K7TA Series Motherboard

User's Manual

Product Name: K7TA, K7TA-H or K7TA266

Manual Revision: English, 1.3

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Chapter 1. Introduction

1.1 Product Overview

Thank you for purchasing the **K7TA, K7TA-H or K7TA266** motherboard. This motherboard
utilizes **VIA**'s latest technology, namely **KT133 or KT133A** chipset : **VT8363** or **VT8363A** &
VT82C686A or **VT82C686B** chipset. We have conducted a motherboard compatibility test
with a variety of hardware and software, such as CPUs, memory, display cards, CD ROMs,
Novell, MS Office...etc and compliance with Year 2000.
We have set high standards on our quality control, with absolute confidence, we believe this
product is the wisest choice.
This manual is composed of four sections. The first section is the introduction of this
motherboard, and the second section explains the proper procedure to setup the
motherboard, the third section provides information on how to setup the CMOS. The last
section states the installation for driver and utility.

Ordering Codes

K7TA   Uses VIA VT8363 & VT82C686A chipset. Supports AMD Socket A 200MHz FSB CPU.
Supports   Ultra DMA 33/66.

K7TA-H   Uses VIA VT8363 & VT82C686B chipset. Supports AMD Socket A 200MHz FSB CPU.
Supports   Ultra DMA 33/66/100.

K7TA266   Uses VIA VT8363A & VT82C686B chipset. Supports AMD Socket A 200/266MHz FSB
CPU. Supports Ultra DMA 33/66/100.

1.2 Features:

- Wake up on LAN.
- Wake up on Modem.
- Support Ultra DMA 100 (for K7TA-H or K7TA266 only).
- Support NCR SCSI BIOS.
- Modem Remote Ring On.
- Support 200/266MHz FSB frequency (266MHz FSB is just for K7TA266 only).
- Audio Codec on board.
- Support Advanced Configuration Power Interface (ACPI).
- BIOS Green feature function, and "Plug & Play" Flash ROM.
- Support Desktop Management Interface (DMI) through BIOS.
- RTC Wake Up Alarm: Program the date/time to wake up your system.
- Both the BIOS and hardware levels of the motherboard meet PC '99 compliant.
- Support AGP cards for high performance, component level inter-connection targeted at 3Dgraphical applications supporting 133MHz 4X mode.

1.3 Specifications

CPU:

- Supports AMD Socket A (Socket 462), Athlon and Duron 200MHz Front Side Bus Processors (K7TA266 can also support 266MHz FSB CPU).

Chipset:

- VIA VT8363 & VT82C686A for K7TA
- VIA VT8363 & VT82C686B for K7TA-H
- VIA VT8363A & VT82C686B for K7TA266

DIMM:

- Supports 3.3V PC100/133-compliant SDRAM in 3 168-pin banks, each bank consists of 1x168-pin 64-bit DIMM socket, which can support memory sizes of 8/16/32/64/128/256/512 MB modules.
- Supports up to a maximum of 1.5GB system memory.

IDE:

- Dual channel PIO and PCI Bus Master IDE ports support up to 4 EIDE devices for HDD or CD-ROM
- Supports PIO Mode 4
- Supports Multiword DMA Mode 0, 1, 2
- Supports Ultra DMA 33/66 (UDMA) with data transfer rate up to 33/66 MB/Sec
- Supports Ultra DMA 100 (for K7TA-H or K7TA266 only)

BIOS:

- 2Mbits Award BIOS V.600PGN with built-in Anti-Virus, DMI support, and green function (Plug-and-Play BIOS)
- Supports CD-ROM/HD/SCSI/Floppy/LS120/ZIP and LAN boot up

- Supports NCR SCSI BIOS.

I/O Devices:

- One FDD control port supports two of the 5.25" or 3.5" floppy drives up to 2.88 MB.
- Two high-speed 16550 UART compatible serial ports
- One parallel ports with ECP/ EPP compatibility.
- One PS/2 mouse port
- One PS/2 Keyboard connector

IR Port:

- One IrDA/ASKIR compatible Infrared interface port. (Cable optional)

USB Ports:

- Four Universal Serial Bus (USB) ports support up to 127 peripheral devices. (Cable optional)

Sound:

- AC '97 Rev 2.1 compliant
- 18-bit Stereo Full-Duplex Codec
- Variable Sampling Rate (VSR) up to 48kHz in 1Hz resolution
- 3D Stereo expansion for simulated surround
- 4 stereo and 2 mono analog line-level inputs
- MIC level input switchable from two sources
- Second line-level output with volume control
- 3.3V, 5V or split analog/digital power supply
- External Audio Amplifier Control
- Power management support
- Low Power consumption mode
- Stereo Headphone Amplifier

ATX Power:

- Supports Modem remote Ring-On function.
- Supports software power off function.
- Supports RTC Wake-Up.
- Supports Wake up on LAN.

Expansion Slots:

- Five 32-bit PCI expansion slots
- One 16-bit ISA expansion slot
- One 32-bit AGP expansion slot
- One Audio Modem Riser (AMR) slot

Operating System:

- Supports Windows 95/98/2000, Windows NT, MS-DOS V6.22, OS/2, Novell, Unix,

SCO UNIX...
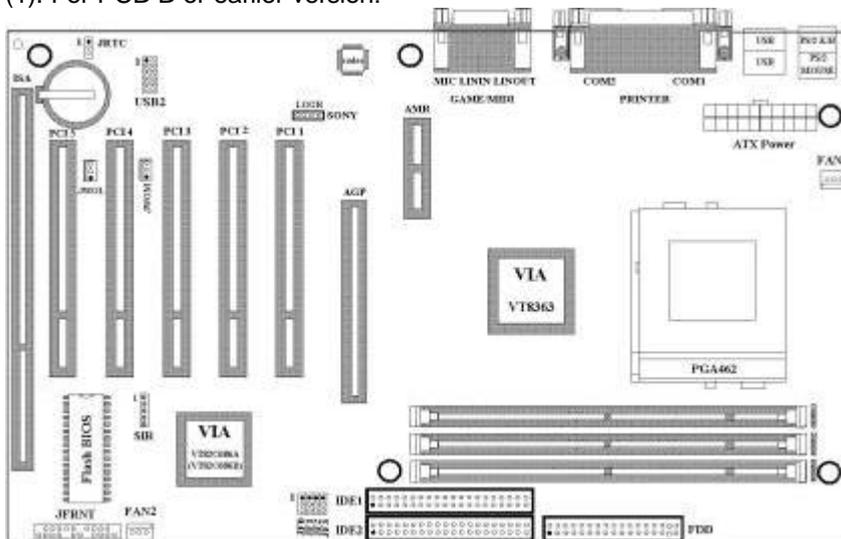
Dimension:

- 305 mm x 190 mm ATX Form factor

1.4 Content

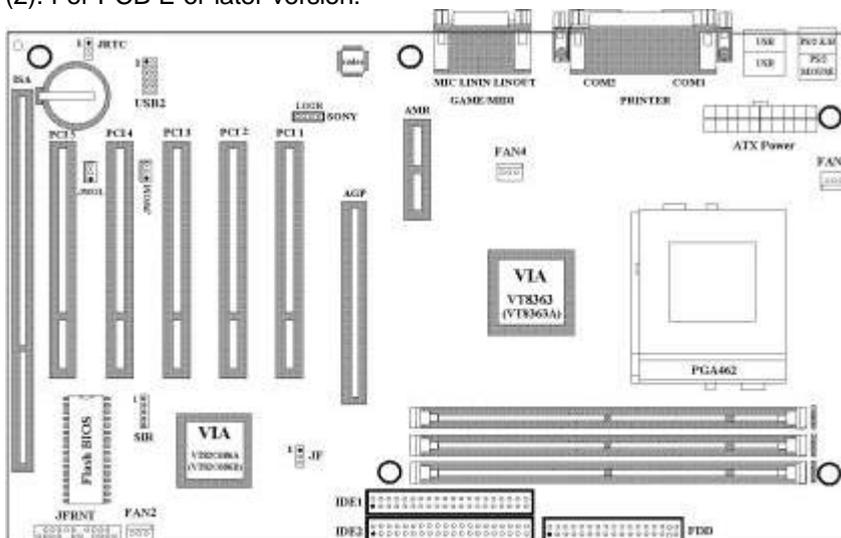The motherboard box contains the following items:

- One Motherboard
- One IDE Ribbon Cable
- One Floppy Ribbon Cable
- One CD Driver Disk
- User's Manual

1.5 MotherBoard Layout

(1). For PCB B or earlier version:

(2). For PCB E or later version:

Chapter 2. Hardware Setup

2.1 Installation Procedure

1. Jumper settings (BIOS and CPU)
2. Installation of CPU
3. Installation of Memory
4. I/O Connections & Panel Connections

2.1.1 Jumper Settings

In this manual , **(1-2) represents the first and second pins of the jumper. (2-3) represents the second and third pins of the jumper**. On the motherboard, you will see two sets of jumpers with different color jumper caps:

Yellow Jumper Caps : Sets the Function of Flash CMOS JRTC

Green Jumper Caps : Sets the type and speed of CPU

JF0, JF1, JF2, JF3 (for PCB B or earlier version)
JF (for PCB E or later version)

WARNING: Electronic parts are Static sensitive. To prevent damage to the computer and its parts please take the following measures.

- Work on a surface such as concrete, linoleum or hard wood floor.
- Ground your self with either a properly installed grounding strap or by touching a major electrical appliance long enough to discharge the static.

2.1.2 Clearing the CMOS (Yellow Jumper Caps)

JRTC : CMOS Function Selection
1-2 : Clear data
2-3 : Normal Operation (Default Setting)
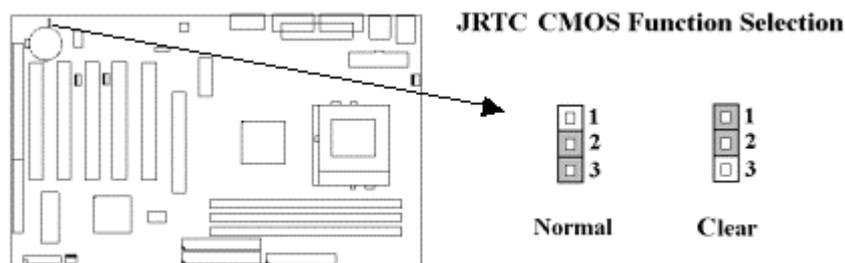
How to Clear the CMOS Setting:

1. Turn off the power.
2. Remove ATX power cable from power connector.
3. Remove Yellow Jumper Cap from JRTC (2-3) and put on JRTC (1-2)to remove the CMOS setting.
4. Remove Yellow Jumper Cap from JRTC (1-2) and put on JRTC (2-3).
5. Connect ATX power cable back to power connector.
6. Turn on the power.
7. While the system reboots, press <DEL> key to set the BIOS setup.

2.1.3 CPU Voltage Setting

The motherboard supports CPU VID function, the CPU core voltage is automatically detected.

Over-current Protection

This switching regulator circuit is designed onboard to support CPU over-current protection. It enhances the protection of CPU.
ATX switching power supply----5V---->circuit onboard power regulator---->over-current protection---->CPU core voltage.

Note: Although we have implemented protection circuit try to prevent any human operating mistake, there is still certain risk that CPU installed on this motherboard may be damaged because of component failure, human operating error or unknown nature reason. We cannot guaranty the protection circuit will always work perfectly.

2.1.4 CPU Bus Clock Setting

K7TA series supports DDR (Double Data Rate) transfer on Socket A CPU address and data buses.
EV6 Bus is the technology of Alpha processor from Digital Equipment Corporation. EV6 bus uses both rising and failing clock edge to transfer data.
EV6 Bus speed = CPU external bus clock x 2
For example, 200MHz EV6 bus is actually using 100MHz external bus clock, but the equivalent speed is 200MHz. Any attempts to push beyond product specification are not recommended.

(1). For PCB B or earlier version:

CPU Bus Clock	EV6 Bus Clock	JF0	JF1	JF2	JF3
100	200	1-2	2-3	1-2	1-2
103	206	1-2	2-3	1-2	2-3
105	210	1-2	2-3	2-3	1-2
107	214	2-3	1-2	2-3	2-3
110	220	2-3	1-2	2-3	1-2

System bus multiplier for CPU clock

100MHz   103MHz   105MHz

107MHz   110MHz
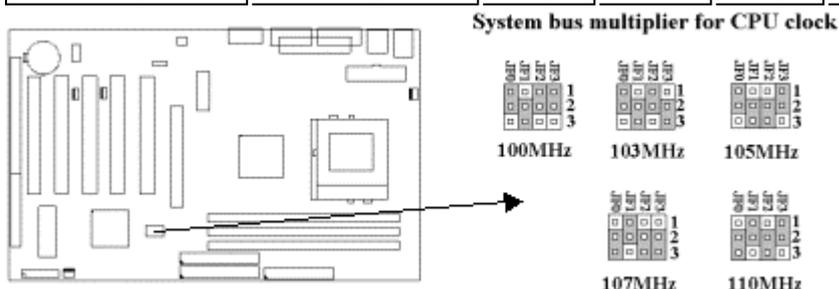
(2). For PCB E or later version:

CPU Bus Clock	EV6 Bus Clock	JF
100	200	2-3
133	266	1-2

System bus multiplier for CPU clock

JF 133MHz   JF 100MHz

System bus multiplier for CPU clock.

2.2 Installation of CPU

Before installing CPU, make sure the power is off. Locate the level bar on the PGA462 ZIF socket. Push level bar away from the socket and pull upward 90 degrees. Insert the CPU into the socket. Be careful of CPU orientation. Make sure the notch of the CPU corresponds with the white dot on the ZIF socket (the corner without pin socket). Do not push in the CPU. Make sure all pins are aligned with the CPU socket. ON the level bar.

2.3 Installation of Memory

The motherboard has 3x168-pin 64-bit Dual Inline Memory Module (DIMM) sockets divided into 3 banks. You can install 3.3V Unbuffered PC100/133-compliant Synchronous DRAM (SDRAM) memory. This will increase the system reliability.

2.3.1 Installation of 168-pin DIMM (Dual Inline Memory Module)

1. Before inserting the DIMM, make sure the pin1 of the DIMM matches with the pin1 on the DIMM socket.
2. Insert DIMM into the DIMM sockets at a 90-degree angle and press down.

2.3.2 Removal of 168-pin DIMM

Press the holding clips on both sides of the socket outward to release the DIMM. Gently pull the DIMM out of the socket.
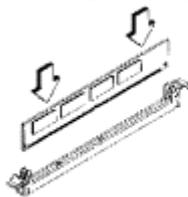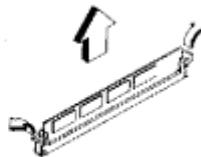
Install DIMM   Remove DIMM

2.3.3 Memory Configuration

There is no jumper setting required for the memory size or type. It is automatically detected by the system BIOS, and the total memory size is to add them together.

