

**PT-6IBT
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PENTIUM II
AT MAINBOARD**

USER'S MANUAL

(VER 3.X)

440BX/ZX

AT

PENTIUM II MAINBOARD

(VER 3.X)

USER'S MANUAL

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SOMETHING IMPORTANT !

☆ **TRADEMARKS**

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☆ **LOAD SETUP DEFAULTS**

“LOAD SETUP DEFAULTS” is the function which will have the BIOS default settings loaded into the CMOS memory, these default settings are the best-case values that should optimize system performance and increase system stability .This function will be necessitated when you receive this mainboard, or when the system CMOS data is corrupted. Please refer to the Section 4-10 for the details.

☆ **DISCHARGE CMOS DATA**

Whenever you want to discharge the CMOS data or open the system chassis, Make sure to disconnect the AC power first because there is always the 5V standby voltage connected to this mainboard when using an ATX switching power supply. Without disconnecting the AC power connector from the PC system, the mainboard may be damaged by any improper action . Please refer to the Section 3-3 for details.

☆ **WAKE ON LAN**

In order to support the Wake On LAN feature, the system requires a ATX type SPS (switching power supply), Such power supply must be able to provide at least 700 mA of driving capability on the “5V standby” voltage. Please refer to the Section 3-3 for details.

☆ **WARNING !**

The "Static Electricity" may cause damage to the components on the mainboard, In order to avoid the damage to the mainboard accidentally, please discharge all static electricity from your body before touching this mainboard.

☆ **NOTICE**

Information presented in this manual has been carefully checked for reliability; however, no responsibility is assumed for inaccuracies. The information contained in this manual is subject to change without notice.

1. INTRODUCTION

1.1 OVERVIEW

This Mainboard is a high performance Pentium™ II personal computer mainboard with 100MHz ultra high Front Side Bus (FSB) frequency. It is designed for the high performance Pentium™ II or Celeron™ processor 233 MHz, 266 MHz, 300 MHz, 333MHz, 366MHz, 400MHz, 450MHz and up to 500MHz. This mainboard is the AT form-factor with A.G.P. (Accelerated Graphics Port) and PCI Local Bus on board, designed based on the Intel® 82440BX or 82440ZX AGPset™ system chipset.

The system core logic on this mainboard will be either the Intel 440BX or 440ZX chipset The difference between BX and ZX on this mainboard is shown as following:

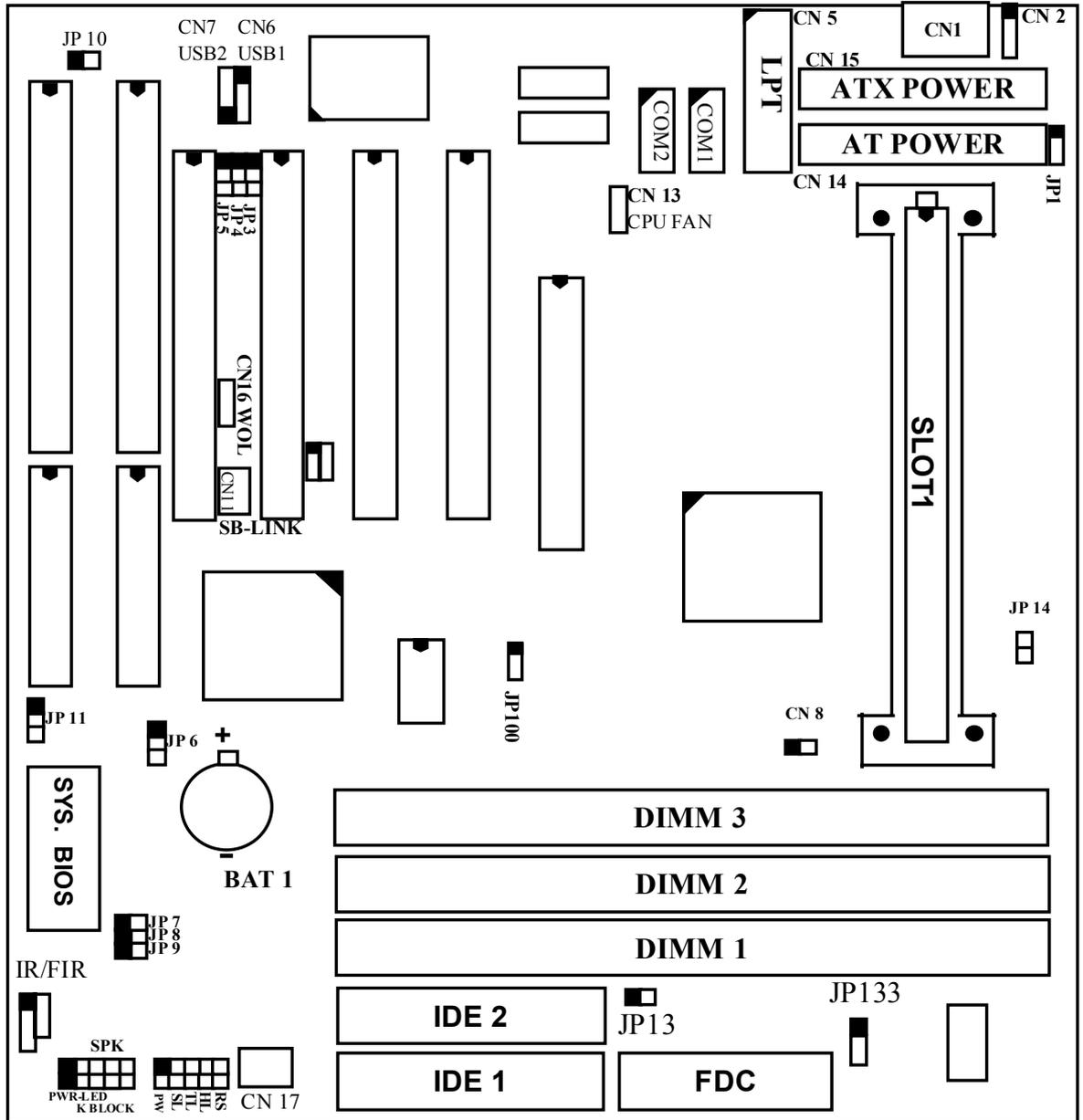
	440BX chipset	440ZX chipset
DIMM SOCKET	3	2
ECC	YES	NO

Two channels “PIO” and “Ultra DMA/33 Bus Master” mode PCI IDE ports, one Floppy Disk control port, two high speed Serial ports (UARTs) and one multi-mode Parallel port and supports PS/2™ mouse, IR and USB ports are built on the board..

The Pentium™ II and Celeron™ Processor are the 64-bit processors with RISC technology, which offer several key features such as built-in 128/256KB/512KB L2 cache (some Celeron does not have L2 cache), 12-stage super-pipeline architecture, out of order execution etc. In order to optimize of its performances, the 32-bit Operating System (such as Windows® NT and OS/2™) and 32-bit applications are recommended.

The Accelerated Graphics Port (A.G.P.) on the mainboard is designed for AGP 3D video display card. Unlike PCI-based display cards, the AGP technology provides lightning data throughput to fully facilitate the 3-Dimensional and multimedia graphics display. The data transfer rate on AGP can be up to 133Mhz and which is much faster than the traditional 33MHz PCI VGA card.

1.2 MAINBOARD LAYOUT



1.3 SPECIFICATION

⊙ CPU

Intel Pentium™ II processor and Celeron™ processor.

1. When the FSB clock is 66 MHz, it supports 233 MHz up to 366 MHz CPUs.
2. When the FSB clock is 100 MHz, it supports 350 MHz up to 500 MHz CPUs.

⊙ CPU VCC

Switching mode Voltage Regulator onboard, supports +1.30V DC through +3.5V DC CPU Core Voltage.

Note : The CPU Core Voltage will be Detected and adjusted automatically by the mainboard, so there is no jumper setting required to select the CPU voltage.

⊙ WORD SIZE

Data Path : 8-bit, 16-bit, 32-bit, 64-bit
Address Path : 32-bit

⊙ PC SYSTEM CHIPSET

Intel® 82440BX or 82440ZX AGPset™

⊙ SUPER I/O CHIPSET

W83977EF/TF or CTF/ATF (optional)

⊙ FRONT SIDE BUS FREQUENCY

66 MHz /100 MHz, (it depends on the CPU type and selected by the BIOS setup)

⊙ MEMORY

DRAM : BX chipset: three 168-pin DIMM sockets onboard, Maximum memory size can be up to 384 MB.

ZX chipset: two 168-pin DIMM sockets onboard, Maximum memory size can be up to 256 MB

CACHE: 256KB or 512KB L2 Cache memory built-in Pentium™ II processor.

0KB or 128KB L2 Cache memory in Celeron™ processor.

⊙ BIOS

AWARD Plug & Play System BIOS. 128KB x 8 Flash ROM

⊙ EXPANSION SLOTS

AGP Slots : 32-bit x 1 (Supports 1x or 2x AGP graphics cards)

PCI Slots : 32-bit x 4 (All Master/Slave, PCI 2.1 Compliant)

ISA Slots : 16-bit x 2 (One of the slot is PCI/ISA shared)

⊙ **WOL PORTS**

One WOL connector supports Wake-On-LAN (WOL up-designed)

⊙ **SB-LINK PORTS**

One SB-LINK feature connector to support PCI sound cards. (such as Creative™ Labs EMU8008 sound chip)

⊙ **USB PORTS**

Two Universal Serial Bus (USB) ports.

⊙ **IDE PORTS**

Two channels of Ultra DMA/33 Bus Master IDE ports, which will support up to 4 IDE devices like IDE hard disk, ATAPI CD-ROM etc. The IDE ports can be programmed to support PIO Mode 4, DMA mode 2 and Ultra DMA/33.

⊙ **SUPER I/O PORTS**

1. Two high speed NS16C550 compatible serial ports (UARTs).
2. One parallel port, supports SPP/EPP/ECP mode.
3. One Floppy Disk Control port.

⊙ **IR PORT**

One HPSIR and ASKIR or FasterIR (optional) compatible IR port.
One Consumer IR port (optional)

⊙ **MOUSE AND KEYBOARD**

One PS/2™ mouse connector, One AT type keyboard connector.
(PS/2™ type keyboard connector is optional)

⊙ **HARDWARE DOCTOR™ (optional)**

Winbond W83783S (U2) is designed on the board to monitor hardware healthy status like system voltage, system temperature, and cooling fans. When the CPU is over heated, the system BIOS will tell the system board to give a series of beeping alarm and then slow down the CPU speed so that you can take proper action to prevent damage to your system. When you hear the beeping alarm, be sure to turn the power off and open the chassis immediately, check on the cooling fans (especially the CPU cooling fan) to see whether it is working properly or not. If you don't know how to handle it, send the PC system to your dealer for technical support.

This mainboard also provides the hardware monitoring program so that you can monitor the healthy status of your PC system. When you find there is the Winbond W83783S (U2) is installed on the board, you can run the hardware monitoring program and then it will inform you the system status all the time.

◎ **ACPI (*This feature is valid only when ATX power supply is connected*)**

Advanced Configuration and Power Interface (ACPI) function is strongly recommended by PC'98 because it will let you have many additional features and that will make your PC system becomes very friendly and convenient. Followings are the ACPI features designed on the board:

1. Power on the system by panel-switch
2. Power on the system by RTC alarm
3. Power on the system by modem Ring-in signal
4. Power on the system by LAN signal.(Wake On LAN)
5. Power on the system by Keyboard (*Optional*).
6. Power on the system By PA/2 Mouse key click (*Optional*)
7. CPU cooling fan auto-off during Suspend state.
8. Resumed by Modem ring-in, RTC alarm, etc..
9. Supports Full-On/Doze/Standby/Suspend operating modes.
10. Power off (soft-off) by OS (active with ATX SPS only) or Panel-switch.

◎ **DIMENSION**

4-layers PCB, 220mm x 240mm (Baby-AT Form-Factor)..

◎ **ENVIRONMENT LIMIT**

1. Operating Temperature : 10□ to 40□. (50□ to 104□)
2. Required Airflow : 50 linear feet per minute across CPU.
3. Storage Temperature : - 40□ to 70□. (- 40□ to 158□)
4. Humidity : 0 to 90% non-condensing.
5. Altitude : 0 to 10,000 feet.

