

**6VABX2**  
**ATX Form Factor**  
**Main Board**  
User's Manual  
Ver.2.0

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Manual version: 2.0  
Published in 1999

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# Chapter 1 Introduction

## 1-1 6VABX2 Main Board Overview

**6VABX2** is a new-generation Pentium® II and Pentium® III main board based on VIA VT82C693 chipset. **6VABX2** has integrated the latest advances in processor, memory, I/O technologies into an ATX form factor.

**6VABX2** utilizes VIA 693 chipset designed for Pentium® II and Pentium® III CPUs and supports new architectures such as high-speed AGP graphic port, SDRAM, Ultra DMA/33, bus master IDE and USB port. It has three Dual In-line Memory Modules (DIMM) which can be installed with SDRAM memory. The memory subsystem supports up to either 384 MB (SDRAM) or 384 MB (EDO RAM). **6VABX2**, using the slot 1 socket, accepts Intel® Pentium® II (66/100 MHz) & Pentium® III(100 MHz) processors. Built-in second level (L2) cache in CPU, there is no cache necessary in this system board.

**6VABX2** has implemented Winbond high performance I/O Controller utilizes with fully Plug and Play device which supports 2.88 MB Floppy, Dual 16550 Compatible (with 16 bytes FIFO, up to 460K baud rate) Serial Port, ECP (Enhanced Capabilities Port), EPP (Enhanced Parallel Port) parallel port, Infrared IrDA (HPSIR), and Amplitude Shift Keyed IR. (ASKIR) port.

**6VABX2** supports 5\*PCI ,2\*ISA, and 1\*A.G.P. (four PCI Bus Mastering slots & 1 PCI Bus Slave slot) for highest performance I/O add-on adapter cards.

**6VABX2** is also strengthened with Power Management Wake up Event such as “**WOL (Wake up on LAN),**” “**Modem ring on**” and “**Keyboard Wake up,**” which are the new inventions to enable PCs to be turned on over the network or modem. These are also key benefits in PC operation, asset management, new system setup and power conservation.

In addition to the above hardware features, this system board is jumperless design, which allows user to set CPU frequency through BIOS. No jumper or hardware DIP switch is needed. With this design, the disadvantages of setting hardware CPU jumpers are improved to a better and easier procedure through BIOS.

In conclusion, **6VABX2** is a combination of the highest in performance, flexibility, efficiency, and ease of use that meets a variety of price/performance levels. The **6VABX2** is an ideal platform for the increasing requirements of today's and future's desktop application.



*6VABX2 does not support 133MHz F.S.B Pentium® III CPU.*

## 1-2 Reference For Pentium® II CPUs

**6VABX2** supports Intel ® Pentium® II and Pentium® III microprocessors. The Pentium® II and Pentium™ III processors deliver more performances than previous generation processors (such as Pentium®, Pentium® MMX™, etc...) through an innovation called Dynamic Execution Architecture. It is improved by 3D visualization and interactive capabilities required by present high-end commercial and technical applications and future's emerging applications as well.

Below is the reference for Pentium® II CPUs accomodating this main board.

<b>Intel® Processors for Slot 1</b>				
Pentium™ III	Pentium® II			
100 MHz F.S.B	100 MHz F.S.B	66MHz F.S.B		
Katmai™ W/512K	Deschutes™ w/512K	Klamath™ w/512K	Celecron™ w/128K & CPU code A	Celeron™ w/o L2 cache
450-500 MHz	350- 450 MHz	233-333 MHz	300 & 333 MHz	266- 300 MHz



**Note1:** CPU is not enclosed in the package



**Note 2:** Celeron™ has 2 models. One is with internal cache and one without. The one with cache has a CPU code "A," such as Celeron 300A..



**Note 3:** 6VABX2 does not support 133MHz F.S.B Pentium® III CPU.



## 1-3 Specifications

- **PCB board size:** 30.5 cm x 18.00 cm
- **PCB layer:** 4 layers
- **Slot 1 socket**  
Support Intel® Pentium® II CPU at 66 MHz & 100 MHz F.S.B and Pentium® III 100MHz F.S.B.



*CPU is not enclosed in the package*



*6VABX2 does not support 133MHz F.S.B Pentium® III CPU.*

- **Memory DIMM:** 3 of 168-pin 3.3V DIMM
  - **Professional PC**
    - \* 100 MHz freq. : PC-100 DIMM
    - \* 66 MHz freq. : SDRAM up to 384MB  
EDO RAM up to 384MB ( 3.3V only)



*PC-100 DIMM is required for 100 MHz F.S.B. CPUs.*

- **Basic PC: 66 MHz freq.**
  - \* SDRAM up to 384MB
  - \* EDO RAM up to 384MB(3.3V only)
- **Expansion Slot :** 2x ISA, 5 x PCI slots and 1x A.G.P. slot
- **Chipset**
  - VIA VT82C693
  - VIA VT82C596A
- **BIOS:** flash EEPROM for BIOS  
Award® full **PnP** (Plug & Play) BIOS

- **I/O function**
  - 2 x PCI IDE devices
  - 1 x FDC, 2 x serial ports(16550 fast com)
  - 1x parallel port device /EPP/ECP/SPP
  - 2x USB connector
  - IrDA (infrared) connector
  
- **Green function:** Complied with APM (Advanced Power Management)
  
- **ATX form factor**

The ATX form factor has been defined to address four major areas of improvement required of today's predominant form factors.

  - Enhance PC ease-of-use with all built-in I/O connector
  - Better support for current and future I/O
  - Redude total system cost
  - Better support for future processor technology

ATX is an evolution of the popular Baby-AT form factor. By mounting the power supply on its side, the processor is relocated away from the expansion slots, and the longer side of the board is used to host more on-board I/O connector; this placing of I/O on the board reduces cabling inside the box, lower costs, and improves reliability and ease-of use. A flexible I/O panel allows ATX to support all current and future I/O requirements. The ATX power supply will directly suck the air out of chassis that will save the cost of a secondary fan in the system. System cost is further reduced by the higher integration of PC components onto the system board itself, saving materials, inventory holding, and assembly cost.
  
- **Power supply regulation**

Onboard switching voltage that supports appropriate power to the CPU and future upgraded CPUs.

- **Over-current protection circuit**

With AIC 1569CS AH13 (protect CPU from accident short circuit), and a set poly-fuses (protect Keyboard and USB devices from accident short circuit), if system current is over-loaded, the system will break down to protect direct damage of the main board.

- **Electrical--- Typical power supply**

Below is reference for ATX case requirement on power supply.

Voltage	Tolerance	Current		
		230W	250W	300W
+5V	±5%	23A	25A	30A
+3.3V	±5%	14A	14A	14A
+12V	± 10%	9A	10A	12A
-5V	±5%	0.5A	0.5A	0.5A
-12V	±5%	0.8A	0.8A	0.8A
+5VSB	±5%	1A	1A	1A



*WOL (Wake up on LAN) function requirement:*

*Power supply should offer at least 750mA to the signal "5VSB" to support WOL function.*

- **Special features**

- Jumperless design
- Wake up on LAN (ATX power supply is required)
- Modem ring on (ATX power supply is required)
- Creative PCI sound Blaster AWE64D header (support PC/PCI spec.)
- Windows 95/98 power off (ATX power supply is required)
- Keyboard wake up (ATX power supply is required)
- PS/2 mouse wake up (ATX power supply is required)



## 1-4 Notice of Hardware Installation

Before hardware installation, make sure you have checked the following things.

### A. Check the package

If any of these items is missing or damaged, contact the dealer from whom you purchase. Leave this main board in its original package until you are ready to install it. In the package, there are:

- **6VABX2** main board
- manual
- cables
- driver & utility / CD
- retention mechanism

### B. Make sure power is off.

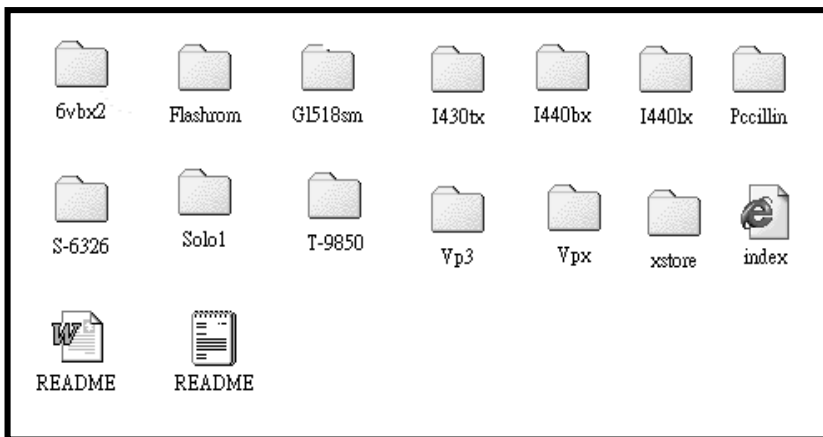
During hardware installation, be sure there is no power connected at this period.

### C. Avoid ESD (Electrical Static Discharge)

While working with **6VABX2**, wear a grounded wristband or ankle strap to avoid ESD (Electrical Static Discharge).

## 1-5 Notice of CD Driver Installation

This CD contains drivers as below. Read “**Index**” before installing required drivers. “Index” file is HTML format.



*CD driver is always updated with the latest version, so the actual CD content may have some difference with the above picture.*

1. **Main boards:** i440ZX, i440BX, i440EX, i440LX, i430TX, VIA® VPX, VP3, 691BX, 692BX Pro and 693-based main boards
  - 6VABX2 shares the same driver as “6VBX2.” Please go to “6VBX2” directory to install drivers.
2. **A.G.P cards:** S- 6326 and T985
3. **Solo-1:** ESS-solo-1 sound driver
4. **Pccillin:** anti- virus protection software
5. **XStore Pro IDE Driver:** IDE Bus Master Driver for Ultra DMA 33

## 1-6 XStore Pro IDE Driver

Lucky Star has integrated High Point's new-invented software technology, "**XStore Pro**," to our valued customers as a free service. Developing the technique of "read ahead caching after seeking," **XStore Pro** increases hard disk performance. More concretely, it effectively enhances hard disk performance up to 50%, and system performance up to 10%.

### **System requirement**

Under the below environments, the driver will perform its best in your system. No extra computer components are required.

