

6BX2
MAIN BOARD
AT FORM FACTOR
USER'S MANUAL
(VER : 1.0)

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Chapter 1. Introduction

1-1 Overview

The I440 BX main board is designed with Intel® 82443BX 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.

It supports Intel® Pentium® II CPUs family and is ideal for MS-DOS®, Windows 95®, Windows® 98, Windows NT®, Novell®, OS/2®, Unix®... Especially, the main board is designed with more choices on power on function, like **"K/B power on, hot key power on, mouse left and mouse right"** (refer to page 38). The M/B can also **detect system temperature, CPU fan speed, and CPU voltage automatically.**

The performance, speed and extensibility of I440BX® main board make it the perfect choice for building a lan server, a high-end workstation or a multi-user system.

1-2 Notice For Hardware Installation

A. Check the package before hardware installation

The main board package contains:

- * I440BX® main board
- * manual
- * cables
- * driver & utility / CD
- * retention modules

If any of these items is missing or damaged, contact the dealer from whom you purchase. Leave the I440BX® main board in its original package until you are ready to install it.

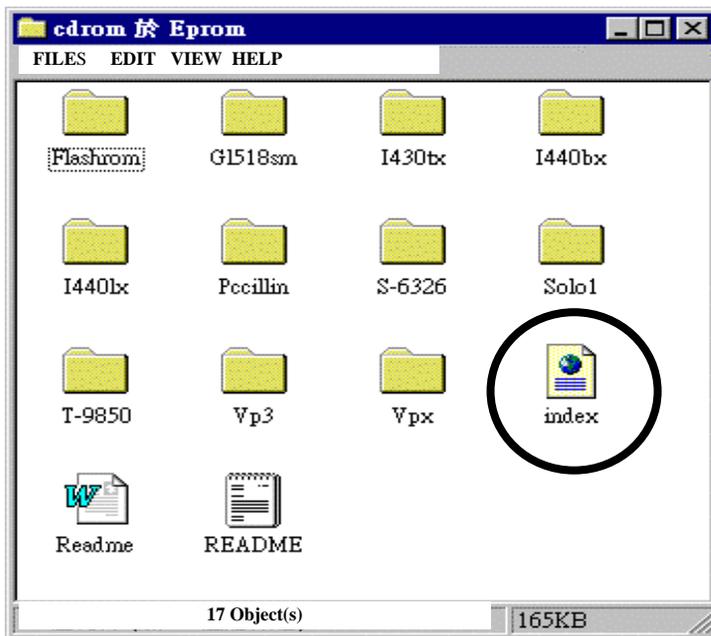
B. Don't turn on power during hardware installation

1-3 Notice For CD Driver Installation

This CD contains drivers as below:

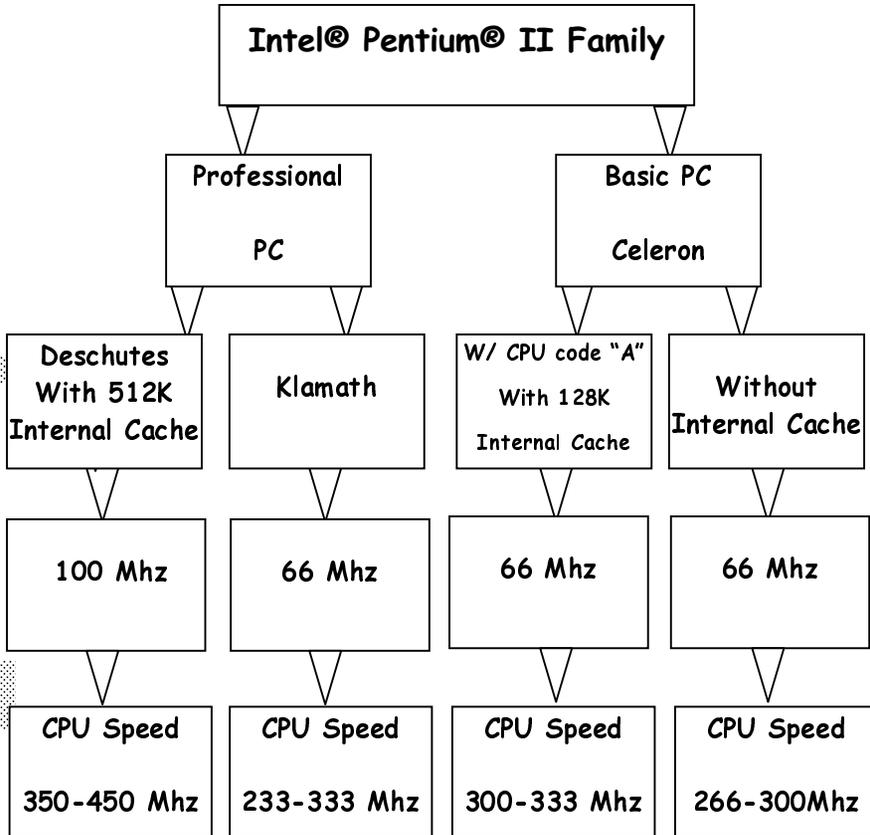
- A. main boards: I440BX®, I440EX®, I440LX®, I430TX®, VIA® VPX, VP3 main boards
- B. AGP cards: S- 6326 and T985
- C. Solo-1: Ess-solo-1 Sound driver
- D. GL518SM: CPU voltage /temperature and fan speed detection software
- E. PCCillin: anti- virus protection software

Please read “**Index**” before installing required drivers. “Index” offers all the information on the below files.



Read “**Index**” before installing required drivers.
“Index” file is HTML format.

