PENTIUM II

ATX Form PCI & ISA Bus Pentium II Mainboard On Board PCI ULTRA DMA/33 IDE & SUPER MULTI-I/O

R-656

Users Manual

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1. INTRODUCTION

1.1. Preface

Welcom to use the R656 Pentium II system mainboard. This manual explains how to use this mainboard and install upgrades. It has overview of the design and features of the board and provides useful information if you want to change the configuration of the board, or a system it is installed in.

1.2. Key Features

The R656 Pentium II system mainboard is a high-performance system board that support Intel Pentium II family CPUs.
There has many performance and system features integrated onto the mainboard, including the following :

- ❑ Supports Slot 1 for Intel Pentium II CPU 233MHz / 266MHz.
- ❑ Chipset : Intel 82443LX, 82371AB.
- ❑ Pentium II CPU Built-in 256K or 512KB L2 Cache.
- ❑ Supports 4 Banks of DIMMs (Four -168PIN DIMM Sockets).
  - Supports SDRAM up to 512MB of total main memory.
  - Supports Fast Page (FP) and Extended Data Out (EDO) Mode DRAM DIMM up to 1GB of total main memory.
- ❑ Four 16-bit ISA Slots and
  Three 32-bit PCI Bus Master Mode Slots.
- ❑ Fast PCI IDE Interface:
  - Supports 2 PCI Bus Master IDE Ports. (up to Four IDE drivers)
  - Supports PIO Mode 4 and Ultra DMA/33 Transfers.
- ❑ Universal Serial Bus Controller.
  - Host / HUB Controller.
  - Two USB Ports.
- ❑ Accelerated Graphics Port (AGP)

- Advanced Configuration and Power Interface (ACPI)
- High Performance Synchronous Switching Regulator with over current Protection
- Wake Up Timer: Date/Time auto wake up function.
- On-board I / O support :
  - 2 Serial Port Connectors (6550 Fast UART compatible)
  - 1 Parallel Port Connector(with EPP and ECP capabilites)
  - 1 Floppy Disk Connector (support 2 FD drives).
  - 1 PS/2 Mouse Connector.
  - 1 PS/2 Keyboard Connector.
  - 1 IrDA Connector.
- BIOS support :
  - Plug and Play (PnP), DMI, Green Function.
  - 1M-bit Flash EPROM.
- ATX Form Factor : 30.4cm x 22.0cm or 12" x 8.7" (4 Layers)

