

### **Notice to End Users**

This User's Guide & Technical Reference is for assisting system manufacturers and end users in setting up and installing the mainboard.

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# Chapter 1

## Introduction

### **Features**

---

#### **CPU**

1. Supports Intel Pentium MMX CPUs at 90 ~ 233 MHz;
2. Supports Cyrix 6x86(L) CPUs at PR133+ ~ PR200+ MHz and 6x86MX (MII) CPUs at PR166+ ~ PR350+MHz;
3. Supports AMD K5: PR90 ~ PR200MHz, AMD K6: 166 ~ 333MHz, and AMD K6-2: 250 ~ 350MHz;
4. Supports IDT C6: 200 ~ 240MHz;
5. Provides SOCKET 7 ZIF Socket;
6. **Supports 75/83/90/100 MHz CPU clock;**
7. Supports CPU voltage auto detect and switching circuit.

#### **Chipset**

1. VIA Apollo MVP3 chipset;
2. PCI Rev 2.1 and APM1.1/1.2 compliant.

#### **L2 Cache**

1. Onboard supports 512k write back cache with Pipelined Burst SRAMs.

#### **Main Memory**

1. Memory range from 4MB (minimum) to 768MB (maximum) with DRAM Table Free configurations;
2. Supports Fast Page Mode/EDO/SDRAM;
3. Supports 2pcs 72pin SIMM sockets and 3 pcs of 168pin DIMM sockets (3.3V unbuffered type).

## **BIOS**

1. AWARD Plug and Play BIOS;
2. Supports Advanced Power Management Function;
3. Flash Memory for easy upgrade.

## **I/O Function**

1. Integrated USB (Universal Serial Bus) controller with two USB ports;
2. Supports 2 IDE channels with 4IDE devices (including 120MB IDE floppy);
3. Provides PCI IDE Bus Master function;
4. One floppy port;
5. Two high speed 16550 FIFO UART ports;
6. One parallel port with EPP/ECP/SPP capabilities;
7. PS/2 mouse connector;
8. Infrared module connector.

## **Other Functions**

1. ATX Form Factor with 19cm x 30.5cm;
2. 4 PCI Master slots, 3 ISA slots, and 1 AGP slot;
3. Supports SCSI/CD-ROM Boot function.

- Note:**
1. *Make sure that the SDRAM module not only has to be 168 pin DIMM but designed for 3.3V unbuffered SDRAM as well. Double check with the SDRAM supplier before install any SDRAMs. The mainboard manufacturer has no obligation to any damage of the board by using the incorrect specification of SDRAM.*
  2. **Do not mix EDO and SDRAM together for the system stability.**
  3. **For 100MHz CPU environment, the SDRAM must compliant PC-100MHz specification, otherwise, the system maybe unstable.**

## Mainboard Setting for Pentium MMX-200

The default settings of the following figure is for the INTEL Pentium MMX-200, Vcore: 2.8V.

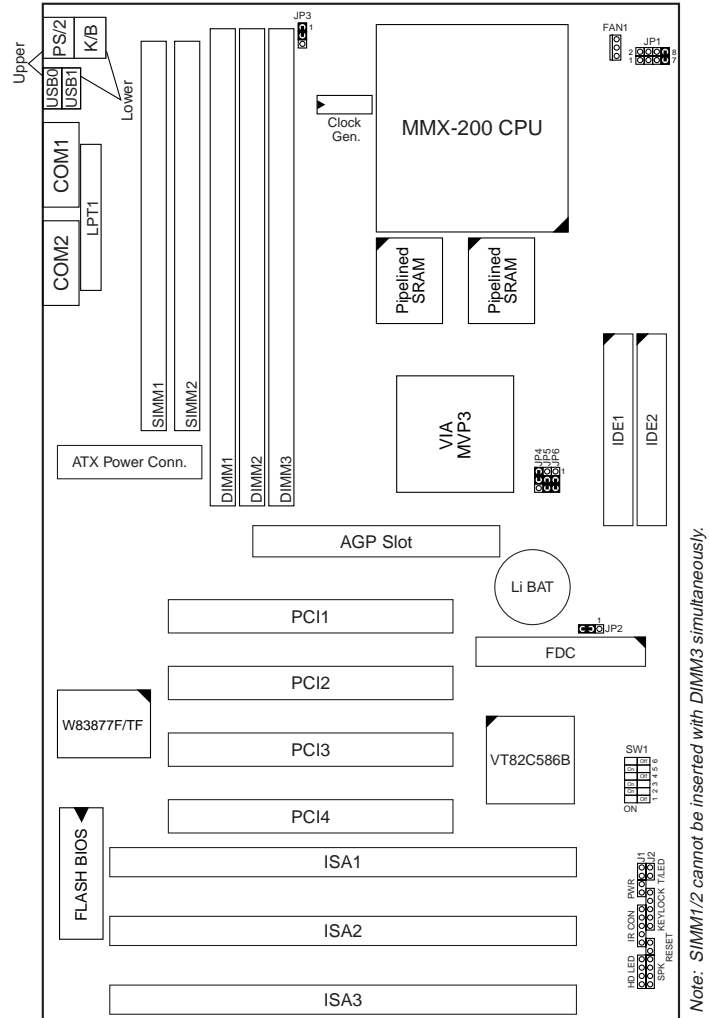


Figure 1-1. Motherboard Layout

**Note:** Double Check JP3 ~ JP6 if system can not be boot up.

## Chapter 2 Hardware Setup

### ***CPU V<sub>CORE</sub> Voltage Setting***

#### ***JP1: CPU V<sub>Core</sub> Voltage Setting***

| V <sub>Core</sub> Voltage | JP1 | V <sub>Core</sub> Voltage | JP1 | V <sub>Core</sub> Voltage         | JP1 | V <sub>Core</sub> Voltage            | JP1 |
|---------------------------|-----|---------------------------|-----|-----------------------------------|-----|--------------------------------------|-----|
| 2.0V                      |     | 2.4V                      |     | 2.8V<br>MMX, 6x86L                |     | 3.2V*<br>K6-233<br>(or higher)       |     |
| 2.1V                      |     | 2.5V                      |     | 2.9V<br>K6-166/200<br>6x86MX (M2) |     | 3.3V<br>IDT C6                       |     |
| 2.2V<br>K6-266, K6-2      |     | 2.6V                      |     | 3.0V*                             |     | 3.4V                                 |     |
| 2.3V                      |     | 2.7V                      |     | 3.1V*                             |     | 3.5V<br>Pentium (P54C)<br>6x86<br>K5 |     |

| CPU Type                 | V <sub>Core</sub> |
|--------------------------|-------------------|
| Pentium, 6x86, K5        | 3.52V             |
| MMX, 6x86L               | 2.8V              |
| IDT C6                   | 3.3V              |
| K6-166/200, 6x86MX (MII) | 2.9V              |
| K6-233                   | 3.2V              |
| K6-266, K6-2             | 2.2               |



- Note:
1. Refer to the table above to choose the correct voltage for the CPU everytime that you install a CPU.
  2. Make sure that your JP1 is matched with the CPU voltage, otherwise will damage the CPU or make the system unstable.
  3. When the new CPU is announced and is not listed on this manual, please refer to the above table, select the correct voltage setting for it.

