

PT-6VAX/6VAX2

Pentium II/!!!

ATX MAINBOARD

(VER: 2.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 suggested settings which will optimize system performance and increase system stability. Load the setup default is recommended when you receive this mainboard or when the system CMOS data is corrupted. Please refer to the Section 4.8 for the procedures.

☆ ***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 can be damaged by any improper action .

☆ ***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 3.3 for pin assignment.

☆ ***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

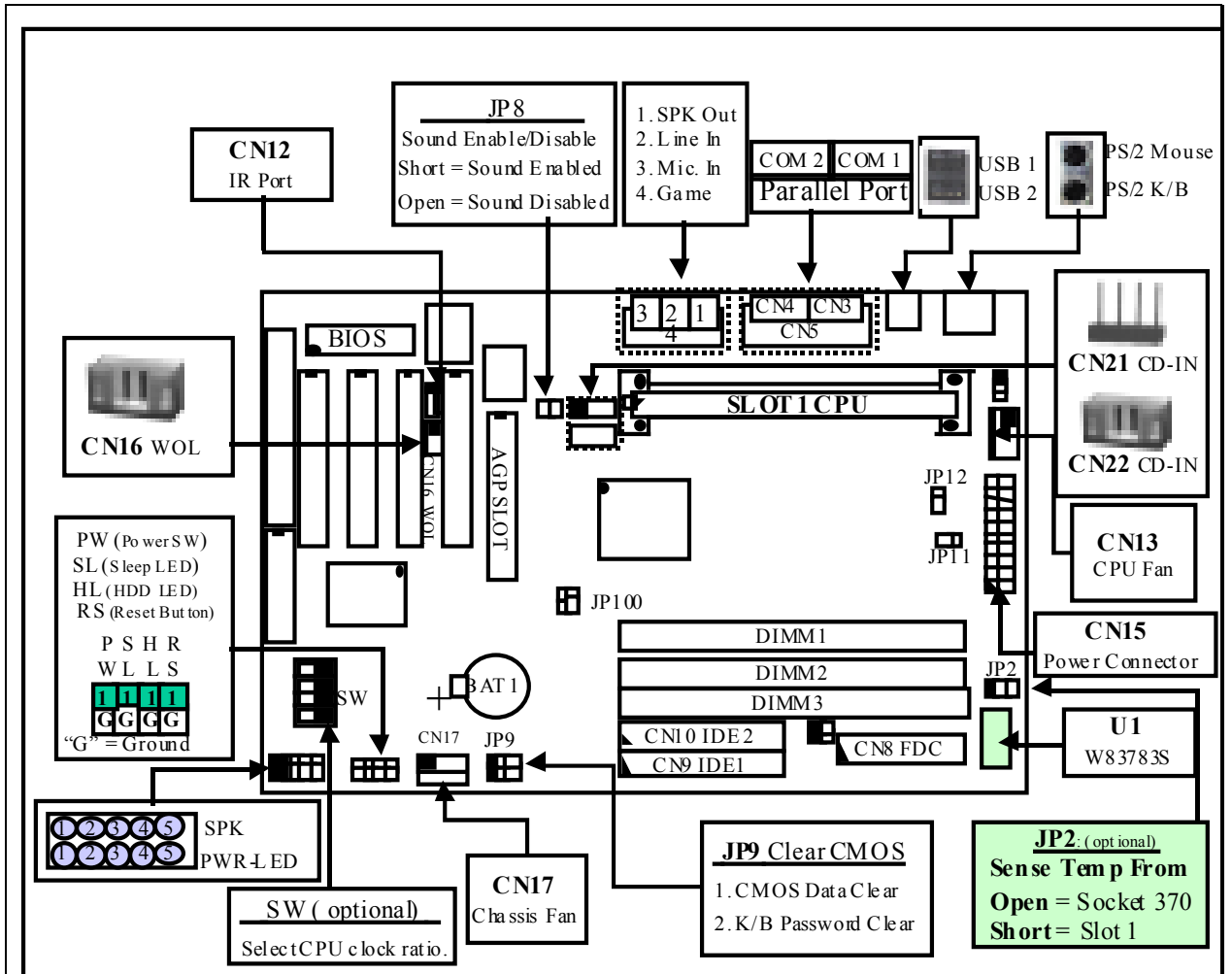
This Mainboard is a revolutionary high performance personal computer mainboard. It is the ATX form-factor with Slot 1 connector designed on the board for Pentium II and Pentium !!! processors. VIA693A chipset is chosen as the system core logic of the mainboard to give the most outstanding performance and reliability. It is designed for 233, 266, 300 , 333, 350, 366, 400, 433, 450, 466, 500, 550, 600MHz and higher speed Pentium™ II , Pentium™ !!! processors

This mainboard two channel “PIO” and “Ultra DMA33/66 Bus Master” mode PCI IDE ports are built on the mainboard to support the most updated Ultra DMA 66 HDD. One Floppy Disk controller, two high speed Serial ports (UARTs), one multi-mode Parallel port, one PS/2™ mouse port, one IR interface and two USB ports is designed on the board for wide variety of peripheral connection.

The ALS300 PCI sound chip is designed on board (sound interface is optional on the board). The ALS300 has built-in 2D/3D Sound Effect Processor, Enhanced normal & digital Game port, MPU-401 MIDI controller, ALSFM Synthesizer. When you find the ALS300 sound interface (CN18) installed on the mainboard, you don't have to purchase another sound card because there is the 3D audio interface on this mainboard.

Pentium™ II and Pentium™ !!! processors are the 64-bit processors with RISC technology, which offers several key features such as built-in 512K/256/128K 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® and OS/2™) and 32-bit applications are recommended.

1.2 MAINBOARD LAYOUT



IMPORTANT NOTICE:

1. The standby voltage is always active even when system power is off. Whenever you want to install or remove any component from the mainboard, please make sure to remove the power cable from the PC system. Otherwise, it may cause serious damage to the PC system.
2. If W83783S is installed on U1 as shown above, please make sure the jumper setting on JP2 is correct so that the thermal resistor will detect the CPU temperature properly. (Note: JP2 is optional, if there is no JP2 on the board, then the mainboard will detect the CPU and choose the thermal resistor automatically.)



1.3 SPECIFICATIONS

⊙ CPU

Intel® Pentium™ II, Pentium™ !!! or Celeron™ 233, 266, 300, 333, 350, 366, 400, 433, 450, 466, 500, 550, 600MHz and higher speed processors

⊙ CPU VCC

Switching Voltage Regulator circuits on board, supports +1.80V DC through +3.5V DC CPU Core Voltage.

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

VIA693A and 596B chipset

⊙ SUPER I/O CHIPSET

Winbond® W83977TF/EF-AW

⊙ FRONT SIDE BUS FREQUENCY

66 MHz 100MHz and 133MHzselectable.

⊙ MEMORY

Three 168-pin DIMM sockets, Maximum 384 MB with ECC.

CACHE : 512KB pipelined burst SRAM in Pentium™ II, Pentium™ !!! processor.
0KB, 128KB, or 256KB SRAM in Celeron™ processor.

⊙ BIOS

AWARD System BIOS. 256KB x 8 Flash ROM
(Supports Plug & Play, ACPI, DMI and Green functions).

⊙ EXPANSION SLOTS

AGP Slots : One 32-bit AGP Slot (Supports 1x or 2x AGP graphics cards)
PCI Slots : Four 32bit PCI slots.
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)

⊙ USB PORTS

Two Universal Serial Bus (USB) ports.

⊙ IDE PORTS

Two channels of Ultra DMA33/66 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 DMA33/66 to support the modern IDE devices.

⊙ 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.

⊙ 3D SOUND (Optional)

Avance Logic ALS-300 Sound Chip is optional on the mainboard. ALS300 built-in the 2D/3D Sound Effect Processor, Enhanced normal & digital Game port, MPU-401 MIDI controller, ALSFM Synthesizer.

◎ HARDWARE MONITORING (optional)

Winbond W83783S (please refer to U1 on page 1-2) is designed on the board to monitor hardware healthy status like system voltage, system temperature, and cooling fans. When the CPU temperature is too high, the system BIOS will tell the system board to give a series of beeping alarm and slow down the CPU speed (throttling speed) so that you can take proper action to prevent your system from damage. When you hear the beeping alarm, turn the power off and check on the mainboard components 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.

There is the hardware monitoring program in the CD which comes with this mainboard. You can use it to monitor the system healthy status. When you find there is the W83783S installed on U1, you can run the hardware monitoring program and then it will monitor the system healthy 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 210 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 LIMITATION

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. 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 for device driver 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.

Having finished all the procedures above, you are now 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 the 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 3-15 for detail function description.

Note: This power button can not be used to power-on the PC system if the "Password" is selected in the "Power On Function" 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)

This mainboard allows you to use your personal password or a combination of hot key to power on your PC system. When the jumper setting on JP1 is "Enabled", the keyboard OnNow function will be activated. Under this circumstance, this mainboard will keep scanning the keyboard status waiting for the correct password or hot key input even when the system power is off (the stand-by 5V is still working and the power LED on the keyboard is still active). If you have selected the Password to power on the PC system in the BIOS setup program, the only way to power on the PC system will be the correct password. (you can not use the power button on the front panel to power on the PC system.) When you have selected the keyboard hot key to power on the PC system, you will be able to use keyboard hot key to power on the PC system. (you can use the power button to power on the PC system as well.) (Please refer to Section 4.8.- "**Power On function**")

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, and then you can use the PW switch to power on the PC system again. Or you may use JP9 setting to clear the Keyboard password.

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

If you have a PS/2™ mouse connected to the system, you may change the setup in the BIOS and use the mouse click to turn on the PC system power. Please refer to section 4.8 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, 2-5 quick clicks on the mouse key (left key or right key) will turn the power immediately.

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

Note: 1. This feature is not available on the COM port mouse (serial mouse).

2. To use the PS/2 mouse power-on the PC system, JP1 must be "Enabled"

□ 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 on the date and time which you selected in the BIOS setup program.

Enable the “Resume by Alarm” selection in the BIOS setup utility, and then you will see the input request for the date and time. (the “Resume by Alarm” is located in the “POWER MANAGEMENT SETUP”, please refer to Section 4.7), When you have 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.

□ 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 because this mainboard 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) on the mainboard. When the mainboard 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 “Power On by Ring / LAN” option (it is located in the “POWER MANAGEMENT SETUP”, please refer to Section 4.7 for the settings).

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

□ WAKE ON LAN (WOL)

There is a WOL connector CN16 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 the 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” in the BIOS setup program.

