6LMM7

USER'S MANUAL

1. **System power on by PS/2 Mouse: First, enable this function in CMOS Setup, then 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 larger than 300 mA 5V Stand-By current (dependent on the specification of keyboards), you can power on your system by entering password from the Keyboard after setting the "Keyboard power on" jumper (JP1) and password in CMOS Setup.**

3. **Support 3 steps ACPI LED selectable.**

4. **Support Modem Ring-On. (Include internal Modem and external modem on COM A and COM B)**

5. **Support Wake-up On LAN. (Your ATX power supply must support larger than 720 mA 5V Stand-By current)**

6. **ATI RAGE PRO AGP Display Onboard.**

7. **YAMAHA PCI Sound Onboard.**

Intel$^{\text{â}}$ Celeron $^{\text{TM}}$ Processor MAINBOARD
REV. 1.0 Second Edition

R-10-02-090114

January 14, 1999 Taipei, Taiwan

I. Quick Installation Guide :

CPU SPEED SETUP

The default system bus speed is 66 MHz. The user can change the DIP SWITCH **(SW)** selection to set up the CPU speed for 366 - 433MHz 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
1	2	3	4			
OFF	ON	OFF	ON	4.5	66	300
ON	OFF	OFF	ON	5	66	333
OFF	OFF	OFF	ON	5.5	66	366
ON	ON	ON	OFF	6	66	400
OFF	ON	ON	OFF	6.5	66	433

💣※**JP2, JP3, JP4** (Select the system speed¡ 66, 75, 83 MHz)

MAIN CLOCK	JP4	JP3	JP2
66MHz	2-3	2-3	2-3
75MHz	2-3	1-2	2-3
83MHz	1-2	2-3	1-2

★**Note: We don't recommend you to setup your system speed to 75 or 83MHz because these frequencies are not the standard specifications for CPU, Chipset and most of the peripherals. Whether your system can run under 75 or 83MHz properly will depend on your hardware configurations: CPU, SDRAM, Cards, etc.**

1. Celeron™ 366 MHz / 66MHz FSB
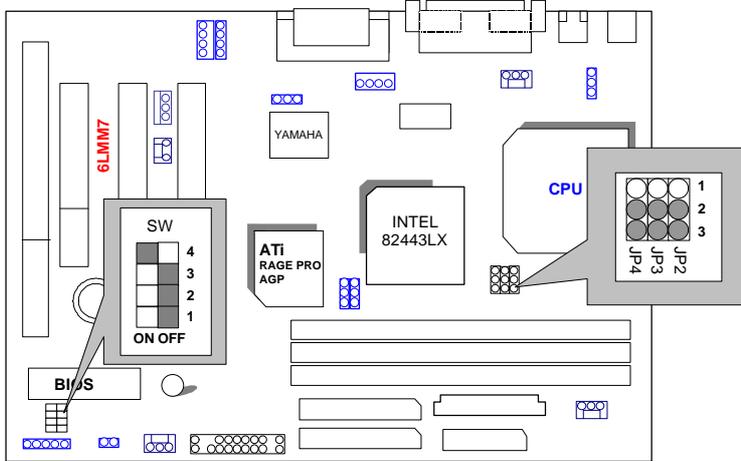
2. Celeron™ 400 MHz / 66MHz FSB
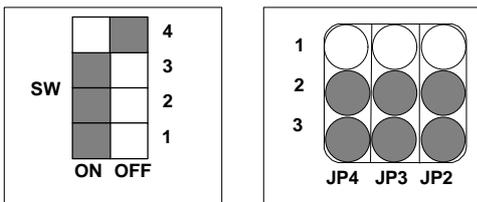
3. Celeron™ 433 MHz / 66MHz FSB
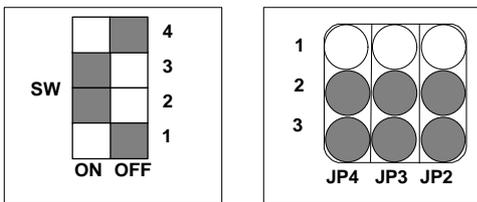
II. Jumper setting :

GN : Green Function Switch

Open:
Normal
operation

Short:
Entering
Green
mode
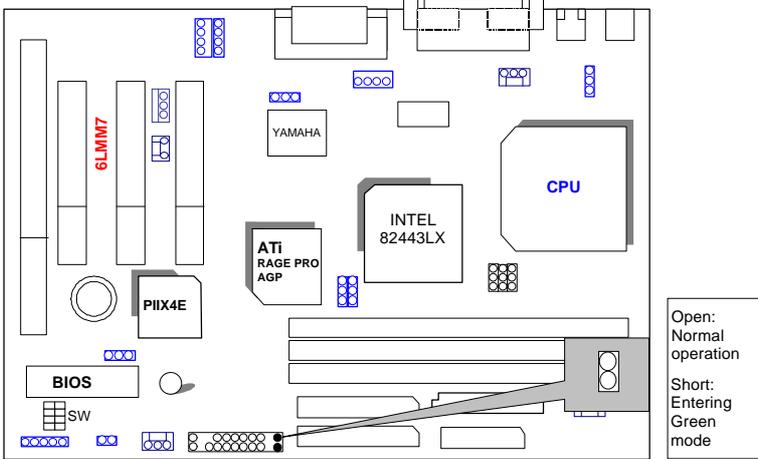
GD : Green Function LED

PIN	FUNCTION
1	LED (+)
2	LED (-)

HD : IDE Hard Disk Active LED
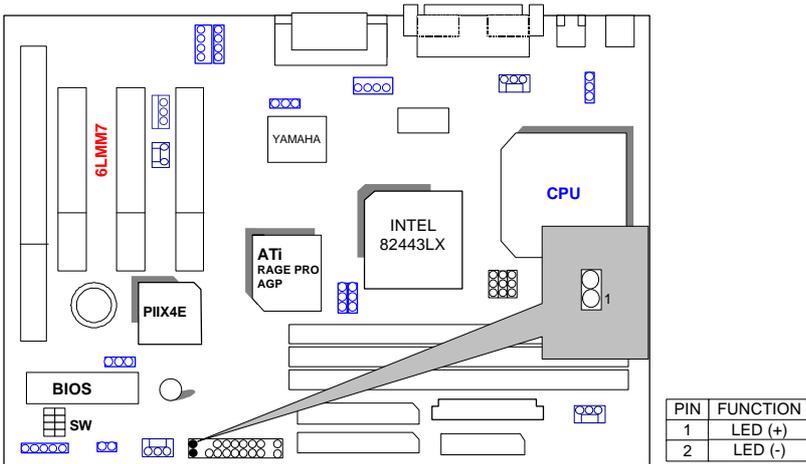
PIN	FUNCTION
1	LED (+)
2	LED (-)
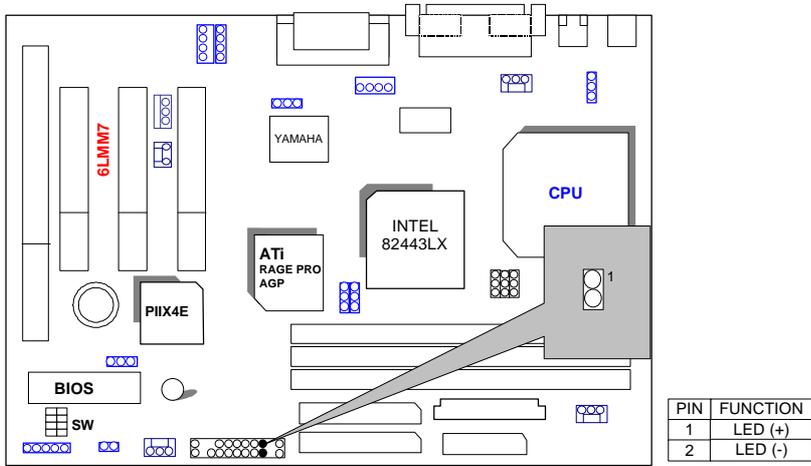
SPKR : External Speaker/ Internal Buzzer Connector

