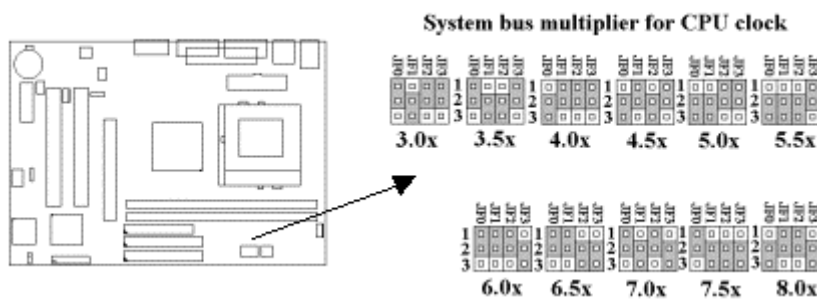


370PMA Series Quick Installation Chart

For your convenience, this chart lists all the CPUs supported by 370PMA Series and their corresponding jumper setting.

The Ratio of some latest CPUs are fixed by Intel and VIA such as Celeron/ Celeron-II/ Pentium-III 366, 400, 566... etc and VIA Cyrix III CPU. **You can ignore the four jumpers if you have this CPU on board and it will be auto detected by motherboard.** Please check with the CPU manufacturer or vendor for the CPU Ratio information.

Ratio	JF0	JF1	JF2	JF3
3.0x	1-2	2-3	1-2	1-2
3.5x	1-2	2-3	2-3	1-2
4.0x	2-3	1-2	1-2	1-2
4.5x	2-3	1-2	2-3	1-2
5.0x	2-3	2-3	1-2	1-2
5.5x	2-3	2-3	2-3	1-2
6.0x	1-2	1-2	1-2	2-3
6.5x	1-2	1-2	2-3	2-3
7.0x	1-2	2-3	1-2	2-3
7.5x	1-2	2-3	2-3	2-3
8.0x	2-3	1-2	1-2	2-3



370PMA Series Motherboard User's Manual

Product Name: 370PMA, 370PMA-L, 370PMA-H or 370PMA-LH

Manual Revision: English, 1.3

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Chapter 1. Introduction

1.1 Product Overview

Thank you for purchasing the 370PMA Series motherboard. This motherboard utilizes VIA's latest technology, namely ProSavage™ VT8605 or VT8604 & 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 three 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

370PMA Uses VIA ProSavage™ PM133 VT8605 & VT82C686A chipset. Support AGP slot for external AGP (1X/2X/4X) graphics card upgrade. Support Ultra DMA 33/66.

370PMA-L Uses VIA ProSavage™ PL133 VT8604 & VT82C686A chipset. Support Ultra DMA 33/66.

370PMA-H Uses VIA ProSavage™ PM133 VT8605 & VT82C686B chipset. Support AGP slot for external AGP (1X/2X/4X) graphics card upgrade. Support Ultra DMA 33/66/100.

370PMA-LH Uses VIA ProSavage™ PL133 VT8604 & VT82C686B chipset. Support Ultra DMA 33/66/100.

1.2 Features:

- Wake up on LAN.
- Support Ultra DMA 100 (for 370PMA-H & 370PMA-LH only).
- Modem Remote Ring On.
- Support Suspend to RAM.
- Support NCR SCSI BIOS.
- Support Hardware Monitor function.
- Support 66/100/133MHz FSB frequency.
- 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 slot for external AGP (1X/2X/4X) graphics card upgrade(for 370PMA-H & 370PMA only).
- Integrated Savage4 AGP 4X graphics core.

1.3 Specifications

CPU:

- Supports Intel Socket 370 Celeron or Pentium III in the Plastic Pin Grid Array (PPGA) or Flip-Chip PGA package and VIA Cyrix III Processors with 66/100/133MHz Front Side Bus.

Chipset:

- VIA VT8605 & VT82C686A chipset for 370PMA.

- VIA VT8604 & VT82C686A chipset for 370PMA-L.
- VIA VT8605 & VT82C686B chipset for 370PMA-H.
- VIA VT8604 & VT82C686B chipset for 370PMA-LH.

VGA:

- Integrates Savage4 AGP 4X Graphics core.
- Support AGP slot for external AGP (1X/2X/4X) graphics card upgrade (for 370PMA-H & 370PMA only).
- AGP v2.0 compliant.
- Integrated 300MHz RAMDAC graphics controller.
- 2D/3D resolutions up to 1920*1440.
- High quality DVD video playback.
- Optimized Shared Memory Architecture (SMA). 2MB to 32MB frame buffer using system memory.

DIMM:

- Supports 3.3V PC100/133-compliant SDRAM in 2 168-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 1GB 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 with data transfer rate up to 14 MB/ Sec
- 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 370PMA-H & 370PMA-LH only).

