PT-TILT

440LX/EX SOCKET 370
AT MAINBOARD

USER'S MANUAL

V 1.X

440LX/EX

SOCKET 370
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USER'S MANUAL

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TABLE OF CONTENTS

SOMETHING IMPORTANT !

☆ TRADEMARKS
All trademarks used in this manual are the property of their respective owners.

☆ 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.

☆ DISCHARAGE 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 personal computer mainboard with the jumper-free feature designed on the board. It is an ATX form-factor mainboard designed for Celeron™ processors with A.G.P. (Accelerated Graphics Port) and PCI Local Bus on board. Designed based on the Intel® 82440LX or 82440EX AGPset™ system chipset and it supports 66MHz front side bus frequency.

This mainboard is designed for both Intel® 82440LX and 82440EX AGPset™ system chipset. When different chipset is installed on the board, the feature of the mainboard will be different as following:

|	LX Mainboard	EX Mainboard
PCI SLOTS	4	3
DIMM SOCKETS	3	2
ECC SUPPORTING	YES	NO

This mainboard has built-in two channel "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. It is designed to support the high performance Celeron™ processor for the high-end and true GREEN-PC computer systems.

The Celeron™ Processor is a 64-bit processor with RISC technology, which offers several key features such as built-in 128K L2 cache, 12-stage super-pipeline architecture, out of order execution .... etc. In order to optimize of its capabilities and 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.

The ALS300 PCI Sound card is also built on the board. It is the true Plug and Play device which compliant with all industry standards, including PCI 2.1 bus specification, PC97 specification, Windows™ Direct Sound and AC-97 Codec Interface. With the outstanding sound interface built on the mainboard, you will be able to enjoy the true multimedia environment.

1.2 MAINBOARD LAYOUT
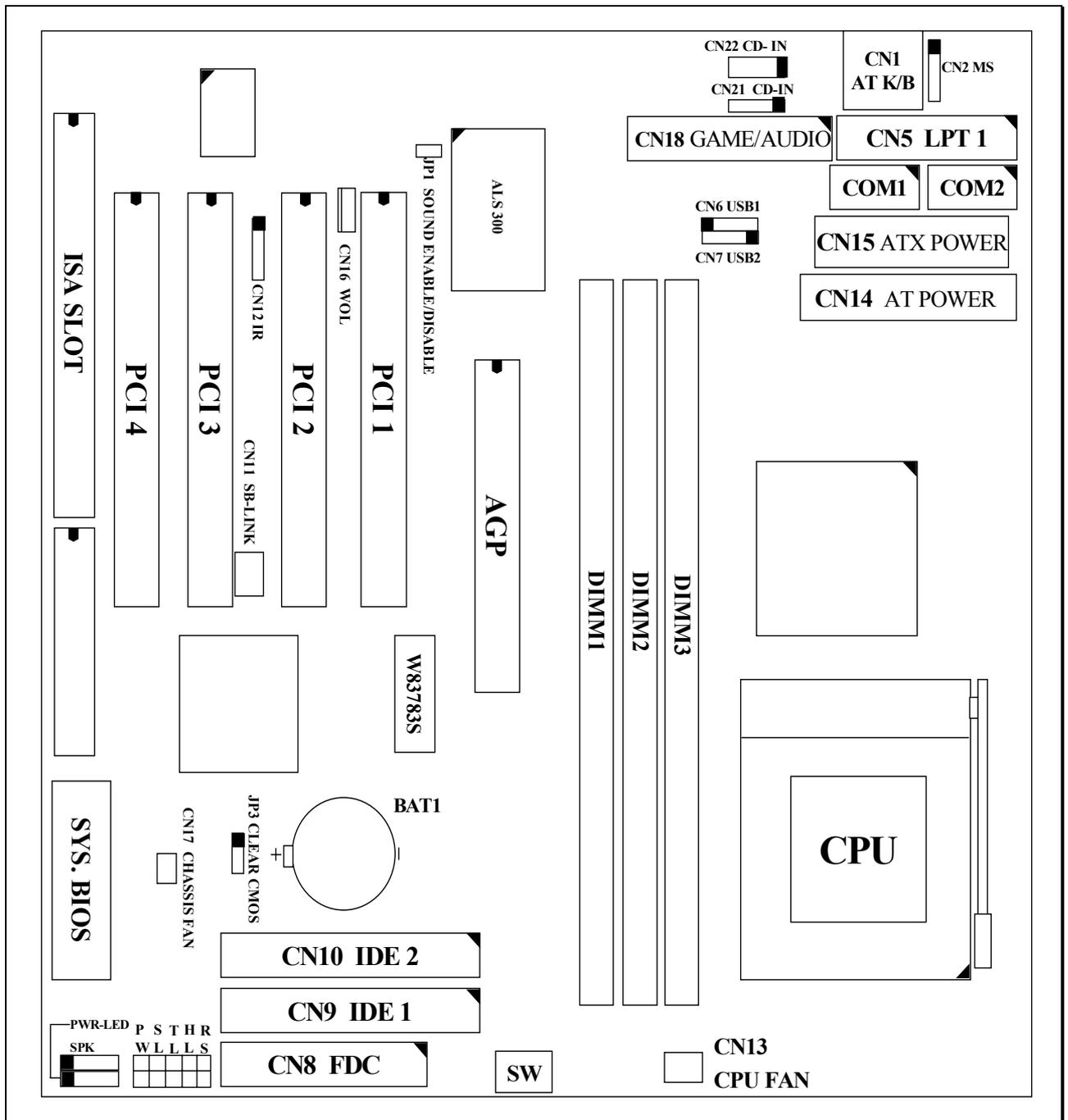
1.3   SPECIFICATIONS

◎ **CPU**
Intel® Celeron™ processor 266 MHz, 300 MHz, and 333MHz. 366MHz, 400MHz, 433MHz and up to 466MHz processors.

◎ **CPU VCC**
Three sets Voltage Regulator circuits on board, supports +1.30V DC through +2.05V DC CPU Core Voltage and all lower-voltage components.
Note :   The CPU Core Voltage will be Detected and adjusted automatically by the VID-pin on the CPU, so there is no manual-adjustment required to select the CPU voltage. Simply plug in the CPU and start immediately.

◎ **WORD SIZE**
Data Path   :   8-bit, 16-bit, 32-bit, 64-bit
Address Path   :   32-bit

◎ **PC SYSTEM CHIPSET**
LX Mainboard: Intel® 82440LX AGPset™ (82443LX, 82371EB)
EX Mainboard: Intel® 82440EX AGPset™ (82443EX, 82371EB)

◎ **SUPER I/O CHIPSET**
NS PC87309 I/O chip

◎ **FRONT SIDE BUS FREQUENCY**
66 MHz / 68 MHz or 75 MHz , selected by CMOS setup program

◎ **MEMORY**
DRAM : support 8, 16, 32, 64 or 128MB 3.3V un-buffered EDO or SDRAM DIMM module, LX motherboard supports Parity / ECC (Error Checking and Correcting.)
    LX Mainboard**:** Three 168-pin DIMM sockets are designed onboard,. Maximum memory size can be up to 384 MB.
    EX Mainboard**:** Two 168-pin DIMM sockets are designed onboard, Maximum memory size can be up to 256 MB.

CACHE   **:**128KB   or   256KB   pipelined   burst   SRAM   built-in   Celeron™ processor.

◎ **BIOS**
   AWARD Plug & Play System BIOS, supports ACPI, DMI and Green functions.

◎ **EXPANSION SLOTS**
   AGP Slots : 32-bit x 1 (Supports 1x or 2x AGP graphics cards)
   PCI Slots : 32-bit x 4 for LX mainboard, 32-bit x 3 for EX mainboard
   ISA Slots : 16-bit x 1 (One of the slot is PCI/ISA shared)

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

◎ **SB-LINK PORT (**OPTIONAL**)**
   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 and LS-120/ZIP-100 devices. 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 compatible IR transmission connector (5-pin).

◎ **MOUSE AND KEYBOARD**
   One PS/2™ mouse connector and one PS/2™ keyboard connector.

◎ **HARDWARE MONITORING** *(optional)*

Winbond W83783S 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 or display the warning message on the screen so that you can take proper action to prevent your system from damage. When you hear the beeping alarm or the warning message on the screen, be sure to turn the power off and open the chassis immediately, check on the appropriate component on the mainboard (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 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 installed on the board, you can run the hardware monitoring program in the CD (the hardware monitoring program is in the "Driver" sub-directory.) and then the hardware monitoring feature will inform you the system status all the time.

◎ **ACPI**

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. On Now: power on the system by panel-switch, Modem ring-in, and LAN signal.
2. Power off (soft-off) by OS or Panel-switch.
3. CPU cooling fan auto-off during Suspend state.
4. Resuming of PC system. (such as Modem ring-in, RTC alarm, ... etc.)