## **AGP Driver for Win95 Installation**

---

### **Requirement**

- Microsoft Windows95OSR2.1 (OSR2.0 with USB upgrade)
- Apollo MVP3 AGP VxD Driver
- AGP VGA Card with Driver
- DirectX 5.0 DDK or SDK

### **Installation Procedure**

- Step1 Go to the next step if you are running Win95OSR2.0/2.1, and if not, install Windows95 4.00.950B or later version
- Step2 Install USBSUPP.EXE program (USB upgrade)
- Step3 Install Apollo MVP3 AGP VxD Driver, run "SETUP.EXE" program
- Step4 Install AGP driver for Windows95
- Step5 Install Microsoft DirectX 5.0 DDK or SDK

To make sure if the Apollo MVP3 AGP driver is properly installed, boot up the system and run the "Regedit" to check if the following path with VIAGARTD exists:  
"HKEY\_LOCAL\_MACHINES\System\CurrentControlSet\Services\VxD".

Follow the below procedure to check if the AGP driver is capable to activate:

1. Activate "Control Panel,"
  2. Click "DirectX,"
  3. Click "DirectDraw," and
  4. Check if there are some values in "Bit" and "Overlays."
- If there are some values, the AGP is able to activate.

## Intel Pentium MMX-166/200/233 CPUs

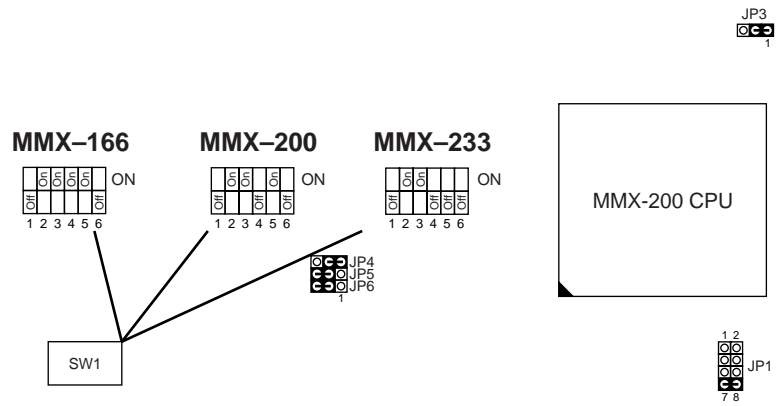


Figure 2-1. CPU Type Configuration

# AMD K6 CPU Settings

## AMD K6 – 166/200/233 CPUs and K6-2 266 CPU

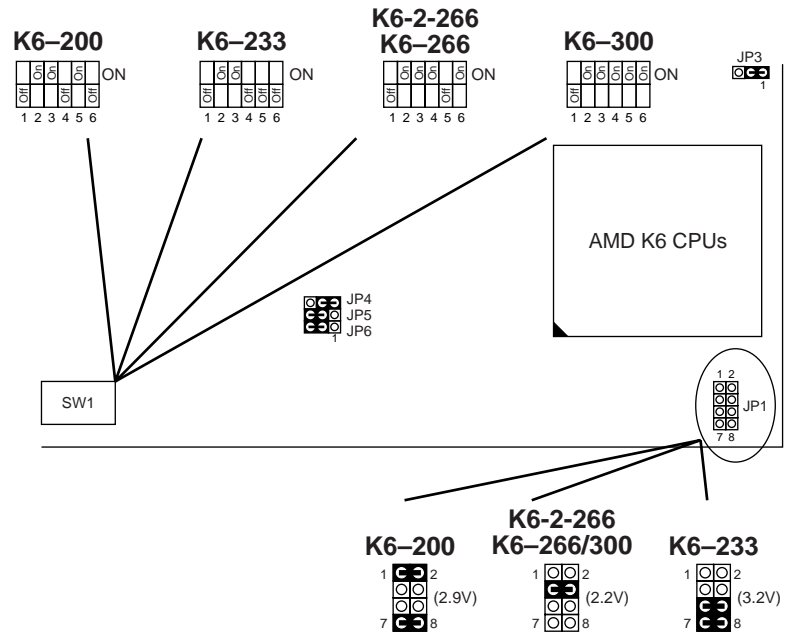


Figure 2-2. CPU Type Configuration

- Note:
1. K6-233 CPU is 3.2V. Please check its spec before using it.
  2. K6-266 is 2.2V CPU. Make sure that its specification before using it.

## AMD K6-2 – 250/266/300/350 CPU Settings

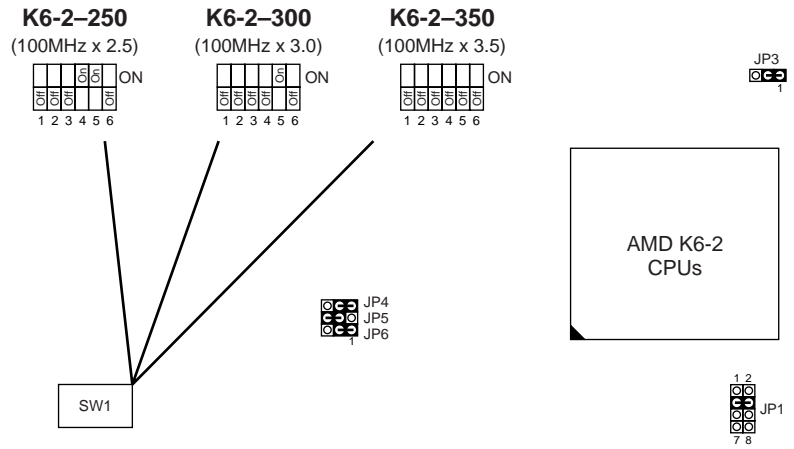


Figure 2-3. CPU Type Configuration

- Note:**
1. JP3 and JP4 are used to set the SDRAM clock the same as the AGP clock (66MHz), however in the 100MHz Bus Clock environment, make sure that the SDRAM is compliant with PC-100MHz spec., otherwise JP3 and JP4 should be set as above.
  2. K6-2-266 setting is the same as K6-266.