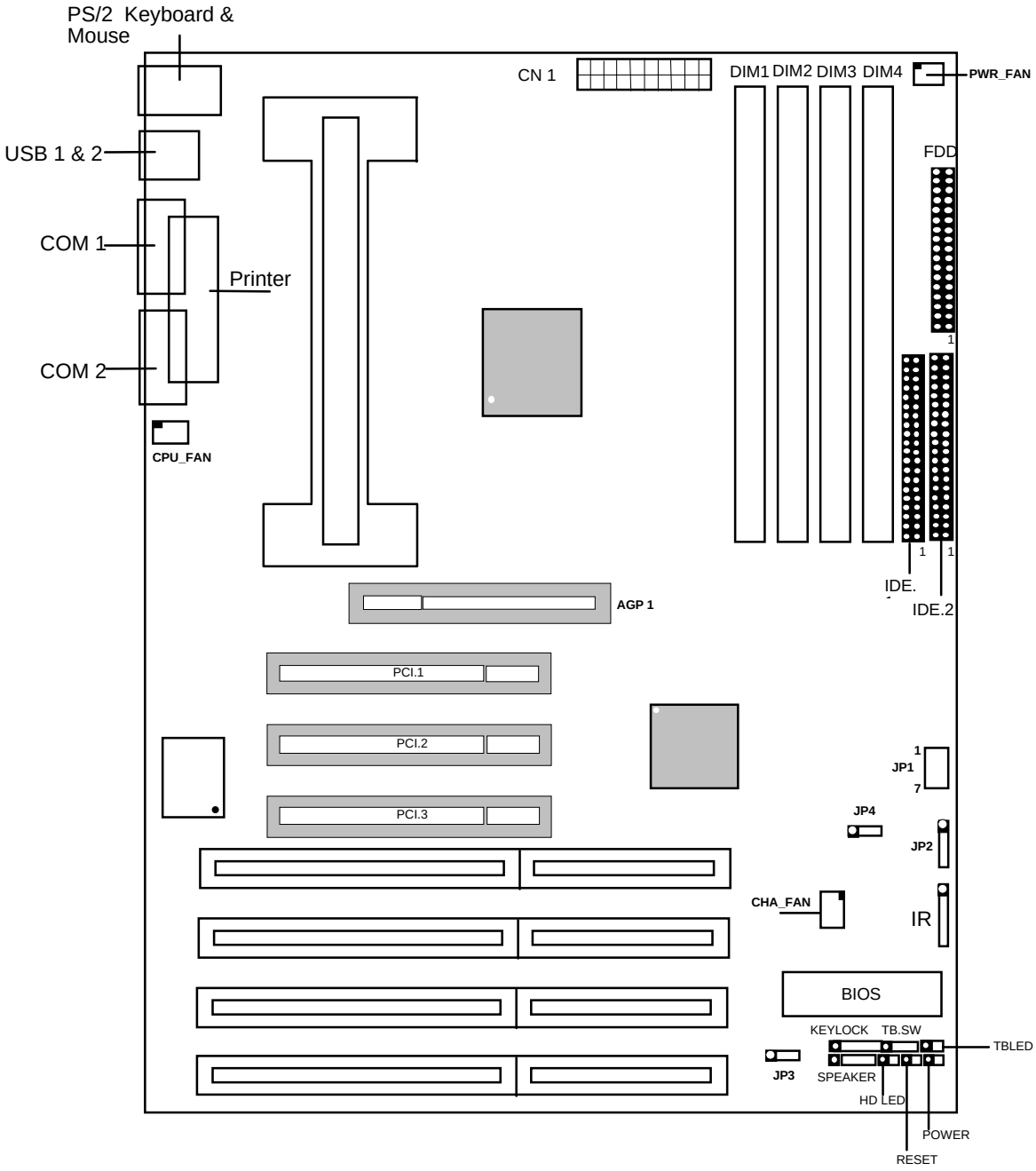
1.3. Static Electricity Precautions

Make sure you ground yourself before handling the mainboard or other system components. Electrostatic discharge can easily damage the components. Note that you must take special precaution when handling the mainboard in dry or air-conditioned environments.

Take these precautions to protect you equipment from electrostatic discharge :

- Do not remove the anti-static pachaging until you are ready to install the system board and other system components.
- Ground yourself before removing any system component from its protective anti-static packaging. To ground yourself grasp the expansion slot covers or other unpainted portions of the computer chassis.
- Frequently ground yourself while working, or use a grounding strap.
- Handle the system board by the edges and avoid touching its components.

1.4 R656 Mainboard Layout



2. HARDWARE INSTALLATION

This chapter explains how to configure the system main board hardware. After you install the main board, you can set jumpers and make case connections. Refer to this chapter whenever you upgrade or reconfigure your system.

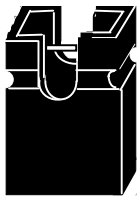
CAUTION : Turn off power to the main board, system chassis, and peripheral devices before performing any work on the main board or system.

2.1. Jumper Setting Summary

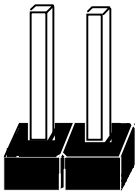
Regarding hardware settings on the board. They specify configuration options for various features. The settings are made using something called a "Jumper". A jumper is a set of two or more metal pins in a plastic base attached to the mainboard. A plastic jumper "cap" with a metal plate inside fits over two pins to create an electrical contact between them. The contact establishes a hardware setting.

Some jumpers have two pins, other have three or more. The jumper are sometimes combined into sets called jumper "blocks", where all the jumpers in the block must be set together to establish a hardware setting. The next figures show how this locks.