◎ **DIMENSION**
1. Width & Length : 220 mm x 220 mm.
2. Height : 2 1/2 inches with CPU Retention Mechanism.
3. PCB Thickness : 4 layers, 0.05 inches normal.
4. Weight : 18 ounces.

◎ **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 IDE and Floppy devices.
- 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

When this mainboard has been installed successfully, there are several ways to power on the system. Please read the following description for all the details.

POWER BUTTON (PW SWITCH)

The power button can be programmed by the BIOS setup program and it has different features. It can be used as a power button or suspend switch according to the selection in the system BIOS. The PW switch can also be used as a suspend switch when the ACPI function is selected when installing Windows 98. Please refer to page 3-14 for detail function description.

☐ **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.

Same as the above, 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**

The PC system can be triggered and powered on by a modem ring-in signal. When you have a *external* modem installed, you can leave the PC system power off. Whenever there is the incoming modem ring-in message, the PC system will be triggered by the ring-in signal and wake up automatically
.

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* (COM 1 or COM 2). 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 automatically.

To enable the Modem Ring-In feature, you have to run the BIOS setup utility and enable the "PowerOn by Ring / LAN" option (it is located 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: <u>This function is not available when using the internal MODEM card</u>.

☐ **WAKE ON LAN (WOL)**
There is a WOL connector CN16 (see Section 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 "PowerOn by Ring / 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 only use 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 needs to be selected and configured. (For the detailed locations of each component please refer to page 1-2 " mainboard layout")

3.1 INSTALLATION OF CPU

This mainboard provides a jumper-free design on the board. When you have installed the Celeron™ processor onto the mainboard, this mainboard will detect the CPU type and decide the proper CPU voltage and its front side bus frequency automatically. So you don't have to make any jumper setting to select the CPU type. All you have to do is plugging the CPU onto the mainboard and use the BIOS setup program to select the speed of CPU frequency.

The socket where we are going to plug in the CPU is the 370-pin socket type connector. Such connector is designed for Celeron™ processor and we call it – the **SOCKET 370**.

Socket 370
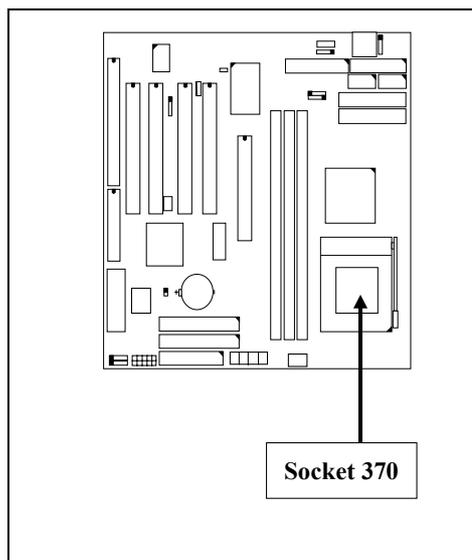
3.2 INSTAL THE DRAM MODULES

This mainboard has the 168-pin DIMM sockets designed on the board, each DIMM can be single-bank or double-bank It supports two types of DRAM memory and they are either the Extended Data Out (EDO) or Synchronous (SDRAM) memory. (Both Symmetrical and Asymmetrical DRAM addressing are supported.) Please note the DIMM modules suggested on the mainboard must be 3.3V, un-buffered and DRAMs' speed must be either 60ns or 50ns,.

DRAM Subsystem for LX Mainboard

DRAM Subsystem for EX Mainboard
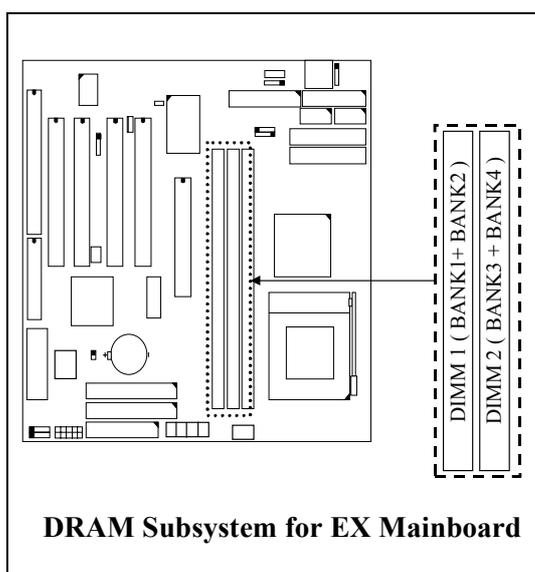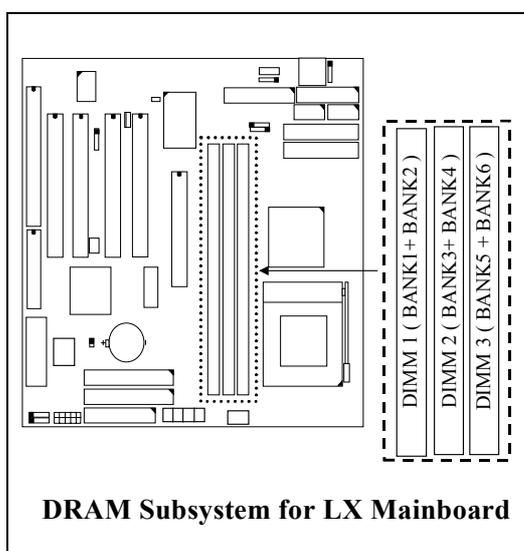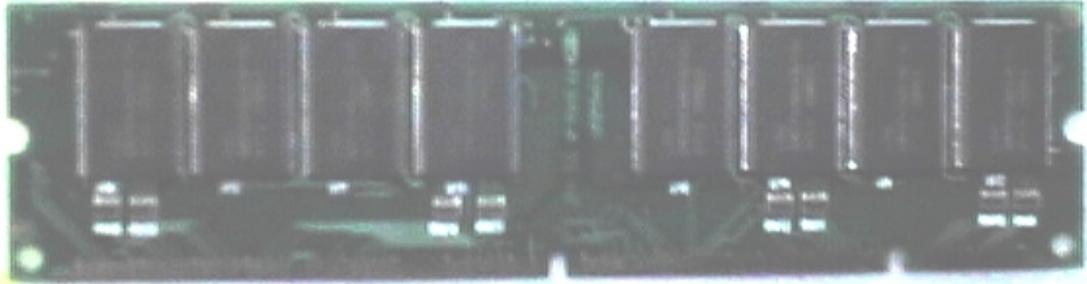
Picture of DIMM module

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 440EX mainboard)**
3. **Memory modules supported: Single and double density 3.3V DIMMs.**

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

1. *Avoid populating EDO DIMM module and SDRAM DIMM module on the mainboard at the same time to avoid damage to memory modules.*
2. *Always install DIMM module starting from DIMM 1 socket first, and then DIMM 2 and then DIMM 3.*

When the mainboard has the 440LX chipset installed, the ECC feature can be used to checked on the DRAM interface and make sure the data transmission is correct (this feature can be selected in the BIOS CMOS setup, please refer to Section 4-6 for the BIOS setting,) Before you can enable the ECC checking feature, please make sure

1. **All DIMM modules have the true *parity bit* on the module.**
2. **Make sure that the 440LX chipset is mounted on the board (440EX chipset does not support ECC)**

.

3.3   CONNECTORS

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

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

BAT1: Battery Socket

Pin#	Pin name	Pin#	Pin name
+	Battery Positive	-	Ground
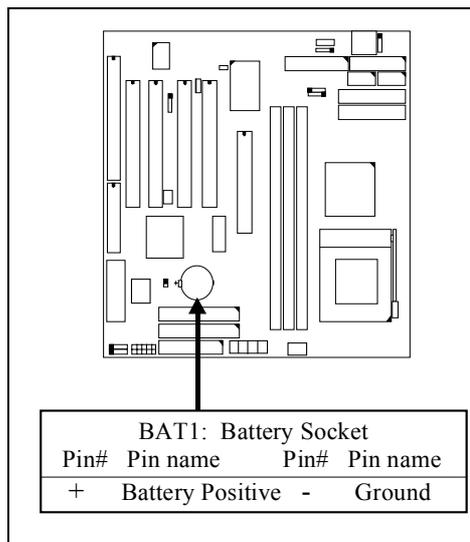
(B) CN1: Keyboard Connectors
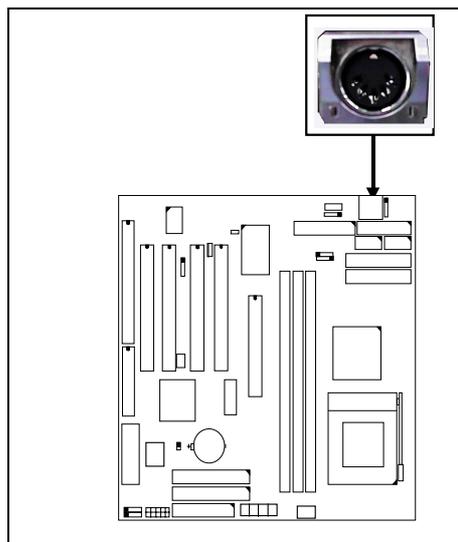
Pin assignment of AT keyboard connector: (CN1)