Default :
Internal Buzzer

External Speak

PIN	FUNCTION
1	VCC
2	VCC
3	Data
4	Data

RES : Reset Switch

Open:
Normal operation

Short:
Reset system
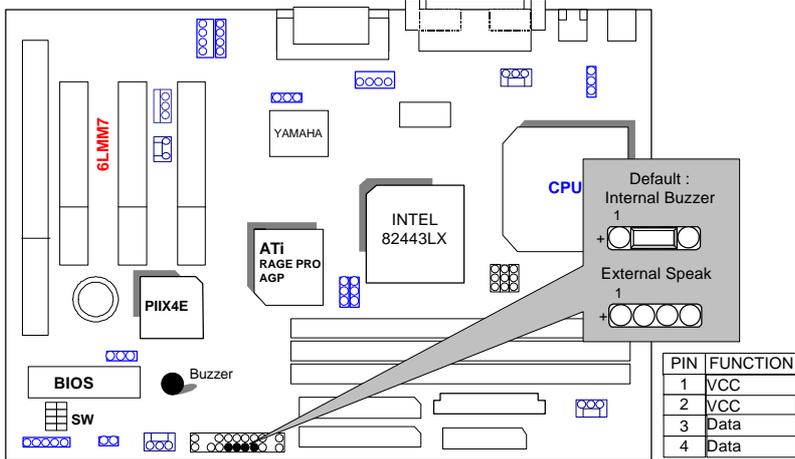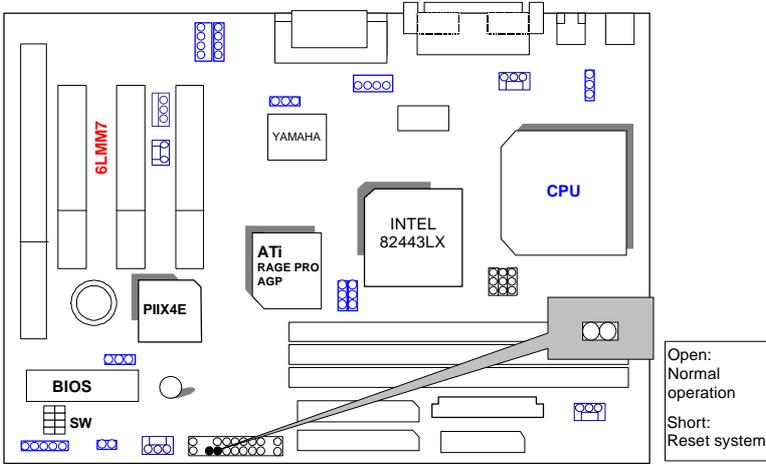
PWR : Power LED Connector (as 3 steps ACPI LED)

PIN	FUNCTION
1	LED (+)
2	LED (-)
3	LED (-)

PW: Soft Power Connector

PIN	FUNCTION
1	Signal
2	GND
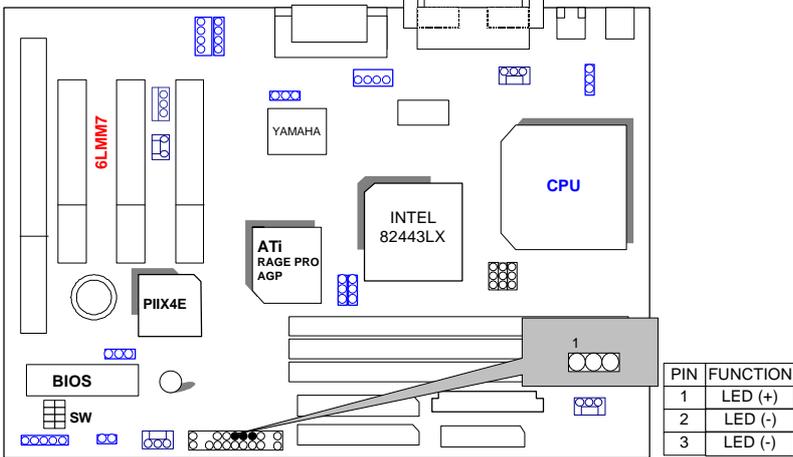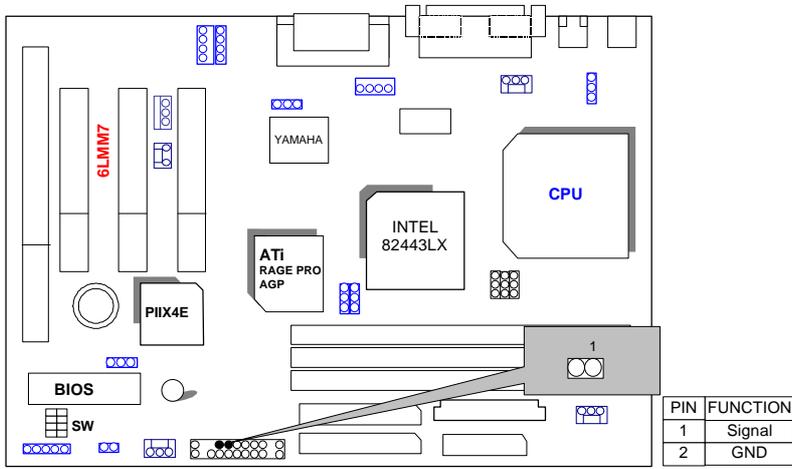
IR: Soft Power Connector (Optional)

Pin No	Function
1	IR Data Output
2	GND
3	IR Data Input
4	NC
5	POWER (+)

7
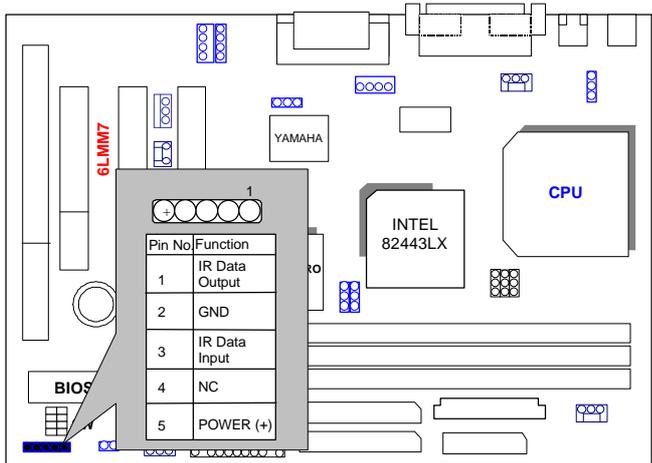
PS/2 Mouse / Keyboard Connector
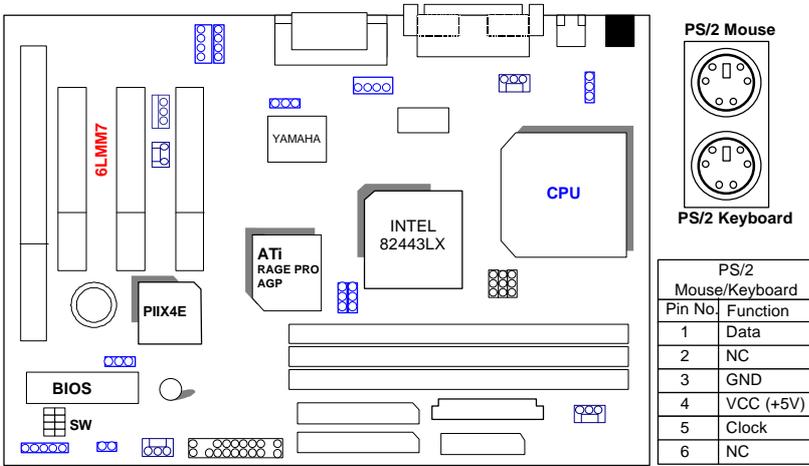
PS/2 Mouse

PS/2 Keyboard

PS/2 Mouse/Keyboard	
Pin No.	Function
1	Data
2	NC
3	GND
4	VCC (+5V)
5	Clock
6	NC

CPU FAN : CPU Cooling Fan Power Connector

Pin No.	Function
1	GND
2	+12V
3	SENSE

POWER FAN : POWER Cooling Fan Power Connector

Pin No.	Function
1	GND
2	+12V
3	SENSE
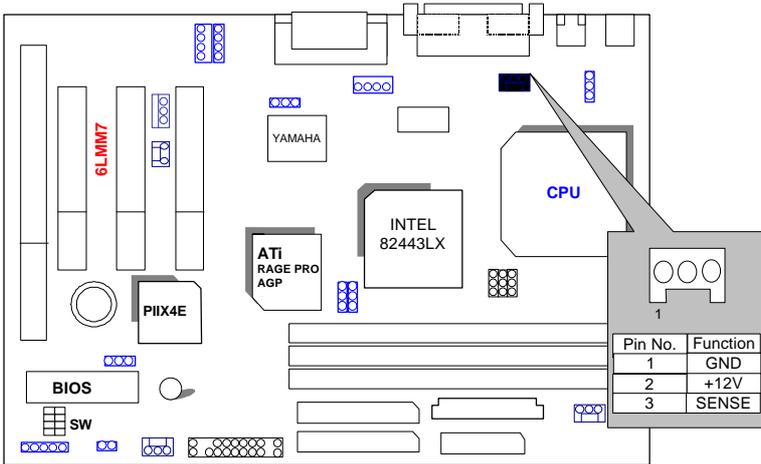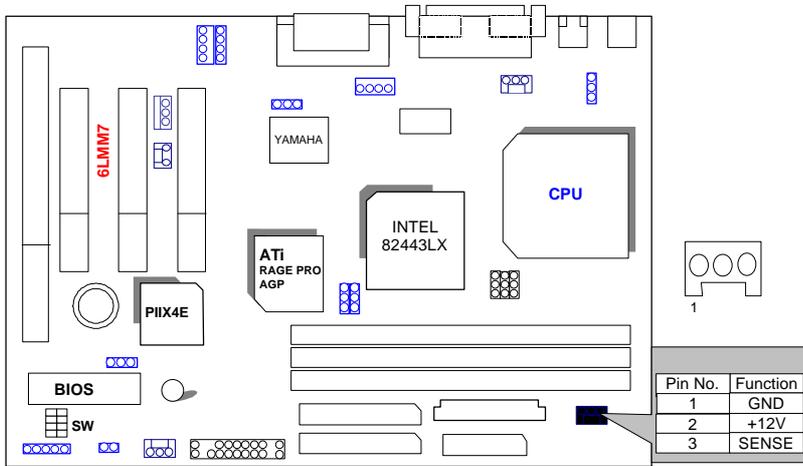
SYSTEM FAN : SYSTEM Cooling Fan Power Connector

