

GA – 686LX3

USER'S MANUAL

- 1. System power on by PS/2 Mouse: You can power on the system by double clicking the right or left button of your PS/2 Mouse.**
- 2. System power on by Keyboard: If your ATX power supply supports 1 ampere 5V Stand-By function, you can power on your system by entering password from keyboard.**
- 3. Supports 3 steps ACPI LED**

Pentium® II Processor MAINBOARD

REV. 1.0 Second Edition

Release Date 98.1.15

The author assumes no responsibility for any errors or omissions that may appear in this document nor does it make a commitment to update the information contained herein.

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January 14, 1998 Taipei, Taiwan

I. Quick Installation Guide:

CPU SPEED SETUP

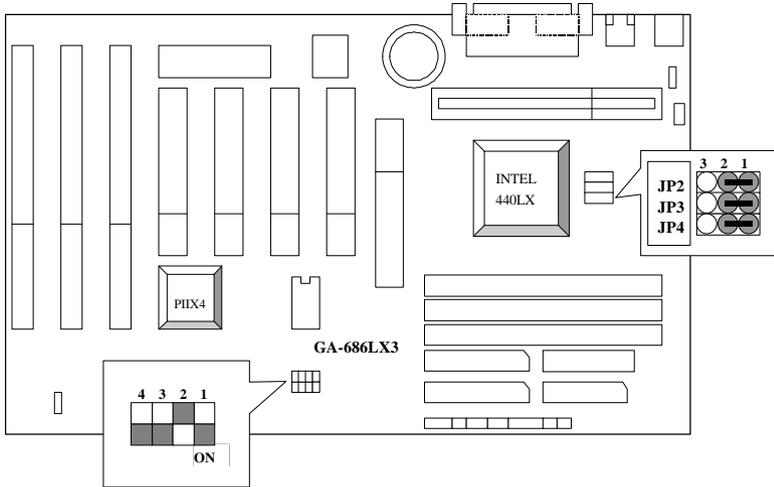
The default system bus speed is fixed to 66.6MHz. The user can change the DIP SWITCH (**SW**) selection to set up the CPU speed for 200 - 366MHz processor.

The CPU speed MUST match with the frequency RATIO. It will cause system hanging up if the frequency RATIO is higher than that of CPU.

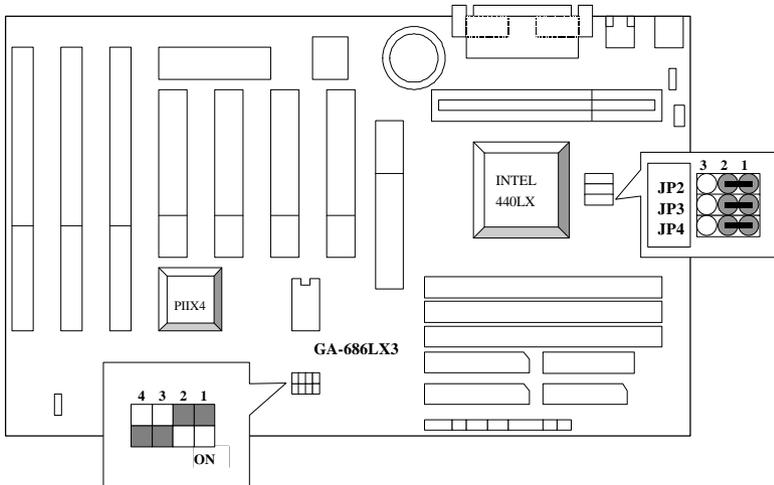
DIP SWITCH (SW)				FREQ. RATIO	EXT.CLK. MHz	INT.CLK. MHz	CPU Type
1	2	3	4				
ON	OFF	ON	ON	3	66	200	Pentium® II 200 MHz
OFF	OFF	ON	ON	3.5	66	233	Pentium® II 233 MHz
ON	ON	OFF	ON	4	66	266	Pentium® II 266 MHz
OFF	ON	OFF	ON	4.5	66	300	Pentium® II 300 MHz
ON	OFF	OFF	ON	5	66	333	Pentium® II 333 MHz
OFF	OFF	OFF	ON	5.5	66	366	Pentium® II 366 MHz