1-5 Reference For Pentium® II CPUs

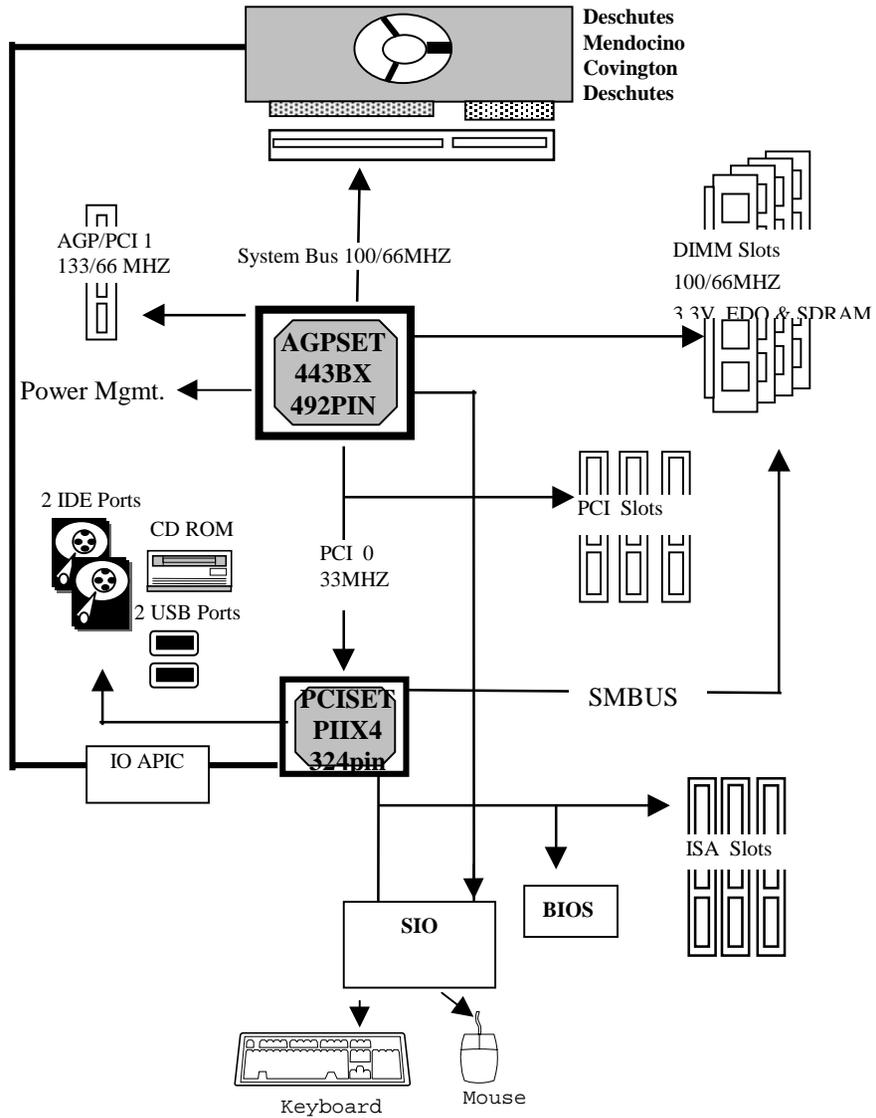


CPU is not enclosed in the package



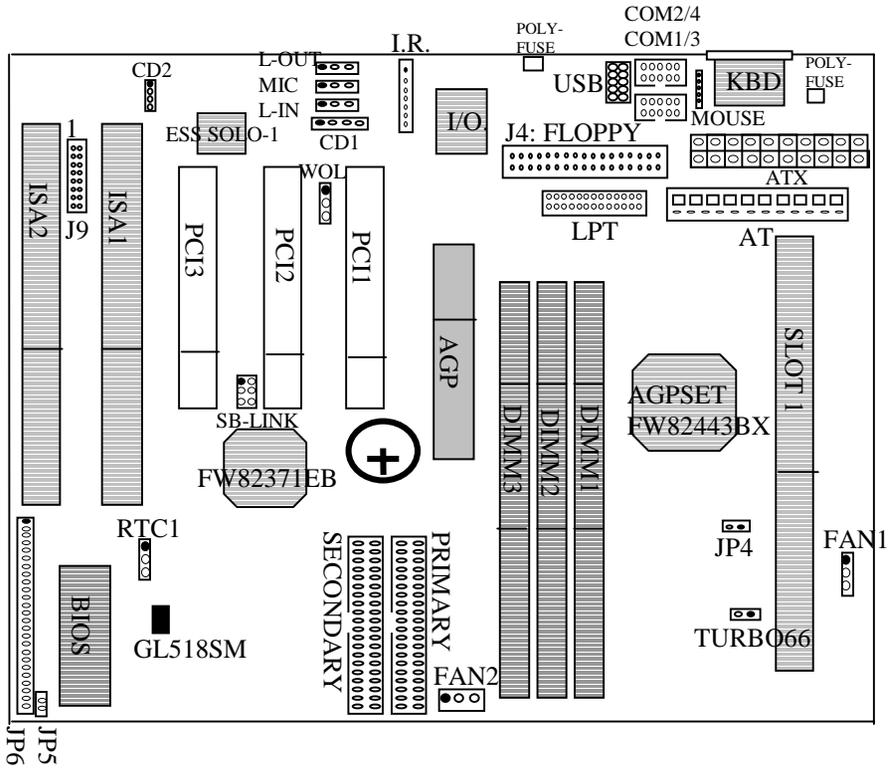
Celeron has 2 models. One is with internal cache and one without internal cache. The one with cache has a CPU code "A."

1-6 Chipset Block Diagram



Chapter 2. Installation

2-1 Layout Reference



2-2 BIOS CPU Speed Setup

NON PCI/ISA BIOS (2A69LITE)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration : Disabled ED0 DRAM Speed Selection : 64ns ED0 CASx8 Hit Wait State : 2 ED0 CASx8 Miss Wait State : 2 SDRAM RAS-to-CAS Delay : 3 SDRAM RAS Precharge Time : 3 SDRAM CAS Latency Time : auto SDRAM Precharge Control : Disabled DRAM Data Integrity Mode : Non-ECC System : CPU Speed : 233Mhz(66x3.5)	Auto Detect DIMM/PCI Clk : Disabled Spread Spectrum : Disabled CPU Warning Temperature : Disabled Current CPU Temperature : Current CPU Voltage : Current CPU Fan Speed :
--	--

Press "+" or " " to choose " CPU speed" according to your CPU frequency. the screen will show the below options:

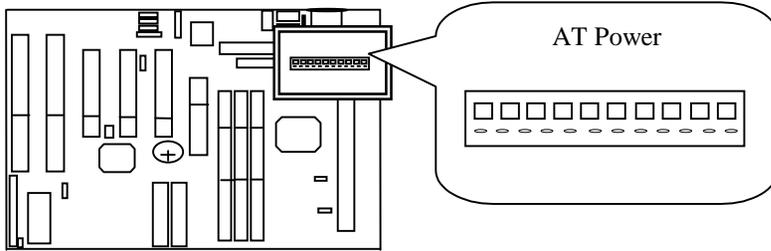
Frequency 66Mhz	Frequency 100Mhz	Manual	
P-II 200 v "200Mhz(66x3)"	P-II 300 v "300Mhz(100x3) "	Ratio	Freq.
P-II 233 v "233Mhz(66x3.5)"	P-II 350 v "350Mhz(100x3.5)"	2x, 2.5x	66/75/83/
P-II 266 v "266Mhz(66x4)"	P-II 400 v "400Mhz(100x4)"	3x, 3.5x,	100/103/
P-II 300 v "300Mhz(66x4.5)"	P-II 450 v "450Mhz(100x4.5)"	4x, 4.5x,	112/133
P-II 333 v "333Mhz(66x5)"	P-II 500 v "500Mhz(100x5)"	5x, 5.5x	Mhz

"Manual " --- the user can modify "CPU Ratio"(from 2x to 5.5x) & "CPU Frequency" (from 66Mhz to 133 Mhz). Since this is an over-clock setup, please make sure the system can work properly when setting "CPU Ratio" & "CPU Frequency".

CPU default value is "233Mhz(66x3.5)." Modify "CPU Speed" in CMOS "Chipset Features Setup." and set proper "CPU Speed." Then, save the change. The user does not have to set jumpers.

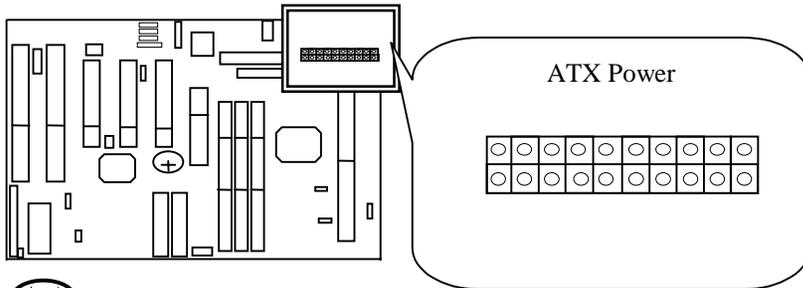
2-3 Jumper Settings

AT Power



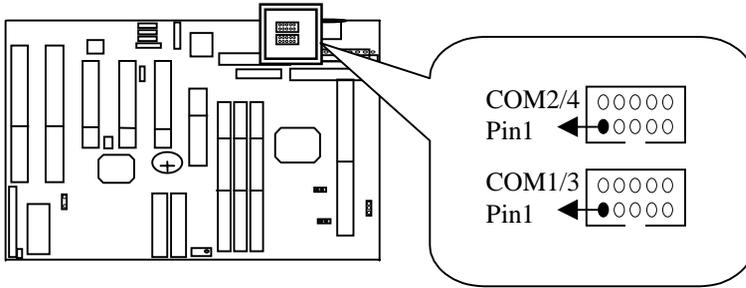
Please set BIOS CMOS Power Management (refer to page 33)