Pin No.	Function
1	GND
2	+12V
3	SENSE
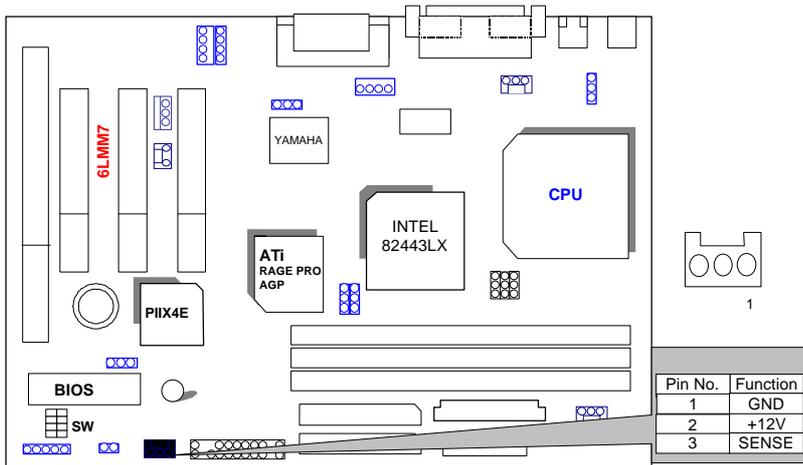
IDE1: For Primary IDE port
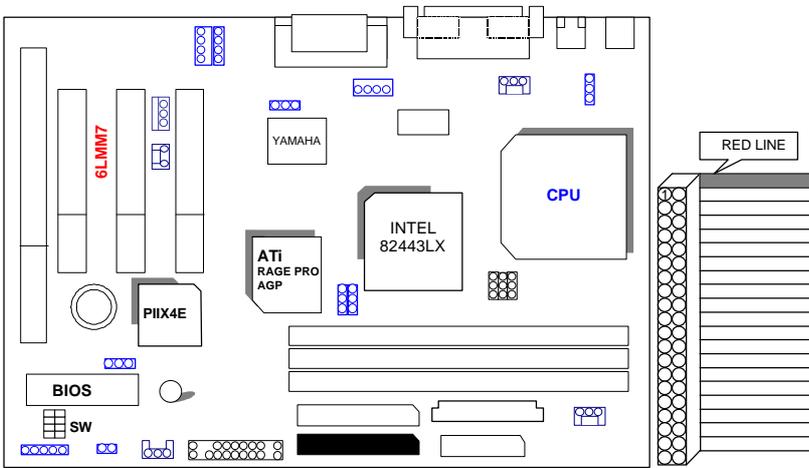
IDE2: For Secondary IDE port
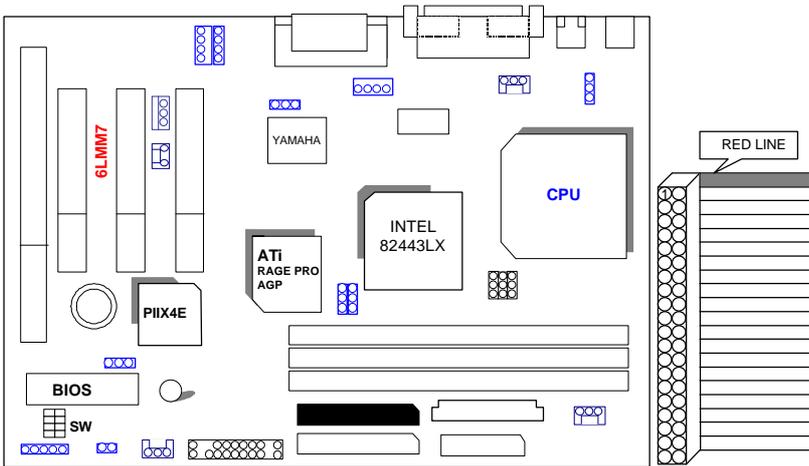
FLOPPY : FLOPPY PORT
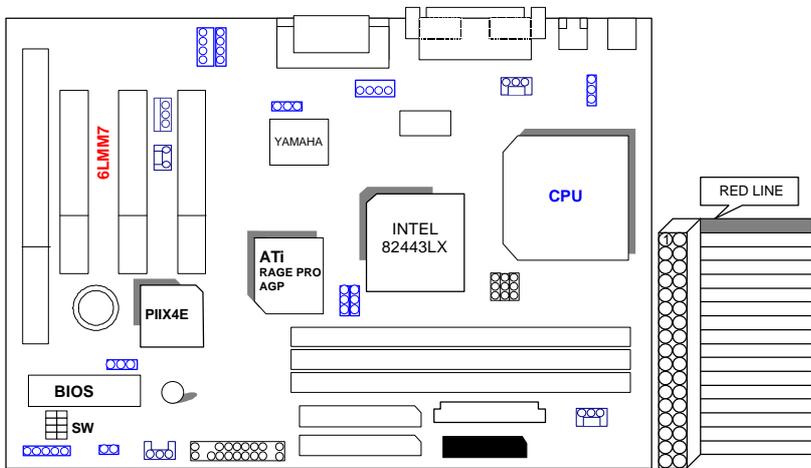
ATX POWER : ATX POWER Connector

Pin No.	Function
3,5,7,13,15-17	GND
4,6,19,20	VCC (+5V)
10	+12V
12	-12V
18	-5V
8	Power Good
9	5V SB (Stand by+5V)
14	PS-ON (Soft ON/OFF)
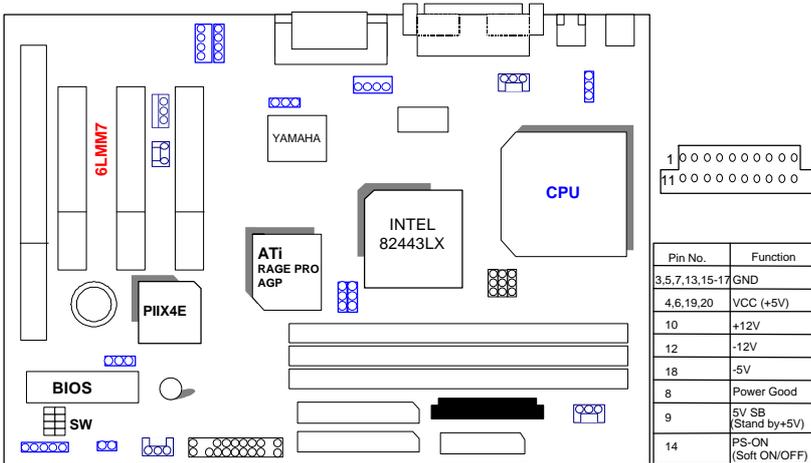
LPT PORT / COM A / COM B / VGA PORT
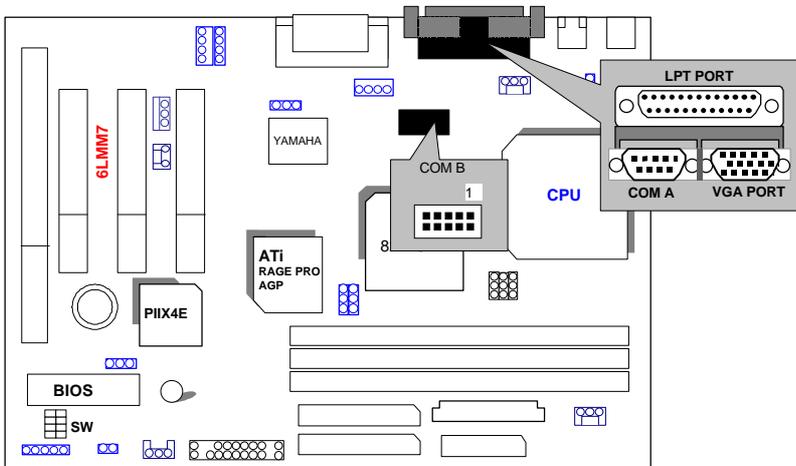
GAME & AUDIO PORT

JP1 : Keyboard Power On

JP1

1
2
3

1,2short:
Enable Keyboard Power
On.
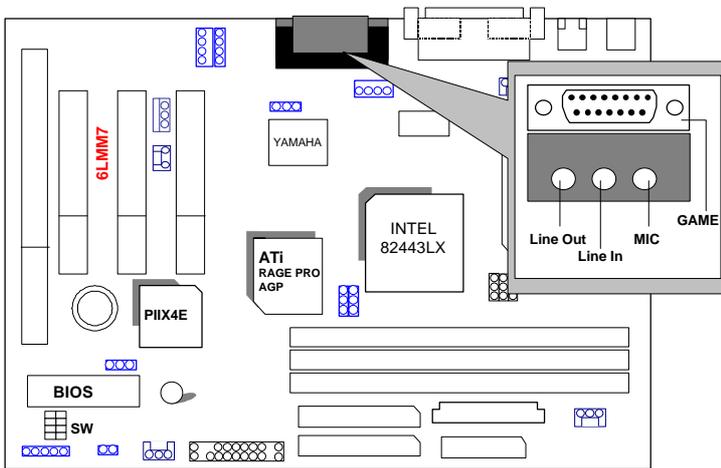
2.3short: (Default)
Disable Keyboard Power
On.