BIOS:

- Award BIOS V.6.00PG 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 Codex
- 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

ATX Power:

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

Expansion Slots:

- Two 32-bit PCI expansion slots
- One 32-bit AGP expansion slot (for 370PMA & 370PMA-H only).
- 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:

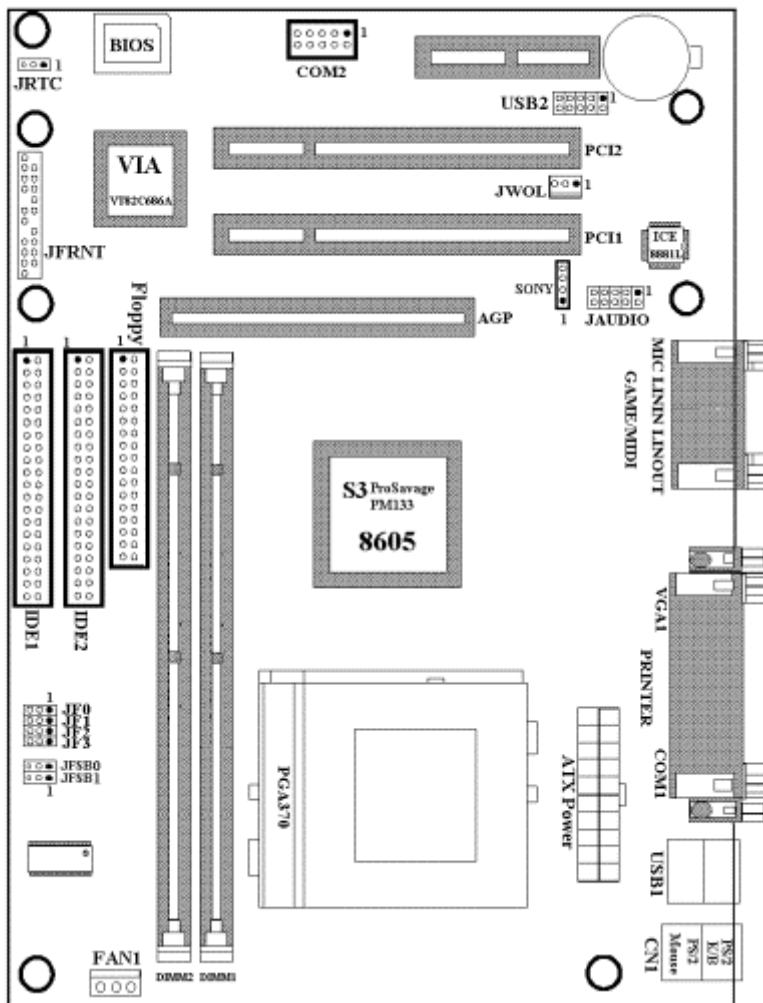
- 233 mm x 170 mm Micro ATX Form factor

1.4 Content

The motherboard box contains the following items:

- One Motherboard
- One IDE Ribbon Cable
- One Floppy Ribbon Cable
- One Serial Ribbon Cable
- One CD Driver Disk
- User's Manual & Quick Installation Chart

1.5 MotherBoard Layout



Notice:

- 370PMA Uses VIA ProSavage™ PM133 VT8605 & VT82C686A chipset.
- 370PMA-L Uses VIA ProSavage™ PL133 VT8604 & VT82C686A chipset and doesn't support AGP slot.
- 370PMA-H Uses VIA ProSavage™ PM133 VT8605 & VT82C686B chipset.
- 370PMA-LH Uses VIA ProSavage™ PL133 VT8604 & VT82C686B chipset and doesn't support AGP slot.

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

Red Jumper Caps : Sets the FSB frequency of CPU

JFSB0, JFSB1

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

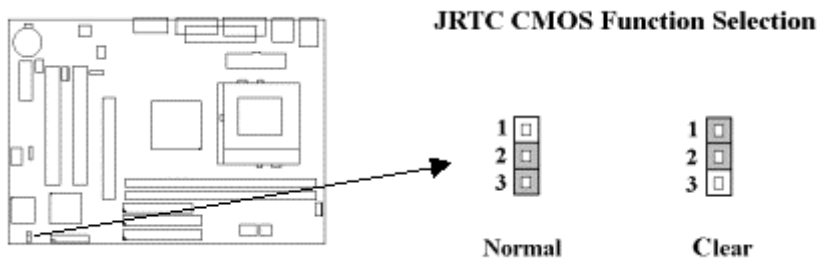
- Work on a surface such as concrete, linoleum or hard wood floor.
- Ground your self with either a properly installed grounding strap or by touching a major electrical appliance long enough to discharge the static.

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 connector ATXPWR.
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 connector ATXPWR.
6. Turn on the power.
7. While the system reboots, press key to set the BIOS setup.

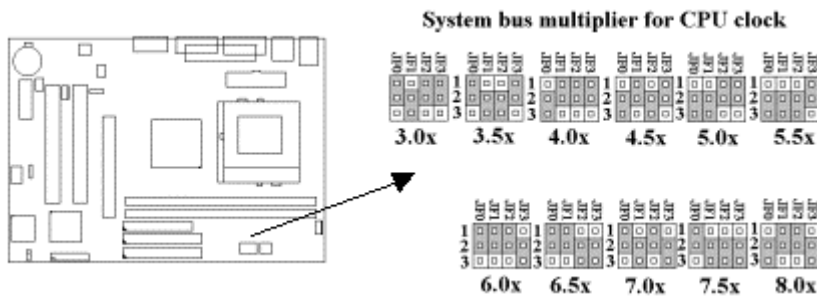
2.1.3 CPU Voltage Setting

The motherboard supports CPU VID function. It can automatically detect CPU VID signal and generates proper CPU core voltage.