ATX Power



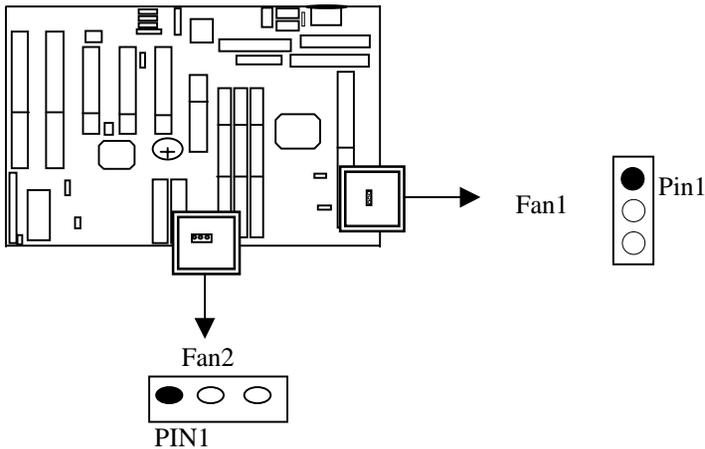
Please set BIOS CMOS Power Management (refer to page 33)

COM1/3 : Serial Port 1 /Port 3 Connector
COM2/4 : Serial Port 2 /Port 4 Connector

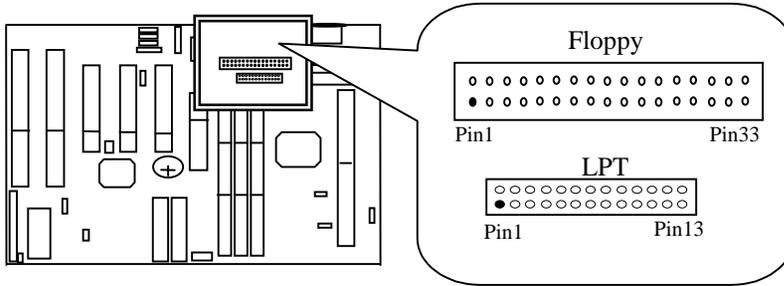


Fan1, Fan2 : CPU Fan Connector

CPU Fan Pin Out					
Pin1	Sensor	Pin2	+12V	Pin3	GND

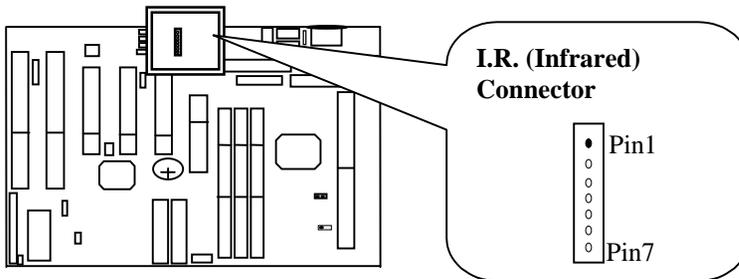


Floppy : Floppy Disk Connector
Printer : Parallel Port Connector



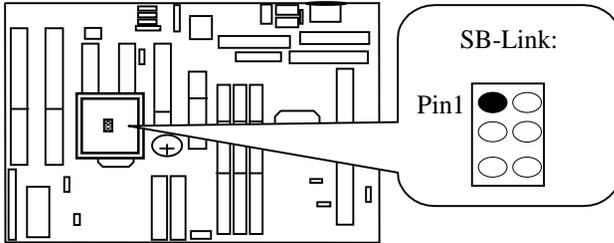
IR : I.R. (Infrared) Connector

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



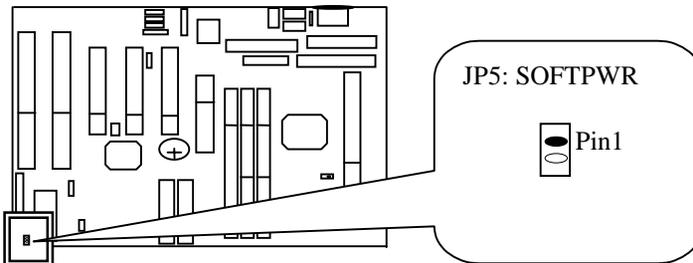
I.R. has the same I/O port as COM2. There is no hardware jumper setting for I.R.Connector/COM2 on this main board but customers need to set proper BIOS setting for "IRDA1.0", "Askir" or "Standard"(default) under "Infra red(I.R.) function" of "Intergrated Peripherals."

J3 : SB-Link Connector

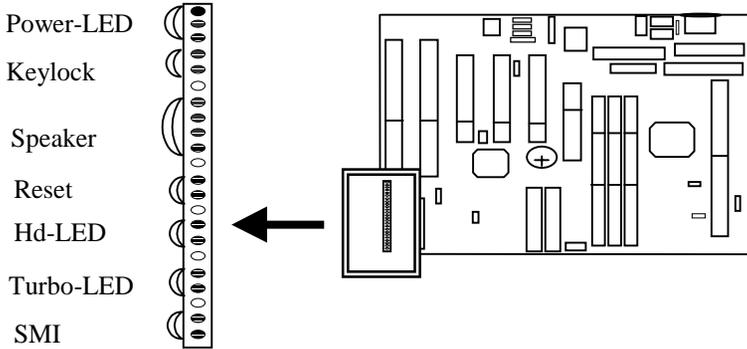


JP5: SOFTPWR--- ATX Power Switch

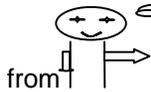
The system power is controlled by a momentary switch (when "**power switch type**" is set to momentary) connected to this lead. Pushing the button once will turn on the system and pushing another time will turn off the system. **The System Power LED** shows the status of the system's power. This connection does not have a function when a standard power supply is used.



JP6: Case Connector

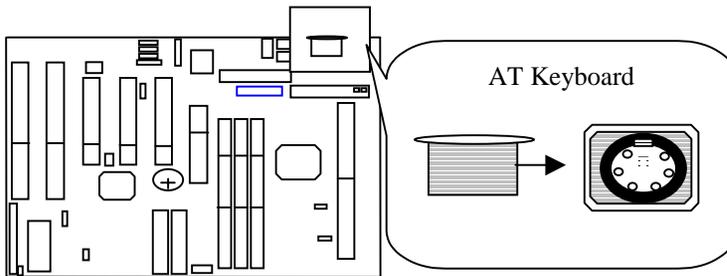


SMI: Suspend Mode Interrupt

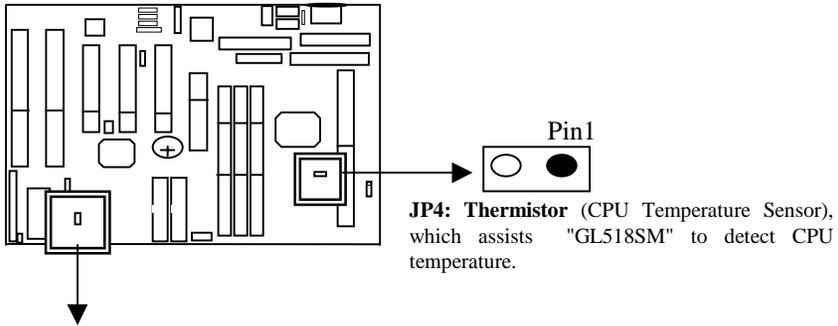


SMI Is For **Break Switch Setting** . When SMI is turned open to close and back to open, the system would suspend immediately.

