

440LX / 440EX

PINTIUM II MAINBOARD

(VER. 1.x)

USER'S MANUAL

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SOMETHING IMPORTANT !

☆ **TRADEMARKS**

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☆ **LOAD SETUP DEFAULTS**

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

☆ **DISCHARGE CMOS DATA**

Whenever you want to discharge the CMOS data or open the system chassis, Make sure to disconnect the AC power first because there is always the 5V standby voltage connected to the ATX form-factor mainboard. Without disconnecting the AC power connector from the PC system, the mainboard may be damaged by any improper action . Please refer to the Section 3-9 for details.

☆ **WAKE ON LAN**

In order to support the Wake On LAN feature, the system requires a special 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 3-9 for details.

☆ **WARNING !**

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

☆ **NOTICE**

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

1. INTRODUCTION

1.1 OVERVIEW

This Mainboard is a high performance Pentium™ II personal computer mainboard with 66MHz ultra high front side bus frequency. It is an ATX form-factor mainboard with A.G.P. (Accelerated Graphics Port) and PCI Local Bus on board, Designed based on the Intel® 82440LX or 82440EX AGPset™ system chipset.

When there is the 440LX chipset mounted on the board, it will be the Pentium™ II LX mainboard, when the chipset on the mainboard is 440EX, then it will be the Pentium™ II EX mainboard. The major difference between LX and EX mainboard is shown in following table:

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

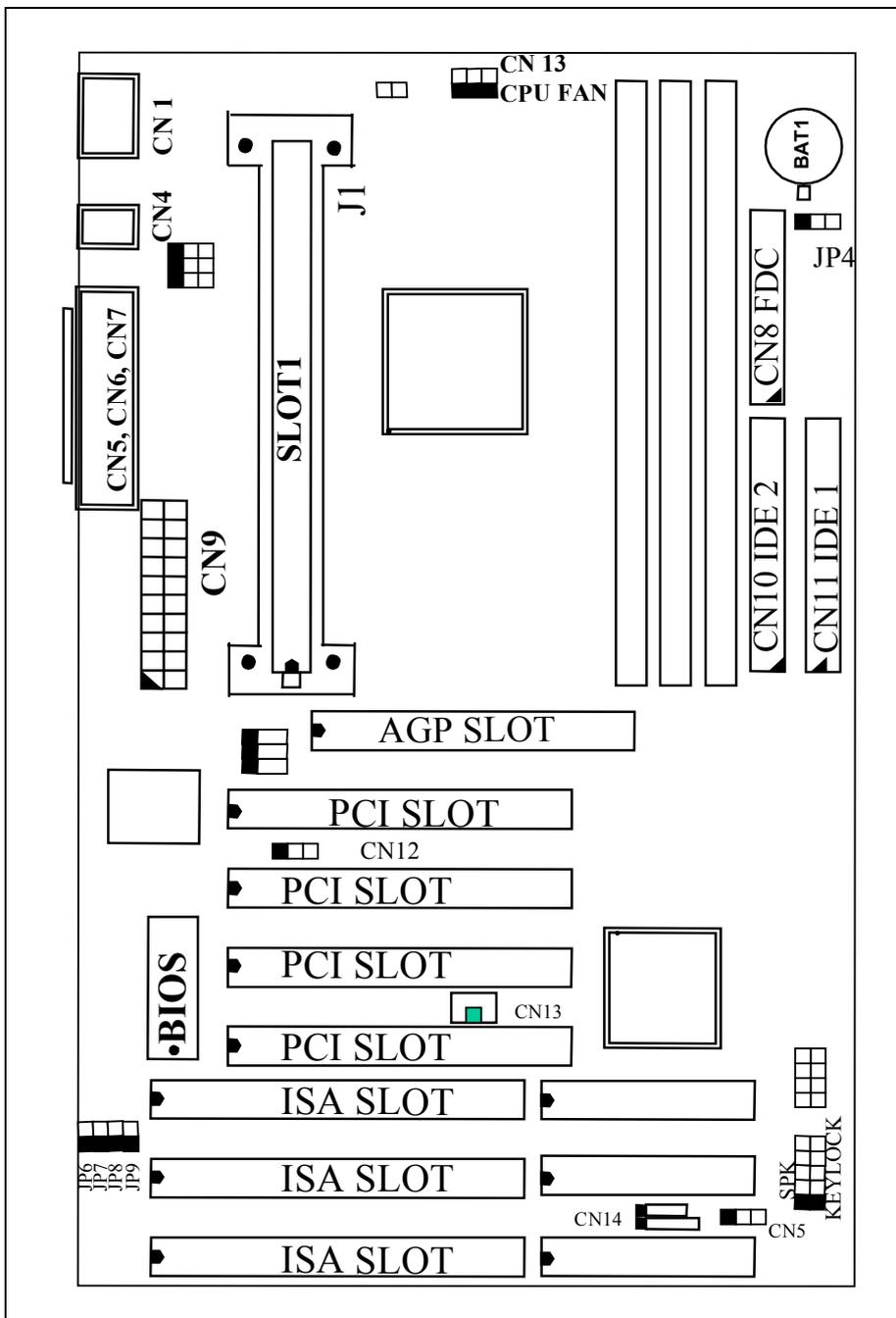
The Winbond® I/O chipset is built onboard, so this mainboard has built-in two channel “PIO” and “Ultra DMA/33 Bus Master” mode PCI IDE ports, one Floppy Disk control port, two high speed Serial ports (UARTs) and one multi-mode Parallel port and supports PS/2™ mouse, IR and USB ports. It is designed to fit a high performance Pentium™ II or Celeron™ processor 233 MHz, 266 MHz, 300 MHz and 333MHz based solution for high-end and true GREEN-PC computer systems.

The Pentium™ II or Celeron™ Processor is a 64-bit processor with RISC technology, which offers several key features such as built-in L2 cache (Celeron™ Processor has different cache memory according to different processors), 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 AGP is a new video display technology and it requires device driver or new Operating System to enable this accelerated graphic feature. Windows® 98 supports AGP directly but Windows® 95 still need the appropriate device drivers to support AGP feature. Please don't worry about the device driver, because you can always find the device driver included in the AGP card. Regarding the definition of AGP interface and its functionality, please refer to the latest *A.G.P. Interface Specification*, which can be found at the Intel web site at: "developer.intel.com/technology/agp"

1.2 440LX/440EX VER. 1.X MAINBOARD LAYOUT



1.3 SPECIFICATIONS

◎ CPU

Intel® Pentium™ II and Celeron™ processor 233 MHz, 266 MHz, 300 MHz, and 333MHz. (up to Celeron™ 366MHz processor)

◎ CPU VCC

Three sets Voltage Regulator circuits on board, supports +1.80V DC through +3.5V 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

Winbond® W83977TF-AW

◎ FRONT SIDE BUS FREQUENCY

66 MHz / 68 MHz or 75 MHz , it can be selected by CMOS setup (see Section 4-6).

◎ MEMORY

DRAM : support 8, 16, 32, 64 or 128MB 3.3V unbuffered 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 : 512KB pipelined burst SRAM built-in Pentium™ II processor.
0KB or 128KB SRAM in Celeron™ processor.

⊙ BIOS

AWARD System BIOS. 128KB x 8 Flash ROM
(Supports Plug & Play, 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 3 (One of the slot is PCI/ISA shared)

⊙ WOL PORTS

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

⊙ SB-LINK PORTS

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

⊙ USB PORTS

Two Universal Serial Bus (USB) ports.

⊙ IDE PORTS

Two channels of Ultra DMA/33 Bus Master IDE ports, which will support up to 4 IDE devices like IDE hard disk, ATAPI CD-ROM 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).
One Consumer IR transmission connector (4-pin, optional).

⊙ MOUSE AND KEYBOARD

One PS/2™ mouse connector, One PS/2™ keyboard connector.

◎ HARDWARE MONITORING (optional)

GL518SM is designed on the board to monitor hardware healthy status like system voltage, system temperature, and cooling fans. When the CPU is over heated, the system BIOS will tell the system board to give a series of beeping alarm and then slow down the CPU speed so that you can take proper action to prevent damage to your system. When you hear the beeping alarm, be sure to turn the power off and open the chassis immediately, check on the cooling fans (especially the CPU cooling fan) to see whether it is working properly or not. If you don't know how to handle it, send the PC system to your dealer for technical support.