- Windows 95 or Windows 98 environment
- Lucky Star main boards
- Recommended system memory: 32 MB or above

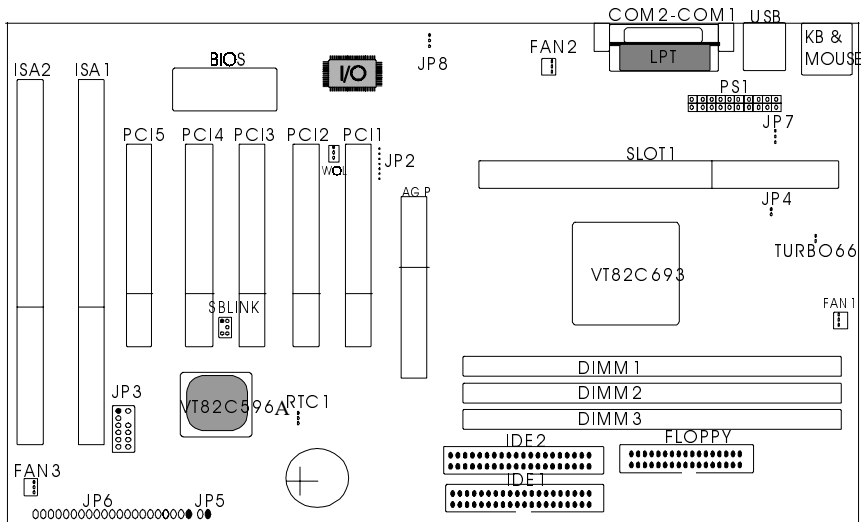
### **Website to bundle updated "XStore Pro" IDE driver**

The enclosed CD has integrated Xstore Pro IDE driver. Updated drivers will be constantly provided at High Point's website. Lucky Star website is also linked to High Point.

- <http://www.lucky-star.com.tw>
- <http://highpoint-tech.com>

## Chapter 2 Installation

### 2-1 Layout Reference

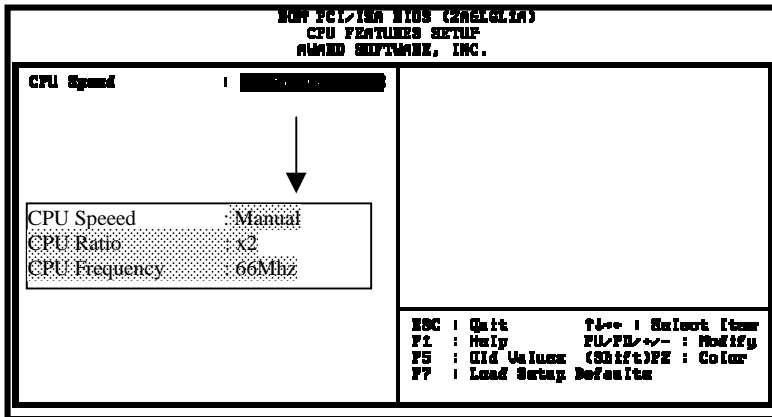


**TURBO66** is an over-clocking jumper which enables 66 MHz CPU to run at 100 MHz. **TURBO66** is only reserved for internal test only. No guarantee is provided for over-clocking setup.

<b>TURBO66</b>	<b>Operation</b>
close	Normal
open	Over-clock

## 2-2 BIOS CPU Speed Setup

Since this is a jumperless design, there is no hardware jumper setting to adjust CPU speed. The user only needs to set speed in BIOS. Enter BIOS and find "CPU speed" as below. Press "+" or "□" to choose "CPU speed" according to your CPU frequency and CPU ratio.



The CPU Speed Setup menu also have following options:

Item	CPU speed	
Pentium® II 66 MHz	P-II 233 <input type="checkbox"/> 233 MHz (66x3.5)	P-II 266 <input type="checkbox"/> 266 MHz (66x4)
	P-II 300 <input type="checkbox"/> 300 MHz (66x4.5)	P-II 333 <input type="checkbox"/> 333 MHz (66x5)
Pentium® II 100 MHz	P-II 350 <input type="checkbox"/> 350MHz (100x3.5)	P-II 400 <input type="checkbox"/> 400MHz (100x4)
	P-II 450 <input type="checkbox"/> 450MHz (100x4.5)	
Pentium® III 100 MHz	P-III 450 <input type="checkbox"/> 450MHz (100x4.5)	P-III 500 <input type="checkbox"/> 500MHz(100x5)
Manual	CPU Ratio: 2x- 8x	CPU Freq. : 66, 75, 83, 100, 103,112,133



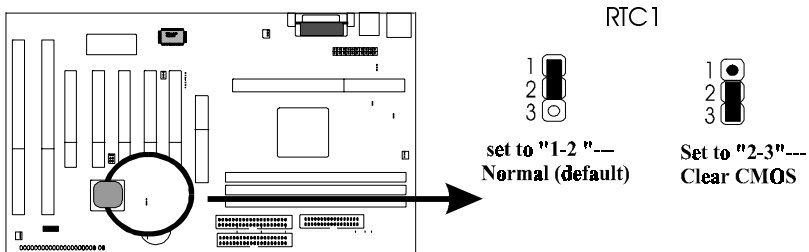
*Selecting "manual" --- the user can modify "CPU ratio" & "CPU frequency" individually. However, we'd like to remind that over-clocking setup is not included in chipset specification, so we provide no guarantee for any loss or damage resulting from this.*



## 2-3 Jumper Setting

### 2-3-1 RTC1- CMOS status

**RTC1** is a 3-pin connector. Clear CMOS if system password is forgotten. Below is details to show how to clear CMOS.



### Procedure to clear CMOS:

- Step 1: Shut down the system and disconnect the power supply from AC power.
- Step 2: Pull out the ATX cable from ATX connector "PS1"
- Step 3: Short the CMOS jumper by putting jumper cap on Pin 2-3 for a few seconds.
- Step 4: Return to pin 1-2 for normal setup.
- Step 5: Link ATX power cable to PS1 connector & connect AC power to power supply.
- Step 6: Turn on system power.

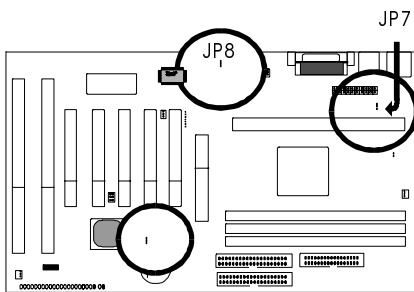


*if you'd like to set password, press "Del" Key during system bootup to enter CMOS setup and establish a new password.*

## 2-3-2 JP7 & JP8: Keyboard Wake Up Setup

JP7 & JP8 are to control keyboard wake up function. Select "1-2" for both JP7 & JP8, and keyboard wake up function may be disabled. With "2-3" for both, K/B wake up may be enabled.

JP8 & JP7: Keyboard wake up setup



set to "1-2" (default):  
K/B wake up disabled



set to "2-3":  
K/B wake up enabled

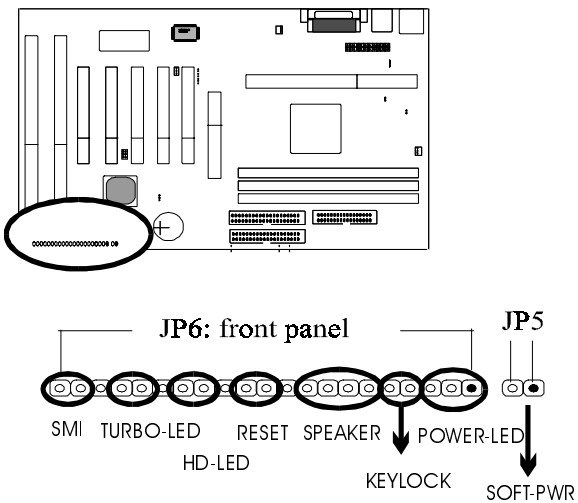


## 2-4 Connectors

There are many connectors on this main board. Refer to the following pages for details.

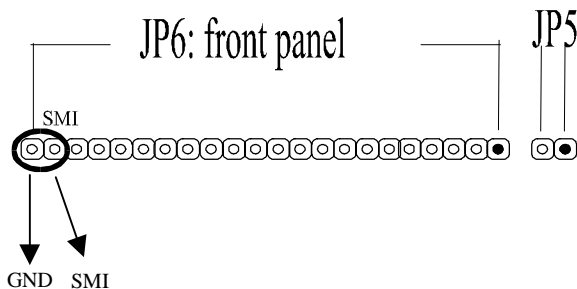
### 2-4-1 Front Panel

*Front panel* has connectors as “SMI,” “TURBO-LED,” “HD-LED,” “RESET,” “SPEAKER,” “KEYLOCK,” “POWER-LED,” and “SOFT-PWR.” Please refer to details as below.



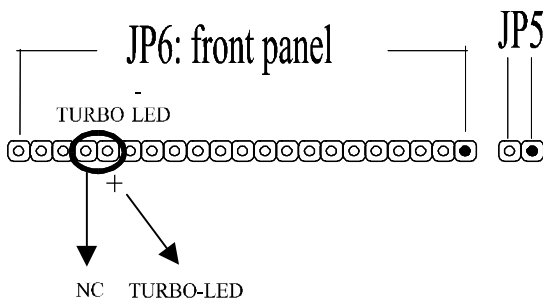
## System Management Interrupt

**SMI connector** is a 2-pin Berg strip which is also called “green” or “sleep” connector. When SMI is turned from open to close and back to open, the system will enter sleep mode immediately. This function is to make sure power saving is working well. In PC system, it is used to connect to the push button SMI switch located on the case front panel (if there is). The system can be forced to power saving mode by pressing the SMI switch.



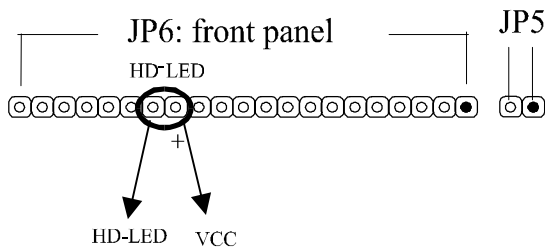
## TURBO LED

**Turbo LED** with a 2-pin Berg strip on case front panel indicates the current speed status of system. It is used to connect to the Turbo LED on the front panel of the case (if there is).



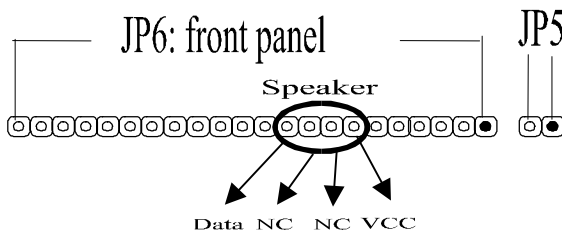
## HD-LED

**Marked as “HD-LED,”** Hard Disk activity LED connector is a 2-pin keyed Berg strip. It is used to connect to Hard Disk LED of the front panel.



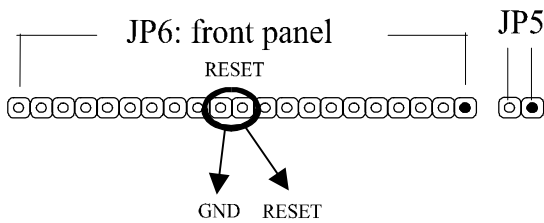
## Speaker

**Speaker (SPK) connector** is a 4-pin keyed Berg strip. It is used to connect to the case speaker to the main board for sound purpose.