KBD : AT Keyboard Connector



GL518SM & JP4 (Thermistor)



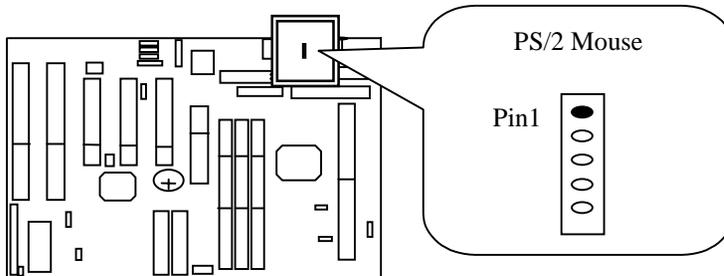
JP4: Thermistor (CPU Temperature Sensor), which assists "GL518SM" to detect CPU temperature.

IC "GL518SM" supports the system to automatically detects **CPU fan speed, system temperature, and CPU voltages.**



Please refer to Page 32 for BIOS setup.

Mouse

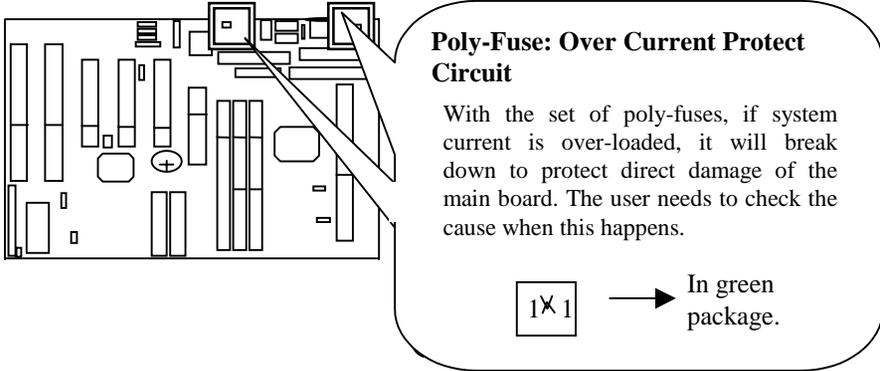


PS/2 Mouse Pin Out

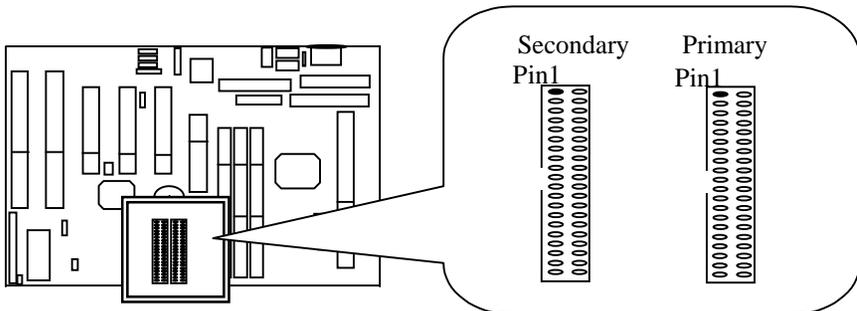
Pin1	Mouse Clock
Pin2	Mouse Data
Pin3	None
Pin4	GND

Pin5	VCC
------	-----

Poly-Fuse: Over Current Protect Circuit

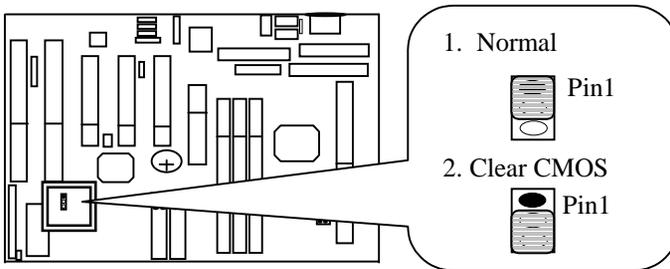


Primary : Primary IDE Connector
Secondary : Secondary IDE Connector



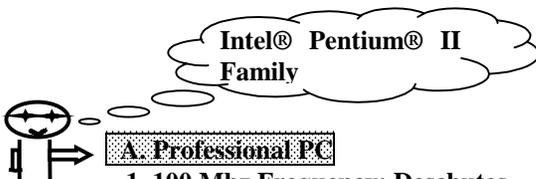
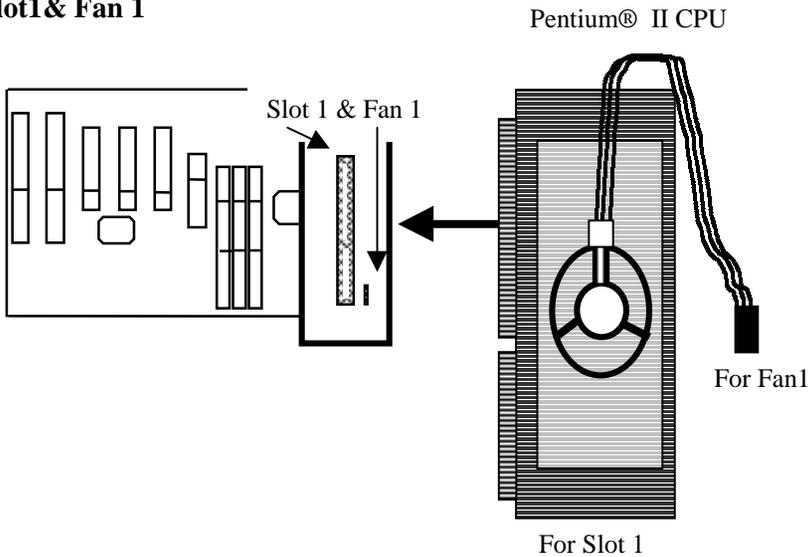
RTC1: Battery Selector

	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



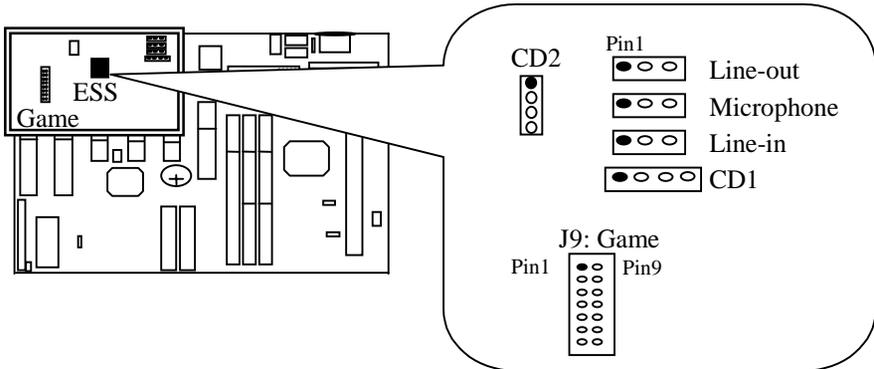
- 1. 100 Mhz Frequency: Deschutes
CPU Speed: 350-450 Mhz
- 2. 66Mhz Frequency: Klamath
CPU Speed: 233-333 Mhz With Internal Cache 512k

B. Basic PC: Celeron

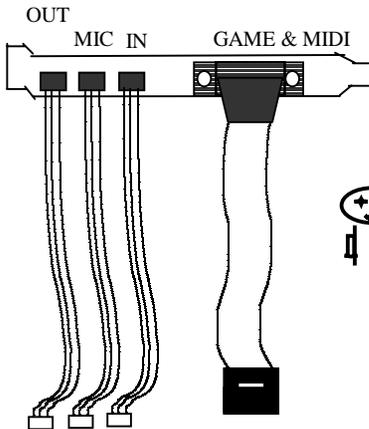
- 1. CPU with 128k Internal L2 Cache: 300A Mhz & 333A Mhz
With CPU code "A"
- 2. CPU without Internal L2 Cache: 266 Mhz & 300 Mhz

Sound On Board: Optional

Ess-Solo-1 & Connectors for Game, Line-In, Microphone, Line-Out, CD1 & CD2.



