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# I. INTRODUCTION

## ■ How this manual is organized

This manual is divided into the following sections:

- I. **Introduction** : Manual information and checklist
- II. **Features** : Information and specifications concerning this product
- III. **Installation** : Instructions on setting up the motherboard
- IV. **BIOS Setup** : Instructions on setting up special feature in the BIOS

## ■ Item Checklist

Please check that your package is complete. If you discover damaged or missing items, please contact your retailer.

- Motherboard x 1
- 40-pin IDE Connector Flat Cable x 1
- 34-pin Floppy Disk Drive Flat Cable x 1
- User's Manual x 1
- CD x 1
  
- LDCM Diskette x 1 (Option)
- USB Connector Cable with bracket x 1 (Option)
- IrDA Module x 1 (Option)

**Option** : Components will be include upon customer ordering instructions per Proforma Invoice & additional external procurement cost will be included.

# II FEATURES

## ■ Specifications

The motherboard is designed with the Intel 82443BX PCI chipset which is developed by Intel Corporation to fully support the Pentium II Processor PCI/ISA system. The Intel 82443BX PCI chipset provides increased integration and improved performance designs. The chipset provides an integrated IDE controller with two high performance IDE interfaces for up to four IDE devices (hard devices, CD-ROM device, etc). The Super I/O controller provides the standard PC I/O function: floppy interface, two 16Byte FIFO serial ports and EPP/ECP capable parallel port. Care must be taken when inserting memory modules, inserting CPU or even plugging PCI card into associated slots to avoid damaging any circuits or sockets on board. A cooling fan is strongly recommended. The motherboard supports minimum of 8MB of system memory and a maximum of 1GB SDRAM. The motherboard provides Four 168-pin DIMM. The socket supports 1Mx32 (32MB) single-sided or double-sided memory modules. The board also supports two onboard PCI IDE connectors, and detects the IDE hard disk type by the BIOS utility which is automatic. The system also supports Award Plug & Play BIOS for the ISA and PCI cards.

### **Processor:**

Slot 1 support Intel® Pentium II with MMX™ Series CPU's, CPU Clock Select support for 66 MHz and up to 133 MHz CPU Front Side Bus speed configuration. And the Pentium II processor support up to most currently CPU

### **Chipset:**

Intel® 82443BX System Controller Intel® 82371EB PCI/ISA IDE accelerator

### **BIOS**

Award BIOS With Flash ROM, support PnP, PCI 2.1, CD-ROM, ATAPI, LS-120, and any IDE Device Bootable, Virus Protection, DMI Ready, and the CPU Jumperless support.

### **System Memory:**

4 x 168-pin DIMM Slots Support Mixed Memory Technologies for Extended Data Output (EDO) or Synchronous DRAM (SDRAM)

### **Multi-I/O Onboard:**

1 x FDD Port support up to 2.88MB

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- 1 x Parallel Port (LPT) support ECP/EPP
- 2 x High Speed Serial (16C550 UART) Ports
- 2 x Universal Serial Bus (USB) Ports
- 1 x PS/2 Keyboard Port
- 1 x PS/2 Mouse Port
- 2 x IrDA Infrared Interfaces

**PCI Bus Master IDE:**

- PCI Enhanced IDE Interface with 4 IDE Devices
- Support HDD Auto-Detect
- Support up to PIO Mode 4, DMA Mode 2
- Support Ultra DMA/33 mode
- Fully compatible with PCI Local Bus Specifications V2.1

**ATX Connector:**

- 2 x USB Ports, 1 x PS/2 Keyboard Port, 1 x PS/2 Mouse Port, 1 x Parallel Port, 2 x Com Port

**Expansion Slots:**

- 2 x 16-bit ISA Slots with 100% ISA Compatible Functions
- 5 x 32-bit PCI Slots supporting PCI BUS Master Slots Conform with PCI Specifications Version 2.1
- 1 x AGP Slot supported.

**Options:**

- 2 x Infrared (IrDA) Wireless Interface Kit (Front & Rear)
- Universal Serial Bus (USB) Connector
- W83781D Hardware Monitor Circuit Design, LDCM for system Voltage, System Temperature, Fan Speed detect and control

**Extended Features:**

- Advanced Configuration and Power Interface (ACPI) ready
- CPU Temperature detect
- Support System Power Monitor
- Support Win95/98 Soft Power Off
- Support SM-Bus

**Dimension:**

- 305 mm x 170 mm

**Form Factor:**

- ATX Form Factor

**II. FEATURES**

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- **ACPI Ready –**  
ACPI (Advanced Configuration and Power Interface) is also implemented on this motherboards. ACPI provide more Energy Saving Features for the future operating systems (OS) supporting OS Direct Power Management (DPM) functionality. With these features implemented in the OS, PCs can be ready around the clock everyday, yet satisfy all the energy saving standards. To fully utilize the benefits of ACPI, an ACPI-supported OS such as in the next release of Windows 95/98 must be used.
- **PC '97 Compliant –**  
Both the BIOS and hardware levels of smart series of motherboards meet PC '97 compliance. The PC 97 requirements for systems and components are based on the following high-level goals: Support for Plug and Play compatibility and power management for configuring and managing all system components, and 32-bit device drivers and installation procedures for both Windows 95/98 and Windows NT.
- **Temperature Monitoring and Alert –**  
To prevent system overheat and system damage, there are heat sensors to monitor the CPU and system temperatures to warn of damaging temperatures.
- **Voltage Monitoring and Alert –**  
System voltage levels are monitored to ensure stable current to critical motherboard components. Voltage specifications are more critical for future processors, so monitoring is necessary to ensure proper system configuration and management.
- **Modem Ring On –**  
This allows a computer to be turned on remotely through an external modem. With this benefit on-hand, any user can access vital information from their computer from anywhere in the world.
- **Wake ON LAN –**  
This main board implements a LAN-Wake UP connector, to use LAN Wake-up function, user need a network card that supports this feature. In addition, user also needs to install network management software, such as LDCM. The connector will receive a wakeup packet or signal from LAN Card to power up the system.

**Sometimes, the external MODEM just power ON/OFF, the pulse will be taken as the Ring in signal, which will make the machine power up. User needs to pay more attention about this symptom.**

