FCC

Declaration of Conformity

According to 47 CFR, Parts 2 and 15 of the FCC Rules

The following designated product:

EQUIPMENT: MAINBOARD

MODEL NO.: 7AIV6/7AIV6E

is a Class B digital device that complies with 47 CFR Parts 2 and 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

This declaration is given to the manufacturer:

CHAINTECH-EXCEL COMPUTER INC.

4427 Enterprise St. Fremont, CA 94538, U.S.A.

http://www.chaintech-excel.com

Chaintech President: Simon Ho

Signature:

Table of Contents

Chapter 1

Introduction

1-1 Product Specifications

❒ **Processor**
- Supports AMD Socket A processors
- System clock supports 200/266MHz DDR (Double Data Rate)

❒ **Chipset**
- VIA KM133 (VT8365 or VT8365A) + VT82C686B two chip AGPset

❒ **DRAM Memory**
- Two 3.3V 168-pin DIMM sockets support up to 1GB
- Supports PC-100, PC-133 SDRAM, and VCM

❒ **Expansion Slots**
- One 32-bit AGP slot for both 2x/4xAGP at 3.3v or 1.5v(Rev 2.0 compliant)
- Three 32-bit PCI slots (Rev 2.2 compliant)
- One CNR slot support for modem,audio riser only

❒ **2Mb Boot-Block Flash ROM**
- Award System BIOS, supports PnP, APM, DMI,ACPI & Multi-device booting features i.e. floppy, LS120, CD-ROM, HDD(IDE, SCSI), ZIP-ATAPI etc.
- Includes Trend **ChipAway Virus** protection for virus-free boot and virus free operating system
- **BIOS Wonder** technology including ChipAway Virus, Flash BIOS Write Protect, Embedded Flash Utility.

❒ **Embedded Ultra DMA-100 PCI IDE controller**
- Supports two IDE ports up to 4 ATAPI devices
- Supports up to PIO Mode 4 up to 16.6MBps, Multi-Word Mode 4 up to 66MBps and Multi Word Mode 5 up to 100MBps with bus mastering
- Bus Master software drivers for all common multi-task operating systems

❒ **Embedded Super I/O Functions**
- Two UARTs support two serial ports and IR function for HPSIR and ASKIR
- One parallel supports SPP/ECP/EPP
- One floppy disk drive connector supports up to 2.88MB, Japanese 3- Mode and 1Mbps transfer rate
- Supports Game/MIDI port for soft-audio

❏ **Double Stack Back-Panel I/O Connectors with PC99 Colored Codes**
- PS/2 Mini-DIN keyboard and mouse ports
- Two Channel USB ports
- One D-SUB 9-pin male serial port
- One D-SUB 15-pin VGA port
- One D-SUB 25-pin female Printer port
- One D-SUB 15-pin female Game/MIDI port
- Audio Line-out, Line-in, Mic-in jacks

❏ **Embedded PCI Audio Subsystem**
- CMedia 8738 audio chip w/ integrated CODEC legacy audio
- Programmable independent sample rate form 4KHz to 48KHz for record and playback
- Full-duplex operation for simultaneous recording and playback
- DLS-based wavetable music synthesizer w/ maximum 32 simultaneous notes, supports MS DirectMusic (Wavetable technology licensed from ERSO w/ General MIDI 128 sounds, 8 drum kit)
- 32-voice HRTF 3D positional audio, CRL 3D supports MS DirectSound3D, Aureal A3D and Creative EAX(Environment Audio Extensions) APIs
- Optional supports 24-bit S/PDIF-in/out for digital audio
- Selection of 4 or 6-channel speaker audio support is easy to build up a Home Theater environment
- Supports MIDI and dual game ports
- PCI V2.1 compliant and full Legacy DOS software compatible
- Supports Fiber Optic module for Internet music, PC, and MD connections

❏ **Embedded USB Controller**
- USB host controller (UHCI v1.0 compliant) with Root Hub
- Four USB ports with over-current protection
- Optional USB riser with 2 additional USB ports

❏ **Embedded System Monitoring Hardware Subsystem**
- 5 external voltage inputs for CPU Vcore, VDD, +12v, +5v and 3.3v (internal detecting)
- 2 temperature sensor with thermistor for CPU and System
- 2 Fan speed (CPU and System) monitoring

❏ **Board Dimensions**
- Micro ATX form factor, 244mm x 220mm, 4 Layers

❒ **Embedded Graphic Accelerator**
- **Integrated 128-bit S3 Savage4** 2D/3D graphics engine
- Floating point triangle setup engine w/ 8 MTps setup engine and 140MPps trilinear fill rate
- Optimized Shared Memory Architecture (SMA) supports 16 and 32MB frame buffer using system memory
- Supports AGP 4x, including sideband addressing and execute mode
- Supports up to 1920x1440 resolution
- Motion Video compensation for full speed DVD playback
- With TV encoder or TMDS Transmitter, to support DFP monitor and NTSC/ PAL TV
- Supports 12-bit digital interface with up t o1280x1024 resolution DFP

❒ **Switching Power Supply Requirement**

Output Voltage	Max. Regulation Requirement	Min. Current Requirement (Amps)
+12V	+/- 5%	5.5
+5V	+/- 5%	20
+3.3V	+/- 5%	15
-5V	+/- 10%	0.5
-12V	+/- 10%	0.5
+5VSB	**+/- 5%**	**0.75**

Table 1-1

⚠ 3.3Vat 15Amps is necessary to guarantee full loading operation because some AGP cards and memory modules have high current consumption.

1-2 Product Feature

- Poly-fuse over-current protection with error warning for keyboard circuitry
- Complete Data Security:
  * **Flash BIOS write protection** against unauthorized access
  * **Trend ChipAway Virus** for a 100% virus free system boot-up
  * **Embbeded Flash Utility** ease the upgrade way and solve the incompatibility between flash type and flash utility

- Advanced Management Features**:**
  * Power-on events:
    WOL(Wake-on-LAN) network card, Modem ring, RTC Alarm
  * Software power-off control for Win9x
  * Over-ride power button
  * Three states advanced Power-failure recovery: Always On, Always Off, Last state
  * Blinking Power-LED in suspend

1-3 Package Contents

This product comes with the following components:

❒ One mainboard

❒ One 40-pin (80-conductor) UDMA-100 IDE connector ribbon cable(Figure 1-1)
  ***Color coded connection:** Blue to mainboard, Gray to Master and Black to slave

❒ One 34-pin floppy disk drive ribbon cable (Figure 1-2)

❒ Optional 9-pin COM2 serial connector ribbon cable (Figure 1-3)

❒ Optional 6 Channel Audio Adapter card with cable (Figure 1-4)

❒ One User's Manual

❒ One CD-ROM that includes

  - Acrobat Reader
  - Award Flash EPROM Utility
  - Award DMI Utility for DOS
  - VIA Service Pack for Win9x/ME/2000/XP/NT including Bus Master IDE drivers, AGP VxD and etc.
  - S3 AGP Driver for Win9x/ME/2000/XP/NT
  - CMedia audio drivers for Win3.1, Win9x/ME/2000/XP, NT4.0 and Linux
  - CMedia Multimedia Decks
  - Optional **Value Pack 2002** software pack including Norton AntiVirus, Adobe ActiveShare, Acrobat Reader, Acrobat eBook Reader, Imagemore and AutoSave.

Figure 1-1   UDMA-100 IDE cable

Figure 1-3 (Optional) COM2 serial connector cable

Figure 1-2   Standard Floppy cable
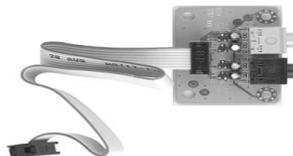
Figure 1-4   (Optional) 6 Channel Audio Adapter card

Memo

Chapter 2

Hardware Setup

If your mainboard has already been installed in your computer you may still need to refer to this chapter if you plan to upgrade your system's hardware.

> ⚠ **Be sure to disconnect the power cable from the power source before performing any work on your mainboard, i. e. installing a CPU, memory module, changing a jumper setting, etc. Not doing so may result in electrical shock!**

2-1 Introduction to Jumpers

Jumpers are used to select between various operating modes. A jumper consists of a row of gold colored pins that protrude from the surface of the mainboard. It is important not to confuse jumpers with connectors or headers.

> ⚠ **Putting jumper caps on anything that is not a jumper may result in damaging your mainboard. Please refer to Section 1-3, Mainboard Layout, for the location of jumpers on your mainboard.**

As indicated in Figure 2-1 below, a cap is used to cover the pins of a jumper, resulting in shorting those pins that it covers. If the cap is removed from the top of the pins, the jumper is left "open." The number 1 shown both in the diagram below and in all multiple pin jumper and header diagrams in this manual indicates the pin designated with the number 1. The numbering of the remaining pins follows in sequence.