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

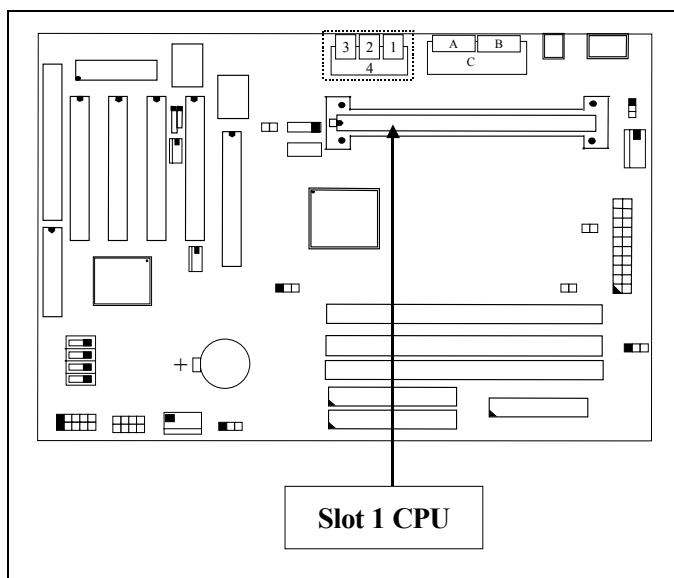
There are two ways to power off the system. They are “Shut Down by Power Button” and “ Shut Down by OS”. (such as Windows® 95 and Windows® 98, you can choose the **Shut Down** from the file menu and the system will be powered off immediately).

3. HARDWARE SETUP

Before you can start to install this mainboard, some hardware setting is required so that it will work perfectly. To configure the mainboard is a simple task, only a few jumpers, connectors, cables and sockets need to be selected and configured. This section will show all the connectors and jumpers on the mainboard.

3.1 INSTALLATION OF CPU

There is the SLOT 1 CPU socket on the mainboard designed for slot type Pentium™ II, Pentium™ III or Celeron™ processors. Please refer to the following picture for the SLOT 1 socket:



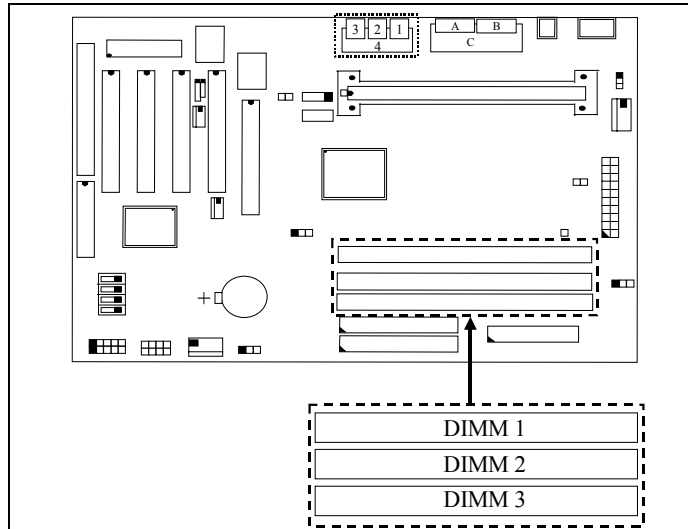
When you have installed the CPU onto the mainboard, it will detect the CPU type and decide the CPU voltage, clock ratio and FSB clock automatically. Most of the time, you do not have to make any jumper setting for the CPU. All you have to do is use the BIOS setup program to select the parameters for the CPU.



1. Be sure to remove the power cable from the PC system when installing CPU or any other components . (refer to page 3-14)

3.2 INSTALLING THE DRAM MODULES

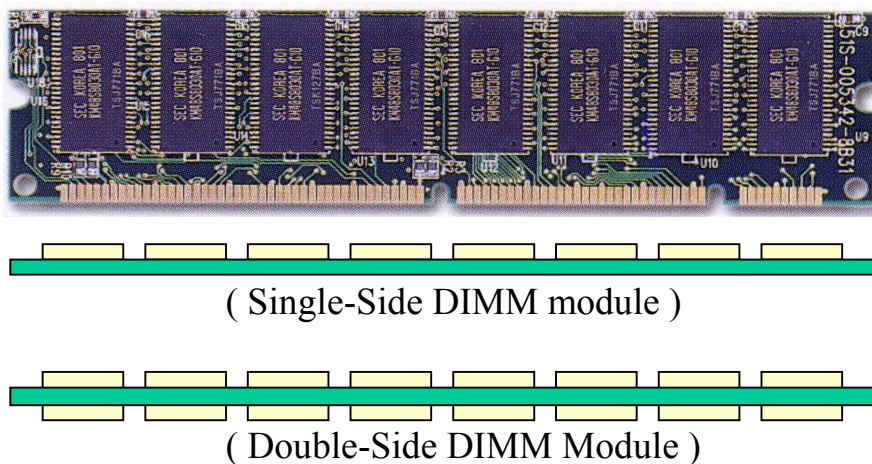
This mainboard has three DIMM sockets designed on the mainboard and you can use the single-side or double-side DIMM module on the mainboard.



In order to have a better performance, only the Synchronous (SDRAM) memory is recommended. Please refer to the following suggestion to install the memory:

Installation of DIMM modules:

1.Outlook of DIMM modules:



- 2. Minimum one DIMM module must be installed on the mainboard.
- 3. For PC133 M/B (VIA693A chipset), please use 3.3V PC-133 DIMM module.
- 4. For PC100 M/B (VIA693 chipset), please use 3.3V PC-100 DIMM module.
- 5. You can use single side or double side DIMM module on this mainboard.

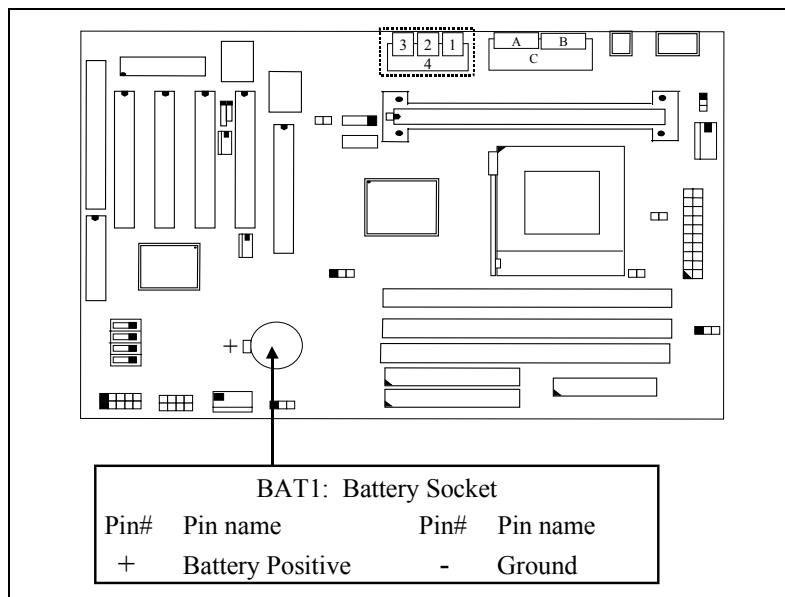


If your DIMM module does not have the parity bit, please don't enable the Parity/ECC check feature in the BIOS setup.

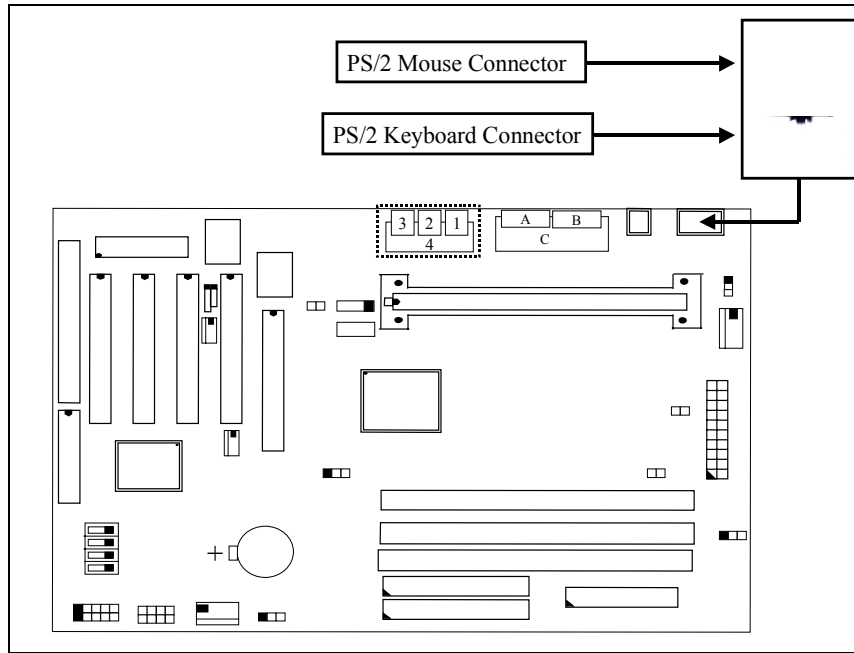
3.3 CONNECTORS

The connectors on the 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.). Followings are the connectors with its description and the pin assignment which is designed on the mainboard.

