6ZX2
Main Board
AT Form Factor
User's Manual

Copyright

Manual version: 1.0
Ref. No. 3053169
Published in 1999

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Chapter 1 Introduction

1-1 Overview

6ZX2 main board is designed with Intel® 82443ZX AGPset which provides an integrated IDE controller with two high performance ide interfaces supporting four IDE devices (hard devices , CD-ROM devices… etc.), and USB (universal serial bus) features enhances the overall performance and extension for this board.

6ZX2 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.

6ZX2 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.

The performance, speed and extensibility of i440ZX® main board make it the perfect choice for building a LAN server, a high-end workstation or a multi-user system.

1-2 Mother Board Specifications

Spec.	Description
slot 1	Support Intel® Pentium® II/ 66/100 MHz & Pentium® III/100 MHz CPU
memory	DIMM: 2 of 168-pin 3.3V DIMM **a. professional PC** * 100 MHz freq.: PC 100- DIMM * 66 MHz freq. : SDRAM up to 512MB EDO RAM up to 512MB (3.3V only) **b. basic PC: 66 MHz freq.** * SDRAM up to 512MB * EDO RAM up to 512MB (3.3V only)
Exp. slot	2x ISA, 3x PCI and 1x A.G.P. slot
Chipset	Intel® **i440 ZX®** chipset *Intel® 82443ZX PCI and A.G.P controller. *Intel® 82371EB I/O south bridge
BIOS	Award® full pnp (plug & play) bios
I/O function	*2x PCI IDE devices *1x FDC, 2 x serial ports *1x parallel port device /EPP/ECP/SPP *2x USB connector *I.R. (infrared) connector
Board size	22.00 cm x 22.00 cm
Green function	Complied with APM (**a**dvanced **p**ower **m**anagement)
Sound on board (optional)	PCI ESS-solo-1 *line-in *line-out * microphone *CD in *game port
Special features	*Wake up on LAN (ATX only) * modem ring on (ATX only) *Windows® 95 power off (ATX only) * keyboard wake up(ATX only) *PS/2 mouse wake up * SB link support *ATX & AT power supply suppor t * turbo run *over current protect circuit * timer alarm up *auto detection of CPU voltage, fan & temperature *jumperless

To support functions such as "Wake up on LAN," we suggest that Pin 17 signal 5VSB on ATX Power supply should be able to offer at least 750 mA driving ability.

1-3 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:

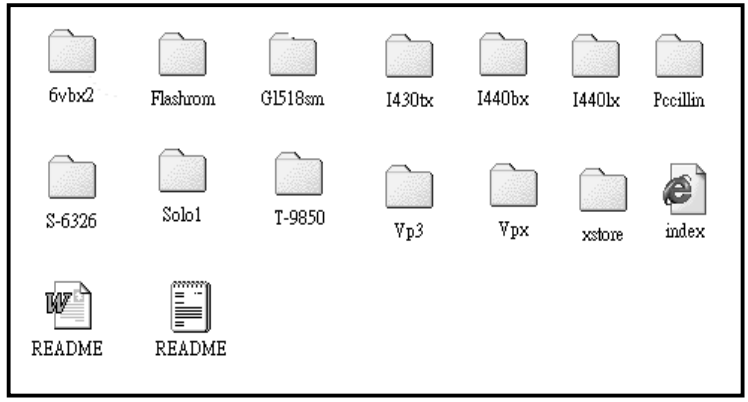
- **6ZX2** main board
- manual
- cables
- driver & utility / CD
- retention mechanism

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 **6ZX2**, wear a grounded wristband or ankle strap to avoid ESD (Electrical Static Discharge).

1-4 Notice of CD Driver Installation

This CD contains below drivers. The user must read "Index" (HTML format) before installing required drivers. Index offers all the information on all the drivers.



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

1. **Main boards:** i440ZX, i440BX, i440EX, i440LX, i430TX, VIA® VPX, VP3- based main boards (i440ZX-based main board has the same driver as i440BX-based main board)
2. **Sound:** ESS-solo-1 sound driver
3. **Hardware monitoring (GL518SM):** CPU voltage/temperature and fan speed detection software
4. **Pccillin:** anti- virus protection software
5. **XStore Pro IDE driver:** new IDE bus master driver for ULTRA DMA 33

1-5 Reference to Pentium® II & Pentium® III CPUs

6ZX 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.

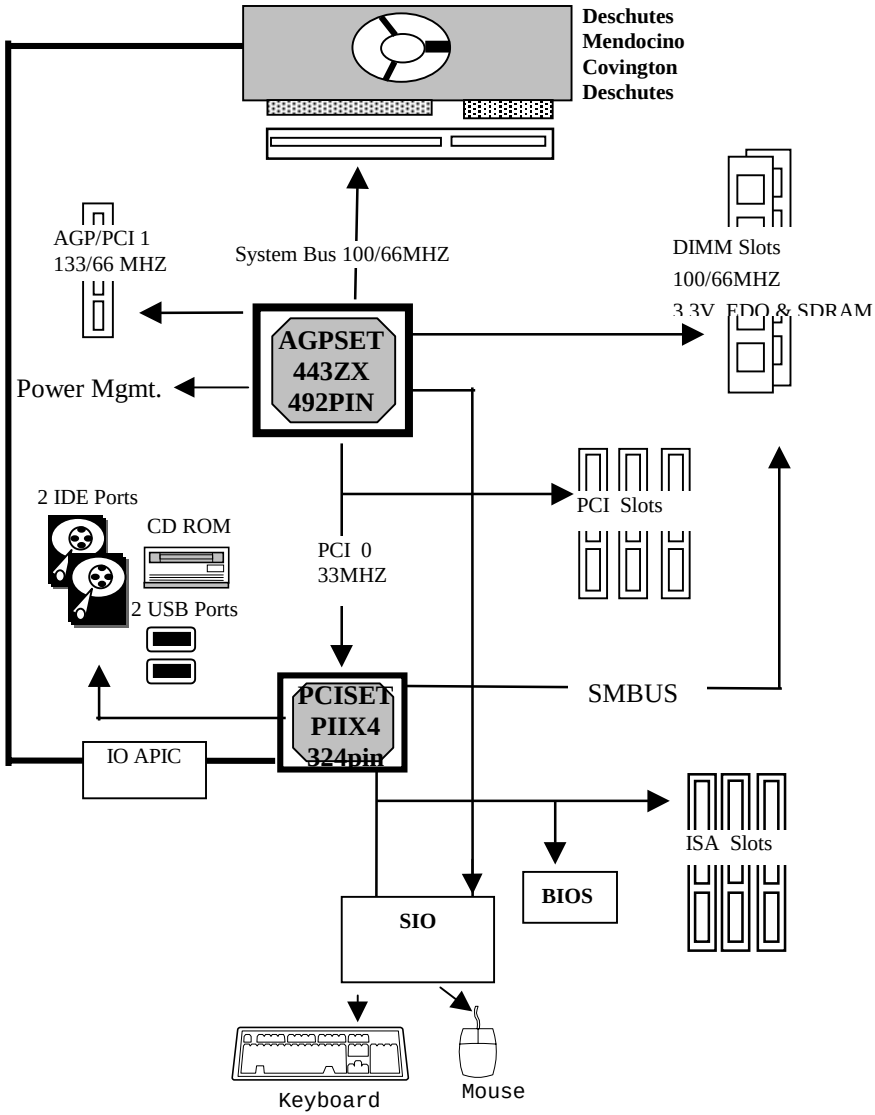
Intel® Processors for Slot 1				
Pentium™ III	Pentium® II			
100 MHz F.S.B	100 MHz F.S.B	66MHz F.S.B		
Katmai™ W/512K	Deschutes™ w/512K	Klamath™ w/512K	Celecron™ w/128K & CPU code A	Celeron™ w/o L2 cache
450-500 MHz	350- 450 MHz	233-333 MHz	300 & 333 MHz	266- 300 MHz

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: 6ZX2 does not support 133MHz F.S.B Pentium® III CPU.