2. INSTALLATION

2.1 UNPACKING

The mainboard contains the following components in the package. Please inspect the following contents and confirm that everything is there in the package. If anything is missing or damaged, call your supplier for instructions before proceeding.

- This mainboard.
- One USER'S MANUAL.
- One Cable set for peripheral devices.
- One Pentium™ II Processor Retention Mechanism (RM).
- One CD diskette for device drivers and utility programs.

This mainboard contains electrostatic sensitive components and it can be easily damaged by static electricity. So please leave it sealed in the original packing until when installing.

A grounded anti-static mat is recommended when unpacking and installation. Please also attached an anti static wristband to your wrist and have it grounded to the same point as the anti-static mat.

After the opening of the mainboard carton, please observe the mainboard carefully to make sure there is no shipping and handling damage before you can start to install the PC system.

2.2 AMAZING WAYS TO POWER ON THE PC SYSTEM

Basically, you can connect either AT or ATX power supply to this mainboard. When the ATX power supply is connected, there are many ways to power on the system. Please read the following description for the details.

POWER BUTTON

The power button on the front panel is not only for power-on and power-off the PC system. It can be programmed by COMS setup program and it has different features. Please refer to Section 3-2 (page 3-13, 3~14) for the detail of function description.

□ **KEYBOARD PASSWORD or HOT KEY (optional)**

This mainboard allows you to enter your personal password or a combination of hot key so that you can use it to power on your system. When the system power is off, this mainboard has the stand-by 5V voltage active and it will keep scanning the keyboard status waiting for the correct password or hot key input to turn on the system power. Without the correct password or hot key, no one else can turn on the PC system (neither by the power button).

There are two ways to power-on the PC system by keyboard, they are “Password” and “Hot KEY”. Please refer to Section 4-8 for the BIOS setup.

When the “Password” and “Hot KEY” is selected, you will have to reboot the PC system to activate the setting, when you see the POST (Power On Self Test) is completed, the setting is changed and stored in the CMOS memory. Having finished the procedure, you may turn the power off and then you can use the keyboard to power-on the PC system afterward.

In case that you forget the “Password” or “Hot Key”, disconnect the AC power for 30-60 seconds then re-connect the AC power to the PC system, the power button will be activated again and you can use the power button to turn on the system. Input your personal password again in the BIOS setup program, and then you may use the new password to power-on the PC system afterward.

□ PS/2™ MOUSE KEY CLICK (optional)

When you have a PS/2™ mouse connected to the system, you may change the setup in the BIOS and use the mouse click to turn on the PC system power. Please refer to section 4-7 for the BIOS setting.

To use the mouse key to turn on the PC system power, the mouse click must be done quickly and continually. Basically, 2-5 quick clicks on the mouse key (left key or right key) will turn the power immediately.

In order to activate the mouse key feature, you will have to reboot the PC system after the BIOS setting and wait until the POST (Power On Self Test) is completed. Having finished the procedure, you may use the mouse key to power-on the PC system afterward..

Note: This feature is not available on the COM (serial) port mouse.

□ RTC ALARM

PC system can be waked up by the RTC setting in the CMOS. You can set the alarming date and time in the RTC memory, When RTC alarms, the PC system will be triggered and wakes up automatically.

Enable the “Resume by Alarm” selection in the BIOS setup utility, and then input the accurate date and time in following fields. (the “Resume by Alarm” is located in the “POWER MANAGEMENT SETUP”, please refer to Section 4-7), Having stored the RTC alarm setting, the PC system will be turned on automatically according to the date and time which is recorded in the CMOS memory.

When you have finished the BIOS setting, you have to reboot the PC system and wait for the POST (Power On Self Test) is completed to enable the RTC alarm.

□ MODEM RING-IN

This mainboard can be triggered by a modem ring-in signal. When you have a *external* modem installed, you can use it to power on the PC system. When there is the incoming message from the external modem, the PC system will be triggered by the ring-in signal and wake up automatically to receive the message for you.

In order to use the ring-in signal to wake up your PC system, you will have to use the *EXTERNAL MODEM* and have it connected to one of the *Serial Ports* (COM1 or COM2). When the system power is off, this mainboard will continue to detect the serial port status. When it detects the ring-in signal from the serial port, the system power will be turned on and start to receive the incoming messages automatically.

To enable the Modem Ring-In feature, you have to run the BIOS setup utility and enable the “Resume by Ring or LAN” option (it is in the “POWER MANAGEMENT SETUP”, please refer to Section 4-7 for the settings). Having completed the BIOS setup, you have to reboot the PC system so that BIOS can verify the setting. (the “DMI pool data” will be verified by the BIOS when loading the operating system). Simply speaking, shut down the PC system and then re-start the system. The modem ring-in feature will be enabled when the operation system has been loaded.

Note: This function is not available when using the internal MODEM card.

□ WAKE ON LAN (WOL)

There is a WOL connector CN14 (see Section 3-2) on the mainboard which is designed to connect to the signal from a LAN card which supports the Wake On LAN feature. When such LAN card is installed, you may turn on the PC system from your remote server and monitor the PC status.

To enable this feature, you will have to use the BIOS setup utility to enable the “Resume by Ring or LAN” (it is located at “POWER MANAGEMENT SETUP”, please refer to Section 4-7 for the settings). Having completed the BIOS setup, you have to reboot the PC system so that BIOS can verify the setting. (the “DMI pool data” will be verified by the BIOS when loading the operating system). Simply speaking, reboot the PC system, the Wake On LAN feature will be enabled when the operation system has been loaded

Note: This function will be disabled if you turn off the power before the system can verify the DMI pool data.

2.3 POWER OFF THE PC SYSTEM

1. When ATX power supply is connected.

There are two ways to power off the system. They are “Shut Down by Power Button” and “Shut Down by OS”. (such as Windows® 95 and Windows® 98, you can choose the **Shut Down** from the file menu and the system will be powered off immediately).

2. When AT power supply is connected.

You can not use the OS to shut down the PC system, you can use only the power button (PW switch) to turn the system power off.

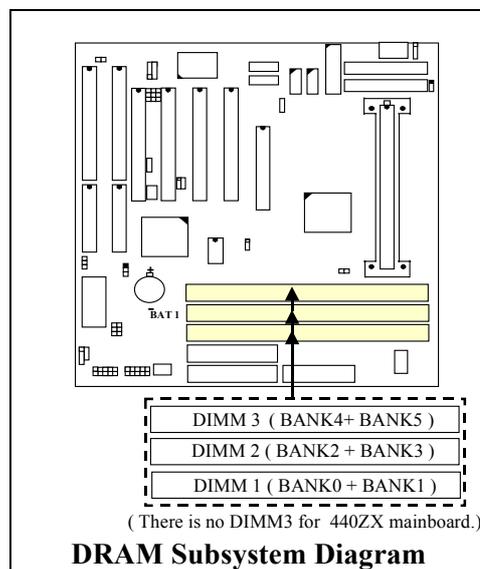
3. HARDWARE SETUP

Before you can start to install this mainboard, some hardware settings is required to make sure it will work perfectly with the component which you are going to install in your PC system. To configure this mainboard is a simple task, only a few jumpers, connectors, cables and sockets need to be selected and configured. Please refer to the following sections for the settings.

3.1 INSTALLING THE DRAM MODULES

This mainboard integrates a main memory controller that supports a 64-bit DRAM interface. The DRAM controller supports the following features:

1. **DRAM type: Synchronous (SDRAM) DRAM.**
2. **Memory size: 8MB to 384MB. (256MB for 440ZX mainboard)**
3. **Memory modules supported: Single and double density 3.3V DIMMs.**



This mainboard has the new technology called SPD (Serial Presence Detect) designed in the DRAM subsystem. The SPD technology is introduced to make the system more stable and compatible. When there is the DIMM module with SPD populated on the mainboard, the system BIOS will fetch the SDRAM information (such as DRAM type, size, access timing ... etc.) stored in the DIMM module, and then the system BIOS will use those information to determine what operating parameters will be used for the individual populated DIMM module.

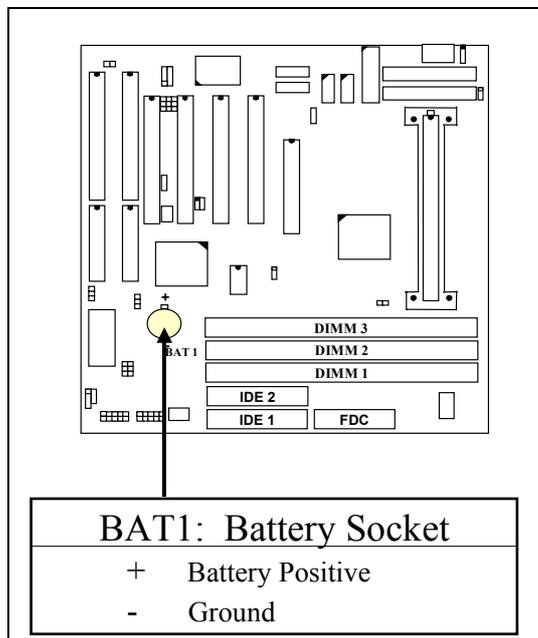
In order to increase of the system performance and steability, two suggestions are recommended when you are installing the DIMM modules :

1. Always use PC100 DIMM modules which support the SPD function.
2. Always install DIMM module starting from DIMM 1 first, and then DIMM2 and DIMM3

3.2 CONNECTORS

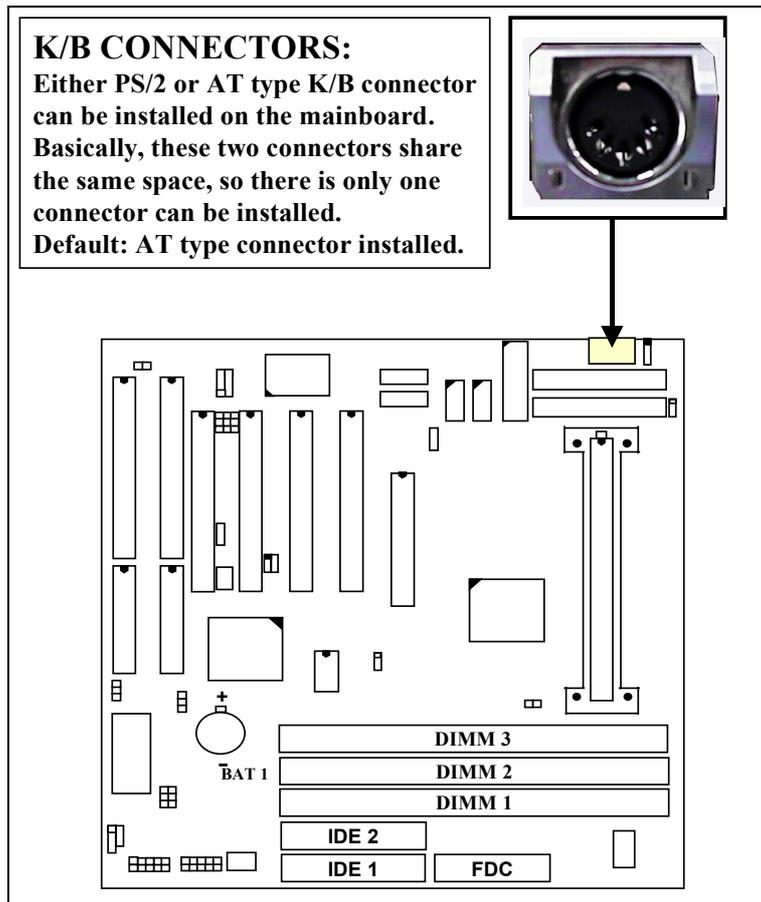
The connectors on mainboard will be used to connect the accessories or peripheral devices (such as power, mouse, printer,...etc.). Followings are the connectors with its description and pin assignment which is designed on the mainboard.

BAT1: Battery Socket (Use the 3 Volts Lithium battery : CR2032)



(A) CN1: Keyboard Connectors

Either the PS/2 (CN20) type or the AT (CN1) type keyboard connector can be installed here, (only one connector can be installed) The factory default is the AT type connector installed on the board. When the AT type K/B installed on the board, the PS/2 type (CN20) become invisible.

