

Motherboard

4848P/4848PN

- Package Contents 3
- 1. 4848P/4848PN Specifications 4**
 - 1.1. Introduction 4**
 - CPU Processor 5
 - Chipset 5
 - DDR SDRAM Memory 5
 - Universal Serial Bus 5
 - WOL (Wake On LAN) 5
 - 1.2. Specifications and Features 5**
 - AGP 5
 - Award BIOS 6
 - ATA 100 On Board 6
 - SATA Interface On Board 6
 - PCI-Based AC 97 Digital Audio Processor 6
 - LAN On Board (optional) 6
 - ATX Power Supply 6
 - 1.3. 4848P/4848PN Layout 7**
 - 1.4. CPU and CPU Fan Installation 9**
 - 1.4.1. CPU Installation with Socket 478 9
 - 1.4.2. CPU Fan Installation with P4 Fan Base 10
 - 1.5. DDR SDRAM Installation 11**
 - 1.6 Connectors & Jumpers Setting 12**
 - 1.6.1. Back Panel I/O Connectors 12
 - 1.6.1.1. PS/2 Mouse / Keyboard CONN. 12
 - 1.6.1.2. USB Ports: USB0/1/2/3 12
 - 1.6.1.3. Serial Interface Port: COM1/COM2 13
 - 1.6.1.4. Parallel Interface Port 13

1.6.1.5. Audio Port Connectors	13
1.6.1.6. LAN Connector (optional): RJ45	13
1.6.2. ATX Main Power Connectors: PW1/PW2	14
1.6.3. Floppy Disk Connector: FDD	15
1.6.4. Hard Disk Connectors: IDE1/IDE2	15
1.6.5. Cooling Fan Connectors:	15
1.6.6. CDAudio-In: CD-IN	16
1.6.7. Wake On LAN Connector: WOL1	16
1.6.8. USB Pin Headers: USB5/6 & USB7/8	17
1.6.9. Front Panel Connectors: PANEL1	18
1.6.10. IR infrared module: IR1 Connector	19
1.6.11. SPDIF Digital Audio Connector: J1	20
1.6.12. Audio-in Connector: AUX_IN	20
1.6.13. Serial ATA Connector:	21
1.6.14. CNR Slot: CNR1	21
1.6.15. CMOS Function Selector: Jp1	22
1.6.16. Keyboard/Mouse Wake-up select: Jp2	22
1.6.17. USB Keyboard/Mouse Wake-up Select: Jp3	23
2. BIOS Setup	24
2.1. BIOS Support	24
2.2. Main Menu	27
2.3. Standard CMOS Features	30
2.4. Advanced BIOS Features	34
2.5. Advanced Chipset Features	38
2.6. Integrated Peripherals	41
2.6.1. OnChip IDE Device	41
2.6.2. Onboard Device	43
2.6.3. Super IO Device	45
2.7. Power Management Setup	48
2.8. PnP/PCI Configurations	52
2.9. PC Health Status	55
2.10. Frequency/Voltage Control	56
2.11. Load Fail-Safe Defaults	57

2.12. Load Optimized Defaults	58
2.13. Set Supervisor / User Password	59
2.14. Save & Exit Setup	60
2.15. Exit Without Saving	61
3. Drivers & Utilities	62
3.1. Auto-run Menu	62
3.2. Intel Chip Installation	64
3.3. Installing Audio Driver	66
3.3.1. Installing 6-channel Driver	66
3.3.2. Enabling 6-channel Driver	67
3.4. Installing USB 2.0 Driver	69
3.5. Installing LAN Drivers (4848PN only)	71
Appendix Test Report	74
Motherboard Compatibility Test	74
(1) CPU Compatibility Test	74
(2) Memory Compatibility Test	75
(3) AGP Display Card Compatibility Test	76

Package Contents

- ◆HDD UDMA66/100 Cable
- ◆FDD Cable
- ◆Flash Memory with BIOS
- ◆SATA cable
- ◆Fully Setup Driver CD with built in utilities
- ◆User Manual
- ◆I/O Shielding

Chapter 1

Motherboard

4848P/4848PN

1. 4848P/4848PN Specifications

1.1. Introduction

The 4848P/4848PN motherboard is an integration of Intel P4 CPUs in Socket-478 packaging and the North Bridge i848P supporting 800/533/400 MHz Front Side Bus.

North Bridge i848P on board supports Single Channel DDR 400/333/266 DRAMs in DDR 400MHz main bandwidth, while the South Bridge ICH5 provides stable supports of ULTRA ATA 100, 6-channel Audio playback, USB 2.0/1.1 interface and 2 Serial ATA ports.

The resulting architecture will provide an ideal multi-task environment to support operating systems such as MS-DOS, Windows, WindowsNT, Windows ME, Windows 2000, Novell, OS/2, Windows 95/98, Windows 98SE, Windows XP, UNIX, Liunx, SCO UNIX etc. This user-friendly manual is to describe in detail how to install, configure and use this motherboard with drivers and BIOS setup illustrations.

This manual is a general reference of the first release of this motherboard which is subject to update without notice. If any difference is found between this manual and the motherboard you are using, please refer to the Web Site provided on this manual.

1.2. Specifications and Features

CPU Processor

- | Support 800/533/400MHz System Interface speed.
- | Single Socket 478 for Intel P4™(Northwood Processor) 1.6A to 3.06GHz (HT CPU included) or higher*.
- | Support Intel Netburst™ Micro-architecture

* The higher frequency CPU should be compatible with Intel CPU specification as well as the motherboard latest BIOS version which is released in our Web Site.

Chipset

- | Intel 848P North Bridge
- | Intel ICH5 South Bridge.

PCI

- | Supports 33MHz PCI Bus speed with 5 PCI slots.

DDR SDRAM Memory

- | Supporting 64/128/256/512....MBDDR module
- | Supporting Synchronous 400/333/266MHz DDR SDRAM

Universal Serial Bus

- | Supporting 4 on-board Universal Serial Bus(USB Ports) and 4 external Universal serial Bus(USB Ports).
- | Supporting USB 2.0/1.1

WOL (Wake On LAN)

- | Supporting system power-on by LAN Ring-up signal.

AGP

- | Supporting 1 x AGP4X/8X slot

Award BIOS

- | Supporting Plug & Play specification which detects the peripheral devices and expansion cards automatically
- | Supporting CD-ROM, SCSI, LAN BOOT, Temperature sensor, LAN, Alarm Bus CLK setup
- | Supporting Desktop Management Interface (DMI) function for recording mainboard specification

ATA 100 On Board

- | Supporting four IDE devices.
- | Supporting PIO Mode 5, Master Mode, high performance hard disk drives.
- | Supporting Ultra DMA 33/66/100 Bus Master Mode.
- | Supporting IDE interface for high density HDD and CD-ROM.
- | Supporting LBA mode.

SATA Interface On Board

- | 2 x SATA (Serial ATA) ports on board , supported by South Bridge
- | Supporting data transfer rate up to 150MB/s in SATA Hard Disk Drive

PCI-Based AC 97 Digital Audio Processor

- | AC 97 2.2 compatible Codec, 6-channel Audio interface.
- | 18-bit Stereo Full-Duplex Codec with up to 48 KHz sampling rate
- | 4 Analog Line-level Stereo inputs for connection from Line, CD, Video and AUX; 2 Analog Line-level Stereo inputs for speakerphone and PC beep

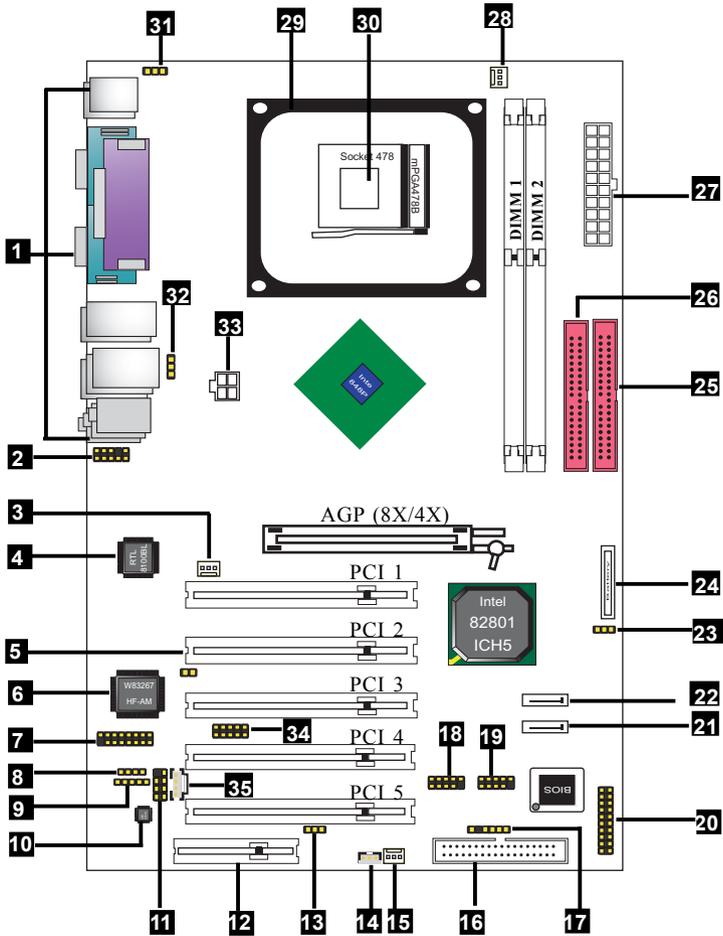
LAN On Board (optional)

- | LAN Controller RTL8100BL on board
- | Supporting 1 x RJ45 connector, with 10/100 Mb/s N-way auto-negotiation operation

ATX Power Supply

- | ATX and ATX +12V Power Connectors supported

1.3. 4848P/4848PN Layout



4848P/4848PN Component Layout :

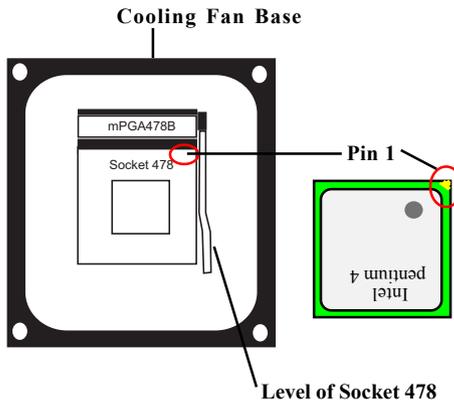
- 1. Back Panel: Back Panel I/O Connectors (Mouse, Keyboard, COM1, COM2, Printer, USB1/2/3/4, Mic in, Line in, Speaker-out, and RJ45 (for 4848PN)**
- 2. FP-AUDIO1: Front Audio Connector**
- 3. FAN2: System FanConnector**
- 4. Rtl8100: LAN Controller (for 4848PN)**
- 5. PCI: PCI slot (5 slots)**
- 6. Winbond LPC Super I/O Chip**
- 7. Game1: Game Port**
- 8. CD1: CD audio-in connector**
- 9. J1: SPDIF (Sony/Philip Digital Interface Format) Audio Connector**
- 10. 6-channel AC'97 Audio Codec**
- 11. J2: 4-channel Audio-out Connector**
- 12. CNR1: CNR Slot for Audio/LAN card support**
- 13. JP950: Jumper for Front Audio Connector Select**
- 14. WOL1: Wake On LAN connector**
- 15. FAN3: Case Fan connector**
- 16. FDC1: Floppy Disk Drive connector**
- 17. Debug1: Connector for Printer Error debug**
- 18. USBR3: Pin-header for external USB4/5 port**
- 19. USBR2: Pin-header for external USB6/7 port**
- 20. PANEL1: Front Panel connectors**
- 21. SATA1: Serial ATA Connector**
- 22. SATA2: Serial ATA Connector**
- 23. JP1: Jumper for CMOS Data Setup**
- 24. Battery**
- 25. IDE1: IDE Connector for UATA 66/100**
- 26. IDE2: IDE Connector for UATA 66/100**
- 27. PWR1: ATX Main Power Connector**
- 28. FAN1: Cooling Fan Connector for CPU cooling fan**
- 29. Socket 478: P4 CPU Socket**
- 30. P4 CPU Fan Base**
- 31. JP2: Jumper for Keyboard/Mouse Power On**
- 32. JP3: Jumper for USB Keyboard/Mouse Power On (USB0/1/2/3)**
- 33. PW2: ATX +12V Power Connector**
- 34. IR1: Connector for IR signal transmission/Reception**
- 35. AUX_IN1: Audio-in Connector**

1.4. CPU and CPU Fan Installation

This motherboard is designed with Socket 478 for Intel P4™ processors (including Hyper-threading CPUs).