Main Clock	JP4	JP3	JP2
66 MHz	1-2	1-2	1-2

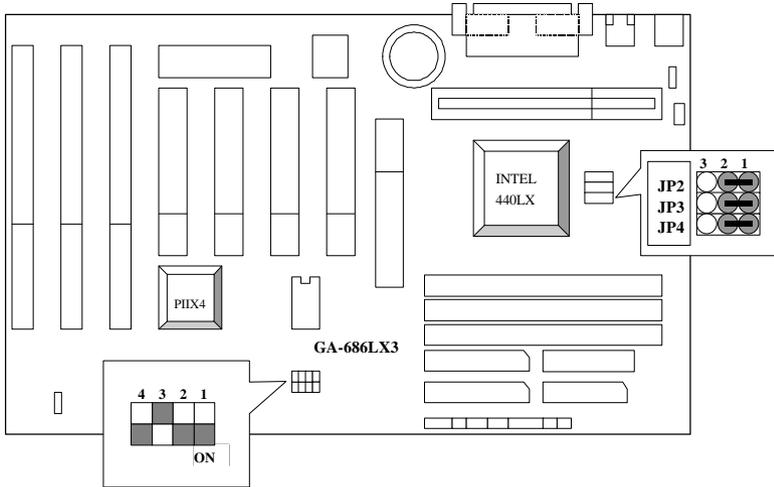
1. Pentium® II 200 MHz



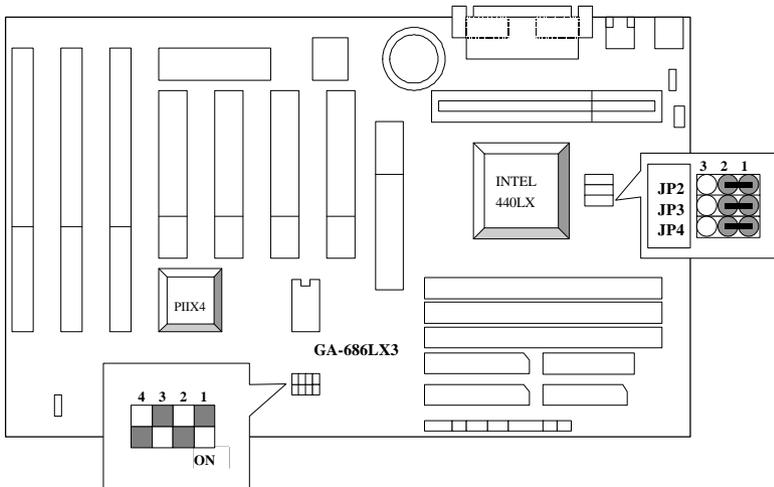
2. Pentium® II 233 MHz



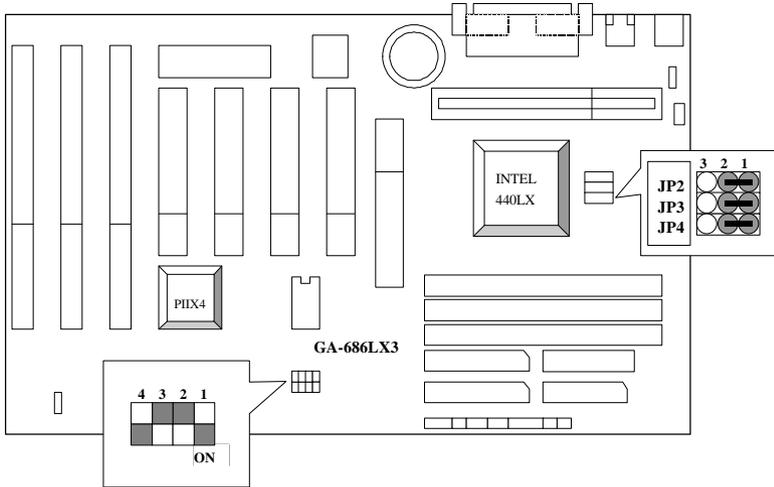
3. Pentium® II 266 MHz



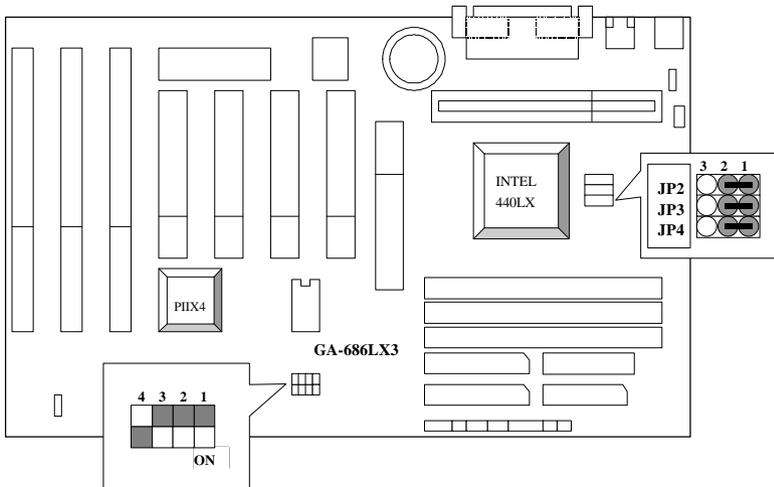
4. Pentium® II 300 MHz



5. Pentium® II 333 MHz

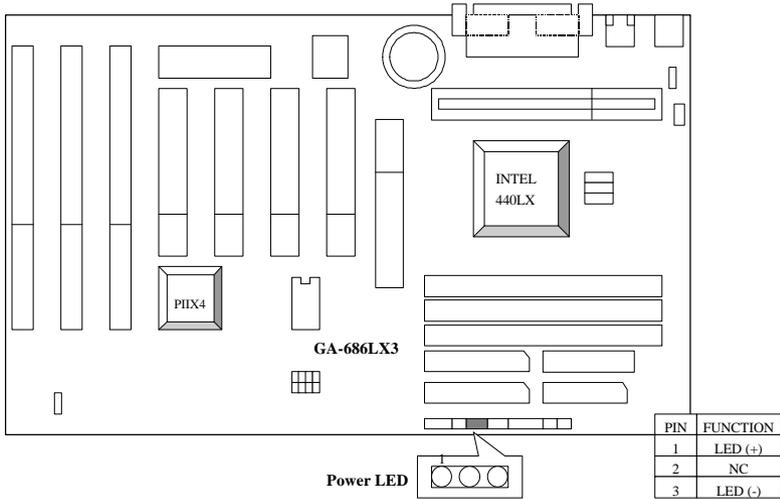


6. Pentium® II 366 MHz

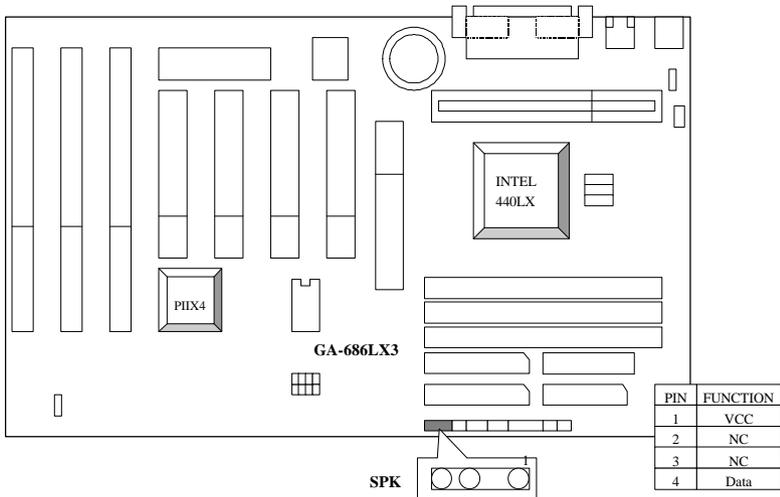


II. Jumper setting :

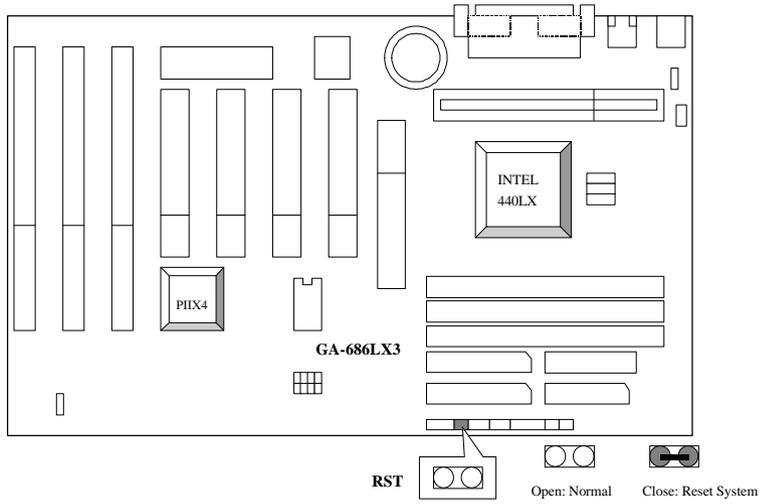
PWR : Power LED Connector



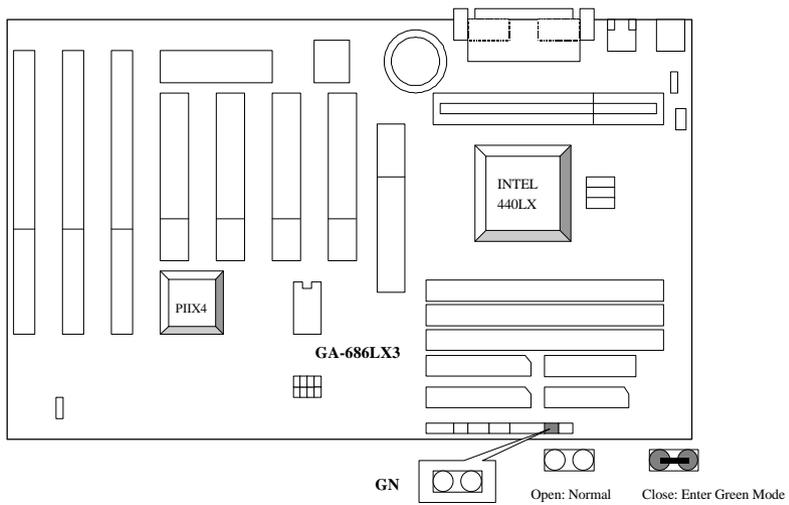
SPK : Speaker Connector



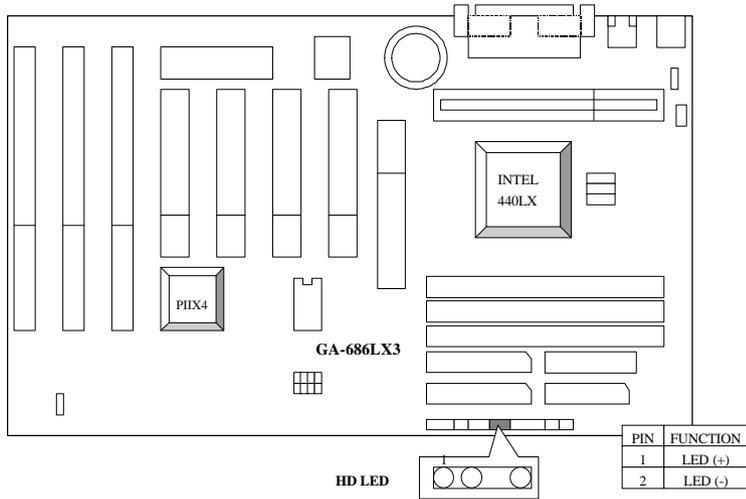
RST : Reset Switch



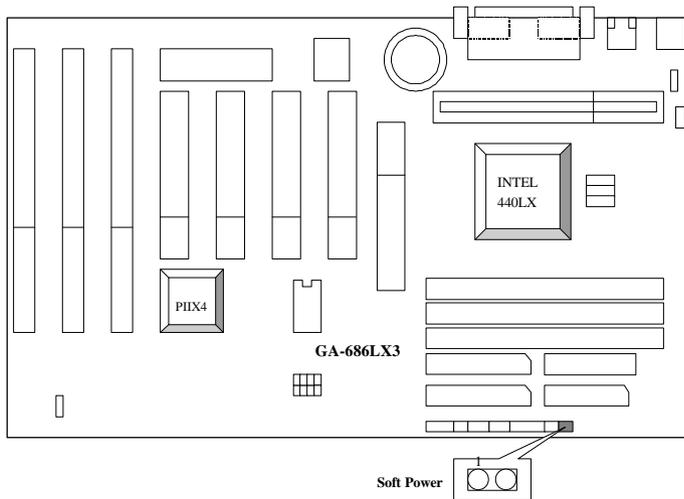
GN : Green Function Switch



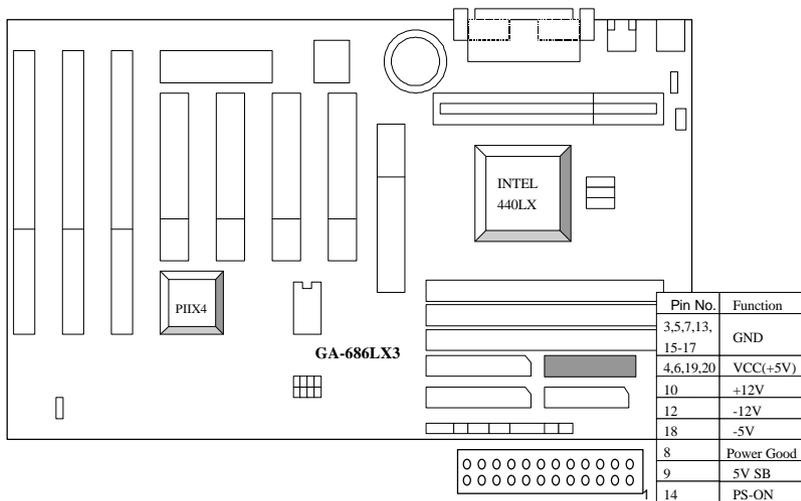
HD : IDE Hard Disk Active LED



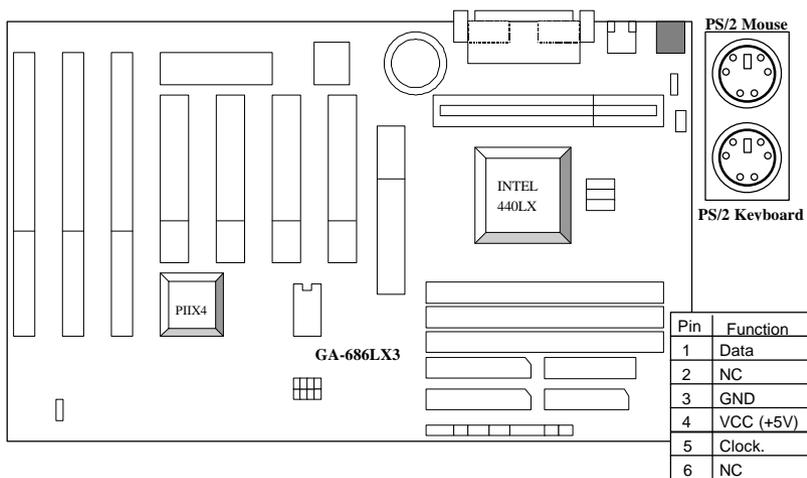
Soft PWR : Soft Power Connector



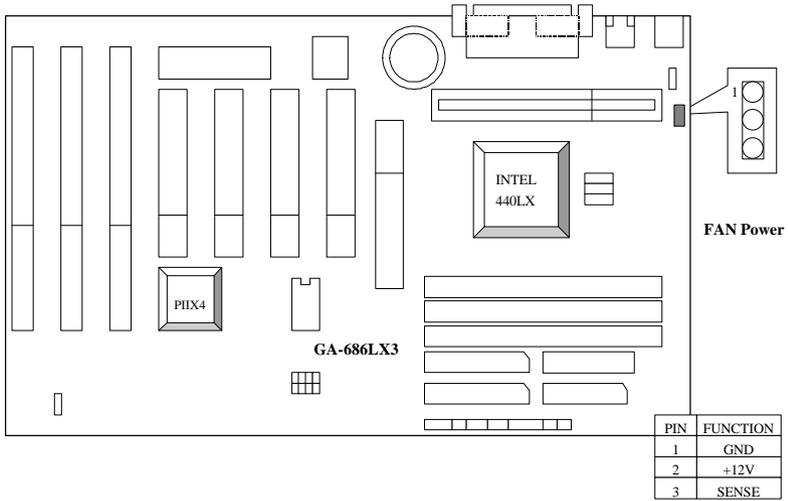
POWER : Power Connector



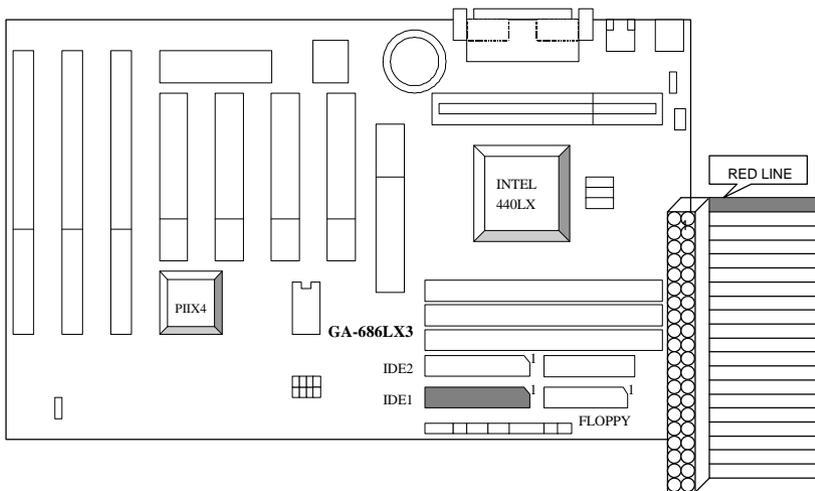
PS/2 Mouse / Keyboard Connector



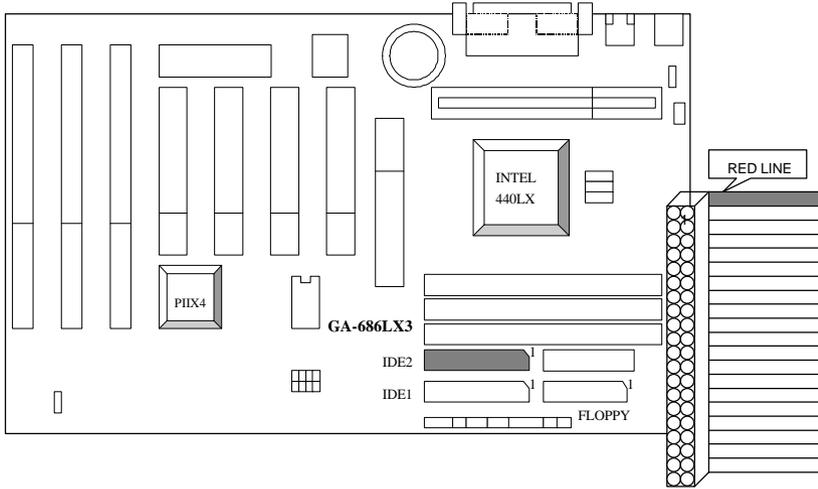
J2 : CPU Cooling Fan Power Connector



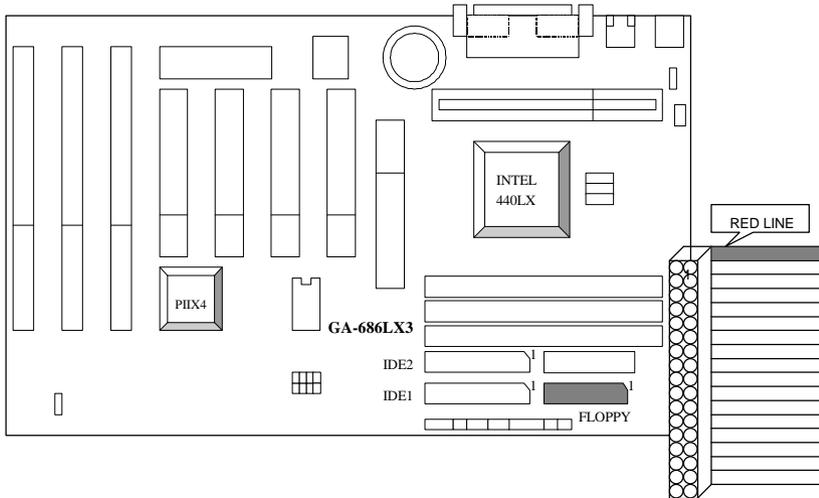
IDE1: For Primary IDE port



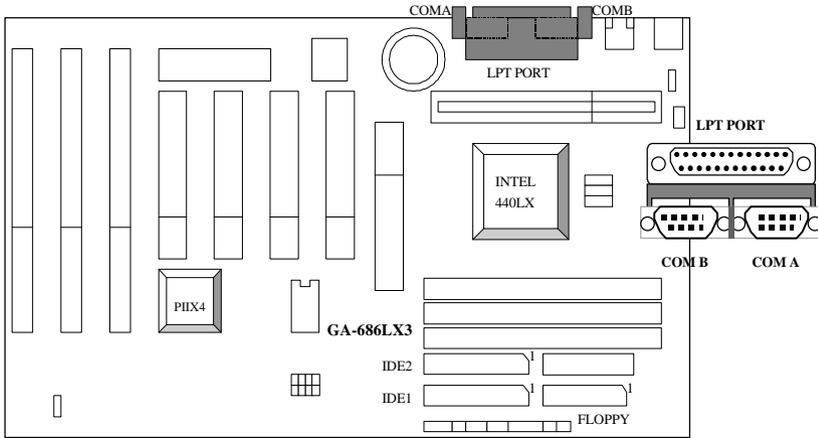
IDE2: For Secondary IDE port



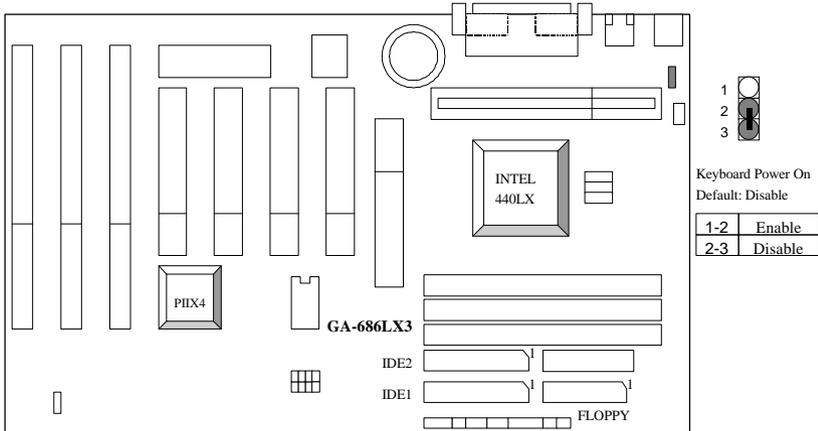
J7 : FLOPPY PORT



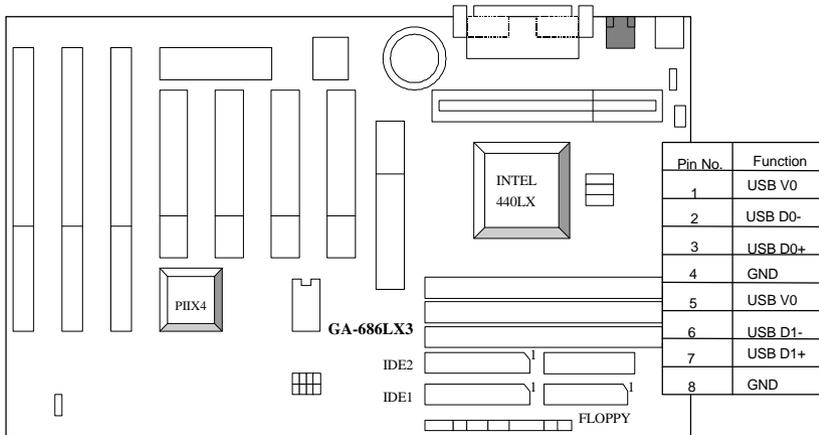
LPT PORT / COM A / COM B



