# 370VB Quick Installation Chart

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

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, such as Celeron 366, 400… etc. 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.

*** The CPU CLK over specification operation is optional, please see page 30 for more information.
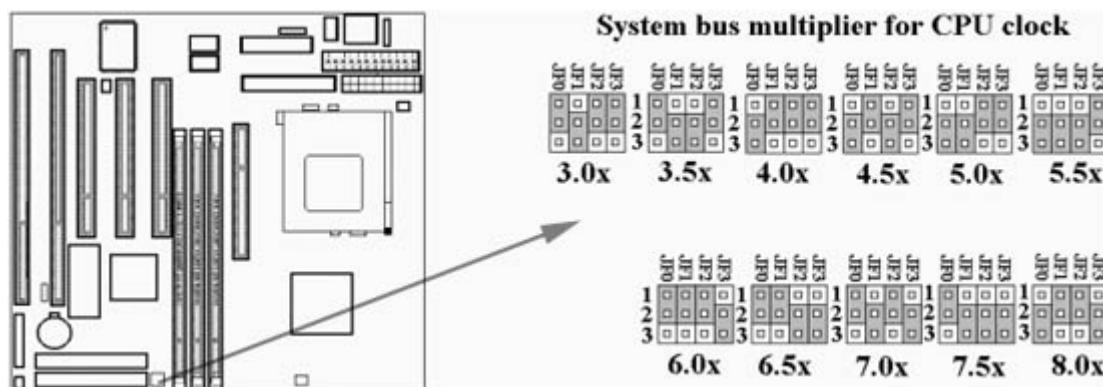
370VB Motherboard

User's Manual

Product Name: 370VB

Manual Revision: English, 1.1

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Table of Contents

Chapter 1. Introduction

1.1 Product Overview

Thank you for purchasing the 370VB motherboard. This motherboard utilizes VIA's latest technology, namely VT82C693A & VT82C596B 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 of device driver.

1.2 Features:

- **Wake up on LAN.**

- **Support Ultra DMA 66.**

- **Modem Remote Ring On.**

- **Support NCR SCSI BIOS.**

- **Support 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.**

- **Support Accelerated Graphics Port (AGP) cards for high performance.**

- **RTC Wake Up Alarm: Program the date/time to wake up your system.**

1.3 Specifications

CPU:	- Supports Intel Socket 370 Celeron Processor in the **P**lastic **P**in **G**rid **A**rray (PPGA) package and Pentium III Processor in the Flip-Chip PGA package with 66/100/133MHz Front Side Bus.
Chipset:	- VIA VT82C693A & VT82C596B
DIMM:	- Supports 3.3V EDO or 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 with data transfer rate up to 14 MB/ Sec
	- Supports Ultra DMA 33/66 (UDMA) with data transfer rate up to 33/66 MB/Sec
BIOS:	- Award BIOS V.4.51PG with built-in Anti-Virus, DMI support, and green function (Plug-and-Play BIOS)
	- Supports CD-ROM, SCSI, and LS120/ZIP boot up
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 AT or PS/2 Keyboard connector
IR Port:	- One IrDA/ASKIR compatible Infrared interface port. (Cable optional)
USB Ports:	- Two Universal Serial Bus (USB) ports support up to 127 peripheral devices.
ATX Power:	- Supports Modem remote Ring-On function
	- Supports software power off function
	- Supports RTC Wake-Up.
	- Supports Wake up on LAN.
Expansion Slots:	- Three 32-bit PCI expansion slots
	- Two 16-bit ISA expansion slots
	- One 32-bit AGP expansion slot
Operating System:	- Supports Windows 95/98/2000, Windows NT, MS-DOS V6.22, OS/2, Novell, Unix, SCO UNIX…..
Dimension:	- 220 mm x 210 mm AT Form factor

1.4 Content

**The motherboard box contains the following items:**

- **One Motherboard**
- **One IDE Ribbon Cable**
- **One Floppy Ribbon Cable**

- **One Set of Serial Ribbon Cable.**

- **One Parallel Port and one PS/2 Mouse Port Cable. (If keyboard connector is PS/2 type, you will receive one PS/2 keyboard port and one PS/2 mouse port cable. Besides, there is one parallel port cable.)**
- **One Driver Disk**