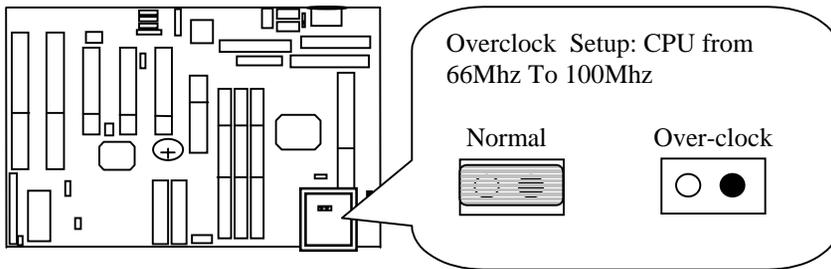
 **Sound on board is optional.**



 **Cable enclosed in the package connecting the above connectors**

Turbo66 (This function is for reference only. Do not guarantee for over-clock setup)

This enables clock speed “66Mhz CPU” to run at 100 Mhz. Only make sure the system’s whole configuration is able to support this function, or system may not be stable under over-clocking setup.

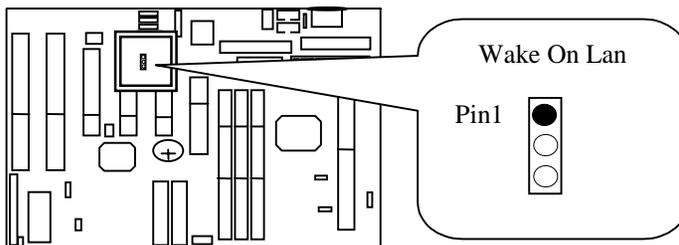


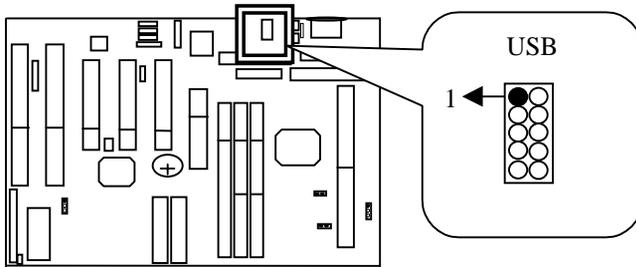
➡ Please use PC-100 100Mhz DIMM for over- clock setup.



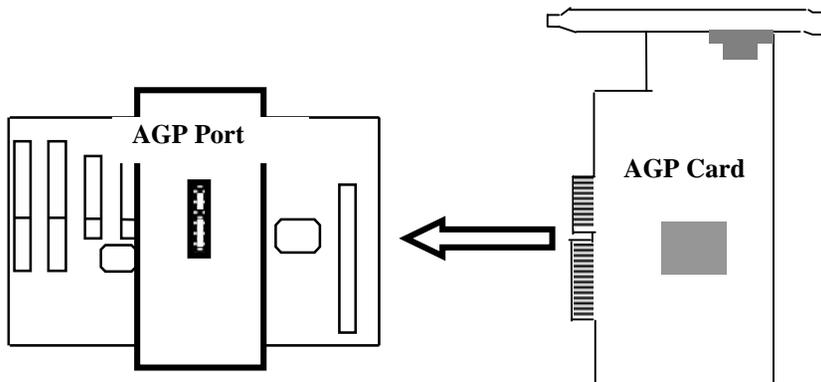
➡ Do not guarantee over-clock setup.

WOL: Wake On Lan



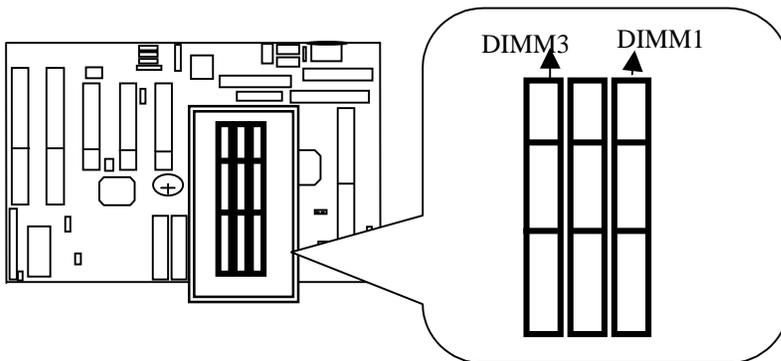
USB: Universal Serial Bus Connector

USB Pin Out	
USB1	USB2
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. The following chart is only a reference. The user may insert dimm modules in either DIMM1, DIMM2 or DIMM3.

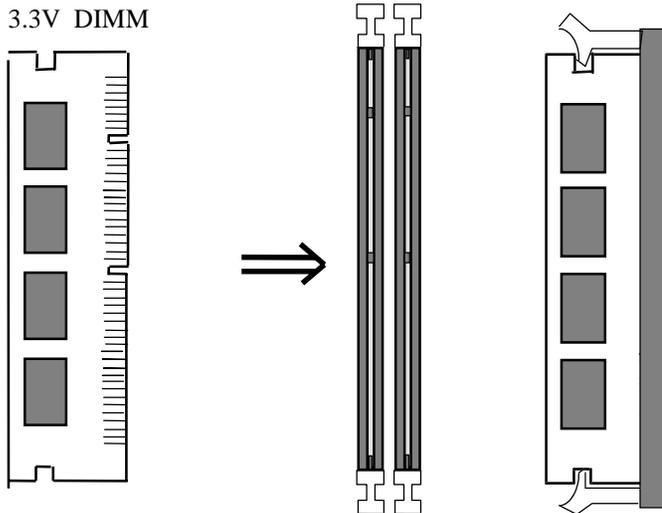


Total	DIMM1	DIMM2	DIMM3
8MBytes	8MB	---	---
16MBytes	8MB	8MB	---
24MBytes	8MB	8MB	8MB
32MBytes	8MB	8MB	16MB
32MBytes	16MB	16MB	---
32MBytes	32MB	---	---
40MBytes	16MB	16MB	8MB
48MBytes	16MB	16MB	16MB
64MBytes	64MB	---	---
64MBytes	32MB	32MB	---
96MBytes	32MB	32MB	32MB
128MBytes	64MB	64MB	---
128MBytes	128MB	---	---
192MBytes	64MB	64MB	64MB
256MBytes	128MB	128MB	---
384MBytes	128MB	128MB	128MB

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. SDRAM DIMM modules have different pin contacts on each side and therefore have a higher pin density.



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

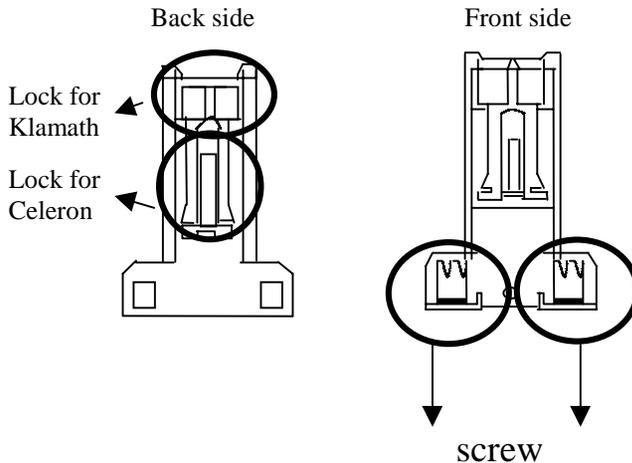


2-5 CPU R.M. Kit Assembling Procedure

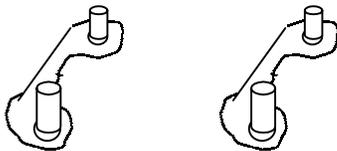
The enclosed RM Kit is the latest model suitable for both Klamath and Celeron. It is not necessary to change different CPU RM Kits for different CPU models.