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

(C) CN2: PS/2 Mouse Connector

1 ● Mouse Data
2 ○ No Connection
3 ● Ground   ⟸ CN 2
4 ● +5V DC
5 ● Mouse Clock
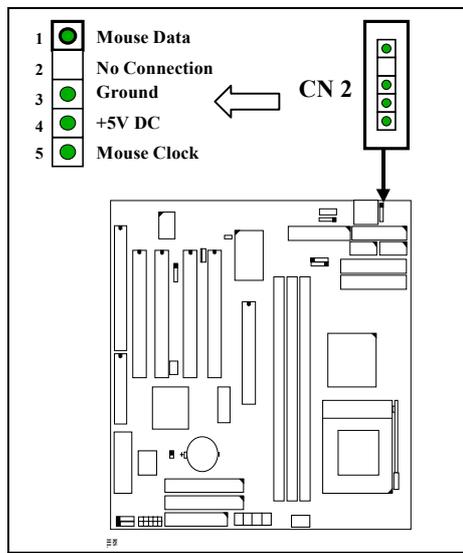
(D) CN3: COM 1 (Serial Port 1) Connector
(E) CN4: COM 2 (Serial Port 1) Connector

CN 3   CN 4

COM 1   COM 2
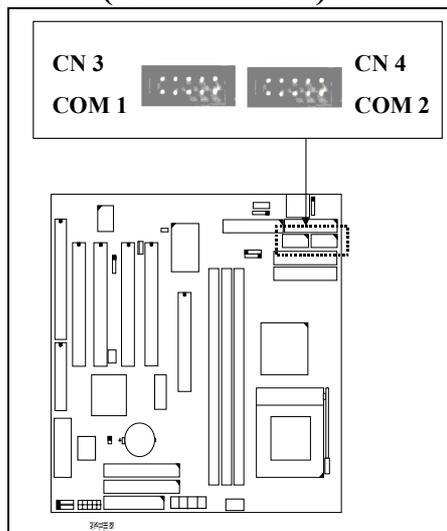
Ping assignment of serial port connector:

1 6	Pin #	Signal name	Pin #	Signal name
	1	DCD (Data Carrier Detect)	6	DSR (Data Set Ready)
	2	RD (Received Data)	7	RTS (Request To Send)
	3	TD (Transmit Data)	8	CTS (Clear To Send)
	4	DTR (Data Terminal Ready)	9	RI (Ring Indicator)
	5	Ground		
5 9				

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

(F) CN5:   **Parallel Port Connector**
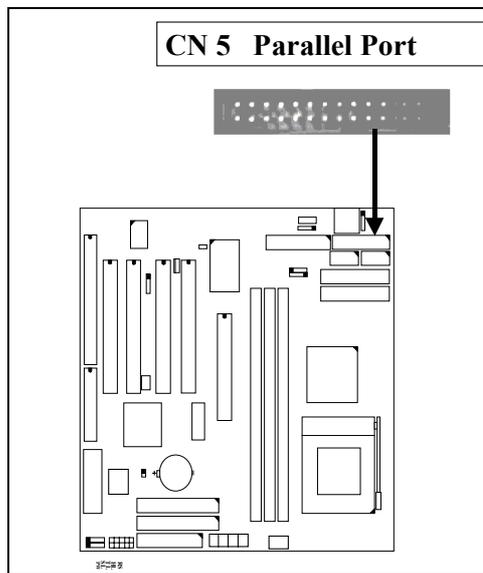
Pin assignment of parallel port:

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

(G) CN6:   USB 1 (Universal Serial Bus) Connector
(H) CN7:   USB 2 (Universal Serial Bus) Connector
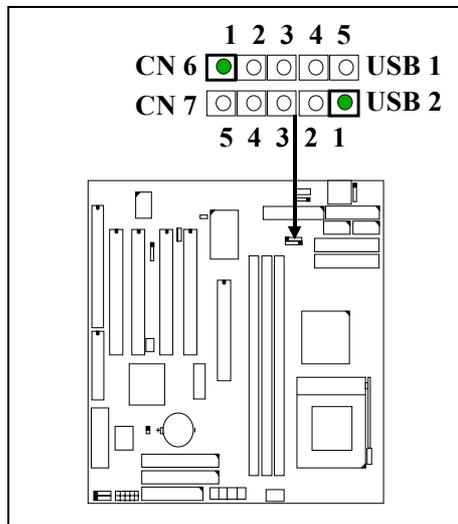
Pin assignment of USB connector:

		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)**

(I) CN8:   Floppy Disk Control Port Connector (IRQ6, DMA 2):

CN8   FDC Connector
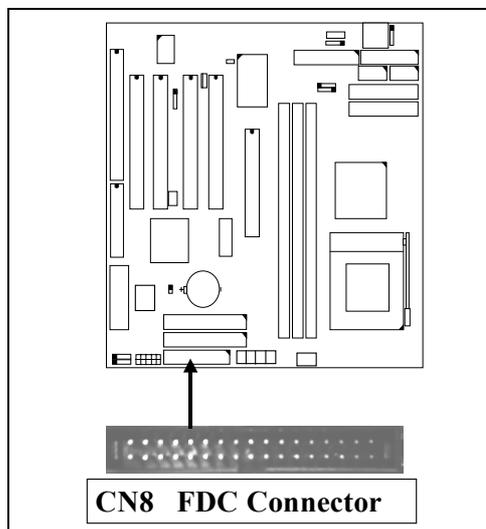
(J) CN9:   IDE 1 Connectors, (Primary IDE Port: 1F0H, IRQ 14)
(K) CN10: IDE 2 Connectors, (Secondary IDE Port: 170H, IRQ 15)

CN10: IDE 2

CN9: IDE 1
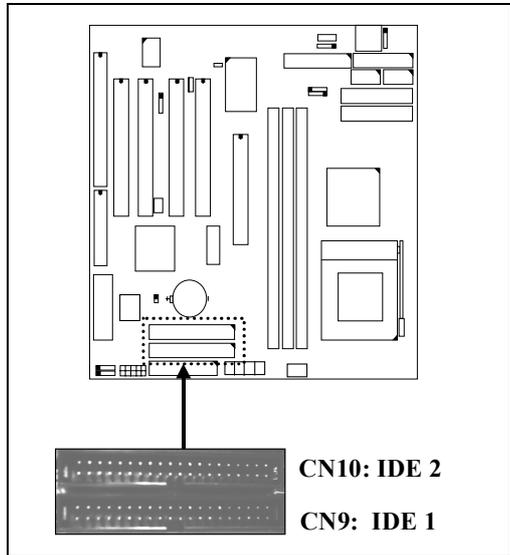
(L) CN11:   SB-LINK Connector
     (For PCI bus sound cards. such as Creative™ Labs EMU8008 sound chip)
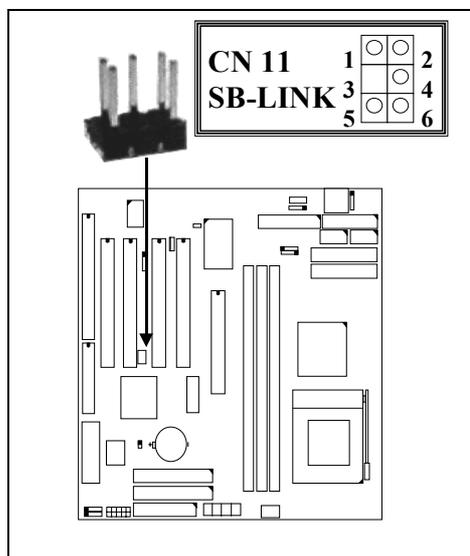
Pin assignment of SB-LINK Connector:

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

(M) CN12: IR / FIR (Infrared Rays) Connector

IR/FIR (INFRARED RAYS)

(+5VDC)	1
(NO CONNECTION)	2
(IR RECEIVE)	3
(GROUND)	4
(IR TRANSMIT)	5

CN 12
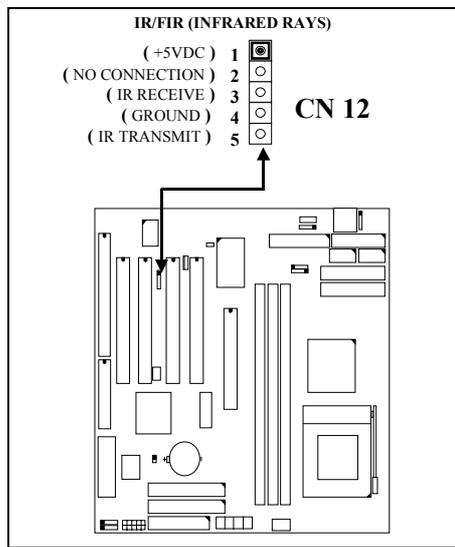
(N) CN13: CPU Cooling Fan Power Connector

