 3.2GB/s
```

Intel 82845-D MCH
- System Bus
- Memory Controller
- AGP Controller
- Hub Interface

AGP 4x (1.5V) 1.06GB/s

AGP Graphics Controller

Memory Interface

PC133 SDRAM 1.06GB/s

System Memory

2 IDE Drives Ultra DMA100/66

4 USB Ports

Audio Codec(s)   AC'97 2.1

Keyboard Mouse,FD, PPSP,IR

Super I/O   LPC I/F

LAN Connect

ICH2 (I/O Controller Hub)

PCI Bus

PCI Slots

PCI Agent

GPIO

FWH (Firmware Hub)

Intel 82845-DMCH + ICH2 Chipset Diagram

Chapter 2 Hardware Setup

To Get things ready for Hardware setup !!!

1. We recommend to install your CPU before any other componentes. For detailed installalation instructions of processor, you can also refer to the pamphlet enclosed in your CPU package.
2. Installing a cooling fan with a good heatsink is a must for proper heat dissipation for your CPU. Get ready an appropriate fan with heatsink for proper installation. Inproper fan and installation will damage your CPU.
3. In case CPU Vcore, CPU clock or Frequency Ratio is adjustable onboard, please follow the instructions described in the User manual for proper setup. Incorrect setting will cause damage to your CPU.

The following topics are included in this chapter:

2-1 Pentium 4 CPU Installation

2-2 Pentium 4 CPU Fan Installation

2-3 Memory Installation

2-4 AGP 4X (Accelerated Graphics Port) Installation

2-5 HDD/FDD Installation

2-6 Jumper and Switch Settings

**2-7 Other Connectors Configuration**

2-8 IRQ Description

## 2-1 Pentium 4 CPU Installation with Socket 478

This series of mainboards are built with CPU Socket 478 (with 478 pins) supporting the Intel Pentium 4 CPU:
* *Follow the steps described in this section to install the 478-pin Pentium 4 CPU into the on board Socket 478.*
* *After installation of Pentium 4 CPU, you must also install the specific Pentium 4 CPU fan designed in tandom with this CPU. This CPU Fan installation is described in next section.*

1. First pull sideways the lever of Socket 478, and then turn it up 90-degree so as to raise the upper layer of the socket from the lower platform.
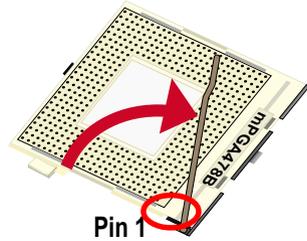
2. Configure Pin 1 of CPU to Pin 1 of the Socket, just as the way shown in the diagram on the left. Adjust the position of CPU until you can feel all CPU pins can get into the socket with ease.
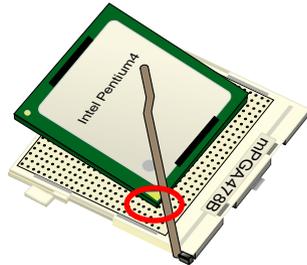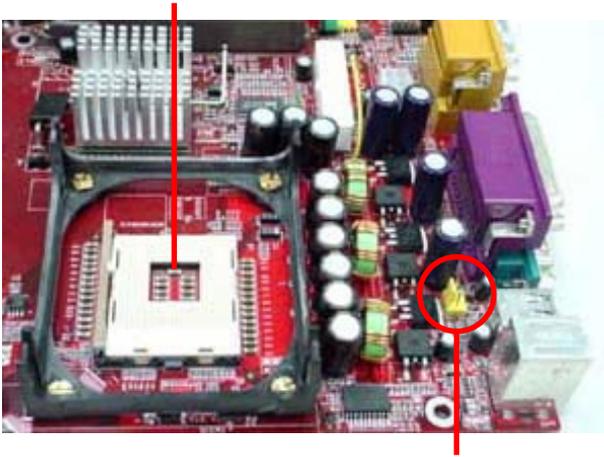
3. Make sure that all CPU pins have completely entered the socket and then lower down the lever to lock up CPU to socket.