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

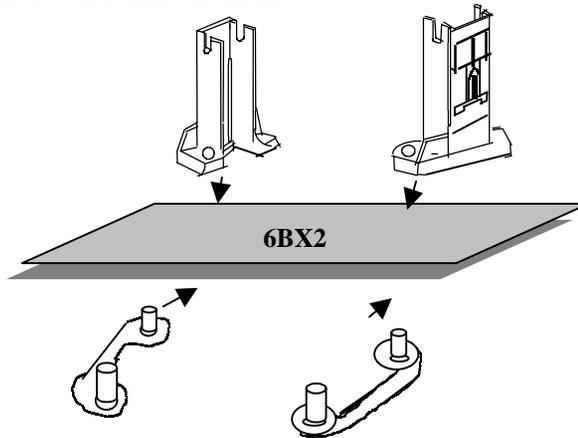
Retention Mechanism (R.M.): 2 Pcs



RM. Attach Mount (RMAM): 2 PC

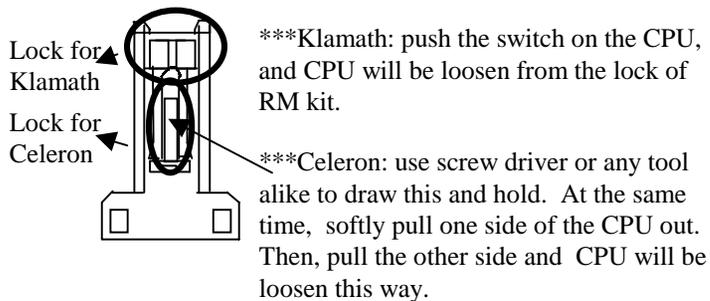


2. Make sure power is off during assembly..
3. Insert the RMAMs through the bottom of the motherboard and attach them to the retention mechanism.



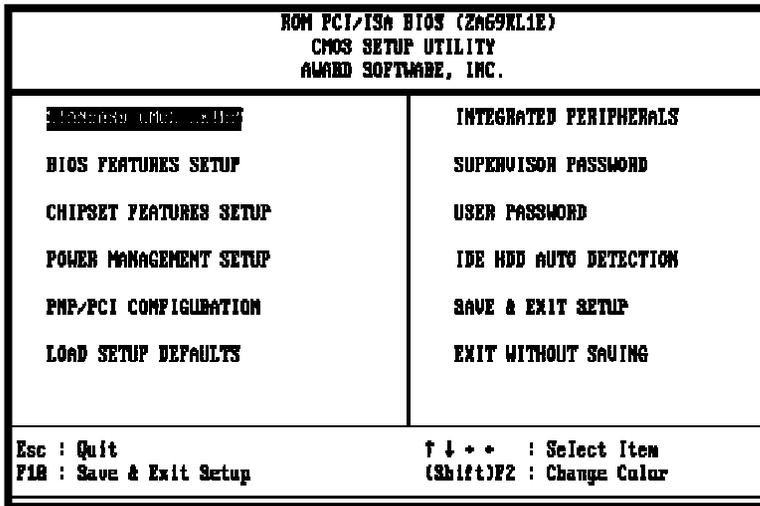
5. Fasten up the screws on the retention mechanism to tighten up retention mechanism and RMAM. Check if all the piece parts are fastened tightly.
6. Put the CPU in the RM kit. (You must push the CPU equally into the RM kit.)

Due to different packages of Celeron and Klamath, there are 2 locations to get them locked in the RM kit. Below is notice to unlock the 2 CPUs.



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

ROM PCI/ISA BIOS (2A65XLI2)								
STANDARD CMOS SETUP								
AWARD SOFTWARE, INC.								
Date (mm:dd:yy) : Thu, Aug 13 1998								
Time (hh:mm:ss) : 14 : 34 : 43								
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	: Auto	0	0	0	0	0	0	AUTO
Primary Slave	: Auto	0	0	0	0	0	0	AUTO
Secondary Master	: Auto	0	0	0	0	0	0	AUTO
Secondary Slave	: Auto	0	0	0	0	0	0	AUTO
Drive A :	None							
Drive B :	None							
Video :	EGA/UGA							
Halt On :	All Errors							
		Base Memory :		6K				
		Extended Memory :		6K				
		Other Memory :		SIZE				
		Total Memory :		SIZE				
ESC : Quit		↑ ↓ + ← : Select Item		PU/PD/+/- : Modify				
F1 : Help		(Shift)F2 : Change Color						

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.

Hard Disk Configurations

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.

Size : the hard disk size. The unit is mega byte.

Cyls : the cylinder number of the hard disk.

Head :the read/write head number of hard disk. The range is from "1" to "16".

Precomp the cylinder number at which the disk drive changes the write timing.

Landz : the cylinder number that the disk drive heads (read/write) are seated when the disk drive is parked.

Sector : the sector number of each track defined on the hard disk. The range is from "1" to "64".

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.



If hard disk primary master/slave and secondary master/slave were set "auto," then the hard disk size and model will be autolly detected on display during post.



"Halt on" has options as below: "no errors," "all, but keyboard," "all, but diskette," "all, but disk/key." The system can detect hardisk setup errors during boot-up. For example, "all errors" means to detect all the setup errors. Similarly, "all, but keyboard" means all except keyboard error. Default vlue is "all errors."

3-3. BIOS Features Setup

Menu below shows all of the manufacturer's default values of this main board. Move the cursor by pressing direction keys and <Pagedown> or <Pageup> key to modify the parameters, pressing [F1] key to display help message of the selected item. This setup program also provide 2 convenient ways to load the default parameter data from bios [F6] or cmos [F7] area if shown data is corrupted. This provides the system a capability to recover from any possible error.

ROM PCI/ISA BIOS (2469HL1K)	
BIOS FEATURES SETUP	
AWARD SOFTWARE, INC.	
Virus Warning	: Disabled
CPU Internal Cache	: Enabled
External Cache	: Enabled
CPU L2 Cache ECC Checking	: Enabled
Quick Power On Self Test	: Enabled
Boot Sequence	: A,C,SCSI
Swap Floppy Drive	: Disabled
Boot Up Floppy Seek	: Disabled
Boot Up NumLock Status	: On
Gate A20 Option	: Normal
Typematic Rate Setting	: Disabled
Typematic Rate (Chars/Sec)	: 6
Typematic Delay (Msec)	: 250
Security Option	: Setup
PCI/ISA Palette Snoop	: Disabled
Assign IRQ For VGA	: Enabled
OS Select For DRAM > 64MB	: Non-OS2
Report No FDD For WIN 95	: No
Video BIOS Shadow	: Enabled
C8000-CBFFF Shadow	: Disabled
CC000-C7FFF Shadow	: Disabled
D8000-D3FFF Shadow	: Disabled
E4000-E7FFF Shadow	: Disabled
E8000-EBFFF Shadow	: Disabled
EC000-EFFFF Shadow	: Disabled
ESC : Quit	F1← : Select Item
F1 : Help	FU/PB/←/→ : Modify
F5 : Old Values	(Shift)F2 : Color
F7 : Load Setup Defaults	

Virus Warning:

:Enabled

:Disabled (default)

CPU Internal Cache:

Enabled : enable cache

Disabled: disable cache

Quick power on self test:

This category speeds up power on self test. After you power on the computer, if it is set to enable, during post.

Enabled : 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 first search 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,CSCI, 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:

The swap floppy drive. Default value is **disabled**. **Enabled:** floppy A&B will be swapped.

Disabled: 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 system speed:

It selects the default system speed which the system will run immediately after power up.