- **User's Manual & Quick Installation Chart**

1.5 MotherBoard Layout
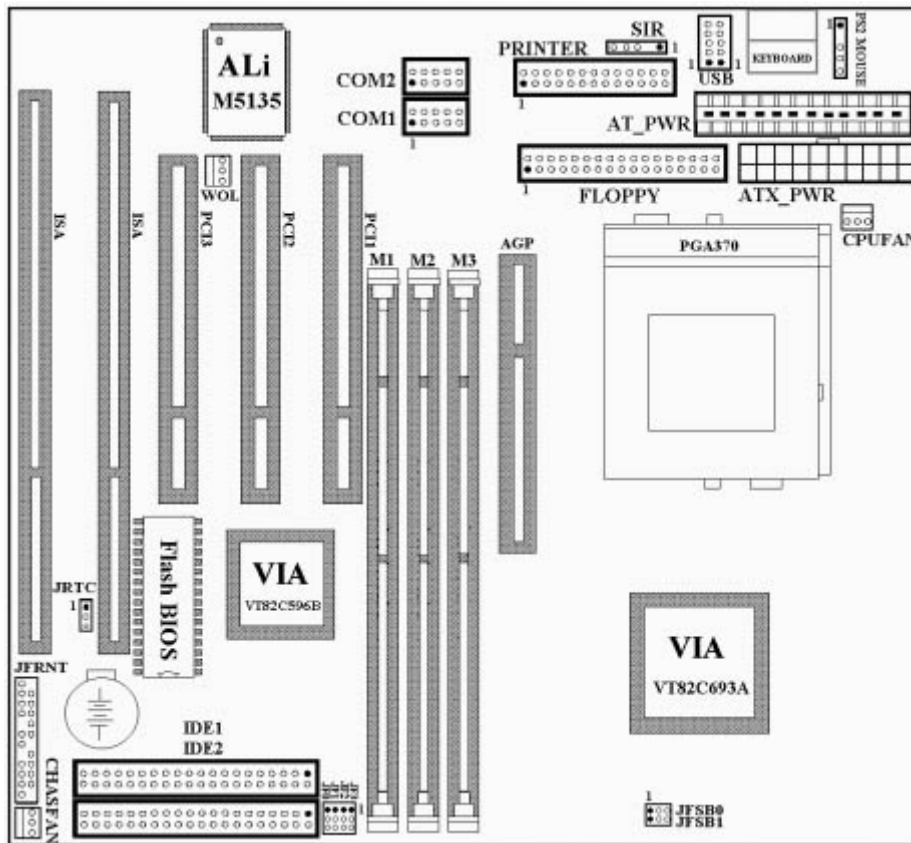
Chapter 2. Hardware Setup

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:	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.
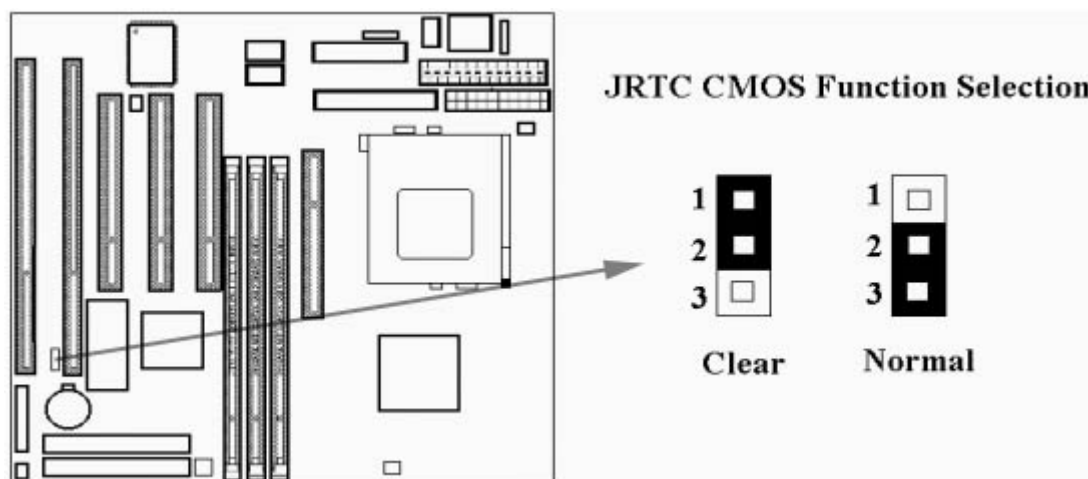
- **Work on a surface such as concrete, linoleum or hard wood floor.**

- **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)

JRTC CMOS Function Selection

How to Clear the CMOS Setting

1. **Turn off the power.**
2. **Remove 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 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, the range is from 1.3V to 3.5V for Pentium II & III CPU and. the range is from 1.3V to 2.0V for Celeron CPU.

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, such as Celeron 366, 400… etc. 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.

System bus multiplier for CPU clock

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.
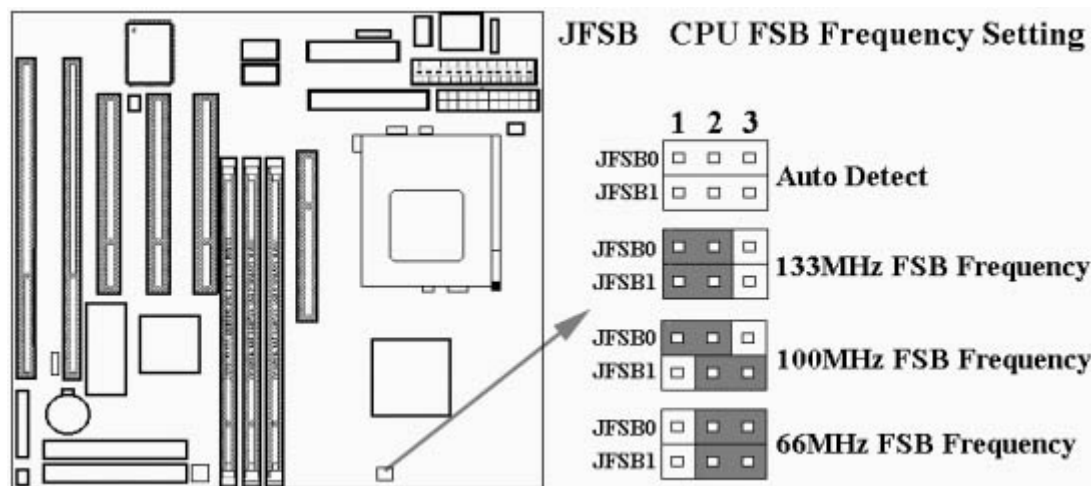
2.2 Installation of CPU

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. 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.

Please plug in the fan cable to the three pin fan connector on the motherboard (CPUFAN).

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 Extended Data Output(EDO)or Unbuffered Synchronous DRAM(SDRAM)memory. This will increase the system reliability. You must set DRAM Clock as 66MHz from BIOS Setup if EDO RAM was installed on board.

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.**

Install DIMM   Remove DIMM
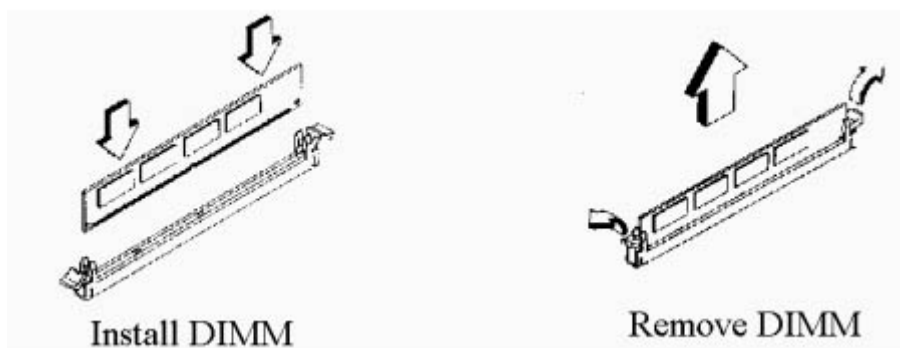
2.3.3 Memory Configuration