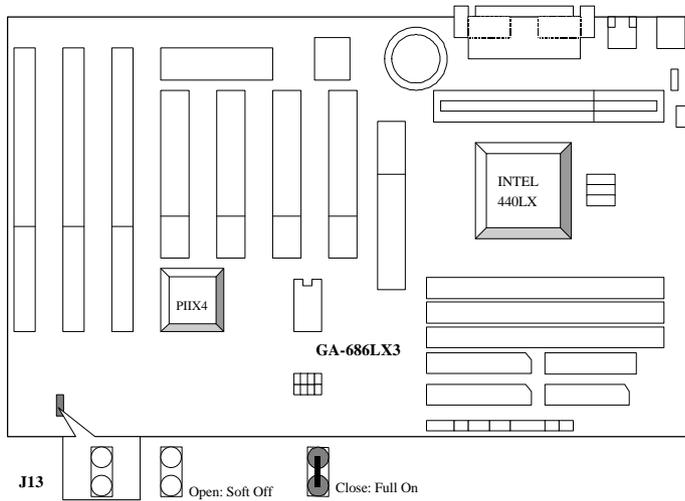
JP1 : Keyboard Power On Selection



CN1: USB Port



J13: ATX Power Control Selection



III. Top Performance Test Setting:

Users have to modify the value for each item in chipset features as follow for top performance setting.

ROM BIOS / ISA BIOS
 CHIPSET FEATURES SETUP
 AWARD SOFTWARE, INC.

Auto Configuration	- Enabled	
DRAM Speed Selection	- Fast	
Memory Buffer Strength	- Middle	
DRAM Data Integrity Mode	- Non ECC	
Video RAM Cacheable	- Disabled	
16 Bit I/O Recovery Time	- 1	
Memory Hole At 15M-16M	- Disabled	
Delayed Transaction	- Disabled	
SDRAM RAS-to-CAS Delay	- Fast	
SDRAM RAS Precharge Time	- Fast	
SDRAM CAS latency Time	- 2	
		ESC - Exit : \downarrow \uparrow \rightarrow \leftarrow : Select Item
		F1 - Help DU/DF/L/ : Modify
		F5 - Old Value /SH/SE/ : Color
		F7 - Load Setup Defaults

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1. INTRODUCTION

1.1. PREFACE

Welcome to use the **GA-686LX3** motherboard. It is a Pentium® II Processor based PC / AT compatible system with AGP / PCI / ISA Bus, and has been designed to be the fastest PC / AT system. There are some new features allow you to operate the system with just the performance you want.

This manual also explains how to install the motherboard for operation, and how to set up your CMOS CONFIGURATION with BIOS SETUP program.