1-6 Chipset Block Diagram



1-7 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, when working with hard disk of large block sizes, it effectively enhances 50% hard disk performance, and 10% system performance.

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

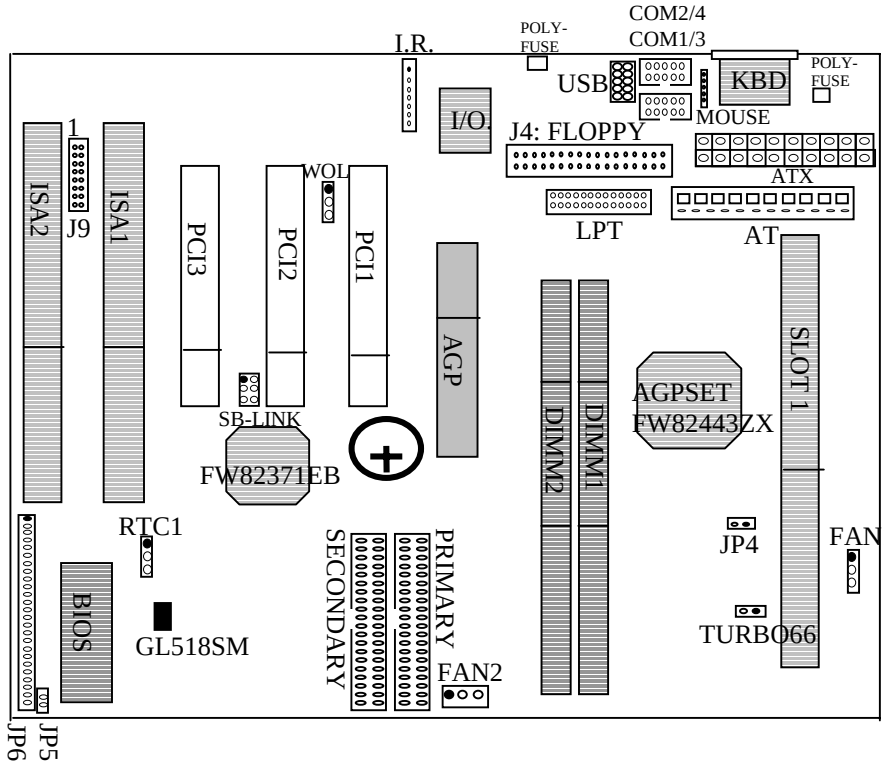
- Windows 95 or Windows 98 environment
- Lucky Star main boards
- Recommended system memory: 32 MB or above

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

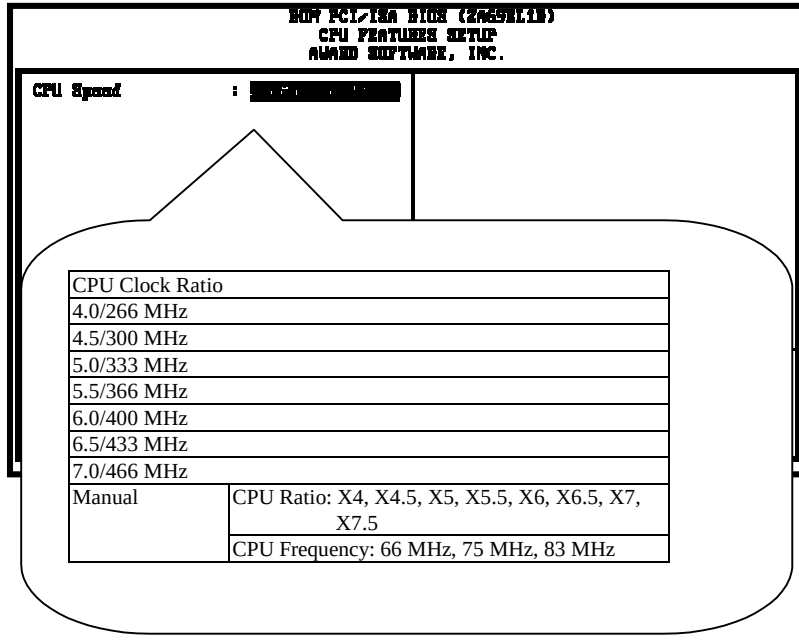
- http://www.lucky-star.com.tw
- http://highpoint-tech.com

Chapter 2 Installation

2-1 Layout Rererence



2-2 BIOS CPU Speed Setup



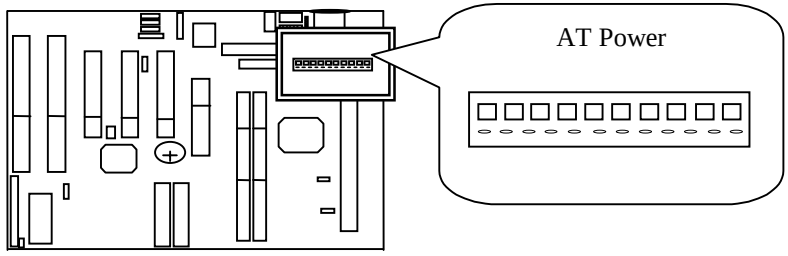
CPU Clock Ratio	
4.0/266 MHz	
4.5/300 MHz	
5.0/333 MHz	
5.5/366 MHz	
6.0/400 MHz	
6.5/433 MHz	
7.0/466 MHz	
Manual	CPU Ratio: X4, X4.5, X5, X5.5, X6, X6.5, X7, X7.5
	CPU Frequency: 66 MHz, 75 MHz, 83 MHz

Since over-clocking setup is not included in chipset specification, we provide no guarantee for any loss or damage resulting from this.

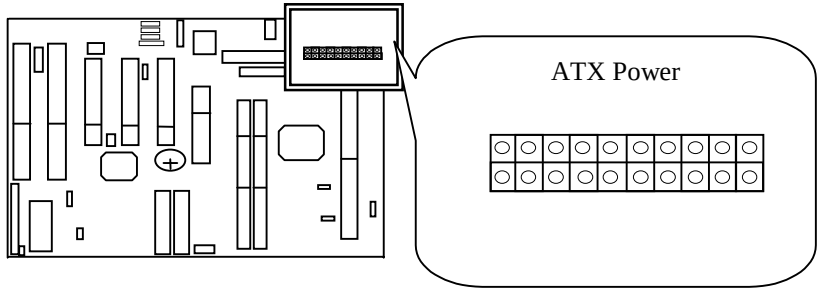
After installing processor, make sure actual CPU speed is the same as in BIOS.