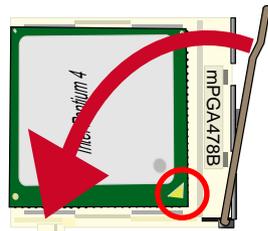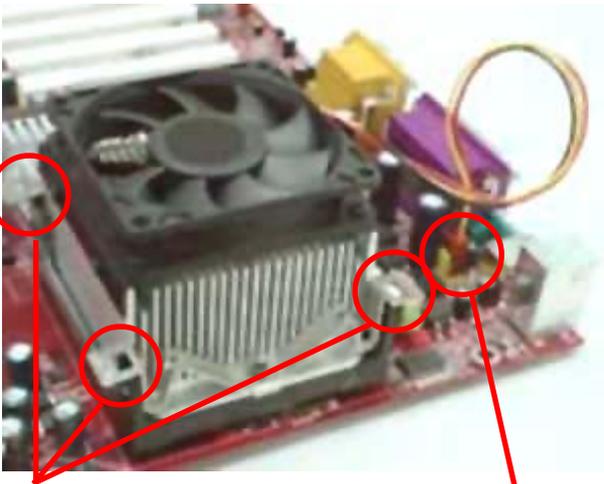
2-2 Pentium 4 CPU Fan Installation:

Pentium 4 Fan Socket

Fan Connector

Press down 4 latches to lock
fan to fan socket

Connect to CPU FAN
connector

2-3 Memory Installation

How to tackle with the memory Modules:

  • Make sure to unplug your power supply before adding or removing memory module. Failure to do so may cause severe damage to both your mainboard and the memory module.
  • Pay attention to the orientation of the DIMM slots. Forcing a DIMM in a socket improperly will damage the memory module and socket.
  • Make sure you have the right type of memory module for your mainboard.

2-3.1 To Install DIMM Module

  • This series of mainboards only supports up to 2GB unbuffered DDR SDRAM, with 2 DDR DIMM sockets on board. Do not insert other type of modules into these sockets.
  • DDR DIMM socket has 184-pins and one notch. Insert a DDR SDRAM vertically into the 184-pin socket with the notch matching the one in the socket. Press the Module down in a gradual way until it surely reaches the bottom and clicks straight up the two latches on the left and right of the socket.

Key Point: Press the module down gradually until it has totally reached the socket bottom and clicked up both two socket latches completely. If any one of the latches has not turned up completely, you should unplug the module and press it down the socket a bit more firmly.


184-Pin DIMM Notch Key Definitions(2.5V)
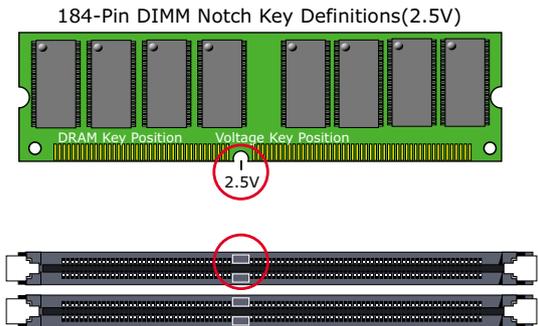
2-3.2 To Remove a DIMM:

  • Press down the holding latches on both sides of socket and the module will be released from the DIMM socket.

2-4 AGP 4X (Accelerated Graphics Port) Installation

Warning:
- *The AGP 4X slot on board supports solely 4X AGP card configuration. User should not insert 1X / 2X AGP card to this mainboard.*
- *LED1 AGP Protection Indicator is on board this series. In case inappropriate AGP card (such as AGP 2X) is inserted into this AGP 4X Slot, LED1 will light up to warn that AGP installation is inproper. The wrong AGP card should be replaced; otherwise system cannot be booted.*

AGP Accelerator

AGP 4X

LED1
AGP Protection Indicator
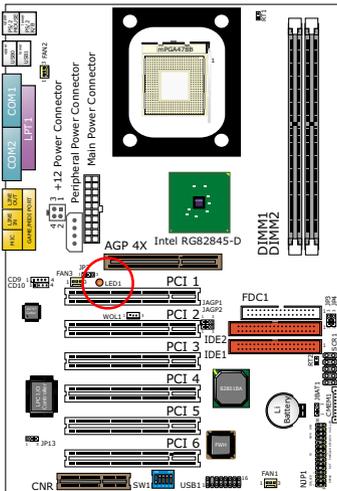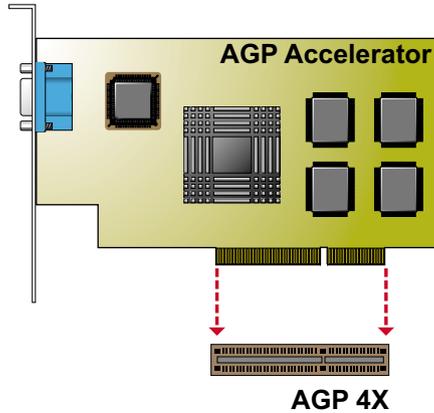
2-5 HDD/FDD Installation

• To install HDD (Hard Disk Drive), you may connect the connector of IDE cable to the primary (IDE1) or secondary (IDE2) connector on board, and then connect the gray connector to your slave device and the black connector to your master device. If you install two hard disks, you must configure the second drive to Slave mode by setting its jumpers correctly. Please refer to your hard disk documentation for the jumper settings.