## Cyrix MII – PR300/333/350 CPUs

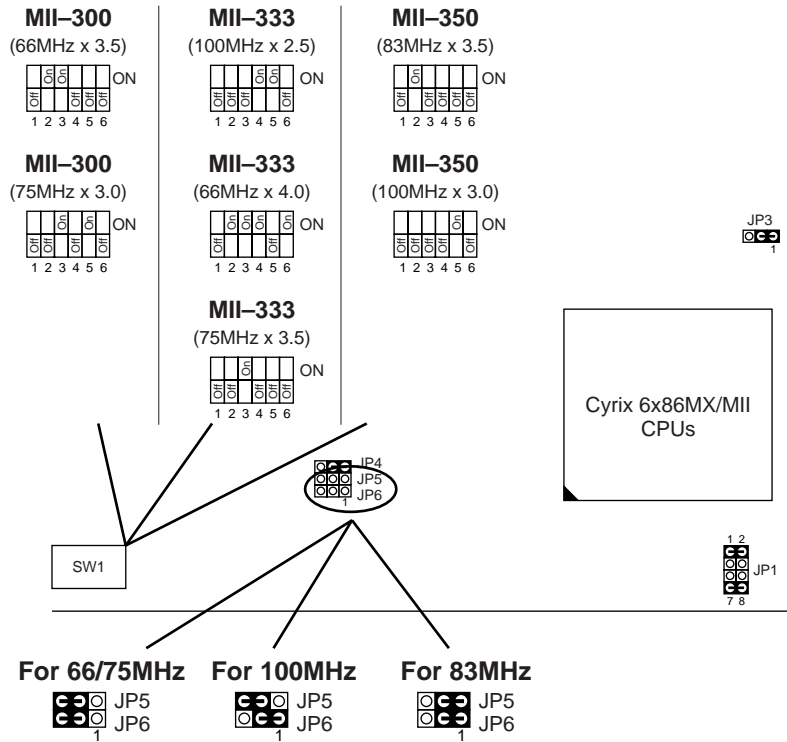


Figure 2-4. CPU Type Configuration

**Note:** JP3 and JP4 are used to set the SDRAM clock the same as the AGP clock (66MHz), however in the 100MHz Bus Clock environment, make sure that the SDRAM is compliant with PC-100MHz spec., otherwise JP3 and JP4 should be set as above.

# IDT C6 – 200/225/240 CPUs

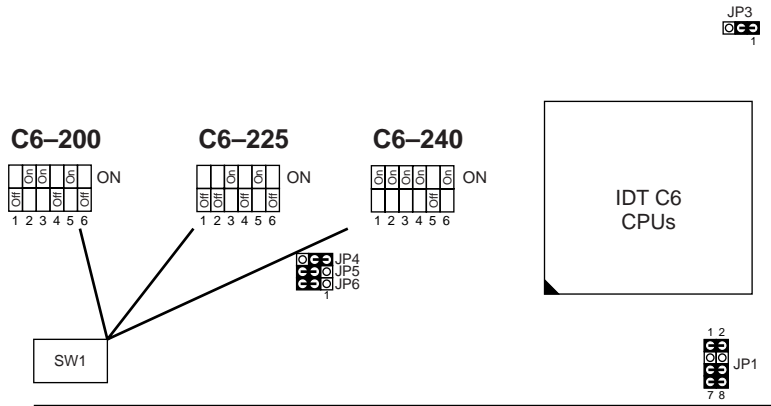


Figure 2-5. CPU Type Configuration

## Intel Pentium/AMD K5 – 133/166/200 CPUs

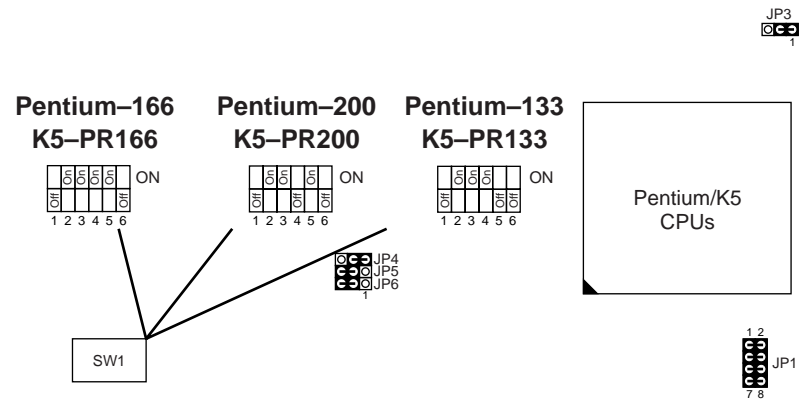


Figure 2-6. CPU Type Configuration

## System Memory Configuration

This Apollo MVP3 motherboard supports 72-pin SIMMs and 168pin DIMMs (3.3V unbuffered type) of 4MB, 8MB, 16MB, 32MB, or 64MB to form a memory size between 4MB to 768MB (total of 6 rows are supported).





The Apollo MVP3 chipset supports "Table Free" configuration so that DRAM module can be installed at any capacity.

- Note:
1. Do not recommend to mix EDO and SDRAM together for the system stability.
  2. For 100MHz CPU environment, the SDRAM must compliant PC-100MHz specification, otherwise the system maybe unstable.
  3. Do not insert SIMM1/2 and DIMM3 simultaneously.

## Jumper Settings

### JP2: Clear CMOS Data

Clear the CMOS memory by shorting this jumper on 2-3 momentarily; then remove the cap to retain new settings.

| COMS Data                | JP2  |
|--------------------------|--|
| Retain Data<br>(default) |  1<br> 3 |
| Clear Data               |  1<br> 3 |

### SW1: 4~6: Bus Ratio Select

### SW1: 1~3: CPU Clock Setting





Set the SW1 jumper according to your CPU Bus Ratio and CPU Clock.

| SW1: 4~6                     | 1.5x or 3.5x   | 2.0x   | 2.5x   | 3.0x   |
|------------------------------|--|--|--|--|
| <b>CPU Bus Ratio Setting</b> | 4 <input type="checkbox"/> Off <input type="checkbox"/> On<br>5 <input type="checkbox"/> Off <input type="checkbox"/> On<br>6 <input type="checkbox"/> Off <input type="checkbox"/> On<br>ON | 4 <input type="checkbox"/> Off <input type="checkbox"/> On<br>5 <input type="checkbox"/> Off <input type="checkbox"/> On<br>6 <input type="checkbox"/> Off <input type="checkbox"/> On<br>ON | 4 <input type="checkbox"/> Off <input type="checkbox"/> On<br>5 <input type="checkbox"/> Off <input type="checkbox"/> On<br>6 <input type="checkbox"/> Off <input type="checkbox"/> On<br>ON | 4 <input type="checkbox"/> Off <input type="checkbox"/> On<br>5 <input type="checkbox"/> Off <input type="checkbox"/> On<br>6 <input type="checkbox"/> Off <input type="checkbox"/> On<br>ON |
| <b>SW1: 4~6</b>              | 4.0x   | 4.5x   | 5.0x   | 5.5x   |
| <b>CPU Bus Ratio Setting</b> | 4 <input type="checkbox"/> Off <input type="checkbox"/> On<br>5 <input type="checkbox"/> Off <input type="checkbox"/> On<br>6 <input type="checkbox"/> Off <input type="checkbox"/> On<br>ON | 4 <input type="checkbox"/> Off <input type="checkbox"/> On<br>5 <input type="checkbox"/> Off <input type="checkbox"/> On<br>6 <input type="checkbox"/> Off <input type="checkbox"/> On<br>ON | 4 <input type="checkbox"/> Off <input type="checkbox"/> On<br>5 <input type="checkbox"/> Off <input type="checkbox"/> On<br>6 <input type="checkbox"/> Off <input type="checkbox"/> On<br>ON | 4 <input type="checkbox"/> Off <input type="checkbox"/> On<br>5 <input type="checkbox"/> Off <input type="checkbox"/> On<br>6 <input type="checkbox"/> Off <input type="checkbox"/> On<br>ON |