1.4.1. CPU Installation with Socket 478

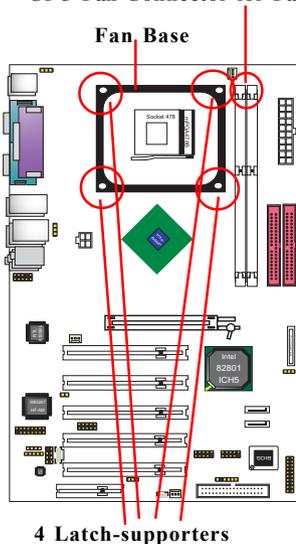
1. Pull the lever sideways away from the socket then raise the lever to a 90-degree angle.
2. Locate Pin 1 in the socket. Pin 1 of CPU is marked by the yellow corner or cut edge on the CPU. Match Pin 1 of Socket 478 and Pin 1 of CPU.
3. Pull up the lever of Socket 478 to let the CPU in and press the lever down to lock the CPU.
4. Make sure that Pin 1 of Socket 478 is matching with Pin 1 of CPU.
5. Make sure that all CPU pins are completely in socket before pressing down the socket lever.
6. Hyper-threading CPU is supported in Windows 2000/XP only.



1.4.2. CPU Fan Installation with P4 Fan Base

1. P4 CPU Fan is typically designed with 4 latches and mounted with a thick heatsink. Please do not use other type of CPU fan which cannot match the P4 Fan base on board.
2. Install the P4 CPU fan into the Fan base in such a way that the 4 latches of the CPU Fan match with the 4 Supporters of the CPU Fan Base.
3. Press down the latches to lock CPU Fan to the Fan Base.
4. Then connect the Fan Power Cable to one of the Fan connectors on board.
5. Make sure that the Fan Power Cable is correctly connected to Fan Connector.

CPU Fan Connector for Fan Power Cable

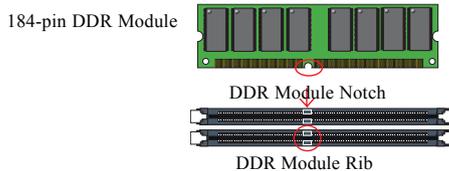


1.5. DDR SDRAM Installation

The motherboard supports a maximized 2GB memory. It provides three 184-pin unbuffered DDR sockets and each supports 64MB to 1GB DDR400/333/266 memory module.

DDR SDRAM Installation Procedures:

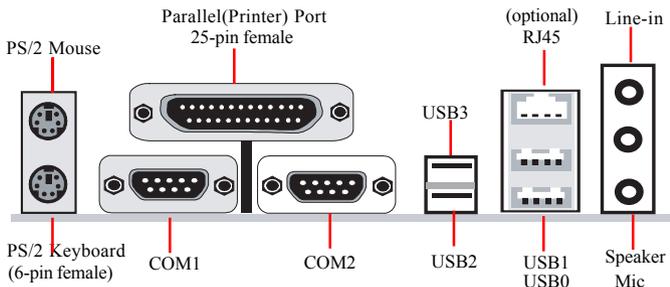
1. The DDR socket has a “Plastic Safety Tab” and the DDR memory module has an asymmetrical notch”, so the DDR memory module can only fit into the slot in one direction.
2. Push the tabs out. Insert the DDR memory modules into the socket at a 90-degree angle then push down vertically to fit onto place.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



1.6 Connectors & Jumpers Setting

1.6.1. Back Panel I/O Connectors

This motherboard provides the following back panel connectors:



1.6.1.1. PS/2 Mouse / Keyboard CONN.

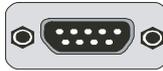
The motherboard provides a standard PS/2 mouse / Keyboard mini DIN connector for attaching a PS/2 mouse. You can plug a PS/2 mouse / Keyboard directly into this connector.

1.6.1.2. USB Ports: USB0/1/2/3

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.

1.6.1.3. Serial Interface Port: 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 computer systems together. If you like to transfer the contents of your hard disk to another system, it can be accomplished with serial port.



COM1/2: Serial Connector

1.6.1.4. Parallel Interface Port

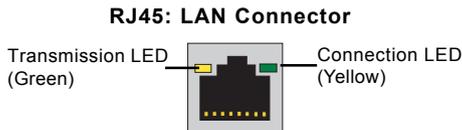
Unlike serial ports, parallel interface ports have been standardized. Sometimes called a Centronics port, the parallel port is almost exclusively used with printers. The parallel port on your system is a 25-pin, DB 25 connector.

1.6.1.5. 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.

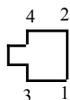
1.6.1.6. LAN Connector (optional): RJ45

One RJ45 connector is on Back Panel for networking connection and also provides support for Wake On LAN function.



1.6.2. ATX Main Power Connectors: PW1/PW2

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 PW1 Signal		Pin PW1 Signal	
	1	GND	2	GND
	3	+12V	4	+12V
	Pin PW2 Signal		Pin PW2 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	

Note:

When you set up P4 power supply, both PW1 and PW2 must be connected to power.

Important:

To switch on your power supply, please make sure:

1. Memory Module is properly installed.
2. Power supply setup is OK.

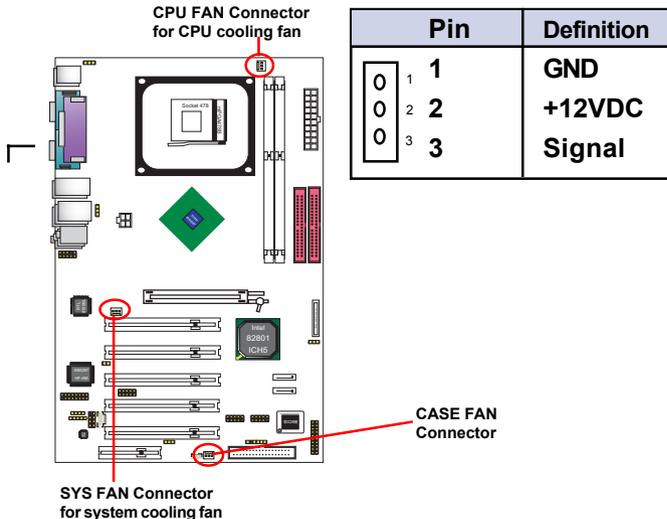
1.6.3. Floppy Disk Connector: FDD

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.

1.6.4. Hard Disk Connectors: IDE1/IDE2

These connectors are provided with IDE hard disk ribbon cable into the package. After connecting the end of cable with single connector to the mainboard, connect the other two connectors 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).

1.6.5. Cooling Fan Connectors:



1.6.6. CD Audio-In: CD-IN

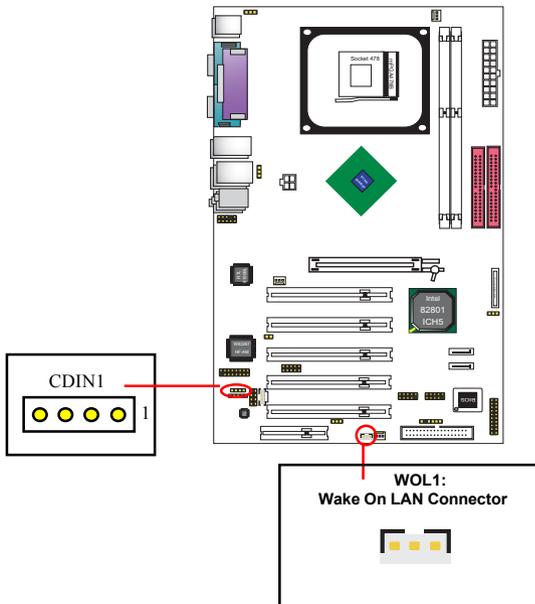
CDIN1 are the connectors for CD-Audio Input signal. Please connect them to CD-ROM CD-Audio output connector.

CDIN1 and CDIN2 have the same pin assignment but different pin pitch.

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

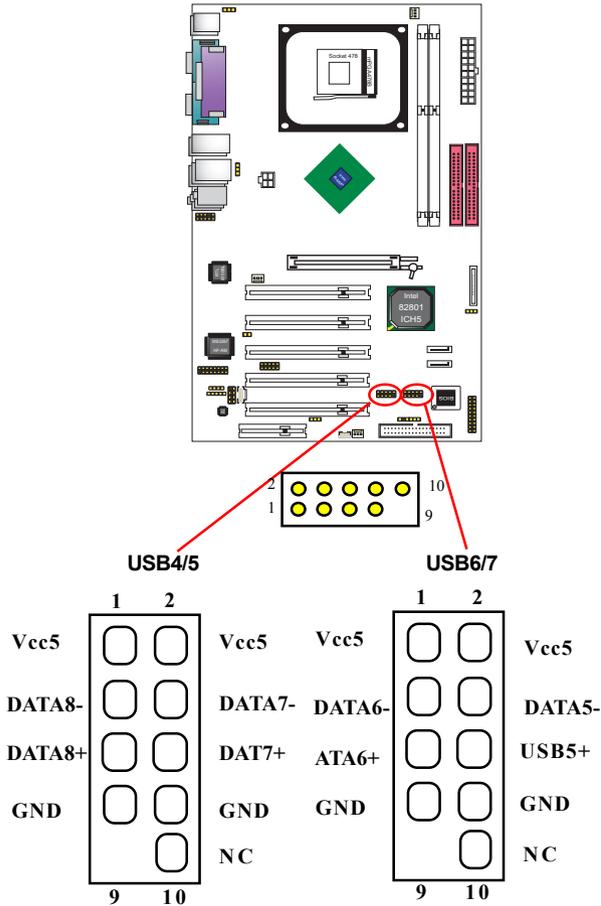
1.6.7. Wake On LAN Connector: WOL1

CN2 is an Wake On LAN (WOL) connector for transmitting the Ring signal from a PCI LAN card to wake up system. If you use a PCI LAN card for system networking, you can connect this Wake On LAN connector with the PCI LAN card on board for Wake On LAN function.