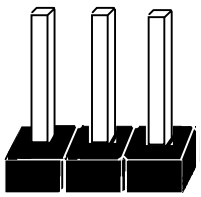
Jumpers and caps



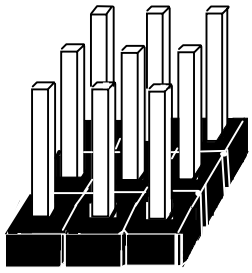
Jumper cap



2-Pin Jumper



3-Pin Jumper

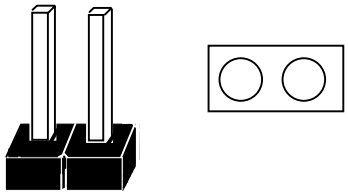


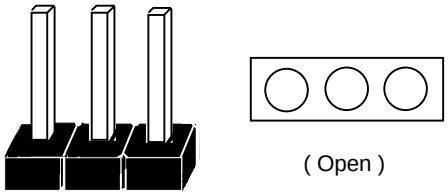
Jumper block

Most jumper setting are printed on the board in a stylized bird's-eye view, with which pins to connect for each setting marked by a bar connecting two pins. For example, if a jumper has three pins, connecting or "shorting", the first and second pins creates one setting and shorting the second and third pins creates another. The same type of diagrams are used in this manual. The jumpers are always shown from the same point of view as shown in the whole board diagram in this chapter.

Jumpers diagrams

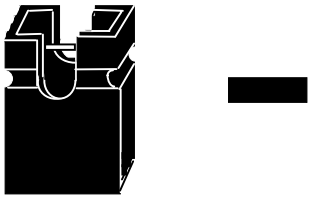
Jumpers are shown like this



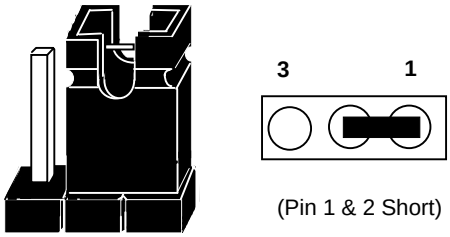


(Open)

Jumper caps like this



Jumper settings like this



(Pin 1 & 2 Short)

2.1.1 CPU Type Selector : JP1

CPU Type	System CLK	1- 2	3- 4	5- 6	7- 8
233MHz	66MHz x 3.5	C	O	O	C
266MHz	66MHz x 4	O	C	C	C
300MHz	66MHz x 4.5	O	C	O	C

"O" = Open, "C" = Close.

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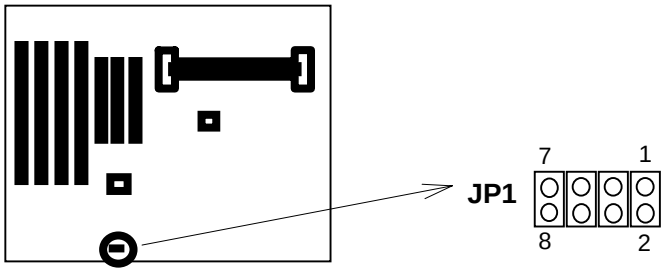
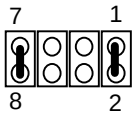
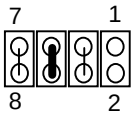