Pins   Cap   Setting   Cap Style 2

1
A 3-pin jumper

1
A cap over pin 1 and
pin 2 shorts these pins
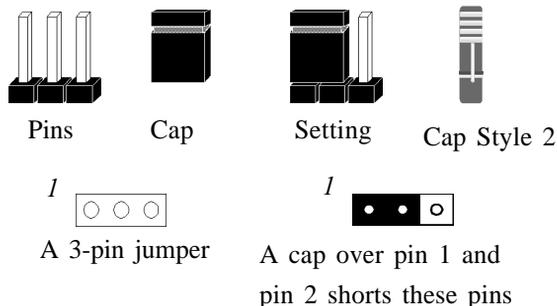
Figure 2-1

2-2 Installing an AMD Athlon Processor in Socket A

1. The Socket 462, designed for AMD Athlon processors, has been incorporated as a standard mainboard specification.To insert your CPU into Socket A please do the following:

2. Locate a small dot marked on the top surface of the CPU close to one if it's corners. The same corner will also be cut off, leaving a noticeable notch in the CPU's corner. These markings indicate Pin 1 of the CPU.

3. Pull up the lever of Socket 462 so that it is perpendicular with the surface of the mainboard. Gently insert the CPU with Pin 1 at the same corner of Socket 462 that contains the end of the lever. Allow the weight of the CPU to push itself into place. Do not apply extra pressure as doing so may result in damaging your CPU. Snap the lever back into place.

> Installing a heat sink with cooling fan is necessary for proper heat dissipation from your CPU. Failing to install these items may result in overheating and possible burnout of your CPU.

2-3 Plug and Play CPU Configuration

This board support plug and play CPU configuration, if you install a CPU on this mainboard, the board will automatically detect and set the CPU system bus frequency speed. It is no longer necessary to make many jumper settings as on conventional mainboards.

1. After installing all your hardware into your PC system, turn on your system's power. Enter the CMOS Setup Utility by pressing the Delete key when your BIOS identification screen appears.

2. Move the cursor to Frequency/Voltage Control Setup menu and press Enter. Select the CPU Host/PCI Clock Setup commands at the left hand side of the BIOS screen.

3. Select the CPU Host/PCI Clock value according to the speed of your CPU processor and PCI bus. (See Section 3-8)

4. Press Esc to return to the CMOS Setup Utility, press F10 to Save and Exit Setup and choose to confirm. The system will automatically reboot and during start-up you will see the correct CPU type shown on the screen.

> You do not need to make frequency ratio and voltage settings because this board will automatically sets your CPU frequency ratio & voltage.

JP2,J1,J2,COM2
CN4,CN5,CN7,CN8,

CN9

FAN1,JP3
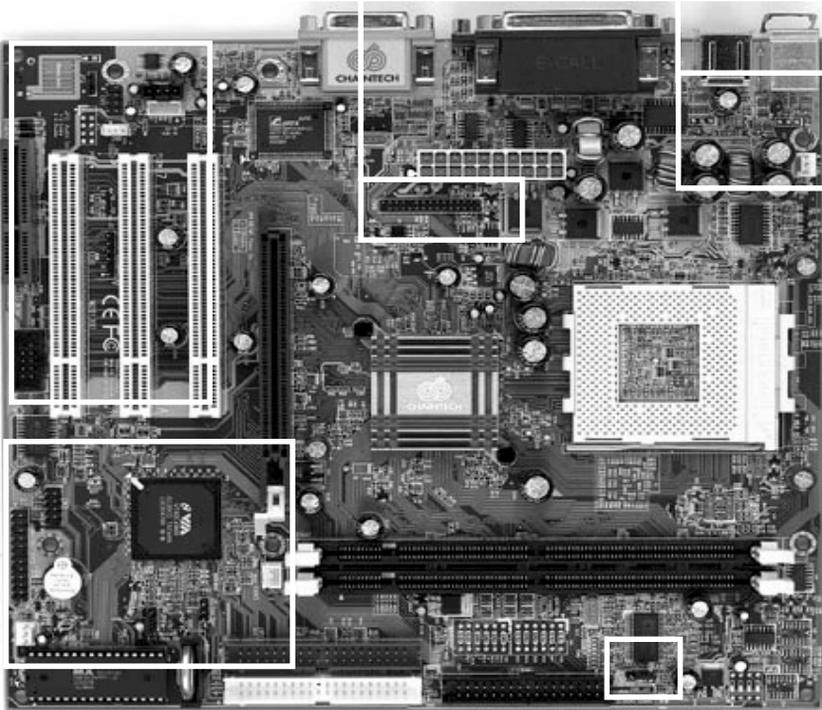
CN11,CN12,FAN2,
FAN3,JP5

JPX1

PS/2 Mouse   **Printer Port**   **Game Port**

PS/2 Keyboard   USB 0/1 COM1   VGA   Line-out Line-in MIC
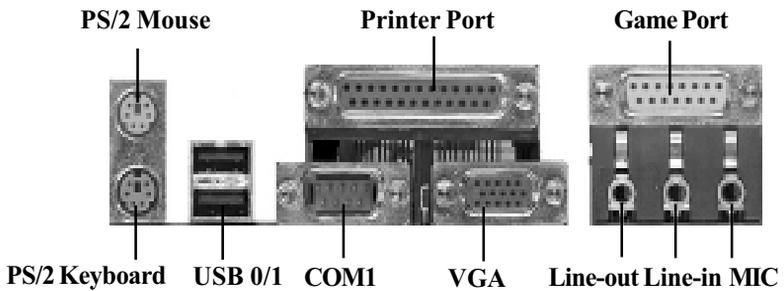
Jumper & Connector No.	Function	Page
JP2	Onboard Audio	14
JP3	Optional USB Device Power On Function	14
JP5	Clear CMOS data jumper	14
J1	Optional S/PDIF-Out Connector	15
J2	Infrared Connector	15
CN1	PS/2 Mouse and Keyboard Ports	15
CN4	CD-ROM Audio in Connector	16
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CN9	TV out/DFP Connector	17
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CN12	Over-ride Power Button Connector	12
	Power Indicator LED Connector	12
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	Speaker Connector	13
	IDE Activity LED Connector	13
	Turbo LED Connector	13
COM2	COM 2 Header	18
USB1	USB 0/1 Ports	18
FAN1/2/3	CPU/System/Chip Cooling Fan Connectors	18
JPX1	CPU Bus Frequency	19

2-4 Connector and Jumper Settings

Connectors are used to link the system board with other parts of the system, including the power supply, the keyboard, and the various controllers on the front panel of the system case.

> ⚠ **The power supply connector is the last connection to be made while installing a mainboard. Before connecting the power supply, please make sure it is not connected to the power source.**

ATX Power Supply Connector (CN6)
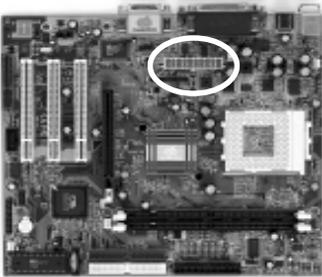
The power cord leading from the system's power supply to the external power source must be the very last part connected when assembling a system.

12V	⊙	⊙	5V
5VSB	⊙	⊙	5V
PW-OK	⊙	⊙	-5V
Ground	⊙	⊙	Ground
5V	⊙	⊙	Ground
Ground	⊙	⊙	Ground
5V	⊙	⊙	PS-ON
Ground	⊙	⊙	Ground
3.3V	⊙	⊙	-12V
3.3V	⊙	⊙	3.3V

The ATX power supply provides a single 20-pin connector interface which incorporates standard +/-5V, +/-12V, optional 3.3V and Soft-power signals. The Soft-power signal, a 5V trickle supply is continuously supplied when AC power is available. When the system is in the Soft-Off mode, this trickle supply maintains the system in it's minimum power state.

Software Power-Off Control

This mainboard can be powered down using the Windows 95/98 Software Power-Off function. To power down your computer, click the START button on the Windows 95 task bar. Select "Shut Down The Computer" and the system turns off. The message "It is now safe to turn off your computer" will not be shown when using this function.