CN13 CPU Cooling Fan

1	Ground	**CN 13**
2	+ 12V DC	
3	Fan Sense Signal	
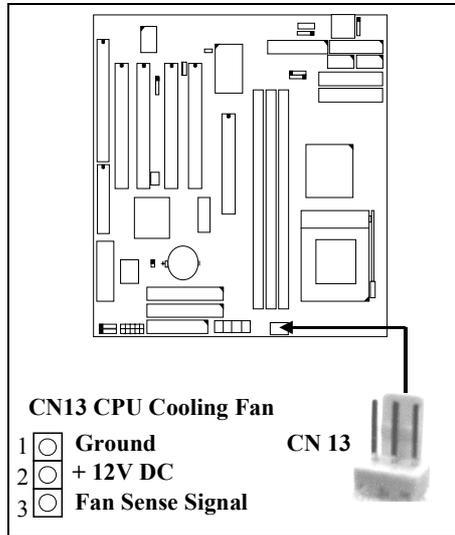
(O) CN14: AT Power Connector:
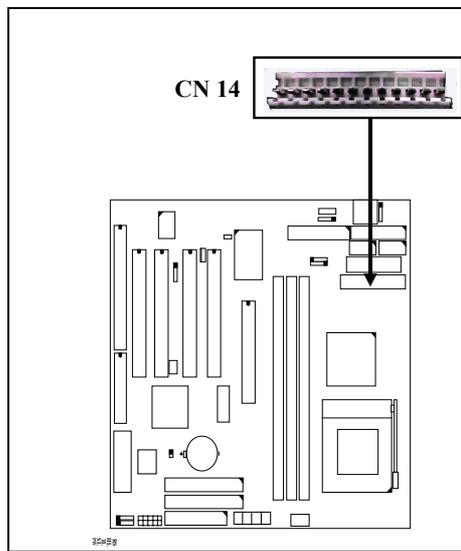
	Pin #	Assignment	
1 ●	1	Power Good	(Orange)
2 ●	2	+5V DC	(Red)
3 ●	3	+12V DC	(Yellow)
4 ●	4	-12V DC	(Blue)
5 ●	5	Ground	(Black)
6 ●	6	Ground	(Black)
7 ●	7	Ground	(Black)
8 ●	8	Ground	(Black)
9 ●	9	-5V DC	(White)
10 ●	10	+5V DC	(Red)
11 ●	11	+5V DC	(Red)
12 ●	12	+5V DC	(Red)

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.

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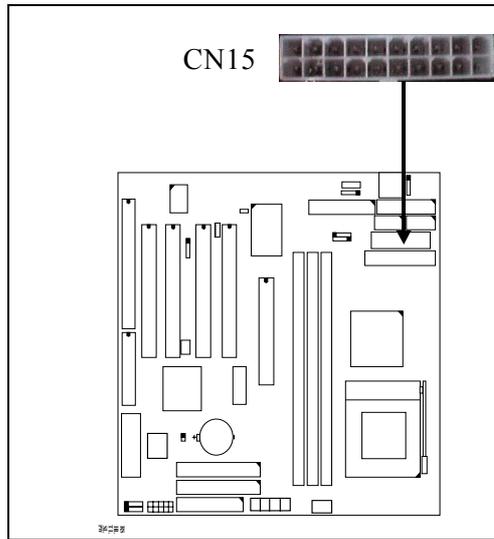
Pin assignment of ATX power connector

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

(Q) CN16: WOL (Wake On LAN) Connector
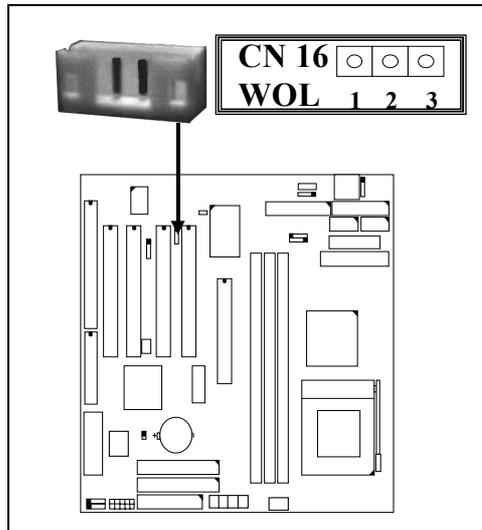
Pin assignment of WOL Connector

1	2	3

Pin #	Signal name	Pin #	Signal name	Pin #	Signal name
1	5V standby	2	Ground	3	WOL Signal

(R) CN17: Chassis Fan Power Connector
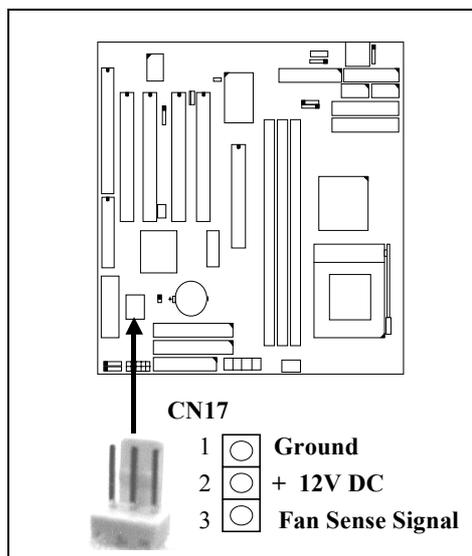
CN17

1	Ground
2	+ 12V DC
3	Fan Sense Signal

(S) CN18: AUDIO/GAME CONNECTOR

There is the adapter which comes with the mainboard. The adapter will be connected to CN18 so that you can connect the audio devices. Please refer to the following picture for the connection:
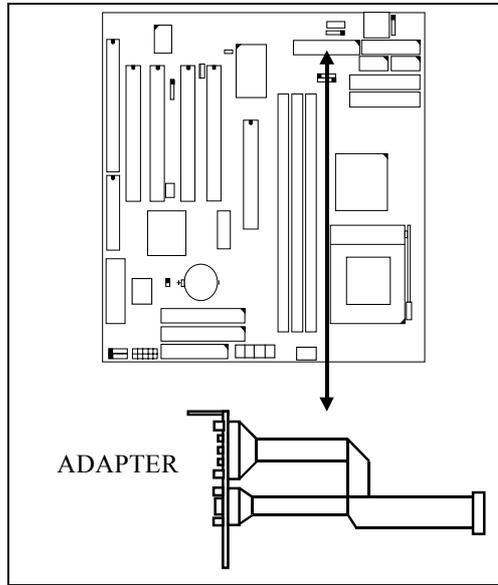
ADAPTER

Please refer to the following picture for the connections on the adapter

LINE-IN

MIC

LINE-OUT

GAME / MIDI
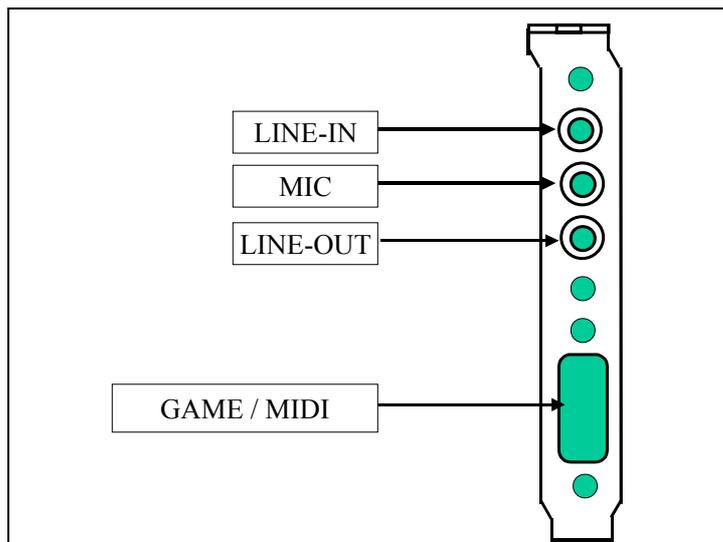
(T) CN21/CN22 : CD-IN CONNECTOR