DIMM Socket	DIMM Modules
DIMM1	PC100/PC133, 8, 16, 32, 64, 128, 256, 512MB
IMM2	PC100/PC133, 8, 16, 32, 64, 128, 256, 512MB
DIMM3	PC100/PC133, 8, 16, 32, 64, 128, 256, 512MB

2.4 I/O Connections/Panel Connections

I/O Connections
ATXPWR   ATX Power Connector
FAN1, 4   CPU fan connector (FAN4 is just for PCB E or later version only)
FAN2   Chassis fan connector
SIR   Infrared Connector (Cable optional)
JWOL   Wake up on LAN connector
JWOM   Wake up on Modem connector
FDD   Floppy Disk Drive Connector
IDE1, 2   Primary/ Secondary IDE Connectors
CN1   PS/2 Mouse Port & Keyboard Connector
COM1, 2   Serial Ports 1 & 2
PRINTER   Printer Port

USB1, 2   USB Connector (Cable optional)
GAME   Game/MIDI Connectors
LINOUT   Line out Connector
LININ   Line in Connector
MIC   Microphone in Connector
SONY   The Connector for IDE/Sony CD-ROM audio cable

2.4.1 ATX Power Connector (20-pin ATXPWR)

Make sure that the power supply is off before connecting or disconnecting the power cable.
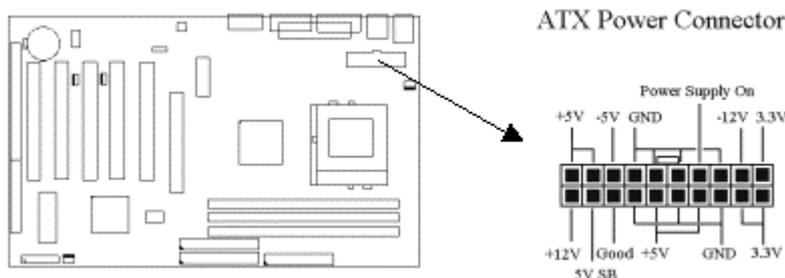
2.4.2 Infrared Connector (5-pin SIR)

This connector supports the optional wireless transmitting and receiving infrared module, with this module and application software such as Laplink or Win95 Direct Cable Connection, user can transfer files to or from their laptops, notebooks, PDA, PCs and printers. The connector supports IrDA (115.2Kbps, 2 meters) and ASK-IR (56Kbps). Install infrared module onto Infrared connector and configure the setting through "UART 2 Mode" in **Integrated Peripherals** to select whether UART is directed for use with COM2 or Infrared.
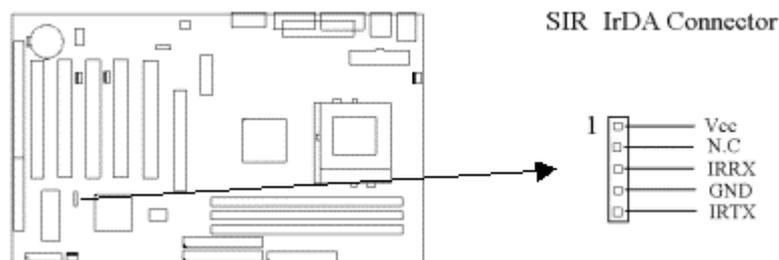
2.4.3 Wake-up on LAN Connector (3-pin JWOL)

The connector powers up the system when a wakeup packet or signal is received from the network . This feature requires the **Wake Up On LAN/Ring** function in BIOS is set to Enabled and that your system has an ATX power supply with at least 720mA +5V standby power.
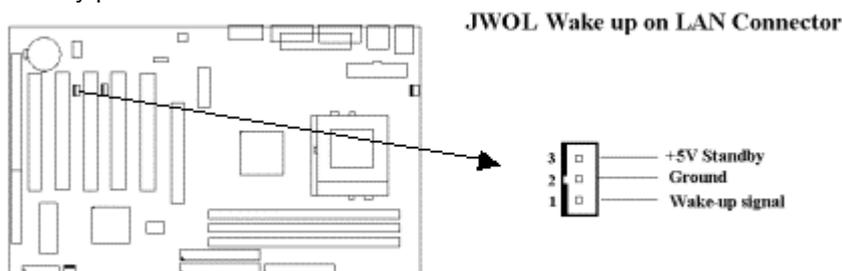
2.4.4 Wake-up on Modem Connector (3-pin JWOM)

The connector connects to internal modem cards with a Wake-On-Ring output. The connector powers up the system when a ring-up packet or signal is received through the internal modem card. Note: For external modems, Wake-On-Ring is detected through the COM port. This feature requires that the **Wake Up On LAN/Ring** function in BIOS is set to Enabled (see Power Management Setup under BIOS SETUP) and that your system has an ATX power supply with at least 720mA +5V standby power.

JWOM Wake on Modem Connector

3 — +5V Standby
2 — Ground
1 — Wake-up signal
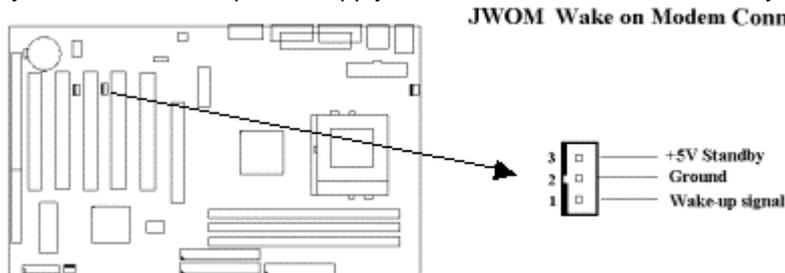
2.4.5 Floppy Disk Drive Connector (34-pin FDD)

This connector supports the provided floppy disk drive ribbon cable. Orient the red stripe to pin 1

Floppy Drive Connector

2   34
1   33
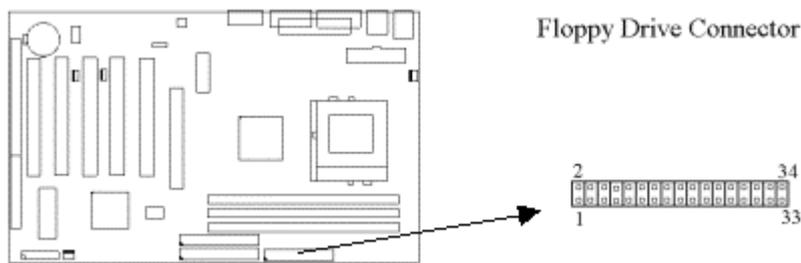
2.4.6 Primary/Secondary IDE Connector (Two 40-pin IDE)

These connectors support the provided IDE hard disk ribbon cable. Connect your first IDE hard disk to master mode of the primary channel. If you have second IDE device to install in your system, connect it as slave mode on the same channel, and the third and fourth device can be connected on secondary channel as master and slave mode respectively.

There are three connectors on the 80-pin IDE ribbon cable. **The blue connector must connect with motherboard's IDE connector and the other connectors must connect with HDD**. In order to get the better performance the Ultra DMA 66/100 HDD must connect with 80-pin IDE ribbon cable.

IDE Connectors

Primary IDE Connector

2   40
1   39

Secondary IDE Connector
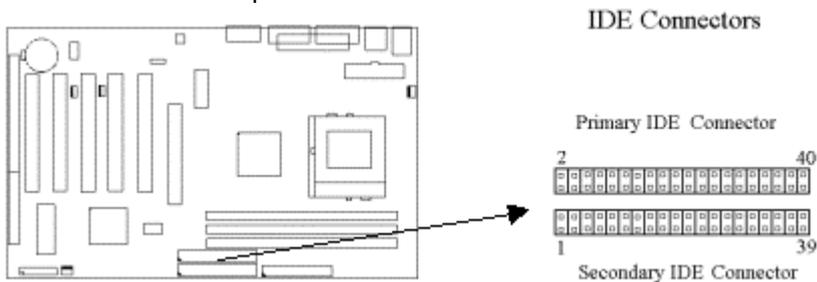
2.4.7 Chassis & CPU Fan Connectors (3-pin FAN)