This mainboard also provides the hardware monitoring program so that you can monitor the healthy status of your PC system. When you find there is the GL518SM installed on the board, you can run the hardware monitoring program and then it 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, Keyboard, PS/2™ Mouse, Modem ring-in, RTC alarm or 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.)
5. Supports Full-On/Doze/Standby/Suspend operating modes.

◎ DIMENSION

1. Width & Length : 305 mm x 170 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 Pentium™ II Processor Retention Mechanism (RM).
- One CD diskette which includes the device drivers and utility program.

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 you have opened 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 mainboard to the PC system.

Having finished all the procedures above, you are ready to install the mainboard to the chassis. Please make sure that the chassis is the ATX type so that the mounting hole will match with this mainboard.

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

The power button can be programmed by COMS setup program and it has different features. Please refer to page 3-13 and page 3-14 for detail function description.

Note: This power button can not be used to power-on the PC system if the "Password" is selected to power on your system. (please refer to Section 4-8 for the "INTEGRATED PERIPHERALS" in the CMOS setup.) However, you can always use the power button to turn off the power.

□ KEYBOARD (PASSWORD OR HOT KEY)

It is a nightmare when someone uses your PC system without your permission and modifies or destroys all the valuable data stored in the system. Now the problem can be avoided by using this updated Pentium™ II mainboard. This mainboard allows you to enter your personal password or a combination of hot key so that you can use it to power on your system. When the system power is off, this mainboard still keeps scanning the keyboard status waiting for the correct password or hot key input to turn on the system power (the stand-by 5V is still working). Without the correct password or hot key, no one else can turn on the PC system (neither by the power button). So the PC system is secured for you. There are two ways to power-on the PC system by keyboard, they are "Password" and "Hot KEY". Please refer to Section 4-8 for the BIOS setup.

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

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

□ PS/2™ MOUSE (MOUSE LEFT OR MOUSE RIGHT BUTTON)

When you are tired of pressing on the power button or keying in the password to turn on the PC system, there is another extremely convenient way for you.

When you have a PS/2™ mouse connected to the system, you may change the setup in the BIOS and use the mouse click to turn on the PC system power. It is so simple, convenient and welcomed. Please refer to Section 4-8 for the BIOS setting

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

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

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

□ RTC ALARM

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

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

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

Everyone knows that a PC system can be used as a fax machine to send or receive fax messages. But most people still use fax machine to receive their messages because it is not practical to have the system powered on all day long waiting for the incoming messages. Now the problem can be solved by using this mainboard. It can be triggered 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 message, the PC system will be triggered by the ring-in signal and wake up automatically to receive the message for you. From now on, you can tell your PC system to receive the fax message for you.

In order to use the ring-in signal to wake up your PC system, you will have to use the **EXTERNAL MODEM** and have it connected to one of the **SERIAL PORTS** (COMA or COM B). When the system power is off, this mainboard will continue to detect the serial port status. When it detects the ring-in signal from the serial port, the system power will be turned on and start to receive the incoming messages automatically. (you need to have the software like Award Zero-Volt Data-Suspend Utility so that you can use the fax utility to receive the incoming fax message).

To enable the Modem Ring-In feature, you have to run the BIOS setup utility and enable the “Resume by Ring or LAN” option (it is 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: This function is not available when using the internal MODEM card.

□ WAKE ON LAN (WOL)

There is a WOL connector CN12 (see page 3-21) on the mainboard which is designed to connect to the signal from a LAN card which supports the Wake On LAN feature. When such LAN card is installed, you may turn on the PC system from your remote server and monitor the PC status.

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

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

2.3 POWER OFF THE PC SYSTEM

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).

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 Pentium™ II or Celeron™ processor onto the mainboard, this mainboard will detect the CPU type and decide the proper CPU voltage automatically. So you don't have to make any jumper setting to select the CPU voltage. All you have to do is use the jumper settings to select the speed of CPU frequency (*see the Section 3-4 for detailed*).

The socket where we are going to plug in the CPU is the slot type connector (J1). This slot is designed for Pentium™ II or Celeron™ processor and we call it – the **SLOT 1**.

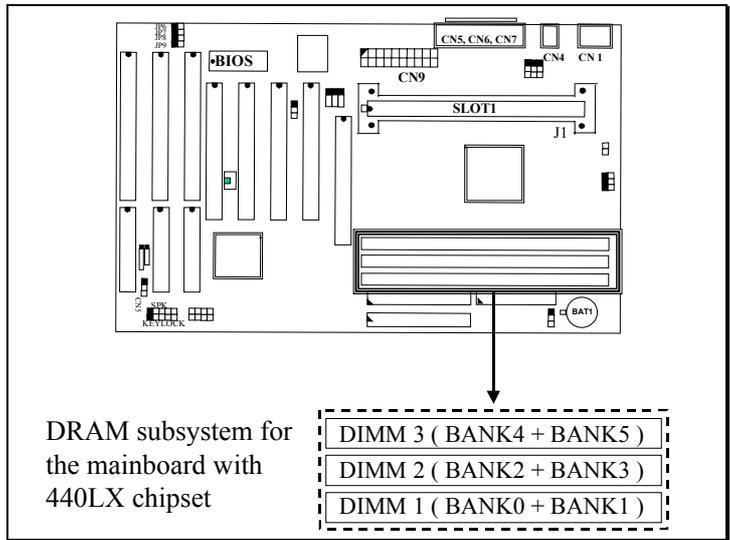
Basically, Slot 1 is a new technology and it is totally different to the traditional Pentium CPU socket – Socket 7. Because Slot 1 is a revolutionary new architecture and the installation of Pentium™ II or Celeron™ processor need some additional skill. The following sections will show you how to install the CPU support kit and install the Pentium™ II processor onto the mainboard.

There are two types of Pentium™ II CPU - the boxed Pentium™ II processor and OEM Pentium™ II processor. Beside the Pentium™ II processor, there is also another processor available from Intel – the Celeron™ processor, Celeron™ has the same feature as Pentium™ II processor except it has the different L2 cache memory. Basically, different processor will need the different accessories when installing the CPU onto the mainboard.

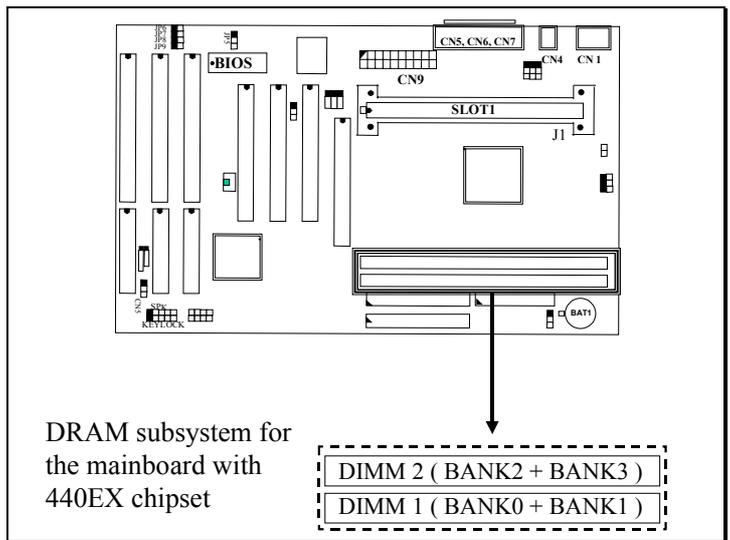
The boxed Pentium™ II processor is for retail purpose and it can be purchased from the retail store. As for the OEM Pentium™ II processor, it is for OEM customers like system integrators to build the PC systems. Sometimes, users will find the OEM Pentium™ II processor sold in the retail store. When you are purchasing the Pentium™ II or Celeron™ processor, please check with the CPU dealer and find the appropriate information to install the processor.