Front Panel Connector Set (CN12) A through G

Over-ride Power Button Operation
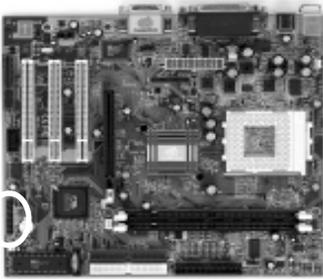
A. Over-ride Power Button Connector

The power button on the ATX chassis can be used as a normal power switch as well as a device to activate Advanced Power Management Suspend mode. This mode is used for saving electricity when the computer is not in use for long periods of time. The Soft-OFF by PWR-BTTN function in BIOS's Power Management Setup menu must be set to "Delay 4 Sec." to activate this function. (See section 3-5)
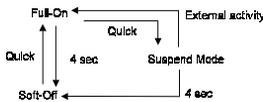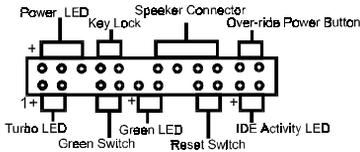
When the Soft-OFF by PWR-BTTN function is enabled, pushing the power button rapidly will switch the system to Suspend mode. Any occurrence of external activities such as pressing a key on the keyboard or moving the mouse will bring the system back to Full-On. Pushing the button while in Full-On mode for more than 4 seconds will switch the system completely off. See Over-ride Power Button Operation diagram.

B. Power Indicator LED Connector

The power indicator LED shows the system's power status. It is important to pay attention to the correct cables and pin orientation (i.e., not to reverse the order of these two connectors.)

Blinking LED in Suspend Mode

While in Suspend mode, the LED light on the front panel of your computer will flash. Suspend mode is entered by pressing the Override Power Button, pushing the Green button on your ATX case, or enabling the Power Management and Suspend Mode options in BIOS's Power Management menu. (See section 3-4)
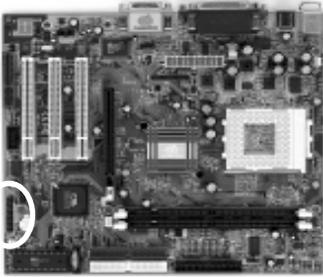
C. Green Switch/Green LED Connector

Some ATX cases provide a Green switch which is used to put the system in Suspend mode. In Suspend mode, the power supply to the system is reduced to a trickle, the CPU clock is stopped, and the CPU core is in it's minimum power state. The system is waken up whenever the keyboard or mouse is touched. The system resumes in different ways as defined by Power Management Setup screen in BIOS.
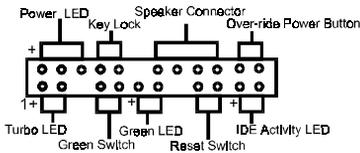
D. System Reset Switch Connector

This connector should be connected to the reset switch on the front panel of the system case. The reset switch allows you to restart the system without turning the power off.

Pin	Definition
1	System
2	GND

E. Speaker Connector

Pin	Definition
1	Speaker Signal
2	No Connection
3	No Connection
4	+5V DC

F. IDE Activity LED Connector

The IDE activity LED lights up whenever the system reads/writes to the IDE devices.

G. Turbo LED Connector

This mainboard does not have a Turbo/De-turbo speed modes. So the turbo LED will always light .

Poly-fuse Over Current Protection

The poly-fuse protects the system from dangerous voltages the system might be exposed to via the keyboard or USB connectors. In case of such exposure, the poly-fuse will immediately be disconnected from the circuit, just like a normal fuse. After being disconnected for a certain period of time, the poly-fuse will return to its normal state, after which the keyboard or USB can function properly again. Unlike conventional fuses, the poly-fuse does not have to be replaced, relieving the user wasted time and inconvenience.

Onboard Audio (JP2)
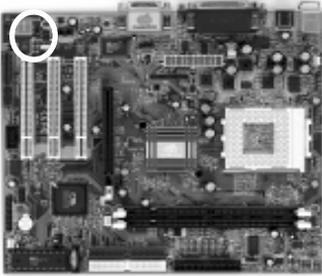
1 Enable (default)   *1* Disable

This function allows you to enable and disable the onboard audio. You must set the jumper's cap to pins 1-2 to enable or set pins 2-3 to disable this function.

Optional USB Device Power On Function (JP3)
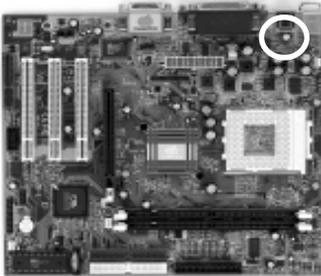
1 Disable (default) *1* Enable

This mainboard is able to be turned on by a USB keyboard hot key or a USB mouse click. You must also set this jumper's cap to pins 2-3 to use this function. The "OnChip USB and USB Keyboard support" must be set to Enable (see section 3-4).

Clear CMOS Data Jumper (JP5)
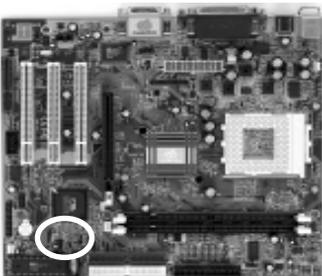
1 Normal (default)   *1* Clear CMOS Data

To clear the contents of the CMOS, please follow the steps below.
1. Disconnect the system power supply from the power source.
2. Set the jumper cap at location 2~3 for 5 seconds, then set it back to the default position.
3. Connect the system's power and then start the system.
4. Enter BIOS's CMOS Setup Utility and choose Load Setup Defaults. Type Y and press enter.
5. Set the system configuration in the Standard CMOS Setup menu.

Optional S/PDIF-Out Connector (J1)
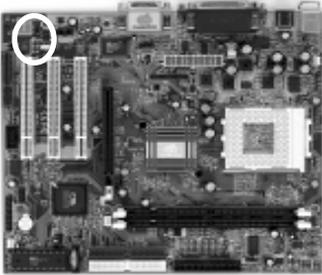
The S/PDIF-Out connector supports the digital audio. This connector must be connected to the cable from an external device. (Ex. 2-channel decoded AC-3 from DVD decoders)

```
+12V
   X              SPDIFOUT
SPDIFIN1          GND
SPDIFIN2          SPGPIO
   X              X
```
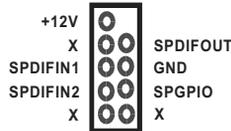
Infrared Connector (J2)
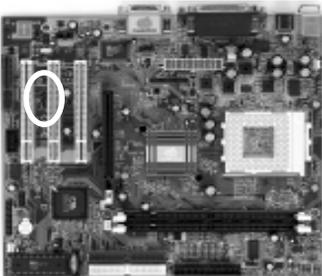
Select an IR mode at the UART 2 Mode in BIOS Integrated Peripherals menu to enable the IR functions on this mainboard. (See Section 3-4)

```
Vcc      1
Ir-Rx
GND
Ir-Tx
Vcc
```
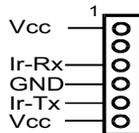
PS/2 Mouse and Keyboard Ports (CN1)
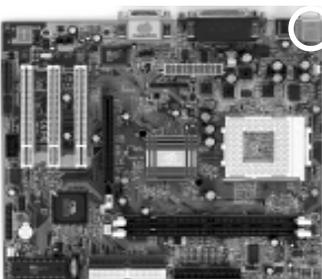
If a PS/2 mouse is used, BIOS will automatically detect and assign IRQ12 to the PS/2 mouse.

Pin	Definition
1	Data
2	No Connection
3	Ground
4	+ 5V (fused)
5	Clock
6	No Connection

CD-ROM Audio in Connector (CN4)
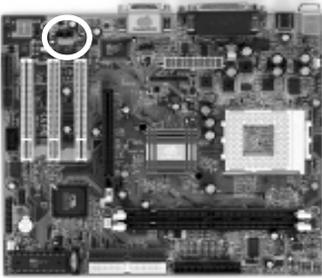
Use the audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your mainboard. This will enable your CD-ROM's audio function.
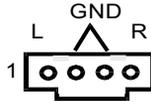
Bass/Center and Rear L/R Connector (CN5)
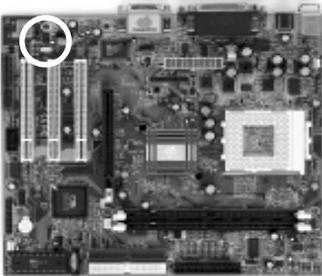
This connector must be connected to the cable from the voice modem card to support modem audio signals.
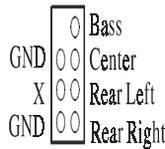
Auxiliary Audio-in Connector (CN7)
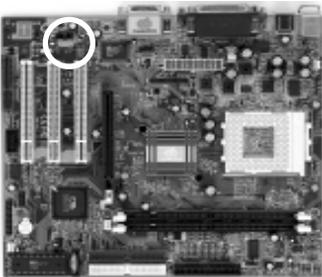
2Use the auxiliary audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your mainboard. This will enable your CD-ROM's audio function.
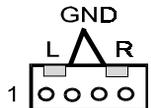
WOL (Wake-on-LAN) Connector (CN8)

1 — 5 Vsb
— GND
— Wake up
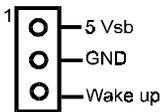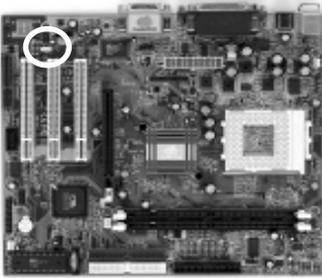
Enable the Wake Up On LAN selection in BIOS's Power Management Menu to use this function. The capability to remotely manage PCs on a network is a significant factor in reducing administrative and ownership costs. Magic Packet technology is designed to give WOL (Wake-on-LAN) capability to the LAN controller. When a PC capable of receiving wake up command goes to sleep, the Magic Packet mode in the LAN controller is enabled. When the LAN controller receives a Magic Packet frame, the LAN controller will wake up the PC. This header is used to connect an add-in NIC (Network Interface Card) which gives WOL capability to the mainboard.