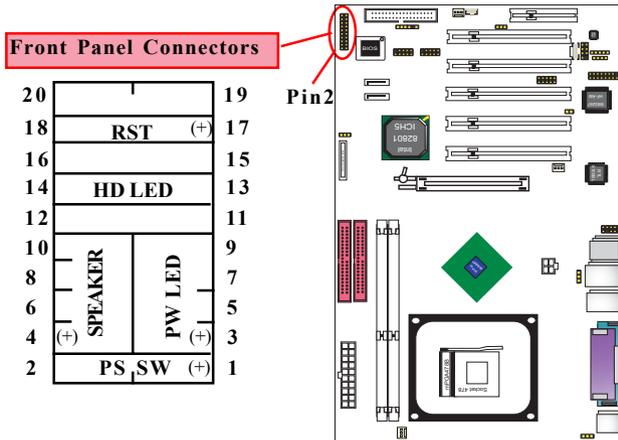


1.6.8. USB Pin Headers: USB5/6 & USB7/8

USB5/6 and USB7/8 are 2x5 Pin Headers for support of 4 external USB ports. Each USB pin header requires a USB cable to connect to the chassis Front Panel for expansion of two USB ports.



1.6.9. Front Panel Connectors: PANEL1



PSSW

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

PowerLEDLead(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)

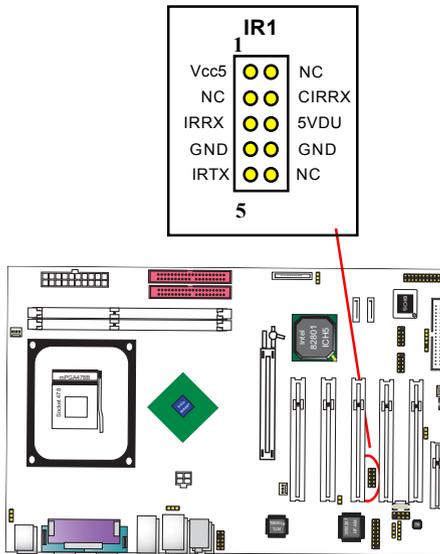
This connector supplies power to the cabinet IDE activity LED. Read and write activity by devices connected to the Primary or Secondary IDE connectors will cause the LED to light up.

Reset Switch Lead (RST)

The connector can be connected to a reset switch. Press this reset switch to restart system.

1.6.10. IR infrared module: IR1 Connector

This connector supports the optional wireless transmission and reception infrared module. You must configure the setting through the BIOS setup to use the IR function.

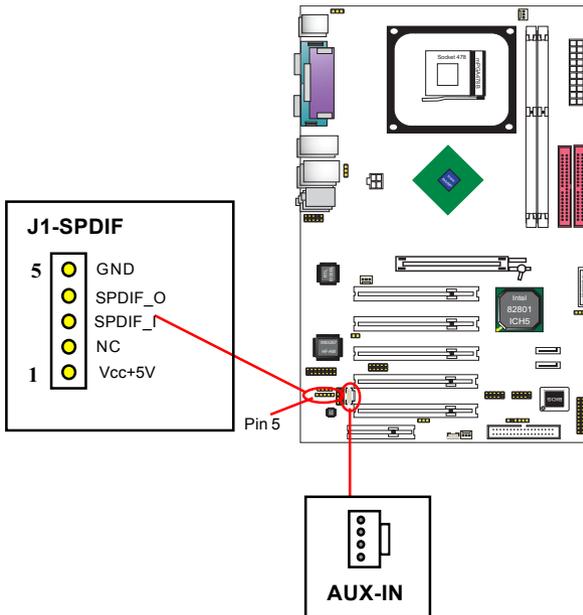


1.6.11. SPDIF Digital Audio Connector: J1

J1 supports the digital interface format SPDIF and provides the digital Audio input/output playback and supporting digital device (MD, Speaker)..

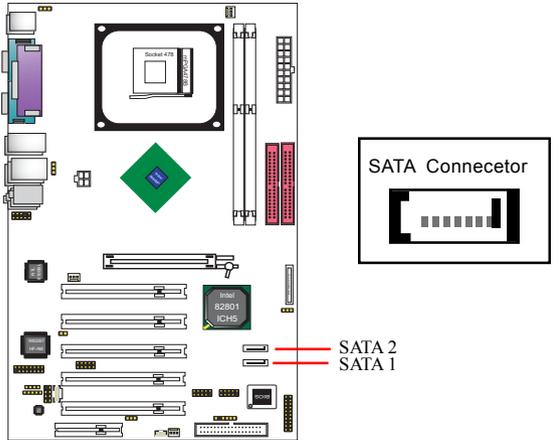
1.6.12. Audio-in Connector: AUX_IN

AUX_IN connector provides an audio-in channel for audio device to transmit audio signals to motherboard and out.



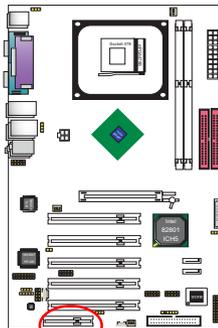
1.6.13. Serial ATA Connector:

Two SATA Connectors are built on board for high speed data transfer rate up to 150MB/s. Hard Disk Drive with Serial ATA Interface is supported by these two SATA Connector.



1.6.14. CNR Slot: CNR1

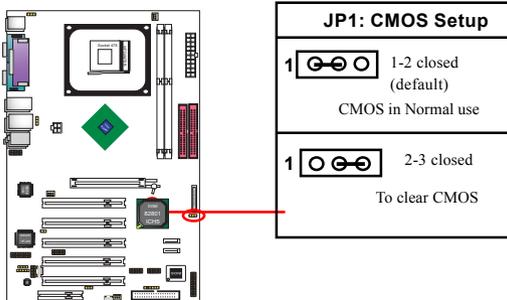
CNR Slot is designed to support the optional Audio/LAN card.



CNR Slot

1.6.15. CMOS Function Selector: Jp1

When you have problem with booting system, you may clear CMOS to restore the optimum default BIOS data.



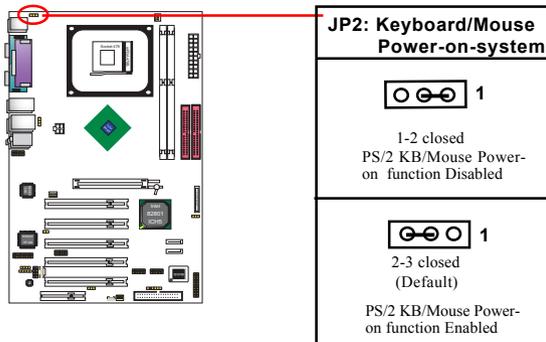
The “Clear CMOS” steps:

1. Remove the Jumper cap of Jp1 from 1-2.
2. After 1 or two seconds, set Jp1 to 2-3 closed with the jumper cap.
3. After 1 or two seconds, restore the Jp1 to 1-2 closed.

Now, the CMOS RAM has restored to the optimum default setting.

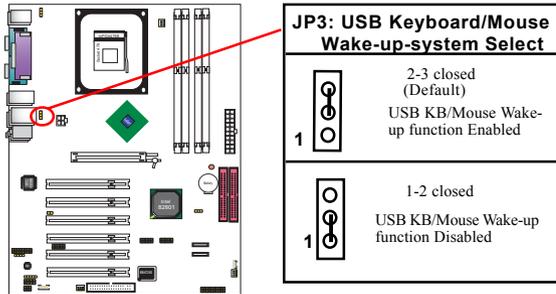
1.6.16. Keyboard/Mouse Wake-up select: Jp2

Jp2 is designed to enable /disable the Power-on-system function by PS/2 Keyboard/Mouse:



1.6.17. USB Keyboard/Mouse Wake-up Select: Jp3

Jp3 is designed to enable /disable the Wake-up--system function by USB Keyboard/Mouse (for USB1 and USB2 ports only):



Chapter 2

BIOS Setup

2. BIOS Setup

2.1. BIOS Support

This chapter discusses the Award BIOS Setup program built in the ROM BIOS. The Setup program allows the user to modify the basic system configuration. The modification is then stored in battery-backed RAM so that it can retain the setup information after the power is turned off. The Award BIOS installed in your computer system ROM (Read Only Memory) is a custom version of an industry standard BIOS. The BIOS provides critical low-level support for standard devices such as disk drives and serial and parallel ports. This chapter is intended for guiding you through the process of configuring your system BIOS.

Plug and Play Support

This AWARD BIOS supports the Plug and Play Version 1.0A specification. ESCD(Extended System Configuration Data) write is also supported.

EPA Green PC Support

This AWARD BIOS supports Version 1.03 of the EPA Green PC specification.

PCI Bus Support

This AWARD BIOS also supports Version 2.1 of the Intel PCI (Peripheral Component Interconnect) local bus specification.

APM Support

This AWARD BIOS supports Version 1.1&1.2 of the Advanced Power Management(APM) specification. Power management features are implemented via the System Management Interrupt(SMI). Sleep and Suspend power management modes are supported. Power to the hard disk drives and video monitors can be managed by this AWARD BIOS.

DRAM Support

SDRAM (Synchronous DRAM) are supported.

CPU Support

This AWARD BIOS supports the Intel P4 Processor.

Setup Menu

In general, you use the arrow keys to highlight items of the Main BIOS Setup Menu, press <Enter>to select, use the <PgUp>and <PgDn>keys to change entries, press<F1>for help and press <Esc> to quit The following table provides more detail about how to navigate in the Setup program by using the keyboard.

Note:

(BIOS version 1.0 is for reference only. If there is a change in BIOS version, please use the latest updated version of the BIOS.)

Keystroke	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left(menu bar)
Right arrow	Move to the item on the right(menu bar)
Esc	Main Menu: Quit without saving changes Submenus: Exit Current page to the next higher level menu
Move Enter	Move to item you desired
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+Key	Increase the numeric value or make changes
-Key	Decrease the numeric value or make changes
Esc Key	Main menu-Quit and not save changes into CMOS Status Page Setup Menu and option Page Setup Menu-Exit Current page and return to Main Menu
F1 Key	General help on Setup navigation keys.
F5 Key	Load previous values from CMOS
F6 Key	Load the fail-safe defaults from BIOS default table
F7 Key	Load the optimized defaults
F10 Key	Save all the CMOS changes and exit

Standard CMOS Features

This setup page includes all the items in standard compatible BIOS.

Advanced BIOS Features

This setup page includes all the items of the BIOS special enhanced features.

Advanced Chipset Features

This setup page includes all the items of the Chipset special enhanced features.

Integrated Peripherals

This selection page includes all the items of the IDE hard drive and Programmed Input/Output features.

Power Management Setup

This setup page includes all the items of the power management features.

PnP/PCI Configurations

This setup page includes the user defined or default IRQ Setting.

PC Health Status

This page shows the hardware Monitor information of the system.

Frequency/Voltage Control

This setup page controls the CPU's clock and frequency ratio.

Load Fail-safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

Load Optimized Defaults

These settings are for configuring a workable computer when something is wrong. If you cannot boot the computer successfully, select the BIOS Setup options and try to diagnose the problem after the computer boots. These settings do not provide optional performance.

Set Supervisor/User Password

Change, set, or, disable password. It allows you to limit access to the system and Setup, or just to Setup.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

2.3. Standard CMOS Features

This main option in the Standard CMOS Setup Menu is divided into 10 fields or items. Each field provides one or more setup choices. Use the arrow keys to highlight the field and then use the <PgUp> or <PgDn> keys to select the value or choice.