2-3 Jumper Settings

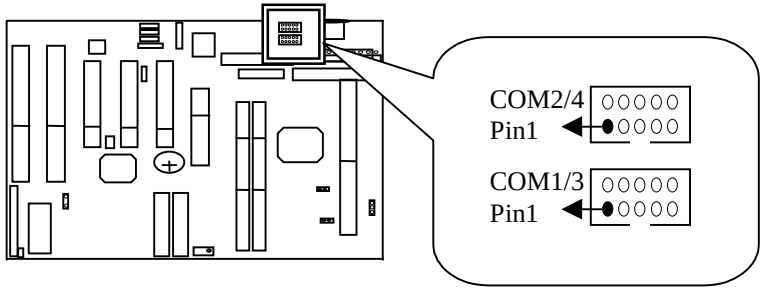
AT Power



ATX Power

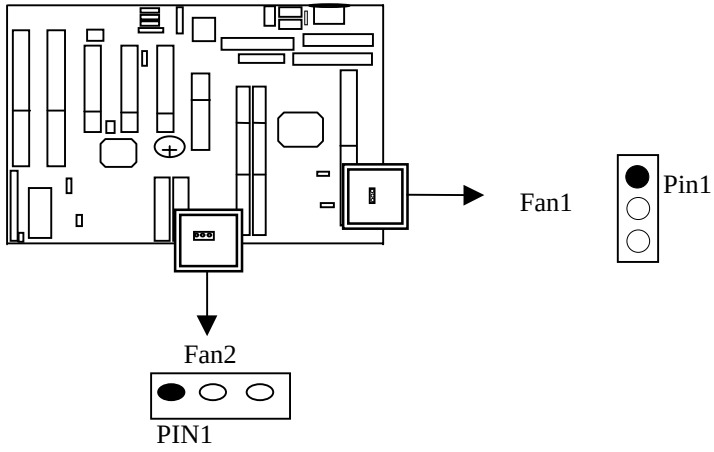


COM1/3 : serial port 1 /port 3 connector
COM2/4 : serial port 2 /port 4 connector

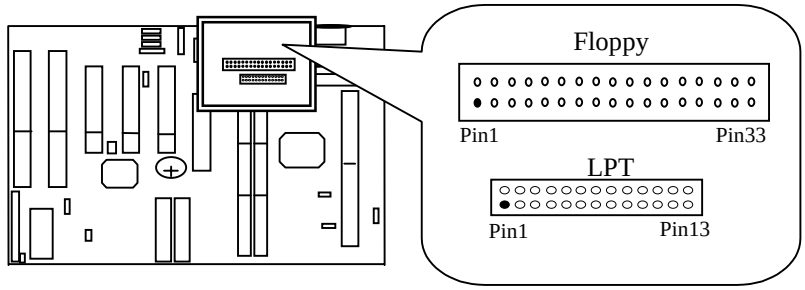


FAN1/ FAN2 : CPU fan connector

CPU fan pin out		
pin1 sensor	**pin2** +12V	**pin3** GND

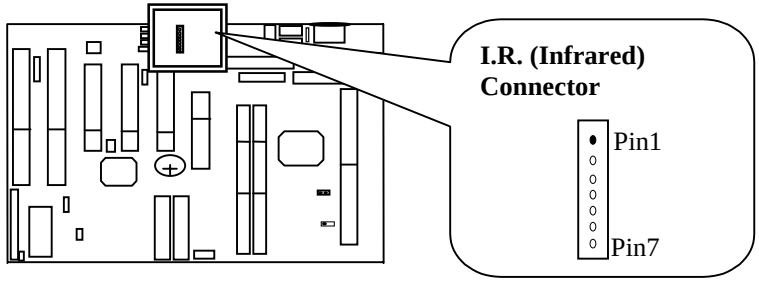


FLOPPY : floppy disk connector
PRINTER : parallel port connector



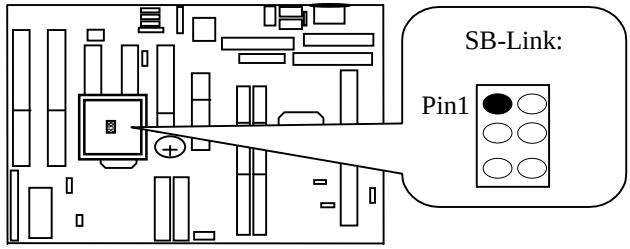
IR : I.R. (infrared) connector

I.R. connector						
Pin 1 RX	**Pin 2** GND	**Pin 3** TX	**pin 4** +5V	**Pin 5** RXH	**Pin 6** VCC	**Pin 7** GND



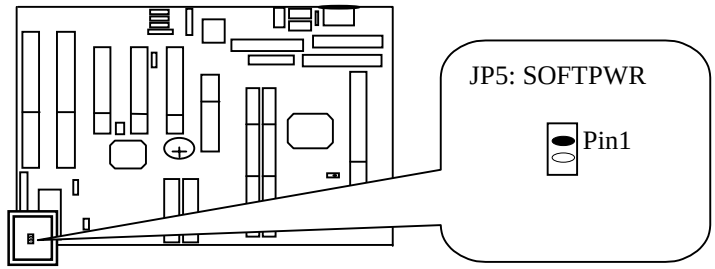
I.R. has the same I/O port as COM2. There is no hardware jumper setting for I.R.connector/com2 on this main board but customers need to set proper BIOS setting for "IRDA1.0", "ASKIR" or "STANDARD"(default) under "INFRA RED(I.R.) function" of "Intergrated Peripherals."

J3 : SBLINK connector

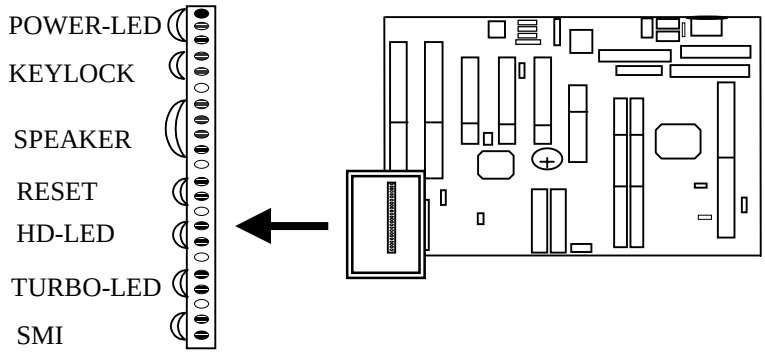


JP5: SOFTPWR---ATX power switch

ATX SOFT-PWR switch connector is Soft-PWR with 2 pins.



JP6: Case Connector



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 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).

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.

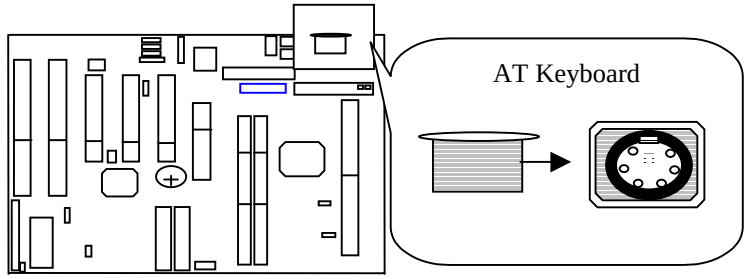
SPEAKER connector is a 4-pin keyed Berg strip. It is used to connect to the case speaker to the main board for sound purpose.