3.2 INSTALLING THE DRAM MODULES

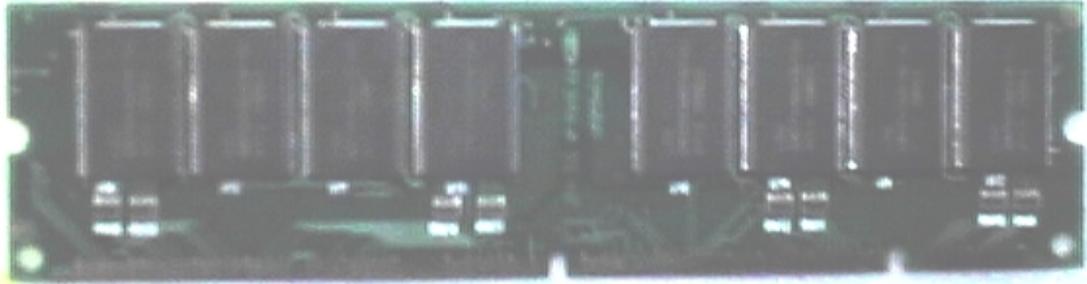
This mainboard supports 168-pin DIMM sockets, each DIMM can be single-bank or double-bank. It supports two types of DRAM memory and they are either the Extended Data Out (EDO) or Synchronous (SDRAM) memory. (Both Symmetrical and Asymmetrical DRAM addressing are supported.) Please note the DIMM modules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



Picture of memory sub-system for LX motherboard.



Picture of memory sub-system for EX motherboard.



Picture of DIMM module

In order to increase of the system performance, 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 modults.*
- 2. Always install DIMM module starting from DIMM 1 socket first, and then DIMM 2 and then DIMM 3.*

In the DRAM subsystem, 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 443LX chipset is mounted on the board (443EX does not support ECC)

The DIMM modules for this mainboard are shown in the following tables:

(1) EDO DRAM

DRAM Technology	DRAM Depth x Width	DRAM Address Row x Col	TOTAL SIZE			
			Singled-Density		Doubled-Density	
			1 DIMM	3 DIMMs	1 DIMM	3 DIMMs
16 Mbit	1M x 16	10 x 10	8 MB	24 MB	32 MB	96 MB
16 Mbit	1M x 16	12 x 8	8 MB	24 MB	32 MB	96 MB
16 Mbit	2M x 8	11 x 10	16 MB	48 MB	64 MB	192 MB
16 Mbit	2M x 8	12 x 9	16 MB	48 MB	64 MB	192 MB
64 Mbit	2M x 32	11 x 10	16 MB	48 MB	64 MB	192 MB
64 Mbit	2M x 32	12 x 9	16 MB	48 MB	64 MB	192 MB
64 Mbit	2M x 32	13 x 8	16 MB	48 MB	64 MB	192 MB
64 Mbit	4M x 16	11 x 11	32 MB	96 MB	128 MB	384 MB
64 Mbit	4M x 16	12 x 10	32 MB	96 MB	128 MB	384 MB
64 Mbit	8M x 8	12 x 11	64 MB	192 MB	128 MB	384 MB

(2) SYNCHRONOUS DRAM

DRAM Technology	DRAM Depth x Width	DRAM Address Row x Col	TOTAL SIZE			
			Singled-Density		Doubled-Density	
			1 DIMM	3 DIMMs	1 DIMM	3 DIMMs
16 Mbit *	1M x 16	11 x 8	8 MB	24 MB	32 MB	96 MB
16 Mbit *	2M x 8	11 x 9	16 MB	48 MB	64 MB	192 MB
64 Mbit *	2M x 32	11 x 9	16 MB	48 MB	64 MB	192 MB
64 Mbit *	2M x 32	12 x 8	16 MB	48 MB	64 MB	192 MB
64 Mbit *	4M x 16	11 x 10	32 MB	96 MB	128 MB	384 MB
64 Mbit *	4M x 16	13 x 8	32 MB	96 MB	128 MB	384 MB
64 Mbit *	8M x 8	13 x 9	64 MB	192 MB	128 MB	384 MB
64 Mbit **	2M x 32	11 x 8	16 MB	48 MB	64 MB	192 MB
64 Mbit **	4M x 16	12 x 8	32 MB	96 MB	128 MB	384 MB
64 Mbit **	8M x 8	12 x 9	64 MB	192 MB	128 MB	384 MB

Note : * Using the 2-bank SDRAM DIMM modules.

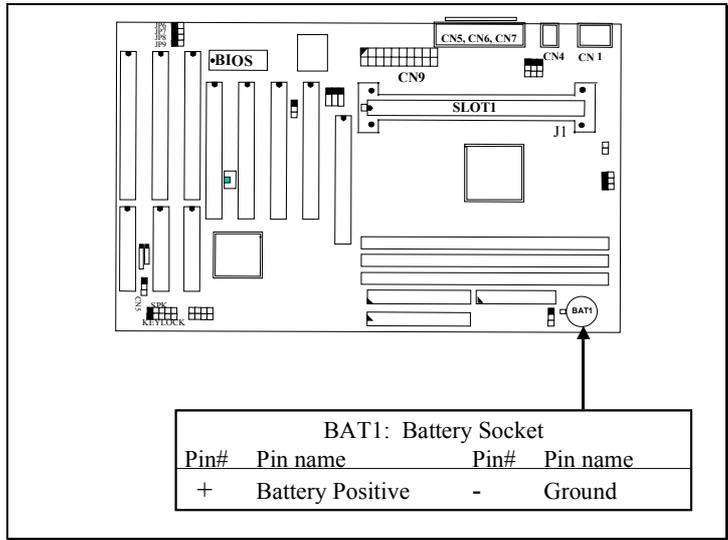
** Using the 4-bank SDRAM DIMM modules.

*** Don't use x 32 SDRAM on DIMM 3 and populate x 8 SDRAM on DIMM 1 or/and DIMM 2 at the same time.

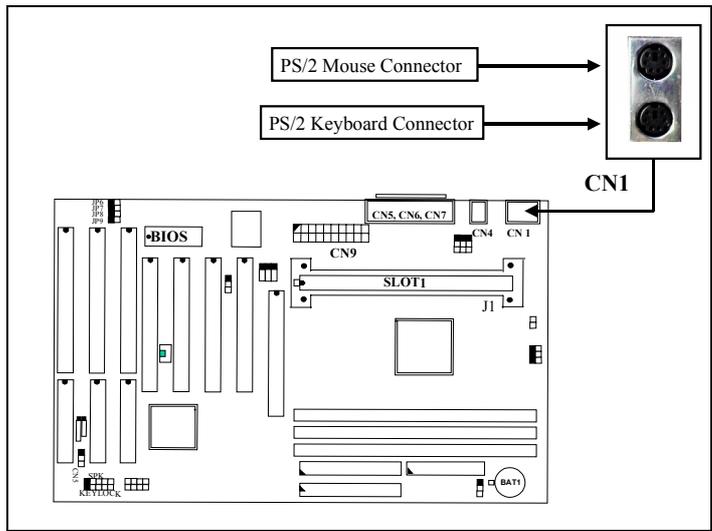
3.3 CONNECTORS

The connectors on mainboard are either the pin header type or D-type connectors, they are 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)



(B) CN1: PS/2 Mouse and Keyboard Connector



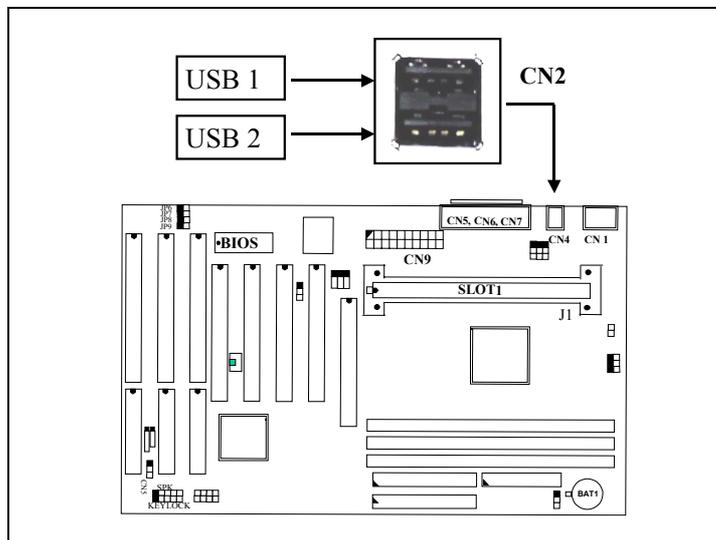
Pin assignment of PS/2 mouse connector: (Top of CN1)