2.1.4 CPU Frequency Selection

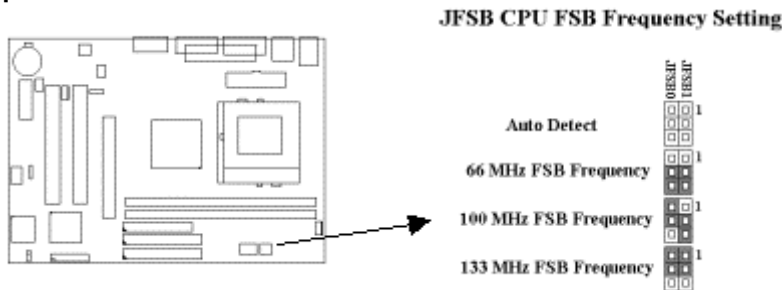
Ratio	JF0	JF1	JF2	JF3
3.0x	1-2	2-3	1-2	1-2
3.5x	1-2	2-3	2-3	1-2
4.0x	2-3	1-2	1-2	1-2
4.5x	2-3	1-2	2-3	1-2
5.0x	2-3	2-3	1-2	1-2
5.5x	2-3	2-3	2-3	1-2
6.0x	1-2	1-2	1-2	2-3
6.5x	1-2	1-2	2-3	2-3
7.0x	1-2	2-3	1-2	2-3
7.5x	1-2	2-3	2-3	2-3
8.0x	2-3	1-2	1-2	2-3

The Ratio of some latest CPUs are fixed by Intel or VIA such as Celeron/ Celeron-II/ Pentium-III 366, 400, 566... etc and VIA Cyrix III CPU. You can ignore the four jumpers if you have this CPU on board and it will be auto detected by motherboard. Please check with the CPU manufacturer or vendor for the CPU Ratio information.



2.1.5 CPU FSB Frequency Setting

The JFSB jumper provides some FSB frequency settings for the CPU. Auto Detect , 66MHz, 100MHz or 133MHz FSB frequency can be selected with this jumper. The over specification operation is not recommended.



2.2 Installation of CPU

Before installing CPU, make sure the power is off. Locate the level bar on the PGA370 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

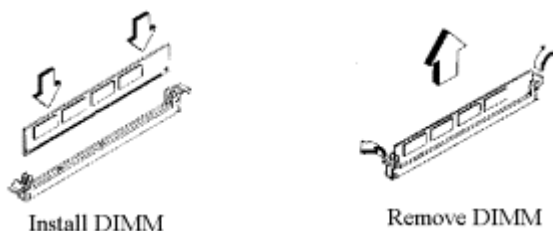
The motherboard has 2x168-pin 64-bit Dual Inline Memory Module (DIMM)sockets divided into 2 banks. You can install 3.3V Unbuffered PC100/133-compliant Synchronous DRAM (SDRAM) memory. This will increase the system reliability.

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

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



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.

<i>DIMM Socket</i>	<i>DIMM Modules</i>
DIMM1	PC100/133 SDRAM 16, 32, 64, 128, 256, 512MB

DIMM2	PC100/133 SDRAM 16, 32, 64, 128, 256, 512MB
--------------	---

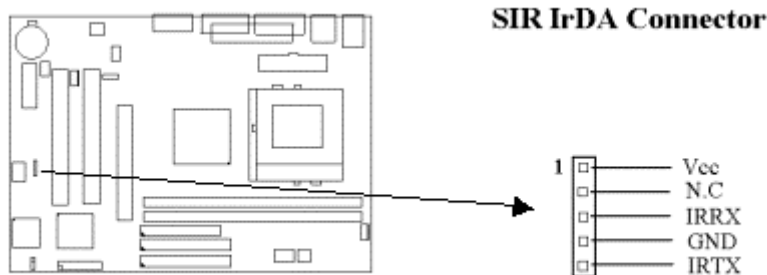
2.4 I/O Connections/Panel Connections

I/O Connections

ATXPWR	ATX Power Connector
FAN1	CPU fan connector
SIR	Infrared Connector (Cable optional)
JWOL	Wake up on LAN 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)
JAUDIO	Game/MIDI/ Line out/ Line in/ Microphone in Connector (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 Infrared Connector (5-pin SIR)

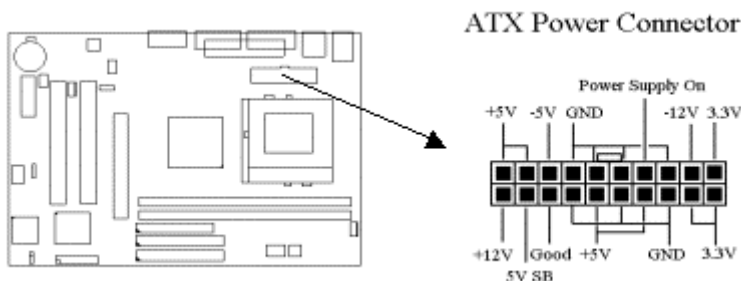
This connector supports the optional wireless transmitting and receiving infrared module, with this module and application software such as Laplink or Win95 Direct Cable Connection, user can transfer files to or from their laptops, notebooks, PDA, PCs and printers. The connector supports IrDA (115.2Kbps, 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.