High: set the speed to high.

Low: set the speed to low.

Typematic rate setting:

This determines the typematic rate.

Enabled: enable typematic rate and typematic delay programming.

Disabled: 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):

When Holding A Key, The Interval Between The First And Second Character Displayed.

250 : 250 Msec (default)

500 : 500 Msec

750 : 750 Msec

1000 :1000 Msec

Assign IRQ for VGA:

:Enabled(default)

:Disabled

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 determine whether optional Rom will be copied to Ram by 16IKB or 32KB per unit and the size depends on chipset.

:Enabled

:Disabled(Default)

3-4. Chipset Features Setup

NON PCI/ISA BIOS (2nd981E)	
CHIPSET FEATURES SETUP	
AWARD SOFTWARE, INC.	
Auto Configuration	: Auto
EDO DRAM Speed Selection	: Auto
EDO CAS# Wait State	: 2
EDO RAS# Wait State	: 2
SDRAM RAS-to-CAS Delay	: 3
SDRAM RAS Precharge Time	: 3
SDRAM CAS Latency Time	: Auto
SDRAM Precharge Control	: Disabled
DRAM Data Integrity Mode	: Non-ECC
System BIOS Cacheable	: Enabled
Video BIOS Cacheable	: Enabled
Video RAM Cacheable	: Disabled
8 Bit I/O Recovery Time	: 1
16 Bit I/O Recovery Time	: 1
Memory Hole At 15M-16M	: Disabled
Passive Release	: Enabled
Delayed Transaction	: Disabled
AGP Aperture Size (MB)	: 64
Auto Detect DIMM/PCI Clk	: Disabled
Spread Spectrum	: Disabled
CPU Speed	: 233MHz(66x3.5)
CPU Warning Temperature	: Disabled
Current CPU Temperature	:
Current CPU#1 Speed	:
Current CPU#2 Speed	:
Current Uin3(U)	:
ESC : Quit	F10 : Select Item
F1 : Help	F4/F5/+/= : Modify
F5 : Old Values (Shift)	F2 : Color
F7 : Load Setup Defaults	

Auto Configuration: the BIOS will automatically detect the cpu speed and will auto-configure the bus frequency, DRAM speed, cache and read/write cycle.

SDRAM RAS To CAS Delay: control the dram page missing and row miss leadoff timing.

:2

:3 (Default)

System BIOS Cacheable

Define whether system BIOS area cacheable or not.

:enabled

:disabled (default)

Video BIOS Cacheable

Define whether video BIOS area cacheable or not.

:Enabled

: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.

:enabled

:disabled (default)

CPU Speed Setup:

Please refer to **page 8** for details.

Auto Detect DIMM/PCI CLK:

:enabled

:disabled(default)

Spread Spectrum:

This is for FCC test concern.

CPU Warning Temperature:

:Disabled

:50°C/122 °F, 53°C/127 °F, 56°C/133 °F, 60°C/140 °F,
63°C/145 °F, 66°C/151 °F, 70°C/158 °F

Please select the above item required.

Current CPU Temperature, Current CPUFan1 Speed, Current CPUFan2 Speed, Current Vin3(V):

With “GL518SM“ (refer to page 14), it adds the functions, “CPU Warning Temperature,” “Current CPU Temperature,” “Current CPUFAN1 Speed,” “Current CPUFAN2 Temperature,” “Current Vin3(V).” The user only has to set “CPU Warning Temperature,” and BIOS will detect the rest of the items.

3-5. Power Management Setup

BIOS FCI/ISA BIOS (2nd/3rd/4th)		
POWER MANAGEMENT SETUP		
AWARD SOFTWARE, INC.		
Power Management	: User Define	** Reload Global Timer Events **
PM Control by APM	: Yes	IRQ3-7,9-15I,MTM : Disabled
Video Off Method	: DPMS	Primary IDE 0 : Disabled
Video Off After	: Suspend	Primary IDE 1 : Disabled
MODEM Use IRQ	: 3	Secondary IDE 0 : Disabled
Doze Mode	: Disable	Secondary IDE 1 : Disabled
Standby Mode	: Disable	Floppy Disk : Disabled
Suspend Mode	: Disable	Serial Port : Enabled
HDD Power Down	: Disable	Parallel Port : Disabled
Throttle Duty Cycle	: 62.5%	
PCI/ISA Act-Monitor	: Disabled	
Soft-Off by PWR-BTN	: Instant-Off	
CPUPWR Off In Suspend	: Disabled	
Power-On by Ring	: Disabled	
Resume by Alarm	: Disabled	
Wake Up On LAN	: Enabled	ESC : Quit F1<> : Select Item
IRQ 8 Break Suspend	: Disabled	F1 : Help F4/P4/<> : Modify
		F5 : Old Values (Shift)F2 : Color
		F7 : Load Setup Defaults

Power Management

User define :users can configure their own power management

Min Saving

Max Saving

PM Control By APM:

No : system BIOS will ignore APM

Yes : system bios will wait for APM's prompt before it enter any PM mode, e.g. doze, standby or suspend.



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!



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

Video Off Method :

:DPMS, Blank Screen, V/H Sync+Blank

Video Off After:

:Standby, Doze, NA, Suspend

Modem Use IRQ

3, 4, 5, 7, 9,10,11,NA

Throttle Duty Cycle:

12.5%, 25.0%, 37.5%, 50.0%, 62.5%, 75.0%

Resume By Ring(for ATX power supply type only):

Disabled(Default)

Enabled



This function is for ATX power supply type only, and it works when the system is turned off in windows® mode. It doesn't work under doze mode.

Resume By Alarm(for ATX power supply type only):

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.



This function is for ATX power supply type only works when the system is turned off in windows® mode. It doesn't work under doze mode.

CPUfan Off In Suspend:

Enabled: CPU fan stops in suspend mode.

Disabled: CPU fan keeps running in suspend mode.

3-6. PNP / PCI Configuration Setup

ROM PCI/ISA BIOS (2A69BL1E) PNP/PCI CONFIGURATION AWARD SOFTWARE, INC.	
PNP OS Installed : <input checked="" type="checkbox"/>	Used MEM base addr : N/A
Resources Controlled By : Manual	Assign IRQ For USB : Enabled
Reset Configuration Data : Disabled	
IRQ-3 assigned to : PCI/ISA PnP	
IRQ-4 assigned to : PCI/ISA PnP	
IRQ-5 assigned to : PCI/ISA PnP	
IRQ-7 assigned to : PCI/ISA PnP	
IRQ-9 assigned to : PCI/ISA PnP	
IRQ-10 assigned to : PCI/ISA PnP	
IRQ-11 assigned to : PCI/ISA PnP	
IRQ-12 assigned to : PCI/ISA PnP	
IRQ-14 assigned to : PCI/ISA PnP	
IRQ-15 assigned to : PCI/ISA PnP	
DMA-0 assigned to : PCI/ISA PnP	
DMA-1 assigned to : PCI/ISA PnP	
DMA-3 assigned to : PCI/ISA PnP	
DMA-5 assigned to : PCI/ISA PnP	
DMA-6 assigned to : PCI/ISA PnP	
DMA-7 assigned to : PCI/ISA PnP	
	ESC : Quit F4++ : Select Item F1 : Help F4/PB/+/- : Modify F5 : Old Values (Shift)F2 : Color F7 : Load Setup Defaults

IRQ-3 Assigned To---- IRQ-15 Assigned To:

: PCI/ISA PnP

: Legacy ISA

DMA-0 Assigned To--- DMA-7 Assigned To

: PCI/ISA PnP

: Legacy ISA

Assign IRQ for USB:

: Enable (default)

: Disable



For Windows 95 OSR2.0, if using USB devices, please install “USB Support” file to enable this function. Yet, Windows 95 OSR2.0 cannot recognize USB, and a question mark “?” will appear. After removing “?”, “ it changes to ” !.” please reset the system, go to CMOS, and Enable “Assign IRQ for USB.”



