IBBP

ATX Pentium II® Mainboard

User's Manual

Model	**: IBBP ATX Mainboard**
Manual version	**: English, version 1.0**
Release Date	**: Mar 30, 1999**

Copyright

User's Notice

The contents of this publication are subject to change. This company reserves the right to alter the contents of this publication at any time and without notice. The contents of this publication may contains inaccuracies or typographical errors and is supplied for informational use only.

FCC & DOC Compliance

Federal Communications Commission Statement

This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:

- ✧ This device may not cause harmful interference, and
- ✧ This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer
communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- ✧ Re-orient or relocate the receiving antenna.
- ✧ Increase the separation between the equipment and the receiver.
- ✧ Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- ✧ Consult the dealer or an experienced radio/TV technician for help.

Warning! The use of shielded cables for the connection of the monitor to the graphics card is required to assure compliance with FCC regulations Changes or modifications to this authority to operate this equipment.

CONTENTS

SECTION 1: PRODUCT INFORMATION

SECTION 2: HARDWARE INSTALLATION

SECTION 4: SOFTWARE UTILITY

SECTION 1.
PRODUCT INFORMATION

Thanks for purchasing this IBBP Slot-1ATX mainboard.

This user' s manual contains all the information and features that show you how to use the mainboard. Please take a moment to familiarize yourself with the design and organization of this manual.

1-1 Manual Features

This manual is divided into the following four sections:

Section 1: Product Information

A brief overview of what comes in the mainboard package, the mainboard layout and the specification it appears.

Section 2: Hardware Installation

Tell you the usage of the mainboard jumpers and the connectors.

Section 3: CMOS Setup Utility

A summary of the mainboard CMOS (BIOS) Setting.

Section 4: Software Utility

Introduction of some useful mainboard software utilities.

1-2 Package Check List

This mainboard package contains the following items. Please inspect the package contents and confirm that everything is there. If anything is missing or damaged, call your vendor for instructions before operating.

The package includes:

I. PRODUCT INFORMATION

- One Pentium II IBBP Mainboard
- One Pentium II Retention Module
- One Floppy Interface Cable
- One IDE Interface Cable
- One Motherboard Resource Kit CD Title
- One User' s Manual

1-3 Mainboard Specification

Form Factor	● ATX form factor
Board Size	● 30.5 cm x 18 cm
CPU	● Standard CPU supported with Jumperless BIOS Setup: - Pentium II/Celeron: 233 ~ 450 MHz with - Pentium III (Katmai): 450 ~ 500MHz ● Jumperless Overclock: - Supports CPU Clock Ratio: 1.5/2.0/2.5/3.0/3.5/4.0/4.5/5.0/5.5/6.0/6.5/7.0 /7.5/8.0x - Supports CPU Clock Frequency: 66.8/75.0/83.3/100/103/112/115/120/124/133 /140/150MHz
System Memory	● DIMM 168-pin x 3 , SDRAM maximum 768MB ● Supports 64M-bit SDRAM technology
Chipset	● Intel 440BX AGP Chipset
System Bus/FSB	● 66/100MHz ● 75/83.3/103/112/115/120/124/133/140/150MHz (Available for over-clocking)
Expansion Slots	● 1 x AGP bus ● 2 x ISA bus

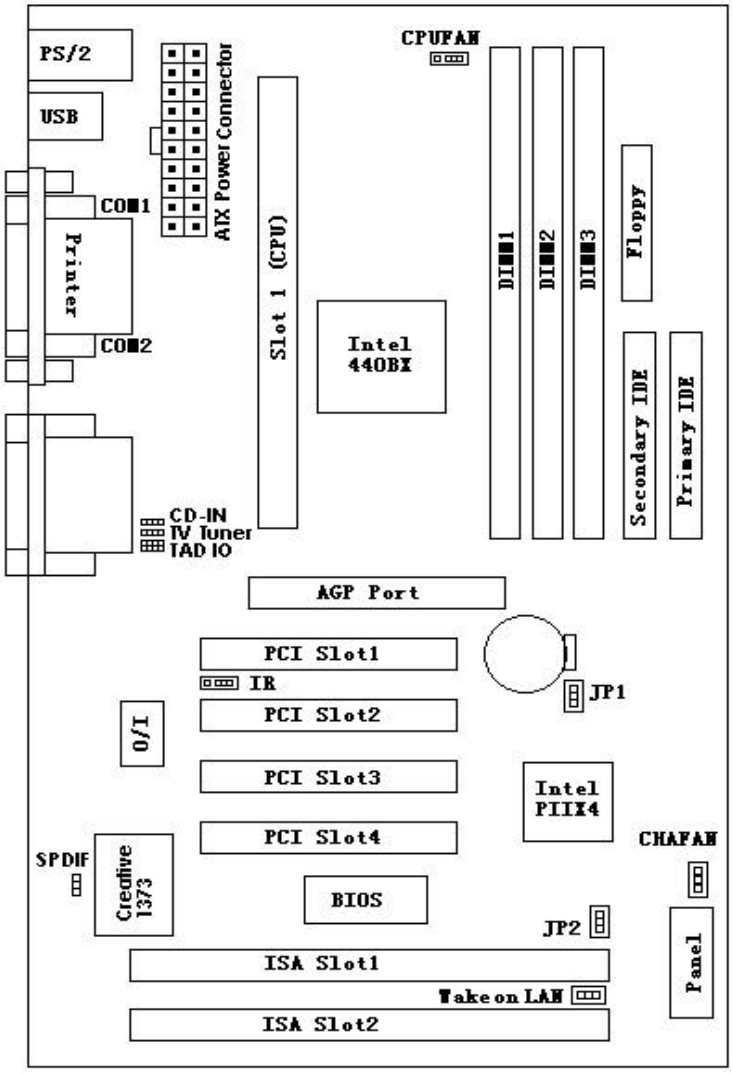
I. PRODUCT INFORMATION

	● 4 x PCI bus with Bus master mode
Serial Port	● Two serial ports UART 16C550 compatible ● Sets serial port 2 to operate in normal mode , IrDA or ASKIR
Parallel Port	One parallel port supports : ● SPP-standard parallel port ● EPP-enhanced parallel port ● ECP-extended capabilities port
Floppy Interface	Supports drives inches/format with: ● 3.5 inches–720KB/1.44MB/2.88MB ● 5.25 inches–360KB/1.2MB
IDE Interface	● Dual PCI IDE interface support up to 4 x IDE HDD or CDROM ● Supports PIO mode4 , DMA mode2 and Ultra DMA33
USB Interface	● Two USB ports supported ● USB legacy keyboard function supported
PS/2 Mouse	● PS/2 mouse supported by connector onboard
Keyboard	● PS/2 keyboard supported by connector onboard
Fuse	● Supports recoverable fuse for USB and KB/Mouse
RTC and Battery	● RTC build in chipset (south bridge PIIX4) ● Lithium (CR-2032) battery
Wake Up Function	● Modem ring wake up ● LAN wake up ● RTC Alarm wake up
Synchronous Switching Regulator	● High efficient synchronous switching regulator for CPU core voltage from 2.0V to 3.5V ● Supports over-voltage / over-current protection function
Hardware Monitor (Optional)	● Fan speed monitor–Two fan connectors , warning when CPU or Housing fan is malfunction ● Voltage monitor–Warning when system voltage (5V,12V,3.3V,VCORE) are abnormal

I. PRODUCT INFORMATION

	● CPU and system thermal monitor–Warning when CPU and system temperature is higher than a predefined value
Power Connector	● Supports ATX(20-pin) power connector
Power On Function	● Panel switch power on ● Keyboard power on
BIOS	● Award BIOS ● Year 2000 Compliance ● PCI 2.1 Compliance ● PnP BIOS v1.0a Compliance ● APM v1.2 Compliance ● DMI 2.0 compliance ● Flash/Upgrade BIOS protection ● Supports ACPI (Advanced Configuration and Power Interface) and OS Directed Power Management ● Supports SOFT power ● Anti-Virus Boot Protection ● Floppy drive swapping function supported
LED Indicator	● System power LED ● HDD activity LED ● Suspend LED (Green LED)
Sound Function	● Integrated Creative 1373 PCI 3D Audio - Sound Blaster PCI Audio - AC97 Interface Compliance - Microsoft PC97/PC98 Compliance - 3D Positional Audio Supported

1-4 Mainboard Layout



I. PRODUCT INFORMATION

Jumpers

1.	**JP1**	Clear CMOS (Real Time Clock)
2.	**JP2**	Power On Mode (Keyboard Power On / Panel Switch Power On)

Expansion Sockets

1.	**DIMM 1**	Support 168-pin DIMM Memory
2.	**DIMM 2**	Support 168-pin DIMM Memory
3.	**DIMM 3**	Support 168-pin DIMM Memory

Expansion Slots

1.	**CPU**	Slot 1 for supporting Pentium II/ Pentium III / Celeron CPU
2.	**ISA Slot 1 & Slot 2**	16-bit ISA Bus Expansion Slot
3.	**PCI Slot 1 to Slot 4**	32-bit PCI Bus Expansion Slot