Phoenix - AwardBIOS CMOS Setup Utility Standard CMOS Features

Date(mm:dd:yy)	Tue,Jun 6 2002	Item Help
Time (hh:mm:ss)	11:26:10	
▷ IDE Primary Master	[None]	Menu Level
▷ IDE Primary Slave	[None]	
▷ IDE Secondary Master	[None]	Change the day, month,year and century.
▷ IDE Secondary Slave	[None]	
Drive A	1.44M,3.5 in	
Drive B	None	
Floppy 3 Mode Support	Disabled	
Video	EGA/VGA	
Halt On	All,But Keyboard	
Base Memory	640K	
Extended Memory	65472K	
Total	1024K	

←→↑↓: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Main Menu Selections

Item	Options	Description
Date (mm : dd :yy)	Month Day Year	Set the system,date. Note that the 'Day' automatically changes when you set the data.
Time (hh : mm : SS)	Hour Minute Second	Select the hour, minute and second of the time.
IDE Primary Master	Options are in its sub menu.	Press<Enter> to enter sub menu.
IDE Primary/ Slave	Options are in its sub menu.	Press<Enter> to enter sub menu.
IDE Second- ary Master	Options are in its sub menu.	Press<Enter> to enter sub menu.
IDE Second- ary Slave	Options are in its sub menu.	Press<Enter> to enter sub menu
Drive A Drive B	None 360K,5.25in, 1.2M,5.25in 720K,3.5M 1.44M,3.5in 2.88M,3.5in	Select the type of floppy disk drive installed in your system.
Floppy 3 Mode Support	Disabled Driver A Driver B Both	Disable or support the 3rd floppy mode in Drive A, or Drive B or both.
Video	EGA/VGA CGA 40 CGA 80 MONO	Select the default video device.

Item	Options	Description
Halt On	All Errors No Errors All, but Keyboard All, but Diskette All, but Disk/Key	Select the situation in which you want the BIOS to stop the POST process and notify.
Base Memory	(640K)	The amount of conventional memory detected during boot up.
Extended Memory	(65472K)	The amount of conventional memory detected during boot up.
Total Memory	(1024K)	The total memory available in system.

IDE Primary(Master/Slave)/Secondary(Master/Slave)

Press Enter on these items to show the following sub-menu:

Primary Master/Secondary

IDE HDD Auto-Detection	Press Enter	Item Help
IDE Primary Master	Auto	Menu Level
Access Mode	Auto	
Capacity	13022MB	
Cylinder	25232	
Head	16	
Precomp	0	
Landing Zone	25231	
Sector	61	

← → ↑ ↓: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

IDE HDD Auto-Detection

Press Enter on this item to let BIOS auto-detect your Hard Disk and show all the Primary Hard Disk Parameters (Capacity, Cylinder, Head, Precomp, Landing Zone, Sector) on the menu.

IDE Primary(Master/Slave)/Secondary(Master/Slave)

This item allows you to detect the Hard Disk in 3 ways.

- The Choices: Auto: BIOS Auto-detect HDD;
- None: No Hard Disk detected;
- Manual: Manually detect HDD

Access Mode

This item allows you to select the Access mode to the Hard Disk..

The Choices:

- CHS: Select the Cylinder, Head, Sector addressing mode to access Hard Disk;
- LBA: Select the Logical Block Addressing mode to access Hard Disk.
- Large: Select Large Mode to access Hard Disk;
- Auto: Allow BIOS to auto-access Hard Disk;

Capacity

Showing the capacity of Hard Disk in MB.

Cylinder

Showing the number of cylinder in the Hard Disk.

Head

Showing the number of heads in the Hard Disk.

Precomp

The number of Pre-compensation.

Landing Zone

Number of Landing zone in the Hard Disk.

Sector

The number of Sector in the Hard Disk.

2.4. Advanced BIOS Features

Phoenix - AwardBIOS CMOS Setup Utility Advanced BIOS Features

Virus Warning	Disabled	Item Help
CPU L1 & L2 Cache	Enabled	
Hyper-Threading Technology	Enabled	
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	HDD-0	
Third Boot Device	CD-ROM	
Boot Other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Disabled	
Boot Up NumLock Status	On	
Gate A20 Option	Fast	
Typematic Rate Setting	Disabled	
x Typematic Rate (Chars/Sec)	6	
x Typematic Delay (Msec)	250	
Security Option	Setup	
APIC Mode	Enabled	
x MPS Version Control For OS	1.4	
OS Select For DRAM >64MB	Non-OS2	
HDD S.M.A.R.T. Capability	Disabled	
EPA / (H/W Monitor) Show	H/W Monitor	

←→↑↓: Move Enter:Select +/-PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Virus Warning

This option allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempts to write data into this area, BIOS will show a warning message on screen and alarm beep.

The Choices:

Disabled(default), Enabled.

CPU L1 & L2 Cache

These fields allow you to Enable or Disable the CPU's L1 (Internal) / L2 (External) cache to provide better performance.

The choices:

Enabled (default); Disabled

Hyper-Threading Technology

Use this item to enable/disable the Hyper-threading Technology.

The choices: Enabled (default); Disabled

Quick Power On Self Test

This category speeds up Power on self-Test (POST) after you power up the computer. If it is set to Enabled, BIOS will shorten or skip some check items during POST.

The choices:

Enabled (default); Disabled

First/Secondary/Third Boot Device

This BIOS attempts to load the operating system from the devices in the sequence selected in these items.

The Choices:

Floppy, LS120, HDD-0, SCSI, CDROM, HDD-1, HDD-2, HDD-3, ZIP100, LAN, USB-FDD, USB-Zip, USB-CDROM, USB-HDD, Disabled.

Boot Other Device

Allows user to set booting from other devices.

The Choices:

Enabled (default), Disabled.

Swap Floppy Drive

If the system has two floppy drives, you can swap the logical drive name assignments.

The Choices:

Disabled (default), Enabled.

Boot Up Floppy Seek

If enabled, this item allows BIOS to test floppy drives to determine whether they have 40 or 80 tracks.

The Choices:

Disabled(default), Enabled.

Boot Up NumLock Status

Select power on state for Numlock..

The Choices

On (default): Numpad is number keys;

Off: Numpad is arrow keys;

Gate A20 Option

Select if chipset or keyboard controller should control Gate A20.

The choices:

Normal: A pin in the keyboard controller controls Gate A20.

Fast (default): Lets chipset control Gate A20.

Typematic Rate Setting

Allows user to adjust the key stroke repeat rate.

The choices:

Enabled: Enabled this option to adjust the keystroke repeat rate; Disabled (default): Disabled.

Typematic Rate (Char/Sec)

Range between 6(**default**) and 30 characters per second. This option controls the speed of repeating keystrokes.

Typematic Delay (Msec)

This option sets the time interval for displaying the first and the second characters.

The Choices: 250(default), 500, 750, 1000.

Security Option

This category allows you to determine whether to use password access the system and Setup, or just Setup.

The choices:

System: To access system and BIOS Setup with correct password.

Setup (default): To access BIOS Setup with correct password.

APIC Mode

Use this item to enable/disable the APIC Mode.

The Choices: Enabled(default); Disabled

MPS Version Control for OS

Use this item to select the MPS Version Control for OS.

The Choices: 1.4(default); 1.1

OS Select For DRAM >64MB

Select the operating system that is running with greater than 64MB of RAM on the system.

The Choices: Non-OS2(default), OS2.

HDDS.M.A.R.T. Capability

Allows user to choose the Self-monitoring Analysis and Reporting Technology for Hard Disk Drive.

The choices: Disabled(default); Enabled

EPA/(H/W Monitor) Show

Use this item to enable/disable the Environmental Protection Association (EPA)/ Hardware Monitor) logo on initiating screen..

The choices: H/W Monitor (default); EPA Logo

2.5. Advanced Chipset Features

This section allows you to configure the system based features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and external cache. It also coordinates communications of the PCI bus. It must be stated that these items should never be altered. The default settings are set up to provide the best operating conditions for your system. The time you might need to make any changes would be if you discover that data is lost while using your system.

Phoenix - AwardBIOS CMOS Setup Utility Advanced Chipset Features

DRAM Timing Selectable	By SPD	Item Help
x CAS Latency Time	2.5	
x Active to Precharge Delay	7	
x DRAM RAS# to CAS# Delay	3	
x DRAM RAS# Precharge	3	
Memory Frequency for	Auto	
System BIOS Cacheable	Enabled	
Video BIOS Cacheable	Disabled	
Memory Hole At 15M-16M	Disabled	
Delay Prior to Thermal	16 Min	
AGP Aperture Size (MB)	128MB	
Init Display First	Onboard/AGP	

←→↑↓: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

DRAM Timing Selectable

Use this item to select the DRAM Timing mode.

The Choices:

By SPD: DRAM Timing is by Serial Presence Detect (SPD) which is located on the memory module itself.

Manual: DRAM Timing is set manually with the options following this item below.

CAS Latency Time

This item is to set CAS (Column Access Stroke) Latency time.

The Choices: Auto; 2; 2.5; 3

Active to Precharge Delay

This item is to set Active to Precharge Delay cycle.

The Choices: Auto; 8; 7; 6; 5

DRAM RAS# to CAS# Delay

This item is to set the DRAM RAS (Row Access Stroke) to CAS (Column Access Stroke) Delay cycle.

The Choices: Auto; 4; 3; 2

DRAM RAS# Precharge

This item is to set the DRAM RAS Precharge cycle.

The Choices: Auto; 4; 3; 2

Memory Frequency For

This item is to set the DRAM frequency.

The Choices: Auto(default); DDR266; DDR333 (if DDR333 is applied)

System BIOS Cacheable

When enabled, the access to the system BIOS ROM address at F0000H-FFFFFFH is cached.

The Choices: Enabled(default), Disabled.

Video BIOS Cacheable

Enabled: Enable Video BIOS Cacheable.

Disabled (default): Disable Video BIOS Cacheable.

Memory Hole At 15-16M

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory's space below 16MB.

The Choices: Disabled(default); Enabled.

Delay Prior to Thermal

This item is to set the Delay Prior to Thermal cycle.

The Choices: 4min; 8min; 16min(default); 32min.

AGP Aperture Size

Select the size of the Accelerated Graphic Port(AGP) aperture . The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycle that hit the aperture range are forwarded to the AGP without any translation.

The Choices: 128MB(default); 64MB; 32MB; 16MB; 8MB; 4MB; 256MB

Init Display First

To select the initial display at system bootup.

The Choices: Onboard/AGP; PCI Slot.

2.6. Integrated Peripherals

This section allows you to configure the IDE Devices, Onboard Devices and Super IO Devices.