The CD-IN connectors on the board can be used to connect to the CD ROM audio out. There are two different type of connectors, please check with your CD ROM drive and decide which connector will be used to connect to the CD ROM drive.
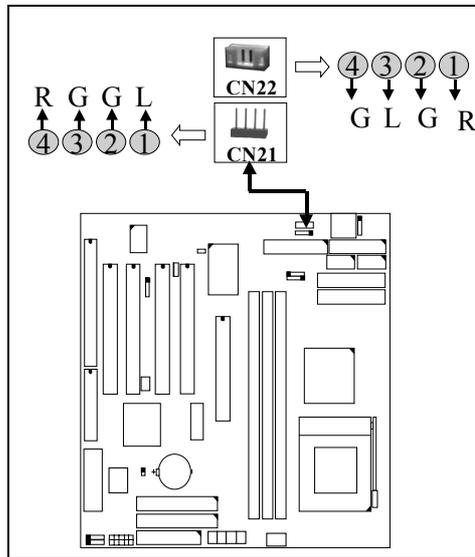
Note: L = Left channel audio-out
       R = Right channel audio-out
       G = Audio Ground

(U) 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:

RS: Reset Button connector
HL: HDD LED connector
TL: Turbo LED
SL: Sleep LED connector
PW: Power On / Off Suspend switch

PUSH BUTTONS AND LED CONNECTORS
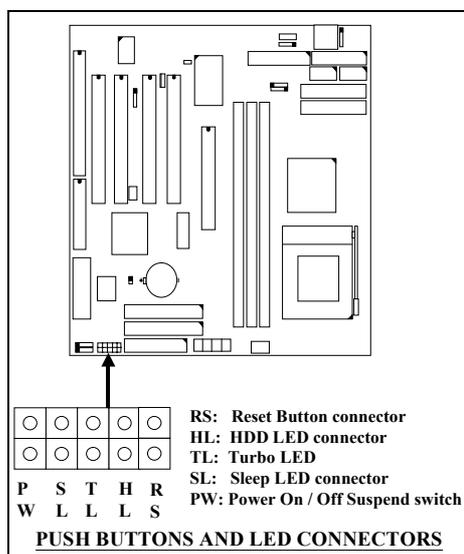
1. RS   Reset Button Connector

<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 different 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:

         A short click on this switch, the system will be powered on.

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.

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- 4-7 and
    section 4-8 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 (the CPU cooling fan still
   active), 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.

(U) Speaker and Key Lock Connector:

SPKR & KBLOCK CONNECTORS
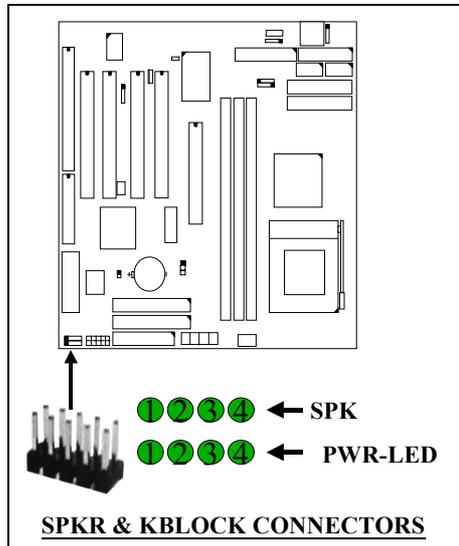
SPK: Speaker connector

Pin #	Signal name
1	+ 5V DC
2	No Connection
3	No Connection
4	Speaker Data Signal

PWR-LED: Panel Power LED

Pin #	Signal name
1	Pullup (+ 5V DC for Power LED)
2	Ground
3	Ground
4	No connection

3.4 JUMPERS

When you have different devices connected to the mainboard, you may have to change some of the hardware settings so that the mainboard will work normally in your PC system. Basically, the hardware setting can be done by either jumper settings or switch settings. This section will discuss the jumper and switch settings on this mainboard.

JUMPER SETTINGS:

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

open ⇨ [○ ○]   [○ ○ ○]   ,   short ⇨ [● ●]
         1   1   1

1-2 ⇨ [● ● ○]   ,   2-3 ⇨ [○ ● ●]
        1   1
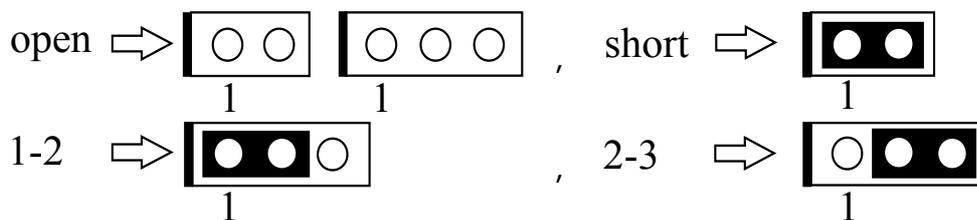
The jumpers mentioned in this chapter which labeled with "optional" means they are the optional choice for customers and the related components are normally not populated on the mainboard. In order to make the mainboard works properly in your PC system, please make sure all jumper settings are at correct before installing this mainboard.

(A) JP1:   Onboard Sound Card Enable/Disable Selection

The ALS300 PCI sound card is built on the mainboard, you can use JP1 to Enable or Disable the sound card on the mainboard when necessary

Short = ALS300Sound Enabled
Open = ALS300 Sound Disabled

JP1
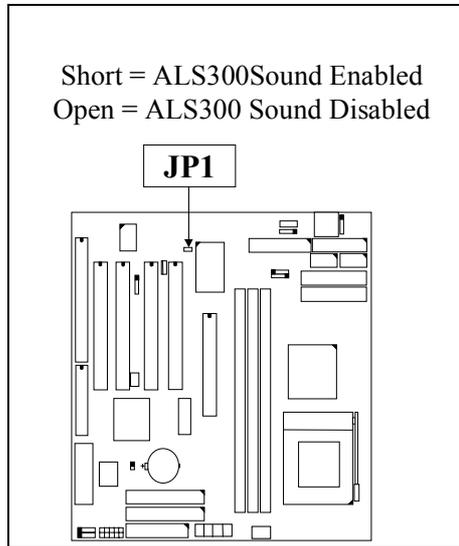
(b) JP3:   Clear CMOS Data Button

1   2   3

JP 3

Normal Setting   **Clear CMOS**
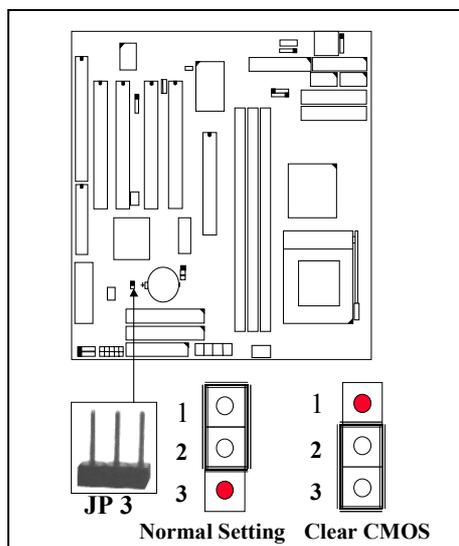
> *Note: Improper BIOS setting may cause hang-up to the PC system, In case that it should be happened, you may use JP3 to clear the CMOS memory and get the PC system back to normal. Please refer to the following steps to clear the CMOS*
> > *1. Unplug the AC power cable from the PC system.*
> > *2. Put the mini jumper on pin 2-3 of JP3 around 3 to 5 seconds and then return it to the original position (pin 1-2).*
> > *3. Re-connect the AC power cable.*

(C) SWITCH SETTINGS (OPTIONAL)

There is one "toggle switch" designed on the mainboard to select the CPU clock ratio. Such "toggle switch" is optional because the CPU clock ratio can be decided by the system BIOS and its priority is higher than the switch settings. (this mainboard is the jumper-free mainboard). When you found the "toggle switch" on the board, you will have the option to use switch settings to select the CPU clock ratio.

SW (toggle switch)
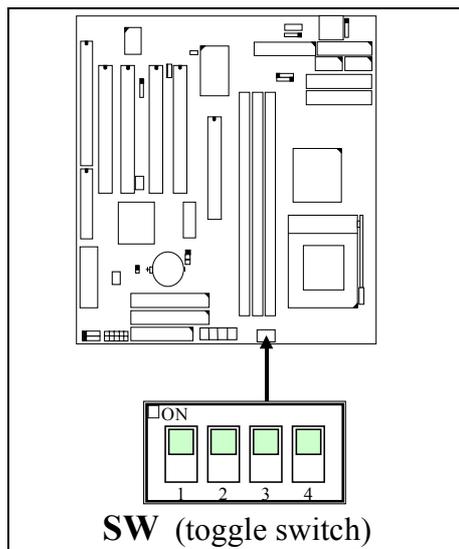
CPU (MHz)	Clock Ratio	SW1	SW2	SW3	SW4
233	3.5X	OFF	OFF	ON	ON
266	4.0X	ON	ON	OFF	ON
300	4.5X	OFF	ON	OFF	ON
333	5.0X	ON	OFF	OFF	ON
366	5.5X	OFF	OFF	OFF	ON
400	6.0X	ON	ON	ON	OFF
433	6.5X	OFF	ON	ON	OFF
466	7.0X	ON	OFF	ON	OFF
*	7.5X	OFF	OFF	ON	OFF
*	8.0X	ON	ON	OFF	OFF

* These are the reserve settings for future use.