Connectors

1.	**PS/2 KB**	PS/2 Keyboard Connector (6-pin female)
2.	**PS/2 Mouse**	PS/2 Mouse Connector (6-pin female)
3.	**USB**	Universal Serial Bus Port 1 and Port 2 (two 4-pin female)
4.	**COM1/COM2**	Serial Port 1 / Serial Port 2 (two 9-pin female)
5.	**PRINTER**	Printer (Parallel) Port Connector (25-pin female)
6.	**ATX POWER**	ATX Mainboard Power Connector (20-pin block)
7.	**CPUFAN**	Pentium II CPU Fan Connector (3 pins)
8.	**CHAFAN**	Chassis Fan Connector (3 pins)
9.	**Floppy**	Floppy Drive Connector (34 pins)
10.	**Primary IDE**	Primary IDE Connector (40 pins)
11.	**Secondary IDE**	Secondary IDE Connector (40 pins)
12.	**IR**	Infrared Port Connector (5 pins)
13.	**Wake on LAN**	LAN wake up connector

14. Panel:

- **PWR LED**	ATX Power LED Connector (3 pins)
- **KBLCK**	Keyboard Lock Switch Connector (2 pins)
- **SLP**	Suspend Switch Connector (2 pins)
- **SPEAKER**	Chassis Speaker Connector (4 pins)
- **GRN LED**	Green Status LED Connector (3 pins)
- **HDD LED**	HDD LED Connector (4 pins)
- **RESET**	Reset Switch Connector (2 pins)
- **PWR ON**	ATX Power Switch Connector (2 pins)

15. Audio/Game:

- **Line-In**	Audio Line In Connector
- **Line-Out**	Audio Line Out Connector
- **MIC**	Microphone Connector
- **Game Port**	Game Port Connector
- **CD-In**	CD Audio In Connector
- **SPDIF-Out (Optional)**	Support digital audio to external speaker or compressed AC3 data to an external Dolby Digital Decoder
- **TAD IO (Optional)**	Support Voice Modem (Phone-In/ Mono-Out)
- **TV Tuner (Optional)**	Support TV Card (Audio-Out)

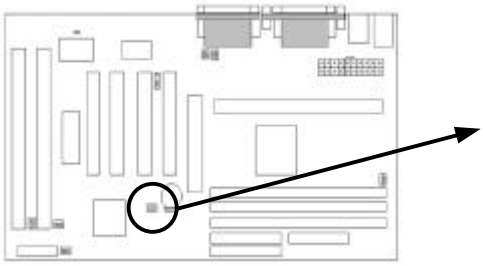
SECTION 2.
HARDWARE INSTALLATION

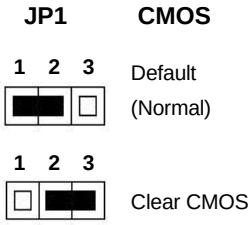
This section gives you a step-by-step procedure on how to install your system. Follow each section accordingly.

2-1 Jumper Settings

Please refer the following figures for the locations of the jumpers on the mainboard.

2-1.1 CMOS Clear Setting





To clear CMOS, please follow the steps below:

1. Power off the system and unplug the chassis AC power cord.
2. Short JP1 at pin 2-3 for few seconds.
3. Set JP1 back to its Normal position at pin 1-2.
4. Plug the AC power cord to the chassis.
5. Power on the system and load the BIOS setup default.

2-1.2 CPU Type Setting

This mainboard supports jumperless CPU type setting, no jumper or switch is needed. Select your CPU Type under "CHIPSET FEATURES SETUP" in BIOS (CMOS) Setup Menu.

The Intel Pentium II CPU currently available in the market are listed as below:

CPU Type	CPU Clock Ratio	CPU Clock Frequency
233MHz	3.5x	66MHz
266MHz	4.0x	66MHz
300MHz	4.5x	66MHz
333MHz	5.0x	66MHz
350MHz	3.5x	100MHz
400MHz	4.0x	100MHz
450MHz	4.5x	100MHz
500MHz	5.0x	100MHz

This mainboard also supports CPU over-clocking by adjusting the CPU Clock Frequency and CPU Clock Ratio under BIOS Setup.

System Frequency = CPU Clock Ratio * CPU Clock Frequency

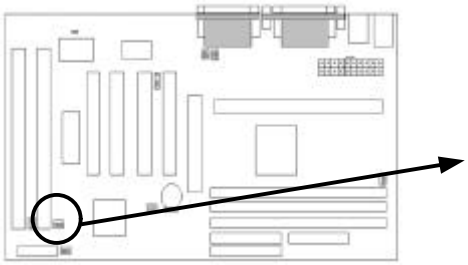
The available settings are:

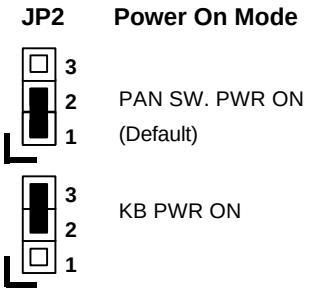
- CPU Clock Frequency
66 / 68.5 / 75 / 83.3 / 100 / 103 / 112 / 115 / 120 / 124 / 133 / 140 / 150MHz

- CPU Clock Ratio
1.5x / 2x / 2.5x / 3x / 3.5x / 4x / 4.5x / 5x / 5.5x / 6x / 6.5x / 7x / 7.5x / 8x

Warning: At this moment, Intel Pentium II CPU normally supports 66/100MHz CPU Clock Frequency, the other CPU Clock Frequency 75.0/83.3//103/112/ 115/120/124/133/140/150MHz are available only for internal test or end-user over-clocking testing, which may cause your system unstable or serious damage.

2-1.3 Power On Mode



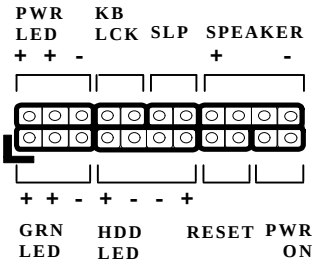


The mainboard supports two kinds of system power on mode, panel switch power on (**PAN SW. PWR ON**) mode and keyboard power on (**KB PWR ON**) mode. Set JP2 at pin 1-2 to use power switch/button to power on your system.

If you want to use the "Keyboard Power On" function, make sure you have a 300mA/+5VSB or above ATX power supply and the supporting mainboard BIOS. Set JP2 at pin 2-3 to enable the keyboard power on mode.

2-2 Connectors

2-2.1 Panel Connector



- **PWR LED** ATX Power LED Connector (3 pins)
- **KBLCK** Keyboard Lock Switch Connector (2 pins)
- **SLP** Suspend Switch Connector (2 pins)
- **SPEAKER** Chassis Speaker Connector (4 pins)
- **GRN LED** Green Status LED Connector (3 pins)
- **HDD LED** HDD LED Connector (4 pins)
- **RESET** Reset Switch Connector (2 pins)
- *** PWR ON** ATX Power Switch Connector and Suspend Switch Connector (2 pins)

*** PWR ON: ATX Power Switch and Suspend Switch Connector**

Attach the ATX power button or suspend switch cable to this connector.

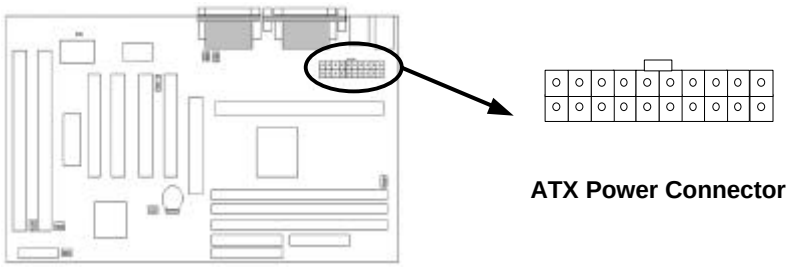
In the ATX power system, this connector will be not only an ATX power button, but a suspend switch as well. Details are describes as below:

When the system is off, push the power button to turn the system on. When the system is on, push the power button rapidly within 4 seconds to switch the system to the suspend mode, and, by pushing and holding the button for more than 4 seconds, it will turn the system completely off. When the system is in the suspend mode, push the power button rapidly to turn the system on.

When the system is in suspend mode, the **GRN LED** will flash. And when the system is in normal working mode, the **GRN LED** will not work.

2-2.2 Power Connector

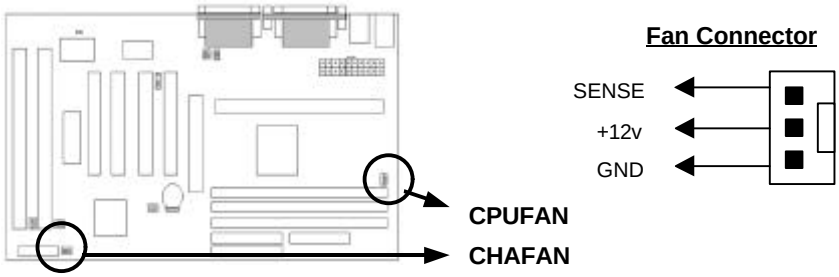
Connect the 20-pin ATX power supply cable to this power connector. Make sure the right plug-in direction and the power supply is off before connecting or disconnecting the power cable.