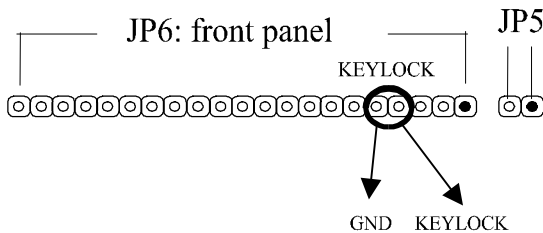
## RESET

**RESET connector** is a 2 -pin keyed Berg strip, connected to the push button reset switch on the case front panel. Shorting both pin 1 & pin 2 can reset the system, which is similar to the power off and then on again.



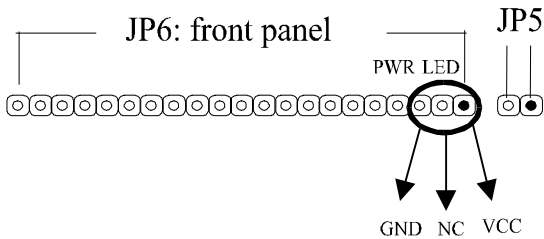
## KEYLOCK

**KEYLOCK** is a 2-pin connector. It is used to connect the key lock on the case front panel (if there is). Keyboard may be disconnected with the system through this function.



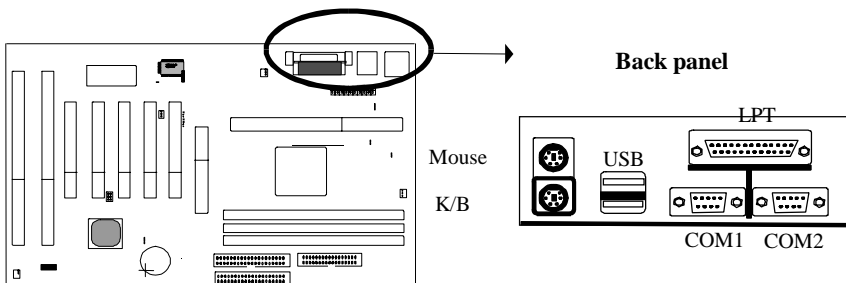
## POWER-LED

**POWER- LED** is a 3-pin connector. It is used to connect to the LED on the case front panel. The LED shows the status of the power.



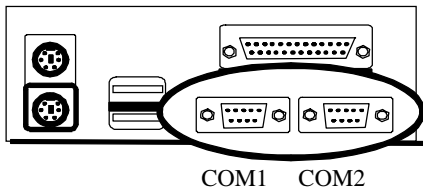
### 2-4-2 Back Panel

There are COM1/ COM2, LPT, USB and keyboard/ mouse on the case back panel. Please refer to more details as below.



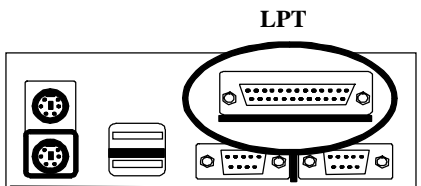
## COM1/COM2

*The onboard serial port 1 and port 2* are the 9-pin D-subminiature male connector COM1 and COM2. COM1 and COM2 can be disabled in BIOS setup. Please refer to Chapter 3 “Integrated Peripherals” for more information.



## LPT(Parallel Port)

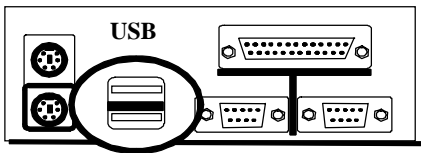
*The onboard parallel port* is a 25-pin female connector, marked as “LPT.”





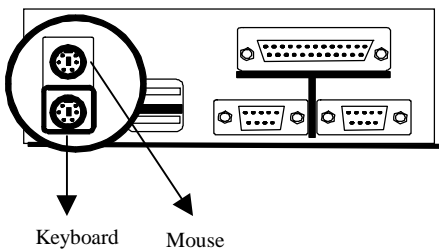
## USB(Universal Serial Bus)

*Universal Serial Bus connector*, marked as “USB,” is used to connect USB devices. There are 2 USB connectors on this main board.



## Keyboard & Mouse

*The onboard PS/2 keyboard and mouse connector* is 6-pin Mini-Din connectors, marked as “KB” and “Mouse.”

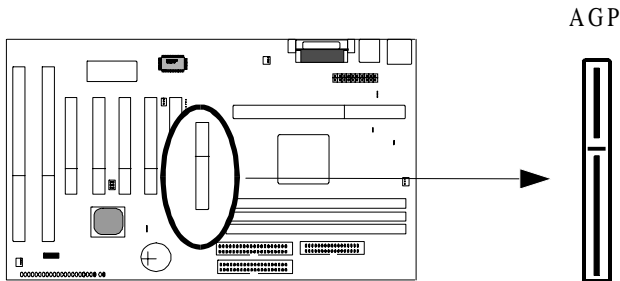


### 2-4-3 Expansion Slots

*Expansion slots* contain one A.G.P slot, five PCI slots, and two ISA slots on this main board. Below are details.

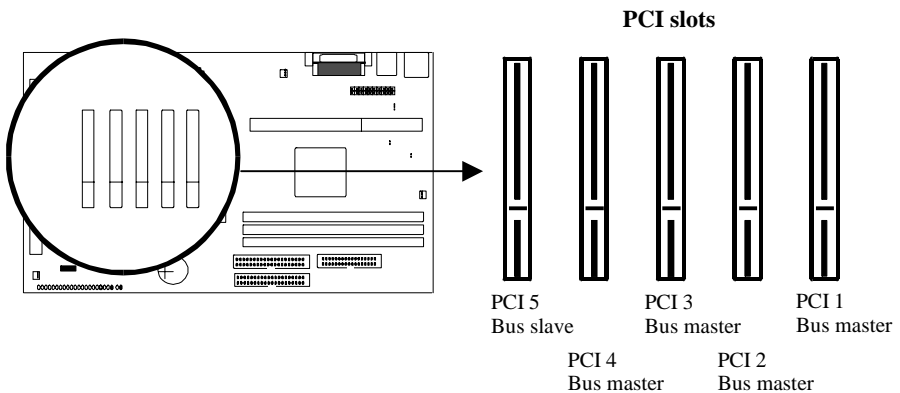
#### AGP Slot

*AGP (Accelerated Graphic Port)* is the new bus standard that allows the bus speed to run at 66 MHz with up to 133 MHz data transfer capabilities, which is four times as fast as that of the PCI bus. At this speed, the AGP graphic cards can transfer data up to 528MB/second. This high transfer capabilities enables 3D graphic applications, multiple media applications, uncompressed to run smoothly and display in broadcasting quality.



## PCI Slots

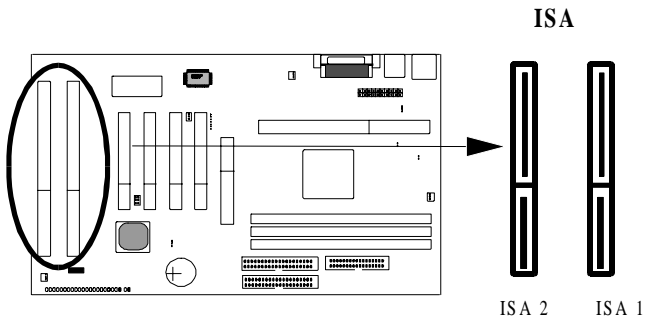
*There are* five PCI slots on board; 4 are “master” bus and one is “slave.” 133MB/s data transfer rate on PCI bus can be compared to 33MB/s on EISA bus or 8MB/s on ISA bus. PCI interface has synchronous data transfer rate from CPU to PCI with good graphic performance.



*While plugging into 5 PCI add-on cards, PCI 1- PCI 4 are master bus and PCI5 is slave bus. If there are 4 PCI add-on cards (or below 4 cards), all them are master bus.*

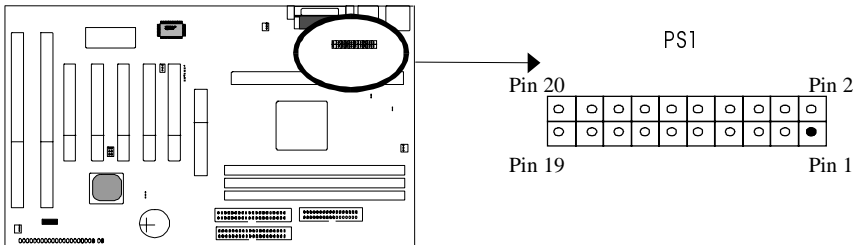
## ISA Slots

*There are* two standard 16-bit ISA slots on board. All of them are bus mastering.



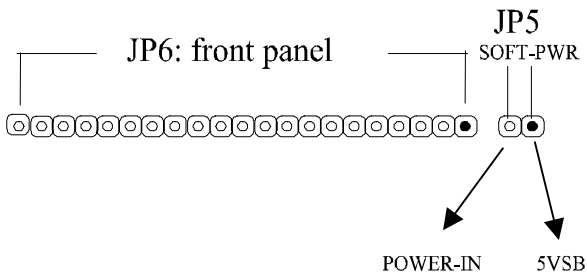
## 2-4-4 ATX Power Supply Connector

*ATX power supply connector* has 20 pins, which is designed for ATX case especially. The ATX power supply supports the function of the “**Soft Power On Momentary switch**” which connects on the front panel switch to the 2-pin **SOFT-PWR** on the system board. While the power switch on the back of ATX power is turned on, the full power will not go into the system board until the front panel switch is momentarily pressed. Push the switch again to turn off the power to the system board.



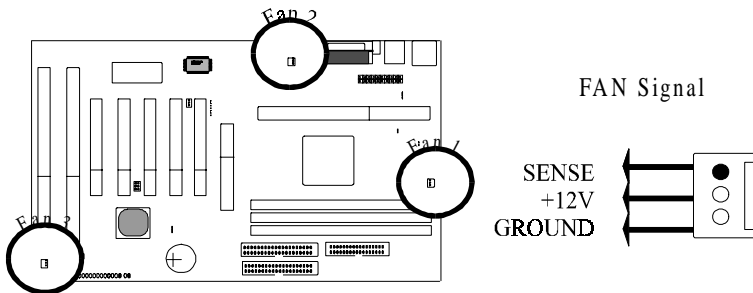
## 2-4-5 Soft-PWR (JP5)

*ATX soft-PWR switch connector* is Soft-PWR with 2 pins.



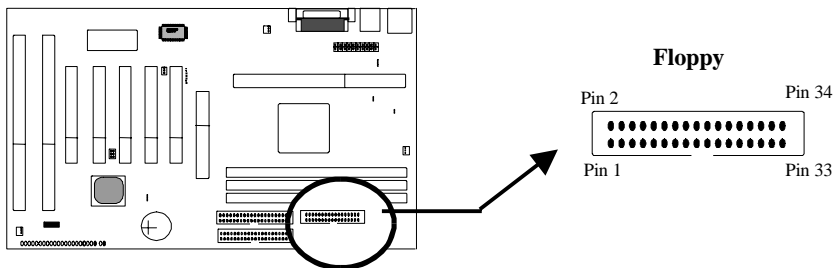
## 2-4-6 CPU Fan Connectors

*There are 3 fan connectors* on this system board, and they are marked “FAN 1,” “FAN2,” and “FAN3.” Each fan connector has three pins.