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

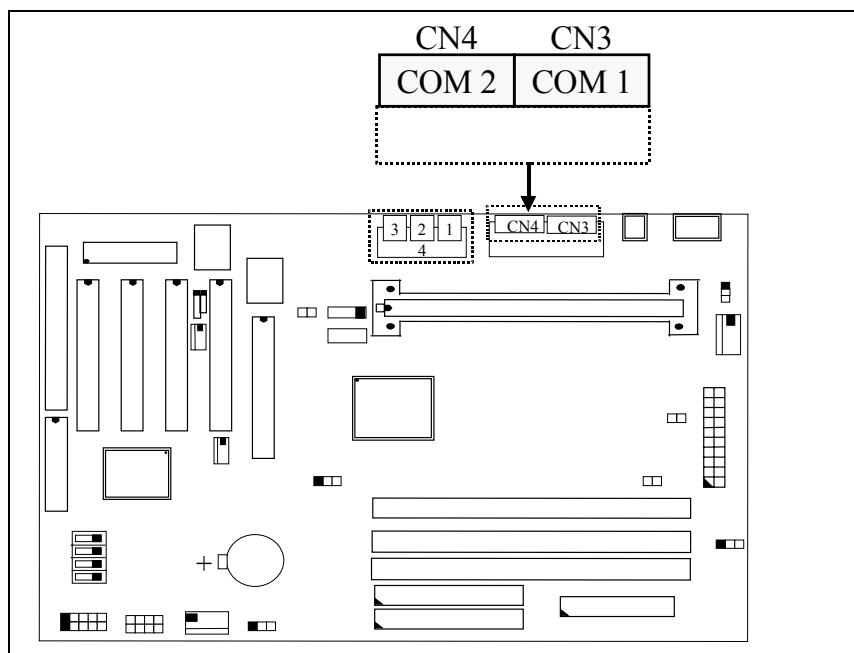


(B) CN1: PS/2 Mouse and Keyboard Connector



(C) CN3 : Serial Port COM 1 Connector

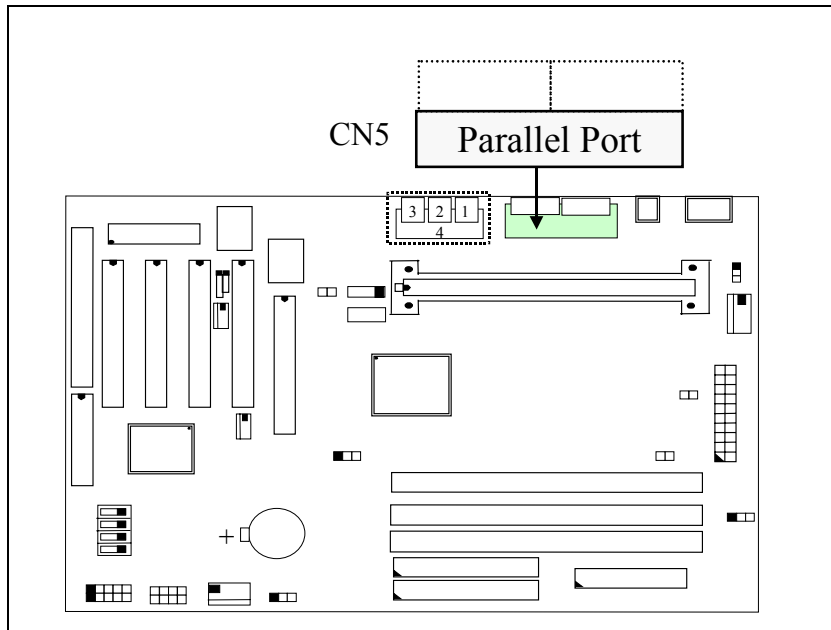
(D) CN4 : Serial Port COM 2 Connector



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

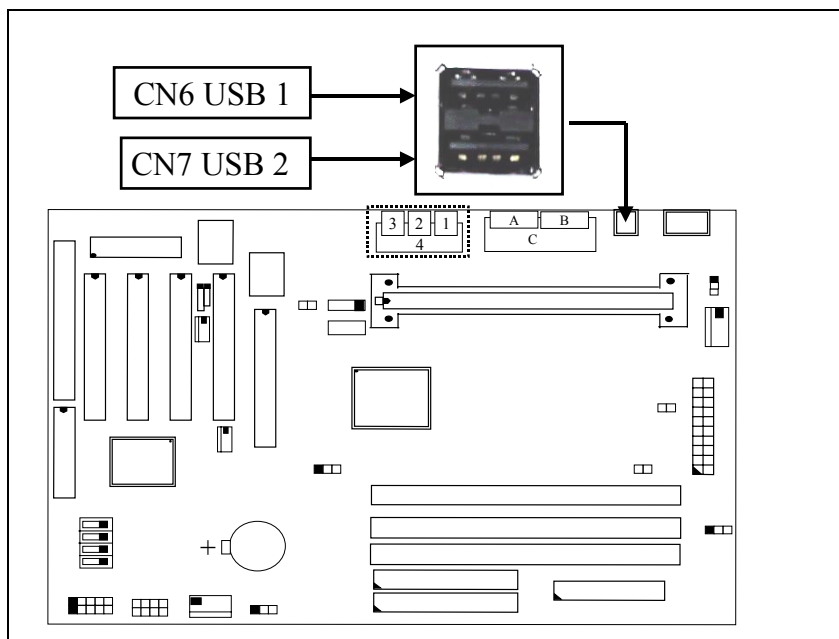
(E) CN5: Parallel Port Connector

(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)

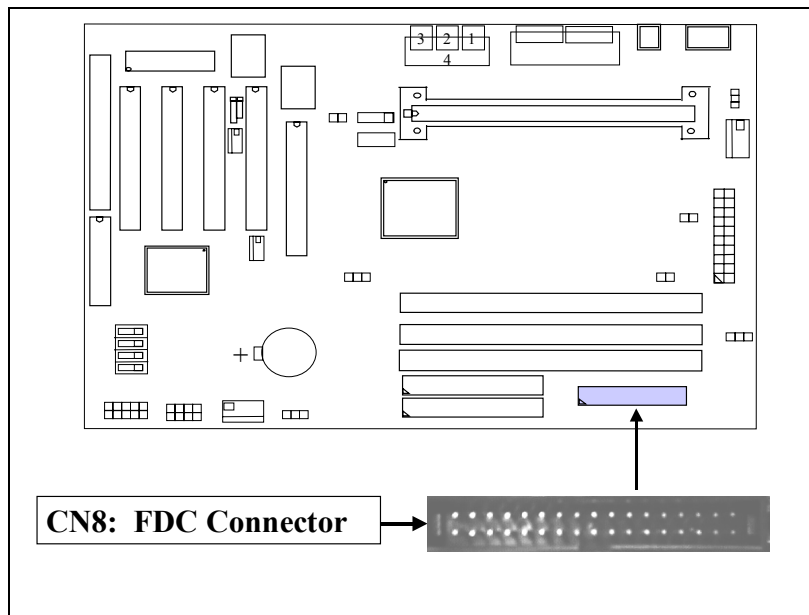


(F) CN6: USB Port 1 (Universal Serial Bus) Connector

(G) CN7: USB Port 2 (Universal Serial Bus) Connector

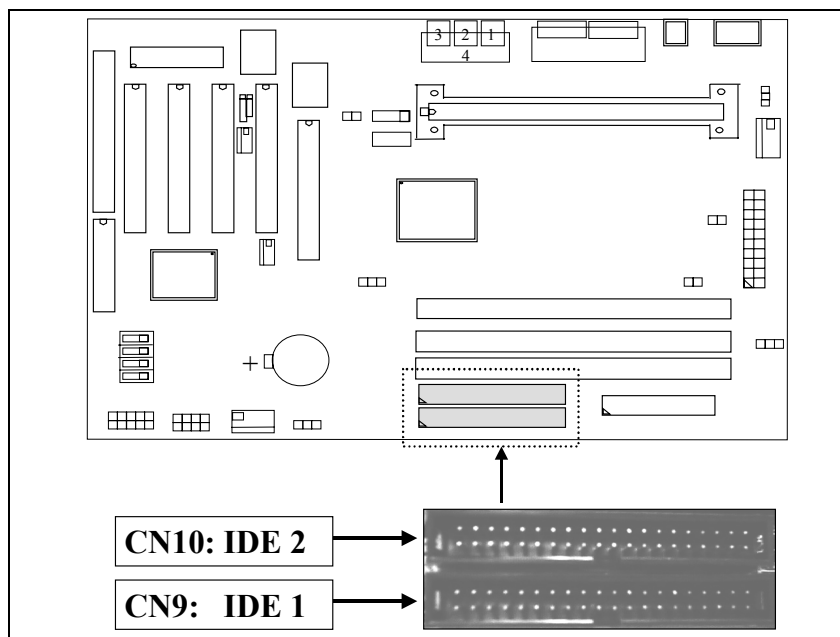


(H) CN8: Floppy Disk Control Port Connector (Use IRQ6, DMA channel 2)



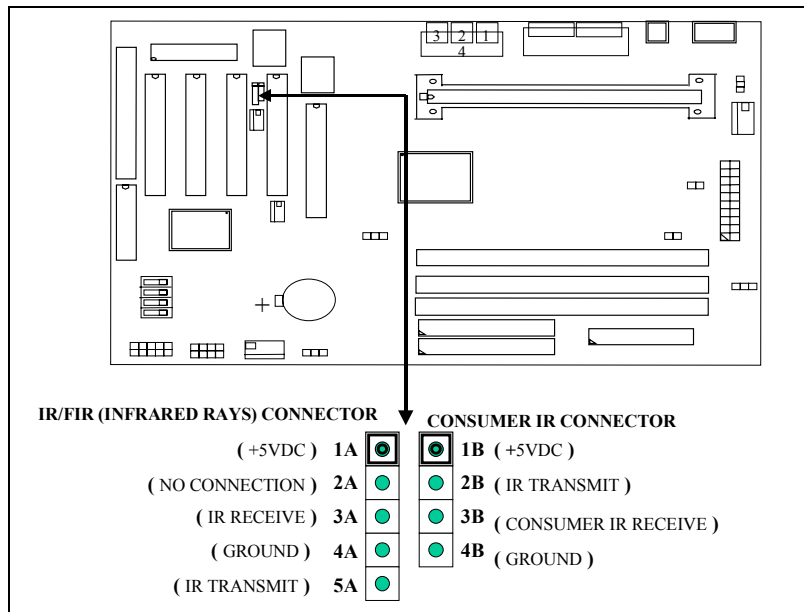
(I) CN9 : IDE 1 Connectors (Primary IDE Port: 1F0H, IRQ 14)

(J) CN10: IDE 2 Connectors (Secondary IDE Port: 170H, IRQ 15)



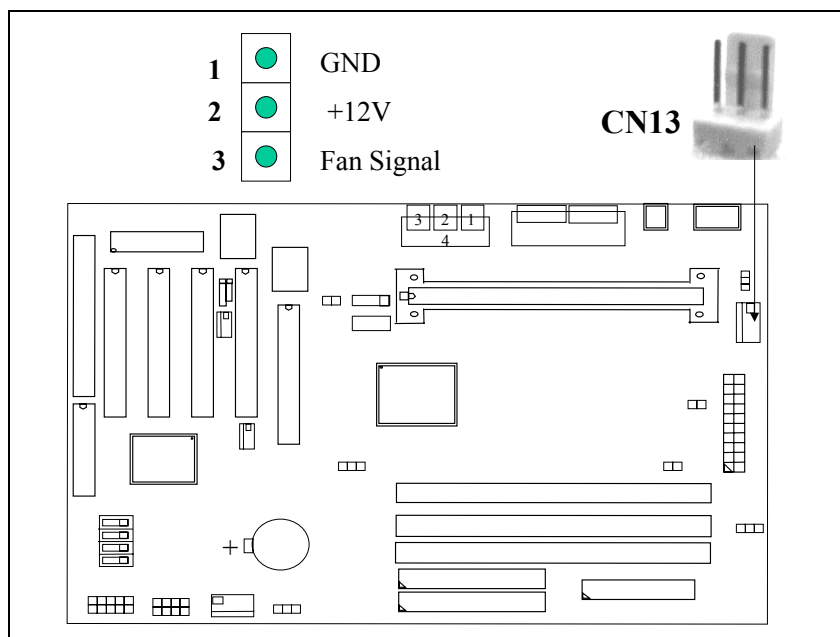
(K) CN12: IR / FIR (Infrared Rays) Connector

Consumer IR Connector (Consumer IR connector is active only when W83977CTF-AW I/O Chip is installed on position U13)