ATX Power Connector

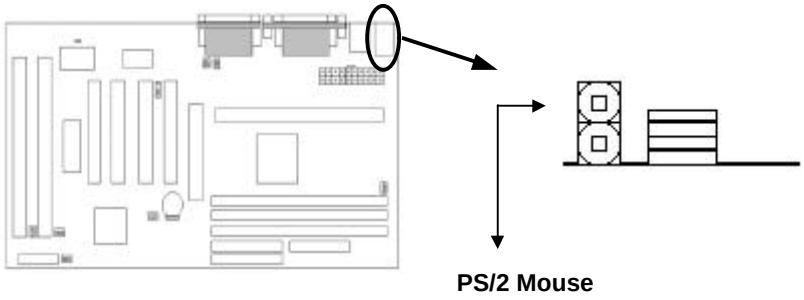
2-2.3 Fan Connectors

Connect the CPU and Chassis Fan cables to the fan connectors shown below. The fan connectors are marked as: CPUFAN and CHAFAN on the mainboard.



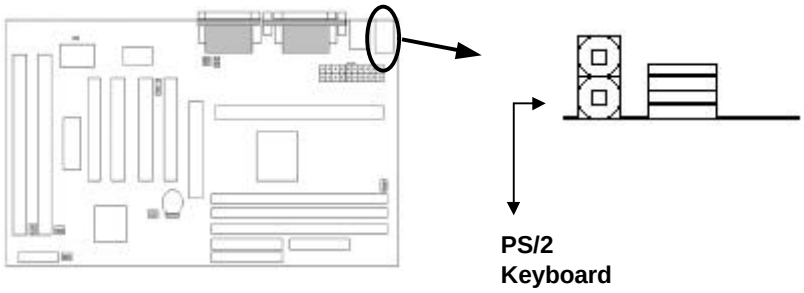
2-2.4 PS/2 Mouse Connector

Connect the PS/2 mouse to the onboard 6-pin Mini-Din connector marked as MOUSE.



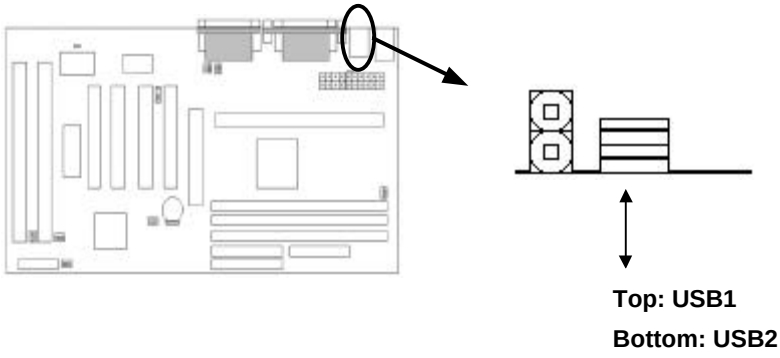
2-2.5 Keyboard Connector

Connect the PS/2 keyboard to the onboard 6-pin Mini-Din connector marked as KB.



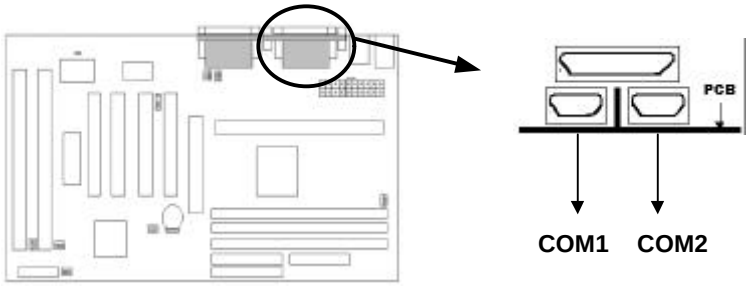
2-2.6 USB Device Connector

Connect your USB device(s) to the onboard USB connector marked as USB.



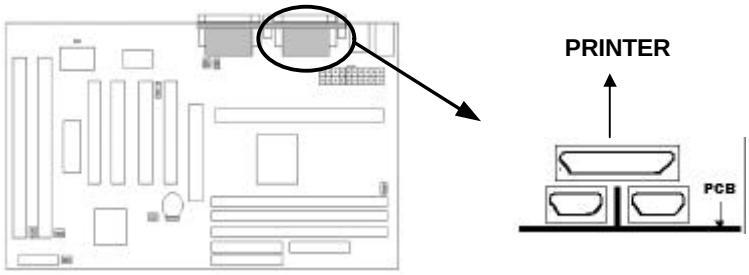
2-2.7 Serial Device(COM1/COM2) Connectors

Connect your serial device(s) to the onboard 9-pin serial connectors marked as COM1 and COM2.



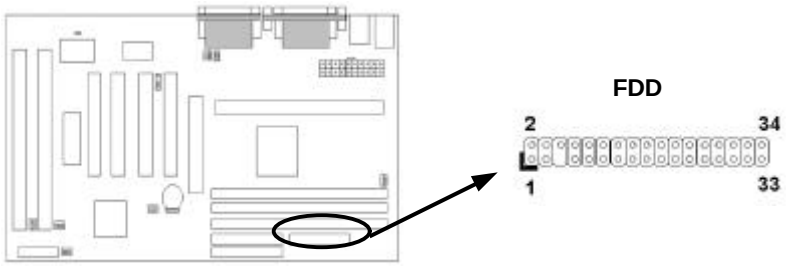
2-2.8 Printer Connctor

Connect your local printer to the onboard 25-pin printer connector marked as PRINTER.



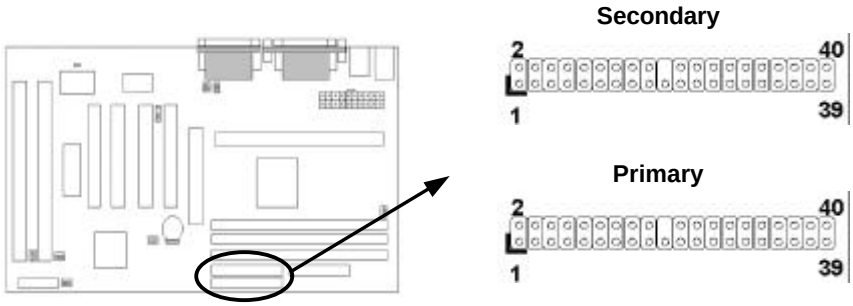
2-2.9 Floppy Drive Connector

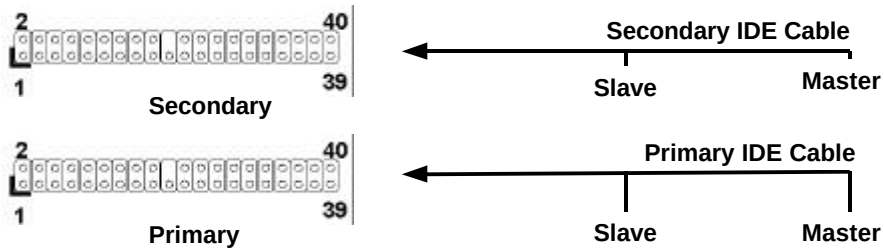
Connect the floppy drive cable to the onboard 34-pin floppy drive connector marked as FDD.



2-2.10 IDE Hard Disk and CD-ROM Connector

Connect your IDE devices to the onboard 40-pin IDE connectors marked as Primary and Secondary.



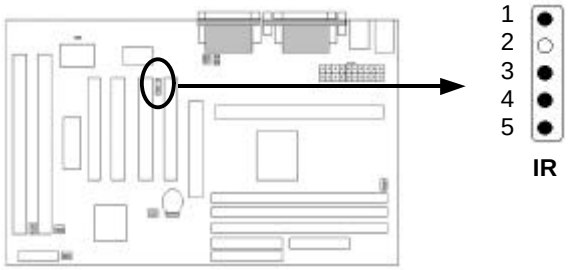


It is suggested that you connect the IDE devices to your IDE cables as the figure shown above. Each IDE channel, either Primary or Secondary, supports two IDE devices which must be set differently to master mode and slave mode.

(Refer to your hard disk and CD-ROM user's manual for detailed settings of IDE master and slave mode.)

2-2.11 IrDA Connector

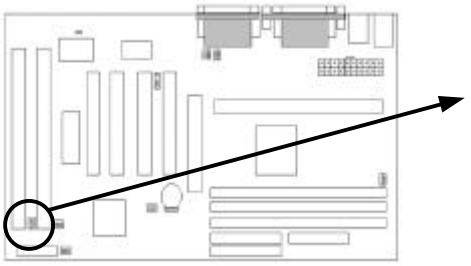
Connect your IR device to the onboard IrDA connector marked as IR.



Pin	Description
1	+5V
2	NC
3	IRRX
4	GND
5	IRTX

2-2.13 Wake on LAN Connector

This mainboard supports wake up on LAN function. To use this function, you need a Wake on LAN supported network card and software.



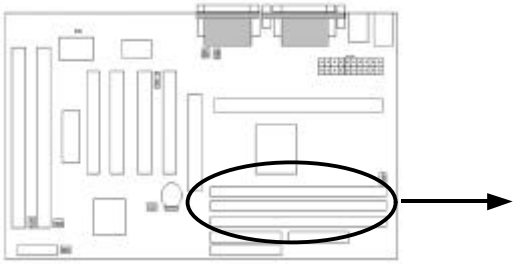
Wake on LAN

1 2 3

Pin	Description
1	+5V Standby
2	GND
3	Signal

2-3 System Memory Installation

There are 3 pcs 168-pin **DIMM** (Dual Inline Memory Module) sockets on the mainboard which support Synchronous DRAM and Registered SDRAM, and allow you install system memory maximum up to 768MB.