Phoenix - AwardBIOS CMOS Setup Utility Integrated Peripherals

		Item Help
▶ Onchip IDE Device	Press Enter	
▶ Onboard Device	Press Enter	
▶ Super IO Device	Press Enter	

←→↑↓: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

2.6.1. OnChip IDE Device

Press <Enter> on the item “OnChip IDE Device to configure the onboard IDE devices. The following menu appears for user’s configuration:

Phoenix - AwardBIOS CMOS Setup Utility OnChip IDE Device

		Item Help
IDE HDD Block Mode	Enabled	
OnChip Primary PCI IDE	Enabled	
IDE Primary Master PIO	Auto	
IDE Primary Slave PIO	Auto	
IDE Primary Master UDMA	Auto	
IDE Primary Slave UDMA	Auto	
On-Chip Secondary PCI IDE	Enabled	
IDE Secondary Master PIO	Auto	
IDE Secondary Slave PIO	Auto	
IDE Secondary Master UDMA	Auto	
IDE Secondary Slave UDMA	Auto	
*** On-Chip Serial ATA Setting ***		
On-Chip Serial ATA	Disabled	
x Serial ATA Port0 Mode	Primary Master	
x Serial ATA Port1 Mde	Primary Slave	

←→↑↓: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

IDE HDD Block Mode

Use this item to enable or disable the IDE Hard Disk Block mode. If your hard drive supports block mode, select “Enabled” for automatic detection of the optimal number of block read/write per sector.

The Choices: Enabled; Disabled

On-Chip Primary PCI IDE

Use this item to enable or disable the primary IDE channels that are integrated on the mainboard.

The Choices: Enabled (default); Disabled

IDE Primary Master/Slave PIO

Auto (default):BIOS will automatically detect the IDE HDD Accessing mode.

Mode 0~4: Manually set the IDE Accessing mode.

IDE Primary Master/Slave UDMA

Auto (default):BIOS will automatically enable Ultra DMA mode of the IDE HDD Accessing .

Disabled: UDMA mode is disabled

On-Chip Secondary PCI IDE

Use this item to enable or disable the secondary IDE channels that are integrated on the mainboard.

The Choices: Enabled (default); Disabled

IDE Secondary Master/Slave PIO

Auto (default):BIOS will automatically detect the IDE HDD Accessing mode.

Mode 0~4: Manually set the IDE Accessing mode.

IDE Secondary Master/Slave UDMA

Auto (default):BIOS will automatically enable the Ultra DMA mode of the IDE HDD Accessing mode.

Disabled: Ultra DMA disabled.

OnChip Serial ATA

Use this item to select the onchip serial ATA mode.

The Choices: Disabled; Auto; Combined Mode; Enhanced Mode; SATA only

Serial ATA port0 Mode

If OnChip Serial ATA is set at “Manual”, use this item to select the serial ATA port mode.

The Choices: Primary Master/Slave; Secondary Master/Slave; SATA0 Master; SATA1 Master; Primary Master; Secondary Master

Serial ATA port1 Mode

If OnChip Serial ATA is set at “Manual”, use this item to select the serial ATA port mode.

The Choices: Primary Master/Slave; Secondary Master/Slave; SATA0 Master; SATA1 Master; Primary Master; Secondary Master

2.6.2. Onboard Device

Press <Enter> on the item “Onboard Device to configure the onboard USB, audio devices etc. The following menu appears for user’s configuration:

Phoenix - AwardBIOS CMOS Setup Utility
Onboard Device

		Item Help
USB Controller	Enabled	
USB 2.0 Controller	Enabled	
USB Keyboard Support	Enabled	
USB Mouse Support	Disabled	
AC97 Audio	Auto	
AC97 Modem	Auto	
RTL 8100 LAN chip (optional)	Disabled	

←→↑↓: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

USB Controller

If USB Controller is enabled, use this item to enable or disable USB devices.

The Choices: Enabled (default); Disabled

USB 2.0 Controller

If USB Controller is enabled, use this item to enable or disable USB 2.0 controller.

The Choices: Enabled (default); Disabled

USB Keyboard Support

If USB Controller is enabled, use this item to enable or disable the USB Keyboard Support.

The Choices: Enabled; Default

USB Mouse Support

If USB Controller is enabled, use this item to enable or disable USB Mouse.

The Choices: Enabled ; Disabled (default)

AC97 Audio/Modem

Use this item to enable/disable the AC97 Audio/Modem.

The Choices: Auto(Automatically enabled); Disabled

RTL 8100 LAN chip

Use this item to enable/disable the RTL 8100 LAN chip.

The Choices: Enabled; Disabled

2.6.3. Super IO Device

Press <Enter> on the item “Super IO Device” to configure the Super IO devices. The following menu appears for user’s configuration:

Phoenix - AwardBIOS CMOS Setup Utility
OnChip IDE Device

		Item Help
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	3F8/IRQ4	
Onboard Serial Port 2	2F8/IRQ3	
UART Mode Select	Normal	
x Rx/D, Tx/D Active	Hi, Lo	
x IR Transaction Delay	Enabled	
x Use IR Pins	IR-Rx2Tx2	
Onboard Parallel Port	378/IRQ7	
Parallel Port Mode	ECP	
x EPP Mode Select	EPP1.7	
x ECP Mode Use DMA	3	
PWRON After PWR-Fail	Off	
Game Port Address	201	
MIDI Port Address	330	
MIDI Port IRQ	10	

←→↑↓: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Onboard FDC Controller

The choices: Enabled (default) Disabled

Onboard Serial Port 1/2

Select an address and corresponding interrupt for the first and second serial ports.

The Choices: Auto; 3F8/IRQ4; 2F8/IRQ3; 3E8/IRQ4; 2E8/IRQ3; Disabled.

UART Mode Select

This item allows you to select which Infra Red(IR) function of the onboard I/O chip you wish to use.

The Choices: Normal(default), IrDA, ASKIR.

RxD, TxD Active

If UART Mode Select is at “IRDA or ASKIR, this item allows you to select the RxD, TxD Active mode.

The Choices: Hi, Lo; Lo, Hi; Lo, Lo; Hi, Hi.

IR Transaction Delay

If UART Mode Select is at IRDA or ASKIR, this item allows you to enable/disable the IR Transaction Delay function.

The Choices: Enabled; Disabled

UR2 Duplex Mode

This item allows you to select the UR2 Duplex mode.

The Choices: Full; Half

Use IR Pins

This item allows you to select the IR pins.

The Choices: 3IR-R2Tx2; RxD2, TxD2;

Onboard Parallel Port

This item allows you to select the onboard parallel port and IRQ.

The Choices: 378/IRQ7; 278/IRQ5; 3BC/IRQ7; Disabled

Parallel Port Mode

The choices are for Parallel Port Mode select:

The choices: SPP; EPP; ECP; ECP+EPP; Normal

EPP Mode Select

This item is a submenu of “Parallel Port Mode”.

The choices: EPP1.7; EPP1.9

ECP Mode Use DMA

This item is a submenu of “Parallel Port Mode” for selecting the ECP Mode Use DMA..

The choices: 3; 1

PWRON After PWR-Fail

Set the Power-on mode when power resumes after power fails.:

The choices: Off (default); On; Former-Sts (former status)

Game Port Address

The choices are for setting Game Port Address:
201 (default); 209; Disabled

MIDI Port Address

The choices are for setting MIDI Port Address:
290; 300; 330 (default); Disabled.

MIDI Port IRQ

The choices are for setting MIDI Port IRQ:
10 (default); 5

2.7. Power Management Setup

Phoenix - AwardBIOS CMOS Setup Utility

Power Management Setup

		Item Help
ACPI Function	Enabled	
ACPI Suspend Type	S1(POS)	
x Run VGABIOS If S3 Resume	Auto	
Power Management	User Define	
Video Off Method	V/H Sync+Blank	
Video Off In Suspend	Yes	
Suspend Type	Stop Grant	
Modem Use IRQ	3	
Suspend Mode	Disabled	
HDD Power Down	Disabled	
Soft-off by PWR-BTTN	Instant-off	
Power On By PME	Disabled	
Power On By Ring	Disabled	
Power On By WOL	Disabled	
Power On By USB	Disabled	
Resume by Alarm	Disabled	
x Date (of Month) Alarm	0	
x Time(hh:mm:ss) Alarm	0 : 0 : 0	
Power ON Function	Button Only	
x KB Power On Password	Enter	
x Hot Key Power On	Ctrl-F1	
** Reload Global Timer Events **		
Primary IDE 0	Disabled	
Primary IDE 1	Disabled	
Secondary IDE 0	Disabled	
Secondary IDE 1	Disabled	
FDD,COM, LPT Port	Disabled	
PCI PIRQ [A-D]#	Disabled	

←→↑↓: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

ACPI Function

The choices are for enabling or disabling the Advanced Configuration and Power Management (ACPI).

ACPI Suspend Type

The choices are for setting the ACPI Suspend Type.

S1(Power On Suspend)(default); S3(Suspend To RAM); S1&S3

Run VGABIOS If S3 Resume

If ACPI Suspend Type is S3, use this item to select the “Run VGABIOS If S3 Resume” function.

The choices: Auto; Yes; No

Power Management

The choices are for setting the Power management mode:

User Define (default); Min Saving; Max Saving.

Video Off Method

The choices are for determining the manner in which the monitor is blanked.

The choices:

V/H SYNC+Blank (default): Turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

Blank Screen: Writes blanks to the video buffer.

DPMS Supported: Initial display power management signaling.

Video Off in Suspend

This field determines when to activate the video off feature for monitor power management.

The Choices: Always on; No; Yes(default)

Suspend type

Use this item to select the Suspend Type.

The choices: Stop Grant(default); PwrOn Suspend

Modem Use IRQ

This determines the IRQ, which can be applied in Modem use.

The choices: 3 (default); 4;5; 7; 9; 10; 11; NA

Suspend Mode

Use this item to set the Suspend time.

The choices: Disabled(default); 1~60 min.

HDD Power Down

Use this item to set the HDD Power Down time.

The choices: Disabled(default); 1~15 min..

Soft-off by PWR-BTTN

Enables you to set the power button function in DOS.
The Choices: Instant off(default); Delay 4 Sec.

Power On By PME

Use this item to enable/disable the Power On by PME function.

Power On By Ring

Use this item to enable/disable the Power On by Modem Ring signal.

Power On By WOL

Use this item to enable/disable the Power On by WOL function.

Power On By USB

Use this item to enable/disable the Power On by USB function..

Resume by Alarm

Use this item to enable/disable the RTC Alarm Resume function.

Date: If RTC Alarm Resume is enabled, set the date with this item.

Time: If RTC Alarm Resume is enabled, set the time with this item.

Power On Function

Use this item to select the Power On Mode.

The Choices: Button Only; Keyboard 98; Password; Hot Key; Mouse Left; Mouse Right; Any Key

KB Power On Password

Enables you to set the Password by keyboard for Power On.

Hot Key Power On

Enables you to set the Hot Key for Power On.

The Choices: Ctrl-F1 ~ Ctrl-F12

Reload Global Timer Events:

When enabled, the following devices listed below will restart the global timer for Standby mode.

Primary IDE 0/1

The choices: Disabled (default); Enabled

Secondary IDE 0/1

The choices: Disabled (default); Enabled.

FDD, COM, LPT Port

The choices: Disabled (default); Enabled

PCIPIRQ[A-D]#

The choices: Disabled (default); Enabled

2.8. PnP/PCI Configurations

This section describes configuration of the PCI bus system. PCI or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed of the CPU itself when communicating with the components on board. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

Phoenix - AwardBIOS CMOS Setup Utility PnP/PCI Configurations

Reset Configuration Data	Disabled	Item Help
Resources Controlled By x IRQ Resources	Auto(ESCD) Press Enter	
PCI/VGA Palette Snoop	Disabled	

←→↑↓: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Reset Configuration Data

The system BIOS supports the PnP feature so the system needs to record which resource is assigned and proceeds to get rid of resource conflict. Every peripheral device has a node, which is called ESCD (Extended System Configuration Data). This node records which resources are assigned to it. If Disabled (Default) is chosen, the system ESCD will update only when the new configuration varies from the last one. If Enabled is chosen, the system is forced to update ESCDs and then is automatically reset to the “Disabled” mode.