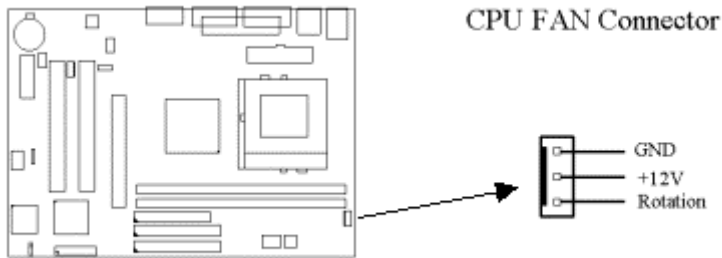
2.4.2 ATX Power Connector (20-pin ATXPWR)

Make sure that the power supply is off before connecting or disconnecting the power cable.



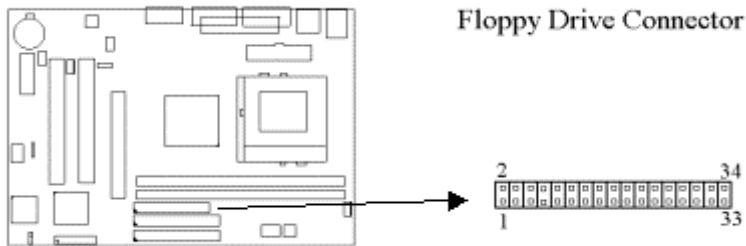
2.4.3 CPU Fan Connectors (3-pin FAN)

Connect the fan's plug to the board taking into consideration the polarity of the connector.



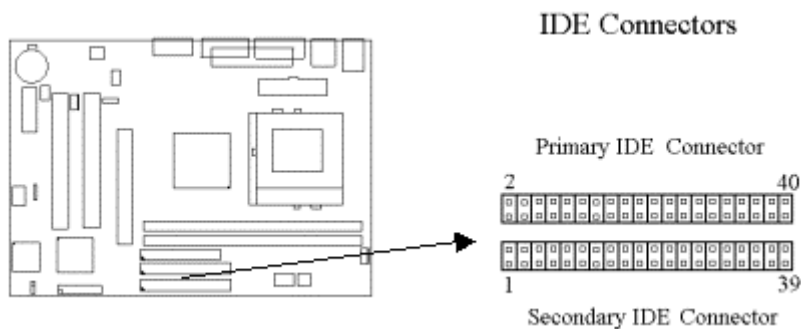
2.4.4 Floppy Disk Drive Connector (34-pin FDD)

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



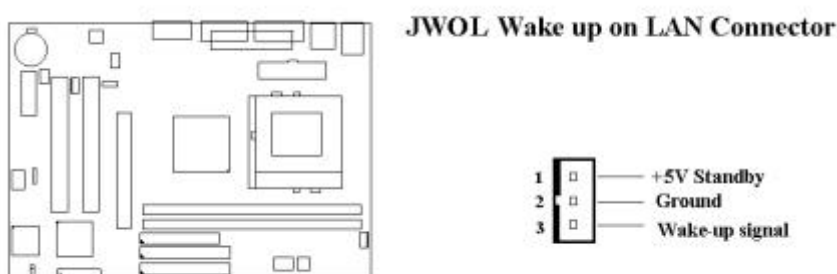
2.4.5 Primary/Secondary IDE Connector (Two 40-pin IDE)

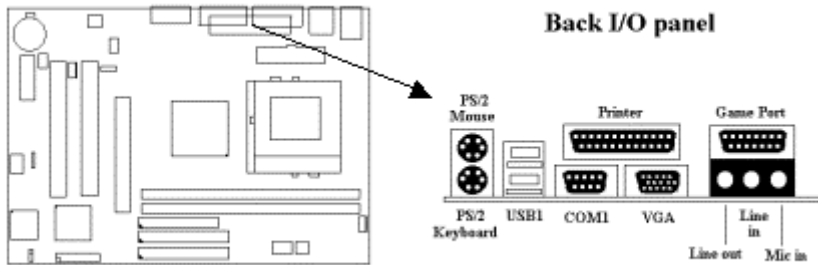
These connectors support the provided IDE hard disk ribbon cable. Connect your first IDE hard disk to master mode of the primary channel. If you have second IDE device to install in your system, connect it as slave mode on the same channel, and the third and fourth device can be connected on secondary 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 HDD must connect with 80-pin IDE ribbon cable.



2.4.6 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/Modem function in BIOS is set to Enabled and that your system has an ATX power supply with at least 720mA +5V standby power.





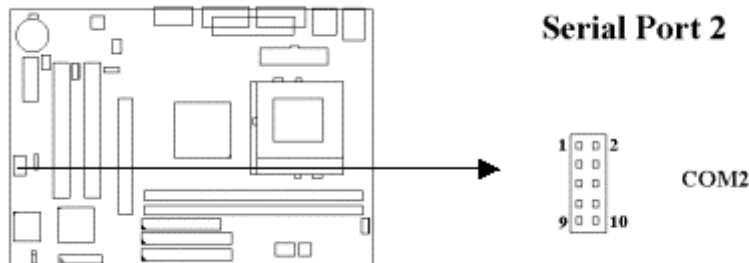
2.4.7 PS/2 Mouse Port

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

2.4.8 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.