| SW1: 1~3                     | 60MHz  | 66MHz  | 75MHz  | 83MHz  | 90MHz  | 100MHz   |
|------------------------------|--|--|--|--|--|--|
| <b>CPU Bus Ratio Setting</b> | 1 <input type="checkbox"/> Off <input type="checkbox"/> On<br>2 <input type="checkbox"/> Off <input type="checkbox"/> On<br>3 <input type="checkbox"/> Off <input type="checkbox"/> On<br>ON | 1 <input type="checkbox"/> Off <input type="checkbox"/> On<br>2 <input type="checkbox"/> Off <input type="checkbox"/> On<br>3 <input type="checkbox"/> Off <input type="checkbox"/> On<br>ON | 1 <input type="checkbox"/> Off <input type="checkbox"/> On<br>2 <input type="checkbox"/> Off <input type="checkbox"/> On<br>3 <input type="checkbox"/> Off <input type="checkbox"/> On<br>ON | 1 <input type="checkbox"/> Off <input type="checkbox"/> On<br>2 <input type="checkbox"/> Off <input type="checkbox"/> On<br>3 <input type="checkbox"/> Off <input type="checkbox"/> On<br>ON | 1 <input type="checkbox"/> Off <input type="checkbox"/> On<br>2 <input type="checkbox"/> Off <input type="checkbox"/> On<br>3 <input type="checkbox"/> Off <input type="checkbox"/> On<br>ON | 1 <input type="checkbox"/> Off <input type="checkbox"/> On<br>2 <input type="checkbox"/> Off <input type="checkbox"/> On<br>3 <input type="checkbox"/> Off <input type="checkbox"/> On<br>ON |









### JP3, JP4: SDRAM Clock Setting

| SDRAM Clock                       | JP3  | JP4  | Note                        |
|-----------------------------------|--|--|-----------------------------|
| AGP Clock<br>(66MHz)<br>(default) | 3 1<br> | 3 1<br> | SDRAM asynchronous with CPU |
| CPU Clock                         | 3 1<br> | 3 1<br> | SDRAM synchronous with CPU  |

**Note:** The default settings for JP3 and JP4 are set the way that SDRAM clock is asynchronized with CPU clock, if CPU is 100MHz clock and SDRAM can't comply with CPU clock, then, use the "SDRAM asynchronous with CPU" setting (i.e., SDRAM clock is always 66MHz), or you need to change SDRAM so that it is compliant with PC-100MHz spec.

### JP5, JP6: Chipset Clock Settings

JP5 and JP6 settings must depend on the CPU clock. The system will not boot up with wrong setting.

| Chipset Clock        | JP5<br>JP6  |
|----------------------|---|
| 60/66/75 MHz<br>(÷2) | 3 1<br><br> |
| 83 MHz<br>(+2.5)     | 3 1<br><br> |
| 100 MHz<br>(÷3)      | 3 1<br><br> |

### ***IDE LED Activity Light: (J1 pin1–4)***

This connector connects to the hard disk activity indicator light on the case.

### ***Infrared Port Module Connector (J1 pin6–10)***

The system board provides a 5-pin infrared connector—IR1 as an optional module for wireless transmitting and receiving. **Pin 6 through 10 are Transmit, GND, Receive (low speed), Receive (high speed), and Vcc, respectively.**

### ***J1 pin12, 13: ATX Power Button***

Toggle this switch to turn on/off the system.

### ***J1 pin14, 15: Reserved***

### ***Speaker Connector (J2 pin1–4)***

The speaker connector is a 4-pin connector for connecting the system and the speaker. (See the following drawing for jumper position.)

### ***Reset Switch (J2 pin5, 6)***

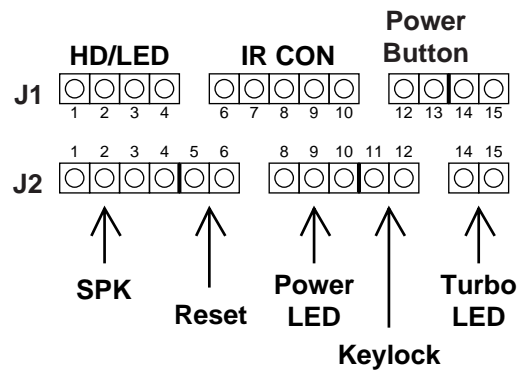
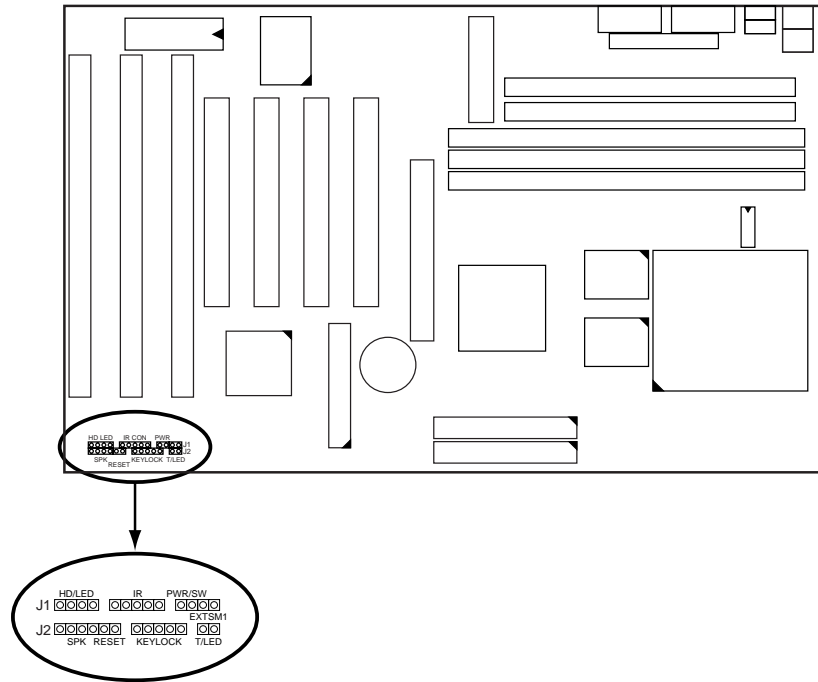
The system board has a 2-pin connector for rebooting your computer without having to turn off your power switch. This prolongs the life of the system's power supply.

### ***Power LED and Keylock Switch (J2 pin8–12)***

The keylock switch is a 5-pin connector for locking the keyboard for security purposes. (See the following drawing for jumper position, and pin1~3 is connected to power LED and pin 4~5 is connected to keylock switch.)