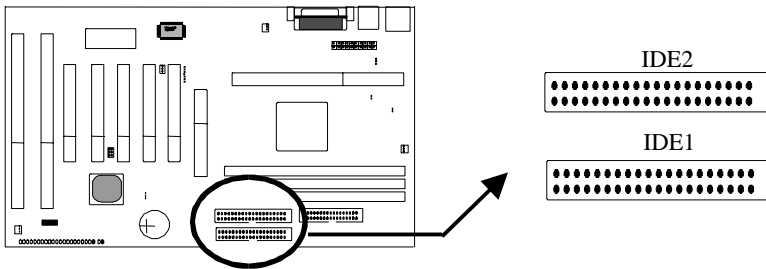
## 2-4-7 Floppy Interface

*Floppy interface connector* with 34 pins is used to attach the floppy drive cable.



## 2-4-8 IDE 1 and IDE2

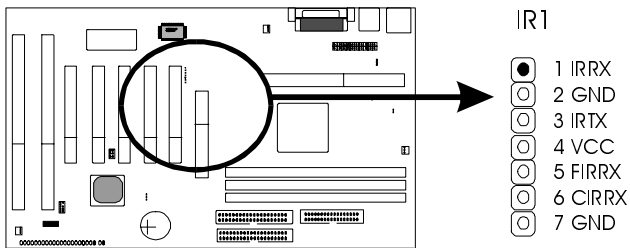
*IDE 1/ IDE 2* both have 40 pins. There are 2 IDE connectors supported on this system board. IDE1 is primary channel, and IDE2 is secondary channel. Each channel supports 2 IDE devices, and 4 devices in total for this main board.



## 2-4-9 IR Connector

**IR connector** supports wireless infrared module. With this module and application software like LAPlink, or WIN95 Direct Cable Connection, user can transfer data to or from laptops, notebooks, PDA and printers. This connector supports **HPSIR**, **ASKIR**, and **Fast IR**.

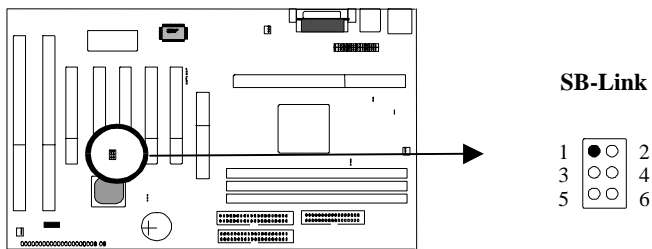
Attach Infrared module to IR connector and enable BIOS “Infrared function.”  
Be sure to put in the right orientation during attachment.





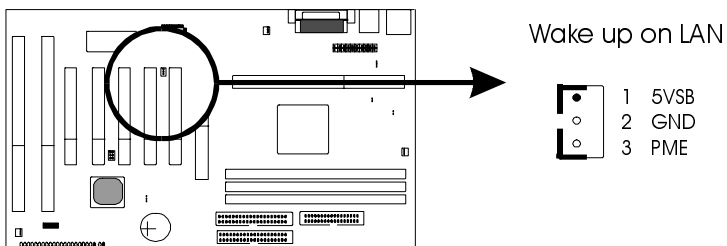
## 2-4-10 SB-LINK

**SB-LINK** is used to attach any “PC/PCI” standard sound card like Creative AWE64D or Yamaha XG...for compatibility under DOS mode.



## 2-4-11 Wake up on LAN

**Wake up on LAN**, marked as “WOL,” is a 3-pin connector. To support this feature, a network card is required for the system and in addition, a network management software must be installed too.

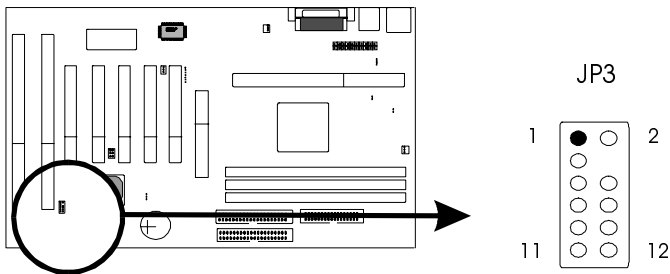


**WOL (Wake up on LAN) function requirement::**

Power supply should offer at least 750mA to the signal “5VSB” to support WOL function.

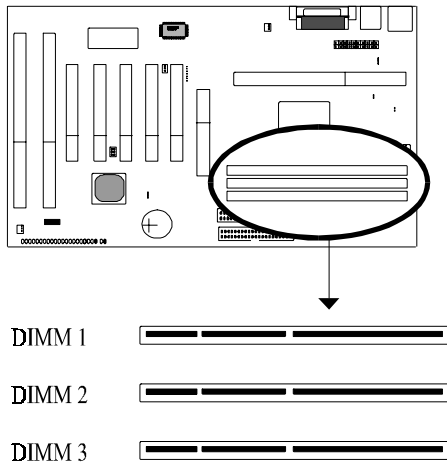
### 2-4-12 JP3

JP3 has 12 pins and is connected to a fan cooler built in the chip “GL518SM” designed by Genesys Logic. The specified fan cooler with GL518SM provides hardware monitoring function. Contact your dealer if interested.

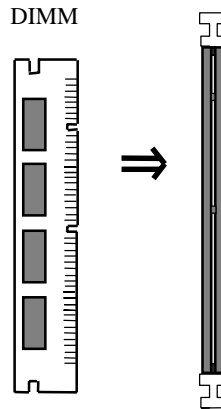


## 2-5 DIMM Memory Installation

**6VABX2** has 3 DIMMs on board. Either DIMM 1, DIMM2, or DIMM3 supports 8 MB, 16 MB, 32 MB, 64 MB, and 128MB. Maximum memory for **SDRAM** is up to **384MB**; **EDO RAM** is up to **384 MB**.



Insert the module as shown. Due to different number of pins on either side of the breaks, the module will only fit in the orientation as shown. There is no jumper setting for memory configuration.



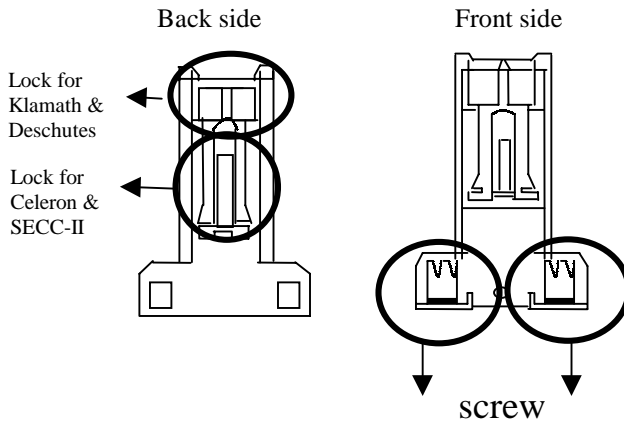
*Chipset only allows synchronous operation for DIMM and CPU. Therefore, to have a stable system, the system must use 100 MHz “PC-100 SDRAM memory DIMM” (3.3V) for 100 MHz Deschutes CPUs. For 66 MHz CPUs Klamath™ and Celeron™ (Covington™ & Mendocino™), the user may use either 3.3V EDO RAM or SDRAM.*

## 2-6 CPU RM Kit Assembling Procedure

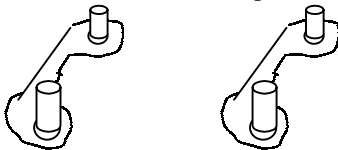
The enclosed RM Kit accomodates Pentium® III & Pentoum® II processors. User may refer to the attached page enclosed with the RM kit to install the processors.

1. Check if the following set of piece parts are included in your package.  
4 seperate piece parts in total.

Retention Mechanism (R.M.): 2 pcs

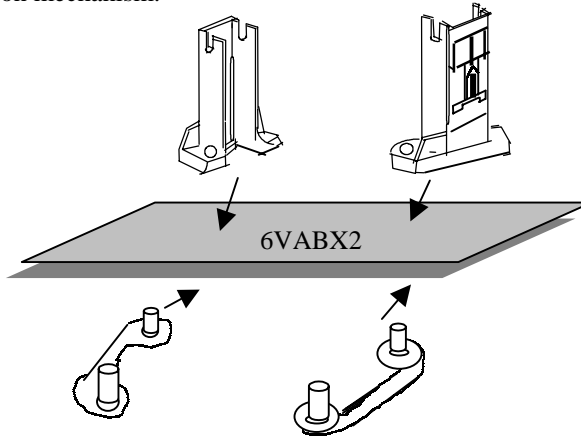


RM. Attach Mount (RMAM): 2 pcs




2. Make sure power is off during assembly.

3. Insert the RMAMs through the bottom of the motherboard and attach them to the retention mechanism.

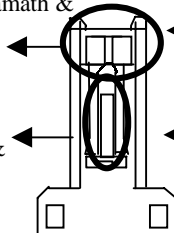


4. Fasten up the screws on the retention mechanism to tighten up retention mechanism and RMAM. Check if all the piece parts are fastened tightly.

5. Put the CPU in the RM kit. (Push the CPU horizontally into the RM kit.)

 Due to different packages of “Katmai™, Celeron™, SECC-II, Klamath™ and Deschutes™, there are 2 positions to lock them in the RM kit. Below is notice to unlock those CPUs.

Lock for Klamath & Katmai



Lock for Celeron & SECC-II

\*\*\*Klamath™ & Katmai™: push the switch on the CPU, and CPU will be loosen from the lock of RM kit.

\*\*\*Celeron™ & SECC-II: use screw driver or any tool alike to draw this and hold. At the same time, softly pull one side of the CPU out. Then, pull the other side and CPU will be loosen this way.

## 2-7 Keyboard Power on Setup

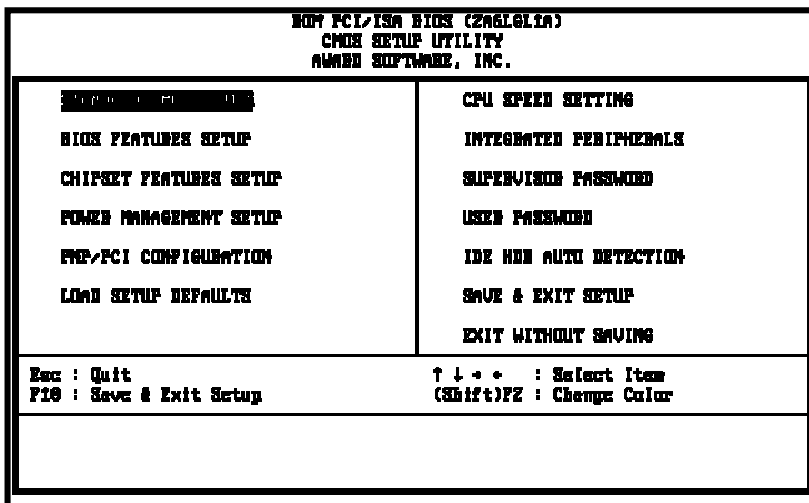
Go to BIOS "Integrated Peripherals," and find the item, "POWER ON PASSWORD," in which there are "KB power on password, hot key power on, mouse left, mouse right, and button only."