USB: USB Port

Pin No.	Function
1	USB V0
2	USB D0-
3	USB D0+
4	GND
5	USB V1
6	USB D1-
7	USB D1+
8	GND

JP12: Wake on LAN

Pin No.	Function
1	+5V SB
2	GND
3	Signal
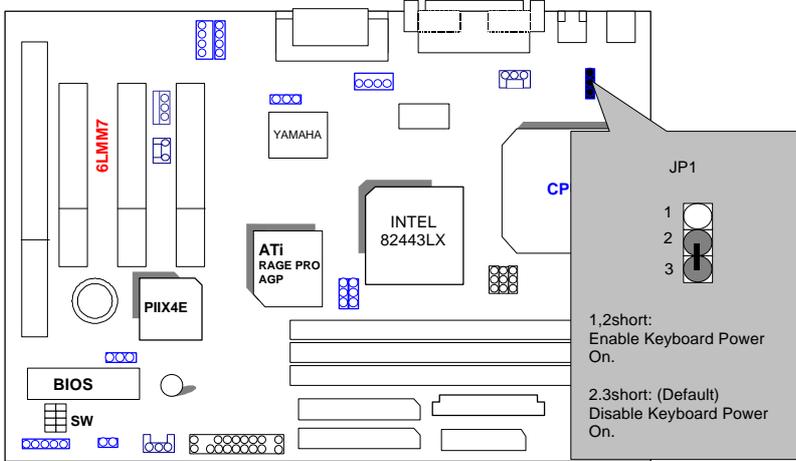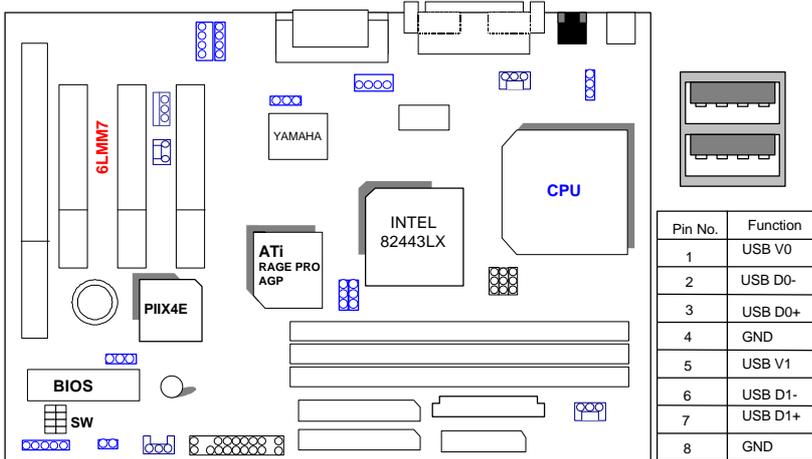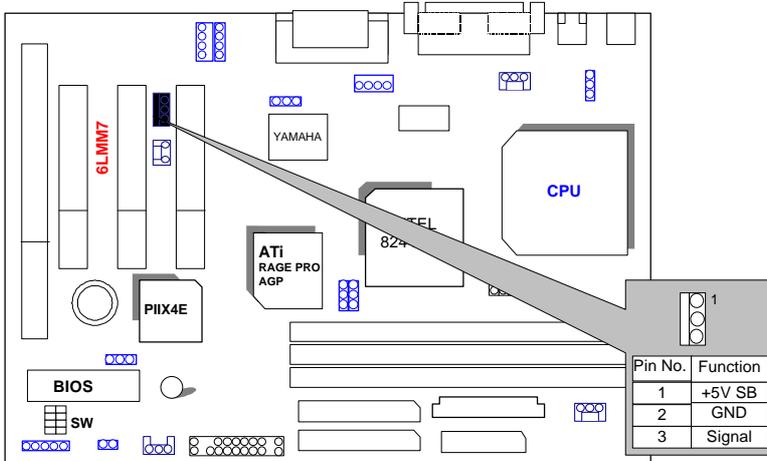
CN6 &JP10:CD Audio Line In

JP9: Onboard Sound Function Selection

JP 9

1 2 3

1.2 short: (Default)
Onboard Sound Enable.

2.3 short:
Onboard Sound Disable.
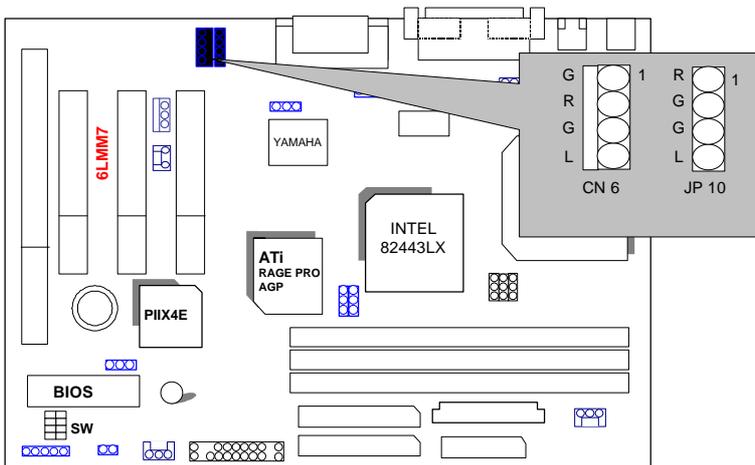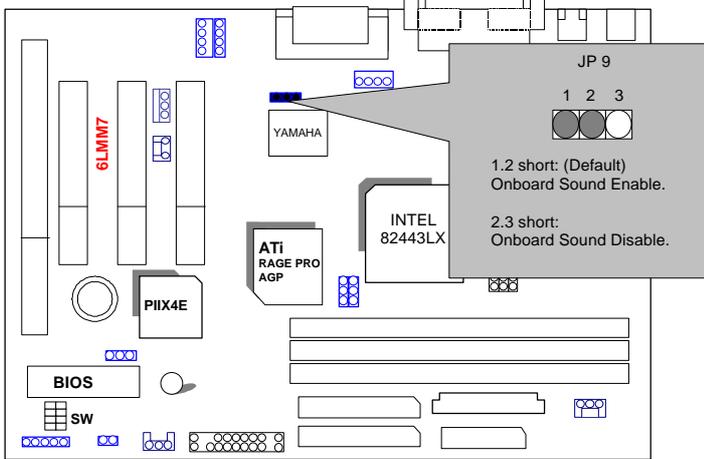
JP6: Onboard VGA Function Selection

JP 6

1
2
3

1.2 short:
Onboard VGA Disable.

2.3 short: (Default)
Onboard VGA Enable.
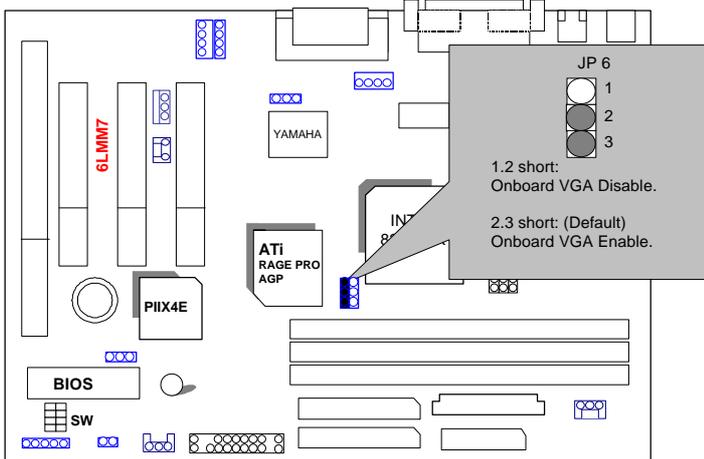
JP5: Release Onboard VGA from occupying IRQ Resource
(It is not to enable or disable Onboard VGA Function.)

JP 5

1
2
3

1.2 short: (Default)
Onboard VGA INT Disable.

2.3 short:
Onboard VGA INT Enable.