⚠ To support this function, a switching power supply with a minimum of **750mA** 5VSB standby signal is required.

TV out/DFP Connector (CN9)
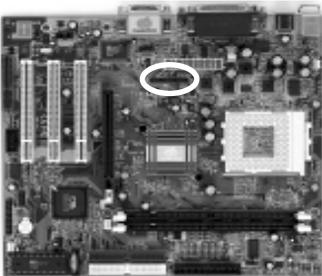
This connector is to be connected to an optional TV-out/DFP adapter card.

USB 2/3 Connector (CN11)
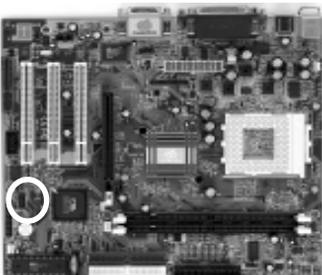
This board contains a connector for an optional USB Adaptor (USB2/3). Four USB peripherals or hub devices are able to be connected.

VCC — VCC
USBDT2- — USBDT3-
USBDT2+ — USBDT3+
GND — GND
X
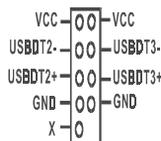
COM 2 Header (COM2)
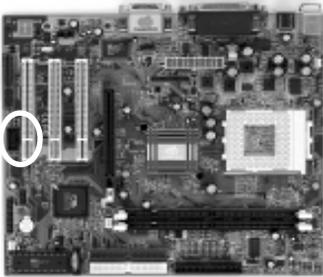
Use the optional serial port cable enclosed with your mainboard. Plug into the header and attached the other end with the bracket to the system case back panel.

USB 0/1 Ports (USB1)
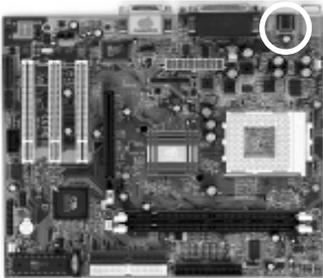
If you want to use a USB keyboard, you must enable the onchip USB & USB keyboard support function in BIOS's Integrated Peripherals menu (See Section 3-4). USB is an open industry standard, providing a simple and inexpensive way to connect up to 125 devices to a single computer port. Keyboards, mice, tablets, digitizers, scanners, bar-code readers, modems, printers and many more can all be used at the same time.

CPU/System/Chip Cooling Fan Connectors (FAN1/FAN2/FAN3)
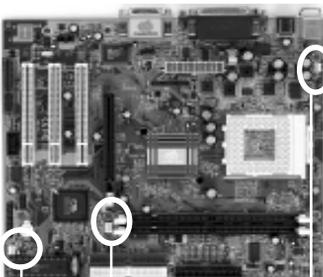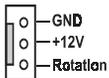
These added connectors allow the fan to draw their power from the mainboard instead of the disk drive connector.

The board's management extension hardware is able to detect the CPU and system fan speed in rpm (revolutions per minute). These connectors supports 3-pin cooling fans with minimum of 4000 RPM. The wiring and plug may vary depending on the manufacturer. On standard fans, the red is positive (+12V), the black is ground, *a*nd the yellow wire is the rotation signal.

FAN2   FAN3   FAN1

- GND
- +12V
- Rotation

FAN1/ FAN2

⚠ FAN3 (Chip fan) is an independent power line that is not control by system health monitor and power management.

CPU Bus Frequency (JPX1)
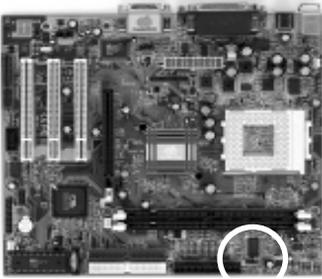
This switch allows you to select between 100MHz FSB or 133MHz FSB frequency speed. You must set the jumper's cap to pins 1-2 for 100MHz or set the jumper's cap to pins 2-3 for 133MHz FSB.

2-5 Main Memory Configuration

The DRAM memory system consists of two banks and the memory size ranges from **32~1GBytes**. It does not matter which bank you want to install first.

```
┌─────────────────────────────────┬──────────┐
│           DIMM 1                 │ Bank0, 1 │
├─────────────────────────────────┼──────────┤
│           DIMM 2                 │ Bank2, 3 │
└─────────────────────────────────┴──────────┘
  1
```
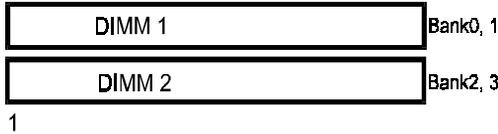
DRAM Specifications

DIMM type: 3.3V, unbuffered, registered, 64/72-bit SDRAM with SPD*

Module size: Single/double-side 32/64/128/256/512MBytes

Parity: Either parity or non-parity

⚠ This mainboard supports 3.3v, unbuffered, 4-clock, SDRAM DIMM only. Buffered, 5V, or 2-clock SDRAM DIMMs should not be used.

⚠ Due to loading anomalies, using DIMM with an 'n x 4' DRAM base on this mainboard is not recommended. For example, a DIMM that uses sixteen 16Mb x 4 devices should not be used.

Chapter 3

Award BIOS Setup Program

Award's BIOS ROM has a built-in setup program that allows users to modify the basic system configuration. This information is stored in CMOS RAM so that it can retain the setup information, even when the power is turned off.

When you turn on or restart the system, press the Delete key to enter the Award BIOS setup program. The primary screen as shown in Figure 3-1 is a list of the menus and functions available in the setup program. Select the desired item and press enter to make changes. Operating commands are located at the bottom of this and all other BIOS screens. When a field is highlighted, on-line help information is displayed on the right side of the screen.

```
        Phoenix - AwardBIOS CMOS Setup Utility

 ►  Standard  CMOS  Features      ► Frequency/Voltage  Control

 ►  Advanced  BIOS  Features         Load Fail-Safe Defaults

 ►  Advanced  Chipset  Features      Load Optimized Defaults

 ►  Integrated Peripherals          Set Supervisor Password

 ►  Power  Management  Setup         Set User Password

 ►  PnP/PCI Configurations          Save & Exit Setup

 ►  PC Health Status                Exit Without Saving

 Esc  : Quit              ↑ ↓ → ← : Select Item
 F10    : Save & Exit Setup

              Time, Date, Hard Disk Type...
```

Figure 3-1 Setup Program Initial Screen

3-1 Standard CMOS Setup

The Standard CMOS Setup allows users to configure system components such as hard disk drive, floppy disk drive and video display as well as date, time and boot-up error signaling. This configuration menu should be changed when installing a mainboard for the first time, changing hardware in your system such as the HDD, FDD, video display, or when the CMOS data has been lost or contaminated. Choose the Standard CMOS Setup option from the CMOS Setup Utility menu (Figure 3-1) to display the following screen.

```
         Phoenix - AwardBIOS CMOS Setup Utility
                 Standard CMOS Features

   Date (mm : dd : yy)        Thu,  Nov   8  2001        Item Help
   Time (hh : mm : ss)        17 : 14 : 44
►  IDE Primary Master         None                    Menu  Level  ►
►  IDE Primary Slave          None
►  IDE Secondary Master       None
►  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 Errors

   Base Memory                      640K
   Extended Memory               30720K
   Total  Memory                 31744K
```

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

Figure 3-2 Standard CMOS Features Screen

Date/Time
Set the date and time. Do not skip this function as all of your timed events such as power management, saving files, etc. are based on this timer.

Hard Disk Setup (Primary/Secondary; Master/Slave)
This category identifies up to four IDE hard disk drives that have been installed in the computer. This section does not show information on other IDE devices such as CD-ROM drives or other hard drive types such as SCSI drives.

Floppy Disk Drives
Choose the memory capacity and disk size that corresponds with that of your floppy disk drive(s).