RESET 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.

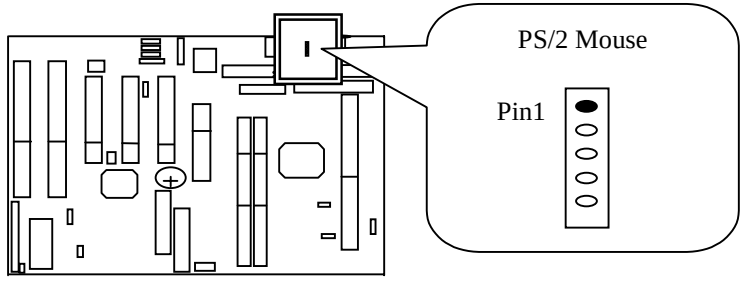
KEYLOCK is a 2-pin connector. It is used to connect the key lock on the case front panel (if there is). Keyboard may be disconnected with the system through this function.

POWER- LED 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.

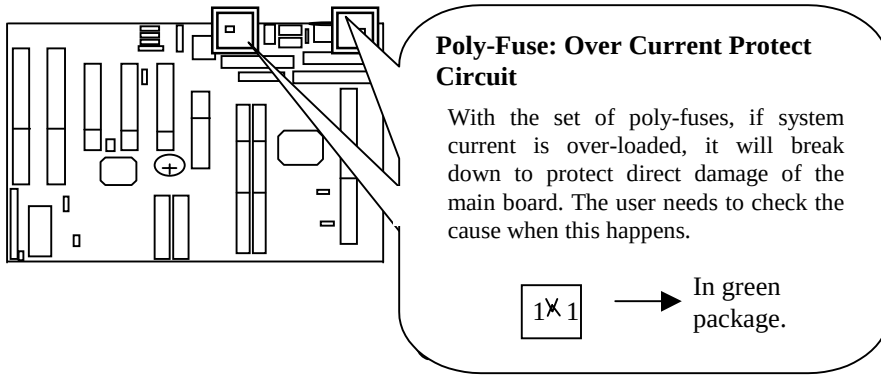
KBD : AT keyboard connector



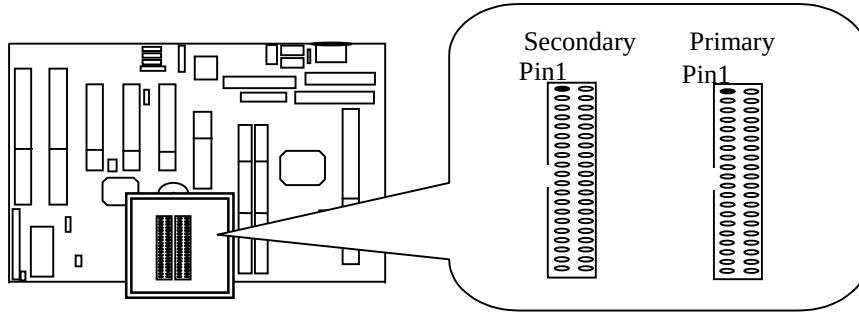
MOUSE



Poly-fuse: over current protect circuit

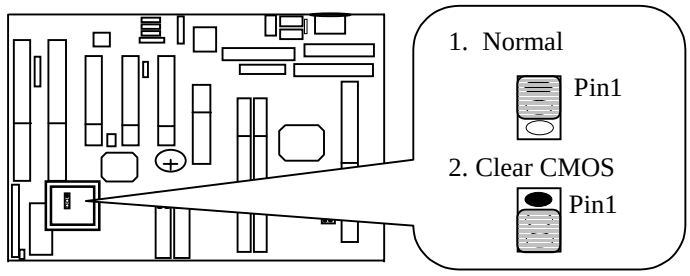


Primary : Primary IDE connector
Secondary : Secondary IDE connector



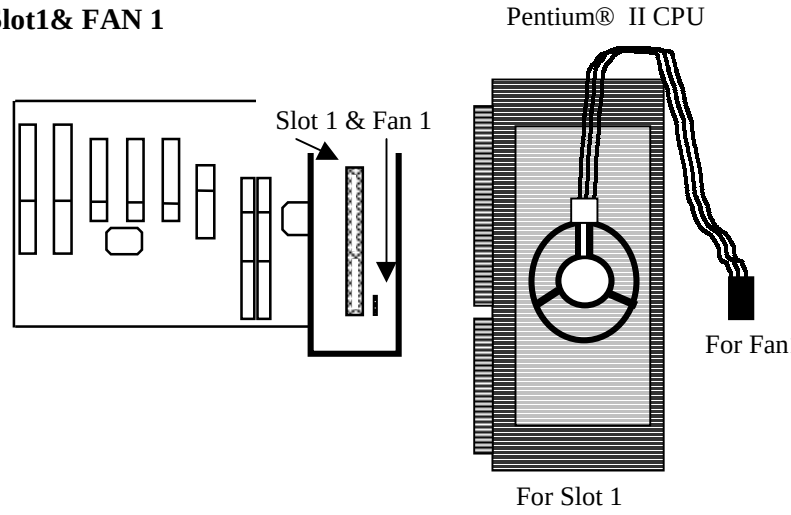
RTC1: battery selector

	Normal	clear CMOS
RTC1	1-2 **(default)**	**2-3**



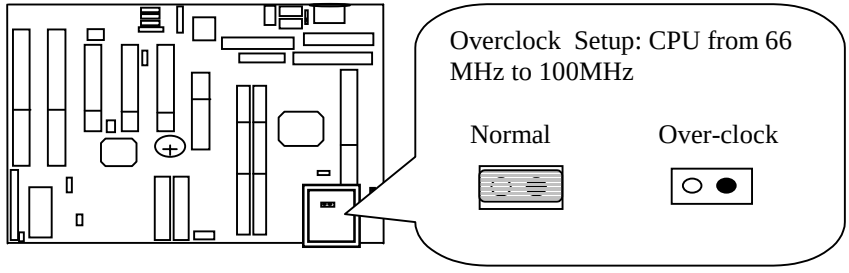
If password for bios setup is forgotten, please clear CMOS, then reconfigure the system.

Slot1& FAN 1



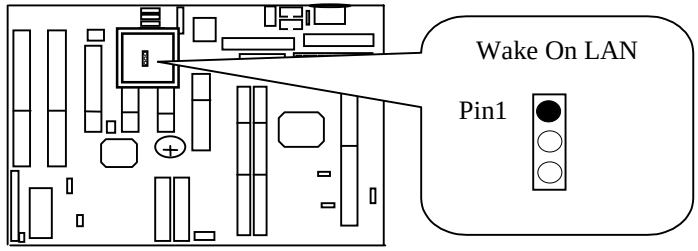
TURBO66 (this function is for internal test only. Do not guarantee for over-clock setup)

This enables clock speed "66MHz CPU" to run at 100 MHz. DIMM must be PC-100 spec. Make sure the system's whole configuration is able to support this function, or system may not be stable.