Resources Controlled By

By Choosing “Auto”(default), the system BIOS will detect the system resources and automatically assign the relative IRQ and DMA channel for each peripheral. By choosing “Manual”, the user will need to assign IRQ & DMA for add-on cards. Be sure that no IRQ/DMA and I/O port conflict exists.

IRQ Resources :

Press Enter to configure the following Submenus

IRQ Resources

IRQ-3 assigned to	: PCI Device	Item Help
IRQ-4 assigned to	: PCI Device	
IRQ-5 assigned to	: PCI Device	
IRQ-7 assigned to	: PCI Device	
IRQ-9 assigned to	: PCI Device	
IRQ-10 assigned to	: PCI Device	
IRQ-11 assigned to	: PCI Device	
IRQ-12 assigned to	: PCI Device	
IRQ-14 assigned to	: PCI Device	
IRQ-15 assigned to	: PCI Device	

←→↑↓: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

IRQ Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

PCI/VGA Palette Snoop

Choose Disabled or Enabled. Some graphic controllers which are not VGA compatible take the output from a VGA controller and map it to their display as a way to provide boot information and VGA compatibility.

However, the color information coming from the VGA controller is drawn from the palette table inside the VGA controller to generate the proper colors, and the graphic controller needs to know what is in the palette of the VGA controller. To do this, the non-VGA graphic controller watches for the write access to the VGA palette and registers the snoop data. In PCI based systems, the Write Access to the palette will not show up on the ISA bus if the PCI VGA controller responds to the Write.

In this case, the PCI VGA controller should not respond to the Write, it should only snoop the data and permit the access to be forwarded to the ISA bus. The non-VGA ISA graphic controller can then snoop the data on the ISA bus. Unless you have the above situation, you should disable this option.

The choices: Disabled (default); Enabled

2.9. PC Health Status

Phoenix - AwardBIOS CMOS Setup Utility

PC Health Status

	Item Help
System Temperature	
CPU Temperature	
CPU FAN	
SYS FAN	
Vcore	
Vcc 3.3V	
Vcc 5.0V	
Vcc 12.0V	
Voltage Battery	
Vsb 5.0V	

←→↑↓: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

This menu shows the current status of the system, CPU and CPU Fan. No value in this menu can be changed manually.

System/CPU Temp

This item shows the current System/CPU temperature.

CPU/SYSFAN

This item shows the CPU/System fan speed running on board.

Vcc3.3V/5.05V/12.0V

These items show the respective voltage running on board.

Voltage Battery

These items show the battery voltage used on board.

2.10. Frequency/Voltage Control

Phoenix - AwardBIOS CMOS Setup Utility Frequency/Voltage Control

		Item Help
Auto Detect PCI CLK	Enabled	
Spread Spectrum	Disabled	
CPU Clock	100MHz	
DDR Voltage Regulator	2.5V	

← → ↑ ↓: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Auto Detect PCI CLK

This item allows you to enable/disable auto detect PCI CLOCK.
The Choices: Disabled; Enabled (default)

Spread Spectrum

This function is designed for the EMI test only.
The Choices: Disabled(default); +/- 0.35; +/- 0.05; +/- 0.75; -1.00

CPU Clock

Allows you to set the CPU clock for next boot..
The Choices: 100MHz ~233MHz in 1MHz stepping

DDRDRAM Regulator

Allows you to set the DRAM voltage.
The Choices: 2.5V; 2.6V; 2.7V; 2.8V; 2.9V; 3.0V

2.11. Load Fail-Safe Defaults

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to below:

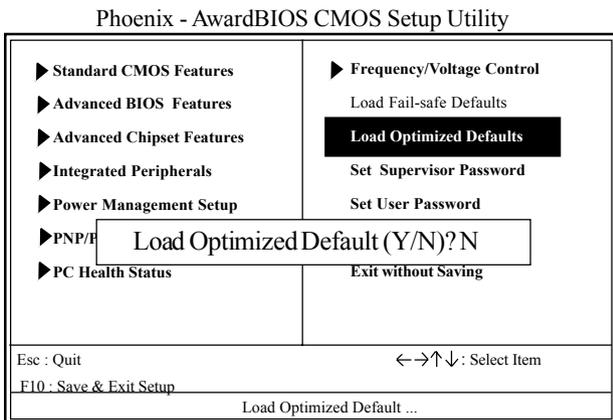
Phoenix - AwardBIOS CMOS Setup Utility

<ul style="list-style-type: none"> ▶ Standard CMOS Features ▶ Advanced BIOS Features ▶ Advanced Chipset Features ▶ Integrated Peripherals ▶ Power Management Setup ▶ PNP ▶ PC Health Status 	<ul style="list-style-type: none"> ▶ Frequency/Voltage Control Load Fail-safe Defaults Load Optimized Defaults Set Supervisor Password Set User Password Exit without Saving
<div style="border: 1px solid black; padding: 5px; display: inline-block;">Load Fail-Safe Default (Y/N)?N</div>	
Esc : Quit ← →↑↓ : Select Item	
F10 : Save & Exit Setup Load Fail-safe Default	

Pressing 'Y' loads the default values that are factory settings for optimal performance of system operations.

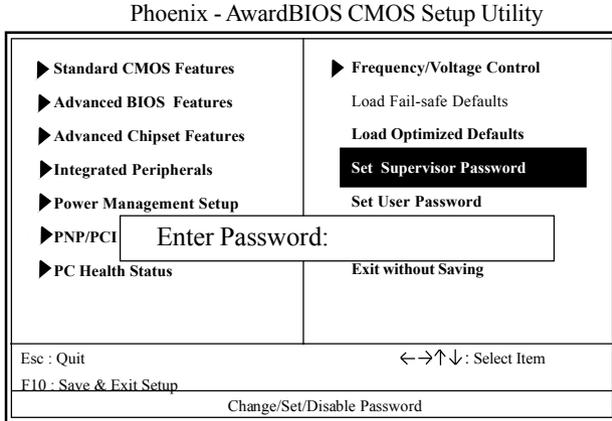
2.12. Load Optimized Defaults

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:



Pressing ‘Y’ loads the default values that are factory settings for optimal performance of system operations.

2.13. Set Supervisor / User Password



When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

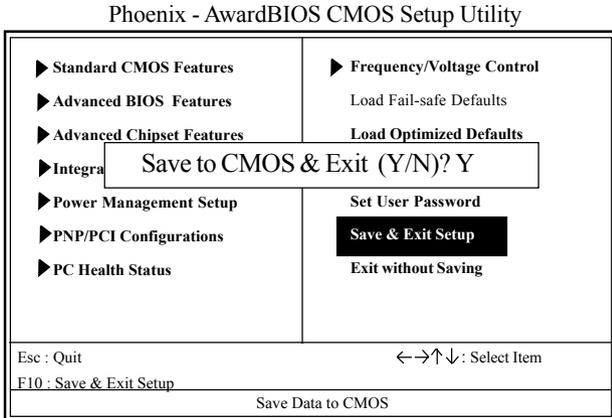
Enter Password (for Supervisor/User)

Type a password, up to eight characters, and press <Enter>. The password you type now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <ESC> to abort the selection and not enter a password. To disable the password, just press <Enter> when you are prompted to enter a password. A message will confirm that you wish to disable the password. Once the password is disabled, the system will boot without asking user to enter a password.

Password for System or BIOS Setup

If you select “System” at the Security Option of BIOS Features Setup Menu, you will be prompted for the password every time when the system is rebooted, or any time when you try to enter Setup. If you select “Setup” at the Security Option of BIOS Features Setup Menu, you will be prompted only when you try to enter Setup.

2.14. Save & Exit Setup



Typing “Y” will quit the Setup Utility and save the user setup value to RTC CMOS RAM.

Typing “N” will return to the Setup Utility.

Chapter 3

Drivers & Utilities

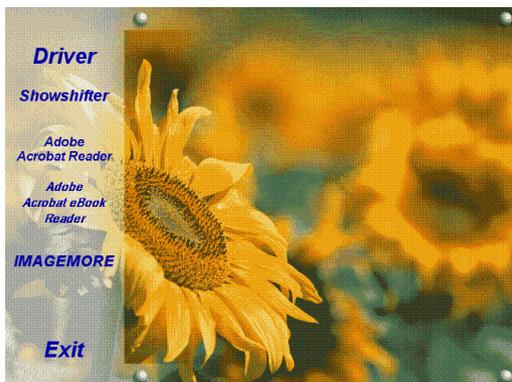
3. Drivers & Utilities

There are motherboard drivers and utilities included in the disc attached in this motherboard package. You don't have to install all of them for booting your system. But after you have finished the hardware installation, you have to install an operation system (such as windows XP) before you are able to install any drivers or utilities.

Note: Please be aware of the different Procedures for installing drivers for Windows 98/ME/XP/2000 .

3.1. Auto-run Menu

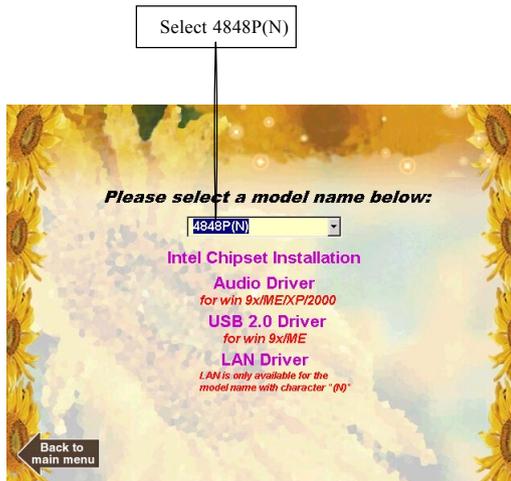
You can use the auto-run menu in the driver CD attached in the motherboard package. Then choose the utility or driver and select model name. The autorun starting screen looks like below:



(2) Point to the "Driver" button with the mouse for Drivers Setup.



(3) Click to the "Driver" button and the Drivers Setup List will appear as below:



3.2. Intel Chip Installation

Enter the item "INTEL Chipset Installation" of the Autorun program and install Intel Chipsets Plug-n-Play INF support. Follow the illustrations below :



(1)
Click "Intel Chipset Installation" Item.



(2)
Click "Next".



(3)
Click "Yes".



(4)
Click "Next".



(5)
Click "Finish".

Note: While Intel INF Driver is necessary for Intel 865 plus ICH5 chipset, the installation of Intel Application accelerator Driver is no longer necessary.

3.3. Installing Audio Driver

This motherboard comes with an AC97 CODEC V2.2, 6-channel compatible. You can find the Audio driver from this Auto-run menu.

3.3.1. Installing 6-channel Driver



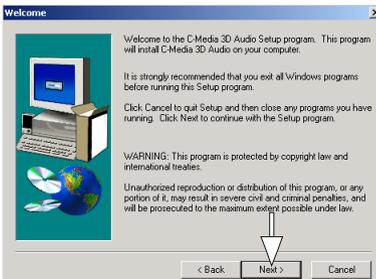
(1)

Click "Audio Driver" Item.