How to make the Switch Setting

The following pictures will show you how to make the setting on the "toggle switch" step by step.:
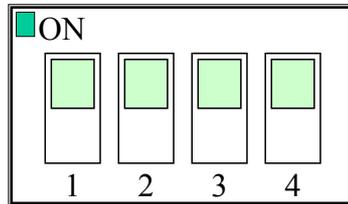
(Picture of "toggle switch")

Toggle Switch Setting (1)
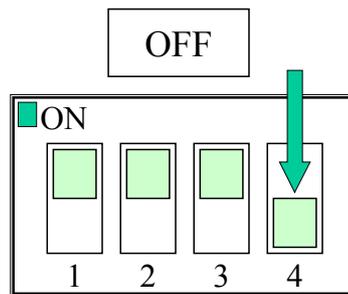
Push the switch downward to select "OFF"

Toggle Switch Setting (2)
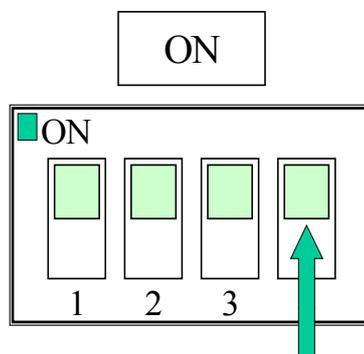
Push the switch upward to select "ON"

For example, if you want to select the clock ratio for a 333MHz Celeron™ CPU, according the CPU clock ratio selection table mentioned in page 3-18, the switch setting will be "ON, OFF, OFF, ON". Following is the setting on the toggle switch:
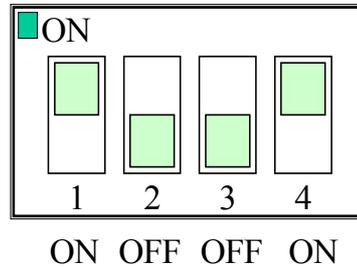
4. AWARD BIOS SETUP

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 working normally, you will see the following screen (**Fig. 5-1**) on your PC system when power on.


```
● Award Modular BIOS v4.51PG , An Energy Star Ally
  Copyright (C) 1984-97, Award Software, Inc.

xx/xx/xx xxxxxxx

xxxxxxx CPU at xxxMHz

Memory Test :   xxxxxxK OK

Award Plug and Play BIOS Extension v1.0A
Copyright (C) 1997, Award Software, Inc.




EPA POLLUTION PREVENTER




Press DEL to enter SETUP, ESC to skip memory test
xx/xx/xx-i440LX-xxx-2A69JXXXC-00
```
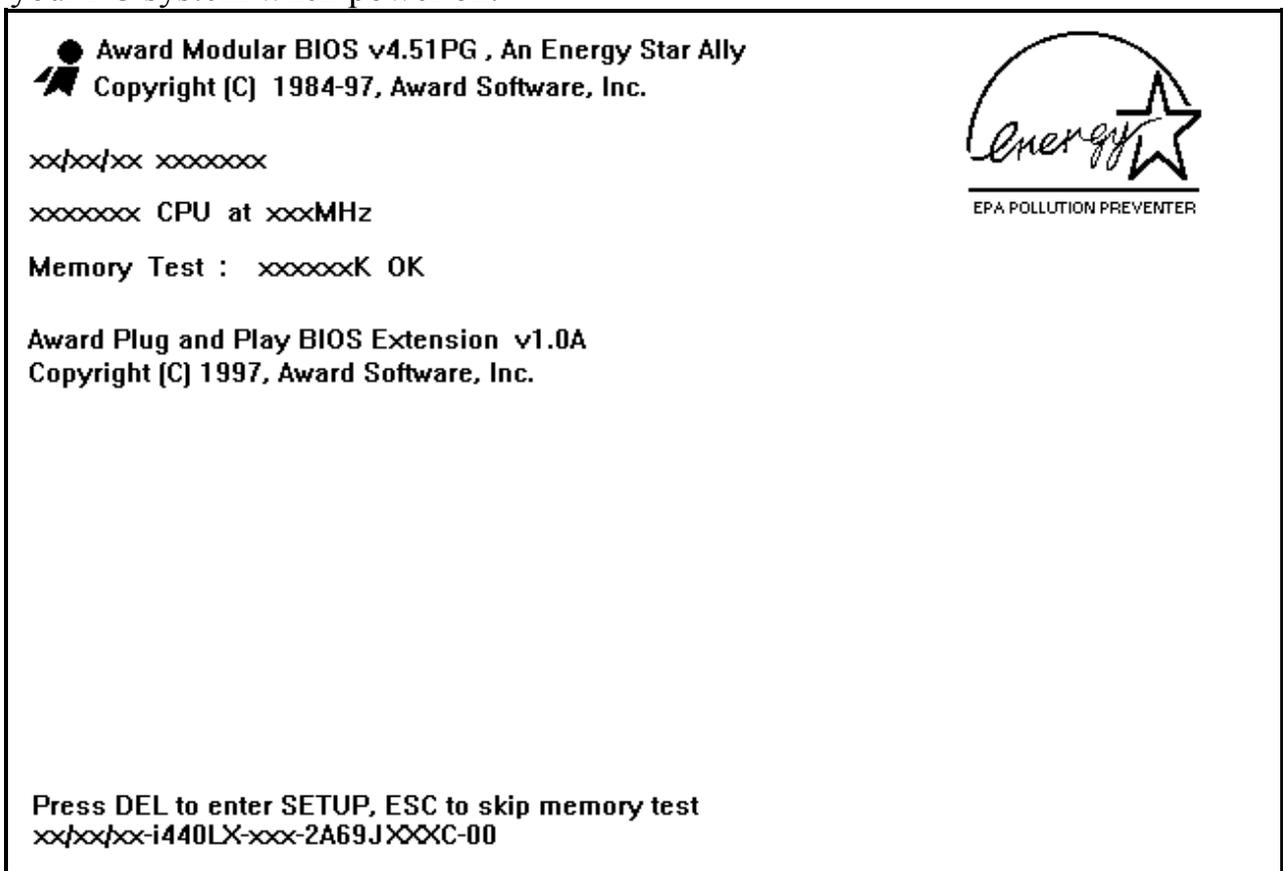
Fig. 4-1 Initial Power-On screen.

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

ESC : Quit   : 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

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    Auto
Primary  Slave        None    0     0     0       0        0       0    ------
Secondary  Master     Auto    0     0     0       0        0       0    Auto
Secondary  Slave      None    0     0     0       0        0       0    ------

Drive  A  :  1.44M,   3.5  in.
Drive  B  :  None                         Base  Memory :    640 K
Floppy 3 mode support : Disabled      Extended  Memory :  xxxxxx K
Video    :  EGA/VGA                      Other  Memory :  xxxxxx K
Halt  On  :  All  Errors                  Total  Memory :  xxxxxx K

 ESC :   Quit                   : 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.
Auto   : This mode will auto-detect your IDE driver during boot-up.
 Note :   1. "large mode" may not be fully supported by all operation systems. It is suggested to be used with the MS-DOS but such hard disk drive is not very popular nowadays.
            2. 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 3.5 inch high capacity 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
Quick Power On Self Test	: Enabled	D0000-D3FFF Shadow	: Disabled
Boot Sequence	: A,C,SCSI	D4000-D7FFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	D8000-DBFFF Shadow	: Disabled
Boot Up Floppy Seek	: Enabled	DC000-DFFFF Shadow	: Disabled
Boot Up NumLock Status	: On		
Boot Up System Speed	: High		
Gate A20 Option	: Fast		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup		
PS/2 Mouse function control	: Enabled		
PCI/VGA Palette Snoop	: Disabled		
OS Select For DRAM > 64MB	: Non-OS2	ESC : Quit : Select Item	
Report No FDD For WIN 95	: Yes	F1 : Help PU/PD/+/- : Modify	
		F5 : Old Values (Shift)F2 : Color	
		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 Cache / External Cache : (default setting: Enabled)
These fields allow you to turn on or turn off the Level 1 and Level 2 cache that built-in Celeron™ II processors.

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.