Connect the fan's plug to the board taking into consideration the polarity of the connector.
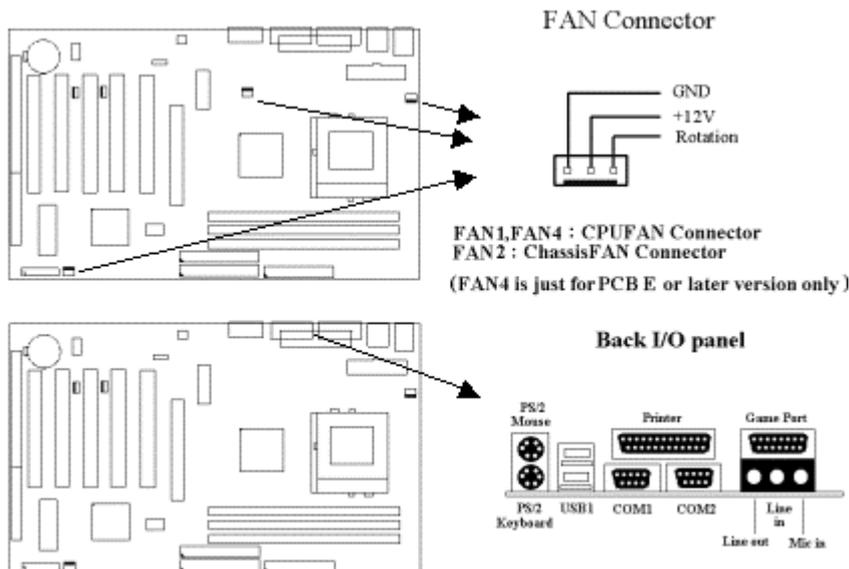
2.4.8 PS/2 Mouse Port

The system will direct IRQ12 to the PS/2 mouse.

2.4.9 PS/2 Keyboard Connector

This connection is for a standard keyboard using a PS/2 plug. You may use a Din to Mini-Din adapter on standard AT keyboards.

2.4.10 Serial Port (Two 9-pin D-type COM1 & COM2)

2.4.11 Printer Port (25-pin D-type PRINTER)

You can enable the parallel port and choose the IRQ through the "Onboard Parallel Port" setting in Integrated Peripherals of the COMS SETUP UTILITY.

2.4.12 USB Connectors (USB1 & USB2)

You can attach USB devices to the USB1 or USB2 connector.
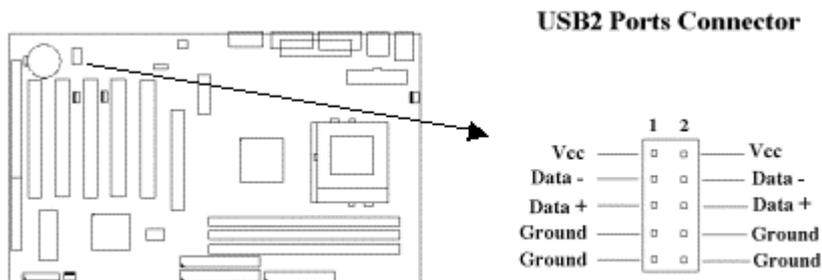
2.4.13 Line Out Connector

The Line Out phonejack provides the audio outputs for the left and right stereo channels.

2.4.14 Line In Connector

The Line In phonejack is used to attach monaural or stereo devices such as a cassette, Digital Audio Tape, or Minidisc players for playback, mixing, or recording.

2.4.15 Microphone In Connector

The Microphone In phonejack is used to attach a monaural microphone for live audio input for playback, mixing, or recording.

2.4.16 Game/MIDI Port

The Game/MIDI Port connector is used to attach a joystick for game interaction or to attach an external MIDI device for playback, mixing, or recording.

2.4.17 ATAPI IDE/Sony CD-ROM Audio (4-pin SONY)

The ATAPI IDE/Sony CD-ROM Audio connector is used to connect the audio cable from either an ATAPI IDE or Sony CD-ROM drive for playback, mixing, and recording.
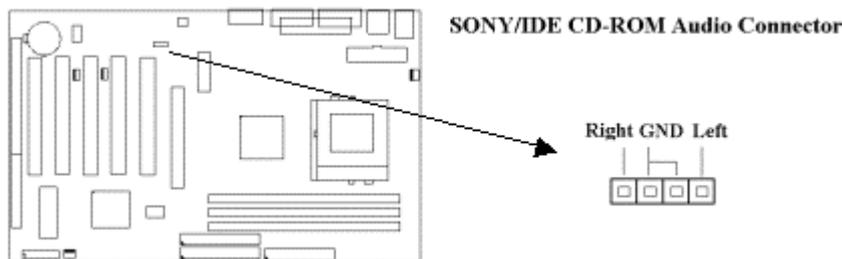
2.1.18 Panel Connection (24-pin JFRNT)

JFRNT Connector	Function
GREENLED	Suspend Mode LED
PWRLED	Power LED
SPKR	Speaker
RESET	Reset Switch
IDELED	HDD LED
PWRBNT	ATX Power Button Connector
SMISW	Sleep Switch

WARNING: To avoid the system from failing, turn off the power before connecting any devices to the system.
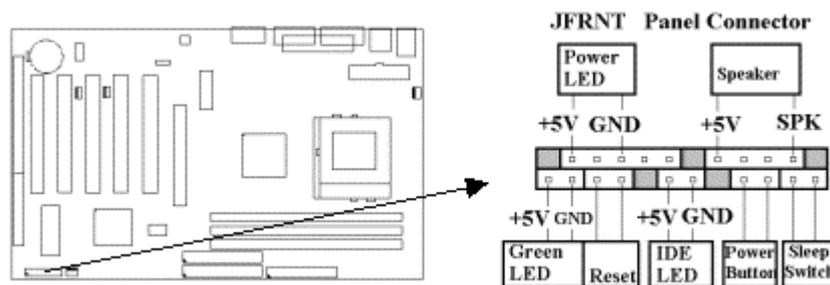
Chapter 3. BIOS Setup

3.1 CMOS Setup Utility

To activate CMOS Setup, press <DEL> key immediately after you turn on the system. The following message "Press DEL to enter SETUP" should appear in the lower left hand corner of your screen.
When you enter the CMOS Setup Utility, the Main Menu will be displayed (**Figure 3-1**). You can use arrow keys to select your function, press <Enter> key to accept the selection and enter the

sub-menu.

Figure 3-1. CMOS Setup Utility Main Screen

CMOS Setup Utility - Copyright (C) 1984 - 2000 Award Software

>Standard CMOS Features	>Frequency 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...

Sub-Menu

Note that a right pointer symbol appears to the left of certain fields. This pointer indicates that a sub-menu can be launched from this field. A sub-menu contains additional options for a field parameter. To call up a sub-menu, simple move the highlight to the field and press <Enter>. The sub-menu will then immediately appear. Use the legend keys to enter values and move from field within a sub-menu just as you would within a menu. Use the <Esc> key to return to the main menu.

3.2 Standard CMOS Features

With the sub-menu (**Figure 3-2**), you can setup the; system date, system time, hard and floppy drive type, and display adapter type. Please refer to your equipment specification when changing the setup. Use arrow keys to highlight items, and use <PageUp>, <PageDown>, <+>, or <-> keys to scroll through the available options.

Figure 3-2. Standard CMOS Features Screen

CMOS Setup Utility - Copyright (C) 1984 - 2000 Award Software

Standard CMOS Features

Date (mm : dd : yy)	Fri, Jan 1 1999	Item Help
Time (hh : mm: ss)	1 : 28 : 42	
		Menu Level >
>IDE Primary Master	Press Enter 4403 MB	
>IDE Primary Slave	Press Enter None	Change the day, month,
>IDE Secondary Master	Press Enter None	Year and century
>IDE Secondary Slave	Press Enter 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	14336K	
Total Memory	15360K	

↓ → ←: Move   Enter : Select   +/-/PU/PD : Value F10 : Save ESC : Exit F1 : General Help

F5 : Previous Value   F6 : Fail-Safe Defaults   F7 : Optimized Defaults

3.2.1 Date

To assign the system date, the format is "mm.dd.yy". The input range for the Month is 1-12. Range for Date is 1-31. Range for Year is 1994-2079. System BIOS will calculate

the day of the week automatically.

3.2.2 Time

To assign the system time, the format is "hh:mm:ss". The setting is in military time. When entering 2:34pm enter "14:34:00".