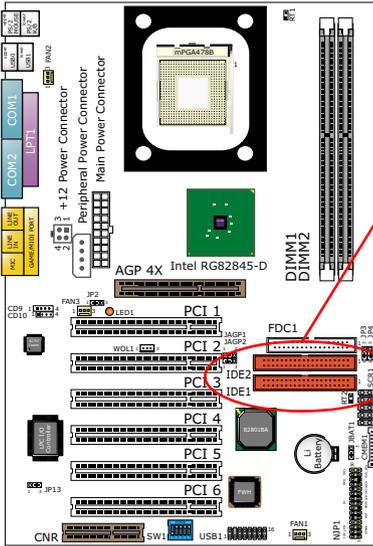
Hard Disk Drive Connector: Orient the red line on the IDE ribbon cable to Pin1.

Gray connector

Black connector

red line
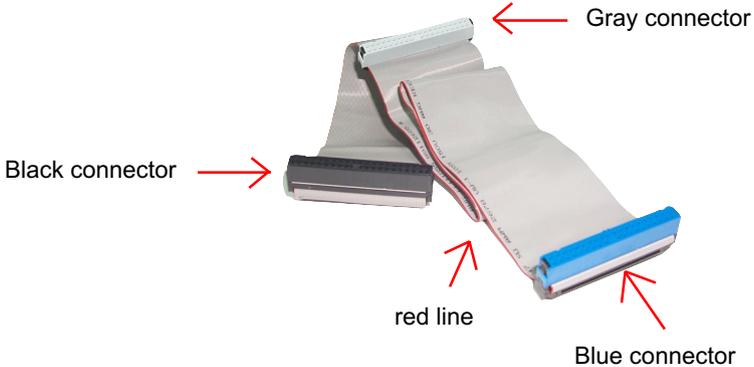
Blue connector

IDE Cable

• To install FDD (Floppy Disk Drive), you should connect the end of cable with single connector to the board , and connect the other end with two plugs to the floppy drives.
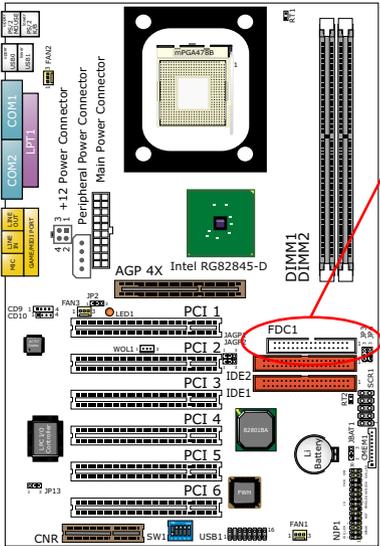
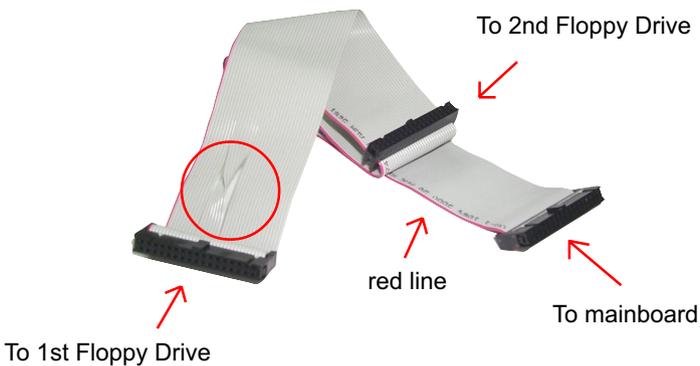Floppy Disk Drive Connector: Orient the red line on the floppy ribbon cable to Pin1.

To 2nd Floppy Drive

red line

To mainboard

To 1st Floppy Drive

FDD Cable

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2-6 Jumper and Switch Settings

• The following diagrams show the locations and settings of jumper blocks on the mainboard.

SW1	On Off	CPU Clock Select

1 2 3 4 5

* Off On On On On (Default)

CPU clock (MHz)	S1	S2	S3	S4	S5
100 (Default)	off	on	on	on	on
103	on	off	on	on	on
105	off	off	on	on	on
111	on	off	off	on	on
130	off	off	on	off	on
133	on	on	on	on	off

Factory Test	
Only for factory test.	JP2

Memory Module Voltage Select	
2.5V (default)	JP3 JP4
2.6V	JP3 JP4
2.7V	JP3 JP4
2.8V	JP3 JP4

Voltage AGP Select	
1.5V (default)	JAGP1 JAGP2
1.6V	JAGP1 JAGP2
1.7V	JAGP1 JAGP2
1.8V	JAGP1 JAGP2

Memory Stick/Secure Digital Memory Card Reader Select	
Memry Stick Reader (Default)	JP13
Secure Digital Memory Card Reader	JP13

Clear CMOS Data	
Clear CMOS Data	JBAT1
Retain Data (Default)	JBAT1

How to tackle with Jumpers:
- *Do not remove the jumper when power is on. Always make sure the power is off before changing any jumper settings. Otherwise, mainboard could be damaged.*
- *In the Jumper setting diagram, all jumper pins covered with black marks stand for closed pins by jumper caps.*

2-6.1 Switch 1 CPU Clock Select

• This Series of mainboards are shipped to users with a 5-DIP Switch 1, by which user can select a CPU clock to match with the Pentium 4 processor selected on board. So users are not recommeded to take Switch 1 as a tool for overclocking. It is saver and more advisible for users to select the CPU clock as close as possible to the one marked on the selected CPU.