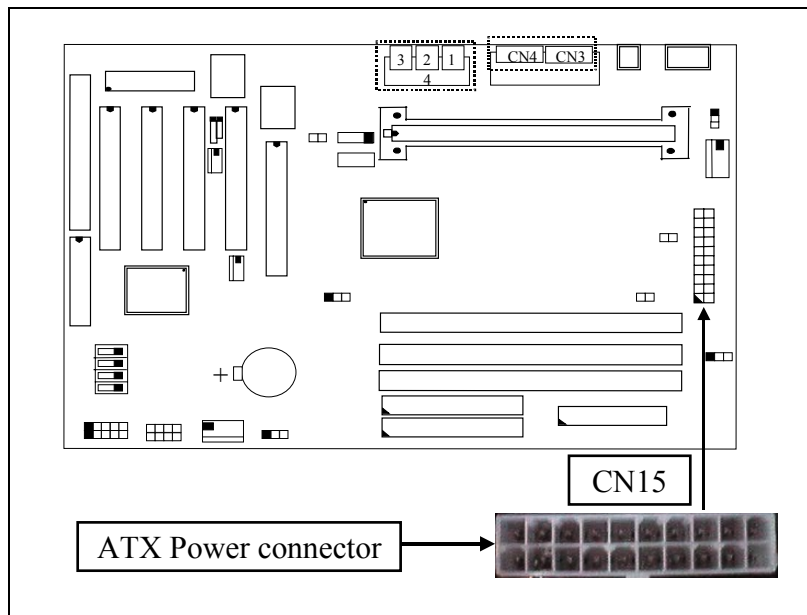


CN 12 IR CONNECTOR (Consumer IR is optional)

(L) CN13: CPU Cooling Fan Power Connector

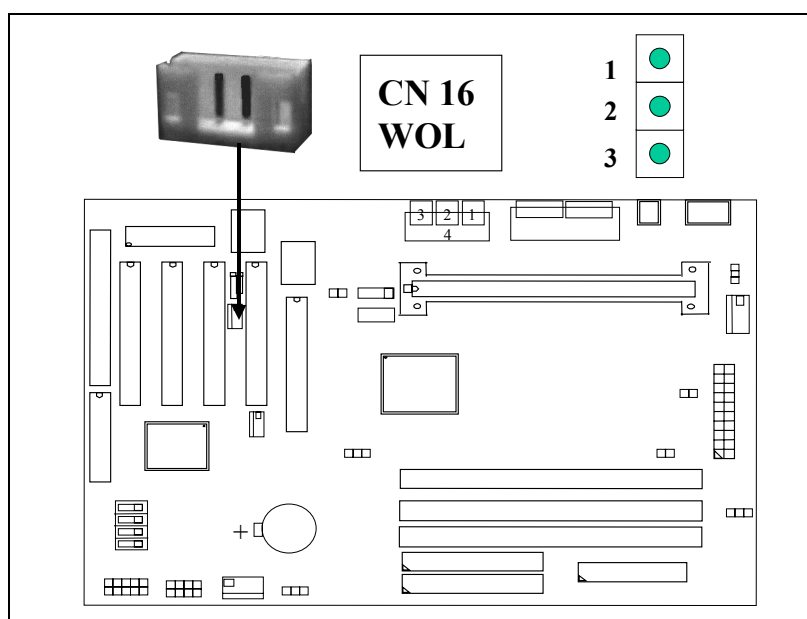


(M) CN15: ATX Power Connector

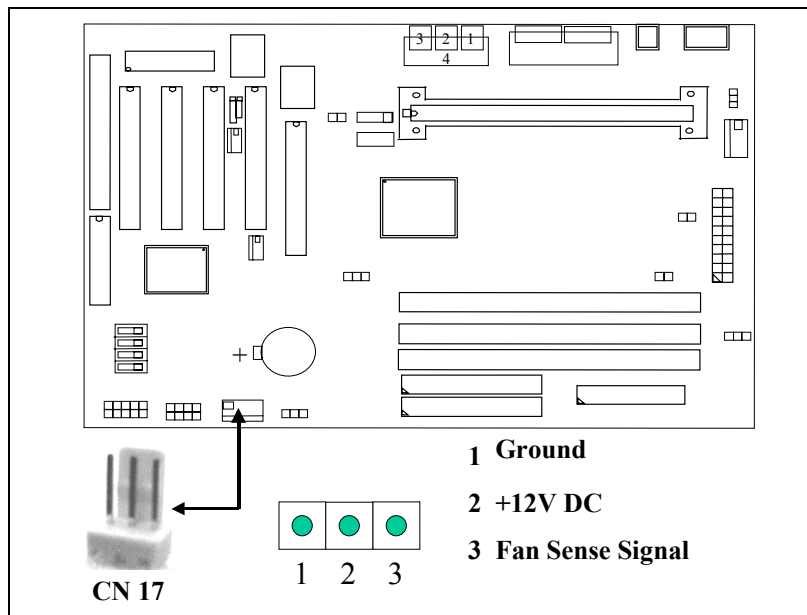


(N) CN16: WOL (Wake On LAN) Connector

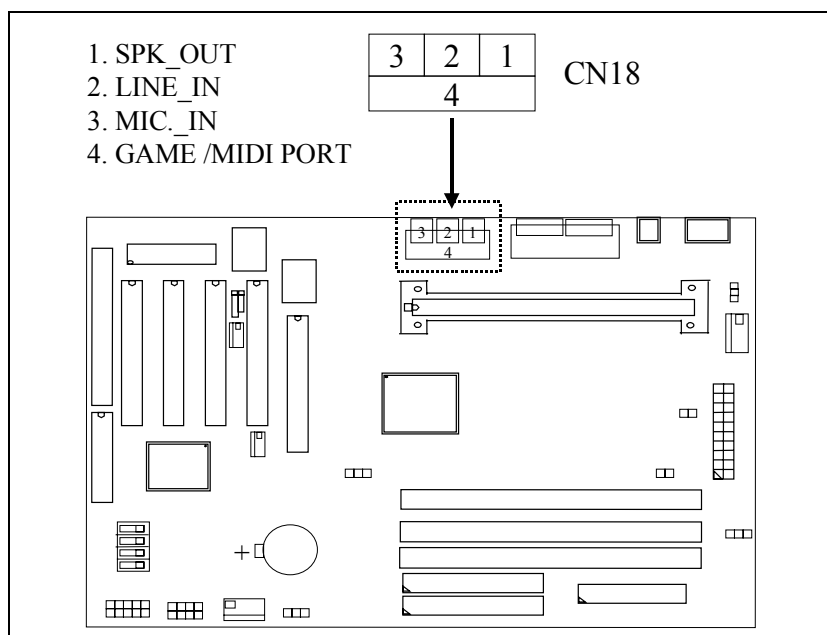
In order to use the WOL LAN card to trigger the power of the PC system, the switching power supply must be able to provide at least 700mA current driving ability on the “5V standby” voltage.



(O) CN17: Chassis Fan Power Connector

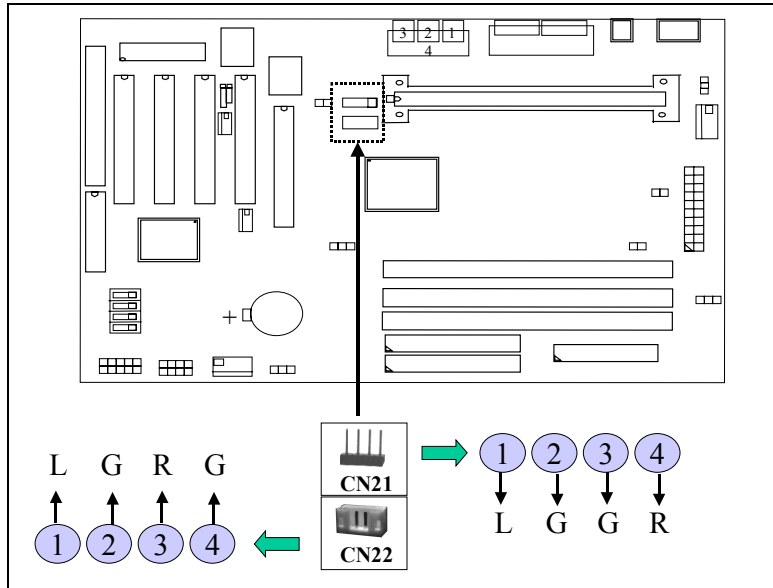


(P) CN18: Audio/Game Connector: (Optional)



(Q) CN21 / CN22: CD-IN Connector: (Optional)

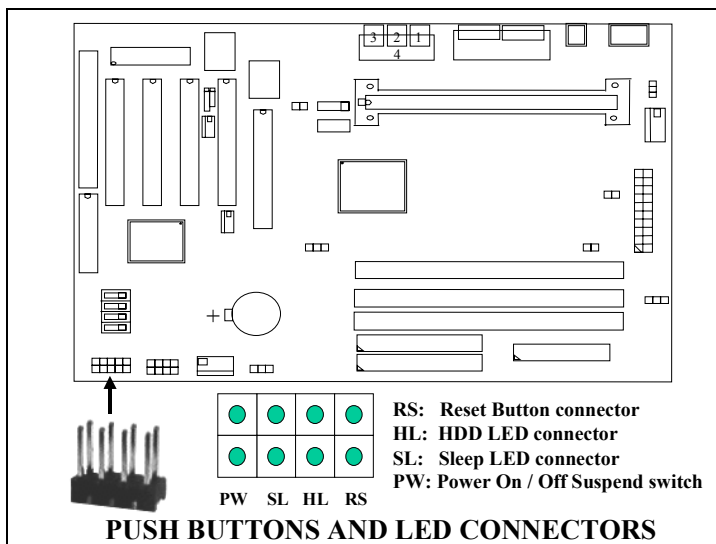
The CD-IN connectors on the board can be used to connect to the CD ROM audio out. There are two different type of connectors, please check with your CD ROM drive and decide which connector will be used to connect to the CD ROM drive.



Note: L = Left channel audio-out
 R = Right channel audio-out
 G = Audio Ground

(R) Push buttons and LED connectors

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



1. **RS** Reset Button Connector

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

2. **HL** IDE HDD LED Connector

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

3. **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.

<u>Pin #</u>	<u>Signal name</u>
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 function of "PW" will be:**
A. When the system power is "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 the 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. (turn into the 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”:**

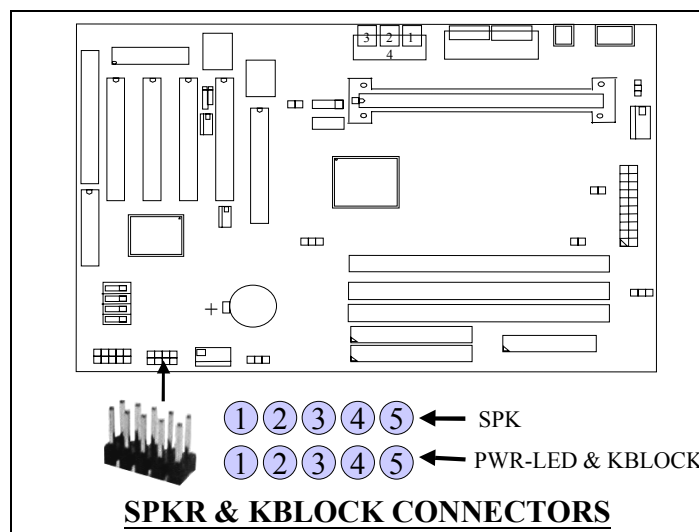
A. When system power is off :

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.