Item	Procedure	Special note
<b>KB power on password</b>	<b>1. Enter password:</b> 5 spaces allowed. <b>2. Confirm password:</b> key in the password to confirm again.	The system can <b>only be turned on through KB password</b> . Case button can not work. If password is forgotten, please clear CMOS and reset again.
<b>Hot key power on</b>	12 options: "ctrl+f1...ctrl+f12." the user may choose any of them by "page up" or "page down."	The system can be turned on either by <b>hot key or pushing case power on button</b> .
<b>Mouse left</b>	Mouse left (PS/2 mouse only)	The system can be turned on either by <b>PS/2 mouse or pushing case power on button</b> .
<b>Mouse right</b>	Mouse right (PS/2 mouse only)	The system can be turned on either by <b>PS/2 mouse or pushing case power on button</b> .
<b>Button only</b>	Case button	The system can be turned on by case button.

## Chapter 3 BIOS Setup

### 3-1 Award BIOS CMOS Setup

The menu displays all the major selection items and allow user to select any of shown item. The selection is made by moving cursor (press any direction key ) to the item and press <Enter> key. An on-line help message is displayed at the bottom of the screen as cursor is moving to various items which provides user better understanding of each function. When a selection is made, the menu of selected item will appear. So the user can modify associated configuration parameters.





## 3-2 Standard CMOS Setup

The "Standard CMOS Setup" allows user to configure system setting such as **current date and time**, **type of hard disk drive** installed in the system, **floppy drive type**, and the type of **display monitor**. Memory size is auto detected by the BIOS and displayed for your reference. When a field is highlighted (direction keys to move cursor and <Enter> key to select). The entries in the field will be changed by pressing <PageDown> or <PageUp> key or user can enter new data directly from the keyboard.

```

      ROM PCI/ISA BIOS (2A6L6L3A)
      STANDARD CMOS SETUP
      AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Thu, 09/21/1995
Time (hh:mm:ss) : 9 : 5 : 3

HARD DISKS          TYPE      SIZE    CYLS HEAD PRECOMP LAMBS SECTOR  MIDE
-----
Primary Master    :  0      0      0  0      0  0      0  AUTU
Primary Slave     :  0      0      0  0      0  0      0  AUTU
Secondary Master  :  0      0      0  0      0  0      0  AUTU
Secondary Slave   :  0      0      0  0      0  0      0  AUTU

Drive A : 1.44M, 3.5 in.
Drive B : None
Floppy 3 Mode Support : Disabled

Video : EGA/VGA
Halt On : All Errors

ESC : Quit          ↑ ↓ ← → : Select Item      F1/F2/+/= : Modify
F1 : Help          (Shift)F2 : Change Color
  
```

## Hard Disk Configurations

1. **TYPE** : select from "1" to "45" to fill remaining fields with redefined values of disk drives. Select "USER" to fill the remaining fields. Select "AUTO" to detect the HDD type automatically. Selecting "NONE," the system will not detect hard disk type.
2. **SIZE** : the hard disk size. The unit is mega byte(MB).
3. **CYLS** : the cylinder number of the hard disk.
4. **HEAD** : the read/write head number of hard disk. The range is from "1" to "16".
5. **PRECOMP** : the cylinder number at which the disk drive changes the write timing.
6. **LANDZ** : the cylinder number that the disk drive heads (read/write) are seated when the disk drive is parked.
7. **SECTOR** : the sector number of each track defined on the hard disk. The range is from "1" to "64".
8. **MODE** :select "AUTO" to detect the mode type automatically. If your hard disk supports the **LBA** mode, select "LBA" or "LARGE". However, if your hard disk cylinder is more than 1024 and does not support the lba function, you have to set at "LARGE." Select "NORMAL" if your hard disk supporting cylinder is below 1024.



*Note 1: if hard disk primary master/slave and secondary master/slave were set to "auto," the hard disk size and model will be auto detected on display during POST.*



*Note2: "halt on" is to determine when to halt the system by the BIOS if error occurs during POST.*



### 3-3 BIOS Features Setup

Menu below shows all of the manufacturer's default values of this main board.

<b>AMI PC1/ISA BIOS (286/386/486)</b> <b>BIOS FEATURES SETUP</b> <b>AWARD SOFTWARE, INC.</b>			
Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-C8FFF Shadow	: Disabled
External Cache	: Enabled	CC000-CFFFF Shadow	: Disabled
CPU L2 Cache ECC Checking	: Enabled	D0000-D0FFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	E0000-E0FFF Shadow	: Disabled
Boot Sequence	: A,C,SCSI	F0000-F0FFF Shadow	: Disabled
Sweep Floppy Drive	: Disabled	FC000-FCFFF Shadow	: Disabled
Boot Up Floppy Seek	: Disabled		
Boot Up NumLock Status	: On		
Gate A20 Option	: Normal		
Memory Parity/ECC Check	: Disabled		
TypeMetric Beta Setting	: Disabled		
TypeMetric Beta (Chars/Sec)	: 6		
TypeMetric Delay (Msec)	: 250		
Security Option	: Setup		
PCI/ISA Palette Snoop	: Disabled		
OS Select For IBM > 64MB	: Non-OS2	ESC : Quit	F1++ : Select Item
		F1 : Help	F4/F8/←/→ : Modify
		F5 : Old Values (Shift)F2 : Color	
		F7 : Load Setup Defaults	

***Virus Warning*****:Enabled****:Disabled** (default)***CPU Internal Cache*****Enabled** (default): enable L1 cache**Disabled:** disable L1 cache***External Cache*****Enabled** (default): enable L2 cache**Disabled:** disable L2 cache***CPU L2 Cache ECC Checking*****Enabled** (default): enable L2 cache ECC checking**Disabled:** disable L2 cache ECC checking***Quick Power On Self Test***

This category speeds up power on self test.

**Enabled (default) :** BIOS will shorten or skip some check items.**Disabled:** normal speed***Boot sequence***

This category determines which drive the system searches first. Take “**A,C,SCSI**” for example. System will search in turn for floppy disk drive; second is hard disk drive, and finally SCSI drive. Default value is “**A,C,SCSI**”. Options are as below:

**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; LS/ZIP,C.**

***Swap Floppy Drive*****Enabled:** floppy A&B will be swapped.**Disabled**(default): floppy A&B will be not swapped.

***Boot Up Floppy Seek***

BIOS will determine if the floppy disk drive is 40 or 80 tracks. 360k type is 40 tracks while 720K/ 1.2M and 1.44M are all 80 tracks.

**:Enabled**

**:Disabled** (default)

***Boot Up Numlock Status***

**:On**(default)

**:Off**

***Gate A20 Option***

**:Normal** (default)

**:Fast**

***Typematic Rate Setting***

This determines the typematic rate.

**Enabled:** enable typematic rate and typematic delay programming.

**Disabled** (default): disable typematic rate and typematic delay programming. The system bios will use default value of this 2 items and the default is controlled by keyboard.

***Typematic Rate(Chars/Sec)***

6 : 6 Characters Per Second(default)

8 : 8 Characters Per Second

10 : 10 Characters Per Second

12: 12 Characters Per Second

15: 15 Characters Per Second

20: 20 Characters Per Second

24: 24 Characters Per Second

30 : 30 Characters Per Second

***Typematic Delay (Msec)***

This is the interval between the first and second character displayed.

**250** : 250 msec (default)

**500** : 500 msec

**750** : 750 msec

**1000** :1000 msec

### **Security Option**

**:Setup** (default)--- security protection in CMOS setup menu

Setting password in BIOS CMOS “**Supervisor Password**” or **User Password,**” the user needs to key in password if entering BIOS CMOS setup.

**:System**---security protection in system boot-up & BIOS setup

This function secures the system under system boot-up and BIOS setup.

### **PCI/VGA Palette Snoop**

**Enabled:** it allows you to install an enhanced graphics adapter card.

**Disabled (default):** If your graphics adapter card does not support the palette snoop function, please set at **Disabled** to avoid system malfunction.

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

This option is especially set for OS2 operating system. Set “**Non-OS2**” for RAM memory over 64MB and set “**Non-OS2**” for other operating systems like Windows® 95/98 or NT.

**:Non-OS2** (default)

**:OS2**

.....

### **Video BIOS Shadow**

It determines whether video BIOS will be copied to RAM. However, it is optional from chipset design. Video shadow will increase the video speed.

**Enabled :** Video Shadow is enabled (default)

**Disabled:** Video Shadow is disabled

### **C8000-CBFFF Shadow, CC000-CFFF Shadow, D0000-D3FFF Shadow: D4000-D7FFF Shadow, D8000-DBFFF Shadow, DC000-DFFF Shadow**

These are categories determining whether optional ROM will be copied to RAM by 16KB or 32KB per unit and the size depends on chipset.

**:Enabled**

**:Disabled**(default)

.....

### 3-4 Chipset Features Setup

NOT PCI/ISA BIOS (2x6/2x12) CHIPSET FEATURES SETUP AWARD SOFTWARE, INC.			
Bank 0/1 DRAM Timing :	SDRAM 10ns	OnChip USB :	Enabled
Bank 2/3 DRAM Timing :	SDRAM 10ns	USB Keyboard Support :	Disabled
Bank 4/5 DRAM Timing :	SDRAM 10ns		
SDRAM Cycle Length :	3		
DRAM Clock :	Host CLK		
Memory Hole :	Disabled		
Read Around write :	Disabled		
Concurrent PCI/Host :	Disabled		
Video RAM Cacheable :	Disabled		
PCI Dynamic Bursting :	Enabled		
PCI Master @ WS Write :	Enabled		
PCI#2 Access #1 Bctry :	Disabled		
AGP Aperture Size :	128M		
AGP-ZX Mode :	Enabled		
		ESC :	Quit
		F1 :	Help
		F5 :	Old Values (Shift)F2 :
		F7 :	Load Setup Defaults
		↑/↓ :	Select Item
		PGUP/PGDN :	Modify
			Color

***Bank 0/1(2/3, 4/5) DRAM Timing***

This will determine the timing of SDRAM. The user can separately adjust the timing of bank 0/1, 2/3, 4/5.

**: SDRAM 10ns (default)—10<sup>-9</sup> nano second**

**: SDRAM 8ns, normal, medium, fast, turbo**

***SDRAM Cycle Length:*** control the DRAM page missing and row miss leadoff timing.

**:2**

**:3 (default)**

***DRAM Clock***

**:Host CLK (default)**

System shows the actual DRAM speed the system uses.

**:66 MHz**

System DRAM clock is fixed at 66 MHz.