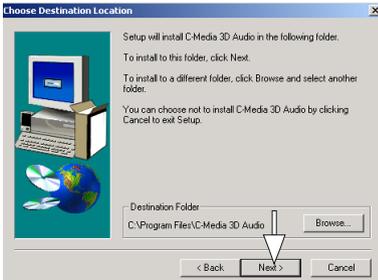
(2)

Click "Next" button to install C-Media Sound.

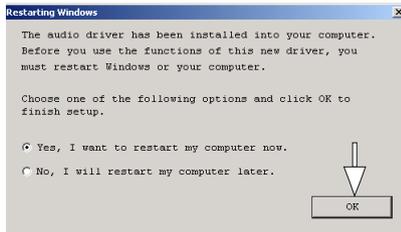


(3)

Click "Next" to continue.



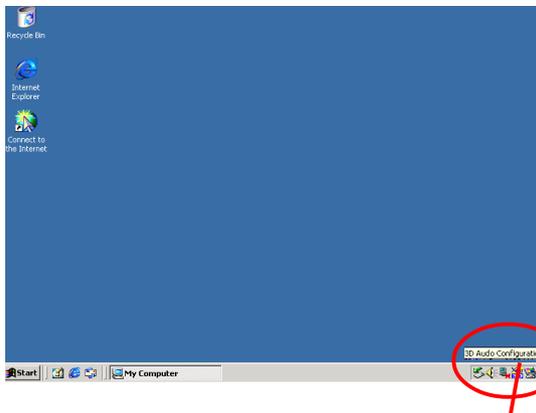
(4)
Click "Next" to continue
until finish.



(5)
Click "OK" to restart
system.

3.3.2. Enabling 6-channel Driver

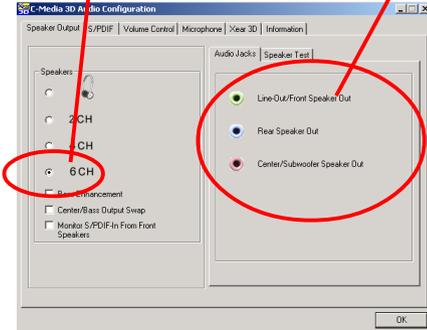
- (1) After installation of C-Media AC'97 6-channel Audio Driver, a "3-D Audio Configuration" icon will appear in the Task Bar of the System Start Screen.



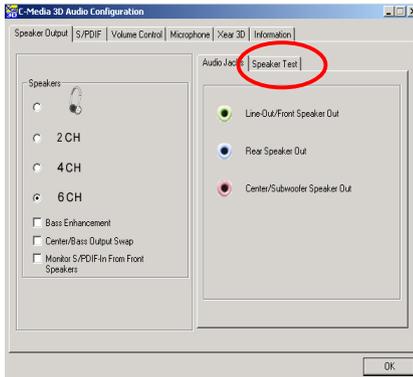
Click on the "3-D" icon to start 6-channel configuration.

Choose "6-channel".

Configure the Audio Connectors onboard as instructed here.



(2) Click "Speaker Configuration" button to configure the Audio connectors on mainboard.



(3) Click "Speaker Test" button to test the 6-channel speakers.

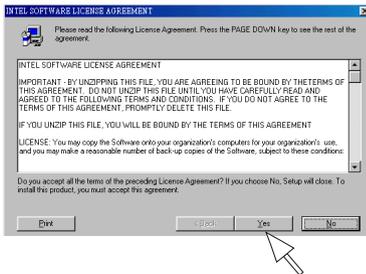


(4) Click "Auto" button to test the 6-channel speakers.

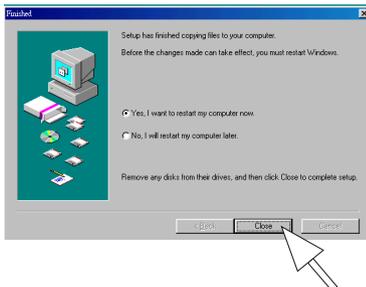
3.4. Installing USB 2.0 Driver



(1)
If you are running win98/Me, click the "USB 2.0 (for Win9x/ME)" item.



(2)
Click "Yes" button to agree to the License Agreement and continue.



(3)
In a few seconds, setup completes. Click the "Close" button to restart system and complete setup.

Note: Please note that this USB 2.0 Driver only supports Win 98 and Win ME.

(4) For USB 2.0 driver for Windows 2K /XP, user must install the latest Service Pack for the respective operating system. The latest Service Pack for Windows 2K/XP can be found and downloaded for free from Microsoft Web Site:

<http://www.microsoft.com>

3.5. Installing LAN Drivers (4848PN only)



(1)
If you are running
4848PN, click the
"LAN Driver" item.



(2)
If you are running
Win98, click the
"Windows 9x" bar to
install LAN driver for
Windows 98.

(3) Follow the instructions on the screen to install LAN driver for Windows 98.

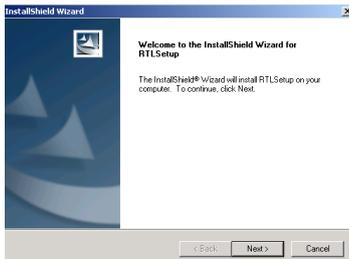
Install Realtek RTL8139C&RTL8100 PCI Fast Ethernet NIC Windows 98 Driver Manually

1. Right click the "My Computer" icon on the desktop.
When the menu appears click "Properties" item.
2. Select "Hardware" page and then click [Device Manager] button.
3. View device by type and find "Network adapters" node.
4. Right click the " PCI Etherner Controller " node.
5. When the menu appears, click the "Properties" item.
6. Please select [Driver] page and click "Update Driver..." button.
7. When the "Upgrade Device Driver Wizard" window appears, click Next to continue.
8. Select "Search for a suitable driver for my device(recommended)" option and click Next.
Choose "Specify a location" check box and then click Next.

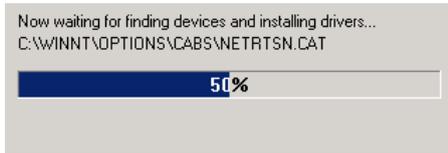
or you can also select "Display a list of the known drivers for this device so that I can choose a specific driver" option and click Next. Click "Have Disk..." button.
9. Type or browse the path {CD-ROM Drive}:\HB\Lan_Driver\8139E8100LAN\8139E8100 for win98 to the driver.
10. Follow the instruction to complete the installation.



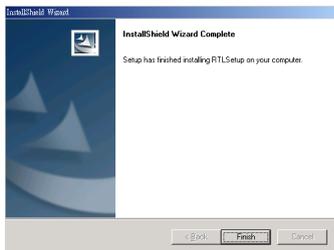
(4)
If you are running
Windows 2K/XP, click
the "for Windows 2K/
XP" bar to install LAN
driver for Windows 2K/
XP.



(5)
Instantly, the
InstallShield Wizard
will show up for the
setup.



(6)
The Setup is in progress.



(7)
In a few seconds, setup completes. Click the "Finish" button to restart system and complete setup.

Appendix Test Report

Motherboard Compatibility Test

(1) CPU Compatibility Test

System Configuration	Workstation - 1		Workstation - 2		Workstation - 3		Workstation - 4		
Memory	SAMAUNG PC-333 Transcend 256Mx2 K4H560838C-TCB3(S)								
Display Card	ACORP Xabre 400/128M								
Hard Drive	Seagate 10G ST310215A								
CD-ROM	Genuine 52X CD-852								
Power Supply	Enlight Corporation HPC-340-101 110V								
Nucleus	Model	CLK	Voltage	Bus Speed	CPU S.P.E.C	Stepping	RESET 10 Time	PW On/Off 10 Time	CC WS 2002 Test
Hyper Treading	3.2G	800	1.525V		QWN2ES		PASS	PASS	42
Hyper Treading	3.0G	800	1.525V		SL6WK		PASS	PASS	41.8
Hyper Treading	2.8G	800	1.525V		SL6WJ		PASS	PASS	40
Hyper Treading	2.6G	800	1.525V		SL6WH		PASS	PASS	39.7
Hyper Treading	2.4G	800	1.525V		SL6WF		PASS	PASS	38
Hyper Treading	3.06G	533	1.525V		SL6S5	C1	PASS	PASS	42.1
Hyper Treading	2.66G	533	1.525V				PASS	PASS	38.4
Northwood	2.8G	533	1.525V		QRB2ES	C1	PASS	PASS	39.9
Northwood	2.66G	533	1.525V		SL6SK	C1	PASS	PASS	39.6
Northwood	2.53G	533	1.525V		QMUSES	CO1	PASS	PASS	38.1
Northwood	2.4BG	533	1.5V		SL6SH	B0	PASS	PASS	37
Northwood	2.26G	533	1.5V		SL683	B0	PASS	PASS	34.7
Northwood	2.6G	400	1.5V		GMT0ES	C1	PASS	PASS	34.8
Northwood	2.4G	400	1.5V		SL67R	B0	PASS	PASS	34.6
Northwood	2.0AG	400	1.5V		SL5YR	B0	PASS	PASS	31.4
Northwood	1.8AG	400	1.5V		SL680	B0	PASS	PASS	29.6
Northwood	1.6AG	400	1.5V		SL668	B0	PASS	PASS	27.3
Celeron	2.6G	400	1.525V		QYD0ES		PASS	PASS	29.3
Celeron	2.4G	400	1.525V		QWV5ES		PASS	PASS	28.6
Celeron	2.3G	400	1.525V		SL6T2		PASS	PASS	27.5
Celeron	2.2G	400	1.525V		QUW2		PASS	PASS	26.8
Celeron	2.1G	400	1.525V		QPF7ES		PASS	PASS	26.2
Celeron	2.0G	400	1.525V		QPF7ES		PASS	PASS	25.7

Appendices

(2) Memory Compatibility Test

System Configuration	Workstation - 1	Workstation - 2	Workstation - 3	Workstation - 4
Processor	Northwood 2.4G/533	Hyper Threading 2.6G/800	Hyper Threading 3.0G/9533	
Display Card	Prolink	ACORP	Prolink	
Hard Drive	GFA T14200	Xabre 4D0128M	GFA T14200	
	Seagate 100	Seagate 100	Seagate 100	
	ST330414N	ST310215A	ST330414N	
CD-ROM	GENUINE 52X	GENUINE 52X	GENUINE 52X	
	CD-852	CD-852	CD-852	
Power Supply	SEVENTEAM	Enlight Corporation	SEVENTEAM	
	ST-300BLV 220V	HPC-340-101 110V	ST-300BLV 220V	