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	EDO/SDRAM 8, 16, 32, 64, 128, 256, 512MB
DIMM2	EDO/SDRAM 8, 16, 32, 64, 128, 256, 512MB

DIMM3	EDO/SDRAM 8, 16, 32, 64, 128, 256, 512MB

2.4 I/O Connections/Panel Connections

I/O Connections

ATX_PWR	ATX Power Connector
AT_PWR	AT Power Connector
CPUFAN	CPU fan connector
CHASFAN	Chassis fan connector
SIR	Infrared Connector (Cable optional)
WOL	Wake up on LAN connector
FLOPPY	Floppy Disk Drive Connector
IDE1, 2	Primary/ Secondary IDE Connectors
MOUSE	PS/2 Mouse Port
KEYBOARD	AT or PS/2 Keyboard Connector
COM1, 2	Serial Ports 1 & 2
PRINTER	Printer Port
USB1, 2	USB Connector (Cable optional)

2.1.4 ATX Power Connector (20-pin ATX_PWR)

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

ATX_PWR Power Connector
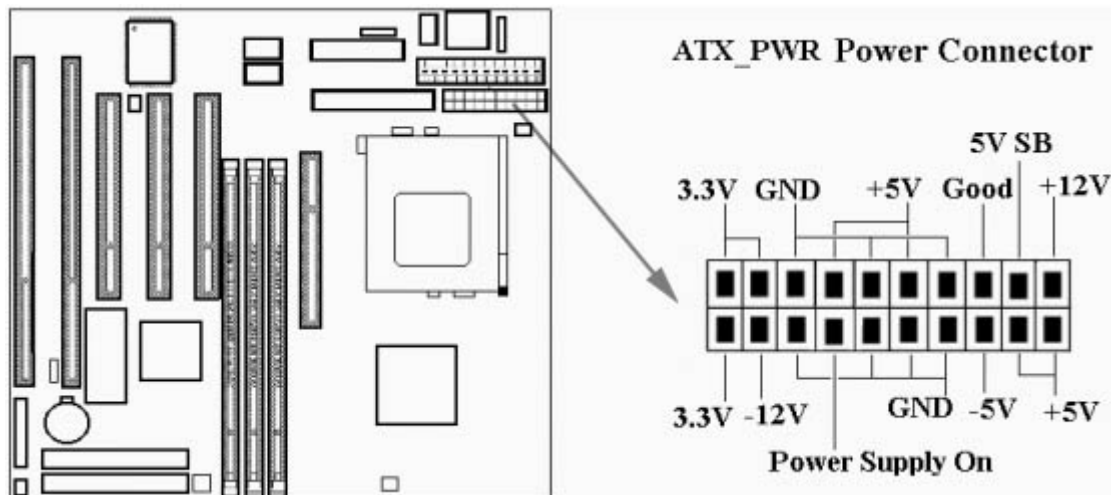
2.4.2 AT Power Connector (12-pin AT_PWR)

AT_PWR AT Power Connector
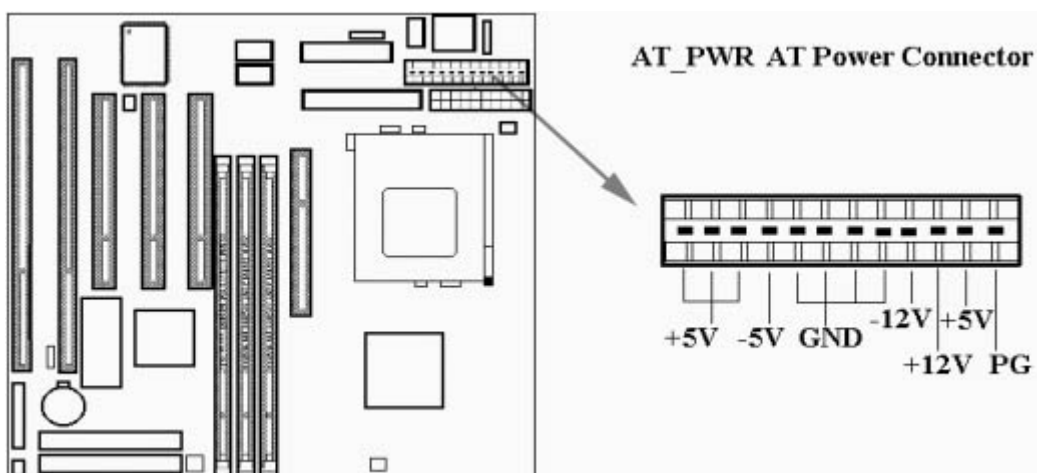
2.4.3 Chassis & CPU Fan Connectors (3-pin FAN)

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

FAN Connectors

- Ground
- +12V
- Rotation

CPUFAN: CPU FAN Connector

CHASFAN: Chassis FAN Connector
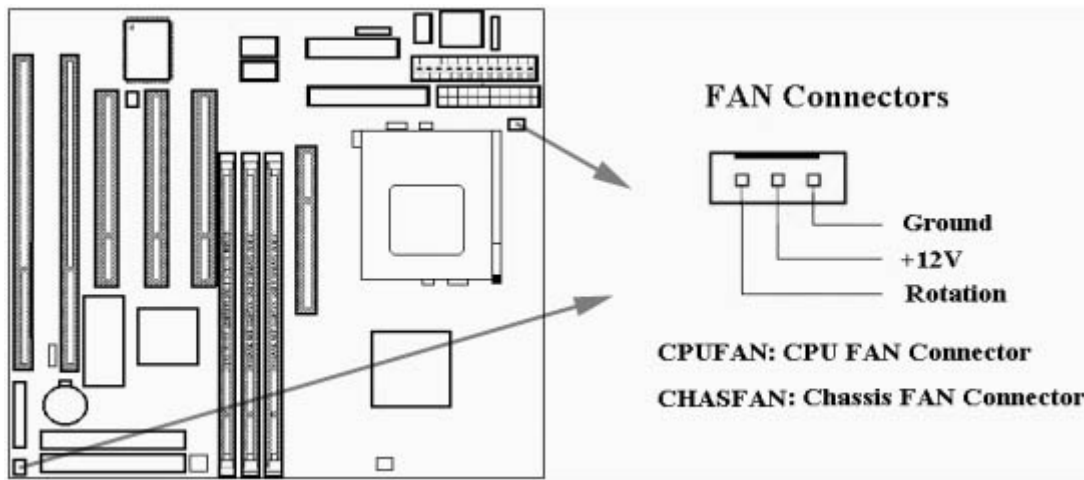
2.4.4 Infrared Connector (5-pin SIR)

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 Mode Select' in Integrated Peripherals to select whether UART is directed for use with COM2 or Infrared.