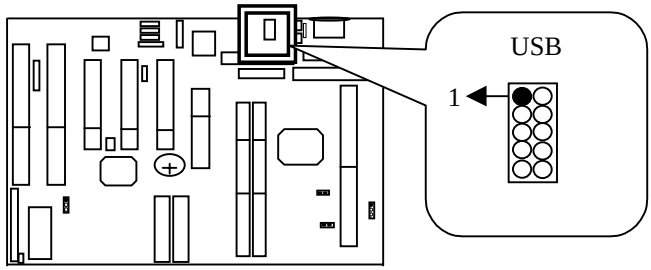


Please use PC-100 100 MHz DIMM for over- clock/100 MHz setup.

WOL: Wake on LAN

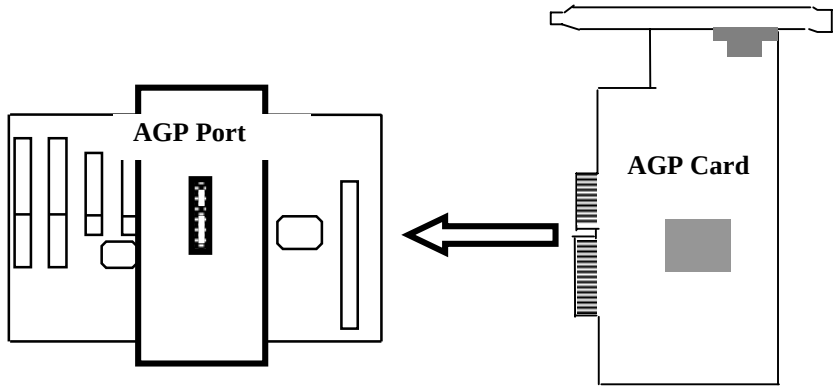


USB: Universal Serial Bus Connector



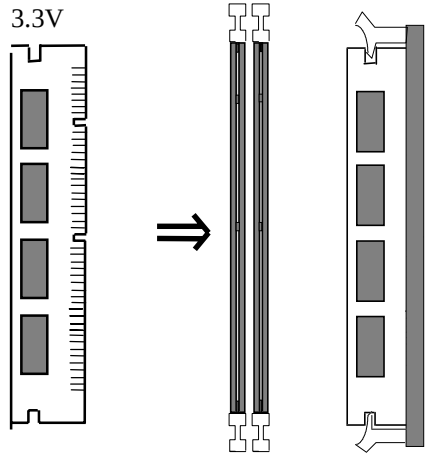
USB pin out	
USB1	**USB 2**
pin1 +5V	**pin6 +5V**
pin2 USBP0-	**pin7 USBP1-**
pin3 USBP0+	**pin8 USBP1+**
pin4 GND	**pin9 GND**
pin5 GND	**pin10 GND**

AGP port



2-4 DIMM Installation

Please make sure DIMM is 3.3V SDRAM. Memory supports from 8MB to 256 MB. The user may insert DIMM modules in either DIMM1or DIMM2.



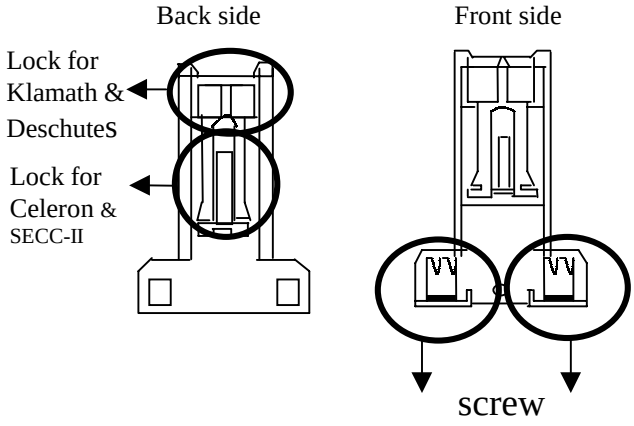
EDO DIMM only supports 3.3V.
PC-100 100 MHz DIMM is required for 100 MHz CPU.

2-5 CPU RM Kit Assembling Procedure

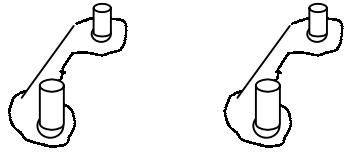
The enclosed RM Kit accomodates Pentium® III & Pentoum® II processors. User may refer to the attached page enclosed with the RM kit to install the processors.

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

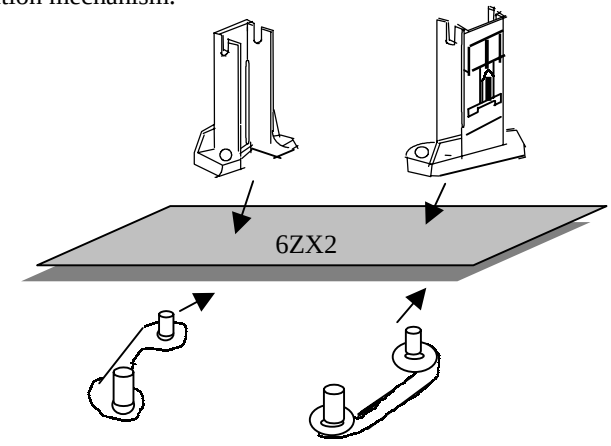


RM. Attach Mount (RMAM): 2 pcs



2. Make sure power is off during assembly.

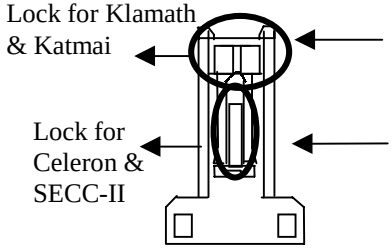
3. Insert the RMAMs through the bottom of the motherboard and attach them to the retention mechanism.



4. Fasten up the screws on the retention mechanism to tighten up retenion 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 ntoice to unlock those CPUs.