3.2.3 Hard Disks Setting

The BIOS supports Dual-Channel PIO and PCI Bus Master IDE ports. Each port supports one master and one slave hard drive. You can use <Enter> or <PageUp> or <PageDown> key to change hard drive type. Incorrect setting may result in boot up error or system hang.
If your hard disk drive is not listed, you can select "Manual" mode to define your own drive manually. We recommend that you select Type "AUTO" for all drives. The BIOS will auto-detect the hard disk drive and CD-ROM drive at the POST stage.
If your hard disk drive is a SCSI device, please select "None" for your hard drive setting.

CMOS Setup Utility - Copyright (C) 1984 - 2000 Award Software
IDE Primary Master

IDE HDD Auto-Detection	Press Enter	Item Help
		Menu Level >>
IDE Primary Master	Auto	
Access Mode	Auto	To auto-detect the
		HDD's size, head… on
Capacity	4303 MB	This channel
Cylinder	8894	
Head	15	
Precomp	0	
Landing Zone	8893	
Sector	63	

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

3.2.4 Floppy Drives A&B Setting

Select your floppy disk drive type. Options are 360KB (5.25"), 720KB (3.5"), 1.2MB (5.25"), 1.44MB (3.5"), 2.88MB (3.5").

3.2.5 Floppy 3 Mode Support

This is required to support older Japanese floppy drives. Floppy 3 Mode support will allow reading and writing of 1.2MB (as opposed to 1.44MB) on a 3.5-inch diskette.

3.2.6 Video Display Adapter Setting

Select the display adapter type for your system. Options are EGA/VGA, MONO, CGA40 and CGA80.

3.2.7 Halt On

This function allows the system to halt when an error is detected during Power-On Self-Test.

3.3 Advanced BIOS Features Setup

The sub-menu (**Figure 3-3**) includes all AWARD enhanced functions. The correct setting can enhance boot up efficiency. You can assign system speed, setup sequence, typematic and system password setting. You can enter <F1> key for help on highlighted topics. If you want to restore values before the changes you just made, press <F5> key. If you want to restore default value, press <F6> or <F7> key.

Figure 3-3 Advanced BIOS Features Screen

CMOS Setup Utility - Copyright (C) 1984 - 2000 Award Software
Advanced BIOS Features

Anti-Virus Protection	Disabled	Item	Help
CPU Internal Cache	Enabled		
External Cache	Enabled		
CPU L2 Cache ECC Checking	Enabled	Menu	Level >
Quick Power On Self Test	Enabled		
First Boot Device	IDE-0		
Second Boot Device	Floppy		
Third Boot Device	SCSI		
Boot Other Device	Enabled		
Swap Floppy Drive	Disabled		
Boot Up Floppy Seek	Disabled		
Boot Up NumLock Status	On		
Gate A20 Option	Fast		
Typematic Rate Setting	Disabled		
X Typematic Rate (Chars/Sec)	6		
X Typematic Delay (Msec)	250		
Security Option	Setup		
OS Select For DRAM > 64MB	Non-OS2		
Report No FDD For WIN 95	Yes		
Video BIOS Shadow	Enabled		
C8000-CBFFF Shadow	Disabled		
CC000-CFFFF Shadow	Disabled		
D0000-D3FFF Shadow	Disabled		
D4000-D7FFF Shadow	Disabled		
D8000-DBFFF Shadow	Disabled		
DC000-DFFFF Shadow	Disabled		

↓ → ←: Move   Enter : Select   +/-/PU/PD :   Value   F10 : Save ESC : Exit F1 : General Help
F5 : Previous Value   F6 : Fail-Safe Defaults   F7 : Optimized Defaults
(Scroll down to see more items , as shown here)

3.3.1 Anti-Virus Protection

When enabled, the BIOS will monitor the boot sector and the partition table on the hard drive for any attempt to modify. If an attempt is detected, the BIOS will halt the system and prompt the warning message. Select "Disabled" if you are installing a new operating system.

3.3.2 CPU Internal/External Cache

These options are to enable or disable CPU Internal (L1) Cache, or External (L2) Cache.

3.3.3 CPU L2 Cache ECC Checking

Select "Enabled" to enable CPU L2 Cache ECC Checking.
Select "Disabled" to disable CPU L2 Cache ECC Checking.

3.3.4 Quick Power On Self Test

Select "Enabled" to speed up time required to complete Power-On Self-Test.

3.3.5 First/Second/Third Boot Device & Boot Other Device

This option allows user to assign boot sequence of the system. Available options are Floppy, HDD, CD-ROM, SCSI, LAN and LS120/ZIP. Set " Boot Other Device" to Enabled if you wish to boot from another device.

3.3.6 Swap Floppy Drive

When enabled, physical drive A will be assigned to logical drive B, and physical drive B will be assigned to logical drive A.

3.3.7 Boot Up Floppy Seek

The system will detect and verify operation of the floppy drive type .

3.3.8 Boot Up Numlock Status

The option allows the <NumLock> key to be activated after system boot up.

3.3.9 Gate A20 Option

This entry allows you to select how the gate A20 is handled. The gate A20 is a device used to address memory above 1 Mbytes. Initially, the gate A20 was handled via a pin on the keyboard (Normal). Today, while keyboards still provide this support, it is more common, and much faster, for the system chipset (Fast; default) to provide support for gate A20.

3.3.10 Typematic Rate Setting

Select "Enabled" to configure "Typematic Rate" and "Typematic Delay" functions.

3.3.11 Typematic Rate

Use this option to set the rate at which a character keeps repeating while you hold down a key.

3.3.12 Typematic Delay

Select "Enabled" to set the length of delay before key strokes to repeat. Available options are "250", "500", "750", and "1000".

3.3.13 Security Option

You can select whether the password is required every time the system boots or only when you enter the Setup. You can assign "Supervisor Password" and "User Password" in the main CMOS Setup Utility Screen.

3.3.14 OS Select for DRAM > 64MB

If you are using OS/2 operating system and installed memory is larger than 64MB. You need to have the setting in the enable mode.

3.3.15 Report No FDD For WIN 95

While the FDD in " STANDARD CMOS SETUP " is set to NONE, set this option to No to release IRQ6 for passing Win95 logo. This option is irrelevant under normal operation .

3.3.16 Video BIOS Shadow

Video shadow copies BIOS code from slower ROM to faster RAM. BIOS can then execute from RAM.

3.3.17 C8000-CBFFF /DC000-DFFFF Shadow

Optional firmware will be copied from ROM to RAM. When this option is enabled.

3.4 Advanced Chipset Features Setup

These settings are intended for the Advanced Chipset function on the motherboard. Fine tuning these options, enhances the performance of the system.

Figure 3.4 Advanced Chipset Features Screen

CMOS Setup Utility - Copyright (C) 1984 - 2000 Award Software
Advanced Chipset Features

DRAM Timing By SPD	Disabled	Item Help
DRAM Clock	100MHz	Menu Level >
SDRAM Cycle Length	3	
Bank Interleave	Disabled	
Memory Hole	Disabled	
PCI Master Pipeline Req	Enabled	
P2C/C2P Concurrency	Enabled	
Fast R-W Turn Around	Disabled	
System BIOS Cacheable	Enabled	
Video RAM Cacheable	Enabled	
AGP Aperture Size	64M	
AGP-4X Mode	Enabled	
AGP Driving Control	Auto	
X AGP Driving Value	DA	
	Enabled	
OnChip USB	Disabled	
USB Keyboard Support	Auto	
OnChip Sound	Auto	
OnChip Modem	Enabled	
CPU to PCI Write Buffer	Enabled	
PCI Dynamic Bursting	Enabled	
PCI Master 0 WS Write	Enabled	
PCI Delay Transaction	Enabled	
PCI#2 Access #1 Retry	Disabled	
AGP Master 1 WS Write	Disabled	
AGP Master 1 WS Read		

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

(Scroll down to see more items, as shown here)

3.4.1 DRAM Timing By SPD

If your DIMM memory have SPD (Serial Presence Detect) 8-pin IC on module, you can set this option to Enabled. System will set your DRAM clock and timing from the SPD IC. If the option set as Disabled, you must set the DRAM clock and timing from items below.