SIR Connector

- IRTX
- GND
- IRRX
- N.C
- Vcc

1
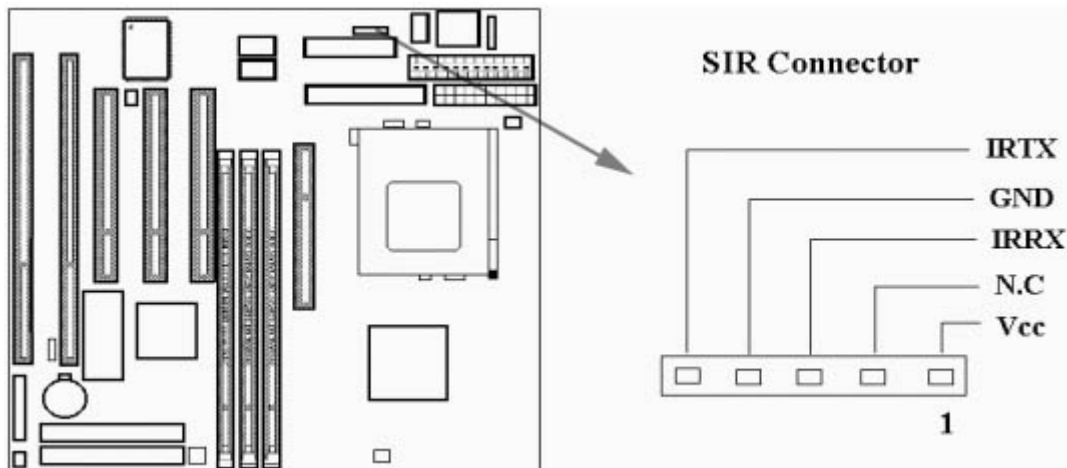
2.4.5 Wake-up on LAN Connector (3-pin WOL)

The JP1 connector powers up the system when a wakeup packet or signal is received from the network . This feature requires the Wake up on LAN function in BIOS is set to Enabled and that your system has an ATX power supply with at least 720mA +5V standby power.

WOL Wake up on LAN Connector

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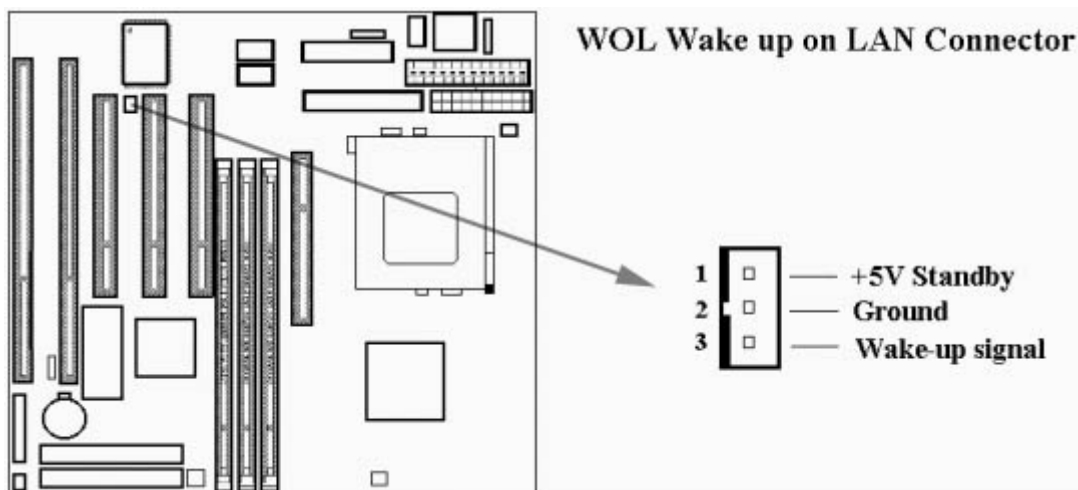
2.4.6 Floppy Disk Drive Connector (34-pin FLOPPY)

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

Floppy Drive Connector
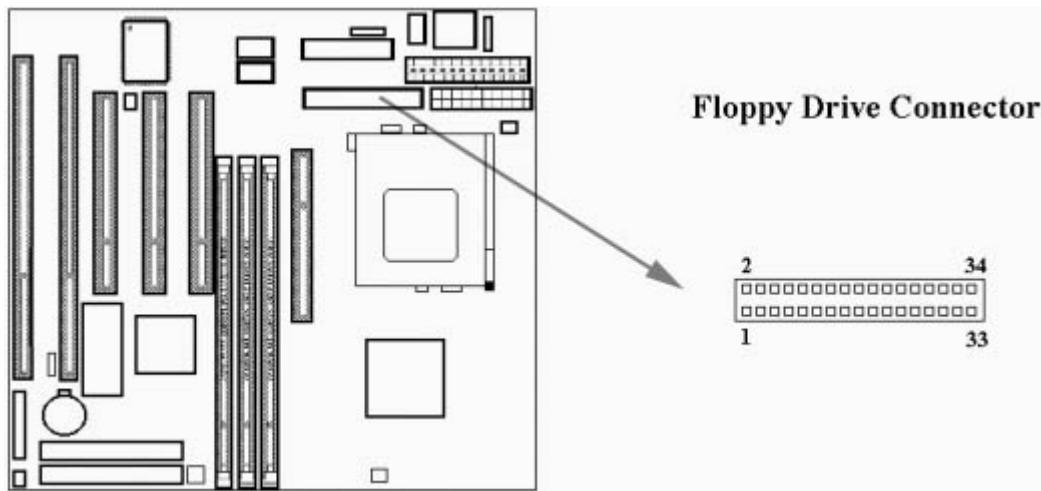
2.4.7 Primary/Secondary IDE Connector (Two 40-pin IDE)

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.