(S) Speaker and Key Lock connector:



SPK: Speaker connector

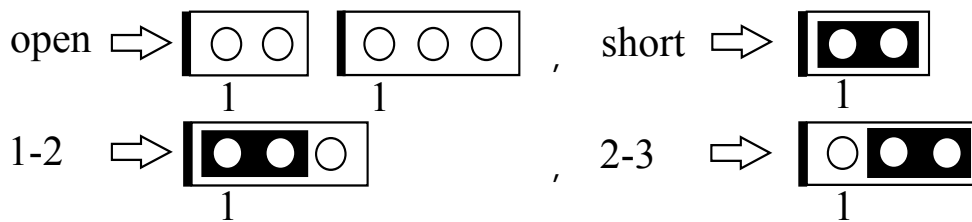
1	Pin #	Signal name
<input type="checkbox"/>	1	+ 5V DC
<input type="checkbox"/>	2	No Connection
<input type="checkbox"/>	3	No Connection
<input type="checkbox"/>	4	Speaker Data Signal
<input type="checkbox"/>	5	No Connection

PWR-LED & KBLOCK: 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 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.

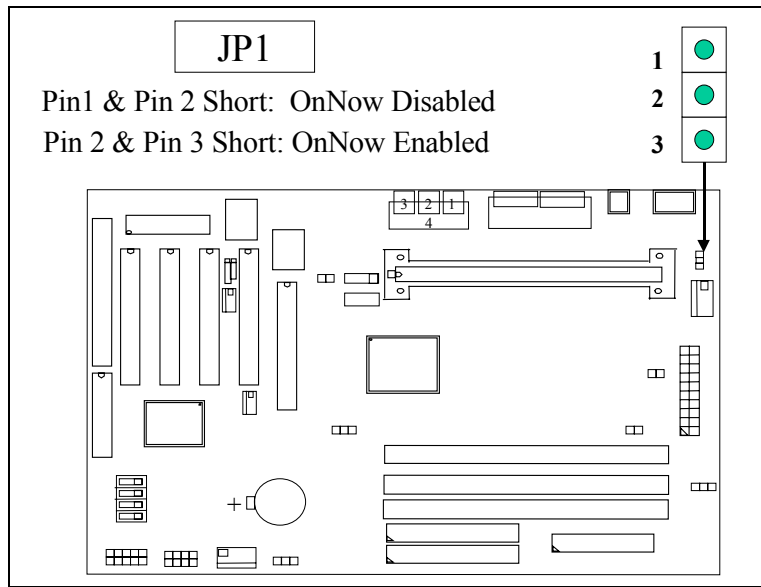


The following jumpers which labeled with “optional” means they are the optional choice for customers and the related components are normally not populated on the mainboard. In order to make the mainboard works properly in your PC system, please make sure all jumper settings are at correct before installing 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 connector plug (mini-jumper) on it. The jumper setting is necessary when installing different components onto the mainboard.

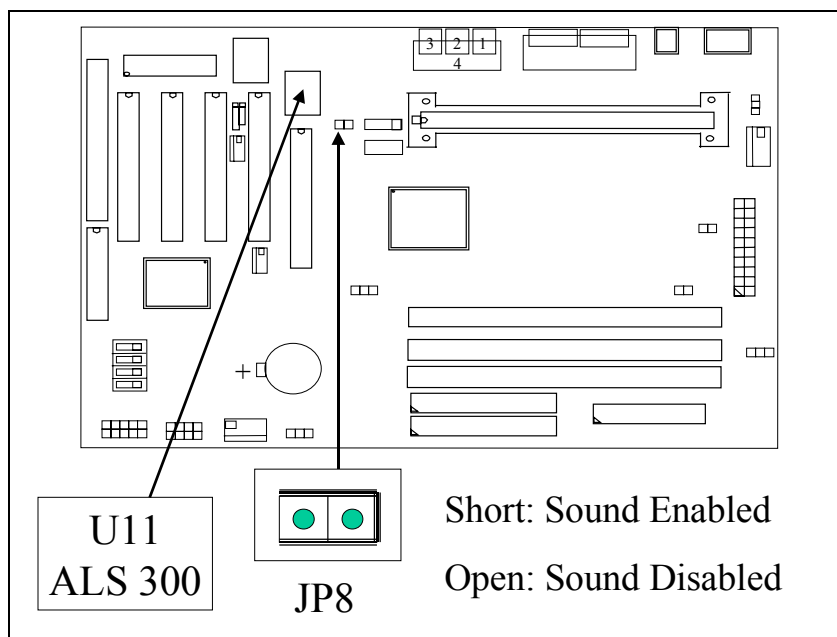
(A) JP1: Keyboard and PS/2 Mouse OnNow function selection

The Keyboard and PS/2 Mouse OnNow function is designed on the mainboard and you can use keyboard and mouse key clicks to power on the PC system. However, there may have some keyboard and mouse are not compatible with the OnNow function. In this case, please use JP1 to disable the OnNow function.

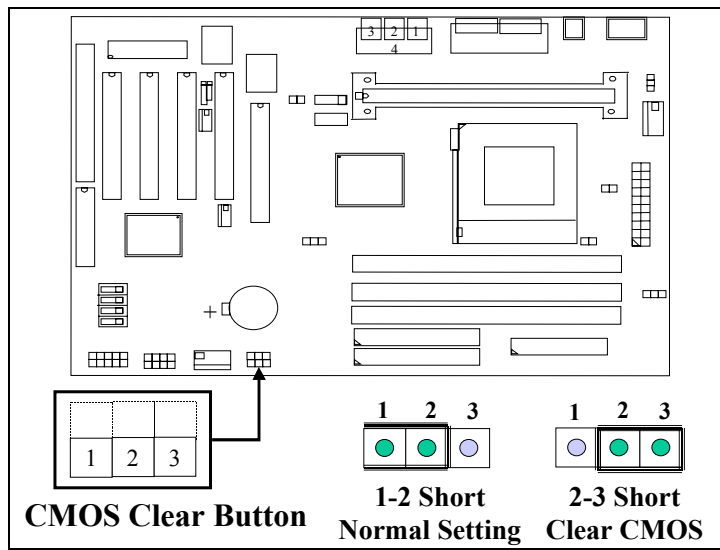


(B) JP8: Onboard Sound interface Enable / Disable (Optional)

The ALS300 Sound card interface is optional on the mainboard. When you find the ALS300 chip mounted on U11, it means that the sound interface is installed on the mainboard. JP8 allows you to Enable / Disable the sound card interface which is designed on the mainboard.



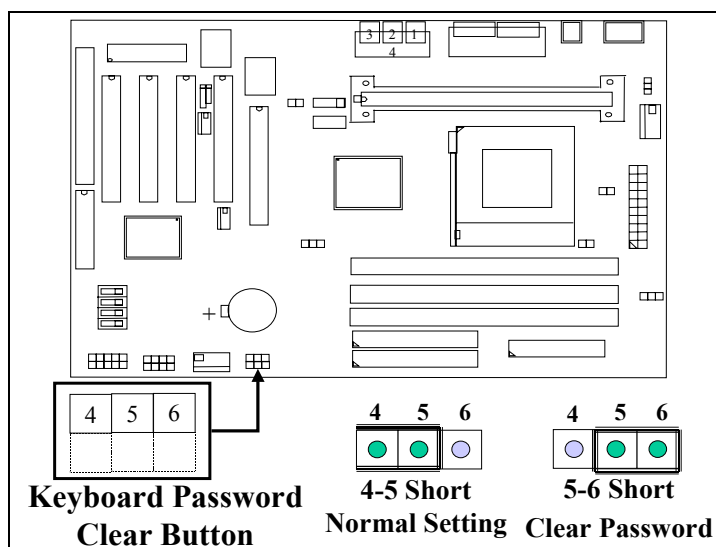
(E) JP9: Clear CMOS Data & Keyboard Password Button



CMOS Data Clear Button

Note: Improper BIOS setting may cause hang-up to the PC system, Should it be happened, you may use JP9 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 JP9 around 3 to 5 seconds and then return it to the original position (pin 1-2).*
3. *Re-connect the AC power cable.*



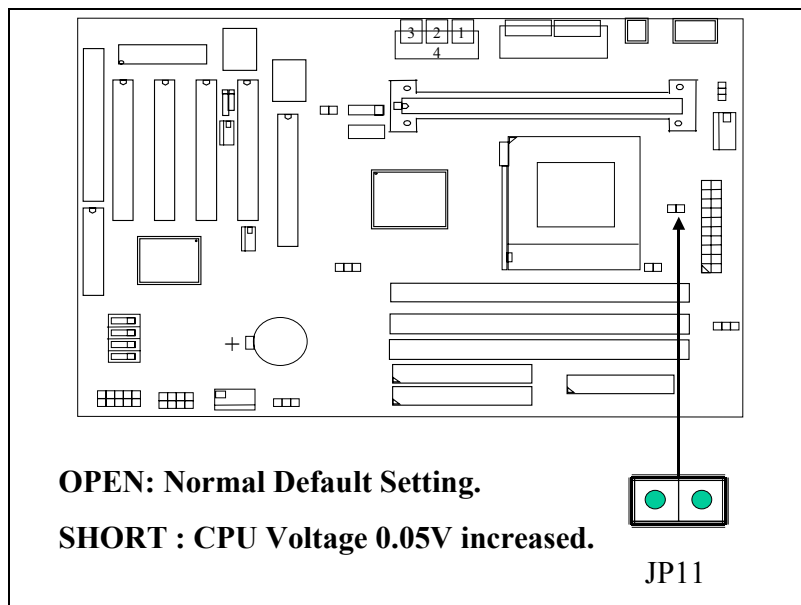
Keyboard Password Clear Button

Note: If you forget the keyboard password which you selected in the BIOS setup program, you may not be able to power on your PC system. (Please refer to Section 4.9 - POWER ON FUNCTION) In case that it happened and you fail to turn on the PC system, you may remove the power cable from your PC system for couple seconds and then you can use the PW button to power on the PC system so that you can modify or remove the password from the CMOS setup. You can also use the jumper setting on JP9 to clear the keyboard password:

- 1. Unplug the AC power cable from the PC system.*
- 2. Put the mini jumper on pin 5-6 of JP9 around 3 to 5 seconds and then return it to the original position (pin 4-5).*
- 3. Re-connect the AC power cable.*

(F) JP11: CPU Voltage Adjustment (Optional)

JP11 is designed for some special purpose. Sometimes you may feel that the CPU voltage detected by the mainboard can not meet your requirement and you want your CPU core voltage become a little bit higher than regular setting. JP11 is designed to adjust the CPU voltage. When "SHORT" is selected, the CPU voltage will be 0.05V higher than normal voltage.



Note: When you use JP11 to raise the CPU voltage, it does not mean that CPU over clock is guaranteed!.