6LMM7

YAMAHA

INT
82

ATi
RAGE PRO
AGP

PIIX4E

BIOS

SW
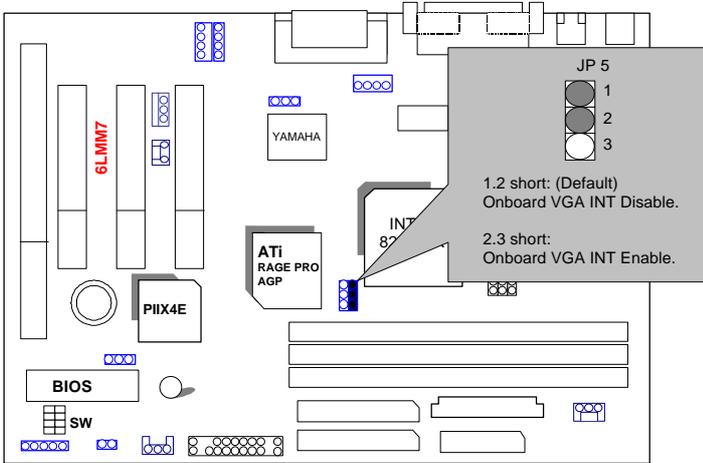
J9:Internal Modem Card Ring PWR On

J9

1

Pin No.	Function
1	Signal
2	GND

6LMM7

YAMAHA

INTEL
82443LX

ATi
RAGE PRO
AGP

PIIX4E

BIOS

SW

J10:CLEAR CMOS Function

1-2 Short :Clear CMOS
2-3 Short :Normal
Default: 2-3 Short
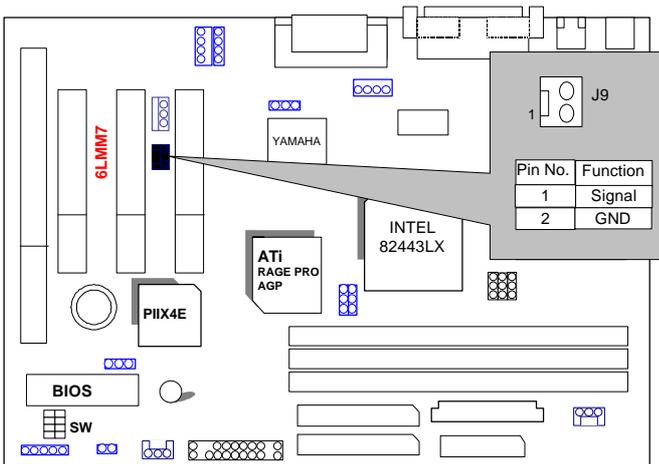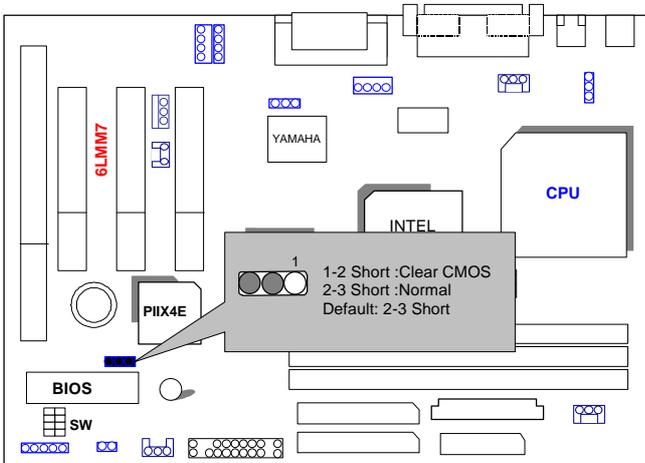
JP13:CASE OPEN Function
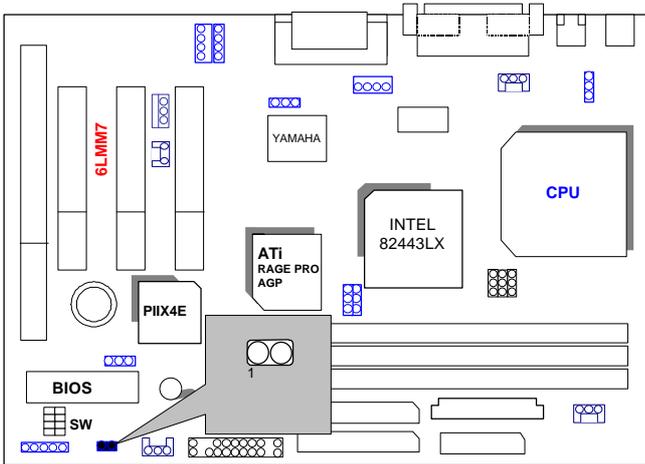
TEL: The connector is for Modem with internal voice connector.
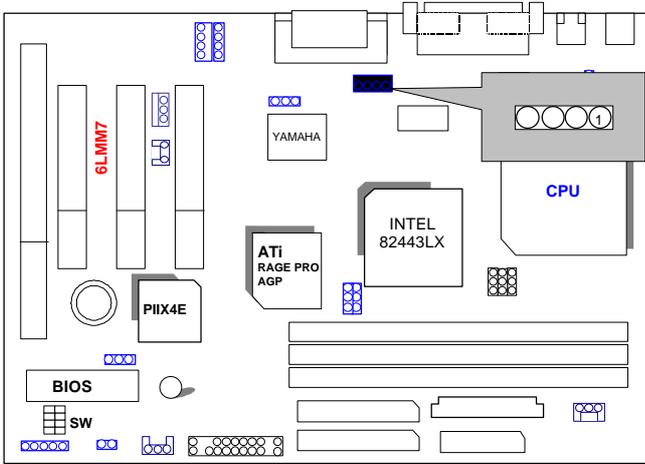
BAT1:For Battery
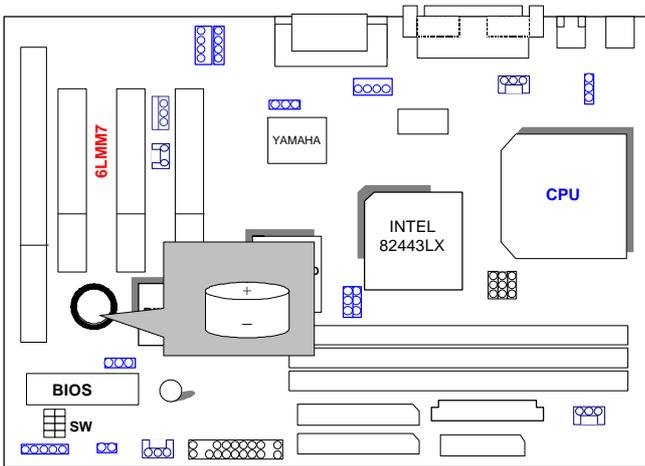
☛Danger of explosion if battery is incorrectly replaced.
☛Replace only with the same or equivalent type recommended by the manufacturer.
☛Dispose of used batteries according to the manufacturer' s instructions.

18

III. Top Performance Test Setting:

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

Users have to modify the value for each item in chipset features as follow

```
                    ROM PCI/ISA BIOS (2A69KG0F)
                      CHIPSET FEATURES SETUP
                       AWARD SOFTWARE, INC.

 Auto Configuration        : Enabled    Reset Case Open Status   : No
 DRAM Speed Selection      : Fast       Case Opened              : No
 Memory Buffer Strength    : Middle
 DRAM Data Integrity Mode  : Non-ECC    ** Current Temp.(°C/°F)**
 Video RAM Cacheable       : Disabled   CPU : 33/91
 16 Bit I/O Recovery Time  : 1
 Memory Hole At 15M-16M    : Disabled   ** Current Fan Speed (RPM)**
 Delayed Transaction       : Disabled   CPU:5443    POWER :0     SYS:0
 SDRAM RAS-to-CAS Delay    : Fast
 SDRAM RAS Precharge Time  : Fast
 SDRAM CAS latency Time    : 2          ** Current Voltage (V) **
 Spread Spectrum           : Disabled   VCORE :1.95   VGTL : 1.52  VCC3:3.56
 Slow Down CPU Duty Cycle  : Normal     + 5V: 5.08    +12V: 12.52  -12V:41.86
 Shutdown Temp.(°C/°F)     :75°C/167°F.  - 5V:- 5.09   VBAT: 3.26   5VSB:5.05
 **Temp. Select (°C/°F)**
 CPU :75°C/167°F
 **Temperature Alarm **
 CPU :No
 **Fan Fail Alarm**                     ESC : Quit        ↑↓←→ : Select Item
 CPU:No      POWER :No     SYS:No       F1  : Help        PU/PD/+/- : Modify
                                        F5  : Old Values  (Shift)F2 : Color
                                        F6  : Load BIOS  Defaults
                                        F7  : LOAD Setup DEFAULTS
```

for top performance setting.

  **The above settings have to modify according to different kinds of CPU, SDRAM, and peripherals for your system to work properly.

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   Intel® Celeron™ 366MHz Socket 370 processor
- DRAM   (128x 1) MB SDRAM (SEC KM48S8030BT-GH)
- CACHE SIZE   128 KB included in CPU
- DISPLAY   Onboard ATi AGP 3D graphics acceleration chip (4MB SDRAM)
- STORAGE   Onboard IDE (IBM DHEA 38451)
- O.S.   Windows NT™4.0 SPK3
- DRIVER   Display Driver at 1024 x 768 x 256 colors x 75Hz.

                  TRIONES Bus Master IDE Driver 3.70

Processor	Intel® Celeron™ 366MHz Socket 370 366MHz (66x5.5)
Winbench98	
CPU mark32	705
FPU Winmark	1970
Business Disk	1850
Hi-End Disk	4410
Business Graphics	198
Hi-End Graphics	229
Winstone98	
Business	33.1
Hi-End	36.7

TABLE OF CONTENTS

4. BIOS CONFIGURATION

1. INTRODUCTION

1.1. PREFACE

Welcome to use the **6LMM7** motherboard. It is a Celeron™ Socket 370 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 Celeron™ Socket 370 Processor based PC / AT compatible mainboard.
- ❑ Socket 370 Pins ZIF white socket on board.
- ❑ Supports Celeron™ Socket 370 processor running at 366-433 MHz.
- ❑ Intel 440LX chipset, Supports SDRAM / Ultra DMA/33 IDE.
- ❑ Built-in **ATi RAGE PRO** 3D graphics acceleration chip.
- ❑ Built-in PCI **YAMAHA** audio chip.
- ❑ Supports external Modem Ring-On on COM A&B and internal Modem Ring-On.
- ❑ Supports Wake-up on LAN .
- ❑ Supports 3xDIMMs using 3.3V EDO or SDRAM DIMM module.
- ❑ Supports EDO 16MB ~ 768 MB, SDRAM 16MB~384MB memory on board.
- ❑ 3xPCI Bus slots, 1xISA Bus slots.
- ❑ Supports 2 channels Ultra DMA/33 IDE ports for 4 IDE Devices.
- ❑ Supports 2xCOM (16550), 1xLPT (EPP / ECP), 1x Floppy port.
- ❑ Supports1x Line in, 1x Line Out, 1x Mic in, 2x CD Line in,1x GAME Port, 1x TEL Port.
- ❑ Supports 2xUSB ports, 1xPS/2 Mouse, 1xPS/2 Keyboard.
- ❑ Licensed AWARD BIOS, 2Mbits FLASH RAM.
- ❑ 24.3 cm x 21 cm Micro-ATX 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 Intel® Celeron™ 366MHz Socket 370 processor
- DRAM (128x 1) MB SDRAM (SEC KM48S8030BT-GH)
- CACHE SIZE 128 KB included in CPU
- DISPLAY Onboard ATi AGP 3D graphics acceleration chip (4MB SDRAM)
- STORAGE Onboard IDE (IBM DHEA 38451)
- O.S. Windows NT™4.0 SPK3
- DRIVER Display Driver at 1024 x 768 x 256 colors x 75Hz.