Auto Configuration	: Enabled	SDRAM CAS latency Time	: 3
DRAM Speed Selection	: 60ns	Auto Detect DIMM/PCI Clk	: Enabled
MA Wait State	: Slow	Spread Spectrum	: Disabled
EDO RAS# To CAS# Delay	: 3	CPU Host Clock	: Disabled
EDO RAS# Precharge Time	: 3		
EDO DRAM Read Burst	: x333	CPU Warning Temperature	: 70 /158
EDO DRAM Write Burst	: x222	Current CPU Temperature	: xx / x x
DRAM Data Integrity Mode	: Non-ECC	Current CHASSIS FAN Speed	: xxxx RPM
CPU-To-PCI IDE Posting	: Enabled	Current CPU FAN Speed	: xxxx RPM
System BIOS Cacheable	: Disabled		
Video BIOS Cacheable	: Disabled	Vcore : 2.01V, +3.3C	: 3.36V
Video RAM Cacheable	: Disabled	+5 V : 5.10V +12V	: 11.85V
8 Bit I/O Recovery Time	: 1	-12V : -12.11V -5V	: -5.04V
16 Bit I/O Recovery Time	: 1	Shutdown Temperature	: 75 / 167
Memory Hole at 15M-16M	: Disabled		
Passive Release	: Enabled	ESC : Quit : Select Item	
Delayed Transaction	: Disabled	F1 : Help PU/PD/+/- : Modify	
AGP Aperture Size (MB)	: 64	F5 : Old Values (Shift)F2 : Color	
SDRAM RAS-to-CAS Delay	: Slow	F7 : Load Setup Defaults	
SDRAM RAS Precharge Time	: Slow		

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.*

Auto Configuration : (default setting : "Enabled")
    Auto Configuration selects predetermined optimal values of chipset parameters.
    When Disabled, chipset parameters revert to setup information stored in CMOS.
    Many fields in this screen are not available when Auto Configuration is Enabled.

DRAM Speed Selection : (default setting : "60 ns")
>   When "Auto Configuration" is "Enabled", you may use this field to select the ***EDO DRAM*** access time. There are two optimal values suggested for the chipset and CPU registers. You may select either "60 ns" or "50 ns" according to the different DRAMs' which is installed on the board,. Basically, "50 ns" will let you have better performance. However, "60ns" is recommended in most case causes it works with most DRAM modules.
>
>   When "Auto Configuration" is "Enabled", the "DRAM speed selection" field will be disappeared and you may use the other fields to configure the DRAM speed. Basically, it is not recommended unless you are the professional technician.

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..

MA Wait State : (default setting : "Slow")
>   This item allows you to select MA Wait State

EDO RAS# To CAS# Delay: (default setting : "3")
>   This field allows you to set the relative delay between the row and column address strobes from DRAM (EDO).
>   The choice: 2, 3

EDO RAS# Precharge Time: (default setting : "3")
>   This field allows you to define the length of time for Row Address Strobe from DRAM (EDO) is allowed to precharge.
>   The choice: 3, 4.

EDO DRAM Read Burst: (default setting : "x333")

This field set the timing for burst mode reads from DRAM(EDO). Burst read and write requests are generated by the CPU in four separate parts. The lower the timing numbers, the faster the system will address memory.

x222	Read DRAM (EDO) timings are 2-2-2
x333	Read DRAM (EDO) timings are 3-3-3

EDO DRAM Write Burst: (default setting : "x222")

This sets the timing for burst mode writes from DRAM(EDO). Burst read and write requests are generated by the CPU in four separate parts. The lower the timing numbers, the faster the system will address memory.

x222	Write DRAM timings are 2-2-2-2
x333	Write DRAM timings are 3-3-3-3

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

Select Parity, ECC, or Disabled, depending on the type of DRAM installed in your system.

CPU-To-PCI IDE Posting: (default setting : "Enabled")

Select Enabled to post write cycles from the CPU to the PCI IDE interface. IDE accesses are posted in the CPU to PCI buffers, for cycle optimization.

The Choice: Enabled, Disabled.

System BIOS Cacheable: (default setting : "Disabled")

Select Enabled allows caching of the system BIOS ROM at F000h-FFFFFh, 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")

Selecting *Enabled* allows caching of the video BIOS ROM at C0000h to C7FFFh, 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

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")

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: 64MB)
There is the AGP slot on the board and which allows user to install the AGP display card in the system. The AGP display card will use some of the system memory to store 3D texture mapping data so that the video performance can be increased tremendously. You may use this field to define the memory size which you prefer to use with the AGP card. The memory size selectable in this field can be 4MB to 256MB.

It seems that the default setting –64MB is huge. In fact, what is defined in the BIOS selection is to tell the operation system the maximum memory can be shared by AGP card to store the 3D texture mapping data. The larger aperture size will let you have the better performance on 3D Video display.

There is the VGART.VXD utility comes with the AGP card and it will decide the actual memory size which will be shared by AGP card. If you are installing the Windows 98 operating system, the feature are already supported by the OS and you can select the memory for the AGP Aperture size.

SDRAM RAS-to-CAS Delay: (default setting: "Slow")
This field allows you to set the relative delay between the row and column address strobes

SDRAM RAS# Precharge Time: (default setting : "Slow")
This field allows you to define relative delay of time for Row Address Strobe from SDRAM is allowed to precharge.

SDRAM CAS latency Time: (default setting : "3")
This field allows you to define relative delay of time for CAS Address Strobe.

Auto Detect DIMM/PCI Clk: (default setting : "Enable")
>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 : "Disable")
>When you select "Enabled", the special feature designed in the system chipset will be triggered and reduce the EMI as mentioned above.

CPU Host Clock : (default setting : "Disabled")
This option is used to select the front side bus frequency (FSB). The selectable option on this field will be 66MHz, 68MHz and 75MHz, Basically, the higher host clock will give higher performance to your PC system. However, the system may become unstable when improper components are populated on the board.

When you have selected the FSB frequency, please select the CPU clock to decide the system speed.

<u>The higher CPU "frequency" and "ratio" will surely give you the higher system performance. However, over clock is not recommended because it may cause the system unstable, especially the component like DRAM, HDD, Add on card is not fast enough.</u>

<u>The following events appears only when the hardware monitoring is installed</u>
****

CPU Warning Temperature : (*Valid when W83783S is installed*)
The hardware monitoring device – Winbond W83783S (U4) is optional on this mainboard. When installed, you may use this field (and the fields below) to monitor the healthy status of your PC system. *These selection fields can not be seen unless you have the W83783S (U4) installed on the board and you have enable the "Throttle Duty Cycle" in the "Power Management Setup" (see section 4.7)*

There is a CD comes with the mainboard. You will find the hardware monitoring program in the CD. When you have the hardware monitoring software installed in your PC system, it will let you have a bodyguard in your PC system and 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 serious damage to the PC system.

Current CPU Temperature: (*Valid when W83783S is installed* **)**
Current CHASSIS FAN Speed: (*Valid when W83783S is installed* **)**
Current CPU FAN Speed: (*Valid when W83783S is installed* **)**
System Voltages: (*Valid when W83783S is installed* **)**

The items shown above indicate the status of system healthy status. Such information will be used by the hardware monitoring program which comes with the mainboard.

Shutdown Temperature: (*Valid when W83783S is installed* **)**

The PC system will be shutdown when reach to the given temperature defined in this field so that the CPU can be protected from damage.

4.7 POWER MANAGEMENT SETUP

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

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

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.

ACPI function : (Default setting: "Disabled")
     When Enabled, the PC system will have the ACPI function. However, if you want
     to use the ACPI function, you have to use the most updated operation system like
     Windows 98 at the same time. When installing Windows 98, you will have to give
     some specific parameter so that the ACPI function will be installed into your PC
     system.. (please refer to the manual of Windows 98 for the parameters)
     When the ACPI function is installed in your PC system successfully, you will find
     the ACPI function in the power management icon. The PW switch (mentioned in

Section 3) defined by the ACPI is different to the BIOS setup and it always has the higher priority than what was defined in the system BIOS.

According to what was defined by the ACPI in Windows 98, the PW switch can be either the "Standby switch" or "shutdown switch". When "Standby switch" is selected, the first click on the PW switch will have the PC system turn into standby mode. If you want to "wake up" the PC system, you will have to use the devices (such as keyboard, mouse .. etc) which is specified in the Windows 98 ACPI function to trigger the PC system so that it will be back to full-on mode. For more detail of ACPI function, please refer to Windows 98 user's manual for more detail information.

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**. 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)
When you are using the Green Monitor with your PC system, there are three modes selectable in this field to save the power energy

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, COM 1 uses IRQ4, and COM 2 uses IRQ3)
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 Active Monitor: (Default setting: Enabled)
When CPU enters the Green mode, the system will keep scanning the status of the monitor. You may use this field to select whether you are going to have the monitor get into Green mode or not:

   Enable: The screen display will not be off (or powered off) when there is the video signal sending from VGA card to monitor.

   Disable: The screen display will be blank off (or powered off) no matter whether there is the video signal sending from VGA card to monitor or not.