Video
Select the type of video adapter present in your system. You can ignore this setting if you are using a VGA monitor since VGA BIOS automatically configures this setting.

Halt On
When the system is powered on, BIOS performs a series of diagnostic tests called POST (Power On Self Test). This function stops the computer if BIOS detects a hardware error. You can tell BIOS to halt on all errors, no errors, or not to halt on specific errors.

3-2 Advanced BIOS Features

By choosing the Advanced BIOS Features option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen is for referrence use only.

```
          Phoenix - AwardBIOS CMOS Setup Utility
                   Advanced BIOS Features
  ┌──────────────────────────────────────────┬─────────────────────┐
  │                                           │       Item Help     │
  │   Anti-Virus Protection      Disabled    ▲│                     │
  │   CPU Internal Cache         Enabled      │ Menu Level     ▶    │
  │   External Cache             Enabled      │                     │
  │   CPU L2 Cache ECC Checking  Enabled      │                     │
  │   Quick Power On Self Test   Enabled      │                     │
  │   First Boot Device          Floppy       │                     │
  │   Second Boot Device         HDD-0        │                     │
  │   Third Boot Device          LS120        │                     │
  │   Boot Other Device          Enabled      │                     │
  │   Swap Floppy Drive          Disabled     │                     │
  │   Boot Up Floppy Seek        Enabled      │                     │
  │   Boot Up NumLock Status     On           │                     │
  │   Typematic Rate Setting     Disabled     │                     │
  │ X Typematic Rate (Chars/Sec) 6            │                     │
  │ X Typematic Delay (Msec)     250          │                     │
  │   Security Option            Setup        │                     │
  │   APIC Mode                  Enabled      │                     │
  │   MPS Version Control For OS 1.4          │                     │
  │   OS Select (For DRAM > 64MB) Non-OS2    ▼│                     │
  └──────────────────────────────────────────┴─────────────────────┘
  ↑↓→←:Move  Enter:Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:General Help
            F5:Previous Values      F6:Fail-Safe Defaults   F7:Optimized Defaults
```

Figure 3-3 Advanced BIOS Features Screen

A. Anti-Virus Protection

The Anti-Virus Protection is a code incorporated in the mainboard's BIOS firmware. During the boot-up sequence, BIOS loads before loading of the partition table or boot sector. Anti-Virus Protection loads with BIOS and is able to detect boot-up viruses before they have a chance to infect the hard drive. Anti-Virus Protection employs rule-based logic that doesn't look for specific viruses but rather detects patterns found in every virus, eliminating the need to perform periodical version updates after new viruses have been found.

B. Cache Control

CPU Internal Cache/External Cache

Cache memory is much faster than conventional DRAM system memory. These fields allow you to enable or disable the CPUs Level 1 built-in cache and Level 2 external cache. Both settings are left enabled to significantly increase the performance of your computer.

C. Boot Up Features

After turning on the system, BIOS will perform a series of device initialization and diagnostic tests discussed below.

Quick Power On Self Test (POST)

Enable this function to reduce the amount of time required to run the POST (Power On Self Test). BIOS saves time by skipping some items during POST. It is recommended that you disable this setting. Discovering a problem during boot up is better than loosing data during your work.

First/Second/Third/Boot Other Device

This option sets the sequence of drives BIOS attempts to boot from after POST completes. BIOS will search these drives for an operating system.

Swap Floppy Drive

Enabling this function will swap the floppy drive assignment so that drive A will function as drive B, and drive B will function as drive A. Note that the boot sequence assignment mentioned directly above does not include booting from floppy drive B. This function is useful if floppy drives B and A are of a different format and you want to boot from floppy drive B.

Boot up Floppy Seek

During POST, BIOS will determine if the installed floppy disk drive has 40 or 80 tracks. A 360K drive has 40 tracks and 720K, 1.2M and 1.44M drives have 80 tracks. All modern floppy disk drives have 80 tracks.

Boot Up NumLock Status

This function defines the keyboard's number pad as number keys or arrow keys.

D. Keyboard Interface

Typematic Rate Setting

When enabled, you can set the following two typematic control items. When disabled, keystrokes are determined arbitrarily by the keyboard controller in your system.

Typematic Rate (Chars/Sec)

The typematic rate sets the rate at which characters on the screen repeat when a key is pressed and held down.

Typematic Delay (Msec)

The typematic delay sets how long after you press a key that a character begins repeating.

E. Security Option

The Supervisor and/or User Password functions shown in Figure 3-1 must be set to take advantage of this function. See Section 3-11 for password setting information. When the Security Option is set to System, a password must be entered to boot the system or enter the BIOS setup program. When the Security Option is set to Setup, a password is required to enter the BIOS setup program.

F. OS Select (For DRAM >64MB)

If your system's DRAM is larger than 64MB and you are running OS/2 , select OS/2 as the item value. Otherwise, set the item value to Non-OS/2 for all other operating systems.

G. Shadow Memory

Software such as system BIOS, video BIOS, SCSI BIOS, etc that resides in ROM (Read Only Memory) chips is called firmware. Shadowing of firmware occurs when BIOS is copied to RAM address C0000h through DFFFFh. Video BIOS loads into the C0000-C7FFF memory area when video shadowing is enabled. If an expansion peripheral in your system contains ROM-based firmware, you need to know the address range the ROM occupies to shadow it into the correct area of RAM.

Shadowing improves the firmware's performance because the firmware can be read by the CPU through the 16- or 32-bit DRAM bus as opposed to the 8-bit XT bus. However, shadowing also results in reducing the amount of high memory (640 KB to 1 MB) for loading device drivers. Shadowing is used mostly for ROM chips on ISA cards and not for PCI cards. Shadowing and playing games at the same time may result in system instability as some games access the RAM memory area being shadowed.

3-3 Advanced Chipset Features

By choosing the Advanced Chipset Features option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen is for refrerence use only.

```
          Phoenix - AwardBIOS CMOS Setup Utility
                  Advanced Chipset Features

   DRAM Timing By SPD      Enabled       ▲          Item Help
 X DRAM Clock              133M
 X SDRAM  Cycle Length     3
 X Bank Interleave         Disabled             Menu Level    ▶
   Memory Hole             Disabled
   PCI Master Pipeline Req Enabled
   P2C/C2P Concurrency     Disabled
   Fast R-W Turn Around    Disabled
   System BIOS Cacheable   Disabled
   Video RAM Cacheable     Disabled
   Frame Buffer Size       16M
   AGP Aperture Size       64M
   AGP Mode                4X
   AGP Driving Control     Auto
 X AGP Driving Value       DA
   AGP Fast Write          Disabled
   Flash BIOS Protection   Disabled
   OnChip Sound            Auto
   OnChip Modem            Auto          ▼

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

Figure 3-4 Advanced Chipset Features Setup Screen

⚠ All of the above settings have been determined by the mainboard manufacturer and should not be changed unless you are absolutely sure of what you are doing. Explanation of the DRAM timing and chipset features setup is lengthy, highly technical and beyond the scope of this manual. Below are abbreviated descriptions of the functions in this setup menu. You can look on the world wide web for helpful chipset and RAM configuration information including AWARD's web site at http://www.award.com.

A. SDRAM Cycle Length

When synchronous DRAM is installed, the number of the clock cycles of CAS latency depends on the DRAM timing. Do not reset this setting from the default value specified by the system designer.

B. Memory Hole

Enabling this function will reserve the memory address space between 15MB and 16MB for ISA expansion cards. However, enabling this function will result in not allowing the system to have access to memory above 16MB. Please note that some expansion cards require this setting to be enabled. The default setting is Disabled. If Auto Configuration is enabled, you must set the DRAM timing function to 60ns or 70ns, depending on the type of DRAM you install.

C. System BIOS Cacheable

Enabling this function allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result. Caching the system BIOS results in better performance than shadowing the system BIOS as discussed in Section 3-2.

D. Video RAM Cacheable

Enabling this function will allows caching of the video RAM, resulting in better system performance. However, if any programs write to this memory area, a system error may occur.

E. AGP Aperture Size

This function determines the amount of system memory that is given to the AGP card. Options range from 4MB to 128MB. This is a dynamic memory allotment in that the AGP card will only use the amount of memory that it needs. The remaining memory not in use will be available for the system to use. For example, if 16MB is alloted to the AGP card and the card only needs 8MB, the remaining 8MB will be available for system use.

F. AGP Mode

This feature allows user to select a mode to utilize offered by advanced AGP cards. Select 4X if your VGA card support this mode in order to take advantage of the faster speed.

G. Flash BIOS Protection

The mainboard manufacturer developed BIOS protection technology that protects the System BIOS from accidental corruption by unauthorized users or computer viruses. When enabled, the BIOS data cannot be changed when attempting to update BIOS with the the FLASH utility. When disabled, the BIOS data can be updated by using the FLASH utility.

H. OnChip Sound

This function must be enabled in order to use the onboard audio function. To terminate this function set it to disabled.

I. OnChip Modem

This function must be enabled in order to use the soft modem riser card on AMR slot. To terminate this function set it to disabled. Be sure to set JP1 jumper to pin 2-3 as discussed in Section 2-4 of this manual to enable this function.

J CPU to PCI Write Buffer

When Enabled, CPU to the PCI bus are buffered, to compensate for the speed differences between the CPU and the PCI bus.

K. PCI Delay Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1.

3-4 Integrated Peripherals

This section provides information on setting peripheral devices. By choosing the Integrated Peripherals option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen is for referrence use only.