  TRIONES Bus Master IDE Driver 3.70

Processor	Intel® Celeron™ 366MHz Socket 370 366MHz (66x5.5)
Winbench98	
CPU mark32	705
FPU Winmark	1970
Business Disk	1850
Hi-End Disk	4410
Business Graphics	198
Hi-End Graphics	229
Winstone98	
Business	33.1
Hi-End	36.7

1.4. BLOCK DIAGRAM
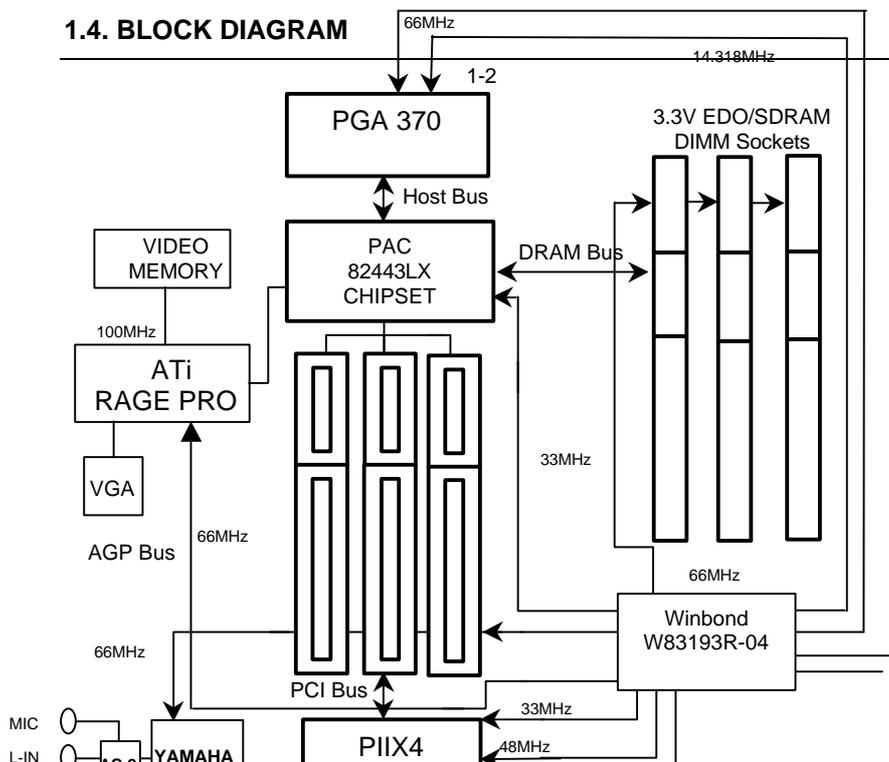
1.5. INTRODUCE THE INTEL⒜ Celeron™ Socket 370 Processor

Figure 1: INTEL® Celeron™ Socket370 Processor

Figure 2:Heatsink / FAN & Heat sink support for Celeron™ Socket370
Processor

Figure 3:Boxed Celeron^{TM} Socket370 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*2*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
  - − Celeron^{TM} Socket 370 processor 366– 433 MHz.
  - − 66MHz Socket 370 on board.

- SPEED
  - − 66 MHz system speed.
  - − 66 MHz AGP bus speed. (2X mode 133MHz)
  - − 33 MHz PCI-Bus speed.
  - − 8 MHz AT bus speed.

- PROTECTION
  - − Speaker Alarm when detect "CPU FAN Failure" or "CPU Overheat".
  - − Automatically slow down CPU speed when "CPU Overheat".
  - − H/W monitor power status ($\pm$5V, $\pm$12V, VGTL,5VSB, CPU voltage & CMOS battery voltage).(Optional)

- DRAM MEMORY
  - − 3 banks 168 pins DIMM module sockets on board.
  - − Use 16 / 32 / 64 / 128 / 256 /512 MB
  - − Supports EDO 16MB ~ 768 MB,
    SDRAM 16MB~384MB.
  - − Supports 3.3V SDRAM / EDO type DRAM.

- CACHE MEMORY
  - − 32 KB 1st cache memory included in CPU.
  - − 128KB 2nd cache in CPU.
  - − Supports DIB speed mode for L2 Cache.

- I/O BUS SLOTS
  - − 3 33MHz Master / Slave PCI-BUS.
  - − 1 8MHz 16 bits ISA 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 LPT port. – Supports 1 Floppy port. – Supports 2 USB ports. – Supports 1 PS/2 Mouse. – Supports 1 PS/2 Keyboard.
• VGA	– Built-in ATi 3D RAGE PRO 3D graphics acceleration chip. – Built-in 8M high speed SDRAM. – For AGP 1.0 Interface compliant.
• SOUND	– Built-in YAMAHA PCI audio chip. – Supports Line Out, Line In, MIC, Joystick and CD-Line, TEL Port.
• GREEN FUNCTION	– Suspend mode support. – Green switch & Green LED support. – IDE & Display power down support. – Monitor all IRQ / DMA / Display / I/O events.
• BIOS	– 2M bits FLASH RAM. – Supports Plug & Play, DMI Function.
• DIMENSION	– Micro ATX Form Factor, 4 layers PCB.

2.2. SOFTWARE

• DRIVER	– YAMAHA Sound Driver. – ATi RAGE PRO Driver.
• 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®98, 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 **6LMM7** mainboard.

- The Retention Mechanism & Attach Mount

- USER'S MANUAL for mainboard.

- Cable set for IDE, Floppy devices.

- CDs or diskettes for Mainboard ¡ (Sound and VGA 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 LAYOUT
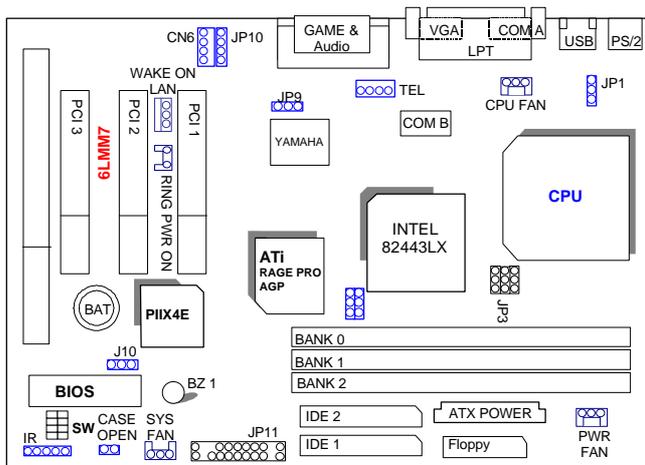
3.3. QUICK REFERENCE FOR JUMPERS & CONNECTORS

♦ I/O Ports Connector	
USB	USB port.
IDE1	For Primary IDE port.
IDE2	For Secondary IDE port.
PS/2	For PS/2 Keyboard / Mouse port.
FLOPPY	For Floppy port
COMB	For Serial port2 (COM B).[Support Modem Ring On]
COMA	For Serial port1 (COM A).[Support Modem Ring On]
LPT	For LPT port.
VGA	For VGA port.
GAME	For GAME port.
AUDIO	For MIC,LINE-IN,LINE-OUT,TEL port.

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

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

♦ SYS PWR : System cooling FAN Power Connector	
Pin No.	Function
1	GND.
2	+12V
3	SENSE

♦ Wake on Lan	
Pin No.	Function
1	+5V SB
2	GND
3	Signal

♦ JP5 : Release Onboard VGA from occupying IRQ Resource	
Pin No.	Function
1-2 short	Disable Onboard VGA INT.(Default)
2-3 short	Enable Onboard VGA INT.

♦ JP6 : On-Board VGA Function	
Pin No.	Function
1-2 short	Disabled On-Board VGA Function.
2-3 short	Enabled On-Board VGA Function.(Default)

♦ JP9 : Onboard Sound Function Selection	
Pin No.	Function
1-2 short	Onboard Sound Function Enabled.(Default)
2-3 short	Onboard Sound Function Disabled.