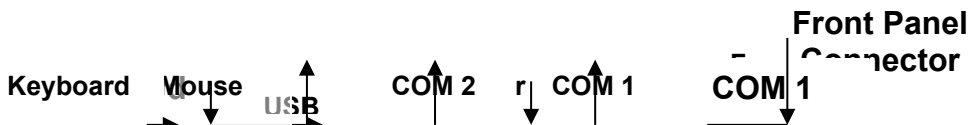
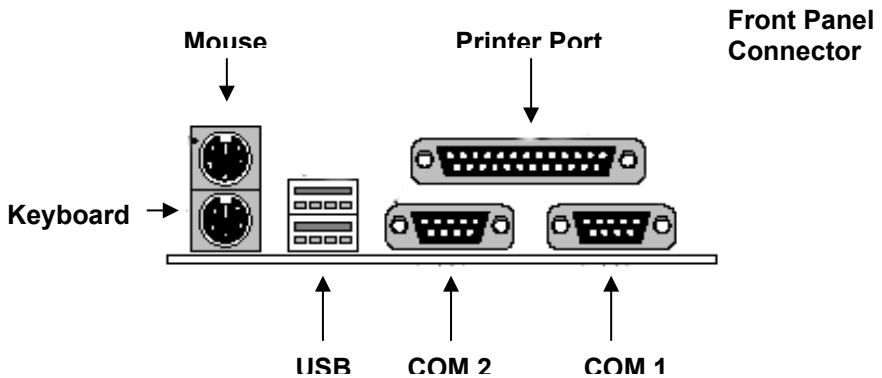
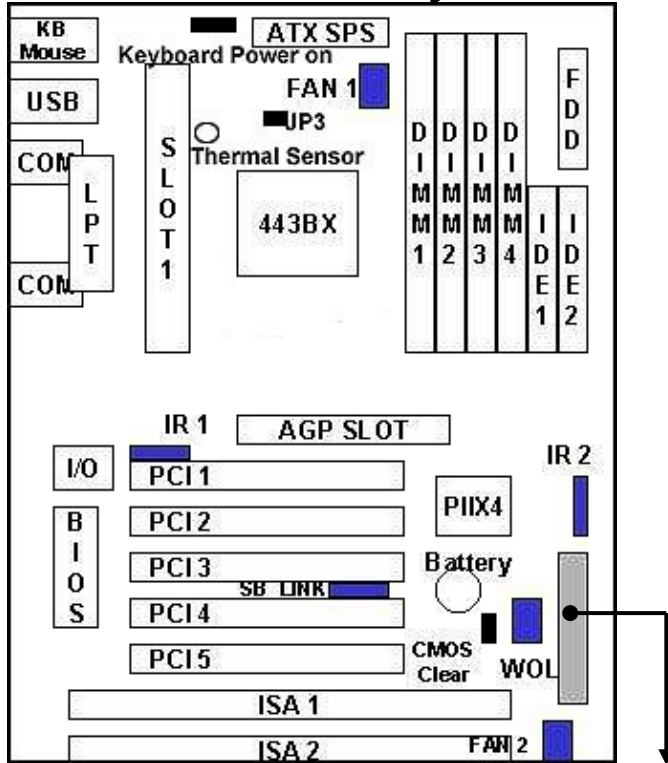
# II. FEATURES

## Parts of the Motherboard



# III. INSTALLATION

## Motherboard Layout





# III. INSTALLATION

## III-1 Jumpers Setting

The diagram shows a motherboard with various components and jumpers. Three specific jumper settings are highlighted with arrows pointing to a table on the right:

- Keyboard Power On:** Jumper JP3 is located near the Thermal Sensor. The table shows settings for pins 1-2 and 2-3.
- CPU FSB Auto-Detect : JP3:** Jumper JP3 is also indicated here. The table shows settings for pins 1 and 2.
- CMOS Clear:** Jumper WOL is located near the CMOS Clear pin. The table shows settings for pins 1-2 and 2-3.

	<b>Keyboard Power ON:</b> 1 – 2 Disable 2 – 3 Enable
	<b>CPU FSB Auto-Detect : JP3</b> Open Enable Short Disable
	<b>CMOS Clear:</b> 1 – 2 Normal 2 – 3 Clear

### 1). Keyboard Power-On Select

This is new function whose keyboard and mouse controller (KBC) is enhanced with “Programmable OnNow / Security Wake-Up” feature. It provides the function that users can wake up a shutdown PC system simply by a keystroke. This is a perfect implement of OnNow. Users are able to program a combination of 1-5 characters as the password also to power up the system.

#### Note:

Intel ATX version 2.0 specification has recommended user use the power supply with 0.72A(720mA) in 5.0VSB. If your power supply didn't support this specification, please set the jumper to **Disable**. And if you **Enable** the function, the keyboard will still have the light on it, even user power off the machine. It is normal, because the 5VSB still remain to support the Keyboard power on.

### 2). CMOS Clearing

CMOS Clear, which is a safety hook if you forget the password. Follow the steps:

After you have turned off your computer, clear the CMOS memory by momentarily shorting pins 2-3, for a few seconds. Then restore it to the initial 1-2 jumper setting in order to recover and retain the default settings. Reset your computer now.

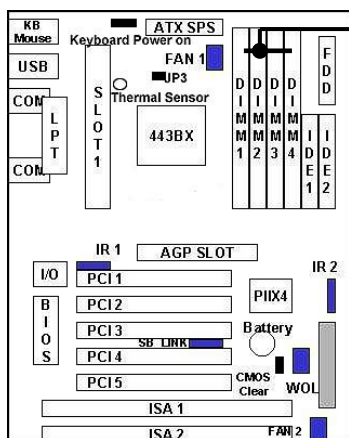
### 3). CPU FSB Auto-Detect

Please refer to the CPU installation section ( Page 10 ) for detail.

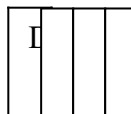
## III-2 Install System Memory Modules

This motherboard support 4 slots for 168-pin 3.3V Non-buffered DIMM modules, providing support for up to 1GB of main memory using DIMM modules from 8MB to 256MB. For 66MHz host bus CPUs, please use 12ns or faster DIMM modules. For 100MHz host bus CPUs, please use 8ns or faster DIMM modules. The following is the example to install the system SDRAM memory module combination: if you have two DIMM Modules, you has better install them into DIMM Slot 1 & Slot 2 with the Max possible memory size up to 512MB ( 256 + 256 ) if the 256MB DIMM module is available.

Number Of Memory Module	DIMM1	DIMM2	DIMM3	DIMM4	Memory Module	Max. Size
1	1 st				8~256 MB	256 MB
2	1 st	2 nd			8~256 MB	512 MB
3	1 st	2 nd	3 rd		8~256 MB	768 MB
4	1 st	2 nd	3 rd	4th	8~256 MB	1 GB



→ DIMM 1 2 3 4



The DIMM types supported SDRAM (Synchronous DRAM). The following is the summary:

### Single side:

1Mx64 (8MB), 2Mx64 (16MB), 4Mx64 (32MB), 8Mx64 (64MB), 16Mx64 (128MB)

### Double side:

1Mx64x2 (16MB), 2Mx64x2 (32MB), 4Mx64x2 (64MB), 8Mx64x2 (128MB).

### Total Memory Size:

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

### III-3 Install the Central Processing Unit (CPU)

#### ● Selecting the CPU Frequency

CPU voltage auto-detection and allow user to set CPU frequency through CMOS setup, no jumper or switch is needed. The correct CPU information is saved into EEPROM, with these technologies, the disadvantages of Pentium base jumper-less design are eliminated. There will be no worry of wrong CPU voltage detection and no need to re-open the housing if CMOS battery loss. The CPU frequency selection is set with the followings:

#### BOIS Setup → CPU Speed Setting

(The possible setting is 66, 75, 83, 100, 103, 112, 124, 133 MHz)

The BIOS will auto detect the CPU type, if the CPU type is 66MHz front side bus, the setting only could be 66, 75, 83 MHz. If the CPU type is 100MHz FSB, the setting only could be 100, 103, 112, 124, 133 MHz

#### BOIS Setup → CPU Speed Setting

(The possible setting is 3x, 3.5x, 4x, 4.5x, 5x, 5.5x, 6x)

#### ➤ CPU FSB Auto-Detection ( JP3 ) ( Default is Open )

If user want to Over-Clock for the 66MHz FSB CPU to run over than 100 MHz, user need to set the **JP3** to **Short**, then user can set the CPU Front Side Bus begin from 100MHz to 133 MHz in the BIOS Setup menu. Once the machine is not stable after the over-clock, user need to let the JP3 back to **Open** for normal operation

- The following table is the recommendation for the CPU setting with the Frequency and the Ratio.