USB Keyboard BIOS setup: refer to page 37

3-7. Integrated Peripherals

SOM PCI/ISA BIOS (2nd9813E)	
INTEGRATED PERIPHERALS	
AWARD SOFTWARE, INC.	
IDE HDD Block Mode	: Enabled
IDE Primary Master PIO	: Auto
IDE Primary Slave PIO	: Auto
IDE Secondary Master PIO	: Auto
IDE Secondary Slave PIO	: Auto
IDE Primary Master UDMA	: Auto
IDE Primary Slave UDMA	: Auto
IDE Secondary Master UDMA	: Auto
IDE Secondary Slave UDMA	: Auto
On-Chip Primary PCI IDE	: Enabled
On-Chip Secondary PCI IDE	: Enabled
USB Keyboard Support	: Disabled
OnBoard Sound Chip	: Enabled
Init Display First	: AGP
POWER ON Function	: BUTTON ONLY
IDE input clock	: 8 MHz
OnBoard FDC Controller	: Enabled
Onboard Serial Port 1	: 3F8/IRQ4
Onboard Serial Port 2	: 2F8/IRQ3
UART Mode Select	: Normal
Onboard Parallel Port	: 378/IRQ7
Parallel Port Mode	: SPP
ESC	: Quit
F1	: Help
F5	: Old Values
F7	: Load Setup Defaults
F10	: Select Item
FU/PB/+/-	: Modify
(Shift)F2	: Color

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. Default is **enabled**.

IDE Primary Master Pio

Detect your primary master hard disk device.

Default is :auto.

:mode 0,1,2,3,4

IDE Primary Slave PIO

This feature detects your primary slave hard disk device. Default is **auto**.

:mode 0,1,2,3,4

IDE Secondary Master Pio

This feature detects your secondary master hard disk device.

Default is **Auto**.

:mode 0,1,2,3,4

IDE Secondary Slave PIO

Detect your secondary slave hard disk device.

Default is **Auto**.

: mode 0,1,2,3,4

On-Chip Primary PCI IDE

Select use chip support primary PCI IDE.

: Enabled (Default)

: Disabled

On-Chip Secondary PCI IDE

Select use chip support secondary PCI IDE.

: enabled (default)

: disabled

On-Board FDD Controller

: Enabled (Default)

: Disabled

On-Board Serial Port 1

: 3F8/IRQ4 (Default)

: 2F8/IRQ3

: 3E8/IRQ4

: 2E8/IRQ3

: Auto

: Disabled

USB Keyboard Support:

Default value is Disable. If the system uses USB keyboard, please set “**Enable**” for this item and also “**Assign IRQ for USB**” (refer to page 35).

Power On Function

:KB Power On

:Hot Key Power On

:Mouse Left

:Mouse Right

:Button Only

See below chart for **power on function setup**

Power on function setup		
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.

On-Board Serial Port 2

: 3F8/IRQ4
: 2F8/IRQ3(Default)
: 3E8/IRQ4
: 2E8/IRQ3
: Auto
: Disabled

On-Board Parallel Port

: 378H/2RQA (Default)
: 278H/IRQ7
: 3BCH
: Disabled

On-Board Parallel Mode

: SPP(Default)
: EPP
: ECP
: ECP+EPP

3-8. Supervisor/User Password

The "**Supervisor/User Password Setting**" utility sets the password. The mainboard may be shipped with the default password "award_sw" , or with the password disabled. If you want to change the password, you must first enter the current password ("award_sw " in this case). Then at the prompt, type your new password. The password is case sensitive and you can use up to 8 alphanumeric characters. Press <Enter> after the password. At the next prompt, confirm the new password by typing it and pressing <Enter> again. When you use this feature, the "**Security Option**" line in bios features setup will determine whether the password will be required. To disable the password, press the <Enter> key instead of entering a new password when the " enter password" dialog box appears. A message will appear confirming that the password is disabled. You may receive your mainboard set up this way.

There are two kinds of password functions in the setup menu : one is **supervisor password**, and the other is **user password**.



Differences between supervisor password & user password:

Supervisor password: the supervisor password function allows you the right to change the options of setup menu once you enter the setup menu.

User password: the user password function only allows you to enter the setup menu but do not have the right to change the options of the setup menu except user password, save & exit setup, and exit without saving.

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 Aauto Detection**" utility. The BIOS will auto-detect the hard disk size and model on display during post.



HDD modes :

The Award® BIOS supports 3 hdd modes: normal, LBA & large

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)
	<hr/> 528 Megabytes	

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

LBA (Logical Block Addressing) Mode

A new HDD accessing method to overcome the 528 megabyte 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 gigabytes which is obtained by the following formula:

$$\begin{array}{r} \text{No. Cylinder} \quad (1024) \\ \text{X No. Head} \quad (255) \\ \text{X No. Sector} \quad (63) \\ \hline \text{X No. Bytes Per Sector} \quad (512) \\ \hline 8.4 \text{ Gigabytes} \end{array}$$

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!

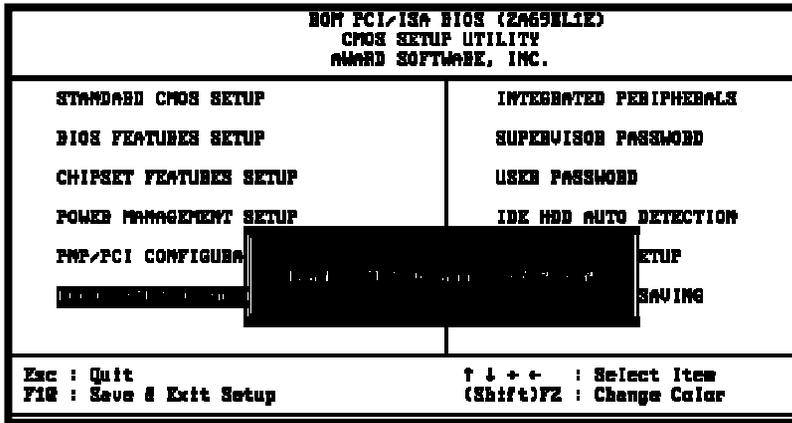
Maximum HDD Size:

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



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 LB (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 utilize 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.

ROM PCI/ISA BIOS (2A69H1E) CMOS SETUP UTILITY AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
FPP/PCI CONFIGURATION	LOAD SETUP DEFAULTS
LOAD SETUP DEFAULTS	SAVE & EXIT SETUP
Esc : Quit	
F10 : Save & Exit Setup	
↑ ↓ ← → : Select Item	
(Shift)F2 : Change Color	

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.

ROM PCI/ISA BIOS (2A69KL1E) CMOS SETUP UTILITY AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	LOAD SETUP DEFAULT
Quit Without Saving - Y/N: N	
Exc : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color

3-13 I/O & Memory Map

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 Posts
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 (Smc 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 Interrupt Map

Nimi: Non-Maskable Interrupt

IRQ(H/W): 0 System Timer Interrupt From Timer 0

1 Keyboard Output Buffer Full
2 Cascade For IRQ8-15
3 Serial Port2
4 Serial Port1
5 Parallel Port 2
6 Floppy Disk (Smc 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

3-16 RTC & CMOS RAM Map

RTC & CMOS:00	Seconds
01	Second 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 Drive Type Byte
12	Hard Disk Type Byte
13	Reserve
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	Reserved For Extension Memory Low Byte
31	Reserved For Extension Memory High Byte
32	Date Century Byte
33	Information Flag
34-3F	Reserve
40-7F	Reserved For Chipset Setting Data

---END