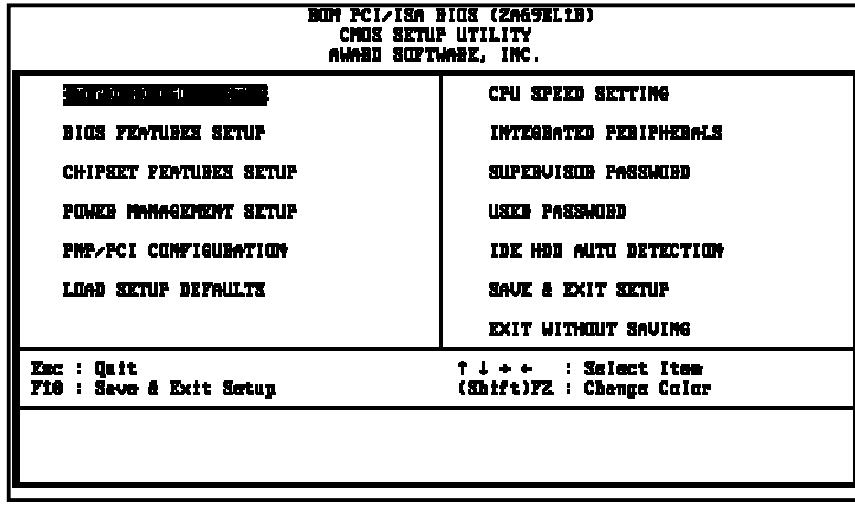


***Klamath™ & Katmai™: push the switch on the CPU, and CPU will be loosen from the lock of RM kit.

***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.

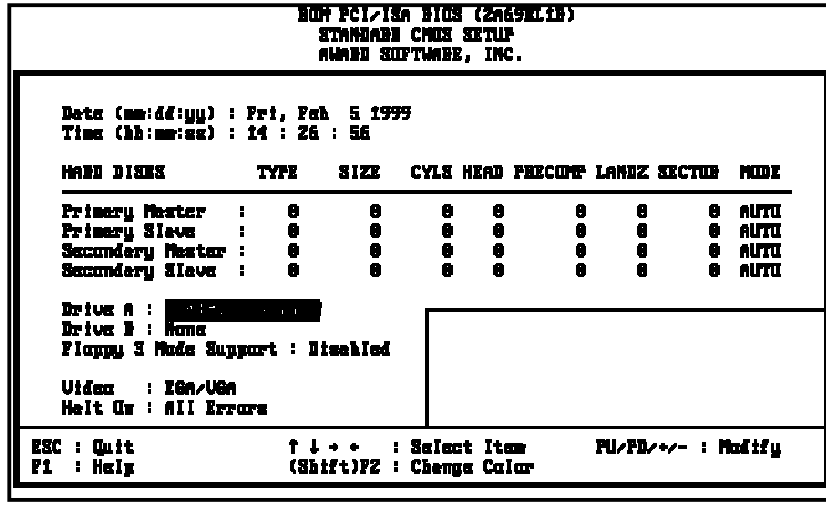
Chapter 3 BIOS Setup

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 "S**tandard 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.

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.

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".**

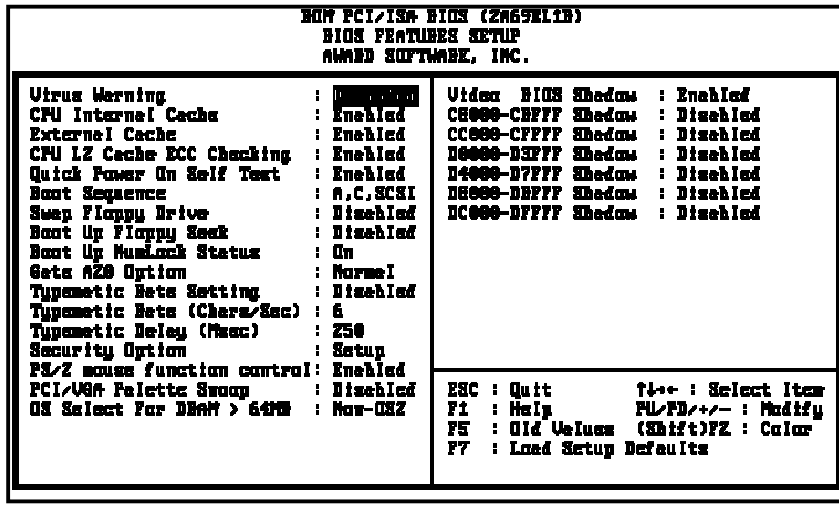
8. MODE :select **"AUTO"** to detect the mode type automatically. If your hard disk supports the **LBA** mode, select **"LBA"** or **"LARGE".** However, if your hard disk cyclinder is more than 1024 and does not support the lba function, you have to set at **"LARGE."** Select **"NORMAL"** if your hard 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 occurred during POST.

3-3 BIOS Features Setup

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



Virus Warning
:Enabled
:Disabled (default)

CPU Internal Cache
Enabled : 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. Default value is **enabled.**

Boot Up Numlock Status
:On(default)
:Off

Gate A20 Speed
: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

Item	**Function**	**Note**
Setup (default)	Security protection in CMOS setup menu	After setting password in BIOS CMOS **"Supervisor Password" or User Password,**" it protects BIOS CMOS setup.
System	Security protection in system boot-up & BIOS setup	This function secures the system under system boot-up and BIOS setup after setting password.

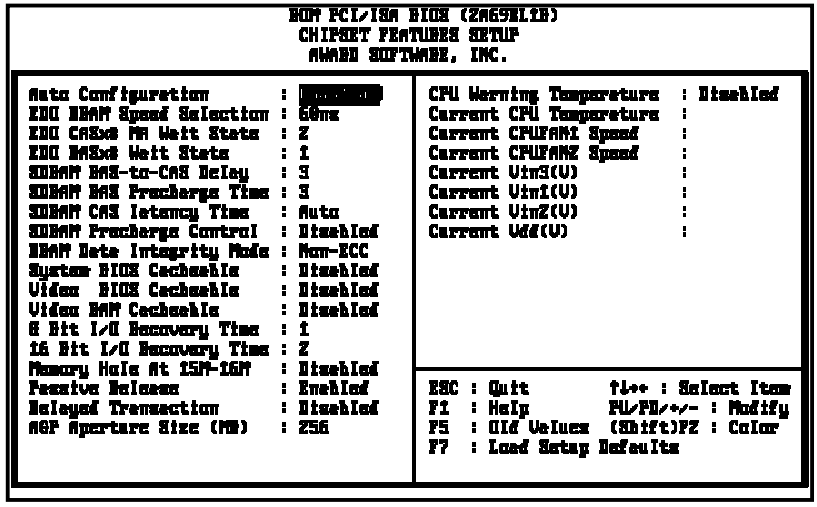
PCI/VGA Pallette Snoop
Enabled: it allows you to install an enhanced graphics adapter card.
Disabled (default): If your graphics adapter card does not support the pallette snoop function, please set at **Disabled** to avoid system malfunction.

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



Auto configuration
BIOS will automatically detect the CPU speed and will auto-configurate the bus frequency, DRAM speed, cache and read/write cycle.
Enabled: (default)
Disabled

SDRAM RAS- to- CAS delay
This controls the DRAM page miss and row miss leadoff timing.
: 2
: 3 (default)

SDRAM RAS Precharge Time
SDRAM precharge time by RAS.
: 4
: 3 (default)

System BIOS cacheable
define whether system BIOS area cacheable or not.
:Enabled
:Disabled (default)

Video BIOS cacheable: *to de*fine whether video BIOS area cacheable or not.
:Enabled
:Disabled (default)

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)

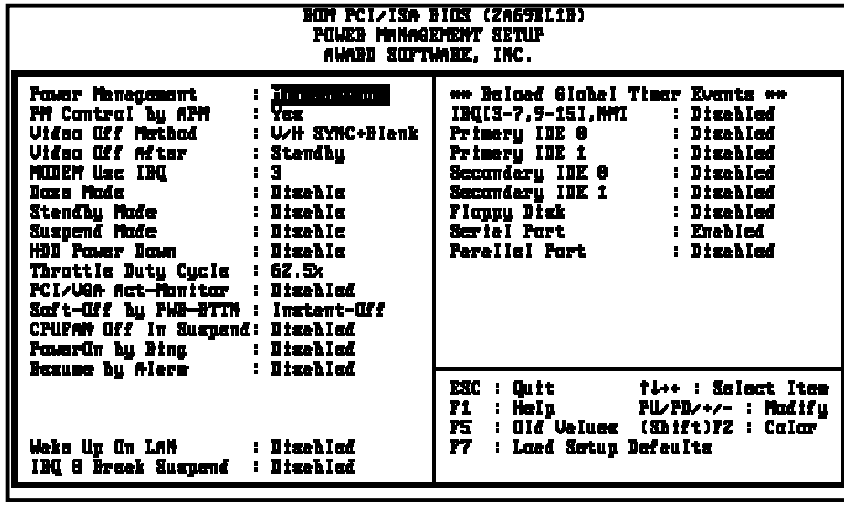
8 Bit I/O Recovery Time:
This field defines the recovery time from 1 to 8 for 8-bit I/O.