1.2. KEY FEATURES

- ❑ Intel Pentium® II Processor based PC / AT compatible mainboard.
- ❑ Slot 1 supports Pentium® II processor running at 200-633 MHz.
- ❑ Intel 440LX chipset, Supports AGP / SDRAM / Ultra DMA/33 IDE / Keyboard and PS/2 Mouse Power On / ACPI features.
- ❑ Supports 3xDIMMs using 3.3V EDO or SDRAM DIMM module.
- ❑ Supports 8 MB - 768 MB EDO / 384MB SDRAM memory on board.
- ❑ Supports ECC or Non-ECC type DRAM module.
- ❑ 1xAGP slot, 4xPCI Bus slots, 3xISA Bus slots.
- ❑ Supports 2 channels Ultra DMA/33 IDE ports for 4 IDE Devices.
- ❑ Supports 2xCOM (16550), 1xLPT (EPP / ECP), 1x1.44MB Floppy port.
- ❑ Supports 2xUSB ports, 1xPS/2 Mouse.
- ❑ Licensed AWARD BIOS, 1Mbit FLASH RAM.
- ❑ 30.5 cm x 18 cm ATX SIZE form factor, 4 layers PCB.

1.3. PERFORMANCE LIST

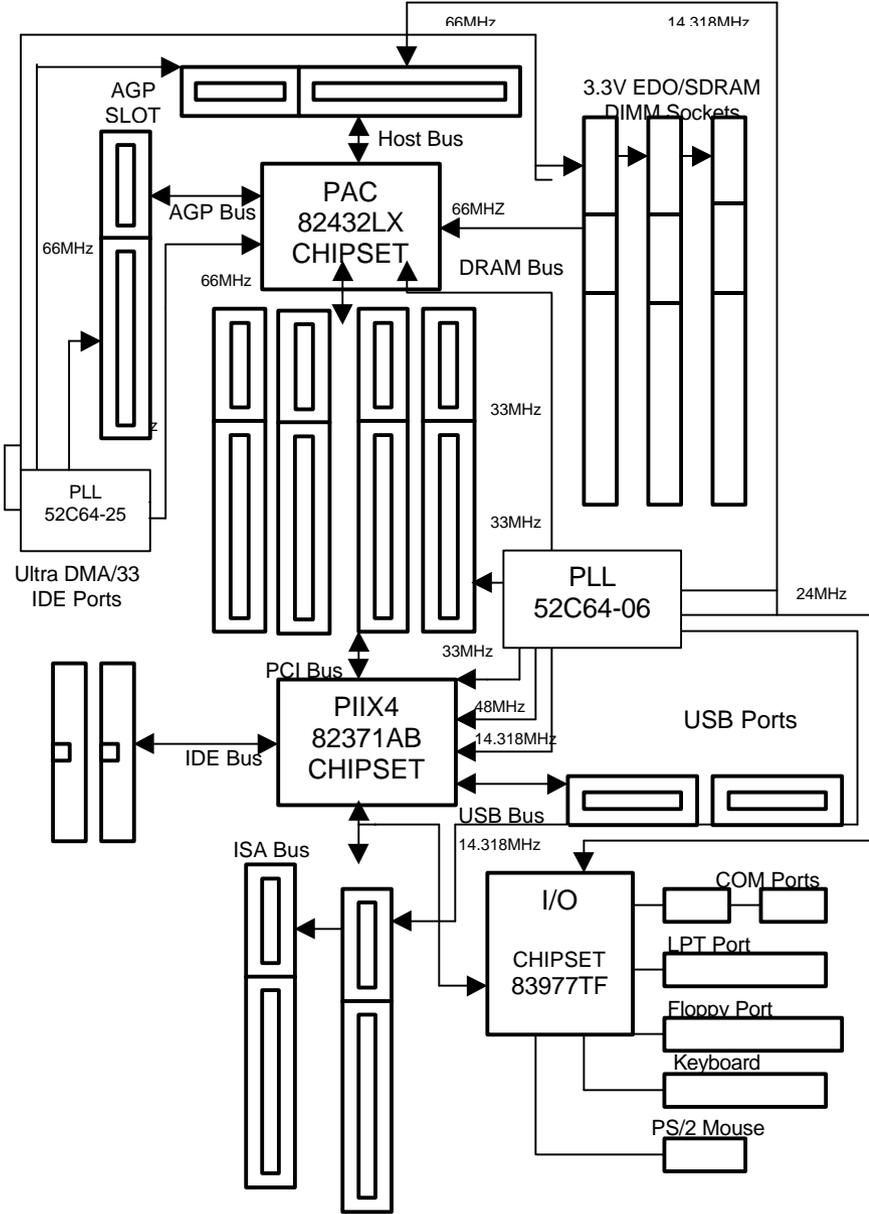
The following performance data list is the testing results of some popular benchmark testing programs.

These data are just referred by users, and there is no responsibility for different testing data values gotten by users. (The different Hardware & Software configuration will result in different benchmark testing results.)

- CPU Pentium® II processor
- DRAM (32 x 2) MB SDRAM (LGS GM72V16821GT10K)
- CACHE SIZE 512 KB included in CPU
- DISPLAY GA-600 AGP Display Card (4MB SGRAM)
- STORAGE Onboard IDE (IBM DHEA-34330)
- O.S. Windows® 95 OSR2.1
- DRIVER Display Driver at 1024 x 768 x 64k colors x 75Hz.
Triones Bus Master IDE Driver 3.70

Processor	Intel Pentium® II	
	266MHz	300MHz
Winbench97		
CPU mark32	692	759
Business Disk	1940	2070
Hi-End Disk	5900	6210
Business Graphics	116	126
Hi-End Graphics	50.8	55.4
Winstone97		
Business	62.1	64.8
Hi-End	30.7	32.1

1.4. BLOCK DIAGRAM



1.5. INTRODUCE THE Pentium® II Processor & AGP



Figure 1:Retention Mechanism & attach Mount



Figure 2:OEM Pentium® II Processor

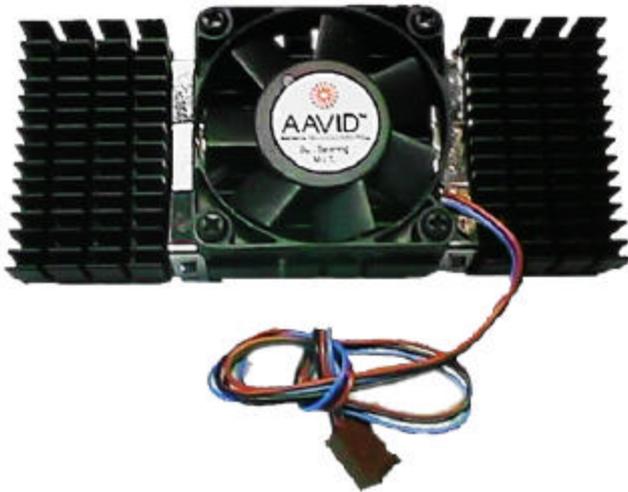


Figure 3:Heatsink / FAN & Heat sink support for OEM Pentium® II Processor

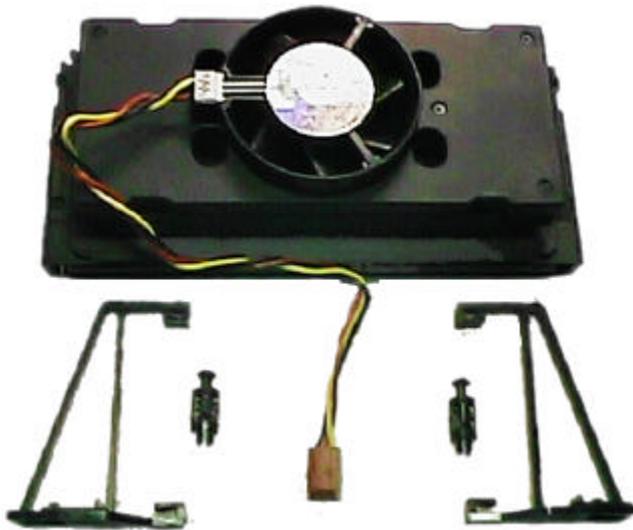


Figure 4:Boxed Pentium® II Processor & Heat sink support

1.6 What is AGP?

The Accelerated Graphics Port (AGP) is a new port on the Host-To-PCI bridge device that supports an AGP port. The main purpose of the AGP port is to provide fast access to system memory.

The AGP port can be used either as fast PCI port (32-bits at 66MHz vs. 32-bits at 33MHz) or as an AGP port which supports 2x data-rate, a read queue, and side band addressing. When the 2x-data rate is used, the port can transmit data at 533MB/sec ($66.6 \times 2 \times 4$). The read-queue can be used to pipeline reads – removing the effects of the reads-latency. Side band addressing can be used to transmit the data address on a separate line in order to speed up the transaction.

2. SPECIFICATION

2.1. HARDWARE

- CPU
 - Pentium® II processor 200 – 633 MHz.
 - 242 pins 66MHz slot1 on board.
- SPEED
 - 66 MHz system speed.
 - 66 MHz AGP bus speed. (133MHz 2*mode)
 - 33 MHz PCI-Bus speed.
 - 8 MHz AT bus speed.
- DRAM MEMORY
 - 3 banks 168 pins DIMM module sockets on board.
 - Use 8 / 16 / 32 / 64 / 128 / 256 MB 60~70 ns DIMM module DRAM.
 - 8 ~ 768 MB EDO/384 MB SDRAM.
 - Supports 3.3V SDRAM / EDO type DRAM.
 - Supports ECC or Non-ECC type DRAM.
- CACHE MEMORY
 - 32 KB 1st cache memory included in CPU.
 - 256KB/512 KB 2nd cache in CPU.
 - Supports DIB speed mode for L2 Cache.
- I/O BUS SLOTS
 - 4 33MHz Master / Slave PCI-BUS.
 - 3 8MHz 16 bits ISA BUS.
 - 1 66MHz / 133MHz AGP bus.
- IDE PORTS
 - 2 Ultra DMA/33 Bus Master IDE channels on board.(Using IRQ14,15)
 - Support Mode 3,4 IDE & ATAPI CD – ROM.
- I/O PORTS
 - Supports 2 16550 COM ports.
 - Supports 1 EPP/ECP LPT port.
 - Supports 1 1.44/2.88 MB Floppy port.
 - Supports 2 USB ports.
 - Supports PS/2 Mouse.

- GREEN FUNCTION
 - Suspend mode support.
 - Green switch & ACPI LED support.
 - IDE & Display power down support.
 - Monitor all IRQ / DMA / Display / I/O events.
- BIOS
 - 1M bits FLASH RAM.
 - Supports Plug & Play, DMI, ACPI Function.
- DIMENSION
 - ATX Form Factor, 4 layers PCB.