DIMM Sockets

II. HARDWARE INSTALLATION

2-3.1 Type

This mainboard supports Synchronous DRAM and Registered SDRAM. However, mixing SDRAM and Registered SDRAM is not allowed. Install one type only in your system for better compatibility.

2-3.2 Speed

The memory speed normally marked as: -15, -12, -10, -7, -8, PC-100.

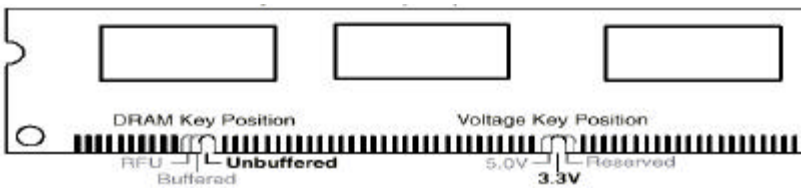
The meaning is,

-15 = 15ns, and the maximum clock is 66MHz
-12 = 12ns, and the maximum clock is 83MHz
-10 = 10ns, and the maximum clock is 100MHz
-8 = 7ns, and the maximum clock is 125MHz
-7 = 8ns, and the maximum clock is 142MHz
PC-100 = New Intel specification for high memory speed with 100MHz or above CPU Bus Clock.

This motherboard supports all the above memory speed. For better system performance and reliability, we suggest that you use PC-100 SDRAM if 100MHz or above CPU Bus Clock is used in your system.

2-3.3 Buffered and Non-buffered

Only the non-buffered DIMM can be used in this mainboard.



The difference between buffered and non-buffered DIMM can be identified by the notch position shown above.

2-3.4 2-clock and 4-clock signal

Both 2-clock and 4-clock SDRAM DIMM supported by this mainboard.

2-3.5 Parity and Non-parity

This mainboard supports standard 64 bit (Non-parity) and 72 bit (Parity) DIMM modules.

2-3.6 Memory Auto detection by BIOS

This mainboard BIOS can automatically detect the DIMM memory size and type, so you do not need to adjust any hardware or software settings. The maximum memory size supported up to 768MB.

2-3.7 Suggested SDRAM combination

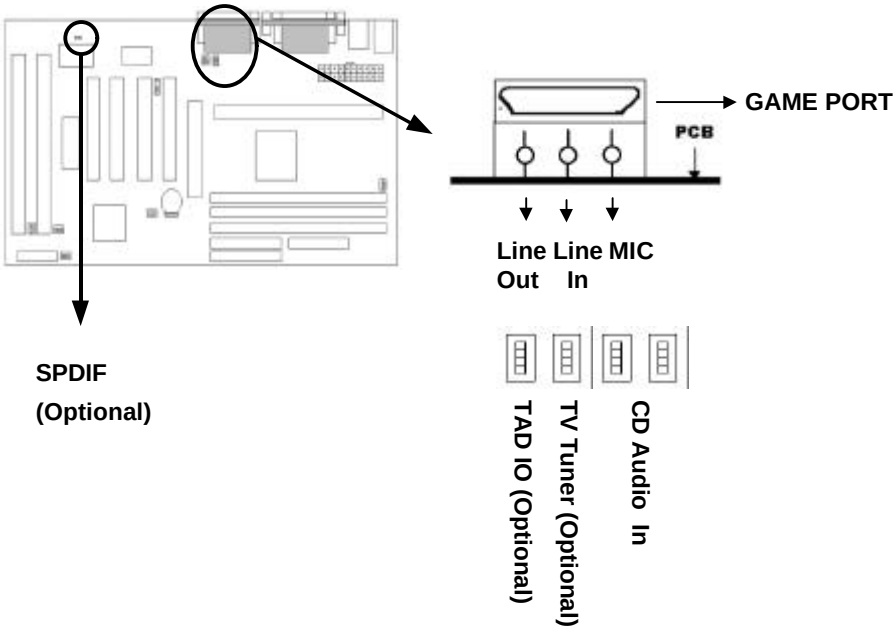
This mainboard supports the following SDRAM combination.

DIMM Location	DIMM Size	Max. Memory Size
DIMM 1	SDRAM 8, 16, 32, 64 128, 256MB	256MB
DIMM 2	SDRAM 8, 16, 32, 64 128, 256MB	256MB
DIMM 3	SDRAM 8, 16, 32, 64 128, 256MB	256MB
	Total System Memory	768MB

Total Memory Size = DIMM1 + DIMM2 + DIMM3

2-4 Game/Audio Connector

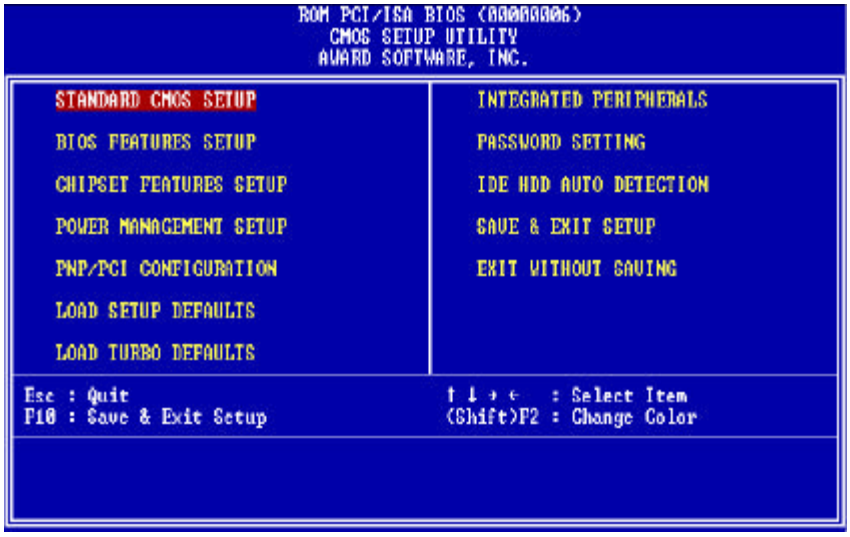
Connect your audio devices to the audio connector as below.



SECTION 3.
CMOS SETUP UTILITY

3-1 BIOS Setup Main Menu

This section tells you how to configure the system by changing BIOS setup options. To enter the BIOS Setup Utility, press **DEL** key during POST (Power-On Self Test). The BIOS Setup Main Menu will appear as shown below.



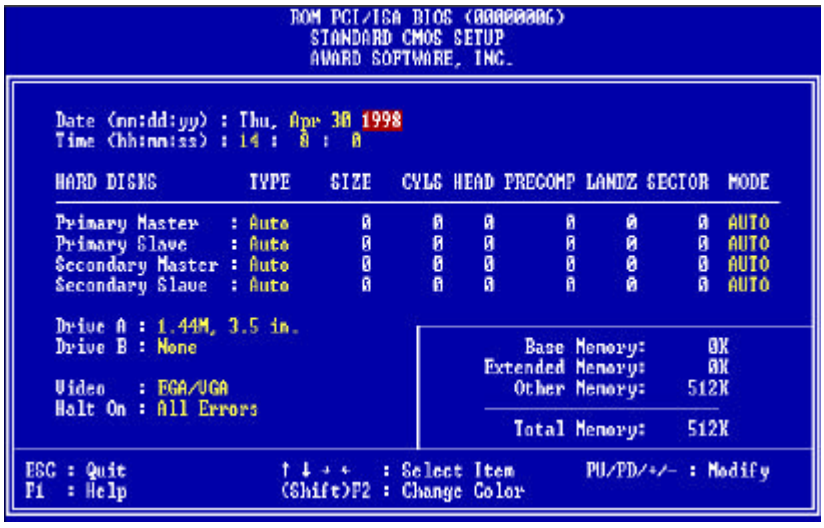
The main menu displays a table of items which defines basic information about your system. Below are the keyboard function keys you can use under the menu.

Menu function keys:

E S C	To close the BIOS Setup Utility.
› fl ‹ fi	To move around the screen. An item is highlighted if it is selected.
F 1	To displays information about the highlighted item you selected.
S H I F T + F 2	To Change the color scheme.
F 1 0	To save the changes before exit the BIOS Setup Utility.
ENTER	To select or enter a submenu.

3-2 Standard CMOS Setup

This "Standard CMOS Setup" sets the basic system settings such as the date, time, and the hard disk type, Video display type and error handling. Use the arrows keys › fl ‹ fi to highlight an item and use **Page Up** / **Page Down** or **+** **-** to set the value for each item.



- **Date**

To set the date, highlight the date area. Press **+** / **-** or **Page Up** / **Page Down** to set the current date. The date format is month: **Jan. ~ Dec**., date: **1 ~ 31**, and year: **1994 ~ 2079**.

- **Time**

To set the time, highlight the time area. Press **+** / **-** or **Page Up** / **Page Down** to set the current time. The time format is hour: **00 ~ 23**, minute: **00 ~ 59**, and second: **00 ~ 59**.

- **Hard Disks → Primary Master**
- **Hard Disks→ Primary Slave**
- **Hard Disks → Secondary Master**
- **Hard Disks → Secondary Slave**

TYPE:
- Auto
- User
- None

This item lets you set your system IDE hard disk type. Select Auto to let BIOS automatically detect the installed hard disk when system boot up. Select User if you prefer manually enter the hard disk type. The available parameters are SIZE(HDD Size), CYLS(No. of Cylinder), HEAD(No. of Head), PRECOMP(Pre-compensation), LANDZ(Landing Zone), SECTOR(No. of Sector) and MODE(HDD Mode). Select None if there is no hard disk connected to the system.