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

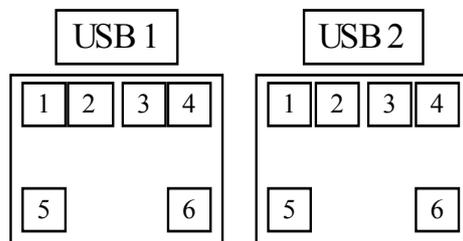
Pin assignment of keyboard connector: (Bottom of CN1)

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

(C) CN2: USB Port (Universal Serial Bus) Connector

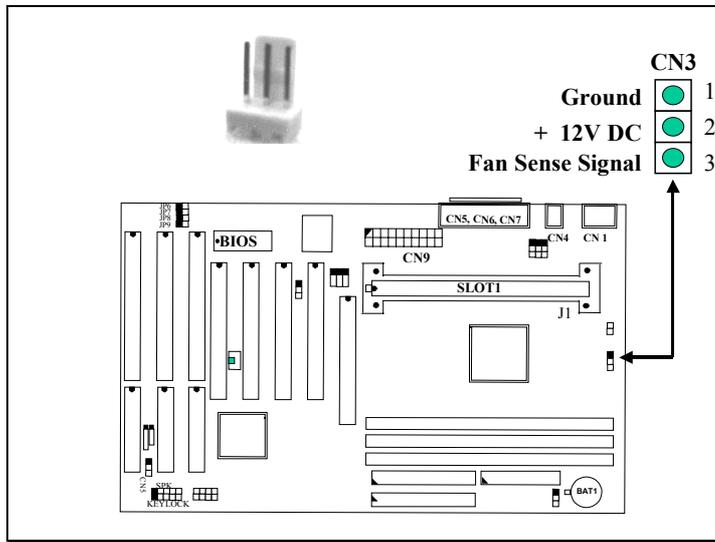


Pin assignment of USB connector:

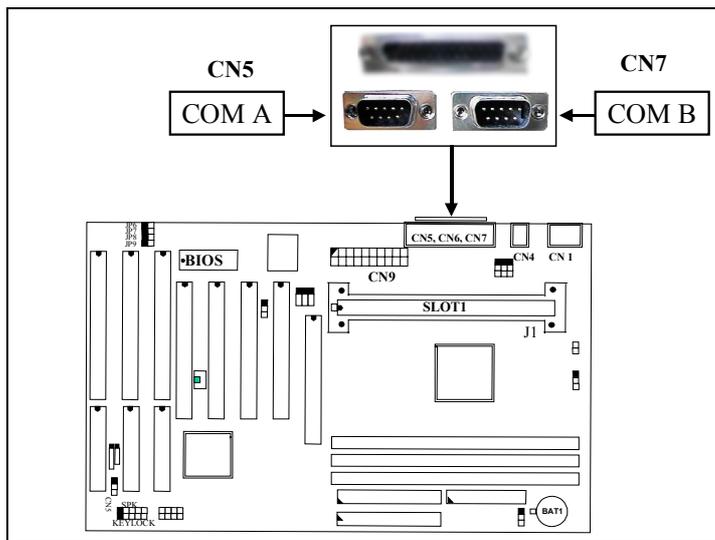


- Pin1: +5VDC
- Pin2: DATA-
- Pin3: DATA+
- Pin4: Ground
- Pin5: Ground
- Pin6: Ground

(D) CN3: CPU Cooling Fan Power Connector.



(E) CN5 & CN7 : COM A & COM B Connector



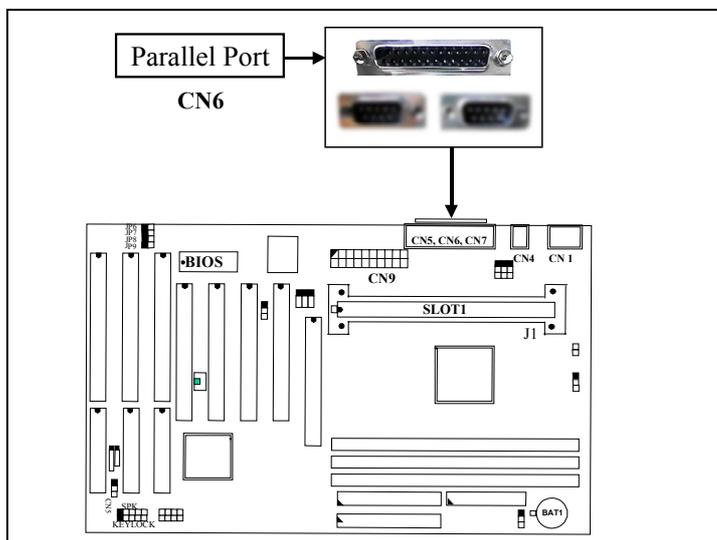
Ping assignment of serial port connector:

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

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

(F) CN6: Parallel Port Connector

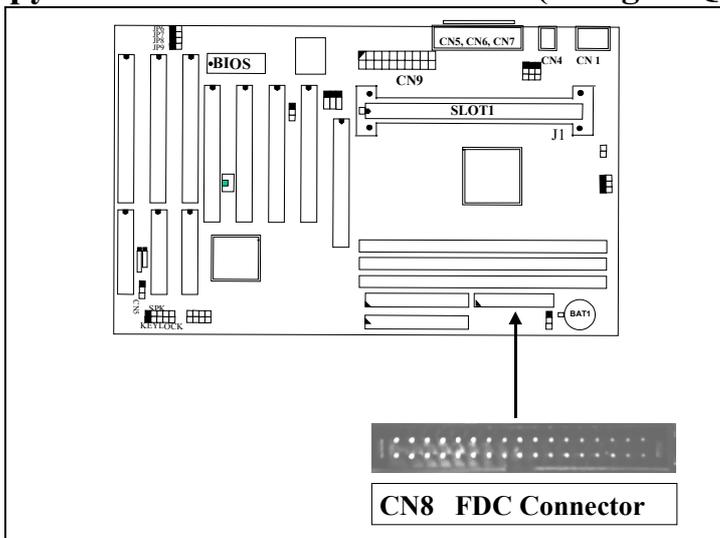
(Supports SPP/EPP/ECP modes, IRQ7 or IRQ5 is selectable, ECP mode will use either DMA channel 3 or channel 1 which can be selected by the CMOS setup program)



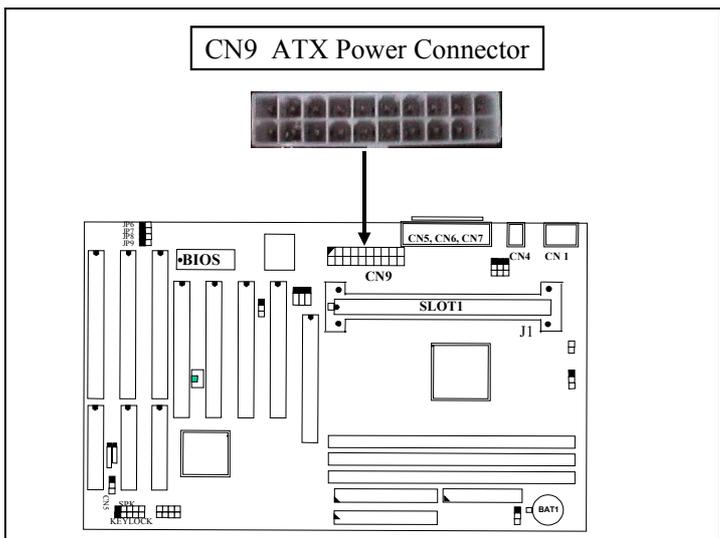
Pin assignment of parallel port:

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

(G) CN8: Floppy Disk Control Port Connector (Using IRQ6, DMA channel 2)