2.2. SOFTWARE

- DRIVER
 - Bus Master IDE Driver.
 - Suspend to HD utility.
- BIOS
 - Licensed AWARD BIOS.
 - AT CMOS Setup, BIOS / Chipset Setup, Green Setup, Hard Disk Utility included.
- O.S.
 - Operation with MS-DOS®, Windows®95, WINDOWS™ NT, OS/2, NOVELL and SCO UNIX.

2.3. ENVIRONMENT

- Ambient Temp.
 - 0°C to +50°C (Operating).
- Relative Hum.
 - 0 to +85% (Operating).
- Altitude
 - 0 to 10,000 feet (Operating).
- Vibration
 - 0 to 1,000 Hz.
- Electricity
 - 4.9 V to 5.2 V. (Max. 20A current at 5V.)

3. HARDWARE INSTALLATION

3.1. UNPACKING

The mainboard package should contain the following:

- The **GA – 686LX3** mainboard.
- The Retention Mechanism & Attach Mount
- USER'S MANUAL for mainboard.
- Cable set for IDE, Floppy & I/O devices.
- Diskette or CD for Mainboard Utility.

The mainboard contains sensitive electric components, which can be easily damaged by static electricity, so the mainboard should be left in its original packing until it is installed.

Unpacking and installation should be done on a grounded anti-static mat. The operator should be wearing an anti static wristband, grounded at the same point as the anti-static mat.

Inspect the mainboard carton for obvious damage. Shipping and handling may cause damage to your board. Be sure there are no shipping and handling damages on the board before proceeding.

After opening the mainboard carton, extract the system board and place it only on a grounded anti-static surface component side up. Again inspect the board for damage. Press down on all of the socket IC's to make sure that they are properly seated. Do this only on with the board placed on a firm flat surface.

DO NOT APPLY POWER TO THE BOARD IF IT HAS BEEN DAMAGED.

3.2. MAINBOARD LAYOUT0

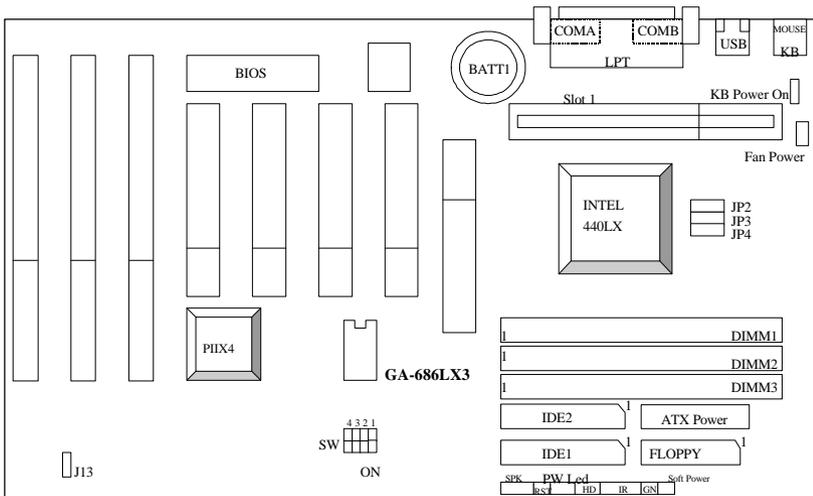


Figure 3.1

3.3. QUICK REFERENCE FOR JUMPERS & CONNECTORS

I/O Ports Connector	
CN1	USB port.
CN3	For Primary IDE port.
CN2	For Secondary IDE port.
J2	For PS/2 Keyboard port.
J2	For PS/2 Mouse port.
J3	For Floppy port
J4	For Serial port2 (COM B).
J5	For Serial port1 (COM A).
J7	For LPT port.

GN : GN-SW	
Pin No.	Function
1	CTRL-Signal
2	GND

HD : Hard Disk active LED (HD-LED)	
Pin No.	Function
1	LED POWER (+)
2	LED POWER (-)

J1 : CPU cooling FAN Power Connector	
Pin No.	Function
1	GND.
2	+12V
3	SENSE

J13 : System After Ac Back	
Pin No.	Function
1	Signal
2	GND

JP1 : Keyboard Power On Selection	
Pin No.	Function
1-2	Enabled Keyboard power on.
2-3	Disabled Keyboard power on.

RST : RESET Switch	
Pin No.	Function
1	RESET Input
2	GND

PWR : POWER ON LED (PW-LED)	
Pin No.	Function
1	LED POWER (+)
2	NC
3	GND

Slot 1	
For Pentium® II processor installed	

SPK : SPEAKER Connector	
Pin No.	Function
1	VCC
2	NC.
3	NC.
4	Output

Soft PWR : Soft Power Switch	
Pin No.	Function
1	CTRL-Signal
2	GND

3.4. DRAM INSTALLATION

The mainboard can be installed with 4 / 8 / 16 / 32 / 64 / 128 / 256 MB 168 pins DIMM module DRAM, and the DRAM speed must be 50 or 60 ns for EDO & 67~100 MHz for SDRAM. The DRAM memory system on mainboard consists of bank 0, 1 & bank 2.

Since 168 pins DIMM module is 64 bits width, using 1 PCS which can match a 64 bits system. The total memory size is 8 MB ~ 768 MB EDO / 384MB SDRAM. The DRAM installation position refer to Figure 3.1, and notice the Pin 1 of DIMM module must match with the Pin 1 of DIMM socket. Insert the DRAM DIMM module into the DIMM socket at Vertical angle. If there is a wrong direction of Pin 1, the DRAM DIMM module couldn't be inserted into socket completely.

3.5. CPU SPEED SETUP

The default system bus speed is 66.6MHz. The user can change the DIP SWITCH (**SW**) selection to set up the CPU speed for 200 - 366MHz processor. The CPU speed must match with the frequency RATIO. It will cause system hanging up if the frequency RATIO is higher than CPU's.

DIP SWITCH (SW)				FREQ. RATIO	EXT.CLK. MHz	INT.CLK. MHz	CPU Type
1	2	3	4				
ON	OFF	ON	ON	3	66	200	Pentium® II 200 MHz
OFF	OFF	ON	ON	3.5	66	233	Pentium® II 233 MHz
ON	ON	OFF	ON	4	66	266	Pentium® II 266 MHz
OFF	ON	OFF	ON	4.5	66	300	Pentium® II 300 MHz
ON	OFF	OFF	ON	5	66	333	Pentium® II 333 MHz
OFF	OFF	OFF	ON	5.5	66	366	Pentium® II 366 MHz

Main Clock	JP4	JP3	JP2
66 MHz	1-2	1-2	1-2

The CPU is a sensitive electric component and it can be easily damaged by static electricity, so users must keep it away from metal surface when the CPU is installed onto mainboard.

3.6. CMOS RTC & ISA CFG CMOS SRAM

The mainboard contains RTC & CMOS SRAM on board. They have a power supply from external battery to keep the DATA inviolate & effective. The RTC is a REAL-TIME CLOCK device, which provides the DATE & TIME to system. The CMOS SRAM is used for keeping the information of system configuration, so the system can automatically boot OS every time. Since the lifetime of internal battery is 5 years, the user can change a new Battery to replace old one when it has consumed.

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.

Dispose of used batteries according to the manufacturer's instructions.

3.7. SPEAKER CONNECTOR INSTALLATION

There is a speaker in AT system for sound purpose. The 4 - Pins connector SPK is used to connect speaker.

3.8. HARDWARE RESET SWITCH CONNECTOR INSTALLATION

The RESET switch on panel provides users with HARDWARE RESET function. The system will do a cold start after the RESET switch is pushed and released by user. The RESET switch is a 2 PINS connector and should be installed to **RST** on mainboard.

3.9. POWER LED CONNECTOR INSTALLATION

System has power LED lamp on the panel of case. The power LED will light on off or flash to indicate which step on the system. The connector should be connected to PWR of mainboard in correct direction.

3.10. IDE & ATAPI DEVICE INSTALLATION

There are two-Enhanced PCI IDE ports (**IDE1**, **IDE2**) on board, which following ATAPI standard SPEC. Any one IDE port can connected to two ATAPI devices (IDE Hard Disk, CD-ROM & Tape Driver), so total four ATAPI devices can exist in a system. The **HD** is the active LED port for ATAPI devices.

3.11. PERIPHERAL DEVICE INSTALLATION

After the I/O device installation and jumpers setup, the mainboard can be mounted into the case and fixed by screw. To complete the mainboard installation, the peripheral device could be installed now. The basic system needs a display interface card. If the PCI - Bus device is to be installed in the system, any one of four PCI - Bus slots can be used.

3.12. KEYBOARD & PS/2 MOUSE INSTALLATION

The main board supports PS/2 Mouse (**J2**). The BIOS will auto detect whether the PS/2 Mouse is installed or not & assign IRQ12 for PS/2 Mouse port if it is installed. After installing the peripheral device, the user should check everything again, and prepare to power-on the system.

4. BIOS CONFIGURATION

Award's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS SRAM so that it retains the Setup information when the power is turned off.

4.1. ENTERING SETUP

Power ON the computer and press immediately will allow you to enter Setup. If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" bottom on the system case. You may also restart by simultaneously press <Ctrl>, <Alt>, and keys.

4.2. CONTROL KEYS

Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item in the left hand
Right arrow	Move to the item in the right hand
Esc key	Main Menu - Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu - Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 key	Change color from total 16 colors
F3 key	Reserved
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the default
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

4.3. GETTING HELP

4.3.1. Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

4.3.2. Status Page Setup Menu / Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc>.

4.4. THE MAIN MENU

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (Figure 4.1) will appear on the screen. The Main Menu allows you to select from nine setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

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

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

Figure 4.1: Main Menu

- Standard CMOS setup

This setup page includes all the items in standard compatible BIOS.

- BIOS features setup

This setup page includes all the items of Award special enhanced features.

- Chipset features setup

This setup page includes all the items of chipset special features.

- Power management setup

This setup page includes all the items of Green function features.

- PNP/PCI configuration

This setup page includes all the configurations of PCI & PnP ISA resources.

- Integrated peripherals

This setup page includes all onboard peripherals.

- Load setup defaults

Setup Defaults indicates the most appropriate value of the system parameters which the system would be in safe configuration.

- User password

Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.

- IDE HDD auto detection

Automatically configure hard disk parameters.

- Save & exit setup

Save CMOS value settings to CMOS and exit setup.

- Exit without saving

Abandon all CMOS value changes and exit setup.

4.5. STANDARD CMOS SETUP MENU

The times format in <hour> <minute> <second>. The time is calculated base on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

- Primary HDDs / Secondary HDDs

The category identifies the types of hard disk from drive C to F that has been installed in the computer. There are two types: auto type, and user definable type. User type is user-definable; Auto type which will automatically detect HDD type.

Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category.

If you select User Type, related information will be asked to enter to the following items. Enter the information directly from the keyboard and press <Enter>. Such information should be provided in the documentation form your hard disk vendor or the system manufacturer.

CYLS.	Number of cylinders
HEADS	number of heads
PRECOMP	write precomp
LANDZONE	Landing zone
SECTORS	number of sectors

If a hard disk has not been installed select NONE and press <Enter>.

- Drive A type / Drive B type

The category identifies the types of floppy disk drive A or drive B that has been installed in the computer.

None	No floppy drive installed
360K, 5.25 in.	5.25 inch PC-type standard drive; 360K byte capacity.
1.2M, 5.25 in.	5.25 inch AT-type high-density drive; 1.2M byte capacity (3.5 inch when 3 Mode is Enabled).
720K, 3.5 in.	3.5 inch double-sided drive; 720K byte capacity
1.44M, 3.5 in.	3.5 inch double-sided drive; 1.44M byte capacity.
2.88M, 3.5 in.	3.5 inch double-sided drive; 2.88M byte capacity.

- Floppy 3 Mode Support (for Japan Area)

Disabled	Normal Floppy Drive.
Drive A	Drive A is 3 mode Floppy Drive.
Drive B	Drive B is 3 mode Floppy Drive.
Both	Drive A & B are 3 mode Floppy Drives.

- Video

The category detects the type of adapter used for the primary system monitor that must match your video display card and monitor. Although secondary monitors are supported, you do not have to select the type in setup.

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SVGA, or PGA monitor adapters
CGA 40	Color Graphics Adapter, power up in 40 column mode
CGA 80	Color Graphics Adapter, power up in 80 column mode
MONO	Monochrome adapter, includes high resolution monochrome adapters

- Halt on

The category determines whether the computer will stop if an error is detected during power up.

NO Errors	The system boot will not stop for any error that may be detected
All Errors	Whenever the BIOS detects a non-fatal error the system will be stopped and you will be prompted
All, But Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors
All, But Diskette	The system boot will not stop for a disk error; it will stop for all other errors
All, But Disk/Key	The system boot will not stop for a keyboard or disk error; it will stop for all other errors

- Memory

The category is display-only which is determined by POST (Power On Self Test) of the BIOS.

Base Memory

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system.

The value of the base memory is typically 512 K for systems with 512 K memory installed on the motherboard, or 640 K for systems with 640 K or more memory installed on the motherboard.

Extended Memory

The BIOS determines how much extended memory is present during the POST.

This is the amount of memory located above 1 MB in the CPU's memory address map.

Expanded Memory

Expanded Memory is memory defined by the Lotus/Intel/Microsoft (LIM) standard as EMS.

Many standard DOS applications can not utilize memory above 640 K; the Expanded Memory Specification (EMS) swaps memory, which not utilized by DOS with a section, or frame, so these applications, can access all of the system memory.

Memory can be swapped by EMS is usually 64 K within 1 MB or memory above 1 MB, depends on the chipset design.

Expanded memory device driver is required to use memory as Expanded Memory.

Other Memory

This refers to the memory located in the 640 K to 1024 K address space. This is memory that can be used for different applications.

DOS uses this area to load device drivers to keep as much base memory free for application programs. Most use for this area is Shadow RAM.

4.6. BIOS FEATURES SETUP

DOM BIOS / ISA BIOS BIOS FEATURES SETUP AWARD SOFTWARE, INC.			
Virus Warning	· Disabled	Video BIOS Shadow	· Enabled
CPU Internal Cache	· Enabled	C8000 - CFFFF Shadow	· Disabled
External Cache	· Enabled	CC000 - CFFFF Shadow	· Disabled
CPU L2 Cache ECC Checking	· Disabled	D0000 - D3FFF Shadow	· Disabled
Quick Power On Self Test	· Enabled	D4000 - D7FFF Shadow	· Disabled
CPU Update Data	· Enabled	D8000 - DFFFF Shadow	· Disabled
Root Sequence	· A C SCSI	DC000 - DFFFF Shadow	· Disabled
Swap Floppy Drive	· Disabled		
VGA Root From	: AGP		
Root In Floppy Seek	· Enabled		
Root In Num Lock Status	· On		
Typematic Rate Setting	· Disabled		
Typematic Rate (Chars/Sec)	: 6	F5C · Quit	: Æ Æ ± Æ · Select Item
Typematic Delay (Msec)	: 250	F1 · Help	DIU/DIV/L/L · Modify
Security Option	· Setup	F5 · Old Values (Shift)F2	· Color
PCI/VGA Palette Snoop	· Disabled	F7 · Load Setup Defaults	
OS Select For DRAM >64MB	· Non OS?		

Figure 4.3: BIOS Features Setup

- Virus Warning

If it is set to enable, the category will flash on the screen when there is any attempt to write to the boot sector or partition table of the hard disk drive. The system will halt and the following error message will appear in the mean time. You can run anti-virus program to locate the problem.

Default value is Disabled.

Enabled	Activate automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table
Disabled	No warning message to appear when anything attempts to access the boot sector or hard disk partition table

- CPU Internal Cache / External Cache

These two categories speed up memory access. However, it depends on CPU / chipset design. The default value is Enabled.

Enabled	Enable cache
Disabled	Disable cache

- CPU L2 Cache ECC Checking

The default value is Disabled.

Enabled	Enable CPU L2 Cache ECC Checking
Disabled	Disable CPU L2 Cache ECC Checking

- Quick Power On Self Test

This category speeds up Power On Self Test (POST) after you power on the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.

The default value is Enabled.

Enabled	Enable quick POST
Disabled	Normal POST

- CPU Update Data

The default value is Enabled.

Enabled	Enable CPU Update Data
Disabled	Normal CPU Update Data

- Boot Sequence

This category determines which drive computer searches first for the disk operating system (i.e., DOS). Default value is A, C, SCSI.

X1, X2, X3	System will first search for X1 disk drive then X2 disk drive and then X3 disk drive.
------------	---

- Swap Floppy Drive

The default value is Disabled.

Enabled	Floppy A & B will be swapped under DOS
Disabled	Floppy A & B will be normal definition

- VGA Boot From

The default value is AGP

AGP	System will boot from AGP Display Card
PCI	System will boot from PCI VGA Card

- Boot Up Floppy Seek

During POST, BIOS will determine the floppy disk drive installed is 40 or 80 tracks. 360 K type is 40 tracks 720 K, 1.2 M and 1.44 M are all 80 tracks. The default value is Enabled.

Enabled	BIOS searches for floppy disk drive to determine it is 40 or 80 tracks. Note that BIOS can not tell from 720 K, 1.2 M or 1.44 M drive type as they are all 80 tracks
Disabled	BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360 K

- Boot Up NumLock Status

The default value is On.

On	Keypad is number keys
Off	Keypad is arrow keys

- Typematic Rate Setting

The default value is Disabled.

Enabled	Enable Keyboard Typematic rate setting.
Disabled	Disable Keyboard Typematic rate setting.

- Typematic Rate (Chars / Sec.)

The default value is 6.

6-30	Set the maximum Typematic rate from 6 chars. Per second to 30 characters. Per second.
------	---

- Typematic Delay (Msec.)

The default value is 250.

250-1000	Set the time delay from first key to repeat the same key in to computer.
----------	--

- Security Option

This category allows you to limit access to the system and Setup, or just to Setup. The default value is Setup.

System	The system can not boot and can not access to Setup page will be denied if the correct password is not entered at the prompt
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt

To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup page freely.

- PCI/VGA Palette Snoop

The default value is Disabled.

Enabled	For having Video Card on ISA Bus and VGA Card on PCI Bus.
Disabled	For VGA Card only.

- OS Select For DRAM>64MB

The default value is Non-OS2.

Non-OS2	Using non-OS2 operating system.
OS2	Using OS2 operating system and DRAM>64MB.

- Video BIOS Shadow

It determines whether video BIOS is able to copy to RAM, however, it is optional from chipset design. Video Shadow will increase the video speed. The default value is Enabled.

Enabled	Video shadow is enabled
Disabled	Video shadow is disabled

- C8000 - CFFFF Shadow / D0000 - DFFFF Shadow

These categories determine whether optional ROM will be copied to RAM by 16 K byte. The default value are Disabled.

Enabled	Optional shadow is enabled
Disabled	Optional shadow is disabled

4.7. CHIPSET FEATURES SETUP

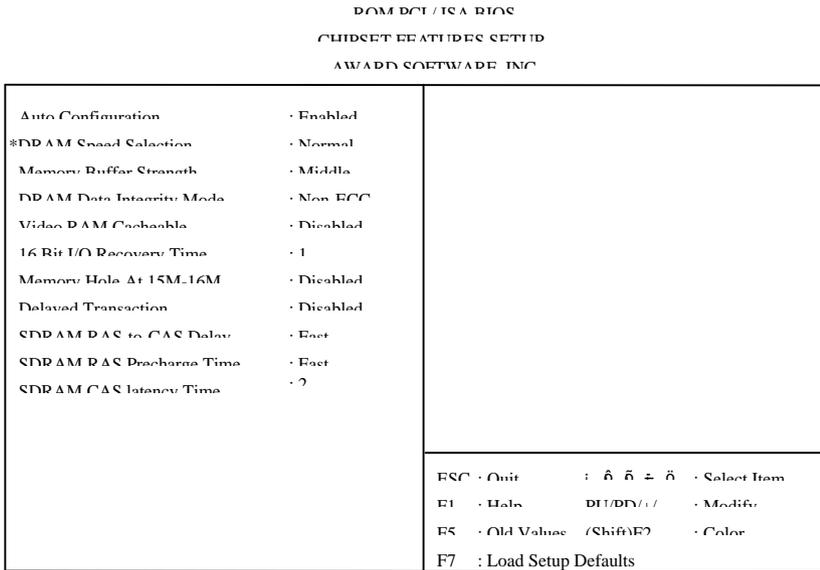


Figure 4.4: Chipset Features Setup

* This item will be unavailable when Auto Configuration is set to Disabled.

- Auto Configuration

The default value is Enabled.

Enabled	For 50 - 60ns EDO DRAM Timing.
Disabled	For slow speed DRAM Timing.

- DRAM Speed Selection

The default value is Normal.

Normal	For normal DRAM operation.
Fast	For Fastest DRAM timing operation.

- Memory Buffer Strength

The default value is Middle.

Middle	For Middle Memory Buffer strength.
Low	For Low Memory Buffer strength.
High	For High Memory Buffer strength.

- DRAM Data Integrity Mode

The default value is Non-ECC.