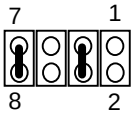
(a) 233 MHz CPU



(b) 266 MHz CPU

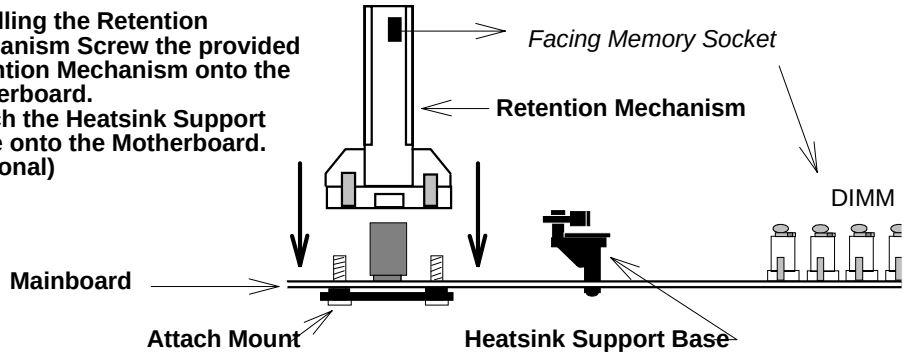


(c) 300 MHz CPU



Installing the Pentium II CPU

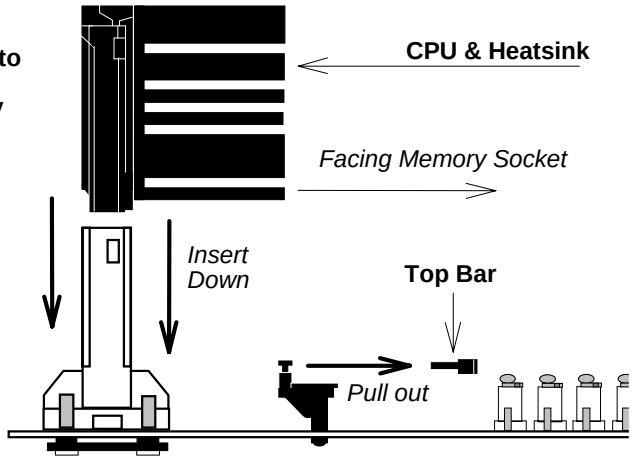
Step 1: **(1) Installing the Retention Mechanism Screw the provided Retention Mechanism onto the Motherboard.**
(2) Attach the Heatsink Support Base onto the Motherboard. (optional)



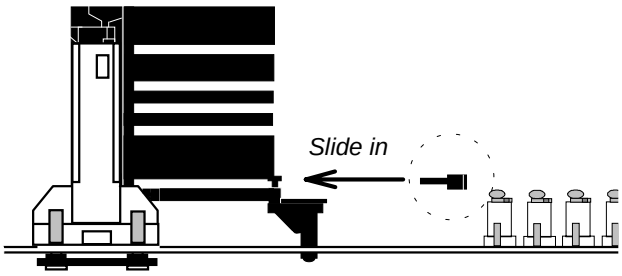
Step 2:

(1) Insert the Pentium II CPU into the Retention Mechanism. Making sure the CPU is fully inserted into the CPU Slot, and the Heatsink is facing the memory Sockets.

(2) Snap the Top Bar onto the rigid pins of the Heatsink Support Base. (optional)



Step 3: **Slide the Top Bar into the Heatsink and Lock it. (optional)**



∗ **(optional)** : If Pentium II CPU come with Large Heatsink.

2.1.2. ATX Power ON/OFF Switch : POWER

1. If "Soft-Off by PWR-BTTN" of Power Management Setup is setted to "Instant Off"

   When the system is OFF, press This button system will ON.
   To turn the system OFF, press this button again.
   (The Switch connect to a two-pin push bottom.)

2. If "Soft-Off by PWR-BTTN" of Power Management Setup is setted to "Delay 4 sec."

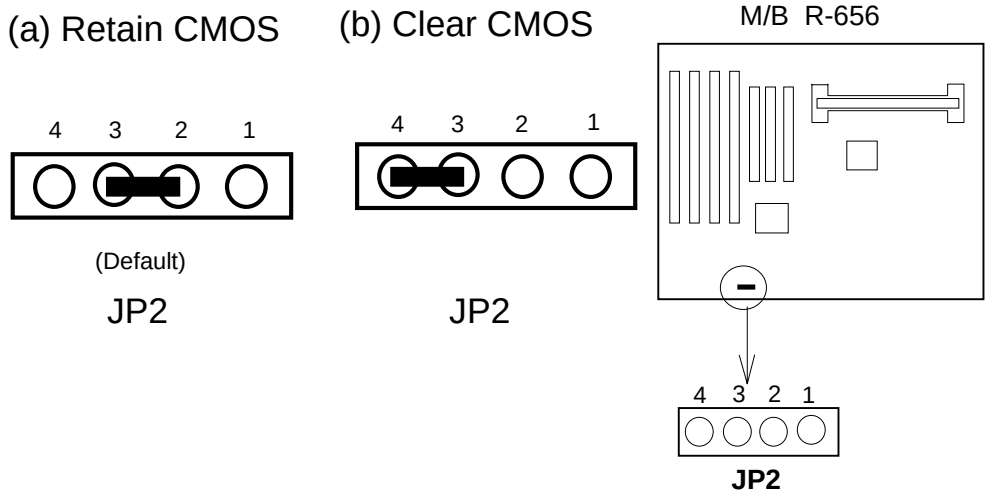
   When the system is OFF, press This button system will ON.
   Press this button again, system will enter to Suspend Mode, then press this button and hold for 4 second, the system will OFF.