SW1 On ▉▉▉▉▉ DIP Off CPU Clock Select					
1 2 3 4 5 * Off On On On On (Default)					
CPU clock (MHz)	S1	S2	S3	S4	S5
100 (Default)	off	on	on	on	on
103	on	off	on	on	on
105	off	off	on	on	on
111	on	off	off	on	on
130	off	off	on	off	on
133	on	on	on	on	off

• **Advice from our Engineering Team:**

If you insert a Pentium 4 processor of 100MHz to the CPU socket and select 103MHz or any higher Switch setting, you are taking the risk of breaking the stability of your CPU as well as the mainboard. Overclocking should always take all other components on board into account.

2-6.2 Factory Test (By JP2)

Factory Test	
Only for factory test.	1 3 JP2

2-6.3 Memory Module Voltage Select (By JP3/JP4)

This function allows you to select the voltage supplied to the DRAM. The default voltage (2.5V) should be used unless processor overclocking requires a higher voltage.

Memory Module Voltage Select		
2.5V (default)	1 3	JP3 JP4
2.6V	1 3	JP3 JP4
2.7V	1 3	JP3 JP4
2.8V	1 3	JP3 JP4

NOTE! Using a higher voltage may help when overclocking but may result in shortening of your computer components's life. It is strongly recommended that you leave this setting at its default.

2-6.4 JP13 Memory Stick/Secure Digital Memory Card Reader Select

This jumper is designed on board for Memory Stick/Secure Digital Memory Card Reader select for CMEM1 connector.

Memory Stick/Secure Digital Memory Card Reader Select	
Memry Stick Reader (Default)	1 3 JP13
Secure Digital Memory Card Reader	1 3 JP13

Memory Stick Reader   MS/SD Cable

CMEM1

Secure Digital Memory Reader
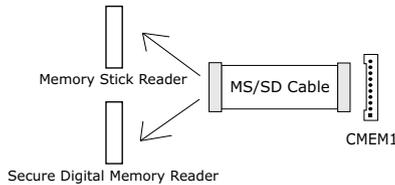
Connection between CMEM1 connector and MS/SD Card Reader

2-6.5 AGP Voltage Select (By JAGP1/JAGP2)

| Voltage AGP Select		
1.5V (default)	1 3 / 1 3	JAGP1 JAGP2
1.6V	1 3 / 1 3	JAGP1 JAGP2
1.7V	1 3 / 1 3	JAGP1 JAGP2
1.8V	1 3 / 1 3	JAGP1 JAGP2

2-6.6 JBAT1 Clear CMOS

• When you have problem with rebooting your system, you can clear CMOS data and restore it to default value. To clear CMOS with Jumper JBAT1, please follow the steps below:

(1) Power off system;
(2) Set JBAT1 to Pin 2-3 closed.
(3) After 2 or 3 seconds, return the JBAT1 setting to Pin1-2 closed.
(4) CMOS data are restored to default. Remember never clear CMOS when system power is on.

Clear CMOS Data	
Clear CMOS Data	3 1 JBAT1
Retain Data (Default)	3 1 JBAT1

2-7 Other Connectors Configuration

• This section lists out all connectors configurations for users' reference.

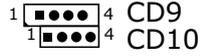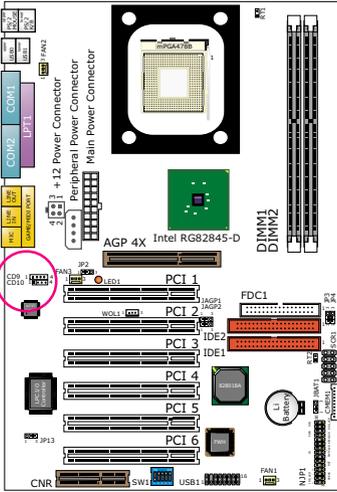### 2-7.1 On Board FAN Connectors (FAN1,FAN2, FAN3)

GND
+12V
SENSOR
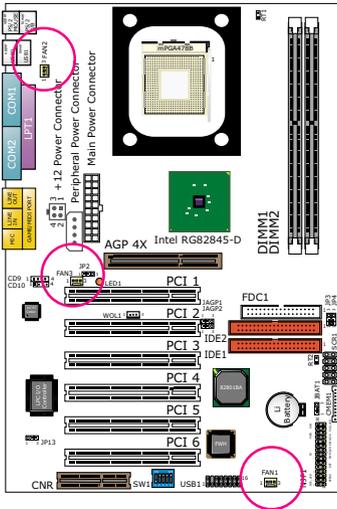
FAN1, FAN2, FAN3: On-Board FAN Connectors		
CPU FAN		FAN2
SYSTEM FAN		FAN3
CHASSIS FAN		FAN1

These fan connectors support CPU/System/chassis cooling fan with +12V. When connecting wire to FAN connectors, users should pay attention that the red wire is for the positive current and should be connected to pin +12V, and the black wire is Ground and should be connected to pin GND. If your mainboard has Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of this function.