IDE Drive Connector

Primary IDE Connector

Secondary IDE Connector
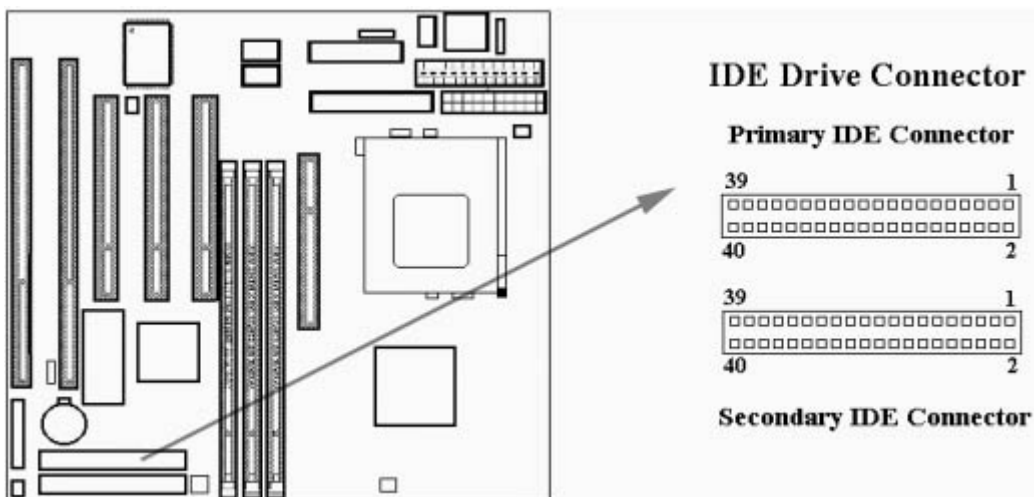
2.4.8 PS/2 Mouse Port (5-pin MOUSE)

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

2.4.9 Serial Port (Two 10-pin COM)

2.4.10 USB Connectors (Two 5-pin USB)

You can attach USB devices to the USB connector.

USB Ports Connector

```
Ground  —  □□  —  Ground
Ground  —  □□  —  Ground
Data +  —  □□  —  Data +
Data -  —  □□  —  Data -
Vcc  —  □□  —  Vcc
            1 1
```

Printer Port Connector

```
2 □□□□□□□□□□□□□ 26
1 □□□□□□□□□□□□□ 13
```
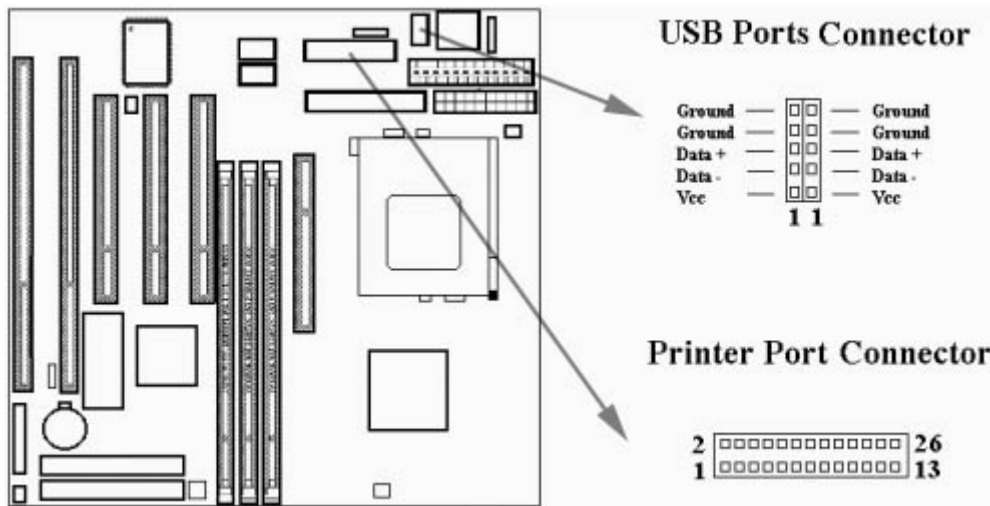
2.4.11 Printer Port (26-pin PRINTER)

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 Keyboard Connector (AT or PS/2 type)

The motherboard is shipped with AT keyboard connector. But you have another choice to replace the AT keyboard connector with PS/2 keyboard connector before shipping.

PS/2 Keyboard Connector

- Ground
- KB_DATA
- NC
- Vcc
- NC
- KB_CLK
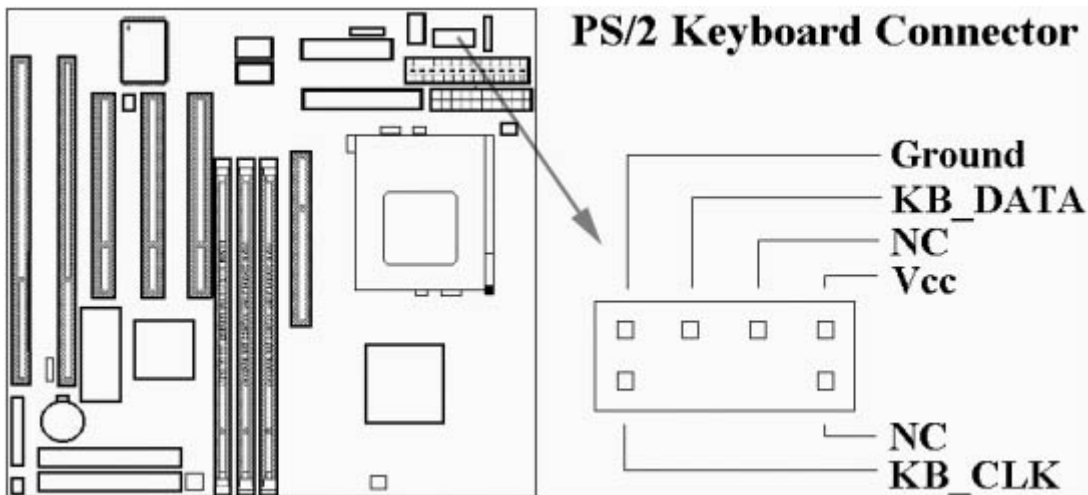
2.4.13 Panel Connection (24-pin JFRNT)

JFRNT Connector	Function
GREENLED	Suspend Mode LED
PWRLED	Power LED
KEYLK	Keylock Switch
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.