2.4.9 Serial Port (9-pin D-type COM1 & 10-pin COM2)

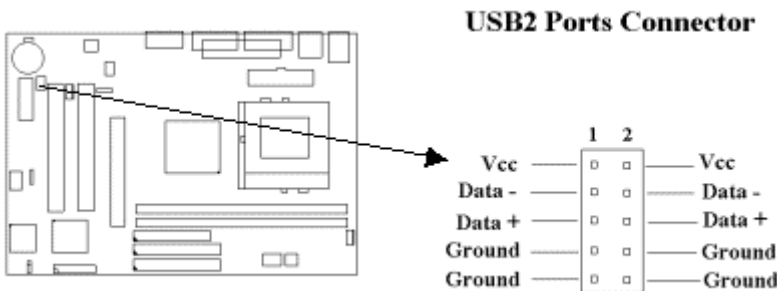


2.4.10 Printer Port (25-pin D-type PRINTER)

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

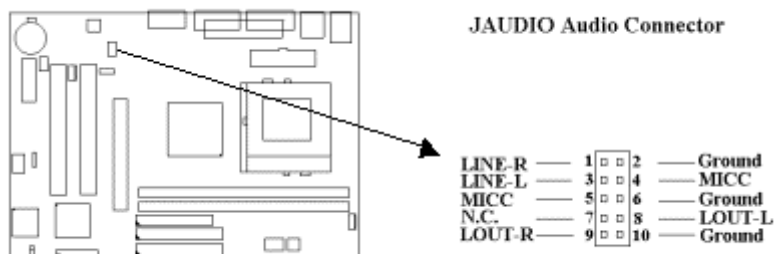
2.4.11 USB Connectors (USB1 & USB2)

You can attach USB devices to the USB1 or USB2 connector.



2.4.12 Game/MIDI/Line Out/Line In/Microphone In Connector (optional)

The function is same as audio port of the back I/O panel. The cable is optional.



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

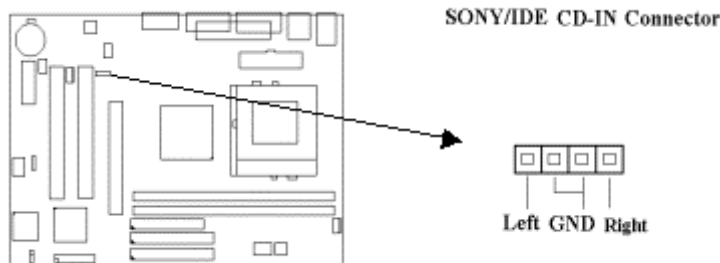
The Microphone In phonejack is used to attach a monaural microphone for live audio input for playback, mixing, or recording.

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)

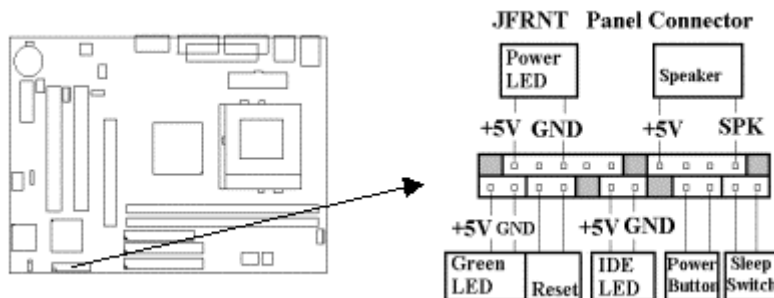
The ATAPI IDE/Sony CD-ROM Audio connector is used to connect the audio cable from either an ATAPI IDE or Sony CD-ROM drive for playback, mixing, and recording.



2.4.18 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 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.

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
IDE Primary Master	Auto	Menu Level >>
Access Mode	Auto	To auto-detect the
Capacity	4303 MB	HDD's size, head... on
Cylinder	8894	This channel
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

Virus Warning	Disabled	Item	Help
CPU Internal Cache	Enabled	Menu	Level >
External Cache	Enabled		
CPU L2 Cache ECC Checking	Enabled		
Processor Number Feature	Disabled		
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 Virus Warning

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 Processor Number Feature

This field will appear only when you are using a Pentium III processor. Each Pentium III processor comes with an individual "processor serial number" which by default is activated. Therefore, when connected to the internet, Pentium III processor transmits the serial number online making it possible to track your online activity. The field provides you the option of disabling this function.

3.3.5 Quick Power On Self Test

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

3.3.6 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.

3.3.7 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.

3.3.8 Boot Up Floppy Seek

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

3.3.9 Boot Up Numlock Status

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

3.3.10 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.

3.3.11 Typematic Rate Setting

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

3.3.12 Typematic Rate

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

3.3.13 Typematic Delay

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

3.3.14 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.

3.3.15 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.

3.3.16 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.