3.4.2 DRAM Clock

This item allows you to set the DRAM Clock. Options are 100MHz or 133MHz. Please set the item according to your DRAM Clock.

3.4.3 SDRAM Cycle Length

This item allows you to set the SDRAM Latency Timer. Options are 2, 3.

3.4.4 Memory Hole

Enabling this feature reserves 15MB to 16MB memory address space to ISA expansion cards that specifically require this setting. This makes the memory from 15MB and up unavailable to the system. Expansion cards can only access memory up to 16MB.

3.4.5 PCI Master Pipeline Req

Enable this item to enhance PCI bus for better performance.

3.4.6 P2C/C2P Concurrency

When Disabled, CPU bus will be occupied during the entire PCI operation period.

3.4.7 Fast R-W Turn Around

DRAM optimization feature: If a memory read is addressed to a location whose latest write is being held in a buffer before being written to memory, the read is satisfied through the buffer contents, and the read is not sent to the DRAM.

3.4.8 System BIOS Cacheable

Allows the system BIOS to be cached for faster system performance.

3.4.9 Video RAM Cacheable

Enabled allows caching of the video RAM, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

3.4.10 AGP Aperture Size

Choose 4, 8, 16, 32, 64, 128MB. Memory-mapped, graphics data structures can reside in the Graphics Aperture.

3.4.11 AGP-4X Mode

Set to Enabled if your AGP card supports the 4X mode, which transfers video data at 1066MB/s.

3.4.12 AGP Driving Control

This item is use for control AGP drive strength.
Auto: Setup AGP drive strength by default setting.
Manual: Setup AGP drive strength by manual setting.

3.4.13 AGP Driving Value

Key in a HEX number to control AGP output buffer drive strength. Min = 00, Max = FF.

3.4.14 OnChip USB

If your system contains a Universal Serial Bus controller and you have a USB peripheral, select Enabled. The next option will become available.

3.4.15 USB Keyboard Support

This item lets you enable or disable the USB keyboard driver within the onboard BIOS.

3.4.16 OnChip Sound/Modem

Allows the motherboard's BIOS to detect whether you are using any sound/modem device. If a sound/modem device is detected, the onboard sound/modem controller will be enabled; if no sound /modem is detected, the onboard sound /modem controller will be disabled. If you want to use different controller cards to connect sound and modem connectors, set these fields to Disabled.

3.4.17 CPU to PCI Write Buffer

When enabled, up to four D words of data can be written to the PCI bus without interrupting the CPU. When disabled, a write buffer is not used and the CPU read cycle will not be completed until the PCI bus signals that it is ready to receive the data.

3.4.18 PCI Dynamic Bursting

When enabled, data transfer on the PCI bus, where possible, make use of the high-performance PCI bust protocol, in which greater amounts of data are transferred at a single command.

3.4.19 PCI Master 0 WS Write

When enabled, writes to the PCI bus are command with zero wait states.

3.4.20 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.

3.4.21 PCI # 2 Access # 1 Retry

This item allows you enabled/disabled the PCI # 2 Access # 1 Retry.

3.4.22 AGP Master 1 WS Write

This implements a single delay when writing to the AGP Bus. By default, two-wait states are used by the system, allowing for greater stability.

3.4.23 AGP Master 1 WS Read

This implements a single delay when reading to the AGP Bus. By default, two-wait states are used by the system, allowing for greater stability.

3.5 Integrated Peripherals

You can control Input and Output functions from this screen.

Figure 3-5 Integrated Peripherals

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Integrated Peripherals

OnChip IDE Channel0	Enabled	Item Help
OnChip IDE Channel1	Enabled	Menu Level >
IDE Prefetch Mode	Enabled	
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	
IDE HDD Block Mode	Enabled	
Onboard FDD Controller	Enabled	
Onboard Serial Port 1	3F8 / IRQ4	
Onboard Serial Port 2	2F8 / IRQ3	
UART 2 Mode	Standard	
X IR Function Duplex	Half	
X Tx, Rx inverting enable	No, Yes	
Onboard Parallel Port		
Parallel Port Mode	378 / IR7	
X ECP Mode Use DMA	SPP	
X Parallel Port EPP Type	3	
Onboard Legacy Audio	EPP1.9	
Sound Blaster	Enabled	
SB I/O Base Address	Disabled	
SB IRQ Select	220H	
SB DMA Select	IRQ 5	
MPU-401	DMA 1	
MPU-401 I/O Address	Disabled	
Game Port (200-207H)	330-333H	
	Enabled	

↓ → ←: Move   Enter : Select   +/-/PU/PD :   Value F10 : Save ESC : Exit F1 : General Help

F5 : Previous Value   F6 : Fail-Safe Defaults   F7 : Optimized Defaults

(Scroll down to see more items , as shown here)

3.5.1 OnChip IDE Channel 0/1

Select "Enabled" to activate each on-board IDE channel separately, Select "Disabled", if you install an add-on IDE Control card

3.5.2 IDE Prefetch Mode

Enable prefetching for IDE drive interfaces that support its faster drive accesses. If you are getting disk drive errors, change the setting to omit the drive interface where the errors occur. Depending on the configuration of your IDE subsystem, this field may not appear, and it does appear when the Internal PCI/IDE filed, above, is Disabled.

3.5.3 Primary & Secondary Master/Slave PIO

These four PIO fields let you set a PIO mode (0-4) for each of four IDE devices. When under "Auto" mode, the system automatically set the best mode for each device.

3.5.4 Primary & Secondary Master/Slave UDMA

When set to "Auto" mode, the system will detect if the hard drive supports Ultra DMA mode.

3.5.5 Init Display First

Select "AGP" or "PCI Slot" for system to detect first when boot-up.

3.5.6 IDE HDD Block Mode

This feature enhances disk performance by allowing multi-sector data transfers and eliminates the interrupt handling time for each sector.

3.5.7 Onboard FDD Controller

Select "Enabled" to activate the on-board FDD
Select "Disabled" to activate an add-on FDD

3.5.8 Onboard Serial Port 1 & 2

Select an address and corresponding interrupt for the first/second serial port. The default value for the first serial port is "3F8/IRQ4" and the second serial port is "2F8/IRQ3".

3.5.9 UART 2 Mode

Select to activate the Infrared transfer function.

3.5.10 Onboard Parallel Port

Select address and interrupt for the Parallel port.

3.5.11 Onboard Parallel Mode

Select an operating mode for the parallel port. Mode options are Normal, EPP, ECP, ECP/EPP.

3.5.12 ECP Mode Use DMA

Select a DMA channel if parallel Mode is set as ECP, ECP/EPP.

3.5.13 Parallel Port EPP Type

Select a EPP Type if parallel Port is set as EPP, ECP/EPP.

3.5.14 Onboard Legacy Audio

Configuration options: Enabled and Disabled. When Enabled, you can also select some setting for on board sound. Such as I/O Address, IRQ, DMA...etc

3.6 Power Management Setup

Power management decreases power usage under the pre-defined standby time range.

Figure 3.6: Power Management Setup Screen

CMOS Setup Utility - Copyright (C) 1984 - 2000 Award Software

Power Management Setup

ACPI function	Disabled	Item Help
> Power Management	Press Enter	Menu Level >
ACPI Suspend Type	S1 (POS)	
PM Control by APM	Yes	
Video Off Option	Suspend→ off	
Video Off Method	V/H SYNC+Blank	
MODEM Use IRQ	3	
Soft-off by PWRBTN	Instant-off	
State After Power Failure	Off	
CPU Fan In Suspend	Off	
> Wake Up Events	Press Enter	

↓ → ←: Move   Enter : Select   +/-/PU/PD :   Value   F10 : Save ESC : Exit F1 : General Help

F5 : Previous Value   F6 : Fail-Safe Defaults   F7 : Optimized Defaults

3.6.1 ACPI Function

This item allows you to enable or disable the function of Advanced Configuration and Power Interface which offers improved power management .