(H) CN9: ATX Power Connector



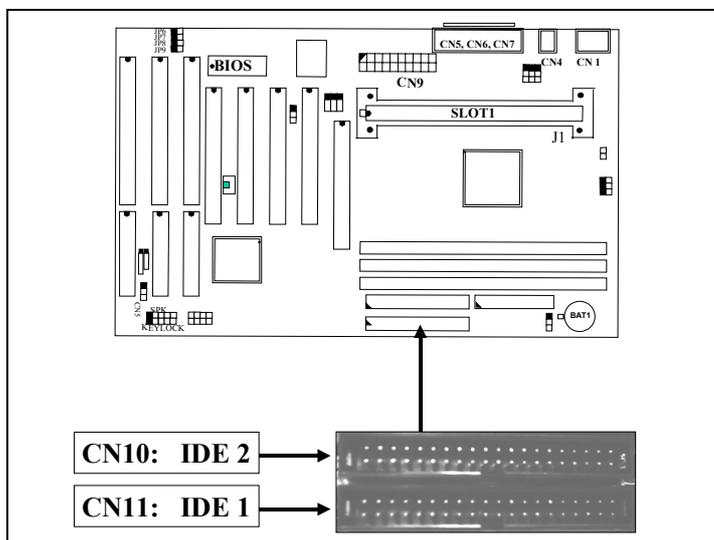
Pin assignment of ATX power connector

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

(I) CN11, CN10: IDE Connectors

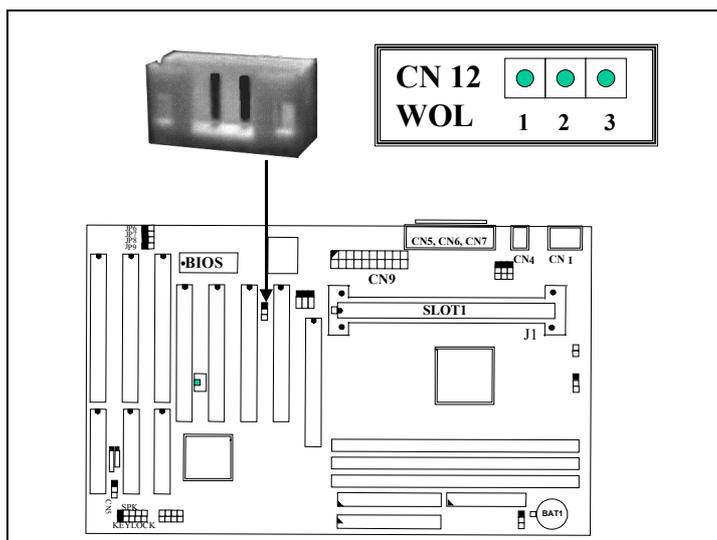
CN11: Primary IDE Port: 1F0H, IRQ 14

CN10: Secondary IDE Port: 170H, IRQ 15



(J) CN12: WOL (Wake On LAN) Connector

In order to use the WOL LAN card to trigger the power of the PC system, the switching power supply must be able to provide at least 700mA current driving ability on the “5V standby” voltage.

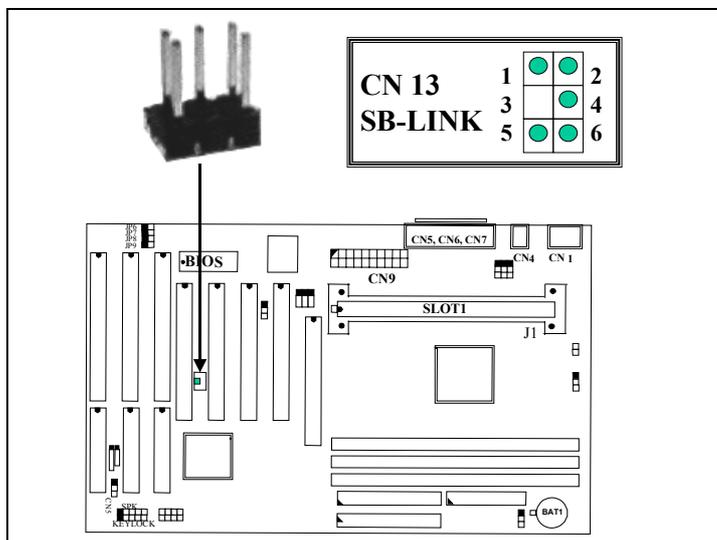


Pin assignment of WOL Connector

1	2	3	Pin #	Signal name	Pin #	Signal name	Pin #	Signal name
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	5V standby	2	Ground	3	WOL Signal

(K) CN13: SB-LINK Connector

(For PCI bus sound cards, such as Creative™ Labs EMU8008 sound chip)

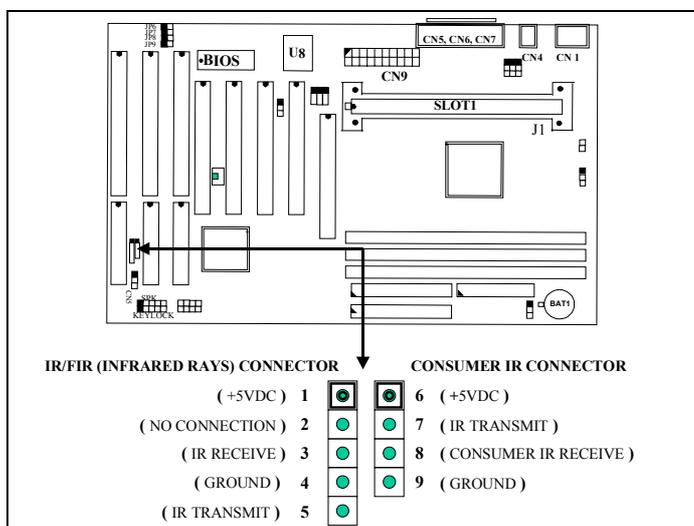


Pin assignment of SB-LINK Connector:

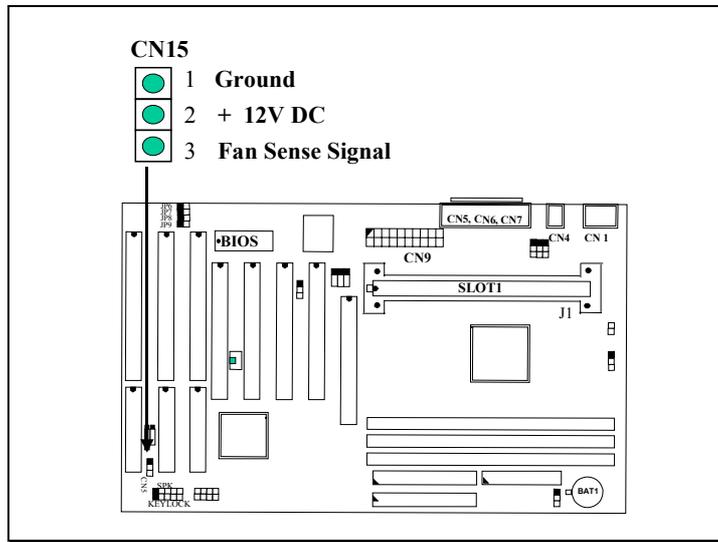
1	2	Pin #	Signal name	Pin #	Signal name
□	□	1	GNT#	2	Ground
□	□	3	Key	4	REQ#
□	□	5	Ground	6	SERIRQ
5	6				

(L) CN14: IR / FIR (Infrared Rays) Connector

Consumer IR Connector (Consumer IR connector is active only when W83977ATF/CTF-AW I/O Chip is installed on position U8)

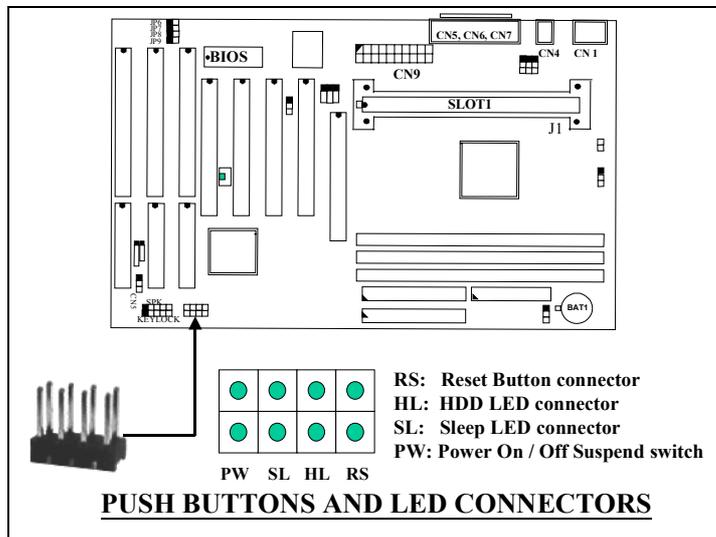


(M) CN15: Chassis Fan Power Connector (optional)



(N) Push buttons and LED connectors

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



1. **RS** Reset Button Connector

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

2. **HL** IDE HDD LED ConnectorPin # Signal name

- | | |
|---|-------------------|
| 1 | + 5V DC Pull-up |
| 2 | HDD Active Signal |

3. **SL** Sleep LED Connector

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.