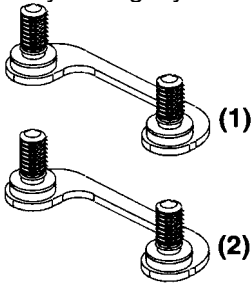
CPU Host Cock (MHz)	X	Multiplier	=	CPU Frequency (MHz)
66	X	3.5	=	233
66	X	4.0	=	266
66	X	4.5	=	300
66	X	5	=	333
100	X	3	=	300
100	X	3.5	=	350
100	X	4	=	400
100	X	4.5	=	450
100	X	5	=	500

#### *Notes:*

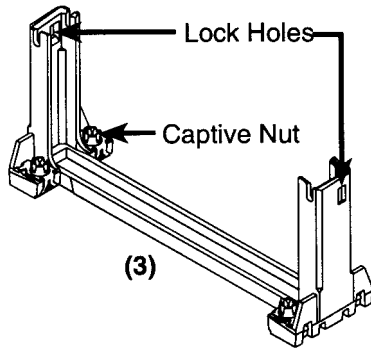
If you want to Over-Clock the CPU, please make sure the other peripherals can work fine with one another. That mean you need to well test the whole system with your own configuration, otherwise, please set the default and safe setting with 66MHz or 100MHz front side bus.

● **Install the CPU on the Motherboard**

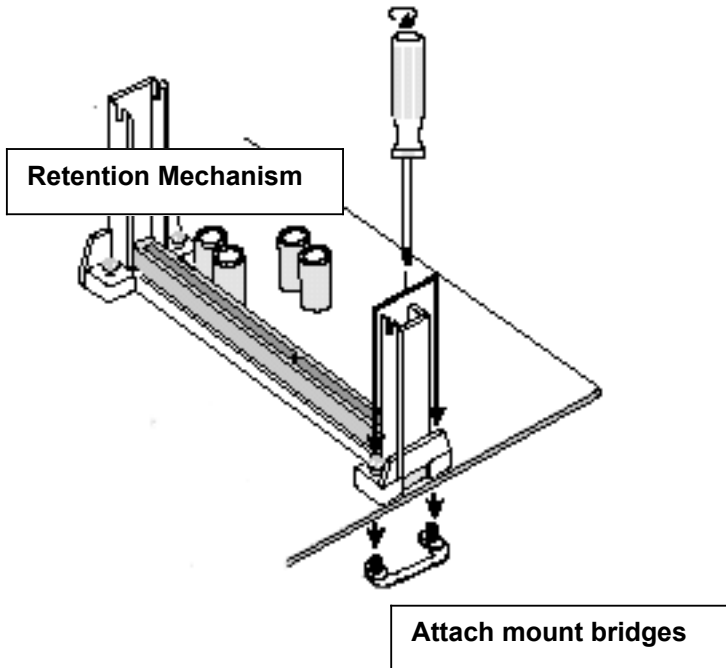
**NOTE:** The pictures in the following pages will have the same item numbers next to them for your reference. The design and color of your items may be slightly different.



**Attach Mount Bridges  
(Items 1,2)**

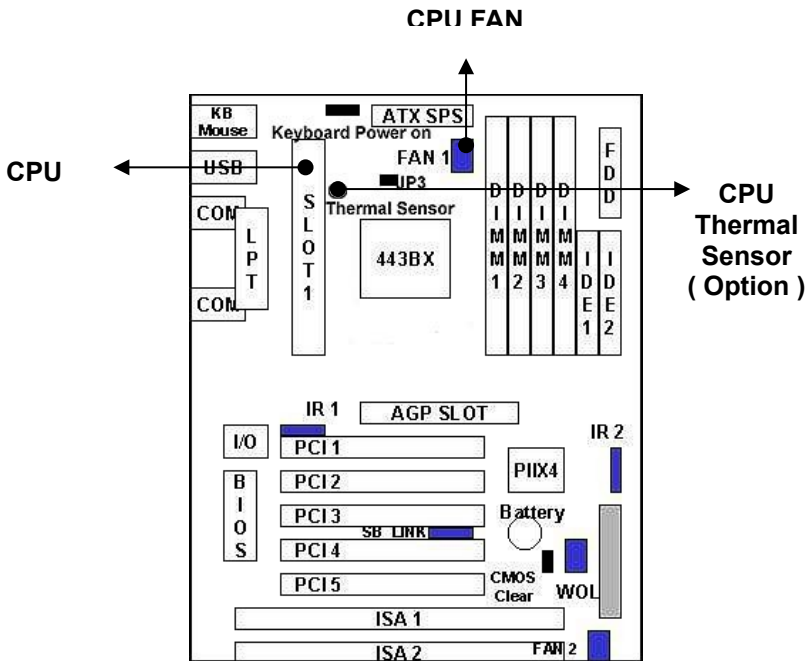


**Pentium II Retention Mechanism  
(Item 3)**



➤ **Install the CPU on the Motherboard**

1. Insert the **attach mount bridges** (For the remaining instructions) into the bottom of the mainboard with the curved edges facing outwards, toward the edge of the mainboard.
2. Use a screw driver to lightly tighten the **attach mount bridges and the Pentium II Retention Mechanism**
3. Insert the Pentium II processor into the Pentium II retention Mechanism with the processor Heatsink. Press evenly and gently until the snaps on the upper side of the processor have been inserted into the holes at the top of the retention base. Note that when removing the processor, these snaps can be clicked into a completely vertical position, leaving your hands free to stabilize the board and pull the processor evenly and gently out of the board. Also note that like PCI and ISA slots, Slot 1 has a divider that prevents backwards insertion.
4. Attach the Thermal Sensor (optional): If you purchased the specially designed thermal sensor, you can contact the thermal sensor to the CPU Heatsink as nearest as possible.



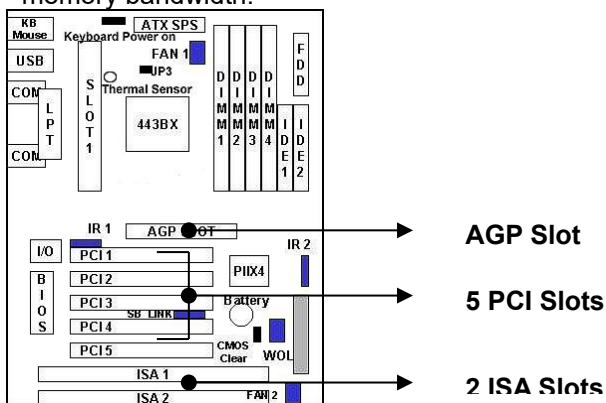
### III-4 Install Expansion Cards

#### ***WARNING!***

Unplug your power supply when adding or removing expansion cards or other system components. Failure to do so may cause severe damage to both your motherboard and expansion cards.

#### **Expansion Card Installation Procedure**

- Read the documentation for your expansion card and make any necessary hardware or software settings for your expansion card, such as jumpers.
- Remove your computer system's cover and the bracket plate on the slot you intend to use. Keep the bracket for possible future use.
- Carefully align the card's connectors and press firmly.
- Secure the card on the slot with the screw you removed above.
- Replace the computer system's cover.
- Set up the BIOS if necessary (such as IRQ xx Used By ISA: Yes in PNP AND PCI SETUP)
- Install the necessary software drivers for your expansion card.
- This motherboard also provides an AGP (Accelerated Graphics Port) slot to support a new generation of graphics cards with ultra-high memory bandwidth.