Default: Auto

MODE:
- AUTO
- NORMAL
- LBA
- LARGE

Select NORMAL for IDE HDD smaller than 528MB. Select LBA for IDE HDD over than 528MB and support LBA(Logical Block Addressing) mode. Select LARGE for IDE HDD over than 528MB and do not support LBA mode.

Note: We recommend that you set both IDE HDD TYPE and MODE to AUTO to let BIOS automatically detect the hard disk drives for you.

Default: Auto

- **Floppy → Drive A**
- **Floppy → Drive B**

Drive A / B:
- None
- 360KB - 5.25"
- 1.2MB 5.25"
- 720KB 3.5"
- 1.44MB 3.5"
- 2.88MB 3.5"

Select the floppy drive type installed in your system. The available options for Drive A and Drive B are: 360KB 5.25", 1.2MB 5.25", 720KB 3.5", 1.44MB 3.5", 2.88MB 3.5" and None.

Default: Drive A => 1.44MB 3.5"

Drive B => None

- **Video**

Video:
- EGA/VGA
- CGA40
- CGA80
- Mono

Select the video display card type installed in your system. The available types are: EGA/VGA, CGA 40, CGA 80 and Mono.

Default: EGA/VGA

- **Halt On**

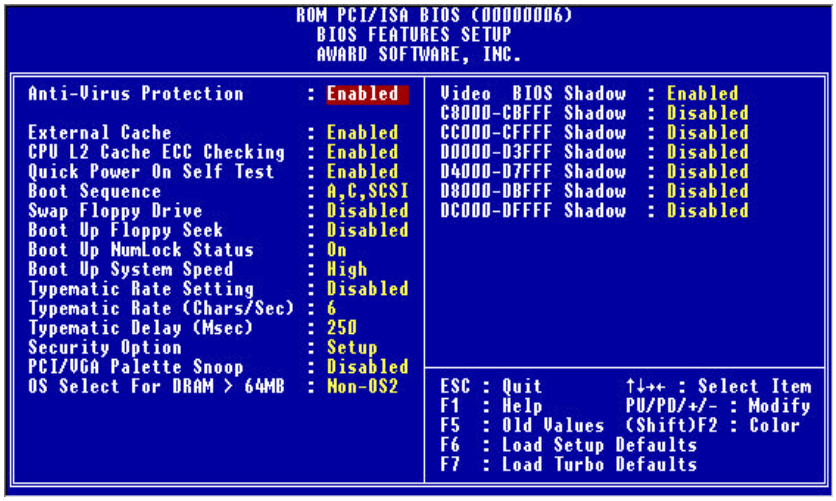
Halt On:
- All Errors
- No Errors
- All, But Keyboard
- All, But Diskette
- All, But Disk/Key

This item defines the operation of the system POST(Power On Self Test). You can use this item to select which kind of errors will cause the system to halt during POST.

Default: All Errors

3.3 BIOS Features Setup

This "BIOS Features Setup" option allows you to setup and improve your system features and performance.



➢ Anti-Virus Protection

Anti-Virus Protection:
- Enabled
- Disabled

When this item is enabled, BIOS will automatically load Anti-Virus program that will prevent your system being infected by Boot Viruses.

Default: Enabled

➢ External Cache

External Cache:
- Enabled
- Disabled

This item controls Enable/Disable the external L2 cache.

Default: Enabled

➢ CPU L2 Cache ECC Checking

CPU L2 Cache ECC Checking:
- Enable
- Disabled

This item can be used to enable ECC (Error Checking and Correcting) function of the CPU level-2 cache memory. When the item is enabled, BIOS will automatically check if CPU support L2 ECC function. This item will not be displayed if CPU does not support L2 ECC.

Default: Enabled

➢ Power-On Self-Test

Quick Power-on Self-test:
- Enable
- Disabled

This item can be used to start operating system quickly by skip some normal POST checking items.

Default: Enabled

➢ Boot Sequence

Boot Sequence:
- A,C,SCSI
- C,A,SCSI
- C,CDROM,A
- CDROM,C,A
- D,A,SCSI
- E,A,SCSI
- F,A,SCSI
- SCSI,A,C
- SCSI,C,A
- C only
- LS/ZIP,C

This item defines where the system will look for an operating system, and the order of priority. The boot up search sequence shown as left.

Default: A, C, SCSI

➢ Swap Floppy Drive

Swap Floppy Drive:
- Enabled
- Disabled

If you have two floppy drives in your system, This item allows you to swap around the assigned drive letters so that drive A becomes drive B, and drive B becomes drive A.

Default: Disabled

➢ Boot Up Floppy Seek

Boot Up Floppy Seek:
- Enabled
- Disabled

This item controls the system to seek floppy drive during boot up POST.

Default: Disabled

➢ Boot Up NumLock Status

Boot Up NumLock Status:
- On
- Off

This item defines if the keyboard **NumLock** key is active when your system is started.

Default: On

➢ Boot Up System Speed

Boot-up System Speed:
- High
- Low

This item allows the system boot up with High or Low speed.

Default: High

➢ Typematic Rate Setting

Typematic Rate Setting:
- Enabled
- Disabled

To Enable or Disable the speed of keyboard to send repeat keystrokes.

Default: Disabled

➢ Typematic Rate (Chars/Sec)

Typematic Rate: This item provides typematic rate setting, which allows you to control the repeated keystrokes speed.

- 6
- 8
- 10
- 12
- 15
- 20
- 24
- 30

Default: 6

➢ Typematic Delay (Msec)

Typematic Delay: This item provides typematic delay setting, which allows you control the delay time between the first and the second keystroke.

- 250
- 500
- 750
- 1000

Default: 250

➢ Security Option

Security Option:

- Setup — The "Setup" option is for password request in entering BIOS setup.
- System — The "System" option is for password request in entering setup and system boot up.

Default: Setup

➢ PCI/VGA Palette Snoop

PCI/VGA Palette Snoop: Set this item to Enabled to reduce display problem when both PCI VGA and some graphic accelerator devices such as MPEG/Video capture cards are installed in your system.

- Enabled
- Disabled

Default: Disabled

➢ OS Select for DRAM > 64MB

OS Select for DRAM > 64MB:
- OS/2
- Non-OS/2

This item is to patch that can not report correct memory size for more than 64 MB. Set it to OS/2 if you have an OS/2 installed and have over 64MB system memory.

Default: Non-OS/2

➢ Video BIOS Shadow

Video BIOS Shadow:
- Enabled
- Disabled

This item defines if you leave default setting, video BIOS memory will be copied from ROM into DRAM area to enhance system performance as DRAM access time is faster than ROM.

Default: Enabled

➢ C8000-CBFFF Shadow to DC000-DFFFF Shadow

C8000-CBFFF to DC000-DFFFF Shadow:
- Enabled
- Disabled

Set Enabled if you know the address that your add on card ROM used to shadow them. If the item is Enabled, BIOS will copy the selected area from ROM to RAM to increase system performance.

Default: Disabled

3-4 Chipset Features Setup

This option display a table of items which define timing parameters of the mainboard components including the graphic system, memory, and the system logic. In general rule, you should leave the items on this page at the default values unless you are familiar with the technical specifications of your hardware. If you change the values, you may introduce fatal errors or recurring instability into your system.

III. CMOS SETUP UTILITY

➢ SDRAM CAS Latency

SDRAM CAS Latency:

- 2T
- 3T
- Auto

This item defines the latency between SDRAM read command and the actual data time.

It is an important SDRAM parameter. If your SDRAM has unstable problem, try set this item to 3T.

Default: 3T

➢ SDRAM RAS# to CAS# Delay

SDRAM RAS# to CAS# Delay:

- 2T
- 3T
- Auto

This item defines the latency between SDRAM active command and the read/write command.

It is an important SDRAM parameter. If your SDRAM has unstable problem, try set this item to 3T.

Default: 3T

➢ SDRAM RAS# Precharge Time

SDRAM RAS# Precharge:

- 2T
- 3T
- Auto

This item defines the waiting time after issuing a SDRAM Precharge command.

Default: 3T

➢ DRAM ECC Function

DRAM ECC Function:
- Enabled
- Disabled

This item enables/disables ECC(Error Checking and Correction) for the main memory. We recommend that you leave this item at Disabled if you have not verified that your memory modules support ECC. To use this function, you need 72 bits(64+8 bit parity) DIMM.

Default: Disabled

➢ Video BIOS Cacheable

Video BIOS Cacheable:
- Enabled
- Disabled

This item allows the video BIOS to be cached for faster video performance.

Default: Disabled

➢ Video RAM Cacheable

Video RAM Cacheable:
- Enabled
- Disabled

This item allows the Video RAM to be cached for faster video performance.

Default: Disabled

➢ 8 Bit I/O Recovery Time
➢ 16 Bit I/O Recovery Time

8 Bit I/O Recovery Time:
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- NA

16 Bit I/O Recovery Time:
- 1
- 2
- 3
- 4
- NA

This two items set timing parameters for 8-bit and 16-bit ISA expansion cards.