## Turbo LED (J2 pin14, 15)

Connect the case's turbo LED to this connector.



### ***J1 Switch Signal Summary***

| <b>J1</b>                   | <b>Pin</b> | <b>Signal Description</b>               |
|-----------------------------|------------|---|
| HDD LED Connector           | 1          | +5V                                     |
|                             | 2          | HDD LED Signal                          |
|                             | 3          | HDD LED Signal                          |
|                             | 4          | +5V                                     |
| N.C.                        | 5          | No Connection                           |
| Infrared Connector          | 6          | Infrared Transmit Signal                |
|                             | 7          | GND                                     |
|                             | 8          | Infrared Receive Signal<br>(low speed)  |
|                             | 9          | Infrared Receive Signal<br>(high speed) |
|                             | 10         | +5V                                     |
| Power Button (ATX<br>Power) | 11         | No Connection                           |
|                             | 12         | ATX Power Button                        |
|                             | 13         |   |
| N.C.                        | 14         | No Connection                           |
|                             | 15         | No Connection                           |

## J2 Switch Signal Summary

| J2                  | Pin | Signal Description  |
|---------------------|-----|---------------------|
| Speaker Connector   | 1   | Speaker Signal      |
|                     | 2   | No Connection       |
|                     | 3   | Ground              |
|                     | 4   | +5V                 |
| Reset Switch        | 5   | Reset Signal        |
|                     | 6   | Ground              |
| N.C.                | 7   | No Connection       |
| Power LED Connector | 8   | +5V                 |
|                     | 9   | No Connection       |
|                     | 10  | Ground              |
| Keylock Connector   | 11  | Keylock Signal      |
|                     | 12  | GND                 |
| N.C.                | 13  | No Connection       |
| Turbo LED Connector | 14  | Turbo LED Connector |
|                     | 15  | Ground              |

# Chapter 3

## Award BIOS Setup

This VIA MVP3 motherboard comes with the AWARD BIOS from AWARD Software Inc. Enter the Award BIOS program's Main Menu as follows:

1. Turn on or reboot the system.

After a series of diagnostic checks, the following message will appear:

PRESS <DEL> TO ENTER SETUP

2. Press the <DEL> key and the main program screen appears as in the following page.

ROM PCI/ISA BIOS  
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         | HDD LOW LEVEL FORMAT      |
| LOAD SETUP DEFAULTS           | SAVE & EXIT SETUP         |
|                               | EXIT WITHOUT SAVING       |
| Esc : Quit                    | ↑ ↓ → ← : Select Item     |
| F10 : Save & Exit Setup       | (Shift) F2 : Change Color |
| Time, Date, Hard Disk Type... |                           |

3. Using one of the arrows on your keyboard to select an option and press <Enter>. Modify the system parameters to reflect the options installed in the system.
4. You may return to the Main Menu anytime by press <ESC>.
5. In the Main Menu, "SAVE AND EXIT SETUP" saves your changes and reboots the system, and "EXIT WITHOUT SAVING" ignores your changes and exits the program.

## Standard CMOS Setup

Standard CMOS Setup allows you to record some basic system hardware configuration and set the system clock and error handling. You only need to modify the configuration values of this option when you change your system hardware configuration or the configuration stored in the CMOS memory got lost or damaged.

Run the Standard CMOS Setup as follows:

1. Choose "STANDARD CMOS SETUP" from the Main Menu and a screen with a list of options appears.

```
ROM PCI/ISA BIOS
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.
```

| Date (mm:dd:yy) : Thu, May 9 1996 |        |                           |                         |                    |         |       |        |      |
|-----------------------------------|--------|---------------------------|-------------------------|--------------------|---------|-------|--------|------|
| Time (hh:mm:ss) : 15 : 45 : 10    |        |                           |                         |                    |         |       |        |      |
| 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, 3.5 in.          |        |                           | Base Memory: 640K       |                    |         |       |        |      |
| Drive B : None                    |        |                           | Extended Memory: 15360K |                    |         |       |        |      |
|                                   |        |                           | Other Memory: 384K      |                    |         |       |        |      |
| Video : EGA/VGA                   |        |                           | Total Memory: 16384K    |                    |         |       |        |      |
| Halt On : All Errors              |        |                           |                         |                    |         |       |        |      |
| Esc : Quit                        |        | ↑ ↓ → ← : Select Item     |                         | PU/PD/+/- : Modify |         |       |        |      |
| F1 : Help                         |        | (Shift) F2 : Change Color |                         |                    |         |       |        |      |

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys.

A short description of screen options follows:

|   |  |
|---|--|
| <b>Date (mm:dd:yy)</b>                          | Set the current date and time.   |
| <b>Time (hh:mm:ss)</b>                          |  |
| <b>Primary<br/>(Secondary)<br/>Master/Slave</b> | This field records the specifications for all non-SCSI hard disk drives installed in your system. Refer to the respective documentation on how to install the drivers.   |
| <b>Drive A/B</b>                                | Set this field to the types of floppy disk drives installed in your system. The choices are:<br>360KB, 5.25 in.,<br>1.2MB, 5.25 in.,<br>720KB, 3.5 in.,<br>1.44M, 3.5 in. (default),<br>2.88MB, 3.5 in., or None<br>120MB, 3.5in., IDE Floppy Drive (Auto detect). |
| <b>Video</b>                                    | Set this field to the type of video display card installed in the system. The choices are: Monochrome; Color 40x25; VGA/ EGA (default); or Color 80x25   |
| <b>Halt On</b>                                  | Set this field to the type of errors that will cause the system to halt. The choices are: All Errors (default); No Errors; All, But Keyboard; All, But Diskette; or All, But Disk / Key  |

3. Press <ESC> to return to the Main Menu when you finish setting up in the "Standard CMOS Setup".



## BIOS Features Setup

BIOS Features Setup allows you to improve your system performance or set up some system features according to your preference.

Run the BIOS Features Setup as follows:

1. Choose "BIOS FEATURES SETUP" from the Main Menu and a screen with a list of options appears.

```
ROM PCI/ISA BIOS
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            |
| Quick Power on Self Test   | : Enabled  | D0000-D3FFF Shadow                | : Disabled            |
| Boot Sequence              | : A,C,SCSI | D4000-D7FFF Shadow                | : Disabled            |
| Swap Floppy Drive          | : Disabled | D8000-DBFFF Shadow                | : Disabled            |
| Boot Up Floppy Seek        | : Enabled  | DC000-DFFFF Shadow                | : Disabled            |
| Boot Up NumLock Status     | : On       |                                   |                       |
| Typematic Rate Setting     | : Disabled | ESC : Quit                        | ↑ ↓ → ← : Select Item |
| Typematic Rate (Chars/Sec) | : 6        | F1 : Help                         | PU/PD/+/- : Modify    |
| Typematic Delay (Msec)     | : 250      | F5 : Old Values (Shift)F2 : Color |                       |
| Security Option            | : Setup    | F6 : Load BIOS Defaults           |                       |
| PCI/VGA Palette Snoop      | : Disabled | F7 : Load Setup Defaults          |                       |
| OS Select for DRAMs>64MB   | : Non-OS/2 |                                   |                       |

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys. An explanation of the <F> keys follows:
  - <F1>: "Help" gives options available for each item.
  - Shift <F2>: Change color.
  - <F5>: Get the previous values. These values are the values with which the user started the current session.
  - <F6>: Load all options with the BIOS default values.
  - <F7>: Load all options with the Setup default values.

A short description of screen options follows:

- Virus Warning**      Enabled: Activates automatically when the system boots up causing a warning message to appear if there is anything attempts to access the boot sector or hard disk partition table.  
Disabled: No warning message will appear when there is something attempts to access the boot sector or hard disk partition table  
*Note: Many diagnostic (or boot manager) programs which attempt to access the boot sector table can cause the above warning message. If you will be running such a program, we recommend that you disable the virus protection first.*
- CPU Internal Cache**      Choose Enabled (default) or Disabled. This option allows you to enable or disable the CPU's internal cache.
- External Cache**      Choose Enabled (default) or Disabled. This option allows you to enable or disable the external cache memory.
- Quick Power On Self Test**      Choose Enabled (default) or Disabled. This option allows you to speed up the Power On Self Test routine.

|                                   |   |
|-----------------------------------|---|
| <b>Boot Sequence</b>              | Default is "A, C, SCSI". This option determines which drive to look for first for an operating system.  |
| <b>Swap Floppy Drive</b>          | Choose Enabled or Disabled (default). This option swaps floppy drive assignments when it is enabled.  |
| <b>Boot Up Floppy Seek</b>        | <p>Enabled (default): During POST, BIOS checks the track number of the floppy disk drive to see whether it is 40 or 80 tracks.</p> <p>Disabled: During POST, BIOS will not check the track number of the floppy disk drive.</p> |
| <b>Boot Up NumLock Status</b>     | Choose On (default) or Off. This option lets user to activate the NumLock function at boot-up.  |
| <b>Typematic Rate Setting</b>     | Choose Enabled or Disabled (default). Enable this option to adjust the keystroke repeat rate.   |
| <b>Typematic Rate (Chars/Sec)</b> | Range between 6 (default) and 30 characters per second. This option controls the speed of repeating keystrokes.   |
| <b>Typematic Delay (Msec)</b>     | Choose 250 (default), 500, 750, and 1000. This option sets the time interval for displaying the first and the second characters.  |
| <b>Security Option</b>            | Choose System or Setup (default). This option is to prevent unauthorized system boot-up or use of BIOS Setup.   |

**PCI/VGA palette Snoop** Choose Enabled or Disabled (default). It determines whether the MPEG ISA cards can work with PCI/VGA or not.

**Video BIOS Shadow** Enabled (default): Map the VGA BIOS to system RAM.  
Disabled: Don't map the VGA BIOS to system RAM.

**C8000-CBFFF to DC000-DFFF Shadow** These options are used to shadow other expansion card ROMs.

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

## ***Chipset Features Setup***

---

Chipset Features Setup changes the values of the chipset registers. These registers control the system options.

Run the Chipset Features Setup as follows:

1. Choose "CHIPSET FEATURES SETUP" from the Main Menu and a screen with a list of options appears.
2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys.

ROM PCI/ISA BIOS  
 CHIPSET FEATURES SETUP  
 AWARD SOFTWARE, INC.

|                            |               |   |
|----------------------------|---------------|---|
| Bank 0/1 DRAM Timing       | : FP/EDO 70ns |   |
| Bank 2/3 DRAM Timing       | : FP/EDO 70ns |   |
| Bank 4/5 DRAM Timing       | : FP/EDO 70ns |   |
| SDRAM Cycle Length         | : 3           |   |
| DRAM Read Pipeline         | : Enabled     |   |
| Cache Rd+CPU Wt Pipeline   | : Enabled     |   |
| Cache Timing               | : Fast        |   |
| Video BIOS Cacheable       | : Enabled     |   |
| System BIOS Cacheable      | : Enabled     |   |
| Memory Hole At 15Mb. Addr. | : Disabled    |   |
| AGP Aperture Size          | : 64MB        |   |
| AGP-2x Mode                | : Disabled    | ESC : Quit           ↑ ↓ → ←: Select Item |
| OnChip USB                 | : Disabled    | F1 : Help            PU/PD/+/- : Modify   |
| USB Keyboard Support       | : Disabled    | F5 : Old Values (Shift)F2 : Color         |
|                            |               | F6 : Load BIOS Defaults                   |
|                            |               | F7 : Load Setup Defaults                  |

A short description of screen options follows:

**Bank 0~5 DRAM Timing Control**   Use the default setting. Do not change this setting unless you know the DRAM access time spec.

**SDRAM Cycle Length**            Use the default setting.

**DRAM Read Pipeline**            Use the default setting.

**Cache Rd+CPU Wt Pipeline**   Use the default setting.

**Cache Timing**                    Use the default setting.

**Video BIOS Cacheable**           Choose Enabled (default) or Disabled. When Enabled, the access to the VGA BIOS ROM addressed at C0000H-C7FFFH is cached.

**System BIOS Cacheable**          Choose Enabled (default) or Disabled. When Enabled, the access to the system BIOS ROM addressed at F0000H-FFFFFH is cached.

**AGP Aperture Size (MB)** Choose 4, 8, 16, 32, 64 (default), 128, or 256 MB. Memory mapped and graphics data structures can reside in a Graphics Aperture. This area is like a linear buffer. BIOS will auto report the starting address of this buffer to the O.S.

**AGP-2X Mode** Choose Enabled or Disabled (default).  
Enabled: Turn on AGP 2X mode (133MHz).  
Disabled: Turn off AGP 2X mode. This function must match AGP2X function. Check AGP card's spec before turn on it.

**OnChip USB** Enabled: Enable USB function and will occupy one IRQ.  
Disabled (default): Disable USB function and will not occupy IRQ. Choose Disabled when it is not connect to an USB device.