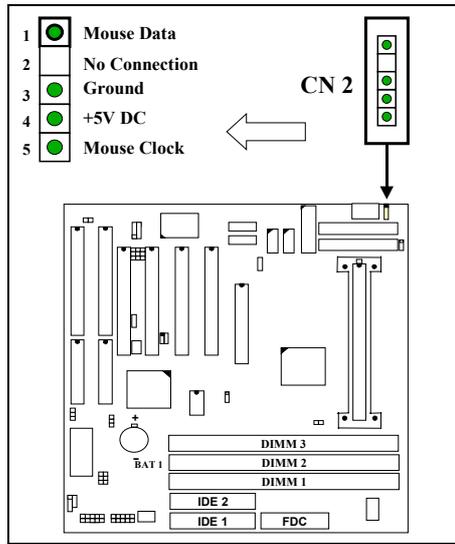
**Pin assignment of PS/2 keyboard connector: (CN20)**

<u>Pin #</u>	<u>Signal name</u>	<u>Pin #</u>	<u>Signal name</u>	<u>Pin #</u>	<u>Signal name</u>
1	Keyboard Data	3	Ground	5	Keyboard Clock
2	No Connection	4	+ 5V DC	6	No Connection

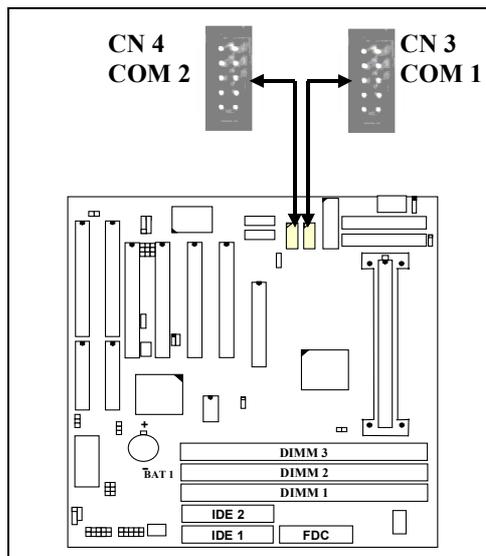
Pin assignment of AT keyboard connector: (CN1)

<u>Pin #</u>	<u>Signal name</u>	<u>Pin #</u>	<u>Signal name</u>	<u>Pin #</u>	<u>Signal name</u>
1	Keyboard clock	3	No connection	5	Keyboard Clock
2	Keyboard data	4	Ground	6	+ 5V DC

(B) CN2: PS/2 Mouse Connector



**(C) CN3: COM 1 (Serial Port 1) Connector
CN4: COM 2 (Serial Port 2) Connector**



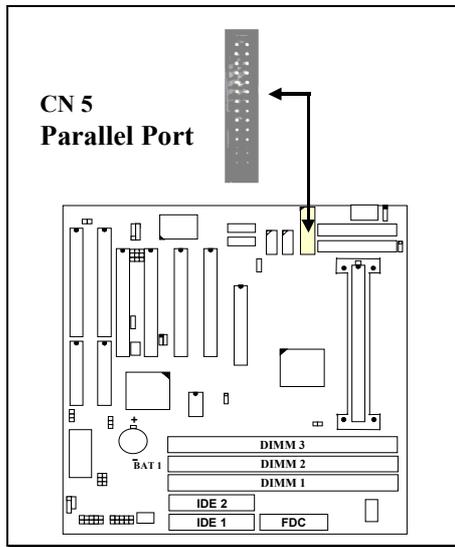
Ping assignment of serial port connector:

1	6	Pin #	Signal name
<input type="checkbox"/>	<input type="checkbox"/>	1	DCD (Data Carrier Detect)
<input type="checkbox"/>	<input type="checkbox"/>	2	RD (Received Data)
<input type="checkbox"/>	<input type="checkbox"/>	3	TD (Transmit Data)
<input type="checkbox"/>	<input type="checkbox"/>	4	DTR (Data Terminal Ready)
<input type="checkbox"/>		5	Ground
5	9		

Pin #	Signal name
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	RI (Ring Indicator)

I/O address 3F8H/2F8H/3E8H/2E8H, IRQ3/IRQ4, selected by CMOS setup.

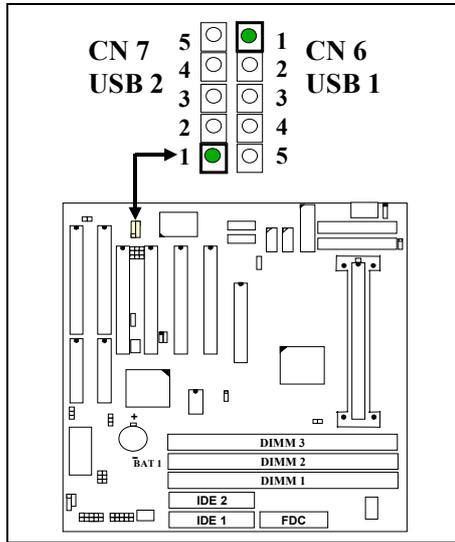
(D) CN5: Parallel Port Connector



Pin assignment of parallel port:

1	14	Pin #	Signal name	Pin #	Signal name
<input type="checkbox"/>	<input type="checkbox"/>	1	STROBE <input type="checkbox"/>	14	AUTO FEED <input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	2	Data Bit 0	15	ERROR <input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	3	Data Bit 1	16	INIT <input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	4	Data Bit 2	17	SLCT IN <input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	5	Data Bit 3	18	Ground
<input type="checkbox"/>	<input type="checkbox"/>	6	Data Bit 4	19	Ground
<input type="checkbox"/>	<input type="checkbox"/>	7	Data Bit 5	20	Ground
<input type="checkbox"/>	<input type="checkbox"/>	8	Data Bit 6	21	Ground
<input type="checkbox"/>	<input type="checkbox"/>	9	Data Bit 7	22	Ground
<input type="checkbox"/>	<input type="checkbox"/>	10	ACK <input type="checkbox"/>	23	Ground
<input type="checkbox"/>	<input type="checkbox"/>	11	BUSY	24	Ground
<input type="checkbox"/>	<input type="checkbox"/>	12	PE	25	Ground
<input type="checkbox"/>		13	SLCT	26	N.C.
13	25				

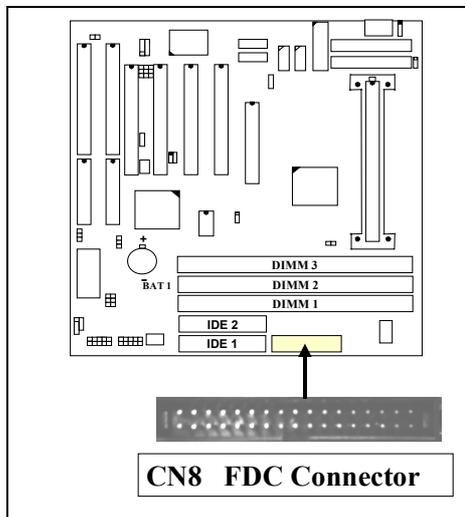
- (E) CN6: USB 1 (Universal Serial Bus) Connector**
- (F) CN7: USB 2 (Universal Serial Bus) Connector**



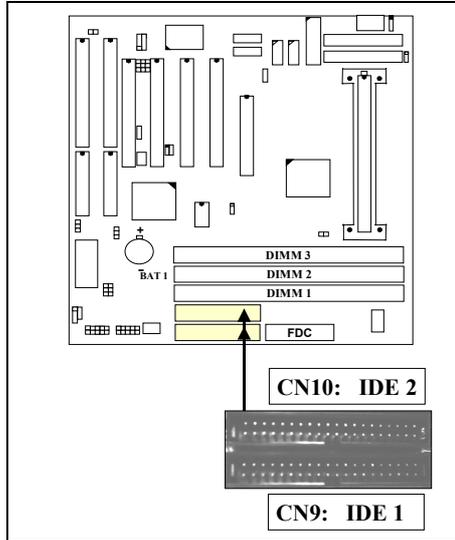
Pin assignment of USB connector:

CN 7			CN 6		
Pin #	Assignment		Pin #	Assignment	
● 5	Ground (BLACK WIRE)		● 1	+5V DC (RED WIRE)	
● 4	Ground (BLACK WIRE)		● 2	DATA- (WHITE WIRE)	
● 3	DATA+ (GREEN WIRE)		● 3	DATA+ (GREEN WIRE)	
● 2	DATA- (WHITE WIRE)		● 4	Ground (BLACK WIRE)	
● 1	+5V DC (RED WIRE)		● 5	Ground (BLACK WIRE)	

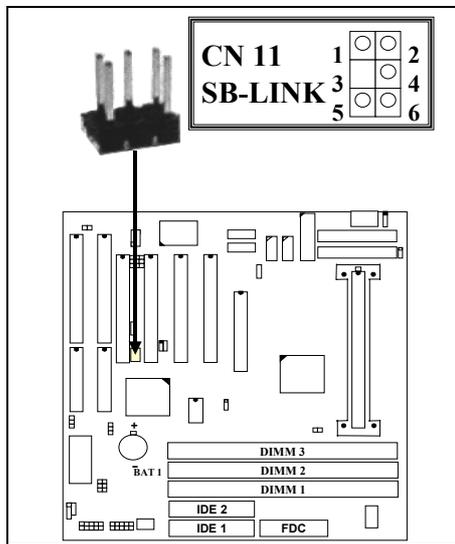
- (G) CN8: Floppy Disk Control Port Connector (using IRQ6, DMA 2):**



- (H) CN9: IDE 1 Connectors, (Primary IDE Port: 1F0H, IRQ 14)
- (I) CN10: IDE 2 Connectors, (Secondary IDE Port: 170H, IRQ 15)



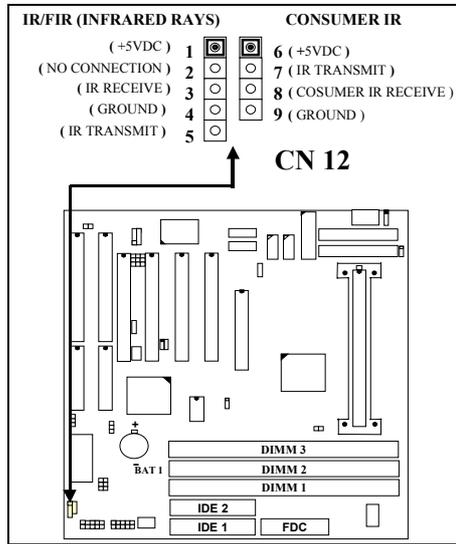
- (J) CN11: SB-LINK Connector
(For PCI bus sound cards, such as Creative™ Labs EMU8008 sound chip)



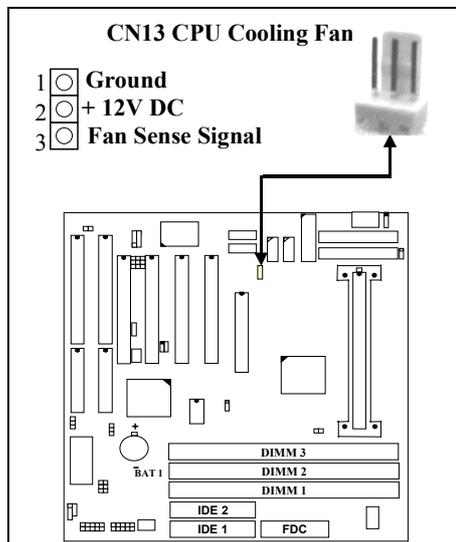
Pin assignment of SB-LINK Connector:

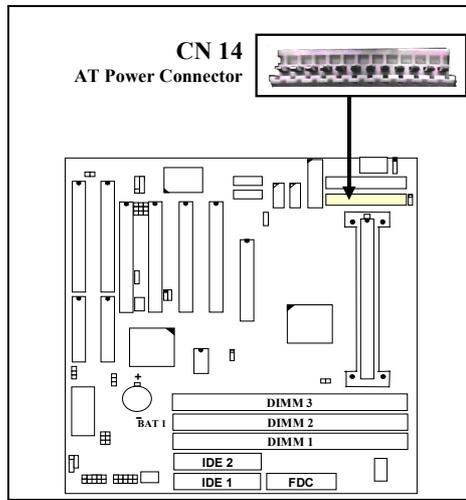
1	2	Pin #	Signal name	Pin #	Signal name
□	□	1	GNT#	2	Ground
	□	3	Key	4	REQ#
□	□	5	Ground	6	SERIRQ
5	6				