For fans with speed sensors, each rotation of the fan blades will send out 2 electric pulses, by which System Hardware Monitor will work out the fan rotation speed by counting the pulses.

NOTE : *We use 3 "Yellow" fan connectors to mark that they support fan speed sensor function.*

2-7.2 WOL1 Wake On LAN

GND

+5V
Standby | Ping

Wake On LAN	
Connect the Wake On LAN signal from LAN card to WOL1	WOL1

(1) This connector connects to a LAN card with a Wake On Ring output. The connector powers up the system when it receives a wake-up packet or signal through the LAN card.

(2) This feature requires that Ring Power Up Control feature is enabled in the BIOS setting "Power Management Setup" and that your system must be on ATX power supply with at least 720mA / +5V standby power.

2-7.3 CD-ROM Audio Connector (CD9/CD10)

CD ROM Audio Connector		
PIN NO.	CD9	CD10
PIN 1	Right Channel	GND
PIN 2	GND	Left Channel
PIN 3	GND	GND
PIN 4	Left Channel	Right Channel

2-7.4 Thermal Sensor Connector RT2 (Optional)

RT1	RT1 mounted with blue Thermal Resistor.

RT2	To RT2 b. To Devices a. Thermal Cable
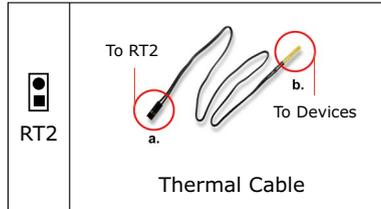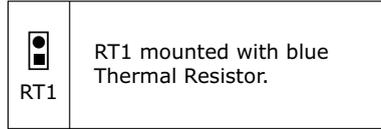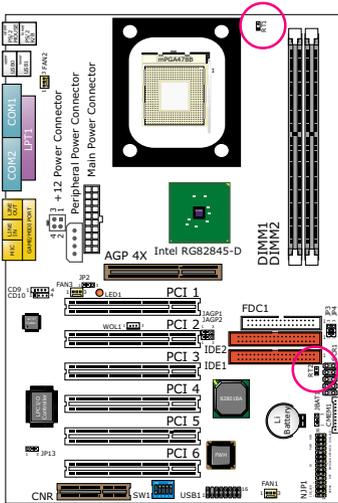
1. Connector RT1: A blue thermal resistor is already soldered to connector RT1 so as to sense the temperature round the mainboad. What RT1 does is to transmit the thermal signal to BIOS or Hardware Monitor.

2. Connector RT2: A thermal cable is needed to connect RT2 to on-board devices such as HDD, Graphics card etc., so as to detect the temperature generated therein. Please connect the end (a) of the thermal cable to mainboard RT2 header, and tape another end (b) of thermal cable on to the device which you want to monitor. After you have finished the thermal cable installation, you will **see the detected temperature in BIOS setup or Hardware monitor utility.**

2-7.5 Complex Header NJ1

• This complex Header consists of 10 connectors providing various supports:

NJ1

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① **SMI** — GND / SMI SIGNAL — GND / SUSPEND LED SIGNAL — **SUSPEND LED** ⑤

② **POWER SWITCH** — Vcc / ATX POWER SWITCH — GND / KEYLOCK SIGNAL — **KEYLOCK¤ CONNECTOR** ⑥

③ **INFRARED(IR)** — Vcc / NO CONNECTION / INFRARED TRANSMIT SIGNAL / GND / INFRARED TRANSMIT SIGNAL — GND (−) / NO CONNECTION / Vcc (+) — **POWER LED** ⑦

— GND / RESET SIGNAL — **RESET SWITCH** ⑧

④ **2nd HDD LED** — Logic High (+) / HDD LED SIGNAL (−) — SPEAKER SIGNAL / GND

④ **1st HDD LED** — HDD LED SIGNAL (−) / Logic High (+) — NO CONNECTION / Vcc — **SPEAKER** ⑨

1

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1. SMI Connector (System Management Interrupt):
   Connection: This 2-pin connector is connected to the case-mounted
                   Suspend Switch.