**USB Keyboard Support** Choose Disabled (default) or Enabled.  
Disabled: No USB keyboard is installed.  
Enabled: USB keyboard is connected.

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

## Power Management Setup

Power Management Setup sets the system's power saving functions.

1. Choose "POWER MANAGEMENT SETUP" from the Main Menu and a screen with a list of options appears.

| ROM PCI/ISA BIOS<br>POWER MANAGEMENT SETUP<br>AWARD SOFTWARE, INC. |                  |  |
|--|------------------|--|
| Power Management   | : User Define    | Primary INTR : ON                          |
| PM Control by APM  | : No             | IRQ3 (COM 2) : Primary                     |
| Video Off option   | : Suspend -> Off | IRQ4 (COM 1) : Primary                     |
| Video Off Method   | : V/H SYNC+Blank | IRQ 5 (LPT 2) : Primary                    |
| Modem Use IRQ  | : 3              | IRQ 6 (Floppy Disk) : Primary              |
| Soft-Off by PWRBTN   | : Instant-Off    | IRQ 7 (LPT 1) : Primary                    |
| ** PM Timers **  |                  | IRQ 8 (RTC Alarm) : Disabled               |
| HDD Power Down   | : Disabled       | IRQ 9 (IRQ2 Redir) : Disabled              |
| Doze Mode  | : Disabled       | IRQ 10 (Reserved) : Disabled               |
| Suspend Mode   | : Disabled       | IRQ 11 (Reserved) : Disabled               |
| ** PM Events **  |                  | IRQ 12 (PS/2 mouse) : Primary              |
| VGA  | : OFF            | IRQ 13 (Coprocessor) : Primary             |
| LPT & COM  | : LPT/COM        | IRQ 14 (Hard Disk) : Primary               |
| HDD & FDD  | : ON             | IRQ 15 (Reserved) : Disabled               |
| DMA/Master   | : OFF            |  |
| Modem Ring Resume  | : Disabled       | ESC : Quit           ↑ ↓ → ← : Select Item |
| RTC Alarm Resume   | : Disabled       | F1 : Help            PU/PD/+/- : Modify    |
|  |                  | F5 : Old Values (Shift)F2 : Color          |
|  |                  | F6 : Load BIOS Defaults                    |
|  |                  | F7 : Load Setup Defaults                   |

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys.

A short description of screen options follows:

**Power Management**           Choose Max. Saving, User Define (default), Disabled, or Min Saving.

**PM Control by APM**           Choose Yes or No (default). You need to choose Yes when the operating system has the APM functions, choose No otherwise.

**Video Off Option**       Choose N/A (default), Doze, Standby, or Suspend. This function determines the timing of the monitor closed down functions.

**Video Off Method** Choose Blank , DPMS, or V/H Sync+Blank (default). You can chose either DPMS or V/H Sync+Blank when the monitor has the Green function. You need to choose Blank when the monitor does not have the Green function.  
*Note: Some VGA cards don't allow V/H Sync to be turned off directly.*

**MODEM Use IRQ** Assign the IRQ number to the modem which is being used so that the ring signal can wakeup the system. The default setting is 3 (COM2).

**HDD power Down** Time is adjustable from 1 to 15 minutes. When the set time has elapsed, the BIOS sends a command to the HDD to power down, which turns off the motor.

**Doze Mode** This option sets the CPU speed down to 33MHz during this mode.

**Suspend Mode** This option allows you to choose the mode for the different timers. The Standby Mode turns off the VGA monitor, and the Suspend Mode turns off the CPU and saves the energy of the system.

**VGA**  
Enabled: the system can not enter the power saving mode when monitor is on.  
Disabled: the system can enter the power saving mode when monitor is on.



|                          |   |
|--------------------------|---|
| <b>LPT &amp; COM</b>     | Use the default setting.  |
| <b>HDD &amp; FDD</b>     | Use the default setting.  |
| <b>DMA/Master</b>        | Use the default setting.  |
| <b>Modem Ring Resume</b> | Enabled: Wake up the system from ring signal.<br>Disabled: (default) Ring signal can not wake up the system.              |
| <b>RTC Alarm Resume</b>  | Enabled: Wake up the system at specified time (user must define the time.)<br>Disabled: (default) turn off this function. |
| <b>Primary INTR</b>      | Use the default setting.  |
| <b>IRQ x</b>             | Set these IRQs individually.<br>Activity detected from any enabled IRQ channel (ON) will wake up the system.              |

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

## ***PnP/PCI Configuration Setup***

---

PnP/PCI Configuration Setup configures the PCI bus slots.

Run the PnP/PCI Configuration Setup as follows:

1. Choose "PnP/PCI CONFIGURATION SETUP" from the Main Menu and a screen with a list of options appears.

ROM PCI/ISA BIOS  
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             |
| ACPI I/O Device Node     | : Enabled     | PCI Delay Transaction    | : Disabled            |
| IRQ-3 assigned to        | : Legacy ISA  | PCI Master Read Prefetch | : Disabled            |
| IRQ-4 assigned to        | : Legacy ISA  | 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 | PCI IRQ Activated By     | : Level               |
| IRQ-11 assigned to       | : PCI/ISA PnP | Assign IRQ For USB       | : Enabled             |
| IRQ-12 assigned to       | : PCI/ISA PnP | Assign IRQ For VGA       | : Enabled             |
| 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 |                       |

- Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys.

A short description of screen options follows:

**PNP OS Installed** Yes: OS supports Plug and Play function.

No (default): OS doesn't support Plug and Play function.

*Note: BIOS will automatically disable all PnP resources except the boot device card when select Yes on Non-PnP OS.*

**Resources Controlled By**

Choose Manual (default) or Auto. The BIOS checks the IRQ/DMA channel number on the ISA and PCI card manually if chose Manual and the IRQ/DMA channel number will be checked automatically if choose Auto.

|  |  |
|--|--|
| <b>Reset Configuration Data</b>            | Choose Enabled or Disabled (default). Disabled means to retain PnP configuration data in BIOS and Enabled means to reset PnP configuration data in BIOS.   |
| <b>ACPI I/O Device Node</b>                | Choose Disabled (default) or Enabled. Enabled is only used when the ACPI device is installed on to the system.   |
| <b>IRQ-x assigned to DMA-x assigned to</b> | Legacy ISA: Manually assigns IRQ/DMA to device.<br>PCI/ISA PnP: BIOS assigns IRQ/DMA to device automatically.  |
| <b>CPU To PCI Write Buffer</b>             | Use the default setting.   |
| <b>PCI Dynamic Bursting</b>                | Use the default setting.   |
| <b>PCI Master 0 WS Write</b>               | Use the default setting.   |
| <b>Assign IRQ for USB/VGA</b>              | Choose Enabled (default) or Disabled.<br>Enabled: Add one IRQ to USB/VGA controller.<br>Deisabled: Remove IRQ from USB/VGA controller. The system will have extra IRQ for other devices but the USB/VGA controller will still not disabled (only IRQ was removed.) |

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

## ***Load Setup Defaults***

---

Load Setup Defaults option loads the default system values to the system configuration fields. If the CMOS is corrupted the defaults are loaded automatically. Choose this option and the following message appears:

```
"Load Setup Defaults (Y/N)? N"
```

To use the Setup defaults, change the prompt to "Y" and press <Enter>.

## Integrated Peripherals

Integrated Peripherals option changes the values of the chipset registers. These registers control system options in the computer.

1. Choose "INTEGRATED PERIPHERALS" from the Main Menu and a screen with a list of options appears.

```
ROM PCI/ISA BIOS
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.
```

|                            |            |                                     |                       |
|----------------------------|------------|-------------------------------------|-----------------------|
| On-Chip IDE First Channel  | : Enabled  | Onboard Parallel Port               | : 378/IRQ7            |
| On-Chip IDE Second Channel | : Enabled  | Parallel Port Mode                  | : SPP                 |
| IDE Prefetch Mode          | : Enabled  | ECP Mode Use DMA <sup>+</sup>       | : 3                   |
| IDE HDD Block Mode         | : Enabled  | Parallel Port EPP Type <sup>+</sup> | : EPP1.7              |
| IDE Primary Master PIO     | : Auto     |                                     |                       |
| IDE Primary Slave PIO      | : Auto     |                                     |                       |
| IDE Secondary Master PIO   | : Auto     |                                     |                       |
| IDE Secondary Slave PIO    | : Auto     |                                     |                       |
| IDE Primary Master UDMA    | : Auto     |                                     |                       |
| IDE Primary Slave UDMA     | : Auto     |                                     |                       |
| IDE Secondary Master UDMA  | : Auto     |                                     |                       |
| IDE Secondary Slave UDMA   | : Auto     |                                     |                       |
| Init Display First         | : PCI Slot |                                     |                       |
| Onboard FDD Controller     | : Enabled  |                                     |                       |
| Onboard UART 1             | : Auto     | ESC : Quit                          | ↑ ↓ → ← : Select Item |
| Onboard UART 2             | : Auto     | F1 : Help                           | PU/PD/+/- : Modify    |
| UART2 Mode                 | : Standard | F5 : Old Values (Shift)             | F2 : Color            |
| IR Function Duplex*        | : Half     | F6 : Load BIOS Defaults             |                       |
| RxD, TxD Active*           | : Lo, Lo   | F7 : Load Setup Defaults            |                       |

\*: These Settings are only effective under "Onboard UART 2 Mode" option is set HPSIR or ASKIR.

+ : These options only valid at Parallel Port Mode at ECP+EPP.

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys.

A short description of screen options follows:

**OnChip IDE First/Second Channel** Enabled (default): Turn on the onboard IDE function.  
Disabled: Turn off the onboard IDE function.

**IDE Prefetch Mode** Use the default setting.

|  |   |
|--|---|
| <b>IDE HDD Block Mode</b>  | Choose Enabled (default) or Disabled. If your hard disk size is larger than 540MB, choose Enabled, and, if you are using the IDE HDD Auto Detection option, the BIOS will choose this option automatically. (Note: Some old HDD models don't provide this feature.) |
| <b>IDE Primary Master/Slave PIO</b><br><b>IDE Secondary Master/Slave PIO</b>   | Choose Auto (default) or Mode 0~4. The BIOS will detect the HDD Mode type automatically when you choose Auto. You need to set to a lower mode than Auto when your hard disk becomes unstable.   |
| <b>IDE Primary Master/Slave UDMA</b><br><b>IDE Secondary Master/Slave UDMA</b> | Choose Disabled or Auto (default).<br>Auto: Automatically detects the HDD Ultra DMA function.<br>Disabled: Disabled the HDD Ultra DMA function.   |
| <b>Onboard FDD Controller</b>  | Choose Enabled (default) or Disabled. Choose Disabled when you use an ISA card with FDD function, or , choose Enabled to use the onboard FDD connector.   |
| <b>Onboard UART1</b>   | Choose Auto (default), 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, or Disabled.<br><br>Do not set port 1 & 2 to the same value except for Disabled.   |
| <b>Onboard Serial UART2</b>  | Choose Auto (default), 3F8/IRQ4 , 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, or Disabled.  |

|                              |  |
|------------------------------|--|
| <b>UART2 Mode</b>            | Choose Standard (default), HPSIR, or ASKIR.  |
| <b>IR Function Duplex</b>    | Choose Half (default), or Full.<br>Half: Doesn't transmit and receive activities at the same time.<br>Full: Transmit and receive activities at the same time.  |
| <b>RxD, TxD Active</b>       | Choose Hi/Hi, Hi/Lo, Lo/Hi, or Lo/Lo (default).<br>•: <i>The above 2 options will not work unless UART2 Mode HPSIR/ASKIR is selected.</i>  |
| <b>Onboard Parallel Port</b> | Choose the printer I/O address:<br>378H/IRQ7 (default), 3BCH/IRQ7, 278H/IRQ5   |
| <b>Parallel Port Mode</b>    | Choose SPP (default), ECP/EPP, EPP/SPP, or ECP mode. The mode depends on your external device that connects to this port.  |
| <b>ECP Mode Use DMA</b>      | Choose DMA3 (default) or DMA1. Most sound cards use DMA1. Check with your sound card configuration to make sure that there is no conflict with this function.<br>*: <i>This option will not be displayed unless the EPP/ECP function is selected..</i> |

**Parallel Port EPP Type** Choose EPP1.7 (default) or EPP1.9. EPP1.9 supports hardware handshake. This setting is dependent on your EPP device.

*Note: The above 2 options will not be displayed unless the EPP/ECP function is selected.*

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

## ***Supervisor/User Password***

---

These two options allows you to set your system passwords. Normally, supervisor has a higher right to change the CMOS setup option than the user. The way to set up the passwords for both Supervisor and User are as follow:

1. Choose "Change Password" in the Main Menu and press <Enter>. The following message appears:

"Enter Password:"

2. The first time you run this option, enter your password up to only 8 characters and press <Enter>. The screen does not display the entered characters.
3. After you enter the password, the following message appears prompting you to confirm the password:

"Confirm Password:"

4. Enter exact the same password you just typed again to confirm the password and press <Enter>.
5. Move the cursor to Save & Exit Setup to save the password.
6. If you need to delete the password you entered before, choose the Supervisor Password and press <Enter>. It will delete the password that you had before.



7. Move the cursor to Save & Exit Setup to save the option you did, otherwise the old password will still be there when you turn on your machine next time.
8. Press <ESC> to exit to the Main Menu.

*Note: If you forget or lose the password, the only way to access the system is to clear the CMOS RAM by setting JP2. All setup information will be lost and you need to run the BIOS setup program again.*

## **IDE HDD Auto Detection**

---

IDE HDD Auto Detection detects the parameters of an IDE hard disk drive and automatically enters them to the Standard CMOS Setup screen.

The screen will ask you to select a specific hard disk for Primary Master after you select this option. If you accept a hard disk detected by the BIOS, you can enter "Y" to confirm and then press <Enter> to check next hard disk. This function allows you to check four hard disks and you may press the <ESC> after the <Enter> to skip this function and go back to the Main Menu.

## **Save & Exit Setup**

---

Save & Exit Setup allows you to save all modifications you have specified into the CMOS memory. Highlight this option on the Main Menu and the following message appears:

```
SAVE to CMOS and EXIT (Y/N)? Y
```

Press <Enter> key to save the configuration changes.

## **HDD Low Level Format**

---

Do not use this utility unless you have help from engineers or some technical background.

## ***Exit Without Saving***

---

Exit Without Saving allows you to exit the Setup utility without saving the modifications that you have specified. Highlight this option on the Main Menu and the following message appears:

```
Quit Without Saving (Y/N)? N
```

You may change the prompt to “Y” and press <Enter> key to leave this option.