(K) CN12: IR / FIR (Infrared Rays) Connector
Consumer IR Connector (Consumer IR connector is active only when W83977CTF-AW I/O Chip is installed on position U10)



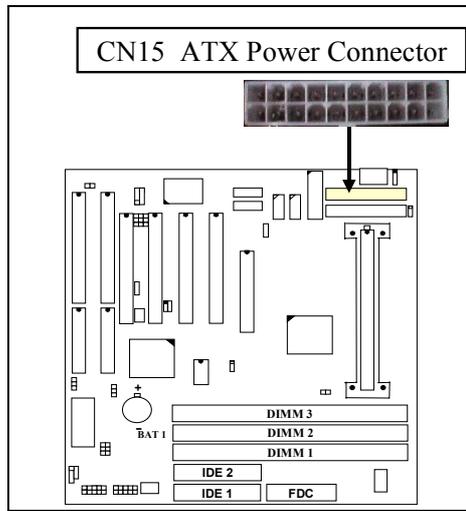
(L) CN13: CPU Cooling Fan Power Connector



(M) CN14: AT Power Connector:

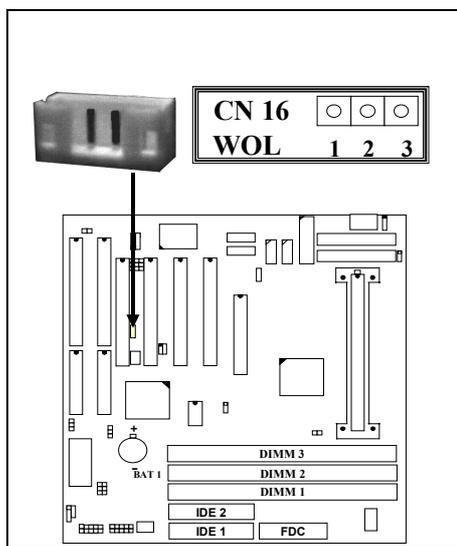
		<u>Pin #</u>	<u>Assignment</u>	
P8	1	1	Power Good	(Orange)
	2	2	+5V DC	(Red)
	3	3	+12V DC	(Yellow)
	4	4	-12V DC	(Blue)
P9	5	5	Ground	(Black)
	6	6	Ground	(Black)
	7	7	Ground	(Black)
	8	8	Ground	(Black)
	9	9	-5V DC	(White)
	10	10	+5V DC	(Red)
	11	11	+5V DC	(Red)
	12	12	+5V DC	(Red)

Note: There are two connectors from the switching power supply (P8 & P9), Wrong connection will cause permanent damage to the mainboard. Be sure to make the power connector correctly all the time. Joint the black cable and then have the connectors connected to the mainboard.

(N) CN15: ATX Power Connector:**Pin assignment of ATX power connector**

11	1	Pin #	Signal name	Pin #	Signal name
<input type="checkbox"/>	<input type="checkbox"/>	11	+ 3.3V DC	1	+ 3.3V DC
<input type="checkbox"/>	<input type="checkbox"/>	12	- 12V DC	2	+ 3.3V DC
<input type="checkbox"/>	<input type="checkbox"/>	13	Ground	3	Ground
<input type="checkbox"/>	<input type="checkbox"/>	14	PS-ON	4	+ 5V DC
<input type="checkbox"/>	<input type="checkbox"/>	15	Ground	5	Ground
<input type="checkbox"/>	<input type="checkbox"/>	16	Ground	6	+ 5V DC
<input type="checkbox"/>	<input type="checkbox"/>	17	Ground	7	Ground
<input type="checkbox"/>	<input type="checkbox"/>	18	- 5V DC	8	PW-OK
<input type="checkbox"/>	<input type="checkbox"/>	19	+ 5V DC	9	+ 5V SB
<input type="checkbox"/>	<input type="checkbox"/>	20	+ 5V DC	10	+ 12V DC
20	10				

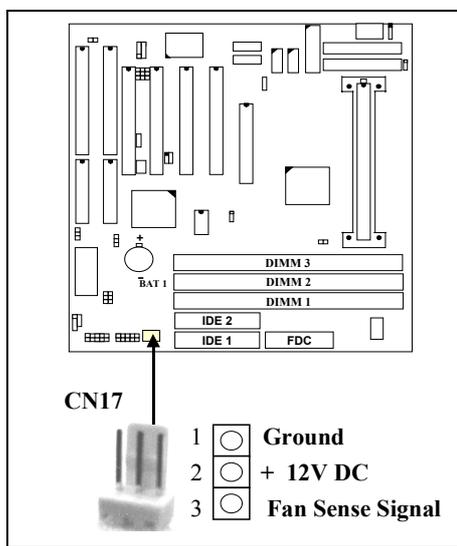
(O) CN16: WOL (Wake On LAN) Connector



Pin assignment of WOL Connector

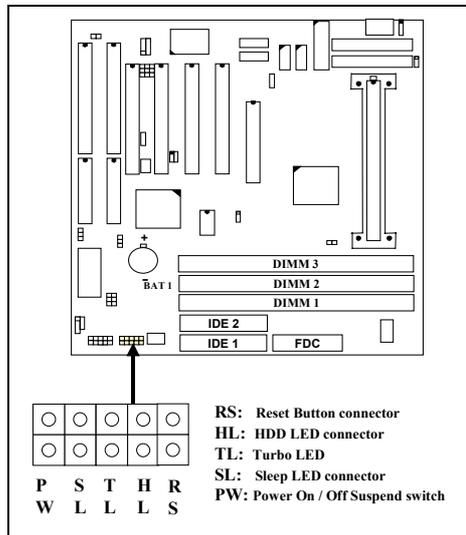
<u>1</u>	<u>2</u>	<u>3</u>	<u>Pin #</u>	<u>Signal name</u>	<u>Pin #</u>	<u>Signal name</u>	<u>Pin #</u>	<u>Signal name</u>
□	□	□	1	5V standby	2	Ground	3	WOL Signal

(P) CN17: Chassis Fan Power Connector



(Q) Push buttons and LED connectors

A series of connectors are designed on the board to connect the push buttons and LED indicators. Followings are the details:

**1. RS Reset Button Connector**

<u>Pin #</u>	<u>Signal name</u>	<u>Pin1&2</u>	<u>Function</u>
1	Reset Control	Open	No action
2	Ground	Short	System Reset

2. HL IDE HDD LED Connector

<u>Pin #</u>	<u>Signal name</u>
1	+ 5V DC Pull-up
2	HDD Active Signal

3. TL TURBO LED Connector

<u>Pin #</u>	<u>Signal name</u>
1	+ 5V DC Pull-up
2	Ground

4. SL Sleep LED Connector (*valid only with ATX power supply*)

This LED will be lightened when the AC power is connected and the system is power off, darkened when the AC power is disconnected or the system is powered on.

<u>Pin #</u>	<u>Signal name</u>
1	Signal Pin
2	Ground

5. PW Power On / Off and External Suspend Switch Connector

5-a. When this mainboard has the ATX power supply connected, According to the setup in CMOS, the PW connector has two functions. It can be the Power Switch or Suspend Switch of your PC system.(please refer to Section- 4-7 and section 4-8 for BIOS setup)

① If the setup in CMOS is “Delay 4 Sec.”, the switch function will be:**A. When system is power off :**

Press this switch, the system will power on. (when “password” is selected in the CMOS setup program, you will be unable to use the PW button to turn on the power of the PC system, please see Section 2-2 and Section 4-7 for more details.)

B. When system power is on :**a. The system is in Full-ON mode :**

a-1. Click on this switch (less than 4 seconds), the system will be turned into Suspend mode. (get into a GREEN mode)

a-2. Press and hold this switch for more than 4 seconds, the system will be powered off.

b. When the system is in Suspend mode :

b-1. Click on this switch (less than 4 seconds), the system will return to Full-ON mode.

b-2. Press and hold this switch more than 4 seconds, the system will be powered off.

② The setup in CMOS is “Instant-off”:**A. When system power is off :**

Click on this switch, the system will be powered on. (when “password” is selected in the CMOS setup program, you will be unable to use the PW button to power on the PC system, please see Section 2-2 and Section 4-7 for more details.)

B. When system power is on :

Click on this switch, the system will be powered off instantly.

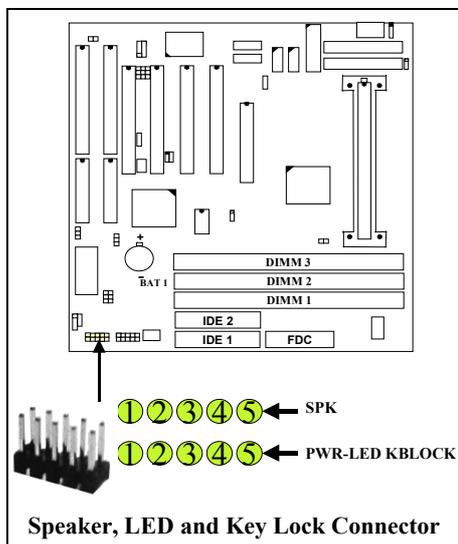
5-b. When this mainboard has the AT power supply connected, According to the setup in CMOS, the PW connector has two functions. It can be the Reset button or Suspend Switch of your PC system.(please refer to Section 2-2 and section 4-7 for BIOS setup)

A. When the BIOS setup is “Delay 4 sec.”:

The PW switch can be used as a suspend switch. When it is first pressed, the PC system will be turned into suspend mode, when clicked again, the PC system will be back to the normal state.

B. When the BIOS setup is “Instant off”:

The PW switch can be used as a reset button in the PC system. When you click on this button, the PC system will be reset and restart again.

(R) Speaker, LED and Key Lock Connector:**SPK: Speaker connector**

1	<u>Pin #</u>	<u>Signal name</u>
<input type="checkbox"/>	1	+ 5V DC
<input type="checkbox"/>	2	Speaker Data Signal
<input type="checkbox"/>	3	Speaker Data Signal
<input type="checkbox"/>	4	Speaker Data Signal
<input type="checkbox"/>	5	No Connection

5

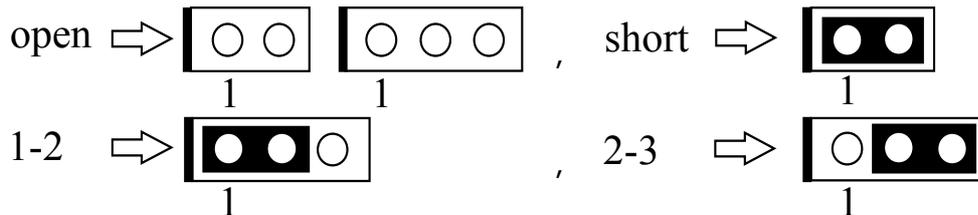
PWR-LED & KBLOCK: Panel Power LED and Key-Lock Connector

1	<u>Pin #</u>	<u>Signal name</u>
<input type="checkbox"/>	1	Pullup (+ 5V DC for Power LED)
<input type="checkbox"/>	2	Ground
<input type="checkbox"/>	3	Ground
<input type="checkbox"/>	4	Keyboard Lock
<input type="checkbox"/>	5	Ground

5

3.3 JUMPERS

This section will discuss the jumper setting on this mainboard. In order to let you have better idea of the jumper setting, please see below for the explanation of jumper settings before you start this section.

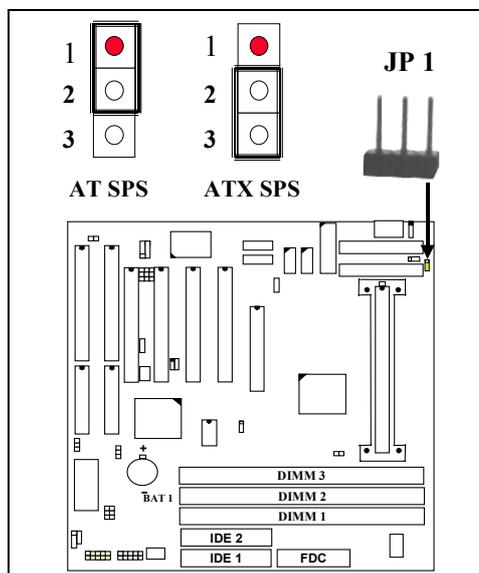


A jumper is a set of two, three or more jumper pins which allows users to make different system configuration by putting the plastic connector plug (mini-jumper) on it..