```
        Phoenix - AwardBIOS CMOS Setup Utility
                 Integrated Peripherals

    On-Chip IDE Channel 0      Enabled      ▲          Item Help
    On-Chip IDE Channel 1      Enabled
    IDE Prefetch Mode          Enabled           Menu Level    ▶
    Primary Master PIO         Auto
    Primary Slave PIO          Auto
    Secondary Master PIO       Auto
    Secondary Slave PIO        Auto
    Primary Master UDMA        Auto
    Primary Slave UDMA         Auto
    Secondary Master UDMA      Auto
    Secondary Slave UDMA       Auto
    Init Display First         PCI Slot
    OnChip USB                 Enabled
     USB Keyboard Support      Disabled
     IDE HDD Block Mode        Enabled
    Onboard FDD Controller     Enabled
    Onboard Serial Port 1      Auto
    Onboard Serial Port 2      Auto
    UART 2 Mode                Standard     ▼

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

Figure 3-5 Integrated Peripherals Screen

A. On Board IDE Control

On-chip IDE channel 0/1
You can set this to disable the On-chip IDE controller if you are going to add a higher performance IDE board.

IDE Primary/Secondary Master/Slave PIO
The four IDE PIO (programmed Input/Output) fields let you set a PIO mode (0-4) for each IDE device that the internal PCI IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

B. Init Display First

This function allows user to choose between AGP slot or PCI slot to initialize Display first .

C. OnChip USB

Enable the on-board Universal Serial Bus (USB) controller if you want to connect a USB keyboard to your system. Note that if this setting is disabled, you can still temporarily use a USB keyboard during bootup so that you can enter BIOS and enable this setting. If you pass the bootup stage without enabling this function, your PS/2 keyboard will no longer work.

D. USB Keyboard Support

Select Enabled if your system has a USB keyboard installed on the system board. If your system has no USB keyboard, select Disabled in this field.

E. IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

F. Onboard FDC Controller

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install an add-in FDC or the system has no floppy drive, select Disabled in this field.

G. UART 2 Mode

This function allows you to select an operating mode for the second serial port. (**Standard** RS-232C serial port/**HPSIR** 1.0 specification/**ASKIR** 0.57-MB/sec infrared port)

H. Onboard Parallel Port

Select a logical LPT port address and corresponding interrupt for the physical parallel port.

I. Parallel Port Mode

Select an operating mode for the onboard parallel (printer) port. Select SPP unless you are certain your hardware and software support one of the other available modes.

J. Onboard CMedia Audio

This feature allows user to select 6 channels function, if they installed an optional 6ch Expansion kit on this mainboard.

3-5 Power Management Setup

This section provides information on the Green PC power management functions. By choosing the Power Management Setup option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen is for refrerence use only.

```
           Phoenix - AwardBIOS CMOS Setup Utility
                   Power Management Setup
┌──────────────────────────────────────────┬─────────────────────┐
│                                           │      Item Help      │
│  ACPI function            Enabled         │                     │
│ ► Power Management        Press Enter     │  Menu Level    ►    │
│  ACPI Suspend Type        S1(POS)         │                     │
│  Video Off Option         Suspend -> Off  │                     │
│  Video Off Method         DPMS  Support   │                     │
│   MODEM Use IRQ           3               │                     │
│  Soft-Off by PWRBIN       Instant-Off     │                     │
│   State After Power Failure  Off          │                     │
│ ► Wake Up Events          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
```
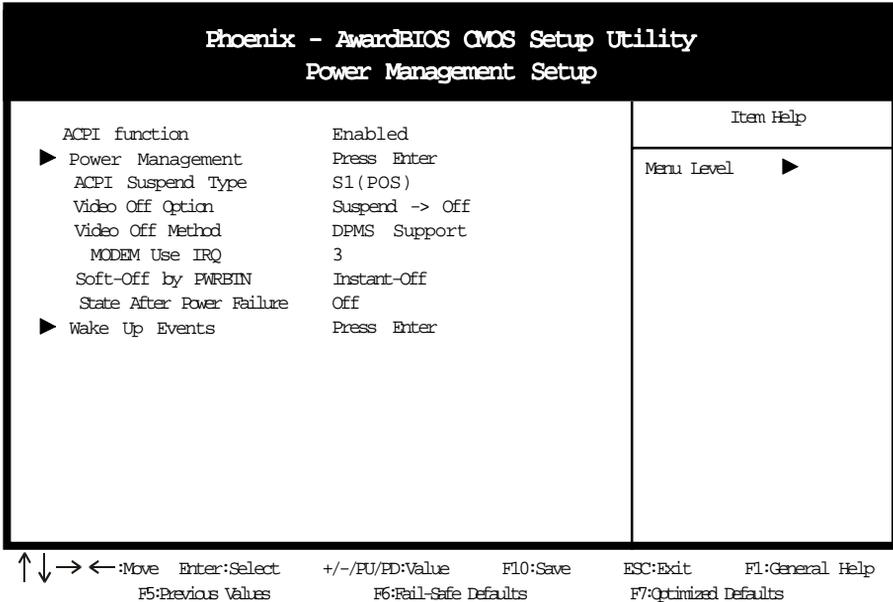
Figure 3-6 Power Management Setup Screen

A. Advanced Configuration Power Interface (ACPI)

ACPI management enables the operating system to control the amount of power given to each device attached to the computer. With ACPI, the operating system can turn off peripherals devices, such as CD-ROM players, when they are not in use.

B. Power Management

Power management allows the computer to save electricity when it is not in use by entering increasingly deep power saving modes as shown by the diagram below.

C. Video Off Option

This setting allow you to selects the power-saving modes during which the monitor goes blank:

D. Video Off Method

This function serves as both a screen saver and power saver for monitors. See the next function, Video Off After, for setting the video timer.

Blank - BIOS will only blank the monitor's screen. The electricity saved in this mode is negligible and this function is only used as a screen saver to prevent screen damage while the screen is on but not in use.

V/H SYNC+Blank - The system turns off the vertical and horizontal synchronization ports, writes blanks to the VGA buffer and the monitor's electron gun turns off. This function requires a monitor with Green features in order to take advantage of the power saving function. If you enable this function and do not have a Green monitor, the result will be the same as if you had selected Blank. This function serves as both a screen saver and an electricity saver.

DPMS Supported - Select this option if your video card supports the Display Power Management Signaling (DPMS) standard (i.e., you have a monitor that supports Green features). Use software supplied by your video subsystem to set video power management options.

E. Modem Use IRQ

If your computer has an modem, use this function to tell BIOS which IRQ is being occupied by the modem card. When the system is in Green mode, the modem requires an IRQ assignment to wake up the system and perform tasks. This assignment is compliant with the APM 1.2 specification and is to be used in coordination with APM 1.2 compliant operating systems.

F. Soft-Off by PWR-BTN

When set to Delay 4 Sec., this function allows the power button to put the system in Suspend, a power saving mode. See Section 2-4 for operation instructions of the override power button operation which puts the system in Suspend mode. When set to Instant-Off the Soft-Off by PWR-BTN function is disabled and the computer turns completely off when the power button is pressed.

G. Wake Up Events

Power On By PCI Card
When enabled, a PCI card that receives a signal will wake up the system from soft off and green mode.

Power On By Modem/LAN
When enabled, a modem/LAN that receives a signal will wake up the system from soft off and green mode. You should connect the modem to the COM port and turn on the resume event in green mode.

Power On By Alarm
When enabled, this setting allows the system to turn back on at a designated time of the month. User must designate date of month and time of day. This function is only available when using an ATX power supply and the Software Power-Off function to turn off the computer. See the Software Power-Off feature in Section 2-4 of this manual for instructions.