Default: 8-Bit I/O Recovery Time => 4

8-Bit I/O Recovery Time => 2

➢ Memory Hole At 15M-16M

Memory Hole At 15M-16M:
- Enabled
- Disabled

This item can be used to reserve memory space for some ISA cards that require it.

Default: Disabled

➢ Passive Release
➢ Delayed Transaction

Passive Release, Delayed Transaction:
- Enabled
- Disabled

These two items make the PCI Bus Compliant with the PCI Specification ver. 2.1.

Default: Enabled

➢ AGP Aperture Size (MB)

AGP Aperture Size (MB):
- 4
- 8
- 16
- 32
- 64
- 128
- 256

This item defines the effective memory size of the AGP Aperture.

Default: 64

➢ Pentium II Micro Codes

Pentium II Micro Codes:
- Enabled
- Disabled

This item defines the Pentium II Micro Codes which are used to resolve Pentium II CPU bugs. We recommend that you leave this item at the default value for better reliability.

Default: Enabled

➢ AGP Overspeed Mode

AGP Overspeed Mode:

- Enabled
- Disabled

This item allows you enabled/disabled AGP Overspeed Mode. Set Enabled for better AGP performance if your system is running overclocking.

Note: The maximum clock of the AGP specification is 66MHz. If the system bus clock is larger than 66MHz, you can set this item to Enabled to force AGP clock synchronize with bus clock. However, doing so may probably cause your system unstable or serious damage.

Default: Disabled

➢ System Frequency

System Frequency:

- 233 MHz
- 266 MHz
- 300 MHz
- 333 MHz
- 350 MHz
- 400 MHz
- 450 MHz
- 500 MHz
- Manual

This item allows you set the System Frequency.

Select manual if you want to set your own CPU Clock Frequency and CPU Clock Ratio.

- Available **CPU Clock Frequency:**

66/75/83.3/100/103/112/115/120/124/133/140/150MHz

- Available **CPU Clock Ratio:**

1.5/2.0/2.5/3.0/3.5/4.0/4.5/5.0/5.5/6.0/6.5/7.0/7.5/8.0x

Warning: Normally, Intel Pentium II CPU supports 66/100MHz, the other CPU Clock Frequency 75/83.3/ 103/112/115/120/124/133/140/150MHz are available only for internal test or end-user over-clocking testing, which may cause your system unstable or serious damage.

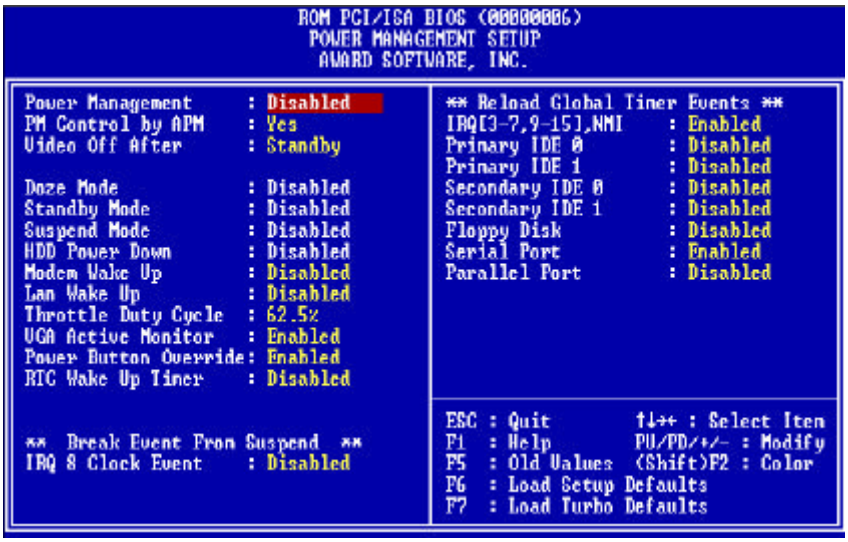
Default: 233 MHz

Note: If the system can not boot up because of your wrong setting of this item, you can load BIOS default setting, **System Frequency 233MHz**, by the following steps.

1. Press the **"Home"** key before power on the system.
2. Holding the **"Home"** key until the screen shows the default 233 MHz CPU Type.

3-5 Power Management Setup

This option displays a table of items which lets you control the power management of the system. Modern operating system take care of much of the routine power management. This mainboard supports ACPI (Advanced Configuration and Power Interface).



➢ **Power Management**

Power Management:
- Max Saving
- Mix Saving
- User Define
- Disabled

This item allows you to set the default parameters of power-saving modes. Set to Disable to disable power management function. Set to User Define to define your own parameters.

Default: User Define

Mode	Doze	Standby	Suspend	HDD Power Down
Min Saving	1 hour	1 hour	1 hour	15 min
Max Saving	1 min	1 min	1 min	1 min

➢ PM Controlled by APM

PM Controlled by APM:
- Yes
- No

Set to Yes to transfer power management control to APM (Advanced Power Management) and enhance power saving function.

Default: Yes

➢ Video Off After

Video Off After:
- N/A
- Doze
- Standby
- Suspend

To select the power down mode option to turn off video monitor.

Default: Standby

➢ Doze Mode

Doze Mode:
- Disabled
- 1 Min
- 2 Min
- 4 Min
- 8 Min
- 12 Min
- 20 Min
- 30 Min
- 40 Min
- 1 Hour

This item lets you set the timer after which the system enters into Doze mode from Working mode. The system event is detected by monitoring the IRQ signals or other I/O events.

Default: Disabled

➢ Standby Mode

Standby Mode
- Disabled
- 1 Min
- 2 Min
- 4 Min
- 8 Min
- 12 Min
- 20 Min
- 30 Min
- 40 Min
- 1 Hour

This item lets you set the timer after which the system enters into Standby mode from Doze mode.

In this mode, the monitor power-saving feature activates. Any activity detected returns the system to normal full power mode. The system activity is detected by monitoring the IRQ signals or other I/O events.

Default: Disabled

➢ Suspend Mode

Suspend Mode:
- Disabled
- 1 Min
- 2 Min
- 4 Min
- 8 Min
- 12 Min
- 20 Min
- 30 Min
- 40 Min
- 1 Hour

This item lets you set the timer after which the system enters into Suspend mode from Standby mode. The system activity is detected by monitoring the IRQ signals or other I/O events.

Default: Disabled

➢ HDD Power Down

HDD Power Down:
- Disabled
- 1 Min
- .....
- 15 Min

This item allows you specify the IDE HDD idle time before the device enters the power down state. This item is independent from the power states, Standby and Suspend Mode.

Default: Disabled

➢ Modem Wake Up

Modem Wake Up:
- Enabled
- Disabled

To enable or disable Modem Wake Up function.

Default: Disabled

➢ LAN Wake Up

LAN Wake Up:
- Enabled
- Disabled

To enable or disable LAN Wake Up function.

Default: Disabled

➢ Throttle Duty Cycle

Throttle Duty Cycle:
- 12.5%
- 25.0%
- 37.5%
- 50.0%
- 62.5%
- 75.0%
- 87.5%

This item defines the CPU clock slowing ratio in a given time at the Doze/Standby state of power saving mode.

Default: 62.5%

➢ VGA Active Monitor

VGA Active Monitor:
- Enabled
- Disabled

To enable or disable the detection of VGA activity for power saving mode.

Default: Enabled

➢ Power Button Override

Power Button Override:
- Enabled
- Disabled

When set to Enabled, the power switch on the front panel can be used to control power On/Suspend/Off.

Press switch	System status
Less than 4 seconds	Suspend mode
Longer than 4 seconds	Power off

When set to Disabled, the power switch is only used to control On/Off, no Suspend mode function.

Default: Enabled

➢ RTC Wake Up Timer

RTC Wake Up Timer:
- Enabled
- Disabled

To enable or disable the RTC Wake Up function.

Default: Disabled

➢ WakeUp Date (of Month)

WakeUp Date (of Month):
- 0
- 1
- .....
- 31

This item displayed only when you enable the RTC Wake Up Timer item.

You can use this item to specify the date you want to wake up the system. For Example, if you set to 18, the system will wake up on the 18th day of every month. If set to 0, the system will wake up on the specified time every day.

➢ WakeUp Time (hh:mm:ss)

WakeUp Time (hh:mm:ss):
- hh:mm:ss

This item is displayed only when you enable the RTC Wake Up Timer item. You can use this item to specify the time you want to wake up the system.

- **IRQ 8 Clock Event**

IRQ 8 Clock Event:
- Enabled
- Disabled

OS/2 has periodically IRQ8 RTC(Real Time Clock) event. When set this item to enabled, OS/2 may has problem to go into Doze/Standby/Suspend mode.

Default: Disabled

- **IRQ [3-7,9-15],NMI**

IRQ [3-7,9-15],NMI:
- Enabled
- Disabled

To enable or disable the detection of IRQ3-7, IRQ9-15 or NMI interrupt events for power saving mode.