The following jumpers which labeled with “optional” means they are optional on the mainboard and the related components are normally not populated on the board. In order to make the mainboard works properly, please make sure all jumper settings are at correct before installing this mainboard.

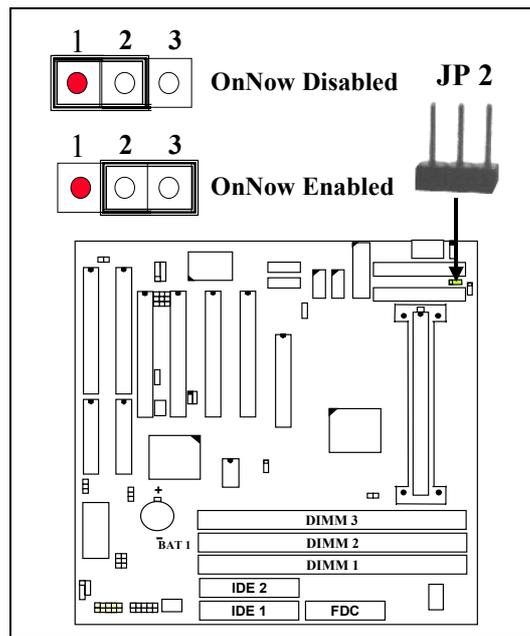
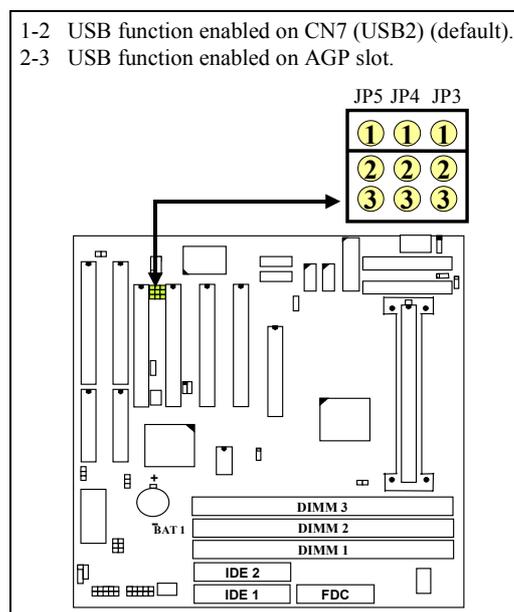
(A) JP1: Power Supply Selection (optional)

This mainboard provides two power connectors to support both the AT and ATX Switching Power Supply (SPS). JP1 will be used to select the type of SPS. If you can not find the JP1 on the mainboard, than the mainboard will detect the type of SPS automatically.

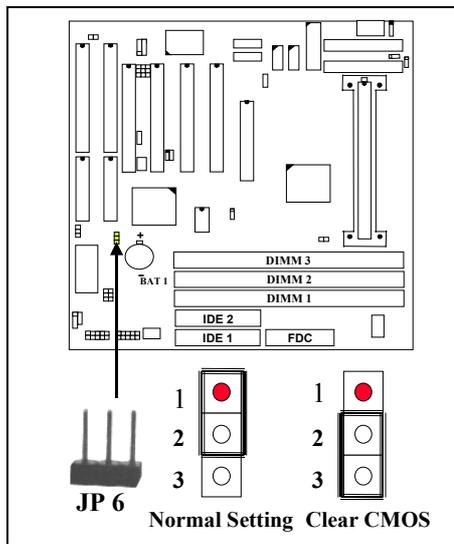


(B) JP2: OnNow Function Selection (optional)

When JP2 is installed on the board, it will support the OnNow function. The OnNow function will allow you to use Keyboard and PS/2 mouse key click to power on the PC system. Because some certain keyboard does not support OnNow function and it will cause trouble to your PC system, should it happened, please use JP2 to disable the OnNow function so that your PC system will work normally.

**(C) JP3, JP4, JP5: USB Port 2 Function Selection (optional)**

(D) JP6: CMOS Data Clear Button



Note: Improper BIOS setting may cause PC system hang-up, In case that it happened, use JP4 to clear the CMOS information and get the PC system back to normal. Improper connection may cause permanent damage to the mainboard. Please refer to the following steps to clear the CMOS

- 1. Unplug the AC power cable from the PC system.*
- 2. Put the mini jumper on pin 2-3 of JP4 around 3 to 5 seconds and then return it to the original position (pin 1-2).*
- 3. Re-connect the AC power cable.*

(E) JP7, JP8, JP9, JP10: CPU Clock Ratio Selection

CPU Speed	Ratio	JP7	JP8	JP9	JP10
233/350MHz	3.5X	Open	Open	Short	Short
266/400MHz	4X	Short	Short	Open	Short
300/450MHz	4.5X	Open	Short	Open	Short
333/500MHz	5X	Short	Open	Open	Short
366/550MHz	5.5X	Open	Open	Open	Short
400/600MHz	6X	Short	Short	Short	Open
433/650MHz	6.5X	Open	Short	Short	Open
466/700MHz	7X	Short	Open	Short	Open
500/750MHz	7.5X	Open	Open	Short	Open
533/800MHz	8X	Short	Short	Open	Open

HOW TO DECIDE THE CPU SPEED:

Basically, there are two parameters which will decide the CPU speed - the Front Side Bus (FSB) speed and CPU clock ratio. When you have installed the processor on the mainboard, the system BIOS will detect the CPU type and decide the FSB speed automatically (please refer to **section 4-6** "CPU Host Clock (CPU/PCI)"). As for the clock ratio, the setting of clock ratio will be different on Pentium™ II, Pentium™ III and Celeron™ processors, Please refer to following for details:

Celeron™ Processor:

The clock ratio is fixed for Celeron™ processor, it means that we can not select different clock ratio to what is defined by Intel. So we will be unable to select other clock ratio for the Celeron™ processor. In other word, the clock ratio switch setting mentioned earlier in this chapter will make no change to the clock ratio.

Once you have installed the Celeron™ processor onto the mainboard, the clock ratio is decided already. So all we can do is use the BIOS setup program (or JP100) to select the FSB clock for the CPU. Basically, "Default" setting is recommended because it will detect the CPU type and select the proper FSB clock for the CPU. When "Default" is selected in the BIOS setup program, you don't have to do any setting when installing the Celeron™ processor. Simply plug and play immediately (Of course, you can select other FSB clock for the Celeron™ processor and the performance will be different to the "Default" setting.)

Pentium™ II Processor:

If you are installing the Pentium™ II or Pentium™ III processor onto the mainboard, you will have to use the switch setting to select CPU clock ratio. The following formula is the simple rule to calculate your CPU frequency:

$$\text{FSB Clock} \times \text{Clock Ratio} = \text{CPU Frequency}$$

SELECTING THE FSB CLOCK (please refer to section 4.6)

Most of the time, you don't have to do anything to select the FSB clock, because the system BIOS will do the job for you. (unless you use JP100 to select your own FSB clock)

Different Pentium™ II or Pentium™ III processors will use different FSB clock. When you have installed the processor onto this mainboard, the system BIOS will detect the type of the processor and decide the proper FSB clock automatically. (Same as above, you can select other FSB clock in the BIOS setup program) For detail information of your Pentium™ II and Pentium™ III Processor, please refer to the CPU data sheet or confirm with your CPU dealer.

HOW TO SELECT THE CPU CLOCK RATIO:

Modify the formula mentioned in previous page and we will get:

$$\text{CPU Frequency} \div \text{FSB Clock} = \text{Clock Ratio}$$

Now we can use the formula above to calculate the CPU clock ratio. Please refer to the following illustration for the calculation:

For example, if you are installing the 450MHz Pentium™ III processor onto the mainboard. Suppose that you have known that the FSB clock for Pentium™ III-450 processor is 100MHz.

Now you may introduce these parameters into the formula and get:

$$450\text{MHz}(\text{CPU Frequency}) \div 100\text{MHz} (\text{FSB Clock}) = 4.5\text{X} (\text{Clock Ratio})$$

According to the example above, you can refer to the switch setting table and find the switch setting to select the proper CPU clock. You can see that it is very easy to calculate the CPU clock ratio when you have the information of your information of CPU frequency and its FSB speed. In order to let you have a better picture of the calculation, the procedures are summarized as following:

1. Check the data sheet for your CPU frequency.
2. Check the data sheet and get the FSB clock of your CPU.
3. Use the following formula to calculate the CPU clock ratio.

$$\text{CPU Frequency} \div \text{FSB Clock} = \text{Clock Ratio}$$

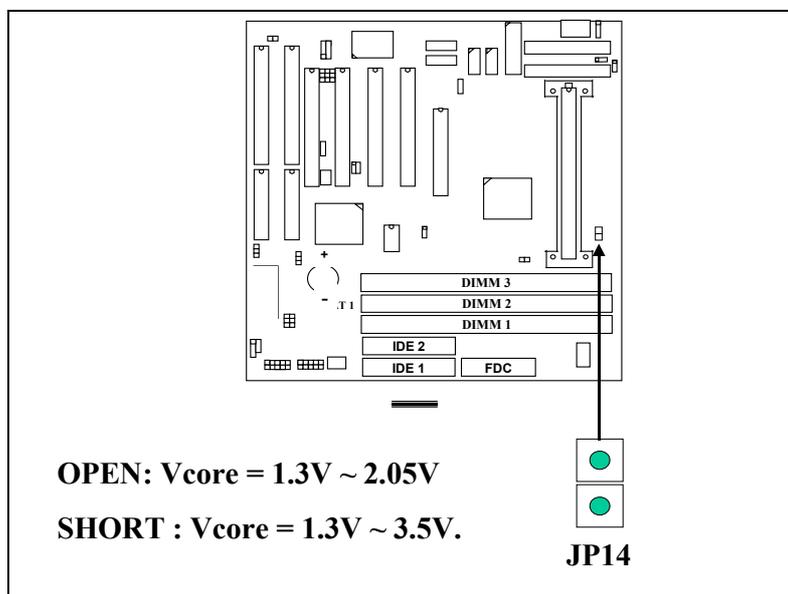
(F) JP14: CPU Voltage Range Selection (Optional)

JP14 is a special design on the mainboard which allows you to select the CPU voltage range (Vcore) for the Pentium II/III processors.

The voltage regulator on the mainboard will generate 1.3V ~ 3.5V DC to support different processors. Basically, Most Pentium II mainboards will use the VID signal (VID0~VID4) from the processor to decide the proper CPU voltage (Vcore). In case that there is the poor connection between Slot 1 connector and CPU, or uninstall the CPU from the mainboard while the system power is "ON". Under such circumstance, mainboard may receive wrong VID signal and send wrong Vcore to the CPU. Unfortunately, wrong Vcore may destroy the CPU.

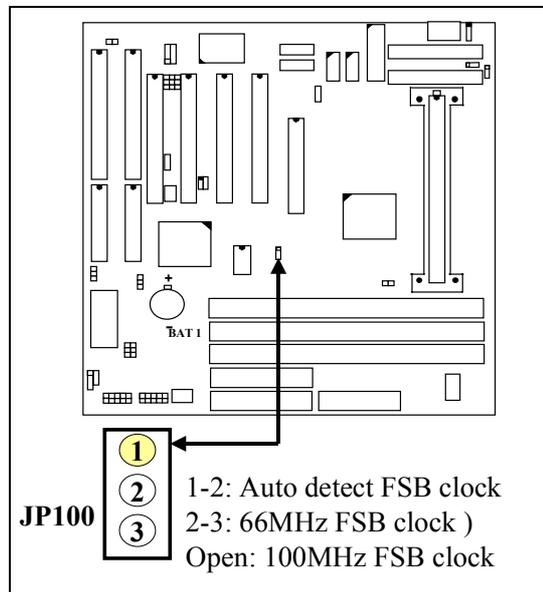
JP14 is designed to control the Vcore within the safe range so that it won't make any damage to the CPU because of wrong VID signal.