3.6.2 Power Management

Min Saving	System starts power saving function when the inactivity period exceeds 1 hour.
Max Saving	System starts power saving function when the inactivity period exceeds 1 min.
User Define	Allows user to define the inactivity period before power saving function activates,

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Power Management

Power Management	User Define	Item Help
HDD Power Downt	Disable	Menu Level >
Doze Mode	Disable	
Suspend Mode	Disable	

↓ → ←: Move   Enter : Select   +/-/PU/PD :   Value   F10 : Save ESC : Exit F1 : General Help

F5 : Previous Value   F6 : Fail-Safe Defaults   F7 : Optimized Defaults

3.6.3 HDD Power Down

This instructs hard drives to shut off while in the Power Management modes.

3.6.4 Doze Mode

When system is inactive after the predefined time limit, system performance will drop down. This is the first level of Power Management.

3.6.5 Suspend Mode

System further shuts down all devices except for CPU itself. This is the third level of

Power Management.

3.6.6 ACPI Suspend Type

This field is used to select the type of Suspend function.
S1 (POS): Enables the Power On Suspend function.
S3 (STR): Enables the STR function.

3.6.7 PM Control by APM

Select "Yes" if your system has Advanced Power Management (APM).

3.6.8 Video Off Option

When enabled, this feature allows the VGA adapter to operate in a power saving mode.

Always On	Monitor will remain on during power saving modes.
Suspend --> Off	Monitor blanked when the systems enters the Suspend mode.
All Modes --> Off	Monitor blanked when the system enters any power saving mode.

3.6.9 Video Off Method

This field defines the video off features. The following options are available: Blank Screen, V/H SYNC+Blank, DPMS support. The DPMS (Display Power Management System) features allow the BIOS to control the video display card if it supports the DPMS feature.

3.6.10 MODEM Use IRQ

This item tells the Power Management BIOS which IRQ is assigned to the installed MODEM. Option are NA, 3, 4, 5, 7, 9, 10 and 11.

3.6.11 Soft-off by PWRBTN

When set to "Delay 4 Sec.", the power button has a dual function where pressing less than 4 seconds will place the system in sleep mode and shut down the system when the button is held more than 4 seconds. "Instant-Off", the system will be shut down right away when the power button is pressed.

3.6.12 State After Power Failure

Off: When power returns after an AC power failure, the system's power is off. You must press the Power button to power-on the system.
On: When power returns after an AC power failure, the system will automatically power-on.
Auto: When power returns after an AC power failure, the system will return to the state where you left off before power failure occurs. If the system's power is off when AC power failure occurs, it will remain off when power returns. If the system's power is on when AC power failure occurs, the system will power-on when power returns.

3.6.13 CPU Fan In Suspend

When system is in suspend mode, you can set CPU fan to on or off.

3.6.14 Wake Up Events

CMOS Setup Utility - Copyright (C) 1984 - 2000 Award Software
Wake Up Events

		Item Help
VGA	OFF	
LPT & COM	LPT / COM	Menu Level >
HDD & FDD	ON	
PCI Master	OFF	
Modem Ring Resume	Disabled	
PowerOn by PCI Card	Disabled	
Wake Up On LAN/Ring	Disabled	
RTC Alarm Resume	Disabled	
X Date (of Month)	0	
X Resume Time (hh:mm:ss)	0 0 0	
Primary INTR	ON	
> IRQ Activity Monitoring	Press Enter	

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

3.6.15 VGA

When set to On, any event occurring at a VGA port will awaken a system which has been powered down.

3.6.16 LPT & COM

When set to On, any event occurring at a LPT (printer) / COM (serial) port will awaken a system which has been powered down.

3.6.17 HDD & FDD

When set to On, any event occurring at a Hard Disk or floppy drive port will awaken a system which has been powered down.

3.6.18 PCI Master

When set to On, any event occurring to the DMA controller will awaken a system which has been powered down.

3.6.19 PowerOn by PCI Card

If this item is set as Enabled, PCI peripherals drive PME (Power Management Event) signal to wake the system from low-power states S1-S5.

3.6.20 Wake Up On LAN/Ring

1. With a LAN card installed, the function allows you to remotely power up your system through your network by sending a wake-up frame or signal. With this feature, you can remotely upload / download data to/from systems during off-peak hours. **Please refer to session 2.4.3 for more information**.
2. With a Modem installed, the function allows you to power up the computer when Modem receives a call while the computer is in Soft-off mode. **Please refer to session 2.4.4 for more information**.

3.6.21 RTC Alarm Resume

Set this option to enable or disable the RTC Alarm to Wake Up the system which is set

at soft Off.

3.6.22 Date (of Month), Resume Time (hh:mm:ss)

Set these options to specify the RTC Alarm time on Date / Hour / Minute / Second.

3.6.23 Primary INTR

When set to On (default), any interrupt request is set to Enabled (see below) will awaken the system which has been powered down.
Following this option is a list of IRQs (**I**nterrupt **ReQ**uests). You can set each IRQ to be Enabled or Disabled.

3.6.24 IRQs Activity Monitoring

CMOS Setup Utility - Copyright (C) 1984 - 2000 Award Software
IRQs Activity Monitoring

			Item Help
IRQ3	(COM2)	Enabled	Menu Level >
IRQ4	(COM1)	Enabled	
IRQ5	(LPT2)	Enabled	
IRQ6	(Floppy Disk)	Enabled	
IRQ7	(LPT1)	Enabled	
IRQ8	(RTC Alarm)	Disabled	
IRQ9	(IRQ2 Redir)	Disabled	
IRQ10	(Reserved)	Disabled	
IRQ11	(Reserved)	Disabled	
IRQ12	(PS/2 Mouse)	Enabled	
IRQ13	(Coprocessor)	Enabled	
IRQ14	(Hard Disk)	Enabled	
IRQ15	(Reserved)	Disabled	

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

3.7 PNP/PCI Configuration Setup

Figure 3.7 PNP/PCI CONFIGURATION SETUP
CMOS Setup Utility - Copyright (C) 1984 - 2000 Award Software
PnP/PCI Configurations

		Item Help
PNP OS Installed	No	
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	

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

3.7.1 PNP OS Installed

This field allows you to use a Plug-and-Play (PnP) operating system.
Please set it as " No " if the operating system has no PnP function or to avoid
reassigning the IRQs by the operating system.

3.7.2 Reset Configuration Data

In case a conflict occurs after you assign the IRQs or after you configure your system,
you can enable this function to allow your system to automatically reset your
configuration and reassign the IRQs, DMAs, and I/O address.

3.7.3 Resources Controlled By

Default setting is "Auto (ESCD)". This setting allows the BIOS to self detect setting and
Plug-and-Play devices during start up. The user can select and configure IRQs under
"Manual" mode.

3.7.4 IRQ Resources

CMOS Setup Utility - Copyright (C) 1984 - 2000 Award Software
IRQ Resources

IRQ Resources		Item Help
IRQ-3 assigned to	PCI/ISA PnP	Menu Level >
IRQ-4 assigned to	PCI/ISA PnP	
IRQ-5 assigned to	PCI/ISA PnP	
IRQ-7 assigned to	PCI/ISA PnP	Legacy ISA for devices
IRQ-9 assigned to	PCI/ISA PnP	compliant with the
IRQ-10 assigned to	PCI/ISA PnP	original PC AT bus
IRQ-11 assigned to	PCI/ISA PnP	Specification, PCI/ISA
IRQ-12 assigned to	PCI/ISA PnP	PnP for devices
IRQ-14 assigned to	PCI/ISA PnP	Compliant with the
IRQ-15 assigned to	PCI/ISA PnP	Plug and Play standard
		Whether designed for
		PCI or ISA bus
		architecture

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

3.7.5 IRQ-xx assigned to

If your ISA card is not PnP compatible and requires a special IRQ to support its
function, set the selected IRQ-x assigned to :"Legacy ISA". This setting informs the
PnP BIOS to reserve the selected IRQ for the installed legacy ISA card.