Soft-Off by PWR-BTTN : (Default setting: "Instant-off.")
This field allows user to define the feature of the "PW" connector (it is used to connect the power button). The setting can be either "Delay 4 Sec." or "Instant-Off". Please refer to page 3-14 for details of function description.

PowerOn by Ring / LAN : (Default setting: "Disabled".)
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 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).

Thorttle Duty Cycle: (Default setting: 62.5%)
When there is the Winbond W83783S (U4) 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	Parallel Port Mode : SPP
IDE Primary Master PIO	: Auto	
IDE Primary Slave PIO	: Auto	
IDE Secondary Master PIO	: Auto	
IDE Secondary Slave PIO	: Auto	
IDE Primary Master UDMA	: Auto	
IDE Primary Slave UDMA	: Auto	
IDE Secondary Master UDMA	: Auto	
IDE Secondary Slave UDMA	: Auto	
On-Chip Primary PCI IDE	: Enabled	
On-Chip Secondary PCI IDE	: Enabled	
USB Keyboard Support	: Disabled	
Init Display First	: PCI Slot	
:		
KBC input clock	: 8 MHz	
Onboard FDC Controller	: Enabled	ESC : Quit : Select Item
Onboard Serial Port 1	: 3F8/IRQ4	F1 : Help PU/PD/+/- : Modify
Onboard Serial Port 2	: 2F8/IRQ3	F5 : Old Values (Shift)F2 : Color
UR2 Mode	: Standard	F7 : Load Setup Defaults
Onboard Parallel Port	: 378/IRQ7	

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.

You may use the selection options on this screen to Enable or Disable some of the onboard interfaces like IDE, FDC and USB. You can also change the IDE ports to PIO Mode 0, mode 1, mode 2 or mode 4. The default setting is "auto", It is the recommended setting to users because it will decide the transfer protocol and let your PC system has the best performance.

IDE HDD Block Mode: (Default setting : "Enabled")
> This selection 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.
> The Choice: Auto, Disabled

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.

Init AGP 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:** the display will be active on the AGP adapter.
> **PCI slot:**   The display will be active on the PCI VGA adapter

USB Keyboard Support: (Default setting : "Disabled")
   Select "Enabled" in this field will allow operation system to use the USB keyboard. If there is no USB keyboard connected to the PC system, leave it "Disabled".

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, 2F*/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 2 Mode: (Default setting : "Standard")
   This item allows you to determine which Infra Red (IR) function of onboard I/O chip.
   The Choice: Standard, ASKIR, HPSIR

Onboard Parallel Port: (Default setting : "378/IRQ7")
   Select a logical LPT port name and matching address for the physical parallel (printer) 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: ECP/EPP, ECP, EPP/SPP, SPP,.

4.9   PNP/PCI CONFIGURATION

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

```
┌───────────────────────────────────────────┬───────────────────────────────────────┐
│ PNP  OS  Installed       :  No             │ PCI IDE IRQ  Map  To      : PCI-AUTO  │
│ Resources Controlled By   : Manual          │                                       │
│ Reset Configuration Data  : Disabled        │                                       │
│                                             │                                       │
│ IRQ-3    assigned to    : PCI/ISA  PnP      │ Used MEM  base  addr      : N/A       │
│ IRQ-4    assigned to    : PCI/ISA  PnP      │                                       │
│ IRQ-5    assigned to    : PCI/ISA  PnP      │ Assign IRQ For  VGA       : Disabled  │
│ IRQ-7    assigned to    : PCI/ISA  PnP      │ Assign IRQ For  USB       : Enabled   │
│ 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      ├───────────────────────────────────────┤
│ DMA-3    assigned to    : PCI/ISA  PnP      │ ESC : Quit              : Select Item │
│ DMA-5    assigned to    : PCI/ISA  PnP      │ F1 : Help        PU/PD/+/- : Modify   │
│ DMA-6    assigned to    : PCI/ISA  PnP      │ F5 : Old Values    (Shift)F2 : Color  │
│ DMA-7    assigned to    : PCI/ISA  PnP      │ F7  : Load  Setup  Defaults           │
└───────────────────────────────────────────┴───────────────────────────────────────┘
```

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 95/98).
     The Choice: Yes and No

Resources Controlled by : (Default setting is "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 is "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.

IRQ # Assigned to: (Default setting is "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 is "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.

PCI IDE IRQ Map To : (Default setting is "PCI Auto")

This field lets you select PCI IDE IRQ mapping or PC AT (ISA) interrupts. If your system does not have one or two PCI IDE connectors on the system board, select values according to the type of IDE interface(s) installed in your system (PCI or ISA). Standard ISA interrupts for IDE channels are IRQ14 for primary and IRQ15 for secondary.
The choice: PCI-Slot1, PCI-Slot2, PCI-Slot3, PCI-Slot4, ISA, PCI-AUTO

Used MEM base addr: (Default setting is "N/A")

> 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..

Assign IRQ For VGA/USB

> 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 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.

4.10   LOAD SETUP DEFAULTS

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

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

ESC : Quit   : 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   PASSWORD SETTING

```
                     ROM  PCI / ISA  BIOS (2A69JXXX)
                         CMOS  SETUP  UTILITY
                        AWARD  SOFTWARE,  INC.
┌─────────────────────────────────────┬─────────────────────────────────────┐
│    STANDARD CMOS  SETUP              │   PASSWORD  SETTING                  │
│                                     │                                     │
│   BIOS  FEATURES  SETUP             │   IDE  HDD  AUTO  DETECTION          │
│                                     │                                     │
│   CHIPSET  FEATURES  SETUP          │   SAVE  &  EXIT  SETUP               │
│                                     │                                     │
│   POWER  MANAGEMENT  SETUP          │   EXIT  WITHOUT  SAVING              │
│                                     │                                     │
│   PNP/PCI  CONFIGURATION            │                                     │
│                                     │                                     │
│   INTEGRATED  PERIPHERALS           │                                     │
│                                     │                                     │
│   LOAD  SETUP  DEFAULTS             │                                     │
├─────────────────────────────────────┴─────────────────────────────────────┤
│  ESC  :  Quit                                       :  Select  Item         │
│  F10  :  Save  &  Exit  Setup        (Shift)F2  :  Change  Color            │
│                                                                            │
│               Time,  Date,  Hard Disk  Type ...                            │
└────────────────────────────────────────────────────────────────────────────┘
```

The password setting will be used to check the authority when power-on. Whenever there is the password stored in this 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.

4.12   IDE HDD AUTO DETECTION

<div align="center">

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

</div>

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

ESC : Quit   : Select Item
F10 : Save & Exit Setup   (Shift)F2 : Change Color

<div align="center">

Time, Date, Hard Disk Type ...

</div>

In order to make the IDE hard disk known to the system, you need to tell the system what kind of hard disk is connected to the mainboard by giving a set of hard disk parameters. Sometimes it is not easy for users to find the proper parameters for their IDE hard disk drive. In order to help users to find the parameters, the system BIOS provides a convent way – the auto detection of IDE hard disk drive.

To run the auto detection program is extremely easy. Move the selection bar to "IDE HDD AUTO DETECTION" and then press "Enter", the system BIOS take over the job and try to detect the type of IDE hard disk. If it succeeds, you will see a list of hard disk with its related parameters. You may press on the "Y" key (or select one of the hard disk type listed on the screen). The system BIOS will transfer the parameters to the corresponding fields in the STANDARD CMOS SETUP menu and you have completed the IDE hard disk setup.

4.13   SAVE & EXIT SETUP

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

STANDARD CMOS SETUP	PASSWORD SETTING
BIOS FEATURES SETUP	IDE HDD AUTO DETECTION
CHIPSET FEATURES SETUP	SAVE & EXIT SETUP
POWER MANAGEMENT SETUP	EXIT WITHOUT SAVING
PNP/PCI CONFIGURATION	
INTEGRATED PERIPHERALS	
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 values to CMOS RAM & EXIT SETUP routine, by moving the selection bar to "SAVE & EXIT SETUP" and pressing "Enter" key, then types "Y" and "Enter" key, the values will be saved and all the information will be stored in the CMOS memory, and then the setup program will be terminated and the system will start to reboot.

4.14   EXIT WITHOUT SAVING

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

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

ESC : Quit   : Select Item
F10 : Save & Exit Setup   (Shift)F2 : Change Color

Time, Date, Hard Disk Type ...

This item exit the setup routine without saving any changed values to CMOS RAM, When you do not want to save your change to the CMOS memory, you may choose to run this option and the setting what you made in the BIOS setup routine will be given away.

Move the selection bar to "EXIT WITHOUT SAVING" and click on the "Enter" key, then you will be asked to confirm the action to exit, press the "Y" and "Enter" key, the setup program will be terminated and the system will start to reboot.