3.3.17 Video BIOS Shadow

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

3.3.18 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

		Item Help
DRAM Timing By SPD	Disabled	
DRAM Clock	HCLK-33M	Menu Level >
SDRAM Cycle Length	3	
Bank Interleave	Disabled	
Memory Hole	Disabled	
P2C/C2P Concurrency	Enabled	
Fast R-W Turn Around	Disabled	
System BIOS Cacheable	Enabled	
Video BIOS Cacheable	Enabled	
Video RAM Cacheable	Enabled	
Frame Buffer Size	8M	

AGP Aperture Size	64M
AGP-4X Mode	Enabled
AGP Driving Control	Auto
X AGP Driving Value	DA
OnChip USB	Enabled
USB Keyboard Support	Disabled
OnChip Sound	Auto
OnChip Modem	Auto
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	Enabled
AGP Master 1 WS Write	Disabled
AGP Master 1 WS Read	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)

3.4.1 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 Host CLK, HCLK+33M or HCLK-33M. Please set the item according to the Host (CPU) Clock and 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 P2C/C2P Concurrency

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

3.4.6 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.

3.4.7 System BIOS Cacheable

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

3.4.8 Video BIOS Cacheable

Allows the video BIOS to be cached for faster video 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 Frame Buffer Size

This item defines the amount of system memory that will be shared and uses as video memory.

3.4.11 AGP Aperture Size

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

3.4.12 AGP-4X Mode

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

3.4.13 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.

3.4.14 AGP Driving Value

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

3.4.15 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.

3.4.16 USB Keyboard Support

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

3.4.17 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.

3.4.18 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.

3.4.19 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.

3.4.20 PCI Master 0 WS Write

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

3.4.21 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.

3.4.22 PCI # 2 Access # 1 Retry

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

3.4.23 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.

3.4.24 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
CMOS Setup Utility - Copyright (C) 1984 - 2000 Award Software
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	378 / IRQ7	
Parallel Port Mode	Normal	
X ECP Mode Use DMA	3	
X Parallel Port EPP Type	EPP1.9	
Onboard Legacy Audio	Enabled	
Sound Blaster	Disabled	
SB I/O Base Address	220H	
SB IRQ Select	IRQ 5	
SB DMA Select	DMA 1	
MPU-401	Disabled	
MPU-401 I/O Address	330-333H	
Game Port (200-207H)	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	
> 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 Suspend to RAM function. Refer to Appendix A.

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 Wake Up Events

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Wake Up Events

VGA	OFF	Item Help
LPT & COM	LPT / COM	Menu Level >
HDD & FDD	ON	
PCI Master	OFF	
Wake up on LAN/Modem	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

3.6.14 VGA

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

3.6.15 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.

3.6.16 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.

3.6.17 PCI Master

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

3.6.18 Wake up on LAN/Modem

(1) This 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. Set to Enabled to set this feature. Please refer to session 2.4.6 for more information.

(2) An incoming call on the external Modem power on the system. The function of power on through modem when system is off. When set to "Enabled" : To let the system to enter the environment of DOS or Windows 95/98 OS before system is power off. As long as there are any message through the Modem to enter the System during system is power off. The system will enable power on function.

3.6.19 RTC Alarm Resume

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

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

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

3.6.21 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 (Interrupt ReQuests). You can set each IRQ to be Enabled or Disabled.

3.6.22 IRQs Activity Monitoring

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

IRQ3 (COM2)	Enabled	Item Help
IRQ4 (COM1)	Enabled	Menu Level >
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

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		



↓ → ← : 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

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IRQ Resources

IRQ	assigned to		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

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DMA Resources

DMA	assigned to		Item Help
DMA-0	assigned to	PCI/ISA PnP	Menu Level >
DMA-1	assigned to	PCI/ISA PnP	
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	
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.

3.8.2 Current CPUFAN Speed (xxxxRPM)

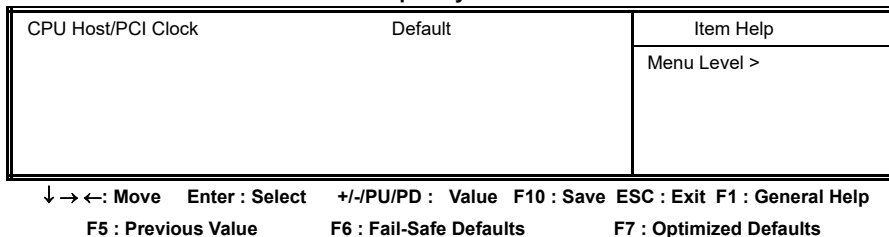
The onboard hardware monitor is able to detect CPU fan speed in Rotations Per Minute (RPM). These values refresh upon any key entry in the BIOS setup screen.

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.

3.9 Frequency Control

Figure 3.9 Frequency Control
CMOS Setup Utility - Copyright (C) 1984 - 2000 Award Software
Frequency Control



3.9.1 CPU Host/PCI Clock

Select **Default, 66, 75 or 83MHz** if your CPU is 66MHz FSB and select **Default, 100, 103, 112 or 124**, if the CPU is 100MHz FSB. When CPU is 133MHz FSB, you can select the 124, 133, 140 or 150MHz. The 75, 83, 103, 112, 124, 140 and 150 MHz frequency are optional.

Ext. frequency	AGP	PCI
66MHz	66MHz	33MHz
75MHz	75MHz	37.5MHz
83MHz	83MHz	41.6MHz
100MHz	66MHz	33MHz
103MHz	68.6MHz	34.3MHz
112MHz	74.6MHz	37.33MHz
124MHz	82.6MHz	41.33MHz
124MHz	82.6MHz	31MHz
133MHz	66MHz	33.25MHz
140MHz	70MHz	35MHz
150MHz	75MHz	37.5MHz

Notice:

The 75, 83, 103, 112, 124, 140 and 150MHz frequency are over specification.