16 Bit I/O Recovery Time:
To define the recovery time from 1 to 4 for 16-bit I/O.

Memory Hole at 15M-16M: 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

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.
:256M(default)
:128M, 64M, 32M, 16M, 8M, 4M

3-5 Power Management Setup



Power Management
:User Define(default)--users can configure their own power management
:Min Saving
:Max Saving
:Disabled

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
:Blank Screen
:V/H Sync+Blank (default)

Video Off After:
: Standby (default)
: Doze, NA, Suspend

MODEM Use IRQ
:3 (default)
:4, 5, 7, 9, 10, 11, NA

PowerOn by Ring
:Disabled(default)
:Enabled: modem ring on function--- system can be turned on through modem.


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

Resume by Alarm: 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.
Disable (default) **:** disble this function.

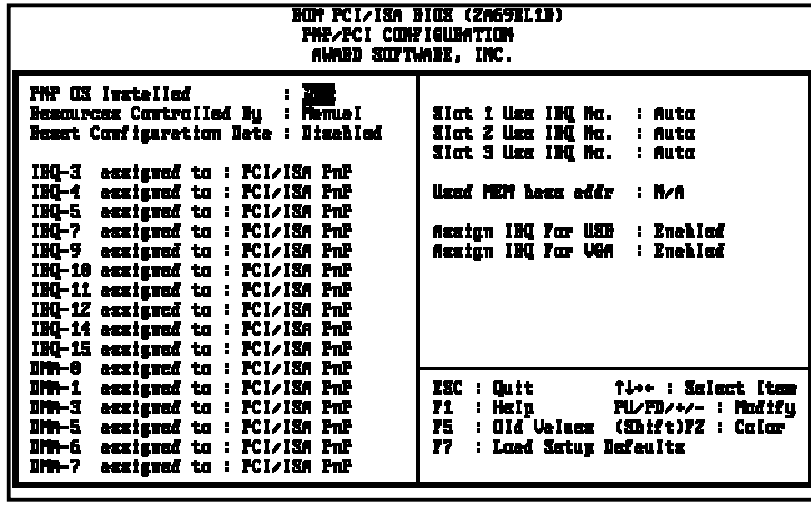
Note: this function only works when the system is turned off in Windows mode, and doze mode will not function.

Wake Up On LAN
:Enabled
:Disable (default)

To support functions such as "Wake up on LAN," "Keyboard Wake up," or "PS/2 Mouse Wake up," we suggest that Pin 17 signal 5VSB on ATX Power supply should be able to offer at least 750 mA driving ability.

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



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

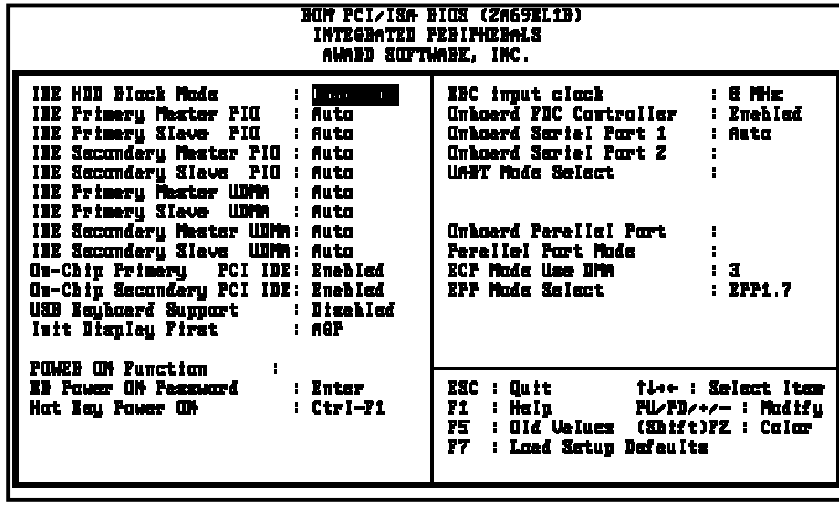
DMA-0 Assigned To--- DMA-7 Assigned To
: PCI/ISA PnP(default)
: Legacy ISA

PCI IRQ Actived By
There are 2 modes in activating PCI IRQ.
:Edge (default)
:Level

Assign IRQ for USB
:Enable (default)
:Disable

Assign IRQ for VGA
:Enable (default)
:Disable

3-7 Integrated Peripherals



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

IDE Primary Master PIO

This feature detects your primary master hard disk device.

:Auto (default)

:Mode 0,1,2,3,4

IDE Primary Slave PIO
This feature detects your primary master hard disk device.
:Auto (default)
:Mode 0,1,2,3,4

IDE Secondary Master PIO
This feature detects your secondary master hard disk device.
:**Auto** (default)
:Mode 0,1,2,3,4

IDE Secondary Slave PIO
This feature detects your secondary master hard disk device.
:**Auto** (default)
:Mode 0,1,2,3,4

USB Keyboard support
:Enabled
:Disabled (default)

Onboard FDC Controller
: Enabled (default)
: Disabled

POWER ON Function

Item	Procedure	Special note
K/B power on	**1. Enter password:** 5 spaces allowed. **2. Confirm password:** key in the password to confirm again.	The system can **only be turned on through k/b password.** Case button can not work. if password is forgotten, please clear cmos and reset.
hot key power on	12 options: **"CTRL+F1…CTRL+F12."** The user may choose either of them by **"pageup"** or **"pagedown."**	the system can be turned on either by **hot key or pushing case power on button.**
mouse left	Mouse left (PS/2 mouse only)	the system can be turned on either by **PS/2 mouse or pushing case power on button.**
mouse right	Mouse left (PS/2 mouse only)	the system can be turned on either by **PS/2 mouse or pushing case power on button.**
button only	case button	The system can be turned on by case button.

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)
: 278H/IRQ5
: disabled

Parallel Port Mode

SPP (Default)	
EPP	
ECP	Choosing this item, there is another line shown: **ECP Mode Use DMA: 3**(default) **/ 1**
ECP+EPP	Choosing this item, another line is shown: **ECP Mode Use DMA: 3**(default) **/ 1**

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:

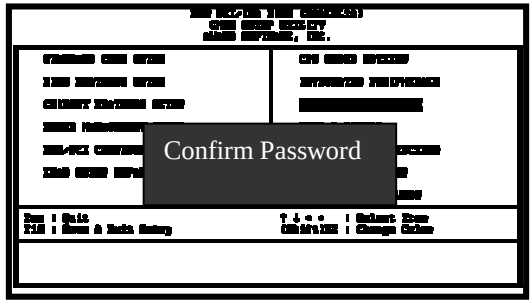
Supervisor Password: this function allows you the right to change the options of setup menu.