#### ***Notes:***

**Don't install the PCI Card in the PCI Slot 1 & Slot 5 together with the Bus Master Card or the PCI Cards are critical in the IRQ assignment. Because the PCI 1 & PCI 5 share the same IRQ**

## ■ Install Expansion Cards Tips:

### **Assigning IRQs for Expansion Cards:**

Some expansion cards need to use an IRQ to operate. Generally an IRQ must be exclusively assigned to one use. In a standard design there are 16 IRQs available but most of them are already in use, leaving 6 IRQs free for expansion cards.

Both ISA and PCI expansion cards may require to use IRQs. System IRQs are available to cards installed in the ISA expansion bus first, then any remaining IRQs are available to PCI cards. Currently, there are two types of ISA cards. The original ISA expansion card design, now referred to as legacy ISA cards, requires that you configure the card's jumpers manually and then install it in any available slot on the ISA bus. You may use Microsoft Diagnostics (MSD.EXE) utility located in the Windows directory to see a map of your used and free IRQs. If you use Windows 95/98, the Resources tab under Device Manager displays the resource settings being used by a particular device (to gain access, double-click the System icon under the Control Panel program). Ensure that no two devices share the same IRQs or your computer will experience problems when those two devices are in use at the same time. The original ISA expansion card design, now referred to as "Legacy" ISA cards, requires that you configure the card's jumpers manually and then install it in any available slot on the ISA bus. You may use Microsoft's Diagnostic (MSD.EXE) utility included in the Windows directory to see a map of your used and free IRQs. For Windows 95/98 users, the "Control Panel" icon in "My Computer," contains a "System" icon which gives you a "Device Manager" tab. Double clicking on a specific device give you "Resources" tab which shows the Interrupt number and address. Make sure that no two devices use the same IRQs or your computer will experience problems when those two devices are in use at the same time. To simplify this process this motherboard has complied with the Plug and Play (PnP) specification which was developed to allow automatic system configuration whenever a PnP-compliant card is added to the system. For PnP cards, IRQs are assigned automatically from those available. If the system has both Legacy and PnP ISA cards installed, IRQs are assigned to PnP cards from those not used by Legacy cards. The PCI and PnP configuration of the BIOS setup utility can be used to indicate which IRQs are being used by Legacy cards. For older Legacy cards that do not work with the BIOS, you can contact your vendor for an ISA Configuration Utility. An IRQ number is automatically assigned to PCI expansion cards after those used by Legacy and PnP ISA cards. In the PCI bus design, the BIOS automatically assigns an IRQ to a PCI slot that has a card in it that requires an IRQ. To install a PCI card, you need to set something called the INT (interrupt) assignment. Since all the PCI slots on

this motherboard use an INTA #, be sure that the jumpers on your PCI cards are set to INT A.

### **Assigning DMA Channels for ISA Cards**

Some ISA cards, both legacy and PnP, may also need to use a DMA (Direct Memory Access) channel. DMA assignments for this motherboard are handled the same way as the IRQ assignment process described earlier. You can select a DMA channel in the PCI and PnP configuration section of the BIOS Setup utility.

### **IMPORTANT:**

To avoid conflicts, reserve the necessary IRQs and DMAs for legacy ISA cards (under PnP AND PCI SETUP of the BIOS SOFTWARE, choose Yes in *IRQ xx Used By ISA* and *DMA x Used By ISA* for those IRQs and DMAs you want to reserve).

### *Notes:*

- **If you have the problem to install the Windows 95 /98, maybe system hung up or something wrong, the installation can't complete. Please try the following step:**
  1. Remove all the Add-ons, only remain the Display Card.
  2. Set the BIOS default value.
  3. Re- Install the OS ( Windows 95 or Windows 98. )
  4. After completely install the OS, add the other expansion cards one by one.
  
- **If your system can't power on or no display, you may do the following step to verify the problem:**
  1. Check the jumper on the Mother Board.
  2. Set the BIOS to default value.
  3. Remove all the add-ons only remain the VGA Card.
  4. Change the VGA Card with different Slot.
  5. Change the DIMM module.
  6. Remove all the HDD, FDD Cable.



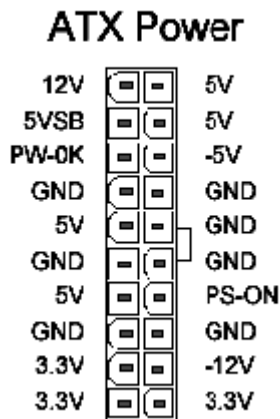
### III-5 External Connection

#### ***Important:***

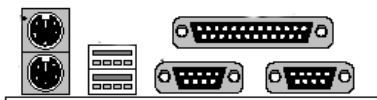
1. Ribbon cables should always be connected with the red stripe on the Pin 1 side of the connector. The Four Corners of the connectors are labeled on the motherboard. Pin 1 is the side closest to the power connector on hard drives and floppy drives. IDE ribbon cable must be less than 18in. (46cm), with the second drive connector no more than 6in. (15cm) from the first connector.
2. The motherboard requires a power supply with at least 250 Watts and a "power good" signal. Make the ATX power supply can take at least 10mAmp load on the 5V Standby lead (5VSB) to meet the standard ATX specification.
3. To prevent electrical spikes, make sure that the power supply is not connected to an outlet when making or removing connections. Power supplies contain power remains, which can damage electrical components.

#### **III-5-1 Power Supply Connector**

Plug the connector from the power directly into the 20-pin male ATX PW connector on the motherboard as shown in the following figure. The plug from the power supply will only insert in one orientation because of the different hole sizes. Find the proper orientation and push down firmly making sure that the pins are aligned and the power supply is off before connecting or disconnecting the power cable.



## III-5-2 Keyboard, Mouse, USB, COM Port and Printer port



### PS/2 Keyboard Connector

The onboard PS/2 keyboard connector is a 6-pin Mini-Din connector marked KB2. The view angle of drawing shown here is from back panel of the housing.

Pin	Description	Pin	Description
1	Keyboard Data	2	N.C.
3	Ground	4	+5VDC
5	Keyboard Clock	6	N.C.

### PS/2 Mouse Connector

The onboard PS/2 mouse connector is a 6-pin Mini-Din connector marked PS2. The view angle of drawing shown here is from back panel of the housing.

Pin	Description	Pin	Description
1	Mouse Data	2	N.C.
3	Ground	4	+5VDC
5	Mouse CLK	6	N.C.

### USB (Universal Serial Bus Connector)

You can attach USB devices to the USB connector. The Mother board contains two USB connectors, which are marked as USB. USB is a new serial bus design that is capable of cascading low-/medium-speed peripherals (less than 12Mbps) such as keyboard, mouse, joystick, scanner, printer and modem/ISDN. With USB, complex cable connections at the back panel of your PC can be eliminated.

Pin	Description	Pin	Description
1	+5 VDC	5	+5VDC
2	DATA -	6	DATA-
3	DATA +	7	DATA+
4	Ground	8	Ground

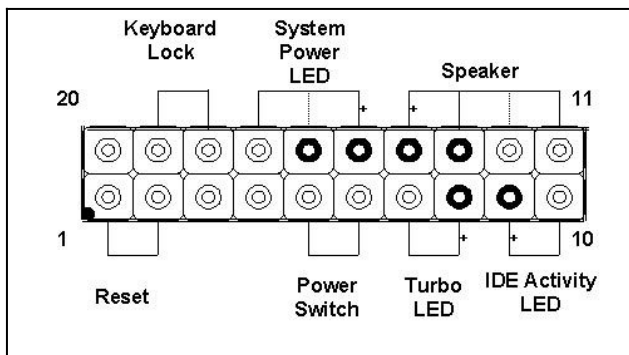
### Serial Devices (COM1/COM2)

The onboard serial connectors are 9-pin D-type connector on the back Panel of mainboard. The serial port 1 connector is marked as COM1 and the serial port 2 connector is marked as COM2.