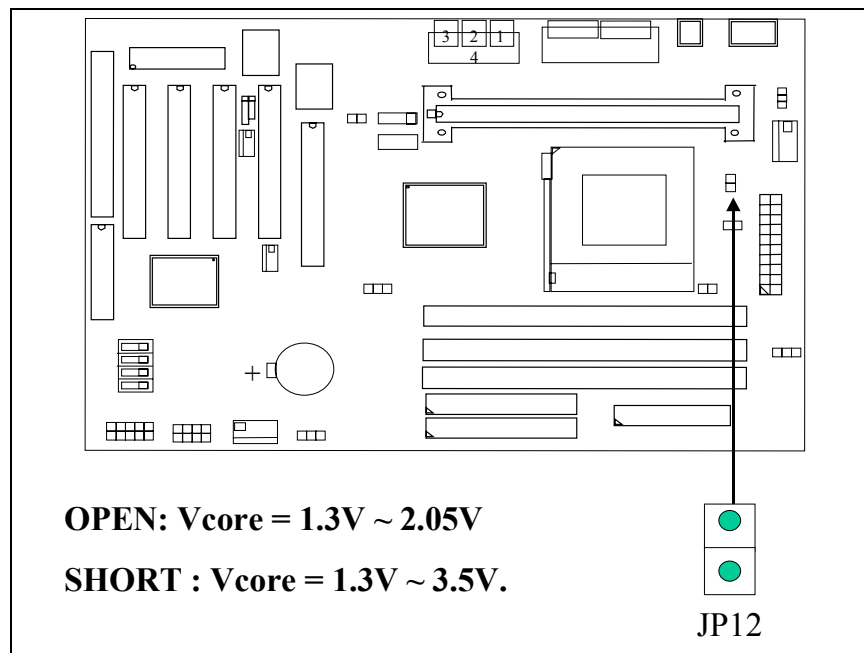
(G) JP12: CPU Voltage Range Selection (Optional)

JP12 is a special design on the mainboard. JP12 allows you to select the CPU core voltage range (Vcore) to protect the CPU.

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

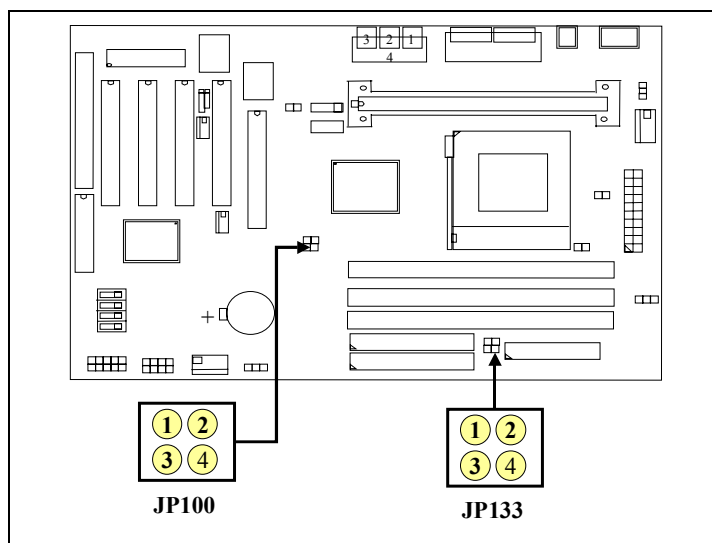
JP12 is designed to control the Vcore within the safe range so that it won't make any damage to the CPU or mainboard because of wrong VID signal.

Since most Pentium II/!!! processors require the Vcore below 2.05V except few Pentium II processors. So the default setting of JP12 will control the Vcore between 1.3V and 2.05V so that the CPU and mainboard will have a good protection. Please do not change the setting on JP12 unless your CPU needs the voltage higher than 2.05V.



(H) JP100 / JP133: Over Clock Selection

JP100 and JP133 are designed to choose the CPU FSB clock (Front Side Bus Clock). Basically, when you have installed the CPU onto the mainboard, this mainboard will detect the CPU type and specify the proper FSB clock for the CPU. So most of the time you need not to make any setting to select the FSB clock. However, sometimes you may feel like to select different FSB clock for some special purpose. In this case, you may use the BIOS setting to select different FSB clock or use the jumper setting on JP100/JP133 to force your CPU to use the selected FSB clock. *(Please do not attempt to change this setting unless you are the technician)*. Please refer to the following for functional description.



This mainboard is designed by using either VIA 693 or 693A chipset. When VIA693 is installed on the mainboard, you will see only JP100 on the board and you can use it to tell the mainboard to use the choosen FSB clock in the following table despite the CPU installed on the mainboard. If you found the VIA693A chipset installed on the mainboard, then you will see both JP100 and JP133 on the board and you can refer to the following table to select different FSB clock:

When 693 chipset is installed onboard:

FSB CLOCK	JP 100	
	Pin1 - Pin2	Pin3 - Pin4
Auto	Short	Open
66MHz	Open	Short
100MHz	Open	Open
133MHz	Open	Open

When 693A chipset is installed onboard:

FSB CLOCK	JP 100		JP133	
	Pin1 - Pin2	Pin3 - Pin4	Pin1 - Pin2	Pin3 - Pin4
66MHz	Open	Short	Open	Short
100MHz	Open	Open	Open	Short
133MHz	Open	Open	Open	Open

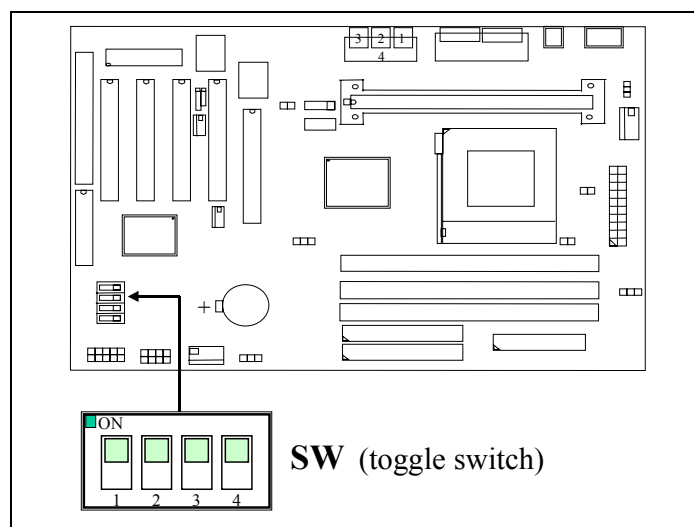


Note:

1. JP100 and JP133 will have no function unless "Default" is selected in the "CPU HOST CLOCK" in the BIOS setup program (refer to Section. 4-6). Please do not to make jumper setting on JP100 and JP133 unless you are the professional technician.
2. When "Default" is selected, you may use JP100/JP133 to select different speed of CPU clock and force your CPU to use that clock speed instead of letting the system BIOS to select the CPU clock automatically.

(I) SWITCH SETTINGS

There is one "toggle switch" designed on the mainboard to select the CPU clock ratio. Basically, you have to check your CPU carefully because some of the CPU does not allow you to change its default clock ratio setting. In another word. the switch setting on the mainboard will make no change when you are using the processor whose clock ratio is "specified and locked" inside the CPU.

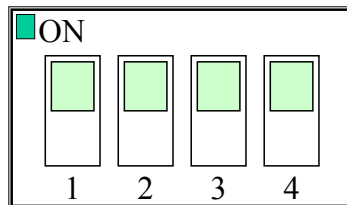


CPU (MHz)	Clock Ratio	SW1	SW2	SW3	SW4
233, 350	3.5X	OFF	OFF	ON	ON
266, 400	4.0X	ON	ON	OFF	ON
300, 450	4.5X	OFF	ON	OFF	ON
333, 500	5.0X	ON	OFF	OFF	ON
366, 550	5.5X	OFF	OFF	OFF	ON
400, 600	6.0X	ON	ON	ON	OFF
433, 650	6.5X	OFF	ON	ON	OFF
466, 700	7.0X	ON	OFF	ON	OFF
500, 750	7.5X	OFF	OFF	ON	OFF
533, 800	8.0X	ON	ON	OFF	OFF



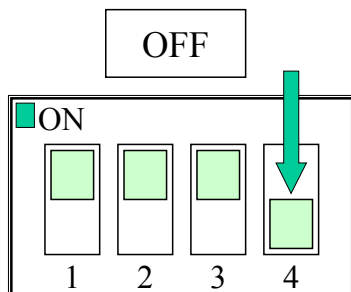
Note: SW setting is inactive when the CPU clock ratio is specified and locked by the CPU.

The following pictures will show you how to make the setting on the "toggle switches":

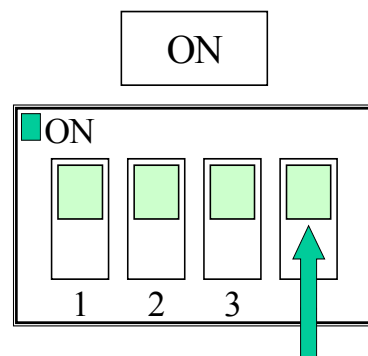


(Picture of "toggle switch")

Toggle Switch "OFF" Setting



Toggle Switch "ON" Setting



Push the switch downward to select "OFF" Push the switch upward to select "ON"

3.5 INSTALLATION OF DEVICE DRIVERS

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

A. Install the mainboard driver:

Before you can use this mainboard in your PC system, you will have to install some device driver so that it will work with Windows properly. The device driver which you have to installed includes **IDE driver, PCI bridge and AGP driver** ...etc. Please look into the CD diskette which comes with this mainboard and refer to the **readme.txt** located in the directory:

"D:\Driver\mainboard\VIA " ("D:" is the device name of your CD ROM drive)

B. Install the Hardware Monitoring Program: (optional)

(Please note that the Hardware Monitoring is optional on the board)

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

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

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

C. Install the Sound card driver: (optional)

(Please note that the Audio interface is optional on the board. If you find ALS300 chip installon the board (U11), you may install the following device driver)

Step1. Insert the CD into the CD ROM drive when Windows requests for the sound card device driver. (Windows will detects the sound interface)

Step2. Select "Driver\Sound\ALS300" directory and Windows will continue the installation procedure.

Step3. Run "SETUP.EXE" to install the device driver.

4. AWARD BIOS SETUP

4.1 GETTING STARTED

When the system is first time powered on or reset by user, the system 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 beeping sound or display the error message on screen.

When the system is normal, the screen display similar to figure *Fig. 4-1* will be displayed on the screen when the system is powered on.