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)

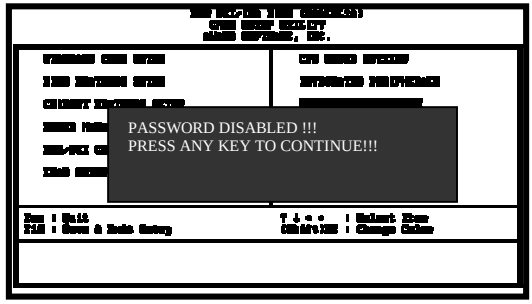
Step 3: Set “Security Option” in “BIOS Features Setup”

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

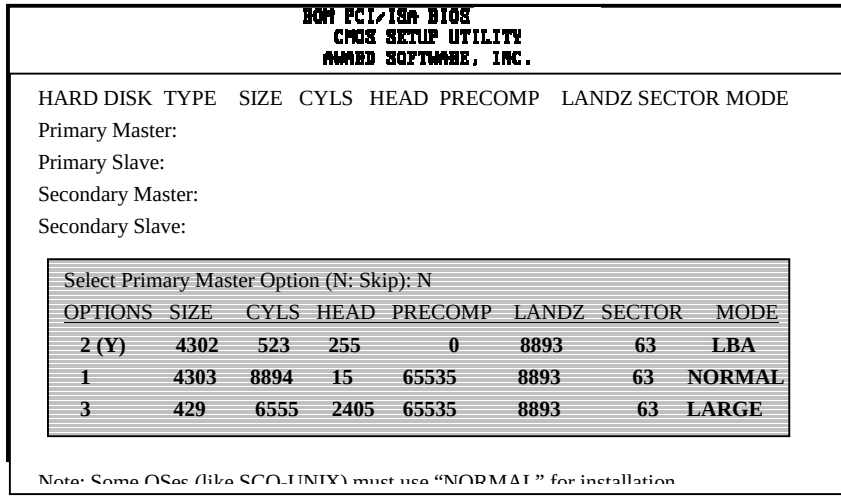
2. How to Disable “Supervisor Password” & “User Password”

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



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)
X No. Per Sector	(512)
	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)
X No. Bytes Per Sector	(512)
	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:

Cyls.	Head	Sector	Mode
1120	16	59	NORMAL
560	32	59	LARGE

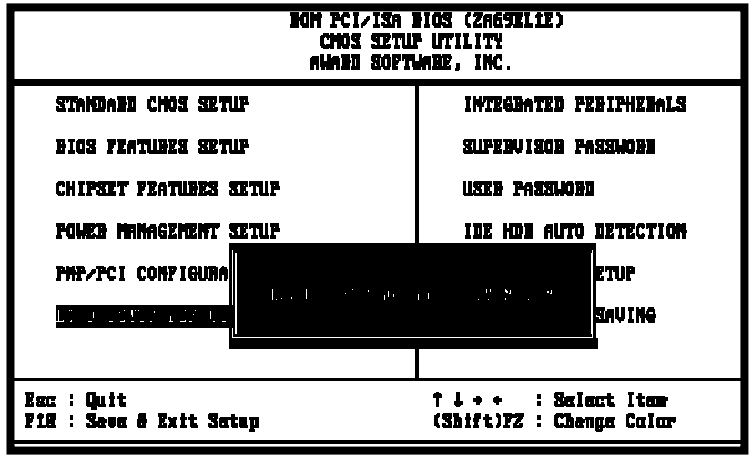
BIOS tricks DOS (or other OS) that the number of cylinders is less than 1024 by dividing it by 2. At the same time, the number of heads is multiplied by 2. A reverse transformation process will be made inside int 12h in order to access the right HDD address the right HDD address!

4. Maximum HDD Size:

	No. Cylinder	(1024)
X	No. Head	(32)
X	No. Sector	(63)
X	No. Bytes Per Sector	(512)
		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.

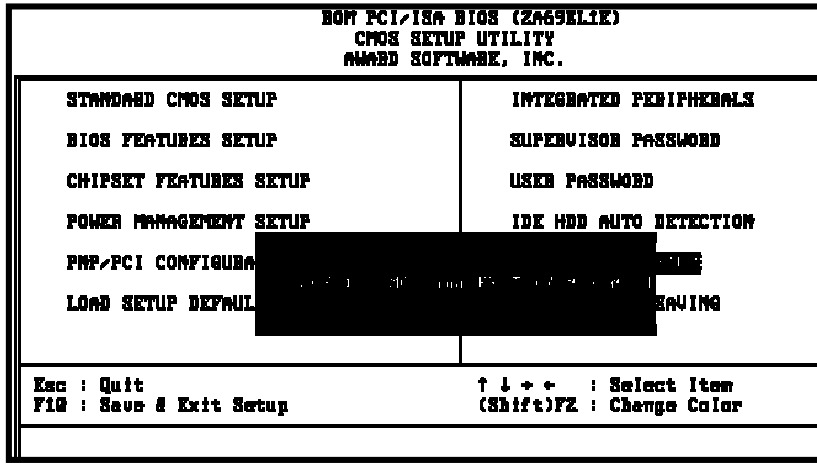
3-10 Load Setup Defaults



"**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.

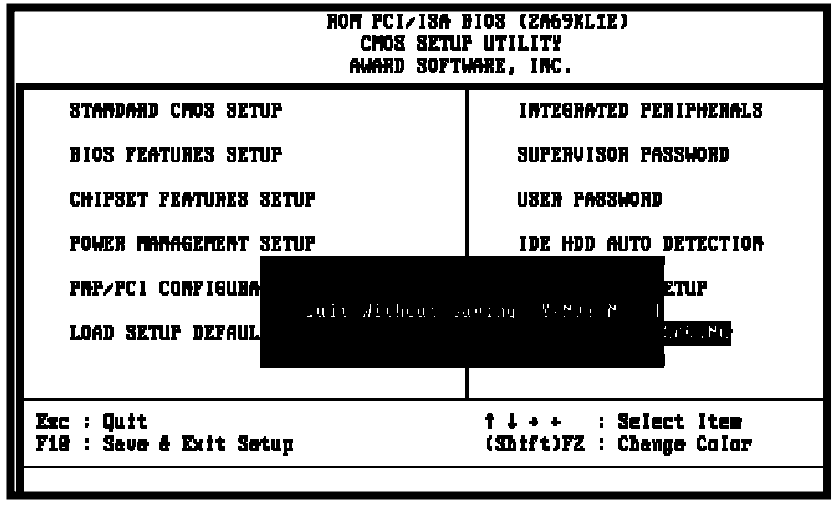
3-11 Save & Exit Setup

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..



3-13 I/O & 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)

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-CDF	CGA adapter
3F0-3F7	Floppy disk controller
3F8-3FF	Serial port-1

3-14 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 (Winboand 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

3-15 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