***Memory Hole:*** this field enable a memory hole in main memory space. CPU cycles matching an enabled hold are passed on to PCI note that a selected can not be changed while the L2 cache is enabled.

**:Disabled (default)**

**:15M-16M**

***Video RAM Cacheable***

**:Enabled** --- allows caching of the video RAM, resulting in better system performance. However, if any program writes to this memory area, a system error may occur.

**:Disabled (default)**

***AGP Aperture Size***

To select the size of the Accelerated Graphics Port (AGP) aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.

**:128M(default)**

**:64M, 32M, 16M, 8M, 4M**



***OnChip USB***

**:Enabled** (default)

Enabling this function adds the function of “**USB Keyboard Support.**”

**:Disabled**

***USB Keyboard Support***

**:Disabled** (default)

**:Enabled---** enable this function when using USB keyboard

### 3-5 Power Management Setup

ROM PCI/ISA BIOS (266L6L1a) POWER MANAGEMENT SETUP AWARD SOFTWARE, INC.			
Power Management	: <b>Enabled</b>	Primary INTX	: ON
PM Control by APP	: Yes	IRQ3 (COM 2)	: Primary
Video Off Option	: Suspend -> Off	IRQ4 (COM 1)	: Primary
Video Off Method	: U/H SYNC+Blank	IRQ5 (LPT 2)	: Primary
MODEM Use IRQ	: 3	IRQ6 (Floppy Disk)	: Primary
Soft-Off by PWRBTN	: Instant-Off	IRQ7 (LPT 1)	: Primary
** PM Timers **		IRQ8 (RTC Alarm)	: Disabled
HDD Power Down	: Enabled	IRQ9 (IRQ2 Buffer)	: Secondary
Disk Mode	: Enabled	IRQ10 (Reserved)	: Secondary
Suspend Mode	: Enabled	IRQ11 (Reserved)	: Secondary
** PM Events **		IRQ12 (PS/2 Mouse)	: Primary
USB	: Off	IRQ13 (Coprocessor)	: Primary
LPT & COM	: LPT/COM	IRQ14 (Hard Disk)	: Primary
HDD & FDD	: ON	IRQ15 (Reserved)	: Disabled
SWP/asterisk	: Off		
Modem Ring Resume	: Disabled	ESC : Quit	↑↓←→ : Select Item
RTC Alarm Resume	: Disabled	F1 : Help	FU/PB/←/→ : Modify
		F5 : Old Values (Shift)F2 : Color	
		F7 : Load Setup Defaults	

***Power Management*****:User Define**(default)--users can configure their own power management**:Min Saving****:Max Saving*****PM Control By APM*****No** : system BIOS will ignore APM.**Yes** (default) : system BIOS will wait for APM's prompt before it enter any PM mode, e.g. Doze, standby or suspend.

***Note 1:** if APM is installed, and there is a task running, even if the timer is time out, the APM will not prompt the BIOS to put the system into any power saving mode!*



***Note2:** If APM is not installed, this option has no effect.*

***Video Off Method*****:DPMS Support****:Blank Screen****:V/H Sync+Blank** (default)***MODEM Use IRQ*****:3**(default)**:4, 5, 7, 9,10,11,NA*****Soft-Off by PWRBTN*****:Instant-off** (default)**: Delay 4 sec**

This allows the user to set the soft-off power button to turn off the system or set to “4 seconds” holding the power and system will shut down in 4 seconds.

***HDD Mode*****:Disabled(default)****:10 Sec, 20 Sec, 30 Sec, 40 Sec, 1 Min, 2 Min, 4 Min, 6 Min, 8 Min, 10 Min, 15 Min, 20 Min, 30 Min, 40 Min, 1 hour.*****Doze Mode*****:Disabled(default)****:10 Sec, 20 Sec, 30 Sec, 40 Sec, 1 Min, 2 Min, 4 Min, 6 Min, 8 Min, 10 Min, 15 Min, 20 Min, 30 Min, 40 Min, 1 hour.*****Suspend mode*****:Disabled(default)****:10 Sec, 20 Sec, 30 Sec, 40 Sec, 1 Min, 2 Min, 4 Min, 6 Min, 8 Min, 10 Min, 15 Min, 20 Min, 30 Min, 40 Min, 1 hour.*****Modem Ring Resume*****Enabled:** modem ring on function--- system can be turned on through modem.**Disable(default):** disble this function.

*Note: this function only works when the system is turned off from Windows mode, and Doze mode will not function.*

***RTC Alarm Resume:*** auto power on at the appointed date and time.**Enabled:** key in the date of current month and time of the day. System will turn on then.**Disabled (default):** disable this function.

*Note: this function only works when the system is turned off in Windows mode, and Doze mode will not function.*

***Primary INTR*****:on (default)**Select "on," it adds the following functions, "**IRQ3 (COM2)- IRQ15 (Reserved).**"**:off**Select "off," "**IRQ3 (COM2)- IRQ15 (Reserved)**" will not show.

### 3-6 PNP / PCI Configuration Setup

<b>NON PCI/ISA BIOS (2A6L0L1A)</b> <b>PNP/PCI CONFIGURATION</b> <b>ALMID SOFTWARE, INC.</b>	
PNP OS Installed : <b>Y</b>	CPU to PCI Write Buffer : Enabled
Resources Controlled By : <b>Manual</b>	PCI Bus Transaction : Enabled
Busnot Configuration Mode : <b>Disabled</b>	AGP Master 1 Use Write : Enabled
	AGP Master 1 Use Read : Disabled
IRQ-3 assigned to : <b>PCI/ISA PnP</b>	PCI IRQ Actioned By : <b>Level</b>
IRQ-4 assigned to : <b>PCI/ISA PnP</b>	Slot 1 Use IRQ No. : <b>Auto</b>
IRQ-5 assigned to : <b>PCI/ISA PnP</b>	Slot 2 Use IRQ No. : <b>Auto</b>
IRQ-7 assigned to : <b>PCI/ISA PnP</b>	Slot 3 Use IRQ No. : <b>Auto</b>
IRQ-9 assigned to : <b>PCI/ISA PnP</b>	Slot 4 Use IRQ No. : <b>Auto</b>
IRQ-10 assigned to : <b>PCI/ISA PnP</b>	Assign IRQ For USB : <b>Enabled</b>
IRQ-11 assigned to : <b>PCI/ISA PnP</b>	Assign IRQ For VGA : <b>Enabled</b>
IRQ-12 assigned to : <b>PCI/ISA PnP</b>	
IRQ-14 assigned to : <b>PCI/ISA PnP</b>	
IRQ-15 assigned to : <b>PCI/ISA PnP</b>	
PNP-0 assigned to : <b>PCI/ISA PnP</b>	ESC : Quit            f1← : Select Item
PNP-1 assigned to : <b>PCI/ISA PnP</b>	F2 : Help            F4/F8+/- : Modify
PNP-3 assigned to : <b>PCI/ISA PnP</b>	F5 : Old Values (Shift)F2 : Color
PNP-5 assigned to : <b>PCI/ISA PnP</b>	F7 : Load Setup Defaults
PNP-6 assigned to : <b>PCI/ISA PnP</b>	
PNP-7 assigned to : <b>PCI/ISA PnP</b>	

***PNP OS Installed*****:No**(default)

OS will not recognize PnP devices.

**:Yes**

OS will arrange the setup of PnP devices.

***Resources Controlled By*****:Manual**(default)

The table will show the below items: **“Reset Configuration Data, IRQ-3 assigned to, DMA-0 assigned to.”** The user can adjust the shown items as required.

**:Auto**

The table will not show the above items, and the system will automatically assign the above setup.

***Reset Configuration Data*****:Disabled**(default)

**:Enabled---** to reset **“Extended System Configuration Data(ESCD)** when you exit setup if you have installed a new add-on card and the system reconfiguration has caused such a serious conflict that the operating system can not boot up.

***IRQ-3 Assigned To---- IRQ-15 Assigned To*****: PCI/ISA PnP**(default)**: Legacy ISA*****DMA-0 Assigned To--- DMA-7 Assigned To*****: PCI/ISA PnP**(default)**: Legacy ISA*****PCI IRQ Activated By***

There are 2 modes in activating PCI IRQ.

**:Edge****:Level** (default)

*Assign IRQ for USB*

**:Enable** (default)

**:Disable**

*Assign IRQ for VGA*

**:Enable** (default)

**:Disable**

### 3-7 Integrated Peripherals

<b>BOOT PCI/ISA SIDE (286/486/PIA)</b> <b>INTEGRATED PERIPHERALS</b> <b>AWARD SOFTWARE, INC.</b>	
<b>OnChip IDE Channel 0 :</b> <input type="checkbox"/> Disabled <b>OnChip IDE Channel 1 :</b> Enabled <b>IDE Prefetch Mode :</b> Enabled <b>IDE HDD Block Mode :</b> Enabled <b>Primary Master FID:</b> Auto <b>Primary Slave FID:</b> Auto <b>Secondary Master FID:</b> Auto <b>Secondary Slave FID:</b> Auto <b>Primary Master UDMA:</b> Auto <b>Primary Slave UDMA:</b> Auto <b>Secondary Master UDMA:</b> Auto <b>Secondary Slave UDMA:</b> Auto <b>Init Display First :</b> AGP  <b>POWER ON Function :</b> BUTTON ONLY	<b>EEC input clock :</b> 8 MHz <b>Onboard FNC Controller:</b> Enabled <b>Onboard Serial Port 1 :</b> Auto <b>Onboard Serial Port 2 :</b> AUTO <b>UART Mode Select :</b> NORMAL  <b>Onboard Parallel Port :</b> 378/IRQ7 <b>Parallel Port Mode :</b> SPP  <b>ESC :</b> Quit <b>F10+ :</b> Select Item <b>F1 :</b> Help <b>F11/P1+/- :</b> Modify <b>F5 :</b> Old Version <b>(Shift)F2 :</b> Color <b>F7 :</b> Load Setup Defaults



***IDE HDD Block Mode***

This feature enhances hard disk performance by making multi sector transfer instead of one sector per transfer. Most of IDE drivers, except very early designs ,can use this feature.

**:Enabled** (default)

**:Disabled**

***Primary Master PIO/ Primary Slave PIO***

This feature detects your primary master hard disk device.

**:Auto** (default)

**:Mode 0,1,2,3,4**

***Secondary Master PIO/Secondary Slave PIO***

This feature detects your secondary master hard disk device.