   Function   : Manually placing the system into a Suspend mode or
                   "Green" mode.

2. Power Switch Connector:
   Connection: Connected to a momentary button or switch.
   Function   : Manually switching the system between "On" and "Soft
                   Off". Pressing the momentary button for more than 4 seconds
                   will also turn the system off.

3. IR Connector (Infrared Connector):
   Connection: Connected to Connector IR on board.
   Function   : Supporting wireless transmitting and receiving module on
                   board.

4. 1st HDD LED Connector / 2nd HDD LED Connector:
   Connection: Connected to HDD LED.
   Function   : To supply power to HDD LED.

5. Suspend LED Connector:
   Connection: Connected to Suspend indicator.
   Function   : To supply power to "Suspend indicator".

6. Keylock Connector:
   Connection: Connected to keylock switch.
   Function   : To lock keyboard for security purpose.

7. Power LED Connector:
   Connection: Connected to System Power LED.
   Function   : To supply power to "System Power LED".

8. Reset Switch Connector:
   Connection: Connected to the case-mounted "Reset Switch".
   Function   : To supply power to "Reset Switch" and support system
                   reboot function.

9. Speaker Connector:
   Connection: Connected to the case-mounted Speaker.
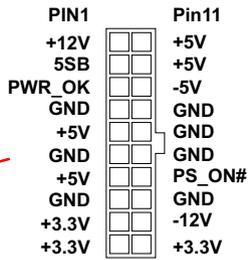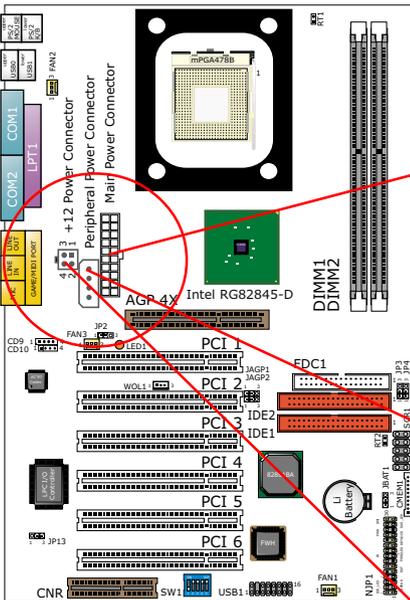   **Function   :** To supply power to the case-mounted Speaker.

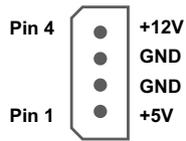## 2-7.6 ATX Power Supply Connectors version 2.03 for Pentium 4

• This mainboard is compatible with both ATX Power Supply Version 2.03 (with +12V Power Connector) and the older ATX Power Supply (with Peripheral Power Connector):

> *Important:*
> *1. If users use an older ATX Power Supply with Peripheral Power Connector, please connect both the Main Power Connector and the Peripheral Power Connector to mainboard.*
> *2. If users use the ATX Power Supply Version 2.03 (with a +12V Power Connector), please connect either the +12V Power Connector or Peripheral Power Connector in addition to the Main Power Connector.*

PIN1			Pin11
+12V			+5V
5SB			+5V
PWR_OK			-5V
GND			GND
+5V			GND
GND			GND
+5V			PS_ON#
GND			GND
+3.3V			-12V
+3.3V			+3.3V

Main Power Connector

Pin 4 → +12V
GND
GND
Pin 1 → +5V

Peripheral Power Connector

+12V **3** **4** +12V
GND **1** **2** GND

+12V Power Connector

2-7.7 CMEM1 Memory Stick™/Secure Digital Memory Card Reader Connector

• This connector can be connected to a Memory Stick Reader or Secure Digital memory card reader with a Memory Stick/Secure Digital memory card cable connector.
• JP13 is designed on board for Memory Stick/Secure Digital memory card select for this connector. Before you set up connection from CMEM1 to a Memory Stick Reader or a secure Digital Memory Card Reader, you should choose the right setting of Jp13. Please see Jumper setting of Jp13 for more detailed instruction.
• Besides JP13 setting, user should also adjust an option "MS/SD Port Mode" in "Integrated Peripheral" of BIOS setup to select "MS socket" or "SD socket". (see "Integrated Peripheral" in BIOS setup.)
• Meeting SONY Memory Stick™ specification Version 1.03.