Default: Enabled

- **Primary IDE 0**
- **Primary IDE 1**
- **Secondary IDE 0**
- **Secondary IDE 1**
- **Floppy Disk**
- **Serial Port**
- **Parallel Port**

Primary/Secondary IDE 0/1, Floppy, Serial & Parallel Port:
- Enabled
- Disabled

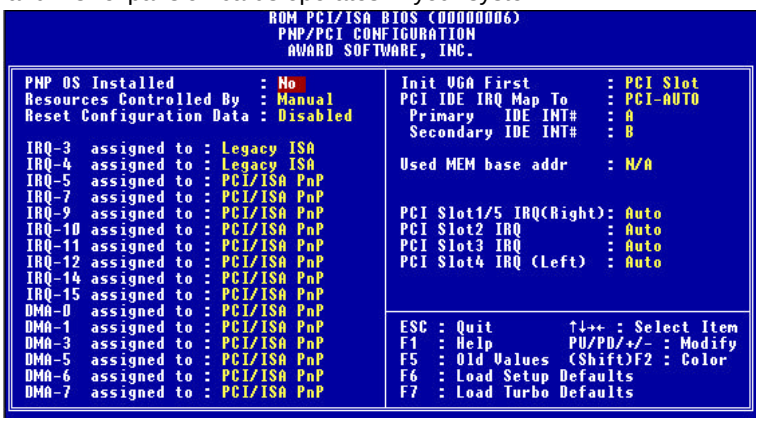
These items enable or disable the detection of IDE, Floppy, Serial and Parallel port activities for power saving mode.

Default: Serial Port => Enabled

Others => Disabled

3-6 PNP/PCI Configuration Setup

This option display a table of items that configures how PNP (Plug and Play) and PCI expansion cards operates in your system.



➢ PnP OS Installed

PnP OS Installed:

- Yes
- No

Normally, BIOS will allocate the PnP resources during POST (Power-On Self Test). Set this item to Yes if you have a PnP operating system such as Windows 95, BIOS will bypass PNP device initial except of boot device (VGA/IDE or SCSI) and PNP operating system will do these PNP devices resource allocation. If this item is set to No, BIOS will handle all PNP devices.

Default: No

➢ Resources Controlled By

Resources Controlled by:

- Auto
- Manual

Basically, BIOS will allocate the IRQ/DMA resources automatically for these PNP/PCI and onboard devices. The exception might be encountered when legacy ISA devices are installed, which occupies resources that BIOS can not know. Therefore, this option is for BIOS to know in advance that IRQ/DMA is occupied by legacy ISA devices if Manual is selected.

Default: Manual

➢ Reset Configuration Data

Reset Configuration Data:
- Enabled
- Disabled

When this item is set to Enabled, BIOS will turn it Disabled again in the next boot up. This item is for clearing ESCD data. The only reason to clear is the data loosing the confidence. The engineering test is a good reason to change the default setting.

Default: Disabled

➢ IRQ3~5, IRQ7, IRQ9~12, IRQ14~15

IRQ 3-5, 7, 9-12, 14-15:
Legacy ISA
PCI/ISA PnP

Set the selected IRQ to Legacy ISA if your ISA card is not PnP compatible card and requires a special IRQ to make it function.

These options provide IRQ resources allocation for Legacy ISA or PCI/ISA PnP card.

Default: IRQ 3~4 => Legacy ISA

Others =>PCI/ISA PnP

➢ DMA 0, DMA 1, DMA 3, DMA 5, DMA 6, DMA 7

DMA 0,1,3,5-7:
- Legacy ISA
- PCI/ISA PnP

Set the selected DMA channel to Legacy ISA if your ISA card is not PnP compatible card and requires a special DMA channel to make it function.

Default: PCI/ISA PnP

➢ Init Display First

Init Display First:
- PCI Slot
- AGP

This item allows you select whether PCI Slot or AGP device will be initialed first for display.

Default: PCI Slot

➢ PCI IDE IRQ Map To

PCI IDE IRQ Map To:
- ISA
- PCI-Slot1
- PCI-Slot2
- PCI-Slot3
- PCI-Slot4
- PCI-Auto

This is a complement for the case that an ISA or PCI add-on IDE card is installed. Since most of PCI add-on IDE cards are not PCI Compliant, a location and INT# inputs are necessary for acknowledging to BIOS.

Set this item to `PCI-Auto` to allow BIOS to configure the installed PCI IDE card automatically .

Default: PCI-Auto

➢ Primary IDE INT#
➢ Secondary IDE INT#

Primary/Secondary IDE INT#:
- A
- B
- C
- D

Each PCI slot has four PCI interrupts (INT) aligned as listed , A, B, C, D. You should specify the slot in the "PCI IDE IRQ Map To", and set the PCI interrupt (INT) here to the interrupt connection on the card.

Use this item to specify the interrupt of the primary/ secondary channel of the PCI IDE add-on card.

Default: Primary IDE INT# => A

Secondary IDE INT# => B

➢ Used MEM Base Addr

Used MEM base addr:
- N/A
- C800
- CC00
- D000
- D400
- D800
- DC00

This item lets you set a memory space for non-PnP ISA card and specifies the memory base of the reserved memory space.

Default: N/A

➢ Used MEM Length

Used MEM Length:
- 8K
- 16K
- 32K
- 64K

This item is displayed when the above Used MEM base addr option is not set to N/A.

If your ISA card is not PnP card and requires special memory space to make it function, use item to set the memory size to inform the PnP BIOS to reserve the specified memory space for installing legacy ISA card.

➢ PCI Slot1/5 IRQ (Right) to PCI Slot4 IRQ (Left)

PCI Slot 1 to PCI Slot4 IRQ:
- 3
- 4
- 5
- 7
- 9
- 10
- 11
- 12
- 14
- 15
- Auto

These items allow you manually assign an specified IRQ to each PCI slot.

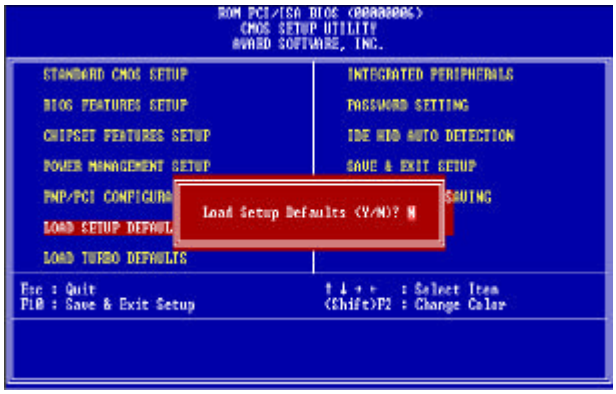
Leave this item at default "Auto", BIOS will automatically assign an available IRQ to the device on each PCI slot.

Default: Auto

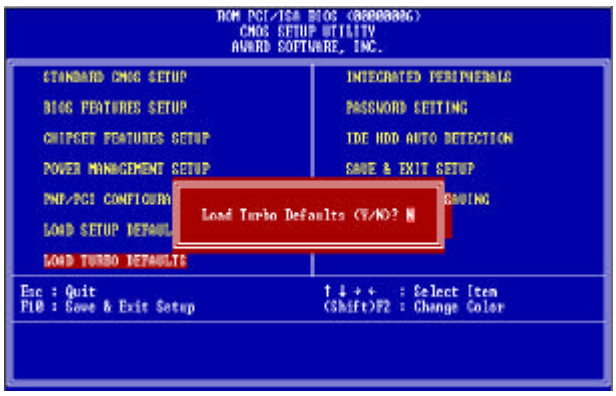
3.7 Load Setup Defaults

This option allows you load BIOS optimized settings for optimum system performance. We recommend you to use the Optimal settings if your system has large memory size and fully loading with add-on cards.

To load Setup Default, press Y key to confirm the operation when you see the above display.



3-8 Load Turbo Defaults

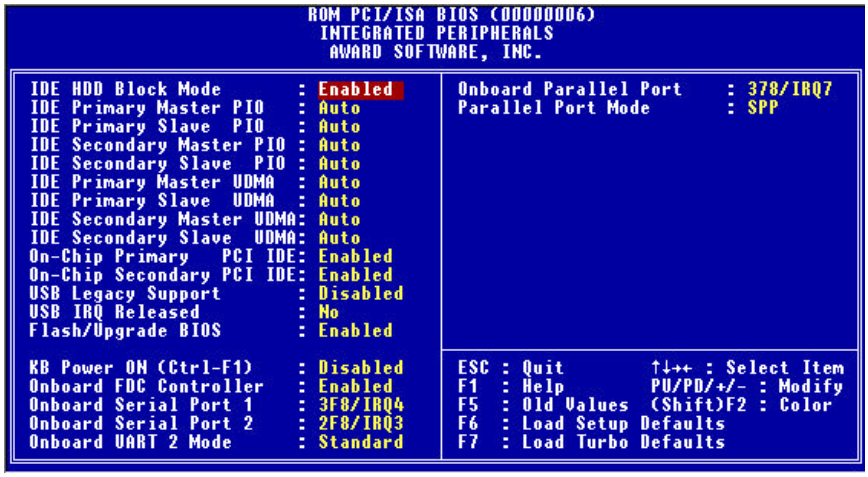


This option provides better performance than optimal setup values. Load the turbo values if you have light system loading, that is, few add-on cards and memories.

If your system has heavy loading (more add-on cards and memories), you may manually set the parameters in the "Chipset Features Setup" to get proper setting to get the best system performance. Before changing any settings in the "Chipset Features Setup", be sure that you understand the functions of every item.

3-9 Integrated Peripherals

This option allows you to configure the I/O features.