**:Auto** (default)

**:Mode 0,1,2,3,4**

***Onboard FDC Controller***

**: Enabled** (default)

**: Disabled**

***Onboard Serial Port 1***

**: 3F8/IRQ4**

**: 2F8/IRQ3**

**: 3E8/IRQ4**

**: 2E8/IRQ3**

**: Auto** (default)

**: Disabled**

***On-Board Serial Port 2***

**: 3F8/IRQ4**

**: 2F8/IRQ3**

**: 3E8/IRQ4**

**: 2E8/IRQ3**

**: Auto** (default)

**: Disabled**

***Onboard Parallel Port***

**: 378/IRQ7** (default)

**: 3BC/IRQ7**

**: 278H/IRQ5**

**: Disabled**

## 3-8 Supervisor/User Password

The "Supervisor/User Password setting" utility sets the security protection. There are two kinds of password functions in the setup menu : one is "Supervisor Password," and the other is "User Password." Their difference is:

**Supervisor Password:** this function allows you the right to change the options of setup menu.

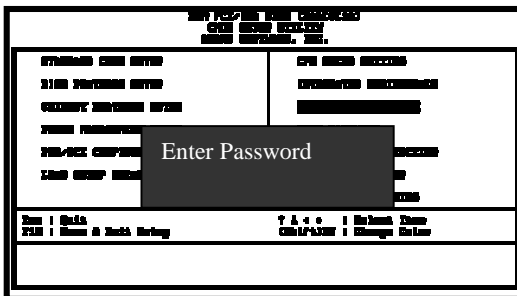
**User Password:** this function only allows you to enter the setup menu but not to change the options of the setup menu except "USER PASSWORD," "SAVE & EXIT SETUP," and "EXIT WITHOUT SAVING."

### 1. How to set "Supervisor Password" & "User Password"

The setup of "Supervisor Password" and "User Password" have the same steps.

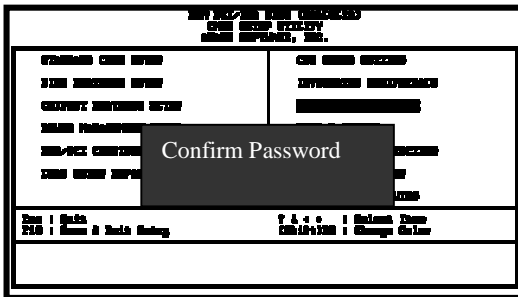
#### Step 1: Enter Password

Press <Enter> after appointing the password.



### Step 2: Confirm Password

Typing the password again and pressing <Enter> .



Note: If you forget password, please clear CMOS.  
(refer to RTC1 )

### Step 3: Set “Security Option” in “BIOS Features Setup”

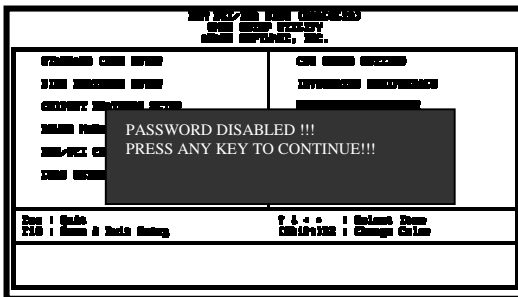
After setting password, enter “Security Option” in “BIOS Features Setup.” There are 2 options “Setup” & “System.” “Setup” secures CMOS setup. “System” secures PC system and password is required during system boot-up and CMOS setup..

## 2. How to Disable “Supervisor Password” & “User Password”

Step 1: Go to CMOS Setup Menu (need to key in password first)

Setp 2: Enter “Supervisor Password” or “User Password”

After enter, it shows “Enter Password.” Press the <Enter> key instead of entering a new password when "ENTER PASSWORD" appears. It will inform “PASSWORD DISABLED PRESS ANY KEY TO CONTINUNE.” Thus, press any key as instructed. Passworddisable the password this way.



### 3-9 IDE HDD Auto Detection

**ROM PCI/ISA BIOS  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.**

---

HARD DISK TYPE SIZE CYLS HEAD PRECOMP LANDZ SECTOR MODE  
 Primary Master:  
 Primary Slave:  
 Secondary Master:  
 Secondary Slave:

Select Primary Master Option (N: Skip): N

OPTIONS	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
2 (Y)	4302	523	255	0	8893	63	LBA
1	4303	8894	15	65535	8893	63	NORMAL
3	429	6555	2405	65535	8893	63	LARGE

Note: Some OSes (like SCO-UNIX) must use "NORMAL" for installation.

The "**IDE HDD AUTO DETECTION**" utility is a very useful tool especially when you do not know which kind of hard disk type you are using. You can use this utility to detect the correct disk type installed in the system automatically or you can set hard disk type to auto in the standard CMOS setup. You don't need the "**IDE HDD Auto Detection**" utility. The BIOS will auto-detect the hard disk size and model on display during post.

The Award® BIOS supports 3 HDD modes: **NORMAL, LBA & LARGE**.

### 1. Normal mode

Generic access mode in which neither the BIOS nor the IDE controller will make any transformations during accessing.

The maximum number of cylinders, head & sectors for normal mode are **1024, 16 & 63**.

No. Cylinder	(1024)
X No. Head	(16)
X No. Sector	(63)
<u>X No. Per Sector</u>	<u>(512)</u>
	528 MB

If user set this HDD to normal mode, the maximum accessible HDD size will be 528 MB even though its physical size may be greater than that!

### 2. LBA (Logical Block Addressing) Mode

A new HDD accessing method to overcome the 528 MB bottleneck. The number of cylinders, heads & sectors shown in setup may not be the number physically contained in the HDD. During HDD accessing, the ide controller will transform the logical address described by sector, head & cylinder into its own physical address inside the HDD.

The maximum HDD size supported by LBA mode is 8.4 GB which is obtained by the following formula:

No. Cylinder	(1024)
X No. Head	(255)
X No. Sector	(63)
<u>X No. Bytes Per Sector</u>	<u>(512)</u>
	8.4 GB

### 3. Large Mode

Extended HDD access mode supported by Award® software. Some IDE HDDs contain more than 1024 cylinder without LBA support (in some cases, user do not want LBA). The Award® BIOS provides another alternative to support these kinds of large mode:

<u>Cyls.</u>	<u>Head</u>	<u>Sector</u>	<u>Mode</u>
1120	16	59	NORMAL
560	32	59	LARGE

BIOS tricks DOS (or other OS) that the number of cylinders is less than 1024 by dividing it by 2. At the same time, the number of heads is multiplied by 2. A reverse transformation process will be made inside int 12h in order to access the right HDD address the right HDD address!

### 4. Maximum HDD Size:

	No. Cylinder	(1024)
X	No. Head	(32)
X	No. Sector	(63)
X	<u>No. Bytes Per Sector</u>	<u>(512)</u>

1 GB

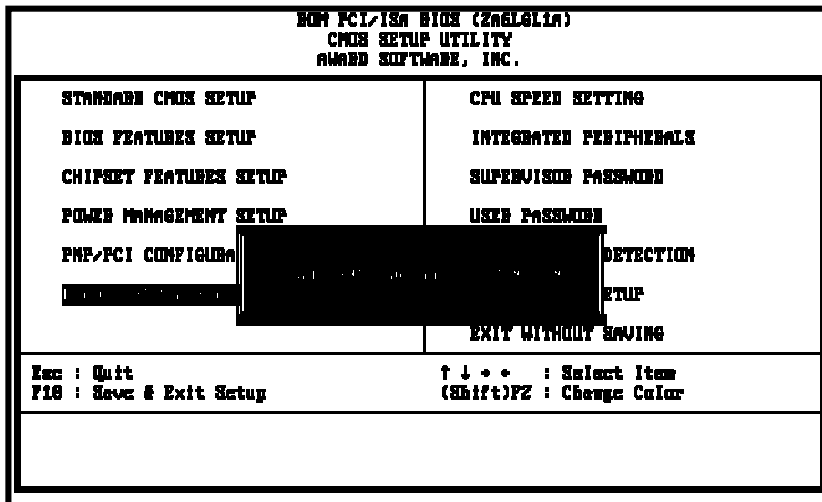


**To support LBA or large mode of HDDs**, there must be some softwares involved. All these softwares are located in the Award® HDD service routine (int 13h). It may be failed to access a HDD with LBA (large) mode selected if you are running under an operating system which replaces the whole int 13h. Unix operating systems do not support either LBA or large and must utility the standard mode. Unix can support drives larger than 528MB.





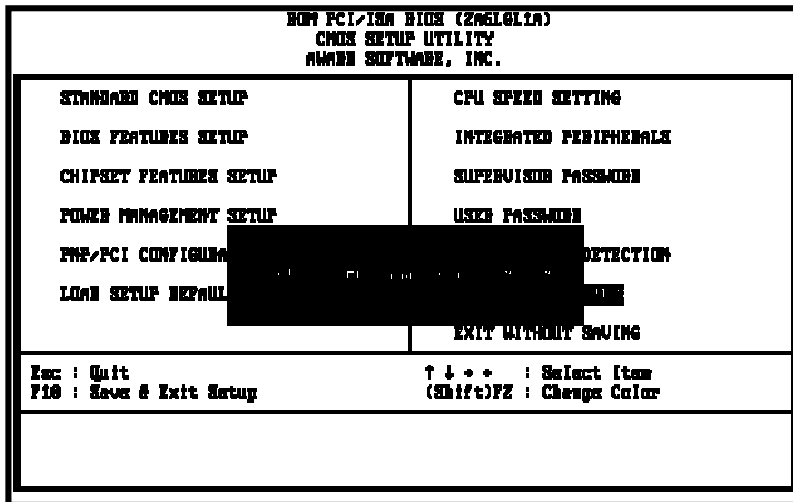
### 3-10 Load Setup Defaults



"Load Setup Defaults" loads optimized settings which are stored in the BIOS ROM. The auto-configured settings only affect "BIOS Features Setup" and "Chipset Features Setup" screens. There is no effect on the standard CMOS setup. To use this feature, highlight it on the main screen and press the <Enter> key. A line will appear on screen asking if you want to load the setup default values. Press the <Y> key and then press the <Enter> key. The setup defaults will then load. Press <N> if you don't want to

### 3-11 Save & Exit Setup

The "Save & Exit Setup" option will bring you back to boot up procedure with all the changes, you have made which are recorded in the CMOS RAM.



### 3-12 Quit Without Saving

The "Quit Without Saving" option will bring you back to normal boot up procedure without saving any data into CMOS RAM. All of the old data in the CMOS will not be destroyed.