You must install 8ns or faster DIMM on board if you set 103, 112 or 124MHz as external frequency and must install 7ns or faster DIMM on board if you set 133 or 140MHz as external frequency. If the external frequency is 150MHz, you must have installed 6ns or faster DIMM on board.

Warning: Over specification operations are not recommended.

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 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 first edition, please make sure you have setup the MIDI output. Please follow the below steps to setup MIDI instruments.

1. Double click " Multimedia " icon from Start \ Setting \ Control Panel
2. Select " MIDI " page and select " VIA FM Synthesis " from Single instrument field.
3. 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 Graphics Driver Installation

4.2.1 Windows 95 Installation

1. Please load the VIA AGP driver first. Insert the CD Driver into the CD drive-enter the \VIA\4IN1DRV directory on the CD-ROM and double-click SETUP.EXE then follow the prompts to setup the driver.
2. It is recommended to install DirectX 7.0 or later version. You can get this file from <http://www.microsoft.com>.
3. Please click on the Display icon from Start\Settings\Control Panel menu.
4. Select "Settings" page then click on "Advanced Properties" button.
5. Click on "Change..." button.
6. Click on the "Have Disk..." button then type the correct drive and path to load VGA driver. For example D:\VIA\8605VGA\WIN9X **Note: D: is the drive where CD Driver has been inserted.**
7. Click on "OK" button.
8. The "S3 Inc. ProSavage PM133" will be shown on the Models list. Click "OK" button.
9. Click on "Apply" then "OK" button to confirm the VGA adapter.
10. You must restart your computer before the new setting will take effect

4.2.2 Windows 98 Installation

1. Please load the VIA AGP driver first. Insert the CD Driver into the CD drive-enter the \VIA\4IN1DRV directory on the CD-ROM and double-click SETUP.EXE then follow the prompts to setup the driver.
2. It is recommended to install DirectX 7.0 or later version. You can get this file from <http://www.microsoft.com>.
3. Click the "Display" icon from Start\Settings\Control Panel menu.
4. Select "Settings" page then click "Advanced...." button.
5. Select " Adapter " page then click "Change..." button. Click "Next" button.
6. When Update Device Driver Wizard dialog is appeared, please select " Display a list of all the drivers in a specific location, so you can select the driver you want" option then click the "Next" button.
7. Click the "Have Disk..." button then type the correct drive and path to load VGA driver. For example D:\VIA\8605VGA\WIN9X **Note: D: is the drive where CD Driver has been inserted.**
8. Click "OK" button.
9. The "S3 Inc. ProSavage PM133" will be shown on the Models list. Click "OK" button.
10. Click "Next" button to load the driver then click "Finish" button.
11. Click "Apply" button to confirm the VGA adapter.
12. Click "Close" button to close the Display Properties Window.
13. You must restart your computer before the new setting will take effect.

4.2.3 Windows 2000 Installation

1. Please load the VIA AGP driver first. Insert the CD Driver into the CD drive-enter the \VIA\4IN1DRV directory on the CD-ROM and double-click SETUP.EXE then follow the prompts to setup the driver.
2. Select "My Computer" icon.
3. Select "Control Panel" icon.
4. Select "System" icon.
5. You should be in the "System Properties" window.
6. Click on the "Hardware" tab.
7. Click the "Device Manager" button.
8. Click the "? Other devices".
9. Click the "? Video Controller (VGA Compatible)".
10. Click on the "Driver" tab.
11. Click the "Update Driver..." button.
12. The "Upgrade Device Driver Wizard" window should now open.
13. Click the "Next" button.

14. Select the option to "Display a list of the known drivers for this device so that I can choose a specific driver" and click the "Next" button.
15. Select the "Display adapters" item from Hardware types list then click "Next" button.
16. Click the "Have Disk" button.
17. Click on "Browse" and go to the directory where the files were stored. Go to the \VIA\8605VGA\WIN2000 sub-directory in the CD-ROM and click the "Open" button. Then click the "OK" button. System will detect " S3 ProSavage PM133(TM) ". Select this device and click the "Next" button.
18. Click the "Yes" button on the "Update Driver Warning" Window.
19. Follow remaining prompts as instructed. Close all windows and reboot in order to use the new driver.

4.2.4 Windows NT 4.0 Installation

1. Start system with Windows NT 4.0 installed.
2. **IMPORTANT:** When the "Please select the operating system to start..." message is displayed, select "Windows NT Workstation Version 4.00 [VGA mode]".
3. From "Start", select the "Settings group", then click on the "Control Panel" icon.
4. In the "Control Panel", double click on the "Display" icon.
5. In the "Settings" screen, click on the "Display Type..." button.
6. From the "Display Type" screen, and in the "Adapter Type" section, click on the "Change..." button.
7. In the "Change Display" screen, click on the "Have Disk..." button.
8. Insert the CD Driver disk into the CD drive then type the correct drive and path. For example D:\VIA\8605VGA\NT40 then click on the "OK" button.
9. From the list of displayed S3 devices, select your S3 device.
10. From "Third-party Drivers", click on the "Yes" button to proceed.
11. If a message appears stating the driver is already installed on the system, and asks if you want to use the current or new drivers, be sure to select the "New" button.
12. If prompted for the driver disk a second time, click on the "Continue" button.
13. When the message "The drivers were successfully installed" is displayed, remove the CD driver disk, then click on the "OK" button.
14. Back at the "Display Type" window, click on the "Close" button.
15. Back at the "Display Properties" window, click on the "Close" button.
16. When you see the "System Settings Change" window, asking if you wish to restart your computer, click on the "Yes" window to reboot now.