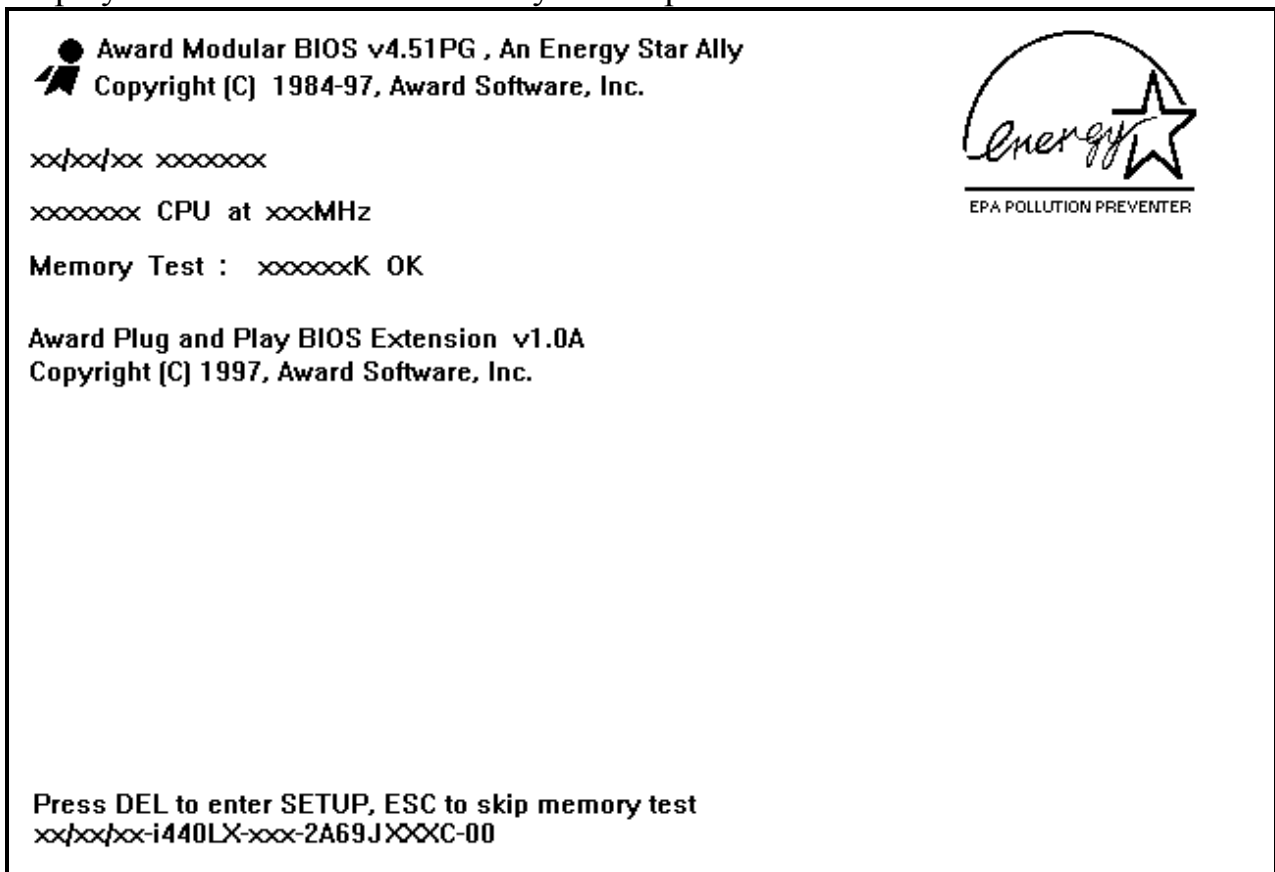


Fig. 4-1 Initial Power-On screen.

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

" Press **DEL** to enter SETUP "

To execute the Award® BIOS CMOS Setup program, please press the **DEL** key. The STANDARD CMOS SETUP screen as shown in figure Fig. 4-2 will be triggered:

4.2 MAIN MENU

ROM PCI/ISA BIOS (2A6LGXXX)
 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
PNP/PCI CONFIGURATION	SAVE & EXIT SETUP
INTEGRATED PERIPHERALS	EXIT WITHOUT SAVING
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 (2A6LGXXX)
 STANDARD CMOS SETUP
 AWARD SOFTWARE, INC.

Date (mm : dd : yy) : Mon, Apr 20 1998																			
Time (hh : mm : ss) : 16 : 03 : 33																			
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.					<table border="1"> <tr> <td>Base Memory :</td> <td>640 K</td> </tr> <tr> <td>Extended Memory :</td> <td>xxxxxx K</td> </tr> <tr> <td>Other Memory :</td> <td>xxxxxx K</td> </tr> <tr> <td colspan="2"><hr/></td> </tr> <tr> <td>Total Memory :</td> <td>xxxxxx K</td> </tr> </table>					Base Memory :	640 K	Extended Memory :	xxxxxx K	Other Memory :	xxxxxx K	<hr/>		Total Memory :	xxxxxx K
Base Memory :	640 K																		
Extended Memory :	xxxxxx K																		
Other Memory :	xxxxxx K																		
<hr/>																			
Total Memory :	xxxxxx K																		
Drive B : None																			
Floppy 3 Mode Support: Disable																			
Video : EGA/VGA																			
Halt On : All Errors																			
ESC : Quit			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item			PU/PD/+/- : Modify													
F1 : Help			(Shift)F2 : Change Color																

Fig. 4-3 STANDARD CMOS SETUP screen.

MODE :

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

- **NORMAL** : For IDE hard disk drives which is smaller than 528MB.
- **LBA** : For IDE hard disk drive which is above 528MB (ideally, it can be as big as 8.4GB) that use Logic Block Addressing (LBA) mode.
- **Large** : For IDE HDD which is above 528MB and does not support LBA mode.
- **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 (2A6LGXXX)
 BIOS FEATURES SETUP
 AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000-CFFFF Shadow	: Disabled
CPU L2 Cache ECC Checking	: Enabled	D0000-D3FFF Shadow	: Disabled
		D4000-D7FFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	D8000-DBFFF Shadow	: Disabled
Boot Sequence	: A,C,SCSI	DC000-DFFFF Shadow	: Disabled
Swap Floppy Drive	: Disabled		
Boot Up Floppy Seek	: Enabled		
Boot Up NumLock Status	: On		
IDE HDD Block Mode	: Enabled		
Gate A20 Option	: Normal		
Memory Parity / ECC Check	: Disabled		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250	ESC : Quit	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item
Security Option	: Setup	F1 : Help	PU/PD/+/- : Modify
PCI/VGA Palette Snoop	: Disabled	F5 : Old Values	(Shift)F2 : Color
OS Select For DRAM > 64MB	: Non-OS2	F7 : Load Setup Defaults	
HDD S. M. A. R. T. capability	: Disabled		

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/!!! or Celeron™ processors.

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

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

Processor Number Feature: (default setting: Disabled)

You can not see this selection option unless you have the Pentium !!! processor installed on the mainboard. There is the serial code inside every Pentium !!! processor and it will be accessed by application to show your personal ID. If you don't feel like to give your serial code to other people, select the "Disabled" setting.

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

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

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

This field allows you to use some other device to load 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.

Boot Up Floppy Seek : (default setting: Disabled)

When enabled, the floppy drive will be initialized during POST.

Boot Up NumLock Status : (default setting: Off)

When enabled, the NumLock LED will be lightened after the POST.

IDE HDD Block Mode : (default setting: Enabled)

This field allows you to enable or disable the HDD block mode.

Memory Parity / ECC Check : (default setting: Disabled)

This field allows you to select the Parity / ECC checking feature. If the DIMM module installed on the mainboard does not have the parity bit, then select "Disabled"

Security Option : (default setting: Setup)

This selection field allows you to select how to secure the PC system for you. There are two choice selectable - "Setup" and "System". Before you can apply the security option to your PC system, you have to select your own ""Supervisor Password" or "User Password" in the BIOS setup program.

When "Setup" is selected, you will have to input your "Passwords" before you can start the BIOS setup program. When you select "System", you will be unable to load the operation system if you don't key-in your personal "password"

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.

HDD S. M. A. R. T. capability : (default setting: Disabled)

S.M.A.R.T. (Self Monitoring Analysis Reporting Technology) is a new technology of hard disk drive. Such technology will monitor the access to the hard drive and let you have a better reliability. When S.M.A.R.T is enabled, the system BIOS can receive analytical information from the hard drive and send you the warning message about the possible failure in the hard drive

4.6 CHIPSET FEATURES SETUP

ROM PCI / ISA BIOS (2A6LGXXX)
 CHIPSET FEATURES SETUP
 AWARD SOFTWARE, INC.

Bank 0 / 1 DRAM Timing	: SDRAM 10ns	Auto Detect DIMM / PCI Clk	: Enabled
Bank 2 / 3 DRAM Timing	: SDRAM 10ns	Spread Spectrum	: Disabled
Bank 4 / 5 DRAM Timing	: SDRAM 10ns	CPU Host Clock (CPU/PCI)	: Default
SDRAM Cycle Length	: 3		:
DRAM Clock	: CPU CLK		
Memory Hole	: Disabled		
Read Around write	: Disabled		
Concurrent PCI / Host	: Disabled		
System BIOS Cacheable	: Disabled		
Video RAM Cacheable	: Disabled		
AGP Aperture Size	: 64M		
AGP-2X Mode	: Enabled		
OnChip USB	: Enabled		
USB Keyboard Support	: Disabled		
		ESC : Quit	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5: Old Values	(Shift)F2 : Color
		F7 : Load Setup Defaults	

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.*

Bank 0/1, 2/3, 4/5 DRAM Timing

This item allows you determine the type of timing the system uses when reading or writing to the SDRAM.

SDRAM Cycle Length : (default Setting : 3)

This field sets the CAS latency timing of the memory subsystem.

The Choice: 2, 3.

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.

Read Around write (default Setting : Disabled.)

DRAM optimization feature: If a memory read is addressed to a location whose latest write is being held in a buffer before being written to memory, the read is satisfied through the buffer contents, and the read is not sent to the DRAM

Concurrent PCI/Host (default Setting : Disabled.)

When disable, CPU bus will be occupied during the entire PCI operation period.

System BIOS Cacheable (default setting : Disabled.)

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

Enabled	BIOS access cached
Disabled	BIOS access not cached

Video BIOS/RAM 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 /RAMaccess cached
Disabled	Video BIOS /RMA access not cached

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.

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 is already supported by the OS and where you can select the memory for the AGP Aperture size.

OnChip USB (default setting: "Enalbed")

This should be enabled if your system has a USB installed on the system board and you wish to use it. However, if you have another USB controller on one of the add on card, you will have to disable this feature.

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".

Auto Detect DIMM/PCI Clk: (default setting : "Enabled")

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

Spread Spectrum: (default setting : "Disabled")

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

CPU Host/ PCI Clock: (default setting: "Default")

This selection field is used to decide the CPU FSB clock. Basically, this mainboard is designed by Intel VIA 693/693A AGPset and it supports both the 100MHz and 66MHz FSB frequency. When you select "default" setting, the system BIOS will detect the CPU type and decide the FSB clock automatically. You may also use this field to select different FSB clock and force your CPU to run at higher speed. (be sure to make sure your system devices are fast enough before you can change to such setting)

When you have decided the FSB clock, you will have to use toggle switch (SW) setting to select the CPU clock ratio and decide the CPU speed. please refer to page 3-23 for details of the switch settings..

Beside the "Default" FSB selection, this mainboard also provides the manual option for your choice. You may use th "Page Up" and "Page Down" to select different FSB clock, the FSB selectable in the BIOS are: 66, 75, 83, 100, 103, 112, 124, 133 and 140 MHz.