- **IDE HDD Block Mode**

IDE HDD Block Mode:
- Enabled
- Disabled

This BIOS supports the enhanced IDE specification and allow multiple sectors access in a time when read/write. If set this item to disabled, IDE runs in single sector access.

Default: Enabled

- **IDE Primary Master PIO**
- **IDE Primary Slave PIO**
- **IDE Secondary Master PIO**
- **IDE Secondary Slave PIO**

IDE Primary/Secondary Master/Secondary PIO:
- Auto
- Mode 1
- Mode 2
- Mode 3
- Mode 4

Set these items to Auto to auto-detect the HDD speed. The PIO mode specifies the data transfer rate of HDD.

IDE HDD Mode	Transfer Rate
Mode 0	3.3MB/s
Mode 1	5.2MB/s
Mode 2	8.3MB/s
Mode 3	11.1MB/s
Mode 4	16.6MB/s.

Set to slower mode if your hard disk performance becomes unstable.

Default: Auto

- **IDE Primary Master UDMA**
- **IDE Primary Slave UDMA**
- **IDE Secondary Master UDMA**
- **IDE Secondary Slave UDMA**

IDE Primary/Secondary Master/Slave UDMA:
- Auto
- Disabled

These items allows you to set the Ultra DMA/33 mode supported by the IDE hard disk drive installed in your system.

Default: Auto

- **On-Chip Primary PCI IDE**
- **On-Chip Secondary PCI IDE**

On-Chip Primary/Secondary PCI IDE:
- Enabled
- Disabled

To enable or disable the IDE device connected to the Primary/Secondary IDE connector.

Default: Enabled

➢ USB Legacy Support

USB Legacy Support:
- Enabled
- Disabled

This BIOS simulates USB keyboard in legacy mode, which means during POST or under operating system, you can use a USB keyboard without loading USB driver. Note you can not use both USB driver and USB legacy keyboard at the same time. Set disabled if you have USB driver in the operating system.

Default: Disabled

➢ USB IRQ Released

USB IRQ Released:
- Yes
- No

This item allows you to release USB controller IRQ if you do not have any USB device or your system IRQ are not enough for add-on cards allocation.

Default: No

➢ Flash/Upgrade BIOS

Flash/Upgrade BIOS:
- Enabled
- Disabled

This item allows you to protect your mainboard BIOS being flashed/upgraded by MAXFLASH.EXE flash utility if you set this item disabled.

You can specify the BIOS password to avoid that someone can change your setting.

Default: Enabled

➢ KB Power ON (Ctrl-F1)

KB Power ON:
- Enabled
- Disabled

This item allows you to enable or disable the keyboard power on function.

Press "Ctrl-F1" to power on system after setting this item to enabled.

Default: Disabled

➢ Onboard FDC Controller

Onboard FDC Controller:
- Enabled
- Disabled

To enable or disable the onboard floppy disk controller. Set to disabled if you want to use a separate floppy disk controller card.

Default: Enabled

➢ Onboard Serial Port 1
➢ Onboard Serial Port 2

Onboard Serial Port 1 & 2:
- Auto
- 3F8/IRQ4
- 2F8/IRQ3
- 3E8/IRQ4
- 2E8/IRQ3
- Disabled

This item allows you to select the I/O port and IRQ used by the onboard serial ports.

Default: Onboard Serial Port 1=> 3F8/IRQ4

Onboard Serial Port 2=> 2F8/IRQ3

➢ Onboard UART Mode

Onboard UART Mode:
- Standard
- IrDA
- ASKIR

This item is selectable only when the onboard serial port 2 is enabled. The available mode selections for the serial port 2 are Standard, IrDA, and ASKIR.

Standard: Configures serial port as normal mode.

IrDA: Set to this setting if there is an infrared device connected on the onboard IrDA connector. The maximum baud rate of this setting is: 115K baud.

ASKIR: Set to this setting if there is an infrared device connected on the onboard IrDA connector. The maximum baud rate of this setting is: 19.2K baud.

Default: Standard

➢ Onboard Parallel Port

Onboard Parallel Port:
- 3BC/IRQ7
- 378/IRQ7
- 278/IRQ7
- Disabled

This item controls the onboard parallel port address and interrupt.

Default: 378/IRQ7

➢ Parallel Port Mode

Parallel Port Mode:
- SPP
- EPP
- ECP
- ECP + EPP

This item allows you to set the parallel port mode.

1. **SPP (Standard Parallel Port):** IBM AT and PS/2 compatible mode
2. **EPP (Enhanced Parallel Port):** To enhances the parallel port by directly write/read data to/from parallel port without latch.
3. **ECP (Extended Parallel Port):** ECP supports DMA and RLE (Run Length Encoded) compression and decompression.

Default: SPP

➢ ECP Mode Use DMA

ECP Mode Use DMA:
- 3
- 1

This item displayed when select the ECP mode above for the parallel port. You can set the DMA channel of ECP mode.

Default: 3

3-10 Password Setting

Password prevents unauthorized use of your computer. If you set a password, the system prompts for the correct password before boot or access to Setup, the steps as follows,

1. Highlight the item Password Setting on the main menu and press ENTER.
2. The password dialog box will appear.
3. If you are installing a new password, carefully type in the password. Press ENTER after you have typed in the password. If you are deleting a password that is already installed just press ENTER when the password dialog box appears.
4. The system will ask you to confirm the new password by asking you to type it in a second time. Carefully type the password again and press ENTER, or just press ENTER if you are deleting a password that is already installed.
5. If you typed the password correctly, the password will be installed.

[Note]

If you forget your password, or you want to cancel your password, you can do the steps as the following,

(1) Password forgotten:

i> Turn off the system

ii> Short JP1 at Pin 2-3 for a few seconds to clear CMOS.

iii> Set the JP1 back to Pin 1-2.

iv> Power on the system.

(2) Clear Password:

Clear your password by key-in the password you installed before, then go to PASSWORD SETTING to press ENTER twice.

3-11 IDE HDD Auto Detection

This item automatically detects and installs any hard disk drives installed on the primary and secondary IDE channel. Most modern drives can be detected. If you are using a very old drive that can be detected, you can install it manually using the Standard CMOS Setup option. Setup will check for two devices on the primary IDE channel and then two devices on the secondary IDE channel. At each device, the system will flash an N in the dialog box. Press Enter to skip the device and proceed to the next device. Press Y, then Enter to tell the system to accept the BIOS auto-detected device type.

3-12 Save & Exit Setup

Highlight this item and press ENTER to save the changes that you have made in the setup utility and exit the setup program. When the *Save and Exit* dialog box appears, press Y to save and exit, or press N to return to the setup main menu.

3-13 Exit without Saving

Use this option to exit Setup Utility without saving the CMOS value changes.

SECTION 4.
SOFTWARE UTILITY

4-1 Flash Utility MAXFLASH.EXE

This section tells you a step-by-step procedure on how to use the flash utility, "maxflash.exe", upgrade your mainboard BIOS.

To upgrade your motherboard BIOS, please follow the following:

1. For Win95 system, press F8 before Win95 boot-up, and select "Safe mode command prompt only".
   For Non-Win95 system, boot-up the system into DOS prompt with a bootable floppy disk.
   !!!DO NOT load any memory manager like EMM386.EXE, QEMM386.EXE under config.sys. !!!
2. Run **A:>maxflash biosfile.bin**
3. After loading the new BIOS code, the utility will prompt you to save original BIOS code into your HDD or floppy. Please press "Y" to store it as "BIOS.OLD".
4. After the old BIOS has been successfully saved, press "Y" to replace BIOS.
5. After the flashing process, reboot the system by turn off the power.
   !!! DO NOT TURN OFF THE POWER DURING THE FLASHING PROCESS. !!!
6. Press "DEL" key to enter BIOS setup during POST. Reload the "BIOS SETUP DEFAULT" and reconfigure other items as your previous set
7. Then save and exit.

4-2 BIOS Flash/Upgrade Protection

This mainboard supports BIOS Flash/Upgrade protection which allows you protect your system BIOS being flashed by flash utility. We suggest you use this feature with Password Setting in BIOS to prevent your BIOS being flashed by flash utility.

To active the BIOS Flash/Upgrade protection, follow the steps below:

1. When the system boot up at POST (Power On Self- Test), press <Del> key to enter BIOS Setup Utility.
2. Set the "Flash/Upgrade BIOS" item in the "Integrated Peripherals" to Disabled.
3. Save the changes and exit Setup Utility.

4-3 Install Win95 Bus Master IDE (Ultra DMA/33) Driver

The Bus Master IDE(Ultra DMA/33) driver is available in the bundled CD title. You may run setup.exe directly to install the driver.

After installation, you will see following devices under Win95 Device Manager:

--- Hard Disk Controllers

Intel 82371AB PCI Bus Master IDE Controller

Primary Bus Master IDE Controller

Secondary Bus Master IDE Controller

4-4 Audio Driver/Utility

The onboard Creative 1373 PCI 3D audio adapter drivers can be found under below directory in the bundle CD title:

D:\Audio\Creative\Audio\English

(assuming your CD-ROM disc drive is in drive D)

Install Audio Driver/Utility:

IV. SOFTWARE UTILITY

- ✓ Insert the motherboard resource kit CD.
- ✓ Go to the directory: **\Audio\Creative\Ctrun**
- ✓ Run the setup program **"ctrun.exe"**. Below installation screen will then appear.