### Printer Port ( LPT )

The onboard printer connector is a 25-pin D-type connector marked PRINTER. The view angle of drawing shown here is from back panel of the housing.

### III-5-3 Front Panel Connector



#### 1). IDE Activity LED ( Pin 9,10)

This connector connects to the IDE (hard disk) activity indicator light on the system cabinet.

#### 2). System Power LED ( Pin 15,16,17)

This 3-pin connector lights the system power LED when the motherboard has power.

#### 3). Turbo LED (Pin 7,8)

If the cabinet provide the turbo LED cable, connect the cable to this two pin connector to turn on the LED on the front panel.

#### 4). ATX Power Switch ( Pin 5,6 )

The system power is controlled by a push-switch, connected to this lead. Pushing the button once will turn on the power and pushing again will turn off the power. The system power LED shows that status of the system's power. If the power to the ATX power supply is interrupted while the motherboard is on, standby power will remember that the motherboard should be on and boot the computer when power is reapplied to the ATX power supply.

#### 5). Reset Switch ( Pin 1,2 )

This 2-pin connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the life of the system's power supply.

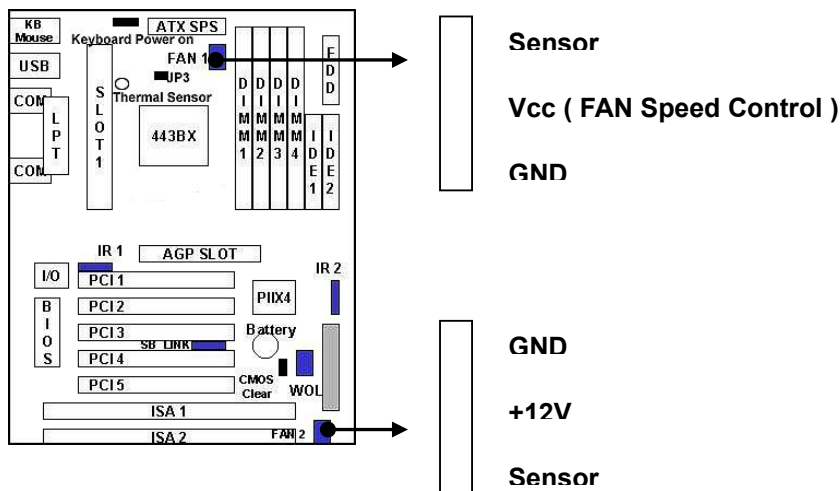
#### 6). Keyboard Lock Switch Lead ( Pin 18,19 )

This 3-pin connector connects to the case-mounted keyboard lock switch for locking the keyboard.

#### 7). Speaker Connector ( Pin 11,12,13,14 )

This 4-pin connector connects to the case-mounted speaker.

### III-5-4 FAN Connector



1). If you connect the CPU FAN to Fan connector 1, and you also have the Thermal Sensor beside the CPU Slot, Install the W83782D Utility that include in the bundled CD, the CPU FAN Speed will depend on the thermal as follow:

- Under 20 degree C: FAN will not run
- 10 ~ 35 degree C: Normal Speed
- Higher than 35 degree C: Full speed

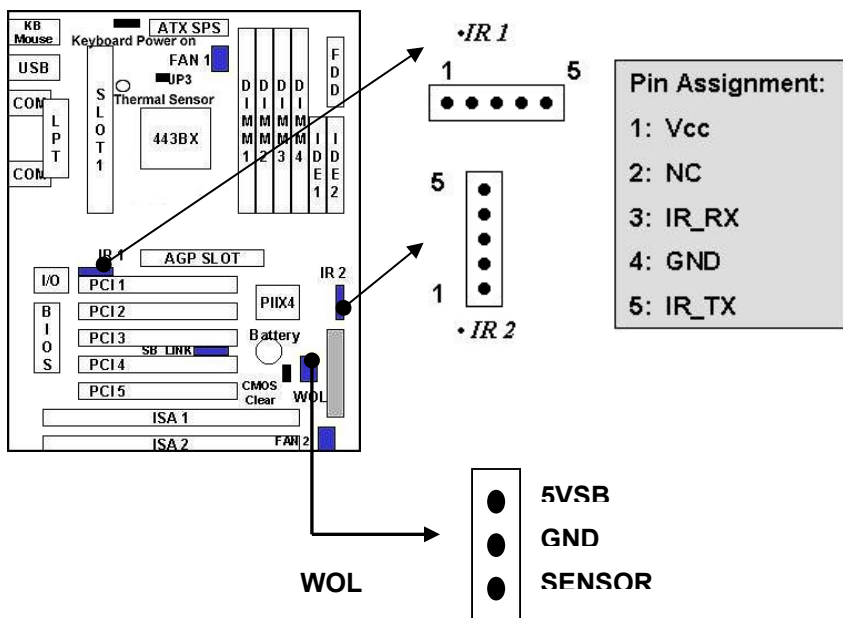
2). This connectors support a CPU cooling fan of 500 mA (6WATT, +12V) or less. Orient the fan so that the heat sink fins allow airflow to go across the onboard heat sink(s). Depending on the fan manufacturer, the wiring and plug may be different. The red wire should be positive (+12V), while the black should be ground. Connect the fan's plug to the board taking into consideration the polarity of the connector.

### ***WARNING!***

The CPU and/or motherboard will overheat if there is no airflow across the CPU and onboard Heatsink. Damage may occur to the motherboard and/or the CPU fan if these pins are incorrectly used. These are not jumpers, do not place jumper caps over these pins.

### III-5-5 IrDA Compliant Infrared Module Connector

These connectors support the optional wireless transmitting and receiving infrared module. This module mounts to a small opening on system cases that support this feature. You must also configure UART 2. Use Infrared in Chipset Features Setup to select whether UART 2 is directed for use with COM2 or IrDA. When IrDA is selected in BIOS, COM2 will be disabled. Use the five pins or six pins as shown and connect a ribbon cable from the module to the motherboard to the pin definitions. There are two connectors available for the IrDA, one is near Front Panel the other is rear, user can use one of them to connect to IrDA module depending on the location you want.



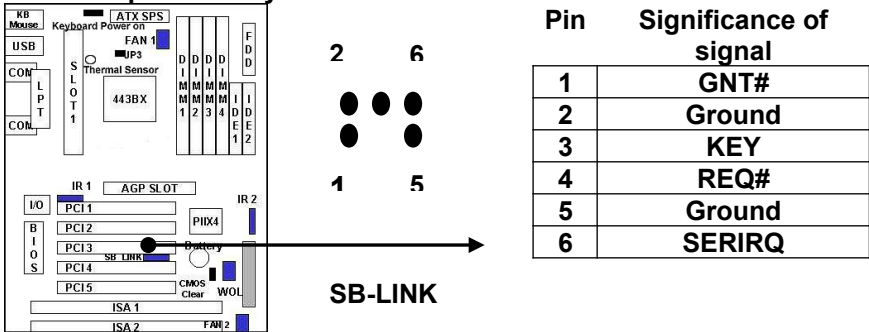
### III-5-6 Wake-On-LAN (WOL)

Attach the 3-pin connector from the LAN card which supports the Wake-On-LAN (WOL) function to the WOL connector on the motherboard. This WOL function lets users wake up the connected computer through the LAN card. Please install according to the following pin assignment:

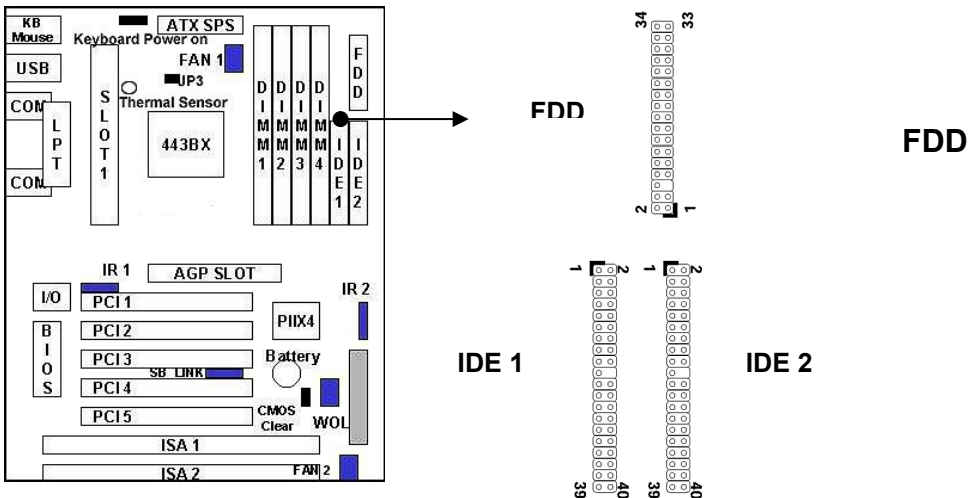
### III-5-7 SB\_Link Header

"SB-Link" originated from Creative to propose a standard which can be a bridge between the mainboard and PCI sound card to deliver Sound Blaster 16 compatibility under DOS real-mode environment.

**Sound Blaster 16 was almost the standard of the ISA Bus sound cards, a lot of games were Programmed for Sound Blaster especially under DOS environment. If the users are still interested in playing these game titles, they might have compatibility problems with the new up graded PCI Bus sound card. This header adopts Intel's PC/PCI technology to deliver Sound Blaster 16 compatibility to PCI Bus sound card, enabling users to play real-mode DOS games. Connect the cable provided by PCI sound card to this connector.**



### III-5-8 FDD & HDD Connector



## III-6 Power On Procedure:

1. After all connections are made, close the system case cover.
2. Be sure that all switches are off (in some systems, marked with ○).
3. Make sure your power supply voltage is correctly set to 110V or 230V.
4. Connect the power supply cord into the power supply located on the back of your system case according to your system user's manual.
5. Connect the power cord into a power outlet that is equipped with a surge protector.
6. You may then turn on your devices in the following order:
  - ✓ Your monitor
  - ✓ External SCSI devices (starting with the last device on the chain)
  - ✓ Your system power. For ATX power supplies, you need to switch on the power supply as well as press the ATX power switch on the front of the case.
7. The power LED on the front panel of the system case will light. For ATX power supplies, the system LED will light when the ATX power switch is pressed. The monitor LED may light up after the system power up. If it complies with "green" standards or if it has a power standby feature. The system will then run power-on tests. While the tests are running, additional messages will appear on the screen. If you do not see anything within 30 seconds from the time you turn on the power, the system may have failed a power-on test. Recheck your jumper settings and connections or call your retailer for assistance.
8. During power-on, hold down <Delete> to enter BIOS setup menu if you want to run the BIOS Setup Utility.

### **Note:**

- **Powering Off your computer:** You must first exit or shut down your operating system before switching off the power switch. For ATX power supplies, you can press the ATX power switch after exiting or shutting down your operating system. If you use Windows 95/98, click the Start button, click Shut Down, and then click Shut down the computer. The system will give three quick beeps after about 30 seconds and then power off after Windows shuts down.

# IV. BIOS SETUP TIPS

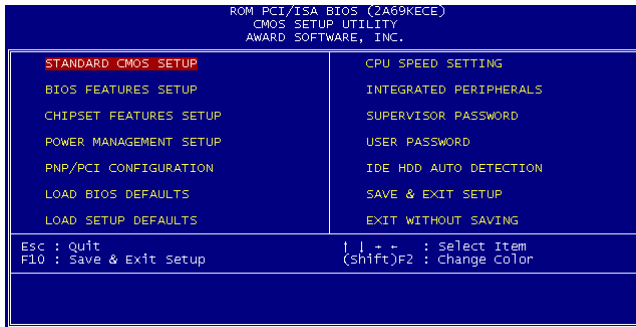
This charter only describes the major items that could be setup by End User point of view. If you are technical people or familiar with the BIOS setting or you have the interesting about the details of the BIOS setup, please refer to the documents from Award by download following files.

<http://www.enpc.com.tw/ftp/ts/setup451.zip>

<http://www.enpc.com.tw/ftp/ts/i440bx.zip>

## Entering the Award BIOS Setup Menu

The BIOS setup utility is a segment of codes/routines residing in the BIOS Flash ROM. This routine allows you to configure the system parameters and save the configuration into the 128 byte CMOS area, (normally in the RTC chip or directly in the main chipset). To Enter the BIOS Setup, press **DEL** during POST (Power-On Self Test).



## ■ Standard CMOS Setup

The "Standard CMOS Setup" sets the basic system parameters such as the date, time, and the hard disk type. Use the arrow keys to highlight an item and **Page Up** or **Page Down** to select the value for each item.

### Tips:

The enhanced IDE feature allows the system to use a hard disk with a capacity of more than 528MB. This is made possible through the Logical Block Address (LBA) mode translation. The LBA is now to be considered as a standard feature of current IDE hard disk on the market which capability is larger than 528MB. Note that if HDD is formatted with LBA On, it will not be able to boot with LBA Off.



## ■ BIOS Features Setup

```
ROM PCI/ISA BIOS (2A69KECE)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning           : Disabled
CPU Internal Cache     : Enabled
External Cache         : Enabled
CPU L2 Cache ECC Checking : Enabled
Quick Power On Self Test : Disabled
Boot Sequence          : A,C,SCSI
Swap Floppy Drive      : Disabled
Boot Up Floppy Seek    : Enabled
Boot Up NumLock Status : On
Gate A20 Option        : Normal
Typematic Rate Setting : Disabled
Typematic Rate (Chars/Sec) : 6
Typematic Delay (Msec) : 250
Security Option        : Setup
PCI/VGA Palette Snoop : Disabled
Assign IRQ For VGA    : Disabled
OS Select For DRAM > 64MB : Non-OS2
Report No FDD For WIN 95 : No

Video BIOS Shadow     : Enabled
C8000-CBFFF Shadow   : Disabled
CC000-CFFFF Shadow   : Disabled
D0000-D3FFF Shadow   : Disabled
D4000-D7FFF Shadow   : Disabled
D8000-DBFFF Shadow   : Disabled
DC000-DFFFF Shadow   : Disabled

ESC : Quit           | |++ : Select Item
F1  : Help          | PU/PD/+/- : Modify
F5  : Old values    (Shift)F2 : Color
F6  : Load BIOS defaults
F7  : Load Setup defaults
```

This screen appears when you select the option "BIOS Features Setup" from the main menu. There are many items for the user to setup regarding to the BIOS feature. Most of them are standard setting, basically, it is recommended to set to default, the following item is the description for the special function and setup tips:

### **Virus Warning**

This feature protects the boot sector and partition table of your hard disk from virus intrusion.

### **Quick Power On Self Test**

Speeds up POST by skipping some items that are normally checked.