♦ JP1 : Keyboard Power On Selection	
Pin No.	Function
1-2 short	Enabled Keyboard power on.
2-3 short	Disabled Keyboard power on. (Default)

♦ J10 : Clear COMS Function	
Pin No.	Function
1-2 short	Clear CMOS.
2-3 short	Normal Optional.(Default)

♦ CN6 : CD Audio Line In	
Pin No.	Function
1	GND
2	Right
3	GND
4	Left

♦ JP10 : CD Audio Line In	
Pin No.	Function
1	Left
2	GND
3	GND
4	Right

♦ JP13 : CASE OPEN Function	
Pin No.	Function
1	Signal
2	GND

JP11 : For 2X11 PINs Jumper

PW: Soft Power Connector
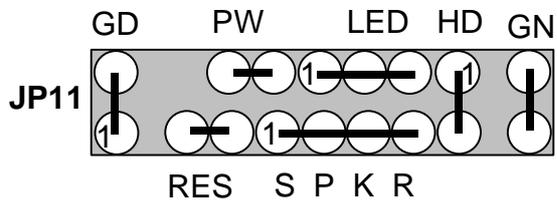
    Open: Normal Operation

Short: Power On/Off

RES: Reset Switch

Open: Normal Operation
Short: For Hardware Reset System

LED: Power LED

1 ◯◯◯

PIN 1 : anode (+)
PIN 2 : cathode (−)
PIN 3 : cathode (−)

SPKR: Speaker Connector

1 (+ ◯◯◯ -)
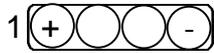
PIN 1 : VCC
PIN 2 : NC
PIN 3 : NC
PIN 4 : Data

SPKR : Internal Speaker Connector (Default)

1 (+ ●● −)

PIN 1 : VCC (+)
PIN 2-PIN3 : Short
PIN 4 : Data (−)

HD: IDE Hard Disk Active LED

1

PIN 1: LED anode (+)
PIN 2: LED cathode (-)

GN: Green Function Switch

Open : Normal operation
Short : Entering Green Mode

GD: Green LED

PIN 1 : LED anode (+)
PIN 2 : LED cathode (-)

1

3.4. DRAM INSTALLATION

The mainboard can be installed with 16 / 32 / 64 / 128 / 256 MB 168 pins DIMM module DRAM, and the DRAM speed must be 50 or 60 ns for EDO & 66~100 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 16 MB ~ 384MB SDRAM, EDO DRAM size is 16MB ~ 768MB. 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 366 - 433MHz 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
1	2	3	4			
OFF	ON	OFF	ON	4.5	66	300
ON	OFF	OFF	ON	5	66	333
OFF	OFF	OFF	ON	5.5	66	366

ON	ON	ON	OFF	6	66	400
OFF	ON	ON	OFF	6.5	66	433

☛**JP2, JP3, JP4** (Select the system speed¡ 66, 75, 83 MHz)

MAIN CLOCK	JP4	JP3	JP2
66MHz	2-3	2-3	2-3
75MHz	2-3	1-2	2-3
83MHz	1-2	2-3	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.**

☀ **We don' t recommend you to setup your system speed to 75 or 83 MHz because these frequencies are not the standard specifications for CPU, Chipset and most of the peripherals. Whether your system can run under 75 or 83MHz properly will depend on your hardware configurations: CPU, SDRAM, Cards, etc.**

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.

3.7. SPEAKER CONNECTOR INSTALLATION

There is a speaker in AT system for sound purpose. The 4 - Pins connector **SPKR** 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 press and released by user. The RESET switch is a 2 PINS connector and should be installed to **RES** 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 **LED** 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 three PCI - Bus slots can be used.

3.12.PS/2 KEYBOARD & MOUSE INSTALLATION

The main board supports PS/2 Mouse. 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 <Del> 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 <Del> 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 (2A69JG0E)
                        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           SAVE & EXIT SETUP

   LOAD BIOS DEFAULTS              EXIT WITHOUT SAVING

   LOAD SETUP DEFAULTS

  Esc : Quit                  ↑ ↓ → ←   : Select Item
  F10 : Save & Exit Setup     (Shift)F2 : Change Color
```

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.

- Load bios defaults

  Bios Defaults indicates the value of the system parameter which the system would be in the safe configuration.

- Load setup defaults

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

- Integrated peripherals

  This setup page includes all onboard peripherals.

- Supervisor password

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

- User password

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

- 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 items in Standard CMOS Setup Menu (Figure 4.2) are divided into 9 categories. Each category includes no, one or more than one setup items. Use the arrows to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

Figure 4.2: Standard CMOS Setup Menu

• Date

The date format is <day>, <month> <date> <year>.

day	The day, from Sun to Sat, determined by the BIOS and is display-only
month	The month, Jan. through Dec.
date	The date, from 1 to 31 (or the maximum allowed in the month)
year	The year, from 1994 through 2079

• Time

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 and you will be prompted
All Errors	Whenever the BIOS detects a non-fatal error the system will be stopped
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 in 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

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 warning 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 From LAN First

    The default value is Enabled.

Enabled	Enable Boot From LAN First
Disabled	Disable Boot From LAN First

- 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	VGA Boot From AGP
PCI	VGA Boot From PCI

- 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 chars. 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.

- Assign IRQ For VGA

  The default value is Enabled.

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.

- HDD S.M.A.R.T. Capability

  The default value is Disable.

Enable	Enable HDD S.M.A.R.T. Capability
Disable	Disable HDD S.M.A.R.T. Capability

- Report No FDD For WIN 95

  The default value is No.

No	Function disabled
Yes	Report No FDD For WIN 95

- 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

4.7. CHIPSET FEATURES SETUP


```
                    ROM PCI/ISA BIOS (2A69KG0F)
                      CHIPSET FEATURES SETUP
                       AWARD SOFTWARE, INC.