Since most Pentium II/III processors require the Vcore below 2.05V except few Pentium II processors. So the default setting of JP14 will limit the Vcore at 1.3V~2.05V. Please do not change the setting on JP14 unless your CPU needs the voltage higher than 2.05V.



(G) JP100: FSB Clock Selection

JP100 is designed on the board for some special purpose. You can use the setting on JP100 to force the FSB clock at 66/100MHz despite of the CPU type.



(When select 1-2 setting, the system board will detect the FSB clock automatically.)

(When select 2-3 setting, the FSB clock will be always 66MHz despite of CPU type.)

(When no jumper on JP100, FSB clock will be always 100MHz despite of CPU type)

3.4 INSTALLATION OF DEVICE DRIVERS

There is a CD which comes with the mainboard. The CD contains the device drivers which is necessary when installing the mainboard. Please refer to the following procedures to install the device drivers.

A. Install the IDE driver:

(You don't have to install this driver if you are installing Windows 98. This driver is designed for Windows 95 and Windows NT only)

Step 1. Insert the CD into the CD ROM drive.

Step 2. Change the directory to "\Driver\mainboard\Intel\IDE Driver "

Step 3. See "README.TXT" and choose the OS to install the device driver.

B. Install PCI Bridge:

(You don't have to install this driver if you are installing Windows 98. This driver is designed for Windows 95 only)

Step 1. Insert the CD into the CD ROM drive.

Step 2. Change the directory to "\Driver\mainboard\Intel\Utility "

Step 3. Run " WINP2X4.EXE" and follow the screen instruction to complete the installation.

C. Install the Hardware Monitoring Program: (optional)

The hardware monitoring is optional on the mainboard. When you found the Winbond W83783S is installed on U2, you may use the following procedure to install the hardware monitoring program and it will monitor your system healthy status.

Step 1. Insert the CD into the CD ROM drive.

Step 2. Select directory "\Driver\mainboard\Hardware Monitoring\W83783S"

Step 3. Run "SETUP.EXE" to install the hardware monitoring program.

4. AWARD BIOS SETUP

4.1 GETTING STARTED

When the system is first time powered on or reset by user, the BIOS will enter the Power On Self Test routines (POST, which will display a copyright message on the screen and execute a diagnostics and initialization procedure.) In case that there is any error or malfunction detected, the BIOS will give a series of beep sound or display the error message on screen.

When the system is normal, the simulate figure *Fig. 5-1* will be displayed on the screen when the system is powered on.

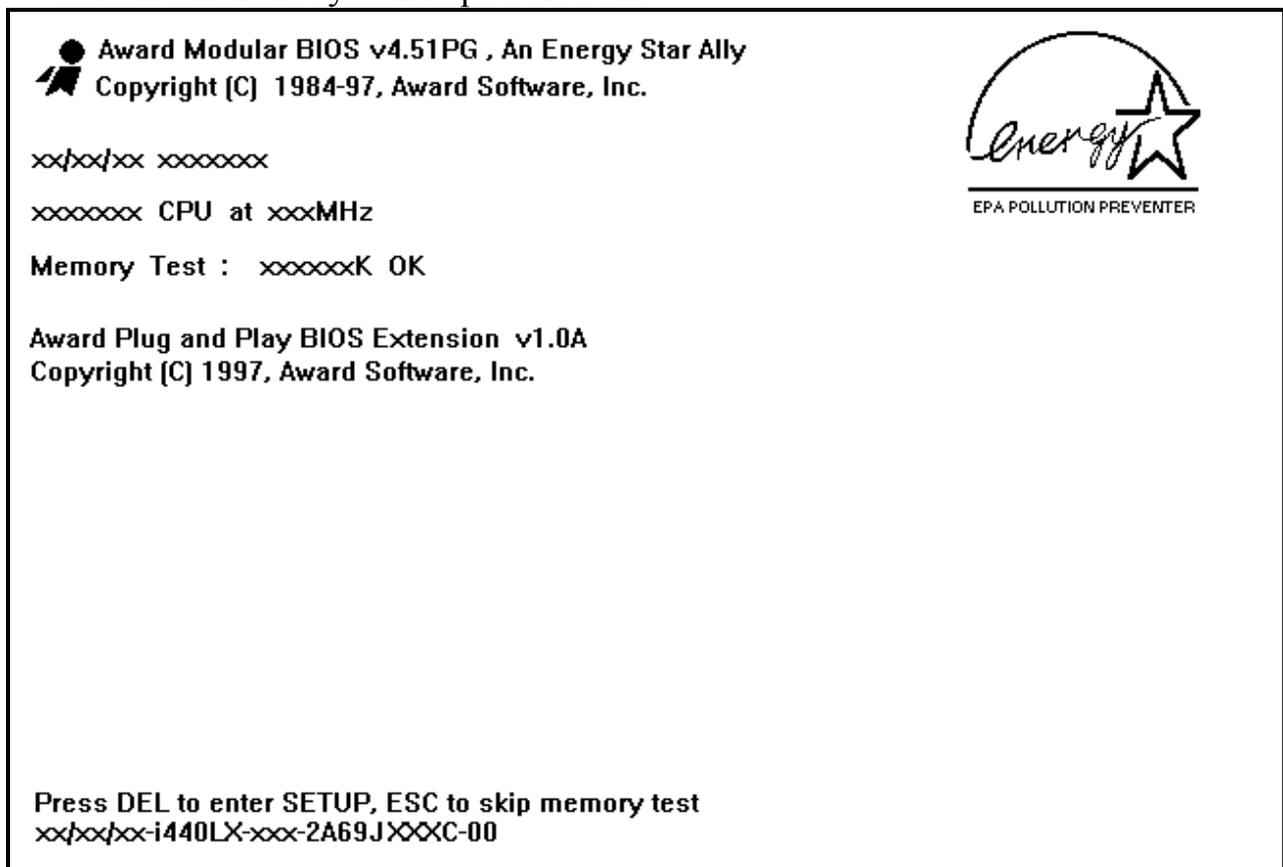


Fig. 4-1 Initial Power-On screen.

During the power on self testing (POST), the following message appears at the lower left corner of the screen:

" Press **DEL** to enter SETUP "

To execute the Award® BIOS CMOS Setup program, please press the **DEL** key. The STANDARD CMOS SETUP screen as shown in figure Fig. 5-2 will be triggered:

4.2 MAIN MENU

ROM PCI/ISA BIOS (2A69JXXX)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
INTEGRATED PERIPHERALS	SAVE & EXIT SETUP
PNP/PCI CONFIGURATION	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
ESC : Quit	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color
Time, Date, Hard Disk Type ...	

Fig. 4-2 CMOS SETUP MAIN MENU screen.

4.3 CONTROL KEYS

Listed below is the explanation of the keys displayed at the bottom of the screens which will be used in the CMOS SETUP program :

- Arrow Keys** : Use the arrow keys to move the cursor to the desired item.
- Enter** : Select the desired item.
- F1** : Display the help screen for the selected feature.
- (Shift)F2** : To change the screen color, total 16 colors.
- ESC** : Exit to the previous screen.
- PgUp(-)/PgDn(+)** : To modify or change the content of the highlighted item.
- F5** : Retrieves the previous value from CMOS data, (only the current page setup will be retrieved).
- F7** : Loads the SETUP default values from BIOS default table, (only the current page setup will be loaded).
- F10** : Save all changes to CMOS RAM from the MAIN MENU

The following pages show all the screens which you will find in the CMOS SETUP program, each picture will contain the selection items and its default settings. At the bottom of some screen, you will find the description of all function key which can be used to change the settings. If you are not quite sure of the definition for some specific items, please consult with other technician for details.

4.4 STANDARD CMOS SETUP

ROM PCI/ISA BIOS (2A69JXXX)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm : dd : yy) : Thr, May 7 1998																			
Time (hh : mm : ss) : 14 : 59 : 21																			
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE											
Primary Master	Auto	0	0	0	0	0	0	0	Auto										
Primary Slave	None	0	0	0	0	0	0	0	-----										
Secondary Master	Auto	0	0	0	0	0	0	0	Auto										
Secondary Slave	None	0	0	0	0	0	0	0	-----										
Drive A : 1.44M, 3.5 in.					<table border="1"> <tr> <td>Base Memory :</td> <td>640 K</td> </tr> <tr> <td>Extended Memory :</td> <td>xxxxxx K</td> </tr> <tr> <td>Other Memory :</td> <td>xxxxxx K</td> </tr> <tr> <td colspan="2"><hr/></td> </tr> <tr> <td>Total Memory :</td> <td>xxxxxx K</td> </tr> </table>					Base Memory :	640 K	Extended Memory :	xxxxxx K	Other Memory :	xxxxxx K	<hr/>		Total Memory :	xxxxxx K
Base Memory :	640 K																		
Extended Memory :	xxxxxx K																		
Other Memory :	xxxxxx K																		
<hr/>																			
Total Memory :	xxxxxx K																		
Drive B : None																			
Floppy 3 mode support : Disabled																			
Video : EGA/VGA																			
Halt On : All Errors																			
ESC : Quit			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item			PU/PD/+/- : Modify													
F1 : Help			(Shift)F2 : Change Color																

Fig. 4-3 STANDARD CMOS SETUP screen.

MODE :

The BIOS on the mainboard is the updated one and which provides three different modes to support both normal IDE HDD and the one which is above 528MB:

- NORMAL : For IDE hard disk drives which is smaller than 528MB.
- LBA : For IDE hard disk drive which is above 528MB (ideally, it can be as big as 8.4GB) that use Logic Block Addressing (LBA) mode.
- Large : For IDE HDD which is above 528MB and does not support LBA mode.
Note : "large mode" may not be fully supported by all operation systems. It is suggested to be used with the MS-DOS, such HDD is not very popular nowadays.
- Auto : This mode will auto-detect your IDE driver during boot-up.

(Note: Some certain operation systems (such as SCO®-UNIX™), only "NORMAL mode" is allowed when installation.)

Floppy 3 Mode Support: (Default setting: disabled)

This mode is for the Japanese 3.5 inch floppy disk drive. If you have such drive installed in your PC system, please select enable, otherwise, use the default setting.

4.5 BIOS FEATURES SETUP

ROM PCI / ISA BIOS (2A69JXXX)

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	CC000-CFFFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	D4000-D7FFF Shadow	: Disabled
Boot Sequence	: A,C,SCSI	D8000-DBFFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	DC000-DFFFF Shadow	: Disabled
Boot Up Floppy Seek	: Enabled		
Boot Up NumLock Status	: On		
Gate A20 Option	: Fast		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup		
PCI/VGA Palette Snoop	: Disabled		
OS Select For DRAM > 64MB	: Non-OS2	ESC : Quit	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item
Report No FDD For WIN 95	: Yes	F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift)F2 : Color
PS/2 mouse function control	: Enable	F7 : Load Setup Defaults	

Fig. 4-4 BIOS FEATURES SETUP screen.

Virus Warning :

Basically, The default setting of this feature is "Disabled", In order to avoid virus infection happens on your PC system, this mainboard provides the virus warning features in the BIOS. During and after the operation system is loaded, any attempt to write to the boot sector or partition table on the IDE hard disk drive will trigger this feature and give you some warning messages on the screen and then halt the system. When you find the message on your screen, please run the anti-virus program to see whether your system is infected by a virus or not.

Enabled : A warning message will be displayed on the screen when *something* attempts to access the boot sector or hard disk partition table.

Disabled : No warning message will appear on the screen when anything attempts to access the boot sector or hard disk partition table.

CPU Internal / External Cache : (default setting: Enabled)

These fields allow you to turn on or turn off the Level 1 and Level 2 cache that built inside the Pentium™ II processors.

CPU L2 Cache ECC Checking: (default setting: Enabled)

This option will enable or disable the ECC checking on the CPU L2 cache. The ECC checking will ensure the accuracy of the data stored on the L2 cache.

Quick Power on Self Test: (default setting: Enabled)

The Quick Power On Self Test will skip some test and speed up the boot process. If you find the system is working normally, you can always enable this feature so that you don't have to wait too long on the POST.