Non-ECC	For 64bit standard type DIMM module.
ECC	For 72bit ECC type DIMM module.

- Video RAM Cacheable

The default value is Disabled.

Disabled	Disable this function.
Enabled	Enable this function to get better VGA performance; while some brands of VGA must be disabled this function (e.g.ET4000W32P).

- 16 Bit I/O Recovery Time

The default value is 1.

1-4	Set 16 Bit I/O recovery time from 1 to 4.
NA	None.

- Memory Hole At 15M-16M

The default value is Disabled.

Disabled	Normal Setting.
Enabled	Set Address=15~16MB remap to ISA BUS.

- Delayed Transaction

The default value is Disabled.

Disabled	Normal operation.
Enabled	For slow speed ISA device in system.

- SDRAM RAS-to-CAS Delay

The default value is Fast

Slow	For 67 / 83 MHz SDRAM DIMM module.
Fast	For 100 MHz SDRAM DIMM module.

- SDRAM RAS Precharge Time

The default value is Fast.

Slow	For 67 / 83 MHz SDRAM DIMM module.
Fast	For 100 MHz SDRAM DIMM module.

- SDRAM CAS latency Time

The default value is 2.

3	For 67 / 83 MHz SDRAM DIMM module.
2	For 100 MHz SDRAM DIMM module.

4.8. POWER MANAGEMENT SETUP

BIOS SETUP / ISA BIOS
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

<p>Power Management : Enable</p> <p>PM Control by APM : Yes</p> <p>Suspend Mode : Disabled</p> <p>HDD Power Down : Disabled</p> <p>Suspend Mode option : Disabled</p> <p>VGA Active Monitor : Disabled</p> <p>Soft off by DWD, RTN : Instant off</p> <p>Resume by Alarm : Disabled</p> <p>* Date (of Month) Alarm : 0</p> <p>* Time (hh:mm:ss) Alarm : 00:00:00</p>	<p>** Reload Global Timer Events *</p> <p>IRQ (3,7,9,15) NMI : Enabled</p> <p>Primary IDE 0 : Disabled</p> <p>Primary IDE 1 : Disabled</p> <p>Secondary IDE 0 : Disabled</p> <p>Secondary IDE 1 : Disabled</p> <p>Floppy Disk : Enabled</p> <p>Serial Port : Enabled</p> <p>Parallel Port : Disabled</p> <p>F5 : Quit : F6 / F7 : Select Item</p> <p>F1 : Help : DEL / F10 : Modify</p> <p>F5 : Old Value (Shift+F2) : Color</p> <p>F7 : Load Setup Defaults</p>
---	---

Figure 4.5: Power Management Setup

* These two items will show up when Resume by Alarm is enabled.

- Power Management

The default value is Enabled.

Enabled	Enable Green function.
Disabled	Disable Green function.

- PM Control by APM

The default value is Yes.

Yes	Enable software APM function.
No	Disable software APM function.

- Suspend Mode

The default value is Disable.

Disabled	Disable Suspend Mode.
1 min - 1 Hour	Setup the timer to enter Suspend Mode.

- HDD Power Down

The default value is Disable.

Disable	Disable HDD Power Down mode function.
1-15 mins.	Enable HDD Power Down mode between 1 to 15 mins.

Suspend Mode Option

The default value is PowerOn Suspend

PowerOn Suspend	Set the system to PowerOn Suspend mode
Suspend to Disk	Set the system to Suspend to Disk mode

- VGA Active Monitor

The default value is Disabled.

Disabled	Disable monitor VGA activity.
Enabled	Enable monitor VGA activity.

- Soft-off by PWR-BTTN

The default value is Instant-Off.

Instant-off	Soft switch ON/OFF for POWER ON/OFF
Delay 4 Sec.	Soft switch ON 4sec. for POWER OFF.

- Resume by Alarm

The default value is Disabled.

Disabled	Disable this function.
----------	------------------------

Enabled	Enable alarm function to POWER ON system.
---------	---

If the default value is Enabled.

Date (of Month) Alarm :	0~31
Time (hh: mm: ss) Alarm :	(0~23) : (0~59) : (0~59)

- IRQ [3-7,9-15], NMI

The default value is Enabled.

Disabled	Disable this function.
Enabled	Enable monitor IRQ [3-7,9-15] for Green event.

- Primary IDE 0 / 1

The default value is Disabled.

Disabled	Disable this function.
Enabled	Enable monitor Primary IDE 0 / 1 for Green event.

- Secondary IDE 0 / 1

The default value is Disabled.

Disabled	Disable this function.
Enabled	Enable monitor Secondary IDE 0 / 1 for Green event.

- Floppy Disk

The default value is Enabled.

Disabled	Disable this function.
Enabled	Enable monitor Floppy Disk for Green event.

- Serial Port

The default value is Enabled.

Disabled	Disable this function.
Enabled	Enable monitor Serial Port for Green event.

- Parallel Port

The default value is Disabled.

Disabled	Disable this function.
Enabled	Enable monitor Parallel Port for Green event.

4.9. PNP/PCI CONFIGURATION

ROM PCI / ISA BIOS
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.

PNP OS Installed	: No	Used MEM base addr	: N/A
Resources Controlled by	: Manual	*Used MEM Length	: 8K
Reset Configuration Data	: Disabled		
IRQ-3 assigned to	: Legacy ISA		
IRQ-4 assigned to	: Legacy ISA		
IRQ-5 assigned to	: PCI/ISA PnP		
IRQ-7 assigned to	: Legacy ISA		
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	: Legacy ISA		
IRQ-14 assigned to	: Legacy ISA		
IRQ-15 assigned to	: Legacy ISA		
DMA-0 assigned to	: PCI/ISA PnP		
DMA-1 assigned to	: PCI/ISA PnP		
DMA-3 assigned to	: PCI/ISA PnP	ESC : Quit	␣␣␣␣␣␣ : Select Item
DMA-5 assigned to	: PCI/ISA PnP	F1 : Help	PU/PD/+/- : Modify
DMA-6 assigned to	: PCI/ISA PnP	F5 : Old Values (Shift)F2	: Color
DMA-7 assigned to	: PCI/ISA PnP	F7 : Load Setup Defaults	

Figure 4.6: PCI Slot Configuration

* This item will show up when Used MEM base addr has been set.

- PNP OS Installed

The default value is No.

Yes	Enable PNP OS Installed function.
No	Disable PNP OS Installed function.

- Resources Controlled by

The default value is Manual.

Manual	User can set the PnP resource (I/O Address, IRQ & DMA channels) used by legacy ISA DEVICE.
Auto	BIOS automatically use these PnP rescuers.

- Reset Configuration Data

The default value is Disabled.

Disabled	Disable this function.
Enabled	Enable clear PnP information in ESCD.

- IRQ (3,4,5,7,9,10,11,12,14,15), DMA(0,1,3,5,6,7) assigned to

The default value is "Legacy ISA" or "PCI/ISA PnP".

Legacy ISA	The resource is used by Legacy ISA device.
PCI/ISA PnP	The resource is used by PCI/ISA PnP device (PCI or ISA).

- Used MEM base addr

The default value is N/A.

N/A	Disable the MEM. block using.
C800 ~ DC00	Select the MEM. block starting address.

- Used MEM Length

The default value is 8K.

8K ~ 64K	Select the MEM. block size.
----------	-----------------------------

4.10. INTEGRATED PERIPHERALS

ROM PCI / ISA BIOS INTEGRATED PERIPHERALS AWARD SOFTWARE INC			
IDE HDD Block Mode	· Enabled	PS/2 Mouse Power On	· Disabled
IDE Primary Master PIO	· Auto	Keyboard Power On	· Disabled
IDE Primary Slave PIO	· Auto	** KB Power On Multikey	· Enter
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 FDC Controller	· Enabled		
Onboard Serial Port1	· 3F8/IRQ4	F5C · Quit	i 0 0 ± 0 · Select Item
Onboard Serial Port2	· 2E8/IRQ3	F1 · Help	DIR/PD/±/· · Modify
Onboard Parallel Port	· 378/IRQ7	F5 · Old Value /ShiftF2	· Color
Parallel Port Mode	· SPP	F7 · Load Setup Defaults	

Figure 4.7: Load Setup Defaults

** This item will show up when “Keyboard Power On: Multikey” is selected.

- IDE HDD Block Mode

The default value is Enabled.

Enabled	Enable IDE HDD Block Mode
Disabled	Disable IDE HDD Block Mode

- IDE Primary Master PIO (for onboard IDE 1st channel).

The default value is Auto.

Auto	BIOS will automatically detect the IDE HDD Accessing mode.
Mode0~4	Manually set the IDE Accessing mode.

- IDE Primary Slave PIO (for onboard IDE 1st channel).

The default value is Auto.

Auto	BIOS will automatically detect the IDE HDD Accessing mode.
Mode0~4	Manually set the IDE Accessing mode.

- IDE Secondary Master PIO (for onboard IDE 2nd channel).

The default value is Auto.

Auto	BIOS will automatically detect the IDE HDD Accessing mode.
Mode0~4	Manually set the IDE Accessing mode.

- IDE Secondary Slave PIO (for onboard IDE 2nd channel).

The default value is Auto.

Auto	BIOS will automatically detect the IDE HDD Accessing mode.
Mode0~4	Manually set the IDE Accessing mode.

- IDE Primary Master UDMA.

The default value is Auto.

Auto	BIOS will automatically detect the IDE HDD Accessing mode.
Disabled	Disable UDMA function.

- IDE Primary Slave UDMA.

The default value is Auto.

Auto	BIOS will automatically detect the IDE HDD Accessing mode.
Disabled	Disable UDMA function.

- IDE Secondary Master UDMA.

The default value is Auto.

Auto	BIOS will automatically detect the IDE HDD Accessing mode.
Disabled	Disable UDMA function.

- IDE Secondary Slave UDMA.

The default value is Auto.

Auto	BIOS will automatically detect the IDE HDD Accessing mode.
Disabled	Disable UDMA function.

- On-Chip Primary PCI IDE

The default value is Enabled.

Enabled	Enable onboard 1st channel IDE port.
Disabled	Disable onboard 1st channel IDE port.

- On-Chip Secondary PCI IDE

The default value is Enabled.

Enabled	Enable onboard 2nd channel IDE port.
Disabled	Disable onboard 2nd channel IDE port.

- USB Keyboard Support

The default value is Disabled.

Enabled	Enable USB Keyboard Support.
Disabled	Disable USB Keyboard Support.

- Onboard FDC Controller

The default value is Enabled.

Enabled	Enable onboard FDD port.
Disabled	Disable onboard FDD port.