4.3 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.

Appendix A. Using the Suspend to RAM Function

1. Select "Power Management Setup" in the main menu screen and press <Enter>.
2. In the "ACPI function" field, select "Enabled".
3. In the "ACPI Suspend Type" field, select "S3(STR)".

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

Power Management Setup

ACPI function	Enabled	Item Help
> Power Management	Press Enter	Menu Level >
ACPI Suspend Type	S3 (STR)	
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	1
> Wake Up Events	Press Enter	

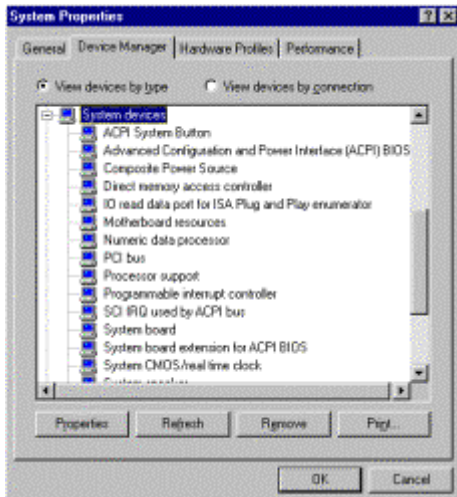
↓ → ←: Move Enter : Select +/-/PU/PD : Value F10 : Save ESC : Exit F1 : General Help
F5 : Previous Value F6 : Fail-Safe Defaults F7 : Optimized Defaults

4. Press <Esc> to return to the main menu.
5. Select "Save & Exit Setup" and press <Enter>. Type <Y> and press <Enter>.
6. Install Windows 98 by typing the following parameter. This is to ensure that the ACPI function is supported. There is a space between the P and the J.

[drive]:>setup /p j

If you have previously installed Windows 98, you need to upgrade the system in order to support ACPI. Please contact Microsoft for upgrade information.

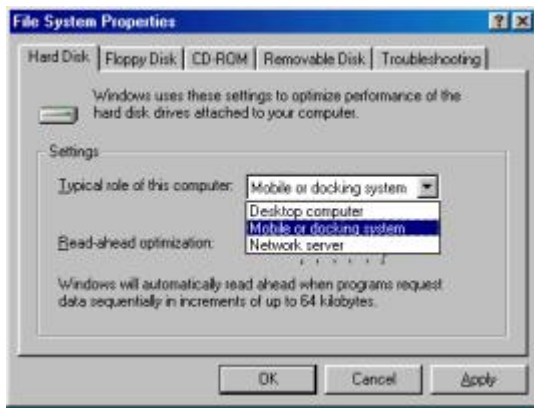
7. Boot Windows 98. In the Windows 98 desktop, click the Start button. Move the cursor to Setting, then click Control Panel. To check whether ACPI was properly installed, double-click the System icon. In the System Properties dialog box, click the "Device Manager" tab. In "View devices by type", click "System devices".



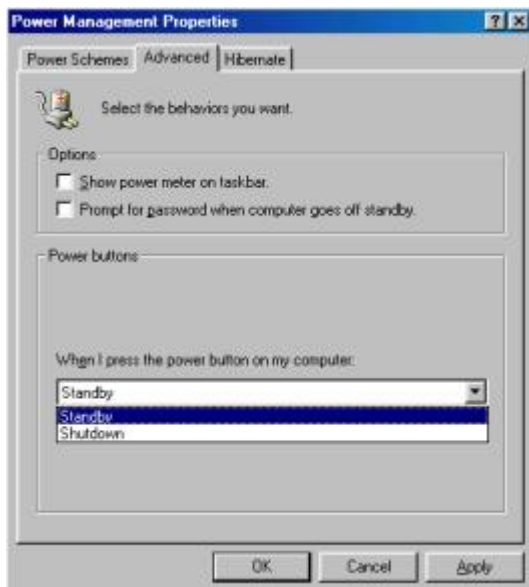
8. Double-click the System icon. In the System Properties dialog box, click the Performance tab.



9. Click File System. In the "Typical role of this computer" field, select "Mobile or docking system". Click Apply, then click OK. Restart the computer.



10. Repeat step 7 to open the Control Panel dialog box. Double-click the Power Management icon.
11. Click the Advanced tab. In the "When I press the power button on my computer" field, select "Standby".



12. After completing the steps above and you want to power-off the computer, you do not need to go through the process of closing files, applications and operation system. You can power off the computer at once by pressing the power button or selecting "Standby" when you shut down Windows 98.

To power-on the computer, just press the power button. The operating session where you left off when you power-off the computer will resume in not more than 8 seconds.

If you have changed the color or resolution (in the Display Properties dialog box), do not apply the settings without restarting. You must restart the computer.