JFRNT Connector
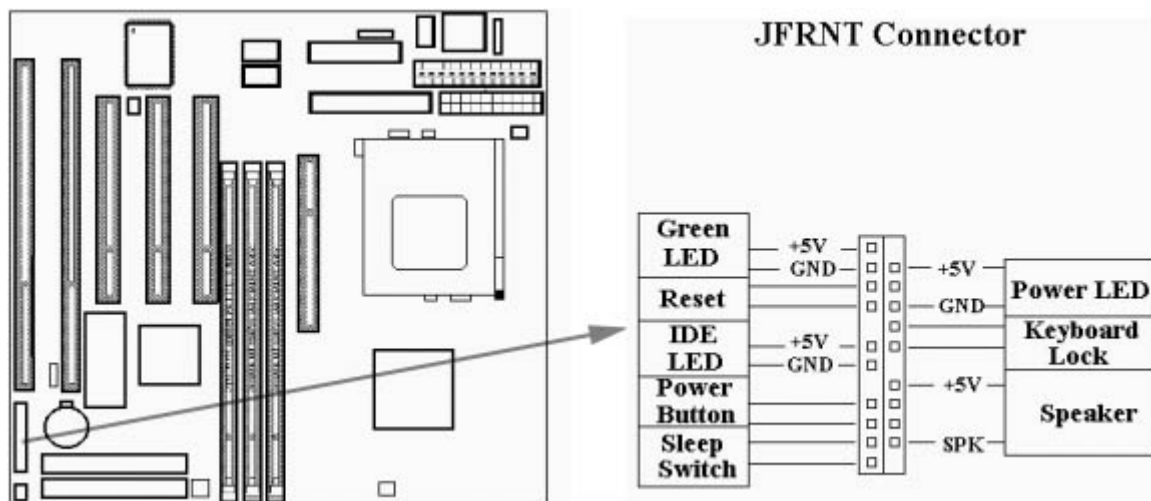
Chapter 3. BIOS Setup

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
ROM PCI/ISA BIOS (XXXXXXXX)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.


```
STANDARD CMOS SETUP          INTEGRATED PERIPHERALS
BIOS FEATURES SETUP          SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP       USER PASSWORD
POWER MANAGEMENT SETUP       IDE HDD AUTO DETECTION
PNP / PCI CONFIGURATION      SAVE & EXIT SETUP
LOAD BIOS DEFAULTS           EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS

Esc : Quit                   ↑↓ → ← : Select Item
F10 : Save & Exit Setup      (Shift) F2 : Change Color

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

3.2 Standard CMOS Setup

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 Setup Screen
ROM PCI/ISA BIOS (XXXXXXXX)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

```
Date (mm:dd:yy)  : Wed, Dec  10 1997
Time(hh:mm:ss)   :  17 : 52 : 00

HARD DISKS          TYPE   SIZE   CYLS   HEAD   PRECOMP   LANDZ   SECTOR   MODE
Primary Master    : Auto     0      0      0        0        0        0    AUTO
Primary Slave     : Auto     0      0      0        0        0        0    AUTO
Secondary Master : Auto      0      0      0        0        0        0    AUTO
Secondary Slave  : Auto      0      0      0        0        0        0    AUTO

Drive A        : 1.44M , 3.5in.
Drive B        : None
Floppy 3 Mode Support : Disabled              Base Memory  :    640K
                                          Extended Memory :  31744K
Video      : EGA / VGA                        Other Memory :    384K
Halt On    : All Errors                        Total Memory :  32768K

ESC  : Quit          ↑↓→← : Select Item       PU / PD / + / - : Modify
F1   : Help          (Shift) F2 : Change Color
```

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 <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 Type "USER" 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.

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 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. BIOS FEATURES SETUP SCREEN
ROM PCI / ISA BIOS (XXXXXXXX)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000-CFFFF Shadow	: Disabled
CPU L2 Cache ECC Checking	: Enabled	D0000-D3FFF Shadow	: Disabled
Processor Number Feature	: Disabled	D4000-D7FFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	D8000-DBFFF Shadow	: Disabled
Boot Sequence	: C ,A, SCSI	DC000-DFFFF Shadow	: Disabled
Swap Floppy Drive	: Disabled		
Boot Up Floppy Seek	: Disabled		
Boot Up Numlock Status	: On		
Gate A20 Option	: Fast		
Memory Parity/ECC Check	: Disabled		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250	ESC : Quit ↑↓→←: Select Item	
Security Option	: Setup	F1 : Help PU/PD/+/- : Modify	
PCI/VGA Palette Snoop	: Disabled	F5 : Old Values (Shift) F2 : Color	
OS Select For DRAM>64MB	: Non-OS2	F6 : Load BIOS Defaults	
Report No FDD For WIN 95	: Yes	F7 : Load Setup Defaults	

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 Boot Sequence

This option allows user to assign boot sequence of the system. Available options are A, C, D, E, F, CD-ROM, SCSI and LS120/ZIP.

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 Memory Parity / ECC Check

When Disabled, there will be no memory errors shown on the monitor for Memory parity SERR# (NMI). When parity DRAM modules are used, select Parity or ECC (Error Checking and Correcting) to correct 1 bit memory errors in the memory.

3.3.12 Typematic Rate Setting

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

3.3.13 Typematic Rate

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

3.3.14 Typematic Delay

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

3.3.15 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.

3.3.16 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.

3.3.17 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.

3.3.18 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 .

3.3.19 Video BIOS Shadow

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

3.3.20 C8000-CBFFF /DC000-DFFFF Shadow

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

3.4 Chipset Features Setup

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

Figure 3.4 CHIPSET FEATURES SETUP SCREEN
ROM PCI / ISA BIOS (XXXXXXXX)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