HP PCL/ISA BIOS (2nd Edition) CMOS SETUP UTILITY AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP	CPU SPEED SETTING
BIOX FEATURES SETUP	INTEGRATED PERIPHERALS
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PNP/PCI CONFIGURATION	DETECTION
LOAD SETUP DEFAULT	SETUP
Esc : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color

## Chapter 4 Appendix

### 4-1 Memory Map

Address range	Size	Description
00000-7FFFF	512K	Conventional memory
80000-9FBFF	127K	Extended conventional memory
9FC00-9FFFF	1K	Extended BIOS data area if PS/2 mouse is installed
A0000-C7FFF	160K	Available for hi DOS memory
C8000-DFFFF	96K	Available for hi DOS memory and adapter ROMs
E0000-EEFFF	60K	Available for UMB
EF000-EFFFF	4K	Video service routine for monochrome & CGA adapter
F0000-F7FFF	32K	BIOS CMOS setup utility
F8000-FCFFF	20K	BIOS runtime service routine (2)
FD000-FDFFF	4K	Plug and play escd data area
FE000-FFFFF	8K	BIOS runtime service routine (1)

## 4-2 I/O Map

000-01F	DMA controller (master)
020-021	Interrupt controller (master)
022-023	Chipset control registers. I/O ports
040-05F	Timer control registers
060-06F	Keyboard interface controller (8042)
070-07F	RTC ports & CMOS I/O ports
080-09F	DMA register
0A0-0BF	Interrupt controller (slave)
0C0-0DF	DMA controller (slave)
0F0-0FF	Math coprocessor
1F0-1FB	Hard disk controller
278-27F	Parallel port 2
2B0-2DF	Graphics adapter controller
2F8-2FF	Serial port 2
360-36F	Network ports
378-37F	Parallel port 1
3B0-3BF	Monochrome & parallel port adapter
3C0-3CF	EGA adapter
3D0-3DF	CGA adapter
3F0-3F7	Floppy disk controller
3F8-3FF	Serial port-1

## 4-3 Time & DMA Channels Map

### **Time map:**

Timer channel 0 system timer interrupt  
Timer channel 1 DRAM refresh request  
Timer channel 2 speaker tone generator

### **DMA channels:**

DMA channel 0 available  
DMA channel 1 onboard ECP (option)  
DMA channel 2 floppy disk (Winboard chip)  
DMA channel 3 onboard ECP (default)  
DMA channel 4 cascade for DMA controller 1  
DMA channel 5 available  
DMA channel 6 available  
DMA channel 7 available

## 4-4 Interrupt Map

**NMI:** Non-Maskable Interrupt

**IRQ/HAZ:**

- 0 system timer interrupt from timer 0
- 1. keyboard output buffer full
- 2. cascade for IRQ 8-15
- 3. serial port2
- 4. serial port1
- 5. parallel port 2
- 6. floppy disk (Winbond chip)
- 7. parallel port 1
- 8. RTC clock
- 9. available
- 10. available
- 11. available
- 12. PS/2 mouse
- 13. math coprocessor
- 14. onboard hard disk (IDE1) channel
- 15. onboard hard disk (IDE2) channel

## 4-5 RTC & CMOS RAM Map

00	Seconds
01	Seconds Alarm
02	Minutes
03	Minutes Alarm
04	Hours
05	Hours Alarm
06	Day of Week
07	Day of Month
08	Month
09	Year
0A	Status Register A
0B	Status Register B
0C	Status Register C
0D	Status Register D
0E	Diagnostic Status Byte
0F	Shutdown Byte
10	Floppy Disk Type Drive Type Byte
12	Hard Disk Type Byte
13	Reserved
14	Equipment Type
15	Base Memory Low Byte
16	Base Memory High Byte
17	Extension Memory Low Byte
18	Extension Memory High Byte
19-2D	
2E-2F	
30	Reserved for Extension Memory Low Byte
31	Reserved for Extension Memory High Byte
33	Information Flag
34-3F	Reserved
40-7F	Reserved for Chipset Setting Data



## 4-6 Award BIOS Hard Disk Type

Type	Cylinder	Heads	Write Pre-comp	Landing Zone	Sectors	Size
1	306	4	128	305	17	10MB
2	615	4	300	615	17	21MB
3	615	6	300	615	17	32MB
4	940	8	512	940	17	65MB
5	940	6	512	940	17	49MB
6	615	4	65535	615	17	21MB
7	462	8	256	511	17	32MB
8	733	5	65535	733	17	31MB
9	900	15	65535	901	17	117MB
10	820	3	65535	820	17	21MB
11	855	5	65535	855	17	37MB
12	855	7	65535	855	17	52MB
13	306	8	128	319	17	21MB
14	733	7	65535	733	17	44MB
16	612	4	0	663	17	21MB
17	977	5	300	977	17	42MB
18	977	7	65535	977	17	59MB
19	1024	7	512	1023	17	62MB
20	733	5	300	732	17	31MB
21	733	7	300	732	17	44MB
22	733	5	300	733	17	31MB
23	306	4	0	336	17	10MB
24	977	5	0	925	17	42MB
25	1024	9	65535	925	17	80MB
26	1224	7	65535	754	17	74MB
27	1224	11	65535	754	17	117MB
28	1224	15	65535	699	17	159MB

Type	Cylinder	Heads	Write Pre-comp	Landing Zone	Sectors	Size
29	1024	8	65535	823	17	71MB
30	1024	11	65535	1023	17	98MB
31	918	11	65535	1023	17	87MB
32	925	9	65535	926	17	72MB
33	1024	10	65535	1023	17	89MB
34	1024	12	65535	1023	17	106MB
35	1024	13	65535	1023	17	115MB
36	1024	14	65535	1023	17	124MB
37	1024	2	65535	1023	17	17MB
38	1024	16	65535	1023	17	142MB
39	918	15	65535	1023	17	119MB
40	820	6	65535	820	17	42MB
41	1024	5	65535	1023	17	44MB
42	1024	8	65535	1023	17	68MB
43	809	6	65535	852	17	42MB
44	809	9	65535	852	17	64MB
45	776	8	65535	775	17	104MB
46	AUTO	0	0	0	0	
47	USER'S	TYPE				

## 4-7 ISA I/O Address Map

I/O Address (HEX)	I/O device
000 - 01F	DMA Controller 1, 8237A-5
020 - 03F	Interrupt Controller 1, 8259A
040 - 05F	System Timer, 8254-2
060 - 06F	8042 Keyboard Controller
070 - 07F	real-time Clock/CMOS and NMI Mask
080 - 09F	DMA Page Register, 74LS612
0A0 - 0BF	Interrupt Controller 2, 8259A
0C0 - 0DF	DMA Controller 2, 8237A-5
0F0 - 0FF	i486 Math Coprocessor
1F0 - 1F8	Fixed Disk Drive Adapter
200 - 207	Game I/O
20C - 20D	Reserved
21F	Reserved
278 - 27F	Parallel Printer Port 2
2B0 - 2DF	Alternate Enhanced Graphic Adapter
2E1	GPIB Adapter 0
2E2 - 2E3	Data Acquisition Adapter 0
2F8 - 2FF	Serial Port 2 (RS-232-C)
300 - 31F	Prototype Card
360 - 363	PC Network (Low Address)
364 - 367	Reserved
368 - 36B	PC Network (High Address)
36C - 36F	Reserved
378 - 37F	Parallel Printer Port 1
380 - 38F	SDLC, Bisynchronous 2
390 - 393	Cluster
3A0 - 3AF	Bisynchronous 1
3B0 - 3BF	Monochrome Display and Printer Adapter

<b>I/O Address (HEX)</b>	<b>I/O device</b>
3C0 - 3CF	Enhanced Graphics Adapter
3D0 - 3DF	Color/Graphics Monitor Adapter
3F0 - 3F7	Diskette Drive Controller
3F8 - 3FF	Serial Port 1 (RS-232-C)
6E2 - 6E3	Data Acquisition Adapter 1
790 - 793	Cluster Adapter 1
AE2 - AE3	Data Acquisition Adapter 2
B90 - B93	Cluster Adapter 2
EE2 - EE3	Data Acquisition Adapter 3
1390 - 1393	Cluster Adapter 3
22E1	GPIB Adapter 1
2390 - 2393	Cluster Adapter 4
42E1	GPIB Adapter 2
62E1	GPIB Adapter 3
82E1	GPIB Adapter 4
A2E1	GPIB Adapter 5
C2E1	GPIB Adapter 6
E2E1	GPIB Adapter 7

## Chapter 5 Q & A

### 5-1 Errors Messages During Power On Self Test

During **power on self test (post)**, BIOS will automatically detect the system devices. Below is the questions that users may always meet. The user may press “**Esc**” key to skip the full memory test.

#### 1. *Beep sound*

On power on, the system make beep sound to offer different messages. If the system is configured correctly, it prompts a short beep to show correct the devices configuration is done correctly. When VGA card and DIMM modules are not plugged well, the system makes longer and constant beep sounds.

#### 2. *BIOS ROM checksum error*

It indicates the checksum of the BIOS code is not right and system will always halt on power on screen. Contact the dealer to exchange a new BIOS.

#### 3. *CMOS battery fails*

It indicates the CMOS battery does not work. Contact the dealer to exchange a new battery.

#### 4. *CMOS checksum error*

It indicates the CMOS checksum is incorrect. Load the default values in BIOS to solve this problem. This error may result from a weak BIOS, so exchange a new BIOS if necessary.

#### 5. *Hard disk initialize*

**Please wait a moment...**

Some hard drives require more time to initialize.

**6. *Hard disk install failure***

The system can not find or initialize the hard drive controller or the drive. Check if the controller is set correctly. If no hard disk is installed, “**Hard drive selection**” must be set to “**none.**”

**7. *Keyboard error or no keyboard present***

This means the system can not initialize the keyboard. Check if the keyboard is plugged well and be sure no keys are pressed during power on self test.

**8. *Keyboard is lock out- Unlock the key***

Normally when this message comes out, check if there is anything mis-placed on the keyboard. Be sure nothing touches the keys.

**9. *Memory test fails***

There will be more information to specify the type and location of the memory error.

**10. *Primary master hard disk fail***

The BIOS find an error in the primary master hard disk drive.

**11. *Primary slave hard disk fail***

The BIOS finds an error in the primary slave hard disk drive.

**12. *Secondary master hard disk fail***

The BIOS finds an error in the secondary slave master hard disk drive.

**13. *Secondary slave hard disk fail***

The BIOS finds an error in the secondary slave IDE hard disk drive.

## 5-2 Frequently Asked Questions

Below is questions users always come out with. **Q** is for question. **A** is for answer.

***Q: Why can't my AGP card work under Win 95?***

**A:** Windows 95 OSR2.0 does not support AGP function. You must install "USB support" file to enable this function. After installing, choose "enable for "ASSIGN IRQ FOR USB" in BIOS PNP/PCI configuration setup.

***Q: Why can't the CPU frequency be adjusted to 100 MHz ?***

**A:** The BIOS will automatically detect the CPU frequency (66MHz or 100 MHz). Therefore, if your CPU frequency cannot be adjusted to 100 MHz, then your CPU may be 66 MHz. In BIOS "speed setup," there are other frequencies, like 75 MHz, 83 MHz, 103 MHz, 102 MHz, 112 MHz, 133MHz. These are for internal test only. No guarantee is provided since this is not included in chipset specification.

***Q: Why is my system not stable with 100 MHz CPU?***

**A:** There are many reasons for this condition. One of the most common is that SDRAM does not match PC-100 specification. When system is operated under 100 MHz, in addition to 100 MHz CPU, SDRAM must be PC-100 DIMM too.

### 5-3 Web-site Service

If you have any questions this manual may not help, like updated BIOS, or any information you need regarding our products, please visit our web-site at

- <http://www.lucky-star.com.tw>

**Website to bundle updated “XStore Pro” IDE driver**

Updated drivers will be constantly provided at High Point’s website. Lucky Star website is also linked to High Point.

- <http://highpoint-tech.com>