- Onboard Serial Port 1

The default value is 3F8/IRQ4.

Auto	BIOS will automatically setup the port 1 address.
3F8/IRQ4	Enable onboard Serial port 1 and address is 3F8.
2F8/IRQ3	Enable onboard Serial port 1 and address is 2F8.
3E8/IRQ4	Enable onboard Serial port 1 and address is 3E8.
2E8/IRQ3	Enable onboard Serial port 1 and address is 2E8.
Disabled	Disable onboard Serial port 1.

- Onboard Serial Port 2

The default value is 2F8/IRQ3.

Auto	BIOS will automatically setup the port 2 address.
3F8/IRQ4	Enable onboard Serial port 2 and address is 3F8.
2F8/IRQ3	Enable onboard Serial port 2 and address is 2F8.
3E8/IRQ4	Enable onboard Serial port 2 and address is 3E8.
2E8/IRQ3	Enable onboard Serial port 2 and address is 2E8.
Disabled	Disable onboard Serial port 2.

- Onboard Parallel port

The default value is 378/IRQ7.

378/IRQ7	Enable onboard LPT port and address is 378/IRQ7.
278/IRQ5	Enable onboard LPT port and address is 278/IRQ5.
Disabled	Disable onboard LPT port.
3BC/IRQ7	Enable onboard LPT port and address is 3BC/IRQ7.

- Parallel Port Mode

The default value is SPP.

SPP	Using Parallel port as Standard Printer Port.
EPP	Using Parallel port as Enhanced Parallel Port.
ECP	Using Parallel port as Extended Capabilities Port.
ECP/EPP	Using Parallel port as ECP & EPP mode.

- PS/2 Mouse Power on

The default value is Disabled.

Disabled	Disable PS/2 Mouse Power on .
Left Double	Click twice on PS/2 mouse left button to Power on system.
Right Double	Click twice on PS/2 mouse right button to Power on system.

- Keyboard Power on

The default value is Disabled.

Disabled	Disable Keyboard Power on .
Multikey	Enter multikey combination to Power on system.

4.11. LOAD SETUP DEFAULTS

ROM PCI / ISA BIOS
 LOAD SETUP DEFAULTS
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	USER PASSWORD
BIOS FEATURES SETUP	IDE HDD AUTO DETECTION
CHIPSET FEATURES SETUP	SAVE & EXIT SETUP
POWER MANAGEMENT SETUP	EXIT WITHOUT SAVING
PNP/PCI CONFIGURATION	Load SETUP Defaults (Y/N)? N
INTEGRATED PERIPHERALS	
LOAD SETUP DEFAULTS	
ESC : Quit	↑↓ : Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color
Load SETUP Defaults except Standard CMOS SETUP	

Figure 4.7: Load Setup Defaults

- Load SETUP Defaults

To load SETUP defaults value to CMOS SRAM, enter "Y". If not, enter "N".

Setup.

4.13. IDE HDD AUTO DETECTION

ROM PCI / ISA BIOS
 IDE HDD AUTO DETECTION
 AWARD SOFTWARE, INC.

HARD DISKS	TYPE	SIZE	CYLS.	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master :								
Select Primary Master Option (N=Skip): N								
OPTION	SIZE	CYLS.	HEAD	PRECOMP	LANDZ	SECTOR	MODE	
1 (Y)	521	530	32	0	1059	63	LBA	
2	521	1060	16	65535	1059	63	NORMAL	
3	521	530	32	65535	1059	63	LARGE	
ESC : Skip								

Figure 4.9: IDE HDD Auto Detection

Type "Y" will accept the H.D.D. parameter reported by BIOS.

Type "N" will keep the old H.D.D. parameter setup. If the hard disk cylinder number is over 1024, then the user can select LBA mode or LARGER mode for DOS partition larger than 528 MB.

4.14. SAVE & EXIT SETUP

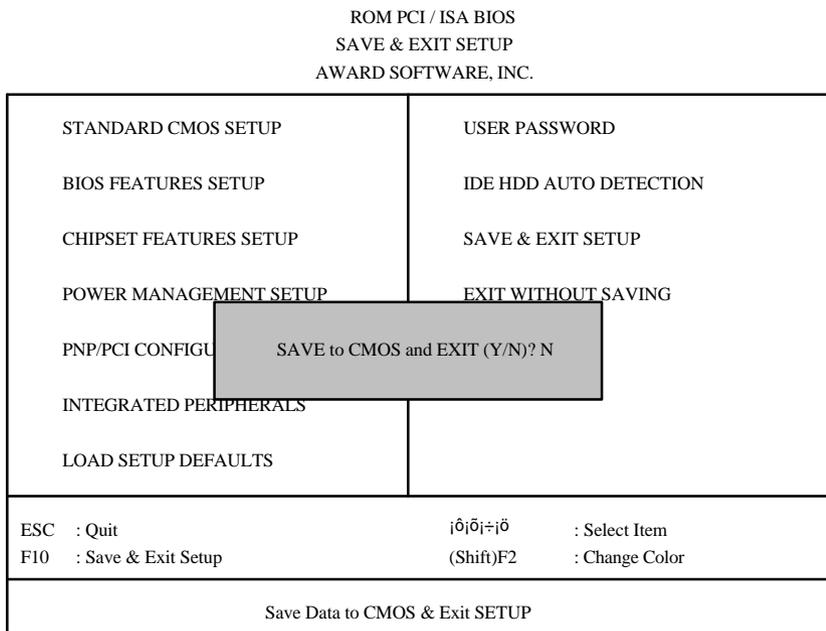


Figure 4.10: Save & Exit Setup

Type "Y" will quit the Setup Utility and save the user setup value to RTC CMOS SRAM.

Type "N" will return to Setup Utility.

4.15. EXIT WITHOUT SAVING

ROM PCI / ISA BIOS
 EXIT WITHOUT SAVING
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	USER PASSWORD
BIOS FEATURES SETUP	IDE HDD AUTO DETECTION
CHIPSET FEATURES SETUP	SAVE & EXIT SETUP
POWER MANAGEMENT SETUP	EXIT WITHOUT SAVING
PCI CONFIGURATION	Quit Without Saving (Y/N)? N
INTEGRATED PERIPHERALS	
LOAD SETUP DEFAULTS	
ESC : Quit	↑↓ : Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color
Abandon all Datas & Exit SETUP	

Figure 4.11: Exit Without Saving

Type "Y" will quit the Setup Utility without saving to RTC CMOS SRAM.

Type "N" will return to Setup Utility.

<p>DECLARATION OF CONFORMITY Per FCC Part 15, Section 15.107(b)</p> 
<p>Responsible Party Name: G.B.T. INC.</p> <p>Address: 18385 Valley Blvd., Suite#A LA Parant, CA 91744</p> <p>Phone/Fax No.: (818) 854-9338 / (818) 854-9339</p>
<p>hereby declares that the product</p> <p>Product Name: Mother Board</p> <p>Model Number: GA09LX3</p>
<p>Conforms to the following specifications:</p> <p>FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109(a), Class B Digital Device</p>
<p>Supplementary Information:</p> <p>This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.</p>
<p>Representative Person's Name: <u>ERIC LU</u></p> <p>Signature: <u>Eric Lu</u></p> <p>Date: <u>Jan 21, 1998</u></p>

FCC Compliance Statement:

This equipment has been tested and found to comply with limits for a Class B digital device , pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does

cause interference to radio or television equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Move the equipment away from the receiver
- Plug the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/television technician for additional suggestions

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void Your authority to operate such equipment.

This device complies with Part 15 of the FCC Rules. Operation is subjected to the following two conditions 1) this device may not cause harmful interference and 2) this device must accept any interference received, including interference that may cause undesired operation.

Declaration of Conformity

We, Manufacturer/Importer
(full address)

G.B.T. Technology Träding GmbH
Ausschlagler Weg 41, 1F, 20537 Hamburg, Germany

declare that the product
(description of the apparatus, system, installation to which it refers)

Mother Board
GA-686LX3

is in conformity with
(reference to the specification under which conformity is declared)
in accordance with 89/336 EEC-EMC Directive

- | | | | |
|--|--|---|--|
| <input type="checkbox"/> EN 55011 | Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) high frequency equipment | <input checked="" type="checkbox"/> EN 61000-3-2*
<input checked="" type="checkbox"/> EN60555-2 | Disturbances in supply systems caused by household appliances and similar electrical equipment "Harmonics" |
| <input type="checkbox"/> EN55013 | Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment | <input type="checkbox"/> EN61000-3-3*
<input checked="" type="checkbox"/> EN60555-3 | Disturbances in supply systems caused by household appliances and similar electrical equipment "Voltage fluctuations" |
| <input type="checkbox"/> EN 55014 | Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus | <input checked="" type="checkbox"/> EN 50081-1
<input checked="" type="checkbox"/> EN 50082-1 | Generic emission standard Part 1: Residual, commercial and light industry
Generic immunity standard Part 1: Residual, commercial and light industry |
| <input type="checkbox"/> EN 55015 | Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaries | <input type="checkbox"/> EN 55081-2 | Generic emission standard Part 2: Industrial environment |
| <input type="checkbox"/> EN 55020 | Immunity from radio interference of broadcast receivers and associated equipment | <input type="checkbox"/> EN 55082-2 | Generic immunity standard Part 2: Industrial environment |
| <input checked="" type="checkbox"/> EN 55022 | Limits and methods of measurement of radio disturbance characteristics of information technology equipment | <input type="checkbox"/> ENV 55104 | Immunity requirements for household appliances tools and similar apparatus |
| <input type="checkbox"/> DIN VDE 0855
part 10
<input type="checkbox"/> part 12 | Cabled distribution systems; Equipment for receiving and/or distribution from sound and television signals | <input type="checkbox"/> EN 50091- 2 | EMC requirements for uninterruptible power systems (UPS) |
| <input checked="" type="checkbox"/> CE marking | |  (EC conformity marking) | |

The manufacturer also declares the conformity of above mentioned product with the actual required safety standards in accordance with LVD 73/23 EEC

- | | | | |
|-----------------------------------|---|-------------------------------------|---|
| <input type="checkbox"/> EN 60065 | Safety requirements for mains operated electronic and related apparatus for household and similar general use | <input type="checkbox"/> EN 60950 | Safety for information technology equipment including electrical business equipment |
| <input type="checkbox"/> EN 60335 | Safety of household and similar electrical appliances | <input type="checkbox"/> EN 50091-1 | General and Safety requirements for uninterruptible power systems (UPS) |

Manufacturer/Importer

Signature : Rex Lin

(Stamp)

Date : Jan. 21, 1998

Name : Rex Lin