```
Bank 0/1 DRAM Timing      : SDRAM 10ns      CPU Host/PCI Clock        : Default
Bank 2/3 DRAM Timing      : SDRAM 10ns

Bank 4/5 DRAM Timing      : SDRAM 10ns
SDRAM Cycle Length        : 3
DRAM Clock                : HCLK-33M
Memory Hole               : Disabled
Read Around write         : Disabled
Concurrent PCI/Host       : Disabled
System BIOS Cacheable     : Enabled
Video BIOS Cacheable      : Enabled

Video RAM Cacheable       : Enabled      ESC : Quit            ↑↓→←: Select Item
AGP Aperture Size         : 64M          F1  : Help           PU/PD/+/- : Modify
AGP-2X Mode               : Enabled      F5  : Old Values     (Shift) F2 : Color
                                         F6  : Load BIOS Defaults
                                         F7  : Load Setup Defaults
```

3.4.1 Bank 0/1, 2/3, 4/5 DRAM Timing

DRAM timing is controlled by the DRAM timing registers. The timings programmed into this register are dependent on the system design. The slower timing may be required in certain system designs to support loose layouts or slower memory. Options are SDRAM 10ns, SDRAM 8ns, Normal, Medium, Fast, Turbo.

3.4.2 SDRAM Cycle Length

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

3.4.3 DRAM Clock

This item allows you to set the DRAM Clock. Options are Host CLK or HCLK-33M. You must set DRAM Clock as 66MHz if EDO RAM was installed on board. Please set the item according to the Host (CPU) Clock and DRAM Clock.

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 Read Around write

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.

3.4.6 Concurrent PCI/Host

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

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 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-2X Mode

Set to Enabled if your AGP card supports the 2X mode, which uses a double-clocked data technique to transfer twice the data per each AGP clock.

3.4.12 CPU Host/PCI Clock

Supports Default, 66, 75, 83, 100, 103, 112, 124, 133, 140 or 150MHz external frequency. 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.

The frequency mapping table of the elements:

Ext. frequency	AGP	PCI	ISA
66MHz	66MHz	33MHz	8.33MHz
75MHz	75MHz	37.5MHz	8.33MHz
83MHz	83MHz	41.6MHz	8.33MHz
100MHz	66MHz	33MHz	8.33MHz
103MHz	68.6MHz	34.3MHz	8.33MHz
112MHz	74.6MHz	37.33MHz	8.33MHz
124MHz	82.6MHz	41.33MHz	8.33MHz
124MHz	82.6MHz	31MHz	8.33MHz
133MHz	66MHz	33.25MHz	8.33MHz
140MHz	70MHz	35MHz	8.33MHz
150MHz	75MHz	37.5MHz	8.33MHz

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.

3.5 Power Management Setup

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

Figure 3-5. POWER MANAGEMENT SETUP SCREEN
ROM PCI / ISA BIOS (XXXXXXXX)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

```
ACPI function          : Disabled        Primary INTR          : ON
Power Management       : Disabled        IRQ3   (COM2)         : Primary
PM Control by APM      : Yes             IRQ4   (COM1)         : Primary
Video Off After        : Suspend         IRQ5   (LPT2)         : Primary
Video Off Method       : V/H             IRQ6   (Floppy Disk)  : Primary
                         SYNC+Blank
MODEM Use IRQ          : 3               IRQ7   (LPT1)         : Primary
Soft-off by PWRBTTN    : Instant-off     IRQ8   (RTC Alarm)    : Disabled
HDD Power Down         : Disabled        IRQ9   (IRQ2 Redir)   : Secondary
Doze Mode              : Disabled        IRQ10  (Reserved)     : Secondary
Suspend Mode           : Disabled        IRQ11  (Reserved)     : Secondary
      ** PM Events **                    IRQ12  (PS/2 Mouse)   : Primary
VGA                    : OFF             IRQ13  (Coprocessor)   : Primary
LPT & COM              : LPT / COM       IRQ14  (Hard Disk)     : Primary
HDD & FDD              : ON              IRQ15  (Reserved)     : Disabled
DMA/master             : OFF             ESC : Quit        ↑↓→←: Select Item
Modem Ring Resume      : Disabled        F1  : Help         PU/PD/+/- : Modify
RTC Alarm Resume       : Disabled        F5  : Old Values   (Shift) F2 : Color
                                         F6  : Load BIOS Defaults
Wake Up On  LAN        : Disabled        F7  : Load Setup Defaults
```

3.5.1 ACPI Function

This item allows you to enable or disable the function of Advanced

Configuration and Power Interface which offers improved power management when ATX power supply is installed. Please disable this function if your power supply is AT type.

3.5.2 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,

3.5.3 PM Control by APM

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

3.5.4 Video Off After

This option allows your monitor to blank after your system went into Doze or Suspend mode. You can elect to not blank screen by select " NA". Default value is " Suspend ".

3.5.5 Video Off Method

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

3.5.6 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.

3.5.7 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.

3.5.8 HDD Power Down

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

3.5.9 Doze Mode

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

3.5.10 Suspend Mode

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

3.5.11 VGA

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

3.5.12 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.

3.5.13 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.

3.5.14 DMA / master

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

3.5.15 Modem Ring Resume

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.

3.5.16 RTC Alarm Resume

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

3.5.17 Date (of Month) Alarm, Timer (hh:mm:ss) Alarm

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

3.5.18 Wake Up On LAN

With a LAN card installed, the Wake-up on LAN 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 2.4.5 for more information.

3.5.19 Primary INTR

When set to On (default), any primary interrupt request (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 Primary, Secondary or Disabled. When set to Secondary, the interrupt request will neither prevent the system from going into a power management mode nor awaken it.

3.6 PNP/PCI Configuration Setup

Figure 3.6 PNP/PCI CONFIGURATION SETUP
ROM PCI / ISA BIOS (XXXXXXXX)
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.

PNP OS Installed	: No	CPU to PCI Write Buffer	: Enabled
Resources Controlled By	: Manual	PCI Dynamic Bursting	: Enabled
Reset Configuration Data	: Disabled	PCI Master 0 WS Write	: Enabled
IRQ-3 assigned to	: PCI/ISA PnP	PCI Delay Transaction	: Enabled
IRQ-4 assigned to	: PCI/ISA PnP	PCI#2 Access #1 Retry	: Disabled
IRQ-5 assigned to	: PCI/ISA PnP	AGP Master 1 WS Write	: Enabled
IRQ-7 assigned to	: PCI/ISA PnP	AGP Master 1 WS Read	: Disabled
IRQ-9 assigned to	: PCI/ISA PnP		
IRQ-10 assigned to	: PCI/ISA PnP	Assign IRQ For USB	: Enabled
IRQ-11 assigned to	: PCI/ISA PnP	Assign IRQ For VGA	: Enabled
IRQ-12 assigned to	: PCI/ISA PnP		
IRQ-14 assigned to	: PCI/ISA PnP		
IRQ-15 assigned to	: PCI/ISA PnP		
DMA-0 assigned to	: PCI/ISA PnP		
DMA-1 assigned to	: PCI/ISA PnP	ESC : Quit ↑↓→←: Select Item	
DMA-3 assigned to	: PCI/ISA PnP	F1 : Help PU/PD/+/- : Modify	
DMA-5 assigned to	: PCI/ISA PnP	F5 : Old Values (Shift) F2 : Color	
DMA-6 assigned to	: PCI/ISA PnP	F6 : Load BIOS Defaults	
DMA-7 assigned to	: PCI/ISA PnP	F7 : Load Setup Defaults	

3.6.1 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.

3.6.2 Resources Controlled By

Default setting is "Auto". 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.

3.6.3 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.

3.6.4 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.

3.6.5 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.

3.6.6 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.

3.6.7 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.

3.6.8 PCI Master 0 WS Write

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

3.6.9 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.

3.6.10 PCI # 2 Access # 1 Retry

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

3.6.11 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.

3.6.12 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.

3.6.13 Assign IRQ For USB

This item can be found when "OnChip USB" is enabled from Integrated Peripherals 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.

3.6.14 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 Integrated Peripherals

You can control Input and Output functions from this screen.