**Note:**

- 1. The higher FSB frequency 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.***
- 2. Wrong selection of FSB clock may cause the PC system hangup and the system can not boot, In case that it should be happened, please use JP9 to clear the CMOS so that you can***

4.7 POWER MANAGEMENT SETUP

ROM PCI / ISA BIOS (2A6LGXXX)
 POWER MANAGEMENT SETUP
 AWARD SOFTWARE, INC.

ACPI function	: Disabled	Primary INTR	: ON
Power Management	: User Define	IRQ3 (COM 2)	: Primary
PM Control by APM	: Yes	IRQ4 (COM 1)	: Primary
Video Off After	: Suspend	IRQ5 (LPT 2)	: Primary
Video Off Method	: Blank Screen	IRQ6 (Floppy Disk)	: Primary
MODEM Use IRQ	: 3	IRQ7 (LPT 1)	: Primary
Soft-Off by PWRBTN	: Instant – off	IRQ8 (RTC Alarm)	: Disabled
HDD Power Down	: Disable	IRQ9 (IRQ2 Redir)	: Secondary
Doze Mode	: Disable	IRQ10 (Reserved)	: Secondary
Suspend Mode	: Disable	IRQ11 (Reserved)	: Secondary
** PM Events	**	IRQ12 (PS / 2 Mouse)	: Primary
VGA	: OFF	IRQ13 (Coprocessor)	: Primary
LPT & COM	: LPT / COM	IRQ14 (Hard Disk)	: Primary
HDD & FDD	: ON	IRQ15 (Reserved)	: Disabled
DMA / master	: OFF	ESC : Quit	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item
Modem or LAN Resume	: Disabled	F1 : Help	PU/PD/+/- : Modify
RTC Alarm Resume	: 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 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.

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.

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)

Soft-Off by PWRBTN : (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 3-15 for details of function description.

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.

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

Suspend Mode: (Default setting: Disable)

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

******* PM Events *******

VGA (Default setting: OFF)

When set to *On*, any event occurring at a VGA port will awaken a system which has been powered down.

LPT & COM

When set to *On*, any event occurring at a COM(serial)/LPT (printer) port will awaken a system which has been powered down.

HDD & FDD (Default setting: ON)

When set to *On*, any event occurring at a hard or floppy drive port will awaken a system which has been powered down.

DMA / master (Default setting: OFF)

When set to *On*, any event occurring at will awaken a system which has been powered down.

Modem or LAN Resume (Default setting: Disabled)

When set to *Enabled* , any event occurring to the Modem Ring or LAN will awaken a system which has been powered down.

RTC Alarm Resume (Default setting: Disabled)

When *Enabled*, your can set the date and time in the RTC (real-time clock) alarm so that you can use the RTC alarm to wake the system from Suspend mode

4.8 PNP/PCI CONFIGURATION

ROM PCI / ISA BIOS (2A6LGXXX)
 PNP/PCI CONFIGURATION
 AWARD SOFTWARE, INC.

PNP OS Installed	:	No	CPU to PCI Write Buffer	:	Enabled
Resources Controlled By	:	Manual	PCI Dynamic Bursting	:	Enabled
Reset Configuration Data	:	Disabled	PCI Master 0 WS Write	:	Enabled
IRQ-3 assigned to	:	PCI/ISA PnP	PCI Delay Transaction	:	Enabled
IRQ-4 assigned to	:	PCI/ISA PnP	PCI #2 Access # 1 Retry	:	Disabled
IRQ-5 assigned to	:	PCI/ISA PnP	AGP Master 1 WS Write	:	Enabled
IRQ-7 assigned to	:	PCI/ISA PnP	AGP Master 1 WS Read	:	Disabled
IRQ-9 assigned to	:	PCI/ISA PnP	Assign IRQ for USB	:	Enabled
IRQ-10 assigned to	:	PCI/ISA PnP	Assign IRQ for VGA	:	Enabled
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. 4-7 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 and Windows® 98) or not. The PnP OS will use the system resources record stored in the ESCD segment to arrange the system environment..

Resources Controlled by : (Default setting: Manual)

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. (the system BIOS will always refer to the ESCE 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 of the 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 “PCI/ISA PnP” is selected, the related IRQ and DMA will be released and they can be used by other PCI or ISA devices. Whenever there is the new PCI or ISA devices plugged onto the mainboard, 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 arrangement 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.

CPU to PCI Write Buffer : (Default Setting : Enabled)

When enabled, up to four Dwords of data can be written to the PCI bus without interrupting the CPU. When disabled, a write buffer is not used and the CPU read cycle will not be completed until the PCI bus signals is ready to receive the data.

PCI Dynamic Bursting : (Default Setting : Enabled)

When *Enabled*, every write transaction goes to the write buffer. Burstable transactions then burst on the PCI bus and nonburstable transactions don't.

PCI Master 0 WS Write : (Default Setting : Enabled)

When *Enabled*, writes to the PCI bus are executed with zero wait states.

PCI Delay Transaction : (Default Setting : Enabled)

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.

PCI#2 Access #1 Retry : (Default Setting : Disabled)

This item allows you enable/disable the PCI #2 Access #1 Retry.

AGP Master 1WS Write / Read

This implements a single delay when writing / reading to the AGP Bus. By default, two-wait states are used by the system, allowing for greater stability.

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 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 IRQ will be released and becomes available for other devices.

Before you can proceed with the change, please make sure that you do not have USB and VGA adapter which will use the IRQ signal. Otherwise, your PC system will become abnormal and the devices connected to these ports will be failed.

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.

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 ..).

4.9 INTEGRATED PERIPHERALS

ROM PCI / ISA BIOS (2A6LGXXX)
 INTEGRATED PERIPHERALS
 AWARD SOFTWARE, INC.

On-Chip IDE Channel 0	: Enabled	UART Mode Select	: Normal
On-Chip IDE Channel 1	: Enabled		
IDE Prefetch Mode	: Enabled		
Primary Master PIO	: Auto	Onboard Parallel Port	: 378 / IRQ7
Primary Slave PIO	: Auto	Parallel Port Mode	: SPP
Secondary Master PIO	: Auto		
Secondary Slave PIO	: Auto		
Primary Master UDMA	: Auto		
Primary Slave UDMA	: Auto		
Secondary Master UDMA	: Auto		
Secondary Slave UDMA	: Auto		
Init Display First	: PCI Slot		
POWER ON Function	: BUTTON ONLY		
KBC input clock	: 8 MHz	ESC : Quit	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> : Select Item
Onboard FDC Controller	: Enabled	F1 : Help	PU/PD/+/- : Modify
Onboard Serial Port 1	: 3F8 / IRQ4	F5 : Old Values	(Shift)F2 : Color
Onboard Serial Port 2	: 2F8 / IRQ3	F7 : Load Setup Defaults	

Fig. 4-8 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.

OnChip IDE Channel0/Channel1 (Default setting : “Enabled”)

The chipset contains a PCI IDE interface with support for two IDE channels. Select *Enabled* to activate the first and/or second IDE interface. Select *Disabled* to deactivate an interface, if you install a primary and/or secondary add-in IDE interface.

IDE Prefetch Mode (Default setting : “Enabled”)

The onboard IDE drive interfaces supports IDE prefetching, for faster drive accesses. If you install a primary and/or secondary add-in IDE interface, set this field to *Disabled* if the interface does not support prefetching.

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.

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

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")

The Power ON function allows you to select different way to power on your PC system. Please note that you will be unable to use the power button (PW switch) to power on your PC system if "Password" is selected in this field.

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

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

The Choice: Enabled, Disabled

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

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

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

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

This item allows you to determine which Infra Red (IR) function of onboard I/O chip.

The Choice: Normal, ASKIR, HPSIR

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

Select a logical LPT port name and matching address for the physical parallel (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,.

4.12 USER PASSWORD

ROM PCI/ISA BIOS (2A6LGXXX)
 CMOS SETUP UTILITY
 AWARD SOFTWARE, INC.

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

The User Password can be used to check the user's authority. However, this password entry is somewhat different to the "SUPERVISOR PASSWORD" mentioned in previous page. The User Password will have different function according to the "Supervisor Password" and the "Security Option" setup in Section 4.5:

A. When there is the password stored in the "SUPERVISOR PASSWORD"

1. When "Setup" is selected in Security Option:

Users can use the "User Password" to log into the BIOS setup program, but they can only select "User Password", "SAVE & EXIT SETUP" and "EXIT WITHOUT SAVING". (Use the Supervisor Password to log into the PC system, you will have the complete right to change all settings in the BIOS setup program)

2. When "System" is selected in Security Option:

When turn on the PC system, it will request you to enter the Password. Without the correct password, the PC system will stop and the operation system will not be loaded.

B. When there is no password stored in the "SUPERVISOR PASSWORD"

1. When "Setup" is selected in Security Option:

Users can use the "User Password" to log into the BIOS setup program, and they can make all the change in the BIOS setup program.

2. When "System" is selected in Security Option:

When turn on the PC system, it will request you to enter the Password. Without the correct password, the PC system will stop and the operation system will not be loaded.

4.13 IDE HDD AUTO DETECTION

ROM PCI/ISA BIOS (2A6LGXXX)
 CMOS SETUP UTILITY
 AWARD SOFTWARE, INC.

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

There are so many different types of Hard Disk Drive (HDD) in the market and your PC system will not know the HDD type unless you tell it the HDD type. In order to make your PC system know the IDE HDD type, you have to tell the system what kind of HDD is connected to the mainboard by giving a set of HDD parameters. Sometimes it is not easy for users to find the proper parameters for their IDE HDD. In order to help users to find the parameters, the system BIOS provides a convent way – the auto detection of IDE HDD.

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 HDD. If it succeeds, you will see a list of hard disk with its related parameters displayed on the screen. You may press on the “Y” key to confirm the HDD type (or select one of the hard disk type listed on the screen). The system BIOS will "read" the parameters into the CMOS memory and you have completed the IDE HDD setup.

4.14 SAVE & EXIT SETUP

ROM PCI / ISA BIOS (2A6LGXXX)
 CMOS SETUP UTILITY
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	SUPERVISOR PASSWORD
BIOS FEATURES SETUP	USER PASSWORD
CHIPSET FEATURES SETUP	IDE HDD AUTO DETECTION
POWER MANAGEMENT SETUP	SAVE & EXIT SETUP
PNP/PCI CONFIGURATION	EXIT WITHOUT SAVING
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 value to CMOS RAM & EXIT SETUP routine. Move the selection bar to “SAVE & EXIT SETUP” and pressing “Enter” key. and then confirm with “Y” and click on the “Enter” key again. The setup value 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.

4.15 EXIT WITHOUT SAVING

ROM PCI/ISA BIOS (2A6LGXXX)
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
PNP/PCI CONFIGURATION	SAVE & EXIT SETUP
INTEGRATED PERIPHERALS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
ESC : Quit	
F10 : Save & Exit Setup	
Time, Date, Hard Disk Type ...	
□□□□ : Select Item	
(Shift)F2 : Change Color	

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.