Pin # Signal name

- | | |
|---|------------|
| 1 | Signal Pin |
| 2 | Ground |

4. **PW** Power On / Off and External Suspend Switch Connector

According to the setup in CMOS, the PW connector has two functions. It can be the Power Switch or Suspend Switch of your PC system.

(please refer to Section- 4-7 and section 4-8 for BIOS setup)

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

Press this switch, the system will power on. (when “password” is selected in the CMOS setup program, you will be unable to use the PW button to turn on the power of the PC system, please see Section 2-2 and Section 4-8 for more details.)

B. When system power is on :

a. The system is in Full-ON mode :

- a-1. Click on this switch (less than 4 seconds), the system will be turned into Suspend mode. (get into a GREEN mode)
- a-2. Press and hold this switch for more than 4 seconds, the system will be powered off.

b. When the system is in Suspend mode :

- b-1. Click on this switch (less than 4 seconds), the system will return to Full-ON mode.
- b-2. Press and hold this switch more than 4 seconds, the system will be powered off.

② **The setup in CMOS is “Instant-off”:**

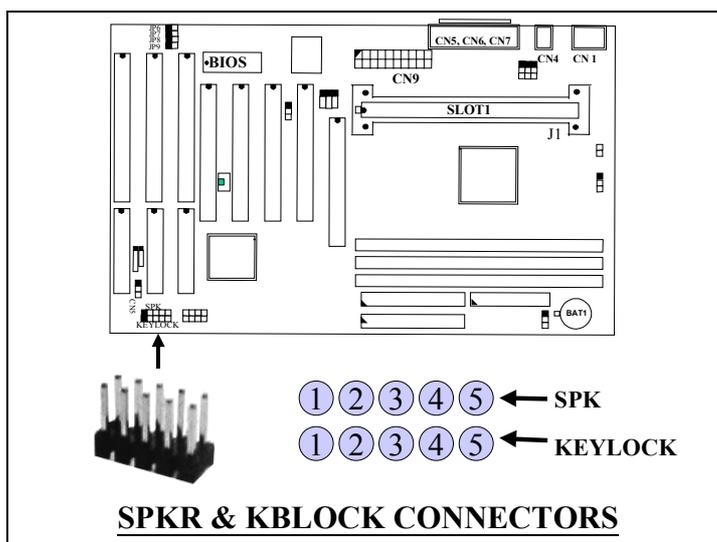
A. When system power is off :

Click on this switch, the system will be powered on. (when “password” is selected in the CMOS setup program, you will be unable to use the PW button to power on the PC system, please see Section 2-2 and Section 4-8 for more details.)

B. When system power is on :

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

(O) Speaker and Key Lock Connector:



SPK: Speaker connector

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

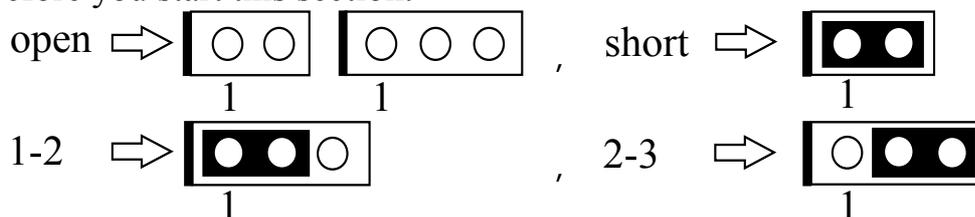
5

KEYLOCK: Front Panel Power LED and Key-Lock Connector

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

3.4 JUMPERS

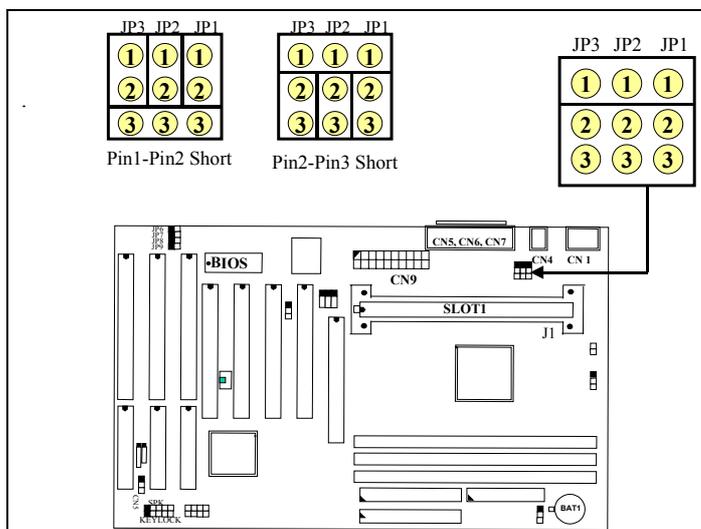
This section will discuss the jumper setting on this mainboard. In order to let you have better idea of the jumper setting, please see below for the explanation of jumper settings before you start this section.



The following jumpers 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 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.

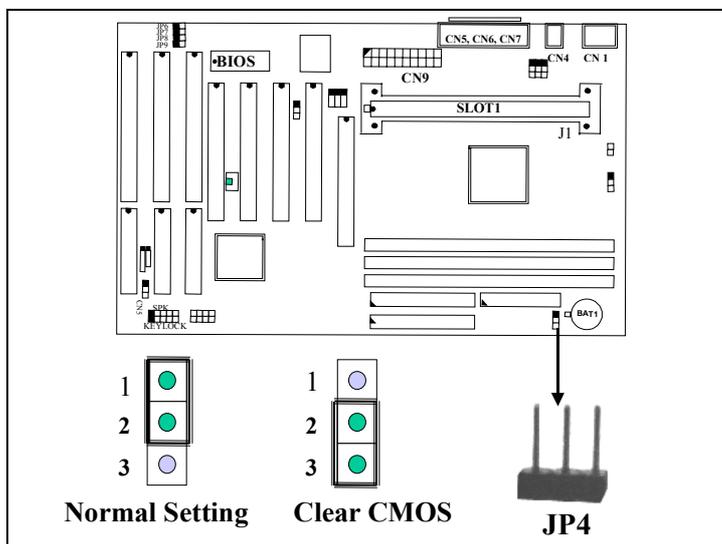
(A) JP1-JP3: USB Port 2 Function Selection (*optional*)



Pin1-Pin2 Short: USB function active on CN16 (USB2) (default).

Pin2-Pin3 Short: USB function active on J2 (AGP slot)

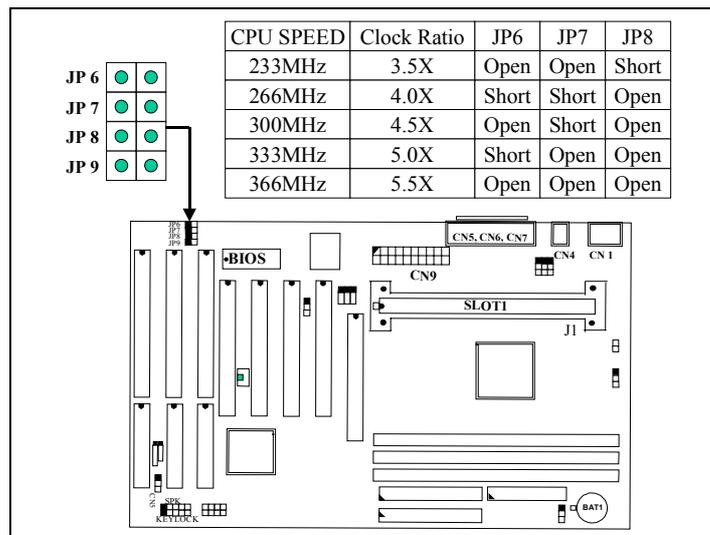
(B) JP4: Clear CMOS Data Button



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

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

(C) JP6-JP9: CPU Speed Selection



When you have installed the Pentium II or Celeron processor onto the mainboard, the system BIOS will detect the CPU type and decide the FSB clock speed automatically. In order to make the CPU works properly, you need to use JP6-JP9 to select the clock ratio so that the CPU will be running at its optimal speed. Please refer to the above picture for the settings.