```
┌─────────────────────────────────────────────────────────────────────────────────┐
│ OnChip IDE Channel 0      : Enabled    │ UR2 Mode                : Normal          │
│ OnChip IDE Channel 1      : Enabled    │                                           │
│ IDE Prefetch Mode         : Auto       │                                           │
│ IDE HDD Block Mode        : Enabled    │ Onboard Parallel Port   : 378/IRQ7        │
│ Primary Master PIO        : Auto       │ Parallel Port Mode      : ECP             │
│ Primary Slave PIO         : Auto       │ ECP Mode Use DMA        : 3               │
│ Secondary Master PIO      : Auto       │ OnChip USB              : Enabled         │
│ Secondary Slave PIO       : Auto       │ USB Keyboard Support    : Disabled        │
│ Primary Master UDMA       : Auto       │                                           │
│ Primary Slave UDMA        : Auto       │                                           │
│ Secondary Master UDMA     : Auto       │                                           │
│ Secondary Slave UDMA      : Auto       │                                           │
│ Init  Display First       : AGP        │ ESC : Quit        ↑↓→←: Select Item        │
│                                        │ F1  : Help        PU/PD/+/- :  Modify      │
│ Onboard FDC Controller    : Enabled    │ F5  : Old Values  (Shift) F2 :  Color      │
│ Onboard Serial Port 1     : 3F8/IRQ4   │ F6  : Load BIOS Defaults                   │
│ UR1 Mode                  : Normal     │ F7  : Load Setup Defaults                  │
│                                        │                                           │
│ Onboard Serial Port 2     : 2F8/IRQ3   │                                           │
└─────────────────────────────────────────────────────────────────────────────────┘
```

3.7.1 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

3.7.2 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.

3.7.3 IDE HDD Block Mode

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

3.7.4 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

3.7.5 Primary & Secondary Master/Slave UDMA

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

3.7.6 Init Display First

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

3.7.7 Onboard FDC Controller

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

3.7.8 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".

3.7.9 UR1 & 2 Mode Select

Select to activate the Infrared transfer function.

3.7.10 Onboard Parallel Port

Select address and interrupt for the Parallel port.

3.7.11 Parallel Port Mode

Select an operating mode for the parallel port. Mode options are SPP, EPP1.7, EPP1.9, ECP, ECPEPP1.7 and ECPEPP1.9.

3.7.12 ECP Mode Use DMA

Select a DMA channel if parallel port is set as ECP, ECPEPP1.7 orr ECPEPP1.9.

3.7.13 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.

3.7.14 USB Keyboard Support

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

3.8 Load BIOS Defaults

This loads the standard BIOS default values. To select, highlight it and press the<Enter> key. Then press the <Y> and <Enter> keys to confirm. Otherwise, press the <N> key to cancel.

3.9 Load Setup Defaults

This feature loads the setup default values from BIOS default table. To select, highlight it and press the<Enter> key. Then press the <Y> and <Enter> keys to confirm. Otherwise, press the<N> key to cancel.

3.10 Supervisor/User Password

You can assign, modify, or cancel password settings. To modify, highlight "Supervisor Password" or "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 (BIOS FEATURES SETUP) to "System".

If the setting is "Setup", the system will only require the password you activate CMOS Setup Utility.

3.11 IDE HDD Auto Detection

If your system has an IDE hard drive, you can use this function to detect its parameters and enter them into the "Standard CMOS Setup" automatically.

This routine only detects one set of parameters. If your hard disk is formatted using different parameters than those detected, you have to enter the parameters manually. If the parameters listed do not match the ones used to format the disk, the information on that disk will not be accessible. If the auto-detected parameters displayed do not match those that are used for your drive, ignore them. Type N to reject the values and enter the correct ones manually from the Standard CMOS Setup screen.

3.12 Exit CMOS Setup Utility

Press the<F10> key to save the setup and exit. Press <ESC> key to exit without saving. Either saving or not saving modifications, screen will prompt user to confirm, and system will reboot on exit.

Chapter 4. AGP & IDE 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 AGP & IDE driver.