```
GND
MS1/SD1
VCC3
MS2/SD2
MS3/SD3
MS4/SD4
MS5/SD5
MS/SDCLK
MS/SDPWCTL#
MS/SDRWLED
```
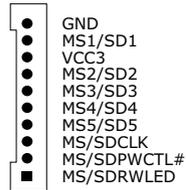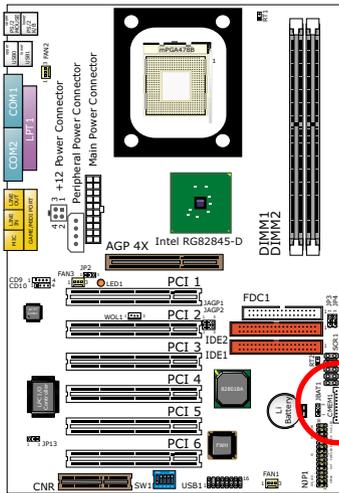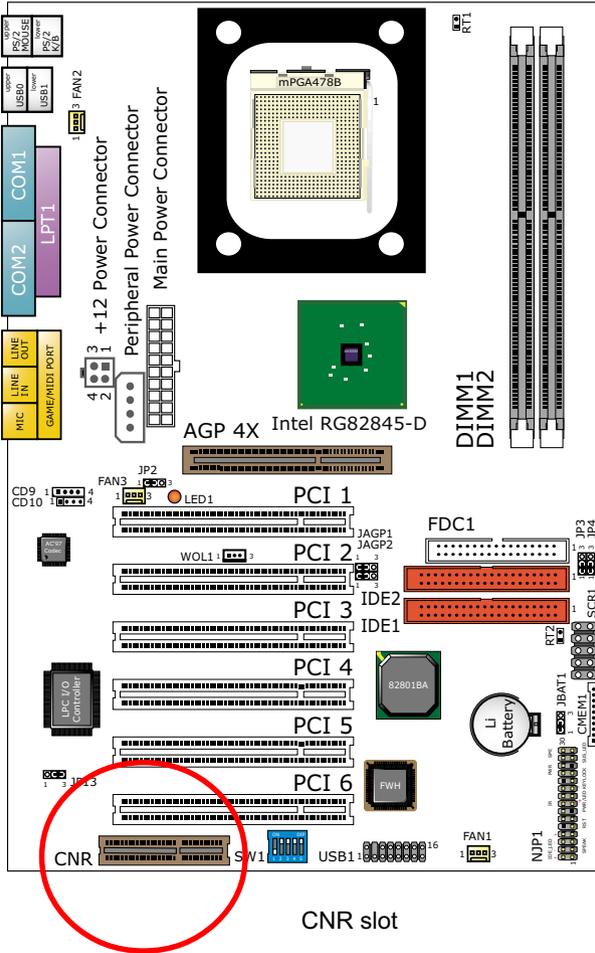
CMEM1 pin assignment
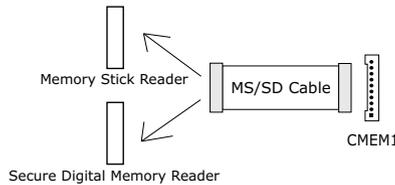
Connection between CMEM1 connector and MS/SD Card Reader

2-7.8 Communication And Networking Riser Slot (CNR)

• This slot allows you to use network, modem or audio riser cards.

CNR slot

Note:
  1. If modem CNR is installed, the modem CNR must be set as primary.
  2. Only one LAN CNR can be supported.
  3. The audio CNR must be set as secondary, if on-chip AC 97 is enabled.
  4. CNR devices are not provided with this mainboard.
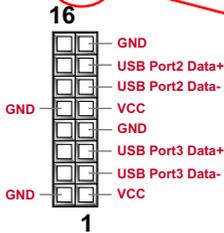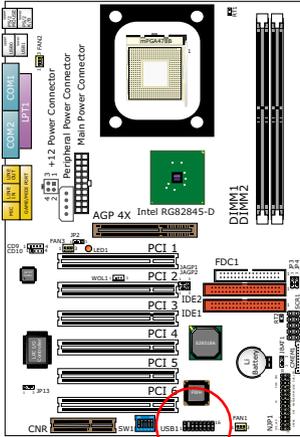
2-7.9 Smart Card Reader Connector (SCR1)

• The connector "SCR1" allows you to use Smart Card Reader. It is compliant with Personal Computer Smart Card (PC/SC) working group standard and smart card (ISO 7816) protocols.