3-6 PNP/PCI Configuration

This section provides IRQ and DMA setting information. By choosing the PNP/PCI Configuration option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen is for referrence use only.

```
          Phoenix - AwardBIOS CMOS Setup Utility
                   PnP/PCI  Configurations

   PNP OS Installed        No                  Item Help
   Reset Configuration Data  Disabled
                                            Menu Level    ►
   Resources Controlled By  Auto(ESCD)
 X IRQ Resources           Press  Enter
 X DMA- Resources          Press  Enter

   PCI/VGA Palette Snoop    Disabled
   Assign IRQ For VGA       Enabled
   Assign IRQ For USB       Enabled
   Slot 1   Use IRQ No.     Auto
   Slot 2   Use IRQ No.     Auto
   Slot 3   Use IRQ No.     Auto
   FDD IRQ Can Be Free      Yes
```

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

Figure 3-7 PnP/PCI Configurations Screen

A. PNP OS Installed
If you want to install a PNP compatible OS(such as Windows 95) set to Yes.

B. Resources Controlled By
When set to Manual the system BIOS will not refer to the ESCD for IRQ & DMA information. Instead, it will refer to the items in the setup menu for assigning IRQ & DMA. When set to Auto the system BIOS will refer to the ESCD for all legacy information.

⚠ ESCD (Extended System Configuration Data) provides a detailed format of the configuration data structures stored in flash memory. Each data structure defines the resources used by a device or a card in the system. This includes legacy and PCI/ISA PnP devices.

C. FDD IRQ Can Be Free
This function allows user to choose if the FDD IRQ is able to be freed up. The default setting is Yes and this does not allow the IRQ to be free.

3-7 PC Health Status

By choosing the PC Health Status option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This field shows you the current system temperature/external voltages input and the current CPU FAN and System FAN operating speed.

```
         Phoenix - AwardBIOS CMOS Setup Utility
                    PC Health Status

   Current CPU Temp.         35 °C/95 °F         Item Help
   Current System Temp.      31 °C/87 °F
   Current CPU FAN  Speed    4500 RPM           Menu Level  ▶
   Current SYS FAN  Speed    4500 RPM
   VCore                     1.75V
   Vdd                       2.48V
   3.3V                      3.32V
   5 V                       5.05V
   12 V                      12.16V

↑↓→←          :Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
             F5:Previous Values    F6:Fail-Safe Defaults    F7:Optimized Defaults
```
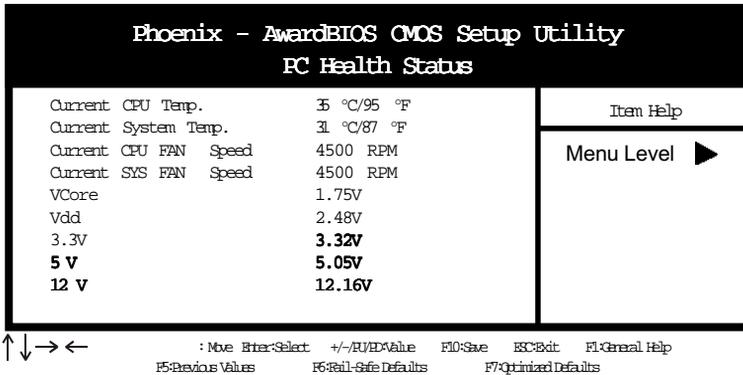
Figure 3-8 Sample of PC Health Status Screen

3-8 Frequency/Voltage Control

By choosing the Frequency/Voltage Control option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen is for rererrence use only.

```
         Phoenix - AwardBIOS CMOS Setup Utility
                Frequency/Voltage Control

   CPU Host/PCI Clock            Default         Item Help

                                                Menu Level  ▶

↑↓→←          :Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
             F5:Previous Values    F6:Fail-Safe Defaults    F7:Optimized Defaults
```
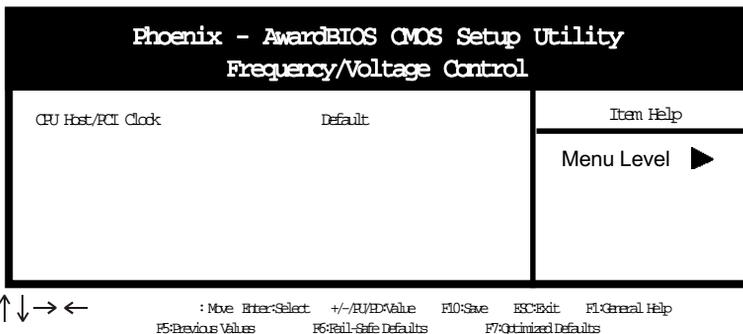
Figure 3-9 Sample of Frequency/Voltage Control Screen

A. CPU Host/PCI Clock

This feature allow your to select a timing combination for the CPU and the PCI bus.

3-9 Load Fail-Safe Defaults

Load Fail-Safe Defaults loads the default BIOS values directly from the CMOS Setup Utility menu (Figure3-1). If the stored record created by the setup program becomes corrupted and therefore unusable, these defaults will be loaded automatically when you turn on the computer.

```
        Phoenix - AwardBIOS CMOS Setup Utility

 ▶ Standard CMOS Featur          ▶ Frequency/Voltage Setup
 ▶ Advanced BIOS Features          Load Fail-Safe Defaults
 ▶ Advanced Chipset Features       Load Optimized Defaults
 ▶ Integreted Peripherals          Set Supervisor Password
 ▶ Power Management Setup           Set User Password
 ▶ PnP/PCI Configu      ┌──────────────────────────────┐ Setup
 ▶ PC Health Status     │ Load Fail-Safe Defaults (Y/N) ? N │ Saving
                        └──────────────────────────────┘

 Esc   : Quit
 F10   : Save & Exit Setup        ↑ ↓ → ← : Select Item

              Load Fail-Safe Defaults
```
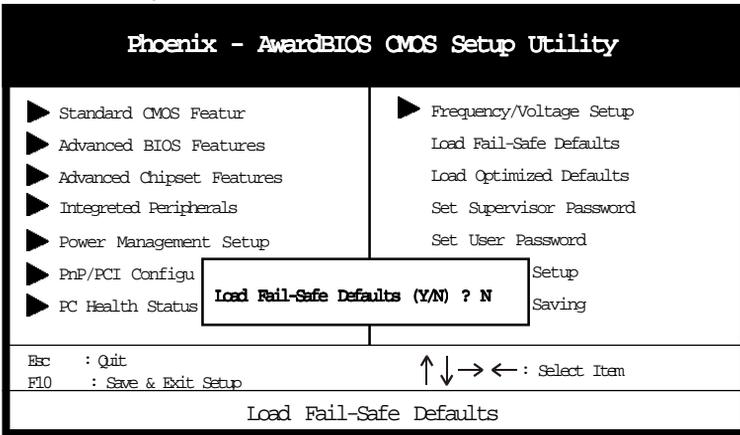
Figure 3-10 Sample of Load Optimized Defaults Screen

3-10 Load Optimized Defaults

Load Optimized Defaults loads the default system values directly from the CMOS Setup Utility menu (Figure3-1). If the stored record created by the setup program becomes corrupted and therefore unusable, these defaults will be loaded automatically when you turn on the computer.

```
        Phoenix - AwardBIOS CMOS Setup Utility

 ▶ Standard CMOS Featur          ▶ Frequency/Voltage Setup
 ▶ Advanced BIOS Features          Load Fail-Safe Defaults
 ▶ Advanced Chipset Features       Load Optimized Defaults
 ▶ Integreted Peripherals          Set Supervisor Password
 ▶ Power Management Setup           Set User Password
 ▶ PnP/PCI Configu      ┌──────────────────────────────┐ Setup
 ▶ PC Health Status     │ Load Optimized Defaults (Y/N) ? N │ Saving
                        └──────────────────────────────┘

 Esc   : Quit
 F10   : Save & Exit Setup        ↑ ↓ → ← : Select Item

              Load Optimized Defaults
```
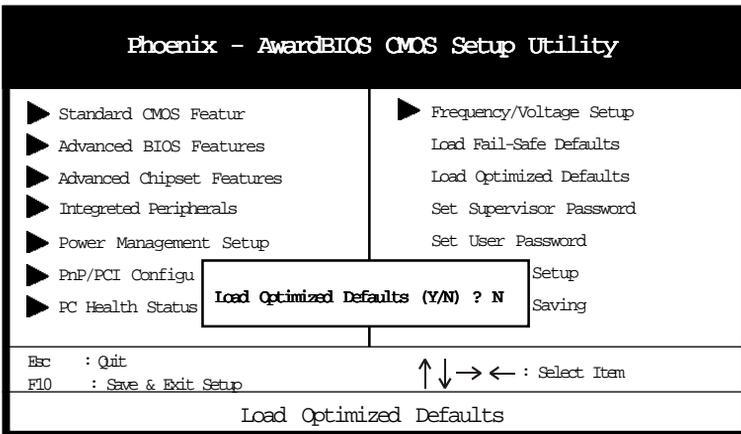
Figure 3-11 Sample of Load Optimized Defaults Screen

3-11 Supervisor Password & User Password Setting

There are four different variables that control password settings. The first two are located under the Security Option function in BIOS Features Setup Menu (Figure 3-1). When the Security Option function is set to Setup, a password is required to enter BIOS and change BIOS settings. When the Security Option function is set to System, a password is required to enter both BIOS and the computer's operating system (for example Windows 98) found on the boot drive. The third and fourth variables are user password and supervisor password selected in BIOS (Figure 3-1). The main purpose of separating user and supervisor is to allow only the supervisor to have control over the settings in BIOS. The user, on the other hand, is only allowed to access the computer's operating system and change the user password in BIOS. Note that when there is no supervisor password set, the user password controls access to all BIOS settings.