Boot Sequence : (default setting: A,C,SCSI)

This field allows you to use some other device to boot the operating system. The options available are "A,C,SCSI", "C,A,SCSI", "C,CDROM,A", "CDROM,C,A", "D,A,SCSI", "E,A,SCSI", "F,A,SCSI", "SCSI,A,C", "SCSI,C,A", "C only" and "LS/ZIP,C".

When select to load the OS from "CDROM,C,A" or "LS/ZIP,C", you must select the "HARD DISK TYPE and MODE" properly, the "Auto" selection is recommended so that you can use CDROM or LS/ZIP device to load the OS into your system. (You can find these items in the "STANDARD CMOS SETUP")

Swap Floppy Drive : (default setting: Disabled)

When enable this option, the device name of the floppy drives will be swapped, For example, drive A will be treated as drive B, and drive B as Drive A.

PCI/VGA Palette Snoop : (default setting: Disabled)

Some display cards are non-standard VGA card (such as graphics accelerator or MPEG Card) which may not display color properly on your screen. "Enable" the setting in this field may correct this problem. Please leave it "Disabled" as the default setting shown above if you are using the normal display card.

OS Select For DRAM > 64MB : (default setting: Non-OS/2)

When you are using the “OS/2™” operating system and the system memory is more than 64MB, you will have to select the setting to “OS2”, otherwise, leave this on the default setting “Non-OS2” for all other operating systems.

PS/2 mouse function control : (default setting: Enabled)

This mainboard built-in a PS/2™ mouse port, In case that you prefer to connect your mouse to the serial port instead of using the PS/2™ mouse, you may choose “Disable” in this field so that the IRQ12 can be released for the other devices; If you are using the PS/2™ mouse, leave this field “Enabled”.

4.6 CHIPSET FEATURES SETUP

ROM PCI / ISA BIOS (2A69JXXX)
 CHIPSET FEATURES SETUP
 AWARD SOFTWARE, INC.

CPU Host Clock (CPU/PCI) : Default	AGP Aperture Size (MB) : 64
SDRAM RAS-to-CAS Delay : 3	Auto Detect DIMM/PCI Clk : Enabled
SDRAM RAS Precharge Time : 3	Spread Spectrum : Disabled
SDRAM CAS latency Time : 3	CPU Warning Temperature : Disabled
SDRAM Precharge Control : Disabled	Current CPU Temperature : xx□ / X X □
SDRAM Data Integrity Mode : Non-ECC	Current CHASSIS FAN Speed : xxxx RPM
System BIOS Cacheable : Disabled	Current CPU FAN Speed : xxxx RPM
Video BIOS Cacheable : Disabled	Vcore : x.xxV +3.3V : x.xxV
Video RAM Cacheable : Disabled	+ 5V : x.xxV +12V : xx.xxV
8 Bit I/O Recovery Time : 1	-12V : xx.xxV -5V : -x.xxV
16 Bit I/O Recovery Time : 1	ESC : Quit □□□□ : Select Item
Memory Hole at 15M-16M : Disabled	F1 : Help PU/PD/+/- : Modify
Passive Release : Enabled	F5 : Old Values (Shift)F2 : Color
Delayed Transaction : Disabled	F7 : Load Setup Defaults

Fig. 4-5 CHIPSET FEATURES SETUP screen.

WARNING : *The selection fields on this screen are provided for the professional technician who can modify the Chipset features to meet some specific requirement. If you do not have the related technical background, do not attempt to make any change except the following items.*

CPU Host Clock (CPU/PCI): (default setting : “Default”)

This field allows you to select different clock speed for your CPU and PCI bus. The default setting will leave the mainboard to detect the CPU type and assign the proper frequency automatically..

SDRAM RAS-to-CAS Delay: (default setting : “3”)

You can select RAS to CAS Delay time in HCLKs of 2/2 or 3/3. Do not change the values in this field unless you change specifications of the installed DRAM or the installed CPU..

The Choice: 2, 3.

SDRAM RAS Precharge Time: (default setting : “3”)

This field defines the length of time for Row Address Strobe is allowed to precharge.

The Choice: 2, 3.

SDRAM CAS latency Time: (default setting : “3”)

You can select CAS latency time in HCLKs of 2/2 or 3/3. Do not change the values in this field unless you change specifications of the installed DRAM or the installed CPU..

The Choice: 2, 3.

DRAM Data Integrity Mode: (default setting : “Non-ECC”)

Select Parity or ECC (error-correcting code), according to the type of installed DRAM.

The Choice: Non-ECC, ECC.

System BIOS Cacheable: (default setting : “Disabled”)

Select Enabled allows caching of the system BIOS ROM at F000h-FFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Enabled	BIOS access cached
Disabled	BIOS access not cached

Video BIOS Cacheable: (default setting : “Disabled”)

Select Enabled allows caching of the video BIOS ROM at C0000h-F7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result.

Enabled	Video BIOS access cached
Disabled	Video BIOS access not cached

Video RAM Cacheable: (default setting : “Disabled”)

Select 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.

8 Bit I/O Recovery Time: (default setting : “1”)

The recovery time is the length of time, measured in CPU clocks, which the system will delay after the completion of an input/output request. This delay takes place because the CPU is operating so much faster than the input/output bus that the CPU must be delayed to allow for the completion of the I/O.

This item allows you to determine the recovery time allowed for 8 bit I/O.

Choices are from NA, 1 to 8 CPU clocks.

16 Bit I/O Recovery Time: (default setting : “1”)

This item allows you to determine the recovery time allowed for 16 bit I/O. Choices are from NA, 1 to 4 CPU clocks.

Memory Hole at 15M-16M : (default setting : “Disabled”)

Some specific add-on cards may require a 1MB address space between 15MB and 16MB area. Please refer to the user’s manual of your add-on card carefully to see whether you will have to enable this field or not when you are installing a add-on card to the system..

Memory Hole at 15M-16M : (default setting: “Disabled”)

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16 MB.

Enabled	Memory hole supported.
Disabled	Memory hole not supported.

Passive Release: (default setting: “Enabled”)

When Enabled, CPU to PCI bus accesses are allowed during passive release. Otherwise, the arbiter only accepts another PCI master access to local DRAM.

The Choice: Enabled, Disabled

Delayed Transaction : (default setting : “Disabled”)

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.

The Choice: Enabled, Disabled.

AGP Aperture Size (MB): (default setting : “64”)

Select the size of the Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. Please see www.agpforum.org for AGP information.

The choice: 4, 8, 16, 32, 64, 128, 256

Auto Detect DIMM/PCI Clk: (Default setting: “Enabled”)

When you select “Enabled”, the mainboard will detect the presence of devices on DIMM and PCI slots. When there is no device presented, the clock on the related DIMM and PCI slot will be disabled to reduce the electro magnetic interference (EMI).

Spread Spectrum: (Default setting: “Disabled”)

When you select “Enabled”, the special feature designed in the system chipset will be triggered and reduce the EMI as mentioned above.

Hardware Doctor: *(Optional, valid when W83783S is installed)*

CPU Warning Temperature :

Current CPU Temperature:

Current Chassis FAN Speed:

Current CPU FAN Speed:

System Voltages (Vcore, +3.3V, +5V, +12V, -12V, -5V):

The hardware monitoring device – Winbond W83783S (optional) is designed on the board. When installed, you may use this field (and the fields below) to monitor the system healthy status.

These selection fields will be invisible unless you have the Winbond W83783S (U2) installed on the board and you have enable the “Throttle Duty Cycle” in the “Power Management Setup” (please see section 4.7)

There is a CD comes with the mainboard. You will find the hardware doctor program in the CD. When the program is installed, it will let you have a bodyguard in your PC system. It will keep monitoring the CPU temperature, Cooling fan speed, system voltage ... etc. Whenever it detects the abnormal condition occurs, it will give you the warning message or slow down the CPU to avoid system damage.

4.7 POWER MANAGEMENT SETUP

ROM PCI / ISA BIOS (2A69JXXX)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management	: User Define	** Reload Global Timer Events **	
PM Control by APM	: Yes	IRQ [3-7 , 9-15], NMI	: Enabled
Video Off Method	: Blank Screen	Primary IDE 0	: Disabled
Video Off After	: Standby	Primary IDE 1	: Disabled
MODEM Use IRQ	: 3	Secondary IDE 0	: Disabled
Doze Mode	: Disable	Secondary IDE 1	: Disabled
Standby Mode	: Disable	Floppy Disk	: Disabled
Suspend Mode	: Disable	Serial Port	: Enabled
HDD Power Down	: Disable	Parallel Port	: Disabled
PCI/VGA Act- Monitor	: Enabled		
Soft-Off by PWR-BTTN	: Instant-Off.		
CPUFAN Off In Suspend	: Enabled		
Resume by Ring or LAN	: Enabled		
Resume by Alarm	: Disabled		
		ESC : Quit	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift)F2 : Color
		F7 : Load Setup Defaults	
Throttle Duty Cycle	: 62.5%		

Fig. 4-6 POWER MANAGEMENT SETUP screen.

WARNING : The selection fields on this screen are provided for the professional technician who can modify the Chipset features to meet some specific requirement. If you do not have the related technical background, do not attempt to make any change except the following items.

Power Management : (Default setting: “User Define”)

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

1. Doze Mode
2. Standby Mode
3. Suspend Mode
4. HDD Power Down

There are four selections for Power Management, three of which have fixed mode settings.

Disable (default)	No power management. Disables all four modes
Min. Power Saving	Minimum power management. Doze Mode = 1 hr. Standby Mode = 1 hr., Suspend Mode = 1 hr., and HDD Power Down = 15 min.
Max. Power Saving	Maximum power management -- ONLY AVAILABLE FOR SL CPU'S. Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Defined	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

PM Control APM: (Default setting: “Yes”)

When enabled, an Advanced Power Management device will be activated to enhance the Max. Power Saving mode and stop the CPU internal clock.

If the Max. Power Saving is not enabled, this will be preset to *No*.

Video Off Method: (Default setting: Blank screen)

This determines the manner in which the monitor is blanked.

V/H SYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Initial display power management signaling.

Video Off After: (Default setting: “Standby”)

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

N/A	Monitor will remain on during power saving modes.
Suspend	Monitor blanked when the systems enters the Suspend mode.
Standby	Monitor blanked when the system enters Standby mode.
Doze	Monitor blanked when the system enters any power saving mode.

Modem Use IRQ: (Default setting: 3)

This mainboard has the ACPI feature designed on the board and it will “wakeup” automatically when it detects the incoming modem Ring-in signal. Before you can use the Ring-in signal to wakeup your PC system, you have to install the “External” modem to your PC system and tell the PC system which serial port connects to the modem by selecting the IRQ in this field. (officially, COM1 uses IRQ4, and COM2 uses IRQ3)

The choices: NA, 3, 4, 5, 7, 9, 10, 11

PM Timers

The following four modes are Green PC power saving functions which are only user configurable when *User Defined* Power Management has been selected. See above for available selections

Doze Mode: (Default setting: Disable)

When enabled and after the set time of system inactivity, the CPU clock will run at slower speed while all other devices still operate at full speed.

Standby Mode: (Default setting: “Disable “)

When enabled and after the set time of system inactivity, the fixed disk drive and the video would be shut off while all other devices still operate at full speed

Suspend Mode: (Default setting: “Disable “)

When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

HDD Power Down: (Default setting: “Disable”)

When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

PCI/VGA Act-Monitor: (Default setting: “Enabled”)

When Enabled, any video activity restarts the global timer for Standby mode.
The Choice: Enabled, Disabled

Soft-Off by PWR-BTTN : (Default setting: “Instant-Off.”)

When Enabled, turning the system off with the on/off button places the system in a very low-power-usage state, with only enough circuitry receiving power to detect power button activity or Resume by Ring activity.

The Choice: Instant-Off, Delay 4 Sec..

CPUFAN Off In Suspend : (Default setting: “Enabled”)

This selection allows user to controls the function of the “CN13” (CPU cooling fan connector). When “Enabled” is selected, the CPU cooling fan will stop in Suspend mode to decrease the system power consumption and noise. When “Disabled” the CPU cooling fan keeps on working when the system is in Suspend mode.