4. AWARD BIOS SETUP

4.1 GETTING STARTED

When the system is first time power 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.

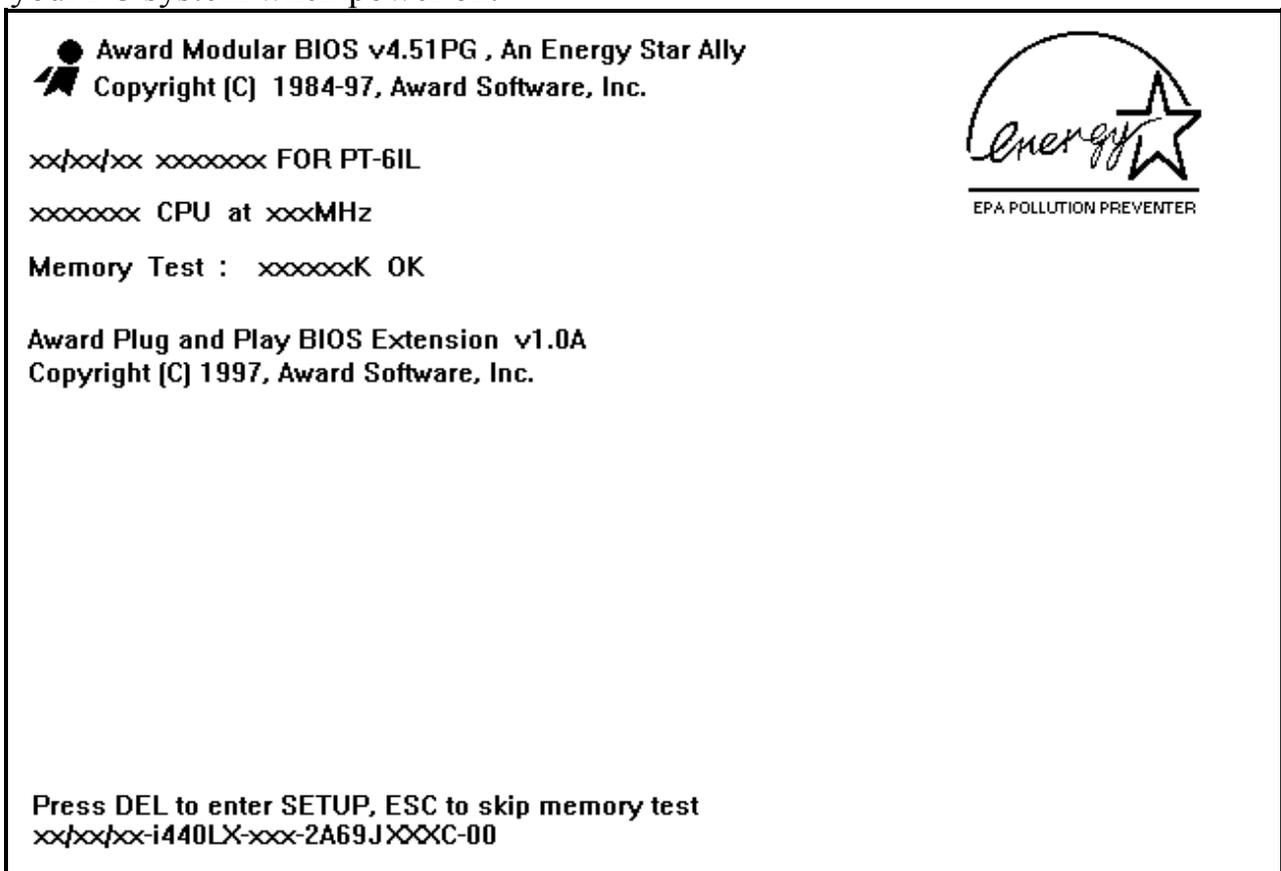


Fig. 4-1 Initial Power-On screen.

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

" Press **DEL** to enter SETUP "

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

4.2 MAIN MENU

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

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

Fig. 4-2 CMOS SETUP MAIN MENU screen.

4.3 CONTROL KEYS

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

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

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.					Base Memory : 640 K				
Drive B : None									
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		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item			PU/PD/+/- : Modify				
F1 : Help		(Shift)F2 : Change Color							

Fig. 4-3 STANDARD CMOS SETUP screen.

MODE :

The BIOS on the mainboard is the updated one and which provides three different modes to support both normal size IDE hard disk drive and the hard disk drive 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 hard disk drive 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 the Japanese 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		
PCI/VGA Palette Snoop	: Disabled		
OS Select For DRAM > 64MB	: Non-OS2	ESC : Quit	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item
Report No FDD For WIN 95	: No	F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift)F2 : Color
PS/2 mouse function control	: Enable	F7 : Load Setup Defaults	

Fig. 4-4 BIOS FEATURES SETUP screen.

Virus Warning :

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

Enabled : A warning message will be displayed on the screen when something

attempts to access the boot sector or hard disk partition table.

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

CPU Internal 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 Pentium™ 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	AGP Aperture Size (MB)	: 64
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	: 66 MHz
EDO RAS# Precharge Time	: 3	CPU Warning Temperature	: 70□/158□
EDO DRAM Read Burst	: x333	Current CPU Temperature	: xx□/xx□
EDO DRAM Write Burst	: x222	Current CPU FAN Speed	: xxxx RPM
DRAM Data Integrity Mode	: Non-ECC	Current CHASSIS FAN Speed	: xxxx RPM
CPU-To-PCI IDE Posting	: Enabled	Current VccCore (V)	: xxxV
System BIOS Cacheable	: Disabled		
Video BIOS Cacheable	: Disabled		
Video RAM Cacheable	: Disabled		
8 Bit I/O Recovery Time	: 1		
16 Bit I/O Recovery Time	: 1		
Memory Hole at 15M-16M	: Disabled		
Passive Release	: Enabled	ESC : Quit	□□□□ : Select Item
Delayed Transaction	: Disabled	F1 : Help	PU/PD/+/- : Modify
SDRAM CAS latency Time	: 3	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”)

When “Enabled”, the optimum parameters for the chipset and CPU registers will be loaded automatically. When “Disabled”, users can modify the parameter manually.

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..

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.

CPU Host Clock : (default setting : 66MHz)

This option is used to select the front side bus frequency (FSB). The selectable option on this field will be 66MHz and 68MHz, Basically, 68MHz 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 select the FSB frequency, please refer to section 3- 3 and use JP7-JP8 to decide the CPU clock.

The higher CPU “frequency” and “ratio” will surely give you the higher system performance. However, it is not recommended because it may cause the system unstable, especially the component like DRAM, HDD, Add on card is not fast enough.

In order to make sure the system will always working normally. The CPU frequency will be switched to “233MHz” after you clear the CMOS data.

CPU Warning Temperature : (Optional)

The hardware monitoring device – GL518SM 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 GL518SM (U2) installed on the board and you have enable the “Throttle Duty Cycle” in the “Power Management Setup” (please see section 4.7)***

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

4.7 POWER MANAGEMENT SETUP

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

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

Fig. 4-6 POWER MANAGEMENT SETUP screen.

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

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

This setting controls the Power Management functions. “User Define” will allow user to define their own parameters. “Min Saving” and “Max Saving” is a quick selection option which will fix the values of four parameters, including “Doze Mode”, “Standby Mode”, “Suspend Mode” and “HDD Power Down”.

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

Blank Screen: H-SYNC and V-SYNC signals are still active when the system turns into green mode, only the RGB signals are disabled. The power of the monitor remains ON, but you can see no display on the screen.

V/H SYNC+Blank: H-SYNC, V-SYNC and RGB signals are all disabled to blank the screen. Before you can select this option, please make sure whether your display card has the special design on the H-SINC and V-SYNC signal. Such VGA card display may not be recovered when we blank the screen.

DMPS: Beside the H-SYNC, V-SYNC and RGB signals, the monitor will be power off when CPU enters the Green mode. So not only the screen will be blank off, the power of the monitor will be turned off to save the energy. This option is the recommended one when you have the Green monitor connected to your PC system.