 Auto Configuration        : Enabled    Reset Case Open Status  : No
*DRAM Speed Selection       : Normal     Case Opened             : No
 Memory Buffer Strength    : Middle
 DRAM Data Integrity Mode  : Non-ECC    ** Current Temp.(°C/°F)**
 Video RAM Cacheable       : Disabled   CPU : 33/91
 16 Bit I/O Recovery Time  : 1
 Memory Hole At 15M-16M    : Disabled   ** Current Fan Speed (RPM)**
 Delayed Transaction       : Disabled   CPU:5443    POWER :0        SYS: 0
 SDRAM RAS-to-CAS Delay    : Fast
 SDRAM RAS Precharge Time  : Fast
 SDRAM CAS latency Time    : 2          ** Current Voltage (V)**
 Spread Spectrum           : Disabled   VCORE :1.95   VGTL : 1.52   VCC3:3.58
 Slow Down CPU Duty Cycle  : Normal     + 5V: 5.08    +12V: 12.52   -12V:41.86
 Shutdown Temp.(°C/°F)     :75°C/167°F. - 5V:- 5.09   VBAT: 3.26    5VSB:5.05
**Temp. Select (°C/°F)**
CPU :75°C/167°F
**Temperature Alarm **
CPU :No                                ESC : Quit          ↑↓←→ : Select Item
**Fan Fail Alarm**                     F1  : Help          PU/PD/+/- : Modify
CPU:No       POWER :No    SYS:No        F5  : Old Values    (Shift)F2 : Color
                                        F6  : Load BIOS  Defaults
                                        F7  : LOAD Setup DEFAULTS
```

Figure 4.4: Chipset Features Setup

✱ When Auto Configuration set Enabled, "DRAM Speed Selection" will show up.

- 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.

- Spread Spectrum

  The default value is Disabled.

Disabled	Disabled Spread Spectrum
Enabled	Enabled Spread Spectrum

- Slow Down CPU Duty Cycle (Optional)

  The default value is Normal.

Normal	Disable Slow Down CPU Duty Cycle.
12.5%	Set Slow Down CPU Duty Cycle to 12.5%.
25.0%	Set Slow Down CPU Duty Cycle to 25.5%.
37.5%	Set Slow Down CPU Duty Cycle to 37.5%.
50.0%	Set Slow Down CPU Duty Cycle to 50.0%.
62.5%	Set Slow Down CPU Duty Cycle to 62.5%.
75.0%	Set Slow Down CPU Duty Cycle to 75.0%.

- Shutdown Temp. (°C / °F) (Optional)

  (This function will be effective only for the operating systems that support ACPI Function.)

  The default value is 75°C / 167°F

Disabled	Normal Operation.
60°C / 140°F	Monitor CPU Temp. at 60°C / 140°F, if Temp. > 60°C / 140°F system will automatically power off .
65°C / 149°F	Monitor CPU Temp. at 65°C / 149°F, if Temp. > 65°C / 149°F system will automatically power off .
70°C / 158°F	Monitor CPU Temp. at 70°C / 158°F, if Temp. > 70°C / 158°F system will automatically power off .
75°C / 167°F	Monitor CPU Temp. at 75°C / 167°F, if Temp. > 75°C / 167°F system will automatically power off .

- Temp. Select (°C / °F) (Optional)

  The default value is 75°C / 167°F

65°C / 149°F	Monitor CPU Temp. at 65°C / 149°F
70°C / 158°F	Monitor CPU Temp. at 70°C / 158°F
75°C / 167°F	Monitor CPU Temp. at 75°C / 167°F
80°C / 176°F	Monitor CPU Temp. at 80°C / 176°F
85°C / 185°F	Monitor CPU Temp. at 85°C / 185°F
90°C / 194°F	Monitor CPU Temp. at 90°C / 194°F
95°C / 203°F	Monitor CPU Temp. at 95°C / 203°F

- Temperature Alarm (Optional)

  The default value is No

No	When CPU Temp. overheat, then system won't alarm.
Yes	When CPU Temp. overheat, then system will alarm.

- Fan Fail Alarm (Optional)

  CPU/POWER/SYS.

No	Fan Fail Alarm Function Disabled.
Yes	Fan Fail Alarm Function Enabled.

- Reset Case Open Status (Optional)

- Case Opened (Optional)

    If the case is closed, "Case Opened" will show "No".
    If the case have been opened, "Case Opened" will show "Yes" .
    If you want to reset "Case Opened" value, set "Reset Case Open Status"
    to "Yes" and save CMOS, your computer will restart.

- Current Temp. (°C / °F) (Optional)

    Detect Temp. automatically.

- Current FAN Speed (RPM) (Optional)

    Detect Fan speed status automatically.

- Current Voltage (v) VCORE / VGTL/ VCC3 / ±12V / ±5V /VBAT /5VSB
    (Optional)

    Detect system's voltage status automatically.

4.8. POWER MANAGEMENT SETUP

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.

●   Video off Method

The default value is DPMS.

V/H SYNC + Blank	BIOS will turn off V/H-SYNC when gets into Green mode for Green monitor power saving.
Blank Screen	BIOS will only black monitor when gets into Green mode.
DPMS	BIOS will use DPMS Standard to control VGA card. (The Green type VGA card will turn of V/H-SYNC automatically.)

●   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.

● 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.

- CPUFAN Off In Suspend

  The default value is Enabled.

Disabled	Disable this function.
Enabled	Stop CPU FAN when entering Suspend mode.

- System After AC Back

  The default value is Soft-Off.

Memory	This function depends on computer status
Soft-Off	Set System Soft-Off Status.
Full-On	Set System Full-On Status.

- Power LED in Suspend

  The default value is BLINKING.

BLINKING	Set Power LED in Suspend at BLINKING mode.
ON	Set Power LED in Suspend at ON mode.
OFF/DUAL	Set Power LED in Suspend at OFF/DUAL mode.

- PME Event Wakeup

  The default value is Disabled.

Disabled	Disable PME Event Wakeup.
Enabled	Enable PME Event Wakeup.

- ModemRingOn / WakeOnLan

  The default value is Enabled.

Disabled	Disable these functions.
Enabled	Enable these functions.

- Resume by Alarm

  The default value is Disabled.

Disabled	Disable this function.
Enabled	Enable alarm function to POWER ON system.

If the "Resume by Alarm" 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 (2A69JG0Y)
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  Assign IRQ For USB : Enabled

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 : 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    ESC : Quit        ↑↓←→ : Select Item
DMA-3   assigned to : PCI/ISA PnP    F1  : Help        PU/PD/+/- : Modify
DMA-5   assigned to : PCI/ISA PnP    F5  : Old Values  (Shift)F2 : Color
DMA-6   assigned to : PCI/ISA PnP    F6  : Load BIOS  Defaults
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 (7,12,14,15) & IRQ (3,4,5,9,10,11,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.

- Assign IRQ For USB

  The default value is Enabled.

Enabled	Assign a specific IRQ for USB
Disabled	No IRQ is assigned for USB

4.10. LOAD BIOS DEFAULTS
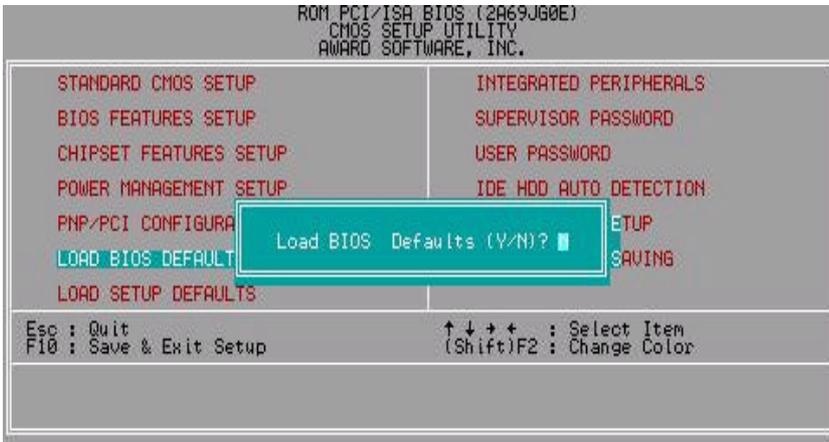
Figure 4.7: Load Bios Defaults

• Load BIOS Defaults

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

4.11. LOAD SETUP DEFAULTS

Figure 4.8: Load Setup Defaults

• Load SETUP Defaults

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

4.12. INTEGRATED PERIPHERALS
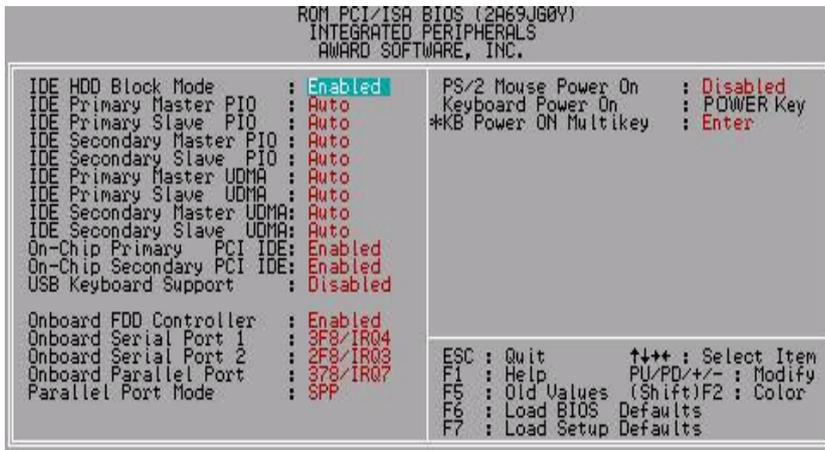
Figure 4.9: Integrated Peripherals

✻ 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 FDD 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 POWER Key.

POWER Key	If your keyboard have "POWER Key" button, you can press the key to power on your system.
Disabled	Disable Keyboard Power on .
Multikey	Enter multikey combination to Power on system.

- KB Power ON Multikey

Enter	Enter from 1 to 5 characters to set the Keyboard Power On Password.

4.13. SUPERVISOR / USER PASSWORD

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

Figure 4.10: Password Setting

Type the password, up to eight characters, and press <Enter>. The password typed now will clear the previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>.

To disable password, just press <Enter> when you are prompted to enter password. A message "PASSWORD DISABLED" will appear to confirm the password being disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

If you select System at Security Option in BIOS Features Setup Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup Menu. If you select Setup at Security Option in BIOS Features Setup Menu, you will be prompted only when you try to enter Setup.

4.14. IDE HDD AUTO DETECTION

ROM PCI / ISA BIOS (2A69JG0N)
IDE HDD AUTO DECTION
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
2 (Y)	521	530	32	0	1059	63	LBA
1	52	1060	16	65535	1059	63	NORMAL
3	521	530	32	65535	1059	63	LARGE

Note: Some Oses (like SCO-UNIX) must use "NORMAL" for installation
ESC : Skip

Figure 4.11: 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.

4.15. SAVE & EXIT SETUP

Figure 4.12: 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.

4.16. EXIT WITHOUT SAVING
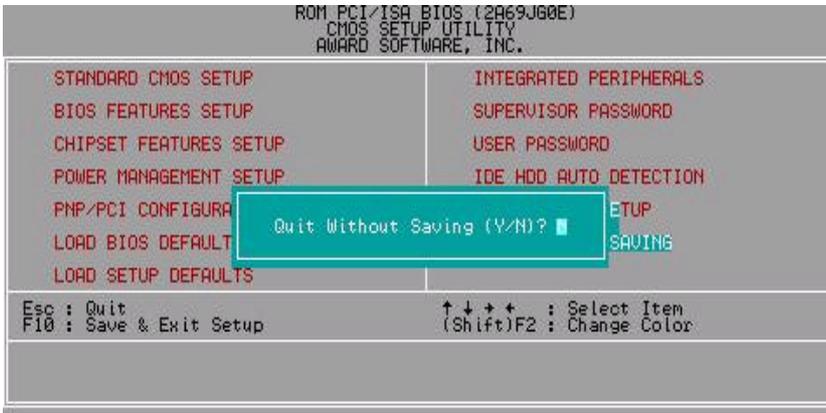
Figure 4.13: Exit Without Saving

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

Type "N" will return to Setup Utility.

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
Ausschlager Weg 41, 1F, 20537 Hamburg, Germany

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

Mother Board
GA-6LMM7

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

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

☒ **CE marking**   CE (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

☐ **EN 60065**	Safety requirements for mains operated electronic and related apparatus for household and similar general use	☐ **EN 60950**	Safety for information technology equipment including electrical business equipment
☐ **EN 60335**	Safety of household and similar electrical appliances	☐ **EN 50091-1**	General and Safety requirements for uninterruptible power systems (UPS)

Manufacturer/Importer

Signature : Rex Lin

(Stamp)   Date : Dec. 21, 1998   Name   :   Rex Lin