### **Boot Sequence**

Allows you to specify the system boot up search sequence. For example, if you want to boot up the system from CD-ROM, you can set the sequence here.

### **Boot Up NumLock Status**

Setting this parameter to On enables the numeric function of the numeric keypad.

### **Gate A20 Option**

Fast that mean GateA20 signal supported by core logic. Normal mean GateA20 signal supported by keyboard controller

### **Assign IRQ For VGA**

This option allows BIOS to assign IRQ for VGA device

### **OS Select for DRAM > 64MB**

Set to OS/2 if your system is utilizing an OS/2 operating system and has a memory size of more than 64 MB.

## ■ Chipset Features Setup

```
ROM PCI/ISA BIOS (2A69KECE)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration      : Enabled
EDO DRAM Speed Selection : 60ns
EDO CAS# MA wait State  : 2
EDO RAS# wait State     : 1
SDRAM RAS-to-CAS delay  : 3
SDRAM RAS Precharge Time : 3
SDRAM CAS latency Time  : 3
SDRAM Precharge Control : Disabled
DRAM Data Integrity Mode : Non-ECC
System BIOS Cacheable   : Disabled
Video BIOS Cacheable    : Disabled
Video RAM cacheable     : Disabled
8 Bit I/O Recovery Time : 3
16 Bit I/O Recovery Time : 2
Memory Hole At 15M-16M  : Disabled
Passive Release         : Enabled
Delayed Transaction     : Disabled
AGP Aperture Size (MB)  : 64

Auto Detect DIMM/PCI Clk : Enabled
Spread Spectrum Modulated: Disabled

ESC : Quit           ↑↓+/- : Select Item
F1  : Help          PU/PD/+/- : Modify
F5  : Old values    (shift)F2 : Color
F6  : Load BIOS Defaults
F7  : Load Setup Defaults
```

The "Chipset Features Setup" includes settings for the chipset dependent features. These features are related to system performance. It is highly recommended that the items are optimal setting for this Main-Board. You should not change them unless you are familiar with the chipset. Make sure you fully understand the items contained in this menu before you try to change anything. You may change the parameter settings to improve system's performance. However, it may cause system unstable if the settings are not correct for your system configuration. Once you change the setting and not sure which one will be better parameter, please load the BIOS default by press "F6" or load the SETUP default by press "F7".

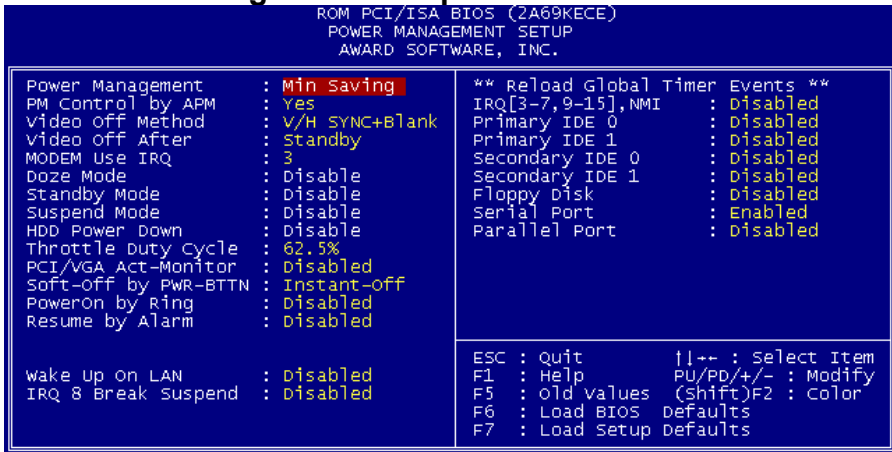
### SDRAM RAS-to-CAS delay

They are important parameters that affect the SDRAM performance. If your SDRAM has unstable problem, change 2/2 to 3/3.

### SDRAM CAS Latency Time

This setting defines the CAS timing parameter of the SDRAM in terms of clocks. Sometime, the BIOS will recommend you to set the correct value depending on the DIMM Module you use.

## ■ Power Management Setup



The Power Management Setup screen enables you to control the Main Board green features.

### Power Management

This function allows you to set the default parameters of power-saving modes.

### PM Control by APM

If "Max Saving" is selected, you can turn on this item, transfer power management control to APM

### Video Off Method

The option "V/H SYNC+Blank" allows the BIOS to blank off screen display by turning off the V-Sync signals sent from add-on VGA card. "DPMS Supported" allows the BIOS to blank off screen display by your add-on VGA card which supports DPMS; "Blank Screen" allows the BIOS to blank screen display by turning off the red-green-blue signals.

### Video Off After

What time frame that the video will be disabled under current power management settings.

### MODEM use IRQ

When the system is in green function, modem will wakes up the system through IRQ you assigned here.

### Doze Mode

When disabled, the system will not enter Doze mode. The specified time option defines the idle time the system takes before it enters Doze mode.

### **Standby Mode**

When the standby mode timer times-out, it will enter the standby mode and retain CPU at a slow working speed. The screen will be blanked out.

### **Suspend Mode**

This function works only when the Pentium II Processor is installed. The timer starts to count when system Standby mode timer is timed out and no PM Events are occurring. Valid range is from 1 minute up to 1 hour.

### **HDD Power Down**

This option lets you specify the IDE HDD idle time before the device enters the power down state.

### **Throttle duty Cycle**

Choose the duty cycle time : 12.5%, 25%, 37.5%, 50%, 62.5%(default), 75%, or 87.5%. The bigger of the percentage, the more saving power it gets.

### **PCI/VGA**

**Active**

**Monitor**

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.

### **Soft-Off by PWRBTN**

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.

### **Resume**

**by**

**Ring**

Enabled : Wake up the system from ring signal.

Disabled : (default) Ring signal can not wake up the system.

### **Resume by Alarm:**

his option allows you to have the system turn on at a preset time each day or on a certain day.

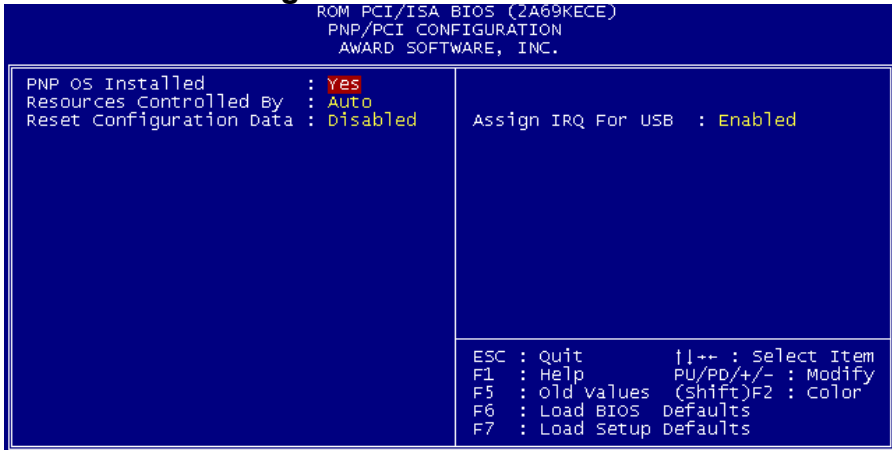
### **RQ8 Break Suspend**

Choose Enabled or Disabled (default). Alarm function will be activated when this function is enabled.

If the [ Resume by Ring ] set to Enable, that means the machine will wake up after a external Modem Ring in through the COM Port. That is the special function for the Modem Ring on. But if the machine is in the off mode and you just power ON/OFF the external Modem, sometimes, it will cause the machine power on, because the Modem Power On/OFF pulse will be taken as the Modem Ring in signal and then power up the machine.