3.7.6 DMA Resources

CMOS Setup Utility - Copyright (C) 1984 - 2000 Award Software
DMA Resources

DMA-0	assigned to	PCI/ISA PnP	Item Help
DMA-1	assigned to	PCI/ISA PnP	Menu Level >
DMA-3	assigned to	PCI/ISA PnP	
DMA-5	assigned to	PCI/ISA PnP	Legacy ISA for devices
DMA-6	assigned to	PCI/ISA PnP	compliant with the
DMA-7	assigned to	PCI/ISA PnP	original PC AT bus
			Specification, PCI/ISA
			PnP for devices
			Compliant with the
			Plug and Play standard
			Whether designed for
			PCI or ISA bus
			architecture

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

3.7.7 DMA-x assigned to

If your ISA card is not PnP compatible and requires a special DMA channel to support its function, set the selected DMA channel to "Legacy ISA". This setting informs the PnP BIOS to reserve the selected DMA channel for the installed legacy ISA card.

3.7.8 PCI/VGA Palette Snoop

Enable this option to correct screen color shifts, when there is a combination of VGA cards, accelerator cards, or MPEG cards present.

3.7.9 Assign IRQ For VGA

The Enabled option allows the BIOS to auto-route an IRQ for use by a VGA card. While most of the VGA cards do not need the IRQ assignment, certain VGA cards may need it.

3.7.10 Assign IRQ For USB

This item can be found when "OnChip USB" is enabled from Advanced Chipset Features menu. When this item is Enabled, the system automatically assigns an IRQ for the USB device connected to your system. However, if you are not using USB devices and an ISA slot required an IRQ address, set this function to Disabled. The IRQ address previously occupied by the USB device will be available for the ISA slot.

3.8 PC Health Status

Figure 3.8 PC Health Status

CMOS Setup Utility - Copyright (C) 1984 - 2000 Award Software
PC Health Status

Current CPU Temp.	36° C/96° F	Item Help
Current System Temp.	26° C/78° F	Menu Level >
Current CPUFAN Speed	4017 RPM	
Current ChassisFAN Speed	0 RPM	
Vcore	2.02 V	
Vcmos	2.60 V	
Vcc3	3.27 V	
Vcc	5.00 V	
+12V	11.73 V	

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

3.8.1 Current CPU & System Temperature (xx°C/xx°F)

The onboard hardware monitor is able to detect the temperatures of motherboard and CPU. These values refresh upon any key entry. The function is optional.

3.8.2 Current CPUFAN & ChassisFAN Speed (xxxxRPM)

The onboard hardware monitor is able to detect chassis fan speed, CPU fan speed in Rotations Per Minute (RPM). These values refresh upon any key entry in the BIOS setup screen. The function is optional.

3.8.3 Vcore, Vcmos, Vcc3, Vcc & +12V(xx.xxV)

The onboard hardware monitor is able to detect the voltage output by the voltage regulators. These values refresh upon any key entry. The function is optional.

3.9 Frequency Control

Figure 3.9 Frequency Control

CMOS Setup Utility - Copyright (C) 1984 - 2000 Award Software
Frequency 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 Value   F6 : Fail-Safe Defaults   F7 : Optimized Defaults

3.9.1 CPU Host/PCI Clock

The item is set the CPU Host/PCI Clock. The Default setting is recommended. Any attempts to push beyond product specification are not recommended. You must install suitable SDRAM on board when the setting is changed. For example, you must install 8ns or faster SDRAM on board if you set 102/34 ~ 120/40MHz as external frequency and must install 7ns or faster SDRAM on board if you set 133/33 ~ 140/35MHz as external frequency. If the external frequency is 143/36 ~ 150/38MHz, you must have installed 6ns or faster SDRAM on board.

3.10 Load Fail-Safe Defaults

This loads the troubleshooting default values permanently stored in the ROM chips. These settings are not optimal and turn off all high performance features. You should use these values only if you have hardware problems. Highlight this option in the main menu and press <Enter>. The message below will appear.

Load Fail-Safe Defaults (Y/N)?N

If you want to process, type <Y> and press <Enter>. The default settings will be loaded.

3.11 Load Optimized Defaults

This feature loads optimized setting from the BIOS ROM. Use the default values as standard values for your system. Highlight this option in the main menu and press <Enter>. The message below will appear.

Load Optimized Defaults (Y/N)?N

Type <Y> and press <Enter> to load the Setup default values.

3.12 Set Supervisor/User Password

You can assign, modify, or cancel password settings. To modify, highlight "Set Supervisor Password" or "Set User Password" and press the <Enter> key. The screen will prompt you ("Enter Password:"). Enter your password. The maximum size of the password is 8 characters. System will prompt you to reenter the password to verify. Remember the passwords are case sensitive.
If you want to remove the passwords, either delete passwords or press <Enter> when prompting for new password.
If you want it to require password upon initial system startup and upon entering the CMOS Setup Utility, you will need to change the selection of the (Security Option) under (Advanced BIOS Features) to "System".
If the setting is "Setup", the system will only require the password you activate CMOS Setup Utility.

3.13 Save & Exit Setup

When all the changes have been made, highlight "Save & Exit Setup" and press <Enter>. The message below will appear:

Save to CMOS and Exit (Y/N)? N

Type "Y" and press <Enter>. The modifications you have made will be written into the CMOS memory, and the system will reboot.

3.14 Exit Without Saving

When you do not want to save the changes you have made, highlight "Exit Without Saving" and press <Enter>, The message below will appear:

Quit Without Saving (Y/N)? N

Type "Y" and press <Enter>. The system will reboot .

Chapter 4. Driver Installation

4.1 Sound Driver Installation

4.1.1 Windows 95 Installation

Please refer to the readme.txt file that in **\VIA\686SOUND** directory in the CD Driver Disk first then follow the instruction to setup sound driver for Windows 95.

4.1.2 Windows 98/ME Installation

1. Insert the CD Driver into the CD drive-enter the **\VIA\686SOUND** directory on the CD-ROM and double-click **SETUP.EXE**.
2. Follow the prompts to complete the installation.
3. System will restart and automatically detect some devices.
4. If the Insert Disk dialog is displayed, please insert the **Windows 98 CD-ROM** into the CD drive, then click "**OK**" button.
5. If system needs to copy some files (e.g., ksclock.ax, mspclock.sys or swmidi.sys), please type **D:\WIN98** to copy file then click " **OK** " button.

Note: D: is the drive where Windows 98 CD-ROM has been inserted.

6. You must restart your computer again to take new driver effect.

Note: If your Operation System is Windows 98 Gold Edition, please make sure you have setup the MIDI output. Please follow the below steps to setup MIDI instruments.

    a. Double click " Multimedia " icon from Start \ Setting \ Control Panel

    b. Select " MIDI " page and select " VIA FM Synthesis " from Single instrument field.

    c. Click " Apply " button then click " OK " button.

4.1.3 Windows 2000 Installation

1. Insert the CD Driver into the CD drive-enter the **\VIA\686SOUND** directory on the CD-ROM and double-click **SETUP.EXE**.
2. Follow the prompts to complete the installation.
3. System will restart and automatically detect some devices. Follow the prompts to complete the installation.
4. You must restart your computer again to take new driver effect.

4.1.4 Windows NT 4.0 Installation

1. Install Service Pack 4 or later first.
2. Insert the CD Driver into the CD drive-enter the **\VIA\686SOUND** directory on the CD-ROM and double-click **SETUP.EXE**.
3. Follow the prompts to complete the installation.
4. Restart system.

4.2 IDE & AGP Driver Installation

Please refer to the readme.txt file that in **\VIA\4IN1DRV** directory in the CD Driver Disk first then follow the instruction to setup IDE & AGP driver.