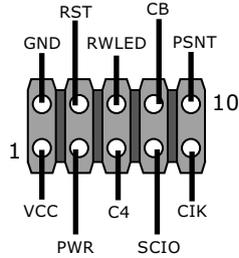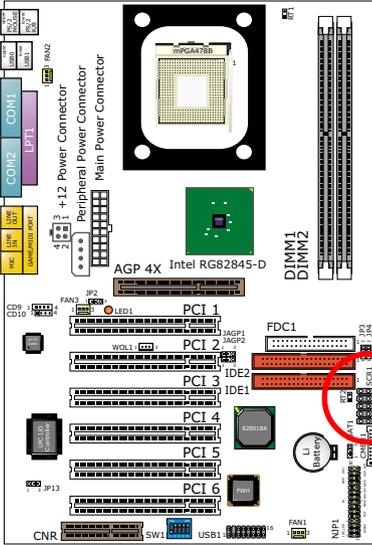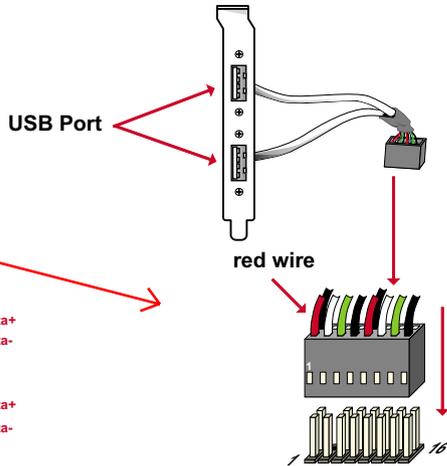

SCR1 pin assignment

2-7.10 USB Header (Header USB1)

• This header is for providing you two additional USB ports by using an additional USB Cable. User can order the additional USB cable from your mainboard dealers and venders.

Additional USB Cable (Optional)
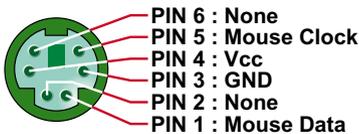
USB Port

red wire

16

GND
USB Port2 Data+
USB Port2 Data-
GND — VCC
GND
USB Port3 Data+
USB Port3 Data-
GND — VCC

1

USB Header Pin Assignment

Header USB1

• When plugging the USB cable into Header USB1, users must make sure the red wire is connected to the first pin.

2-7.11 PS/2 Mouse And PS/2 Keyboard
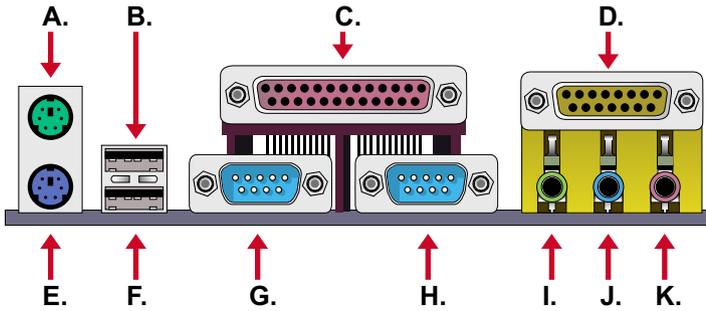
PIN 6 : None
PIN 5 : Mouse Clock
PIN 4 : Vcc
PIN 3 : GND
PIN 2 : None
PIN 1 : Mouse Data

PIN 6 : None
PIN 5 : Keyboard Clock
PIN 4 : Vcc
PIN 3 : GND
PIN 2 : None
PIN 1 : Keyboard Data

PS/2 MOUSE   **PS/2 KEYBOARD**

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2-7.12 Chassis Panel Connector


```
A  : PS/2 MOUSE PORT
B  : USB 0 PORT
C  : LPT1 PORT
D  : GAME/MIDI PORT
E  : PS/2 KEYBOARD PORT
F  : USB 1 PORT
G  : COM1 PORT
H  : COM2 PORT
I  : LINE/SPEAKER OUT
J  : LINE IN
K  : MICROPHONE INPUT
```

2-8 IRQ Description

IRQ	Function Description	Priority
IRQ 0	System Timer	1
IRQ 1	Keyboard Controller	2
IRQ 2	Programmable Interrupt	N/A
IRQ 3	Serial Port (COM 2)	11
IRQ 4	Serial Port (COM 1)	12
IRQ 5		13
IRQ 6	Floppy Disk Controller	14
IRQ 7	Parallel Port (LPT1)	15
IRQ 8	Real Time Clock (RTC)	3
IRQ 9		4
IRQ 10		5
IRQ 11		6
IRQ 12	PS/2 Mouse Port	7
IRQ 13	Coprocessor	8
IRQ 14	Primary IDE Channel	9
IRQ 15	Secondary IDE Channel	10

• Both ISA and PCI expansion cards may require IRQs. System IRQs are available to cards installed in the ISA expansion bus first, then any remaining IRQs are available to PCI cards. Currently, there are two types of ISA cards.

• The original ISA expansion card design, now referred to as "Legacy" ISA card, requires you to configure the card's jumpers manually and then install it in any available slot on the ISA bus. To see a map of your used and free IRQs in Windows 98, the *Control Panel* in *My Computer*, contains a *System* icon, which gives you a *Device Manager* tab. Double-Clicking on a specific hardware device gives you a *Resources* tab which shows the Interrupt number and address. Double-Clicking *Computers* to see all the interrupts and addresses for your system. Make sure that each ISA device should be assigned to one IRQ respectively. If ISA device share IRQ with any other device, your computer will easily get into trouble.