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 A uses IRQ4, and COMB uses IRQ3)

Doze Mode: (Default setting: Disable)

Doze mode is the most limited power saving mode, The PC system will be inactive after the time period which you have selected in this field. The selecting range can be from 1 minute to 1 hour.

Standby Mode: (Default setting: Disable)

Standby mode is the intermediate power saving mode, The PC system will be inactive after the time period which you have selected in this field. The selecting range can be from 1 minute to 1 hour.

Suspend Mode: (Default setting: Disable)

Suspend mode is the maximum power saving mode, The PC system will be inactive after the time period which you have selected in this field. The selecting range can be from 1 minute to 1 hour.

HDD Power Down: (Default setting: Disable)

When you have a power saving mode HDD connected to the PC system, you may select the time period in this field and tell the system to shut down the HDD. The setting range can be from 1 to 15 minutes in this field.

VGA Active Monitor: (Default setting: disabled)

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 3-28 for details of function description.

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

This selection allows user to controls the function of the “CN3” (CPU cooling fan connector). When “Enabled” is selected, the CPU cooling fan will stop in Suspend mode to decrease the system power consumption and noise. When “Disabled” the CPU cooling fan is keep on working when the system is in Suspend mode.

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

When “Enabled”, you can resume the system from Sleep or Suspend mode by using a MODEM Ring-in or a LAN signal. In order to make this feature works normally, there are some requirement need to be noticed, please see page 2-3 and page 2-4 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 page 2-3).

Thorttle Duty Cycle: (Default setting: 62.5%)

When there is the GL518SM (U2) installed on the board, the CPU speed will be slowed down (“Throttling Speed”) when the GL518SM 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.

4.8 INTEGRATED PERIPHERALS

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

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

Fig. 5-7 INTEGRATED PERIPHERALS setup screen.

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

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.

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

POWER ON Function : (Default setting : “BUTTON ONLY”)

This mainboard provides several flexible and convenient ways to power on the PC system. They are the “BUTTON ONLY”, “Password”, “Hot KEY”, “Mouse Left” and “Mouse Right”, please refer to page 2-2, page 2-3 and page 2-4 for details of each feature.

To change the way to power on your PC system, move the selection bar to “**POWER ON Function**” and use the arrow keys to select the option which you prefer to have.

When you want to use the password to power on your PC system, you may enter up to four alphanumeric characters in this field. When you have entered the password and press the “Enter” key, reconfirm the password once more to complete password setup.

If you press the “Enter” key twice, without keying in any alphanumeric character, the password will be disabled.

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	Primary IDE INT#	: A
Reset Configuration Data	: Disabled	Secondary IDE INT#	: B
IRQ-3 assigned to	: PCI/ISA PnP	Used MEM base addr	: N/A
IRQ-4 assigned to	: PCI/ISA PnP	Assign IRQ For VGA	: Enabled
IRQ-5 assigned to	: PCI/ISA PnP	Assign IRQ For USB	: Enabled
IRQ-7 assigned to	: PCI/ISA PnP		
IRQ-9 assigned to	: PCI/ISA PnP		
IRQ-10 assigned to	: PCI/ISA PnP		
IRQ-11 assigned to	: PCI/ISA PnP		
IRQ-12 assigned to	: PCI/ISA PnP		
IRQ-14 assigned to	: PCI/ISA PnP		
IRQ-15 assigned to	: PCI/ISA PnP		
DMA-0 assigned to	: PCI/ISA PnP		
DMA-1 assigned to	: PCI/ISA PnP	ESC : Quit	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item
DMA-3 assigned to	: PCI/ISA PnP	F1 : Help	PU/PD/+/- : Modify
DMA-5 assigned to	: PCI/ISA PnP	F5 : Old Values	(Shift)F2 : Color
DMA-6 assigned to	: PCI/ISA PnP	F7 : Load Setup Defaults	
DMA-7 assigned to	: PCI/ISA PnP		

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

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

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

The setting in this field tells the system BIOS whether your operating system (OS) is a PnP OS (such as Windows® 95) or not. A PnP OS will use the system resources record stored in the ESCD segment to arrange the system environment..

Resources Controlled by :

- Manual : The system BIOS will not refer to the ESCD data to assign IRQ & DMA. Instead, it will refer to the information recorded in this field when assigning the IRQ & DMA resource. (anyhow, the system BIOS will always refer to the ESCD data to assign the I/O and memory space resources).
- Auto : The system BIOS will refer to the ESCD segment for all legacy information.

Reset Configuration Data :

- Disabled : The system BIOS will do nothing.
- Enabled : The system BIOS will clear (reset) the ESCD data during “POST”. After clearing the ESCD data, the system BIOS will then change this item’s value back to “Disabled”, otherwise, the ESCD data will become useless.

IRQ# / DMA# assigned to :

There are only 15 IRQs and 8 DMAs available on the mainboard and most of them are assigned for some specific purposes. Sometimes, user may feel like to have some more IRQ and DMA in order to install the new add on cards. In this case, you may use this field to assign some certain IRQ and DMA to “PCI/ISA PnP” so that the new add on card will find the free IRQ or DMA available for it.

Legacy ISA : The system BIOS will skip and never assign the specified IRQ/DMA resource to PCI or ISA PnP devices and the IRQ and DMA can only be used by their specified Legacy ISA cards.

PCI/ISA PnP : When the “PCI/ISA PnP” is been selected, the related IRQ and DMA will be released and they can be used by other PCI or ISA PnP devices. Whenever there is the new PCI or ISA PnP devices plugged onto the mainboard, the system BIOS will detect it and assign a free IRQ or DMA for the new devices.

.Note: Most IRQ and DMA have its own purpose and they can not be assigned to “PCI/ISA PnP”. For example, IRQ14 and IRQ15 is used by the onboard IDE device. If you change the setting on IRQ14 and IRQ15, you will be unable to connect the hard disk drive or CD ROM drive to the IDE interface on the mainboard. So please make sure to check the IRQ and DMA assignment in your system before you proceed to do the setting. For instance, if you do not have the printer (IRQ7) or PS/2™ mouse (IRQ12) connected to your PC system, you may assign IRQ7 and IRQ12 to “PCI/ISA PnP” so that you can have more IRQs available for new add on cards.

PCI IDE IRQ Map To : (only for off-board PCI IDE cards)

PCI-AUTO : The BIOS will scan and check the existing of the PCI IDE device and identify the slot location where the PCI IDE locates, and then the system BIOS will assign IRQ 14 for the primary IDE, and assign IRQ 15 for the secondary IDE.

PCI-SLOT1 : In this field, you may tell the system BIOS to assign IRQ 14 for primary to IDE INT# and IRQ 15 for secondary IDE INT# on some certain PCI slot. Under the normal condition, this selection is not recommended because the IDE interfaces are already built on the mainboard.

ISA : The BIOS will not assign any IRQ even when the system BIOS detects the PCI IDE card on the PCI slot. The reason is because some certain IDE cards will connect the IRQ 14 and 15 directly from ISA slot. (Such ISA card is called as Legacy Header)

Used MEM base addr and Used MEM Length :

These fields are used for some special ISA legacy cards which will request memory space below 1M address. Please refer to the user's manual of your add on card to find whether it will need such memory space. If your add on card does need to have such memory space, please point out the memory address and its length of the legacy area in this field. According to what is recorded in this field, BIOS will skip the UMB area that is used by the legacy device to avoid the memory conflicting.

Note : No matter what is defined in the "Resources Controlled By" field ("Manual" or "Auto"), the system BIOS will always assign IRQ resources to PCI devices from the highest one first (ie. IRQ15, 14, 13 ...) while assign IRQ resources to ISA PnP devices from the lowest one first (ie. IRQ3,4,5 ..).

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 feel free to disable the IRQ on the USB port and have the IRQ used by other device.

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

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

4.10 LOAD SETUP DEFAULTS

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

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

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

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

4.11 SUPERVISOR PASSWORD / USER PASSWORD

The password entry in these field is different to what was mentioned in page 2-2, page 4-10 and page 4-13. The password setting in the previous pages is used to power on your PC system, However, the “SUPERVISOR PASSWORD” and “USER PASSWORD” will be used to check the authority when power-on. Whenever there is the password stored in either of these fields, the correct password will be requested so that the PC system will continue to load the operation system.

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

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

4.12 IDE HDD AUTO DETECTION

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

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

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.