Resume by Ring or LAN : (Default setting: “Enabled”.)

When “Enabled”, you can resume the system from Sleep or Suspend mode by using a MODEM Ring-in or a LAN signal. In order to make this feature works normally, there are some requirement need to be noticed, please see Section 2-2 for details.

Resume by Alarm : (Default setting : “Disabled”)

When “Enabled”, the following two selection fields - “Date (of Month) Alarm” and “Time (hh:mm:ss) Alarm” will appear on the screen. You can use these two fields to set the date and time which you want to resume the system from Sleep or Suspend mode. The “Time” must be set in a 24-hour format. (for more detail information, please refer to Section 2-2).

Throttle Duty Cycle: (Default setting: 62.5%)

When there is the Winbond W83783S (U2) installed on the board, the CPU speed will be slowed down (“Throttling Speed”) when the W83783S detects over heating on the CPU. Slowing down the CPU speed will be the best way to cool down the CPU temperature and it will protect the CPU from damaged. Use this option to select the “Throttling Speed” to protect your CPU when over heating.

Reload Global Timer Events:

When Enabled, an event occurring on each device listed below restarts the global time for Standby mode.

IRQ[3 -7, 9-15], NMI
Primary IDE 0
Primary IDE 1
Secondary IDE 0
Secondary IDE 1
Floppy Disk
Serial Port
Parallel Port

4.8 INTEGRATED PERIPHERALS

ROM PCI / ISA BIOS (2A69JXXX)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

IDE HDD Block Mode	: Enabled	KBC input clock	: 8 MHz
IDE Primary Master PIO	: Auto	Onboard FDC Controller	: Enabled
IDE Primary Slave PIO	: Auto	Onboard Serial Port 1	: 3F8/IRQ4
IDE Secondary Master PIO	: Auto	Onboard Serial Port 2	: 2F8/IRQ3
IDE Secondary Slave PIO	: Auto	UART Mode Select	: Normal
IDE Primary Master UDMA	: Auto		
IDE Primary Slave UDMA	: Auto	Onboard Parallel Port	: 378/IRQ7
IDE Secondary Master UDMA	: Auto	Parallel Port Mode	: SPP
IDE Secondary Slave UDMA	: Auto		
On-Chip Primary PCI IDE	: Enabled		
On-Chip Secondary PCI IDE	: Enabled		
USB Keyboard Support	: Disabled		
Init Display First	: PCI Slot		
		ESC : Quit	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift)F2 : Color
		F7 : Load Setup Defaults	

Fig. 5-7 INTEGRATED PERIPHERALS setup screen.

WARNING: *The selection fields on this screen are provided for the professional technician who can modify the Chipset features to meet some specific requirement. If you do not have the related technical background, don't attempt to make any change except the following items.*

IDE HDD Block Mode: (Default setting: "Enabled")

This allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive (HDD).

Enabled	IDE controller uses block mode.
Disabled	IDE controller uses standard mode.

IDE Primary/Secondary Master/Slave PIO: (Default setting: "Auto")

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

IDE Primary/Secondary Master/Slave UDMA: (Default setting: “Auto”)

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, select Auto to enable BIOS support.

On-Chip Primary/Secondary PCI IDE: (Default setting: “Enabled”)

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select Enabled to activate each channel separately

USB Keyboard support: (Default setting: “Disabled”)

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

The Choice: Enabled, Disabled.

Init Display First: (Default setting : “PCI Slot”)

When you have both the AGP and PCI VGA card installed in the system, you can use this field to decide the display priority.

AGP Slot: the display will be active on the AGP adapter.

PCI Slot: The display will be active on the PCI VGA adapter

Onboard FDD Controller: (Default setting : “Enabled”)

This should be enabled if your system has a floppy disk drive (FDD) installed on the system board and you wish to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature.

The Choice: Enabled, Disabled

Onboard Serial Port 1/Port 2: (Default setting : “3F8, IRQ4/ 2F8, IRQ3”)

This item allows you to determine access onboard serial port 1/port 2 controller with which I/O address.

The Choice: 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

UART Mode Select: (Default setting : “Normal”)

This item allows you to determine which Infra Red (IR) function of onboard I/O chip.
The Choice: Normal, ASKIR, HPSIR

Onboard Parallel Port: (Default setting : “378/IRQ7”)

Select a logical LPT port name and matching address for the physical parallel port.
The choice: 378H/IRQ7, 278H/IRQ5, 3BCH/IRQ7, Disabled.

Parallel Port Mode: (Default setting : “SPP”)

Select an operating mode for the onboard parallel port. Select Compatible or Extended unless you are certain both your hardware and software support EPP or ECP mode.
The choice: SPP, ECP+EPP1.7, EPP1.7+SPP, EPP1.9+SPP, ECP, ECP+EPP1.9, and Normal

4.9 PNP/PCI CONFIGURATION

ROM PCI / ISA BIOS (2A69JXXX)
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.

PNP OS Installed	:	No	Assign IRQ For VGA	:	Enabled
Resources Controlled By	:	Manual	Assign IRQ For USB	:	Enabled
Reset Configuration Data	:	Disabled	Used MEM base addr	:	N/A
IRQ-3 assigned to	:	PCI/ISA PnP			
IRQ-4 assigned to	:	PCI/ISA PnP			
IRQ-5 assigned to	:	PCI/ISA PnP			
IRQ-7 assigned to	:	PCI/ISA PnP			
IRQ-9 assigned to	:	PCI/ISA PnP			
IRQ-10 assigned to	:	PCI/ISA PnP			
IRQ-11 assigned to	:	PCI/ISA PnP			
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	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	: 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	F7 : Load Setup Defaults		
DMA-7 assigned to	:	PCI/ISA PnP			

Fig. 4-8 PNP/PCI CONFIGURATION setup screen.

WARNING : *The selection fields on this screen are provided for the professional technician who can modify the Chipset features to meet some specific requirement. If you do not have the related technical background, do not attempt to make any change.*

PNP OS Installed : (Default setting is “No”)

Select Yes if the system operating environment is Plug-and-Play aware (e.g., Windows 95).

The Choice: Yes and No.

Resources Controlled by : (default setting: “Manual”)

The Award Plug and Play BIOS can automatically configure all the boot and Plug and Play-compatible devices. If you select Auto, all the interrupt request (IRQ) and DMA assignment fields disappear, as the BIOS automatically assigns them.

The choice: *Auto* and *Manual*.

Reset Configuration Data : (default setting: “Disabled”)

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.

The choice: *Enabled* and *Disabled*.

IRQ# assigned to : (default setting: “PCI/ISA PnP”)

When resources are controlled manually, assign each system interrupt as one of the following types, depending on the type of device using the interrupt:

Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt (such as IRQ4 for serial port 1).

PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

DMA# assigned to : (default setting: “PCI/ISA PnP”)

When resources are controlled manually, assign each system DMA channel as one of the following types, depending on the type of device using the interrupt:

Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific DMA channel

PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

Assign IRQ For VGA/USB : (default setting: “Enabled”)

The system’s IRQ signals are limited and sometimes you may feel like to some more IRQ signals for your add-on cards. The system BIOS of this mainboard allows you to disable the IRQ which is supposed to be connected to VGA and USB ports. When you have choose to disable the IRQ on VGA or USB port, the IRQ on the related port will be released and becomes available for other devices.

Before you decide to proceed with the change, please make sure that your USB and VGA adapter will not use the IRQ signal. Otherwise, your PC system will become abnormal and the devices connected to these ports may not be working at all.

It is very simple to tell the difference. If you are going to disable the IRQ on the USB port, check whether is any device connected to the USB port. If you can not find any device, you may feel free to disable the IRQ on the USB port and have the IRQ used by other device.

As for VGA adapter, it will be a little difficult. You may try to find whether your VGA card requires the IRQ signal or not. If you can not find the information from the user's manual of your VGA card. You may use the following information to make your choice:

1. Most VGA cards do not need to have the IRQ signal.
2. If you can not find the feature connector on your VGA card, than it is quite possible that your VGA card does not need the IRQ signal.
3. If your VGA card has the feature connector on the VGA card but it has nothing connected to it. In this case, you still may have the IRQ disabled.
4. If you have another add on card like video capture card which is connected to the feature connector on the VGA card, In this case, you can not disable the IRQ signal because the IRQ signal will be connected to the video capture card.

Used MEM base addr and *Used MEM Length* :

Select a base address for the memory area used by any peripheral that requires high memory.

The Choice: C800, CC00, D000, D400, D800, DC00, N/A.

4.10 LOAD SETUP DEFAULTS

ROM PCI / ISA BIOS (2A69JXXX)
 CMOS SETUP UTILITY
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	SUPERVISOR PASSWORD
BIOS FEATURES SETUP	USER PASSWORD
CHIPSET FEATURES SETUP	IDE HDD AUTO DETECTION
POWER MANAGEMENT SETUP	SAVE & EXIT SETUP
INTEGRATED PERIPHERALS	EXIT WITHOUT SAVING
PNP/PCI CONFIGURATION	
LOAD SETUP DEFAULTS	
ESC : Quit	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color
Time, Date, Hard Disk Type ...	

If you lost the CMOS data or you don't know how to complete the setup procedure, you may use this option to load the SETUP default values from the BIOS default table. It is easy to load the default value, simply highlight the "LOAD SETUP DEFAULTS" field and then press the "Enter" key, when you see the "LOAD SETUP DEFAULTS (Y/N)" displayed on the screen, response to it with "Y" and then press the "Enter" key. the SETUP default values will be loaded. Basically, the SETUP default settings are the best-case values that will optimize system performance and increase system stability.

In case that the CMOS data is corrupted, the SETUP DEFAULTS settings will be loaded automatically when you press the "Del" key and enter the main setup screen. So you may select "SAVE & EXIT SETUP" to leave setup program and the system is loaded with the default settings.

4.11 SUPERVISOR PASSWORD / USER PASSWORD

ROM PCI/ISA BIOS (2A69JXXX)
 CMOS SETUP UTILITY
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	SUPERVISOR PASSWORD
BIOS FEATURES SETUP	USER PASSWORD
CHIPSET FEATURES SETUP	IDE HDD AUTO DETECTION
POWER MANAGEMENT SETUP	SAVE & EXIT SETUP
INTEGRATED PERIPHERALS	EXIT WITHOUT SAVING
PNP/PCI CONFIGURATION	
LOAD SETUP DEFAULTS	
ESC : Quit	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color
Time, Date, Hard Disk Type ...	

The password entry in these field is different to what was mentioned in page 2-2. The password setting in the previous pages is used to power on your PC system, However, the “SUPERVISOR PASSWORD” and “USER PASSWORD” will be used to check the authority when power-on. Whenever there is the password stored in either of these fields, the correct password will be requested so that the PC system will continue to load the operation system.

You can enter up to eight alphanumeric characters here. When you have typed in the password and pressed the “Enter” key, you will be asked to reconfirm your password again to complete password setup. If you press the “Enter” key twice without any alphanumeric character entered, the PASSWORD will be disabled.

If the “User Password” and the “Supervisor Password” are both enabled and they have different password setup, “Supervisor Password” is always has the higher priority, Basically, an “User” is only authorized to change the content of “User Password”, while a “Supervisor” has the authorization to dominate all settings.

4.13 SAVE & EXIT SETUP

ROM PCI/ISA BIOS (2A69JXXX)
 CMOS SETUP UTILITY
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	SUPERVISOR PASSWORD
BIOS FEATURES SETUP	USER PASSWORD
CHIPSET FEATURES SETUP	IDE HDD AUTO DETECTION
POWER MANAGEMENT SETUP	SAVE & EXIT SETUP
INTEGRATED PERIPHERALS	EXIT WITHOUT SAVING
PNP/PCI CONFIGURATION	
LOAD SETUP DEFAULTS	
ESC : Quit □□□□ : Select Item F10 : Save & Exit Setup (Shift)F2 : Change Color Time, Date, Hard Disk Type ...	

This option will save all setup value to CMOS memory and then exit the SETUP routine. Move the selection bar to "SAVE & EXIT SETUP" and then press the "Enter" key. Confirm with the "Y" and "Enter" keys to the screen prompt and the setup information will be stored in the CMOS memory. The setup program will be terminated and the system will start to reboot.