Module Vendor	C_Vendor	IC_Serial Numbers	CAPACITY	SIDE	DRAM CLK	Location	Memtest 1.04	WS 2002 Business
3	PMI	PMI	PM4D328V5	256M	S	400	DIMM 1,2	PASS 29.8
3	Kingston	HYNIX	HY5DU56822BT-D43	256M	S	400	DIMM 1,2	PASS 29.8
3	Kingston	KINGSTON	D3208DL1T	512M	D	400	DIMM 1,2	PASS 24.8
3	Kingmax	KINGMAX	KDL388P4EA-50	512M	D	400	DIMM 1,2	PASS 21.6
3	Geil	GEIL	G216L644D2TG5NKT3	512M	D	400	DIMM 1,2	PASS 28.4
2	Adata	ADATA	ADD8608A8A-4.5B	256M	S	450	DIMM 1,2	PASS 21.4
2	Adata	ADATA	ADD8608A8A-5B	256M	S	400	DIMM 1,2	PASS 18.1
1	Adata	WINBOND	W942508CH-5	256M	S	400	DIMM 1,2	PASS 23.7
2	Adata	SAMSUNG	K4H560838D-TCC0	256M	S	400	DIMM 1,2	PASS 27.5
1	Adata	HYNIX	HY5DU56822BT-D43	256M	S	400	DIMM 1,2	PASS 27.7
2	Kingmax	KINGMAX	KDL684T4A4-50	256M	D	400	DIMM 1,2	PASS 28.3
3	Adata	WINBOND	W942508BH-5	512M	D	400	DIMM 1,2	PASS 30.5
2	Adata	SAMSUNG	K4H560838D-TCC4	512M	D	400	DIMM 1,2	PASS 28.8
1	TwinnMos	WINBOND	W942508AH-6	512M	D	333	DIMM 1,2	PASS 28.2
1	Kingmax	KINGMAX	KDL684T4A2A-05	256M	D	333	DIMM 1,2	PASS 27.1
1	China	Hynix	HY5DU56822AT-H	512M	D	266	DIMM 1,2	PASS 28.7
2	Retail	NANYA	NT5DS16M8AT-7K	512M	D	266	DIMM 1,2	PASS 28.6
2	Weblink	ELKIR	N2DS12880AT-75B	256M	D	266	DIMM 1,2	PASS 26.1
2	Apacer	INFINEON	HYB25D256800AT-7	256M	D	266	DIMM 1,2	PASS 27.2
3	PMI	PMI	PM4D328V5	256M	S	400	DIMM 1	PASS 25.9
3	Kingston	HYNIX	HY5DU56822BT-D43	256M	S	400	DIMM 1	PASS 28.6
3	Kingston	KINGSTON	D3208DL1T	512M	D	400	DIMM 1	PASS 23.1
3	Kingmax	KINGMAX	KDL388P4EA-50	512M	D	400	DIMM 1	PASS 23.2
3	Geil	GEIL	G216L644D2TG5NKT3	512M	D	400	DIMM 1	PASS 27.4
2	Adata	ADATA	ADD8608A8A-4.5B	256M	S	450	DIMM 1	PASS 26.4
2	Adata	ADATA	ADD8608A8A-5B	256M	S	400	DIMM 1	PASS 18.9
1	Adata	WINBOND	W942508CH-5	256M	S	400	DIMM 1	PASS 18.8
2	Adata	SAMSUNG	K4H560838D-TCC0	256M	S	400	DIMM 1	PASS 25.5
1	Adata	HYNIX	HY5DU56822BT-D43	256M	S	400	DIMM 1	PASS 26.1
2	Kingmax	KINGMAX	KDL684T4A4-50	256M	D	400	DIMM 1	PASS 26.4
3	Adata	WINBOND	W942508BH-5	512M	D	400	DIMM 1	PASS 27.8
2	Adata	SAMSUNG	K4H560838D-TCC4	512M	D	400	DIMM 1	PASS 27.4

Module Vendor	C_Vendor	IC_Serial Numbers	CAPACITY	SIDE	DRAM CLK	Location	Memtest 1.04	WS 2001 Business
2	Transcend	SAMSUNG	K4H560838C-TCB3	512M	D	333	DIMM 1	PASS 27
1	TwinnMos	WINBOND	W942508AH-6	512M	D	333	DIMM 1	PASS 27.3
1	Kingmax	KINGMAX	KDL684T4A2A-05	256M	D	333	DIMM 1	PASS 25.8
1	China	Hynix	HY5DU56822AT-H	512M	D	266	DIMM 1	PASS 20.8
2	Retail	NANYA	NT5DS16M8AT-7K	512M	D	266	DIMM 1	PASS 26.4
2	Weblink	ELKIR	N2DS12880AT-75B	256M	D	266	DIMM 1	PASS 25.3
2	Apacer	INFINEON	HYB25D256800AT-7	256M	D	266	DIMM 1	PASS 26.2
3	PMI	PMI	PM4D328V5	256M	S	400	DIMM 2	PASS 24
3	Kingston	HYNIX	HY5DU56822BT-D43	256M	S	400	DIMM 2	PASS 27.7
3	Kingston	KINGSTON	D3208DL1T	512M	D	400	DIMM 2	PASS 23
3	Kingmax	KINGMAX	KDL388P4EA-50	512M	D	400	DIMM 2	PASS 21.2
3	Geil	GEIL	G216L644D2TG5NKT3	512M	D	400	DIMM 2	PASS 26.8
2	Adata	ADATA	ADD8608A8A-4.5B	256M	S	450	DIMM 2	PASS 25.5
2	Adata	ADATA	ADD8608A8A-5B	256M	S	400	DIMM 2	PASS 26.4
1	Adata	WINBOND	W942508CH-5	256M	S	400	DIMM 2	PASS 25.8
2	Adata	SAMSUNG	K4H560838D-TCC0	256M	S	400	DIMM 2	PASS 26
1	Adata	HYNIX	HY5DU56822BT-D43	256M	S	400	DIMM 2	PASS 19.2
2	Kingmax	KINGMAX	KDL684T4A4-50	256M	D	400	DIMM 2	PASS 25.8
3	Adata	WINBOND	W942508BH-5	512M	D	400	DIMM 2	PASS 28.6
2	Adata	SAMSUNG	K4H560838D-TCC4	512M	D	400	DIMM 2	PASS 27.5
2	Transcend	SAMSUNG	K4H560838C-TCB3	512M	D	333	DIMM 2	PASS 27.4
1	TwinnMos	WINBOND	W942508AH-6	512M	D	333	DIMM 2	PASS 26.8
1	Kingmax	KINGMAX	KDL684T4A2A-05	256M	D	333	DIMM 2	PASS 26.2
1	China	Hynix	HY5DU56822AT-H	512M	D	266	DIMM 2	PASS 20.2
2	Retail	NANYA	NT5DS16M8AT-7K	512M	D	266	DIMM 2	PASS 27.4
2	Weblink	ELKIR	N2DS12880AT-75B	256M	D	266	DIMM 2	PASS 25.5
2	Apacer	INFINEON	HYB25D256800AT-7	256M	D	266	DIMM 2	PASS 24.7

Appendices

(3) AGP Display Card Compatibility Test

System Configuration	Workstation - 1	Workstation - 2	Workstation - 3	Workstation - 4
Processor	NORTHWOOD 2.66G/533	NORTHWOOD 2.48G/533	NORTHWOOD 2.48G/533	
Memory	SAMUJUNG PC-333 Transcend 256Mb2 K4H560838C-TCB3(S)	SAMUJUNG PC-333 Transcend 512Mb1	SAMUJUNG PC-333 Transcend 512Mb1	
Hard Drive	Seagate 20G ST330414N	Seagate 10G ST310215A	Quantum 40G LD40000AT	
CD-ROM	GENUINE 52X CD-852	GENUINE 52X CD-852	GENUINE 52X CD-852	
Power Supply	Enlight Corporation HPC-340-101(110V)	SEVENTEAM ST-300BLV(220V)	SEVENTEAM ST-300BLV(220V)	

Win98 SE 1024 x 768 x 32 bit

AGP Model	Vendor	AGP Mode	Driver Version	10Watts 20W11E Search Mode	Quake III Demo 001		
					frames	seconds	fps
Ge Force 4 MX440	Prolink	4X	4.14.01.4345	6442	1346	8.1	165.5
Ge Force 4 Ti4200	Prolink	8X	4.14.01.4345	11179	1346	5.8	231.4
Ge Force 3 Ti500	Winfast	4X	4.14.01.4345	9449	1346	6	225.6
GA-GF 2560	Gigabyte	4X	4.14.01.3082	2659	1346	22	61.2
GF2 MX400	Winfast	4X	4.14.01.3082	2928	1346	20.8	64.8

Win98 SE 800 x 600 x 16 bit

AGP Model	Vendor	AGP Mode	Driver Version	10Watts 20W11E Search Mode	Quake III Demo 001		
					frames	seconds	fps
GF2 MX400	Triplex	4X	4.13.01.3082	5398	1346	9.3	144.9
GF2 MX400	INN3D	4X	4.13.01.3082	5076	1346	10.2	131.7
GV-GF1280	Gigabyte	4X	4.13.01.3082	5086	1346	9.8	137.5
Xabre 200 / 64M	Acrop	8X	4.13.01.3080	7484	1346	7.4	182.9
Radeon 64M	ATI	4X	4.14.01.9109	5041	1346	11	122.4

Win 2000 1024 x 768 x 32 bit

AGP Model	Vendor	AGP Mode	Driver Version	10Watts 20W11E Search Mode	Quake III Demo 001		
					frames	seconds	fps
Radeon 9700	ATI	8X	6.14.10.6360	13676	1346	4.8	280.2
Radeon 8500LE	ATI	4X	6.14.10.6360	8993	1346	6.8	199.3
Ge Force 4 Ti4200	Winfast	8X	4.4.0.3	11331	1346	5.4	248.3
GA-GF2560	Gigabyte	4X	3.0.8.2	2033	1346	26.1	51.6
Xabre 600 / 64M	Acrop	8X	5.13.1.3080	8255	1346	6.5	206.9

Win 2000 800 x 600 x 16 bit

AGP Model	Vendor	AGP Mode	Driver Version	10Watts 20W11E Search Mode	Quake III Demo 001		
					frames	seconds	fps
G550	Martoc	4X	5.86.32.0	2417	1346	21.2	63.5
Voodoo4 4500	3dfx	4X	5.1.0.2600	3146	1346	14.6	92.1
Ge Force 4 Ti4600	Winfast	4X	4.3.4.5	13803	1346	4.6	294
Ge Force 4 MX440	Winfast	8X	4.3.4.5	7973	1346	5.3	252.2
Xabre 400 / 64M	Acrop	8X	6.13.10.3080	8889	1346	5.9	229.3

Win XP 1024 x 768 x 32 bit

AGP Model	Vendor	AGP Mode	Driver Version	10Watts 20W11E Search Mode	Quake III Demo 001		
					frames	seconds	fps
Radeon 9700	ATI	8X	6.14.10.6360	14380	1346	4.7	289
Radeon 9100	ATI	4X	6.14.10.6360	8562	1346	7.5	179.5
Xabre 400 / 128M	Acrop	8X	6.13.10.3080	7653	1346	7.7	175.2
Ge Force 4 MX440	Acrop	8X	4.3.4.5	7198	1346	7	192.7
Ge Force 4 Ti4200	Winfast	8X	4.4.0.3	11357	1346	5.5	246.3

Win XP 800 x 600 x 16 bit

AGP Model	Vendor	AGP Mode	Driver Version	10Watts 20W11E Search Mode	Quake III Demo 001		
					frames	seconds	fps
XABRE PRO 64M TV-OUT	Triplex	8X	6.13.10.3080	10128	1346	5	267.9
GF3 GLADIAC 921 DV	ELSA	4X	4.0.7.2	11573	1346	4.6	291.7
Ge Force 2 GTS Ultra 64M	Creative	4X	3.0.8.2	7762	1346	4.9	277.2
V7100PRO	ASUS	4X	3.0.8.2	5784	1346	8.4	160.5
Ge Force 4 MX420	ENNYAH	4X	3.0.8.2	4085	1346	13.9	97.1