3-12 Save and Exit Setup

If you select this and type **Y** (for yes) followed by the [Enter] key, the values entered in the setup utilities will be recorded in the CMOS memory of the BIOS chip.

3-13 Exit Without Saving

Selecting this option by pressing **Y** (for yes) followed by the [Enter] key, let you exit the setup utilities without recording any new values or changing old ones.

Memo

Chapter 4

Brief Software Driver Guide

The Mainboard Software Guide is found on the CD-ROM that is enclosed with your mainboard and is a PDF file which must be viewed with Adobe's freeware called Acrobat® Reader. The Acrobat Reader software is also included on the same CD-ROM. See the Readme.txt file in the CD-ROM's root directory for installation instructions of the Acrobat Reader. The Mainboard software guide discusses the following items:

The following items are discussed in the TXT or PDF files:

- VIA Service Pack for Win9x/WinNT including Bus Master IDE drivers, AGP VxD

   IRQ routing mini port driver and etc.
- ACPI Patch Installation
- Sound Driver and Utility Installation
- AGP VGA Driver for Win9x/ME/2000/XP/NT
- USB Driver Installation
- Updating Your System BIOS
- Installing and Using a Desktop Management Interface (DMI) Utility for DOS

⚠️ The DMI utility is a DOS utility, operating under Windows or other operating system might cause damage to the BIOS.

Memo

Appendix I

On Board I/O Addresses & IRQ Maps

System Resource	IRQ	I/O Address
1. Timer	IRQ0	040, 043
2. Keyboard	IRQ1	060, 064
3. Programmable INT	IRQ2	0020, 0021, 00A0, 00A1
4. COM2(B)	IRQ3	2F8, 2FF
5. COM1(A)	IRQ4	3F8, 3FF
6. Floppy	IRQ6	3F0, 3F7
7. LPT1	IRQ7	378, 37F
8. Real Time Clock	IRQ8	070, 071
9. PS/2 Mouse	IRQ12	060, 064
10. Math coprocessor	IRQ13	0F0, 0FF
11. IDE 1	IRQ14	1F0, 1F7
12. IDE 2	IRQ15	170, 177

✎ **IRQ 5, 9, 10 and 11 are available for interface cards.**

Memo

Embedded Flash Utility

This mainboard is equipped with an Erasable Flash ROM and an Embedded Flash Utility which allows the user to update the BIOS to a newer version. Embedded Flash Utility eases BIOS upgrade and eliminate the compatibility issue between different Flash ROM type and version of Flash utility.

Update Your System BIOS

1. Start computer, upon post, press ALT+F2 Keys to enter AWDFLASH setup.

2. Insert the floppy disk with the latest BIOS file into the floppy drive A(or B)

   and then press Enter to start programming.

<table>
<tr><td colspan="3">FLASH MEMORY WRITER V 7.52C</td></tr>
<tr><td colspan="3">(C) Award Software 1999 All Right Reserved</td></tr>
<tr><td colspan="3">For XXX-XXXXXXX-6A69MC3DC-0 DATE: 01/20/2000</td></tr>
<tr><td colspan="3">Flash Type- XXXXX E82802AB / 3.xV(1Mb)</td></tr>
<tr><td colspan="3">File Name to Program :   7AIV6C06.BIN</td></tr>
<tr><td colspan="3">Programming Flash Memory</td></tr>
<tr><td>☐ Write OK</td><td>▨ No Update</td><td>⊟ Write Fail</td></tr>
<tr><td colspan="3">Warning : Don't Turn Off Power Or Reset System !</td></tr>
</table>
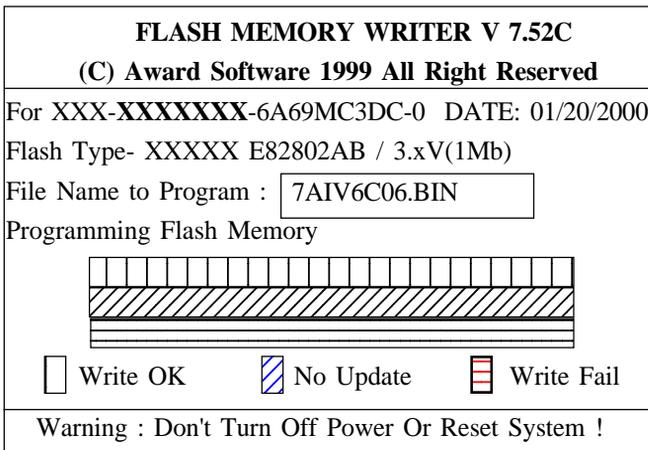
Sample of Programing Flash Memory Screen

3. When finished, the system will automatically Restart.

Note:

☞ Flash BIOS Protection must be set to Disabled in the Advance Chipset Feature from the CMOS Setup Utility menu. See Chapter 3.

☞ Don't turn off or restart your system during programming process.

☞ Make sure that your floppy diskette have only one BIN file to aviod confussion.

Memo

CMedia 8738 Audio Subsystem

The CMedia 8738 offers a new generation PCI audio solution: it utilizes the state-of-the-art CRL® 3D Audio technology (HRTF 3D positional audio), and supports Microsoft® Direct Sound®3D and Aureal®'s A3D® interfaces. Better yet, it supports two/four/six speakers and DLS based (Down Loadable Sound) wave table music synthesizer which supports the Direct Music®.

Feature

- Advanced 64-voice wavetable synthesizer
- Programmable independent sample rate form 4KHz to 48KHz for record and playback
- Full-duplex operation for simultaneous recording and playback
- Supports MS DLS (Downloadable sample) level-1 technology with limitless variety of instrument samples using PC RAM
- Supports HRTF 3D positional audio with MSDS, DS3D, DirectMusic, Aureal A3D and Creative EAX (Environment Audio Extensions), C3DX APIs
- 6-Channel speaker audio support is easy to build up a Home Theater environment
- Supports Fiber Optic module for Internet music, PC, and MD connections
- Supports MIDI and dual game ports
- Embedded 32OHM .5w earphone amplifier

6 Speakers System

The CMedia 8738 Audio subsystem provides 3 wave channels (front/rear/center+bass), known as the 6 speakers system. When games or application programs via DirectSoundR 3D or A3DR interface locate the sound sources to the listener's back, the two rear speakers will work to enhance the rear audio positional effect, so as to complement the insufficiency of using only two front speakers to emulate the audio effect. The following is the hardware installation and the software setups:

Installation

1. Connect the front pair speakers to the Line-out jack of the audio adapter, and then connect rear pair speakers to Line-in/Rear jack of the audio adapter. The original Line-in can be moved to Aux-in.

2. Install the audio driver and Audio Rack application software(see chapter 4).

3. There is a multi speakers option in the volume control of the mixer, and when you enable this option, it means the rear speakers are connected to Line-in/Rear jack. When Line-in/Rear jack is connected to other external Line-in sources, please DO NOT enable this option in order to avoid hardware conflicts. Regarding rear speaker option, you can turn **ON** or turn **OFF** the output of the back speakers, and adjust the volume, to have the rear/front speakers have the same volume.
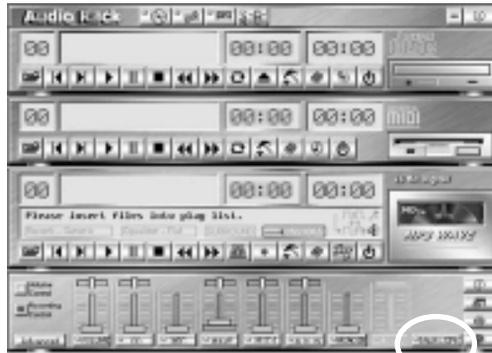
Multi Speaker selector Button

Note: You can test your multi-channel system by clicking the Multi-Channel Audio Demo at C:\WINDOWS\Start Menu\Programs\PCI Audio Application\Multi-Channel Audio Demo(as shown in figure below).