## ■ PNP/PCI Configuration



The PNP/PCI Configuration Setup allows you to configure the ISA and PCI devices installed in your system.

### **PnP OS Installed**

Normally, the PnP resources are allocated by BIOS during POST (Power-On Self Test). If you are using a PnP operating system (such as Windows 95,98), set this item to Yes to inform BIOS to configure only the resources needed for booting (VGA/IDE or SCSI). The rest of system resources will be allocated by PnP operating system.

### **Resources Controlled By**

Setting this option to Manual allows you to individually assign the IRQs and DMAs to the ISA and PCI devices. Set this to Auto to enable the auto-configuration function.

### **Reset Configuration Data**

If you had plugged some Legacy cards in the system and there were records into ESCD (Extended System Configuration Data). You can set this field to Enabled to clear ESCD one time, while the Legacy cards were removed.

### **Assign IRQ For USB**

Assign IRQ For USB

## ■ LOAD BIOS / SETUP DEFAULTS

This Main Menu item loads the default system values. These settings are recommended for optimum performance. If the CMOS is corrupted when enter BIOS setup utility you must load setup default again. Choose this item and the following message appears:

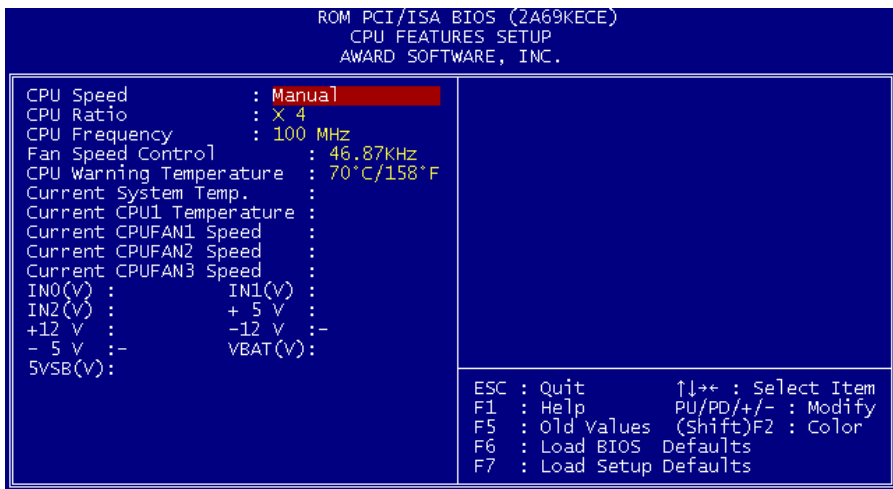
### **Load SETUP Defaults (Y/N)? Y**

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

**Note:**

**Optimal is not the slowest setting for this mainboard. If you need to verify a unstable problem, you may manually set the parameter in the "BIOS Features Setup" and "Chipset Features Setup" to get slowest and safer setting.**

## ■ CPU Speed Setting



### CPU Speed

Set to Manual user can use the next two items to decide the CPU speed.

### CPU Ratio

This item lets you select the ratio of Core/Bus frequency. Have the following selections: 3x, 3.5x, 4x , 4.5x, 5x, 5.5x, 6x

### CPU Frequency

This item lets you set external clock (bus clock). The possible settings are 66, 75, 83, 100, 103, 112, 124, 133 MHZ.

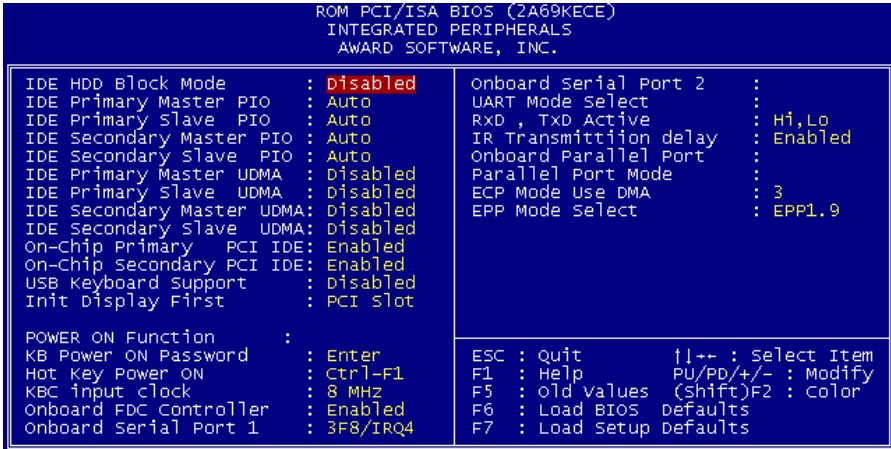
### CPU Warning Temperature

This is the temperature setting that the computer will respond to an overheating CPU and provide the alarm.

The BIOS also support the Current System/CPU Temperature & CPU FAN speed monitor, user can trace this environment in this page. Meanwhile the BIOS also monitor the Main Board important voltage such as the CPU Voltage, +/- 5V, +/- 12V, 5V Standby, Battery voltage, user can double check the current M/B voltage with this page.



## ■ INTEGRATED PERIPHERALS SETUP



The INTEGRATED PERIPHERIALS is used to control the values of the I/O chipset registers. These registers control the mode of HDD type and I/O address port.

### Note:

If you don't use the Onboard IDE connector, than use On-card (PCI or ISA card ) IDE connector, you will set Onboard Primary PCI IDE : Disabled and Onboard Secondary PCI IDE : Disabled from CHIPSET FEATURES SETUP UTILITY. The Onboard PCI IDE cable should be equal to or less than 18 inches (45cm).

### ■ IDE Secondary Master UDMA / IDE Secondary Slave UDMA

Allows you to select the second PCI IDE channel of the secondary master hard disk mode or to detect it by the BIOS if the hard disk supports UDMA (Ultra DMA, faster than DMA).

### USB Keyboard Support

Choose Disabled (default) or Enabled. You need to use the regular keyboard to get in the BIOS Setup to enable this function before using the USB keyboard.

### Init Display First

Set the Display Card priority for the PCI slot or AGP Slot

### **KB Power on Password**

Set the keyboard power on password, if you enable this function, you can use the keyboard to power on the machine with the password you defined, but at the same time, the machine can't be power on with the normal power button on the front panel.

### **Hot key power on**

Set the power on hot key, the function almost the same with the keyboard power on function.

### **UART Mode Select**

Choose Normal (default), IrDA 1.0, or ASKIR to meet the specification of your Infra Red device.

### **RxD, TxD Active**

Choose Hi/Hi; Hi/Lo (default); Lo/Hi; or Lo/Lo. Ask your IR provider when you use this function.

### **IR Transmission Delay**

Choose Enabled or Disabled. Ask your IR provider when you use this function.

## ■ **USER Password**

This Main Menu item lets you configure the system so that a password is required every time the system boots or an attempt is made to enter the Setup program. The password cannot be longer than 8 characters.

## ■ **IDE HDD Auto Detection**

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

### **Normal mode**

For drives small than 528MB

### **Large Mode**

For drives larger than 528MB that do not use LBA. There can only be used with MS-Dos operating system.

### **LBA mode**

For drives larger than 528MB and up to 8.4GB that use logic block addressing mode. Normally we recommend to select LBA Mode if our HDD drivers large than 528MB

## ■ **SAVE & EXIT SETUP**