Note: Please make sure the AC Power Switch which on the Power Supply already switch to ON.(If your Power Supply have AC Power Switch)

2.1.3. CMOS Clear Jumper : JP2

Clear the CMOS memory by momentarily shorting this Jumper; then Open the Jumper to retain new setting.

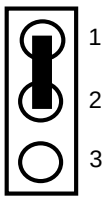
Function	JP2
Retain CMOS Data (default)	2-3
Clear CMOS data	3-4



2.1.4. Flash EPROM Voltage Selector : JP3.

EPROM Voltage Mode	JP3
+5V Flash ROM (default)	1-2
+12V Flash ROM	2-3

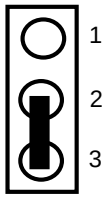
(a) 5V Flash ROM



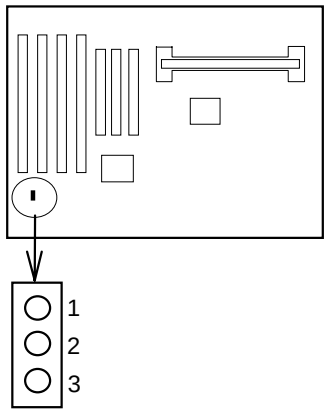
(Default)

JP3

(b) 12V Flash ROM



JP3



How to Update BIOS (Flash ROM)

1. Copy the Flash Utility to a bootable diskette.
   AWDFLASH.EXE : for AWARD BIOS.
   AMIFLASH.COM : for AMI BIOS.

2. Copy the new bios file to the diskette.
   ∗.BIN : is AWARD BIOS.
   ∗.ROM : is AMI BIOS.

3. Turn the power off and set the JP3 to select Flash EPROMs Voltage Mode.

	JP3
+5V Flash ROM	1-2
+12V Flash ROM	2-3

4. Turn the system on and run the Flash utility.

5. Follow the promp and input the file name.

6. Save the old BIOS and when prompt to program hit " Y ".

7. After the BIOS is Flash, turn off the system and clear the CMOS.

2.1.5. Upgrading System Memory

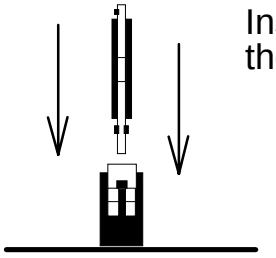
The R656 mainboard can use 4- 168pin SDRAM DIMM and the system memory can be upgraded from 8MB to 512MB, or the mainboard can use 4-168pin 3.3v EDO/FP DIMM and the system memory can upgraded from 8MB to 1GB.

Each of module can be either single or double-sided.

DRAM TYPE	:	3.3v 168pin Fast Page Mode(FP) or Extended Data Output(EDO) or BEDO Mode or SDRAM.
DRAM Speed	:	60ns or faster.
Parity	:	Either parity or non-parity. (Require Parity Memory to Support ECC)

Installing a DIMM Module

A.



Insert the DIMM module into the socket at an angle.

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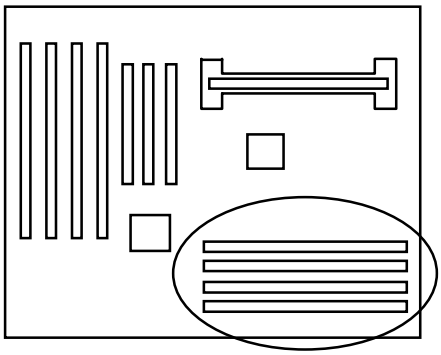
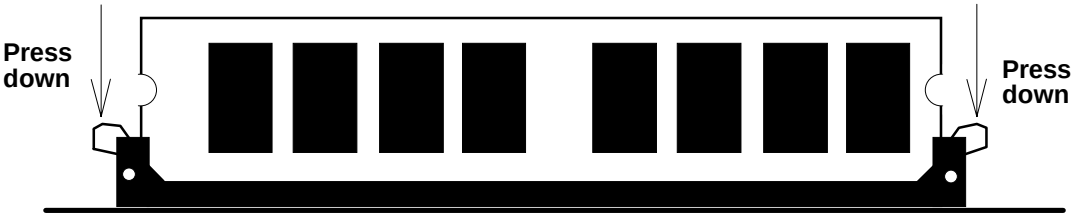


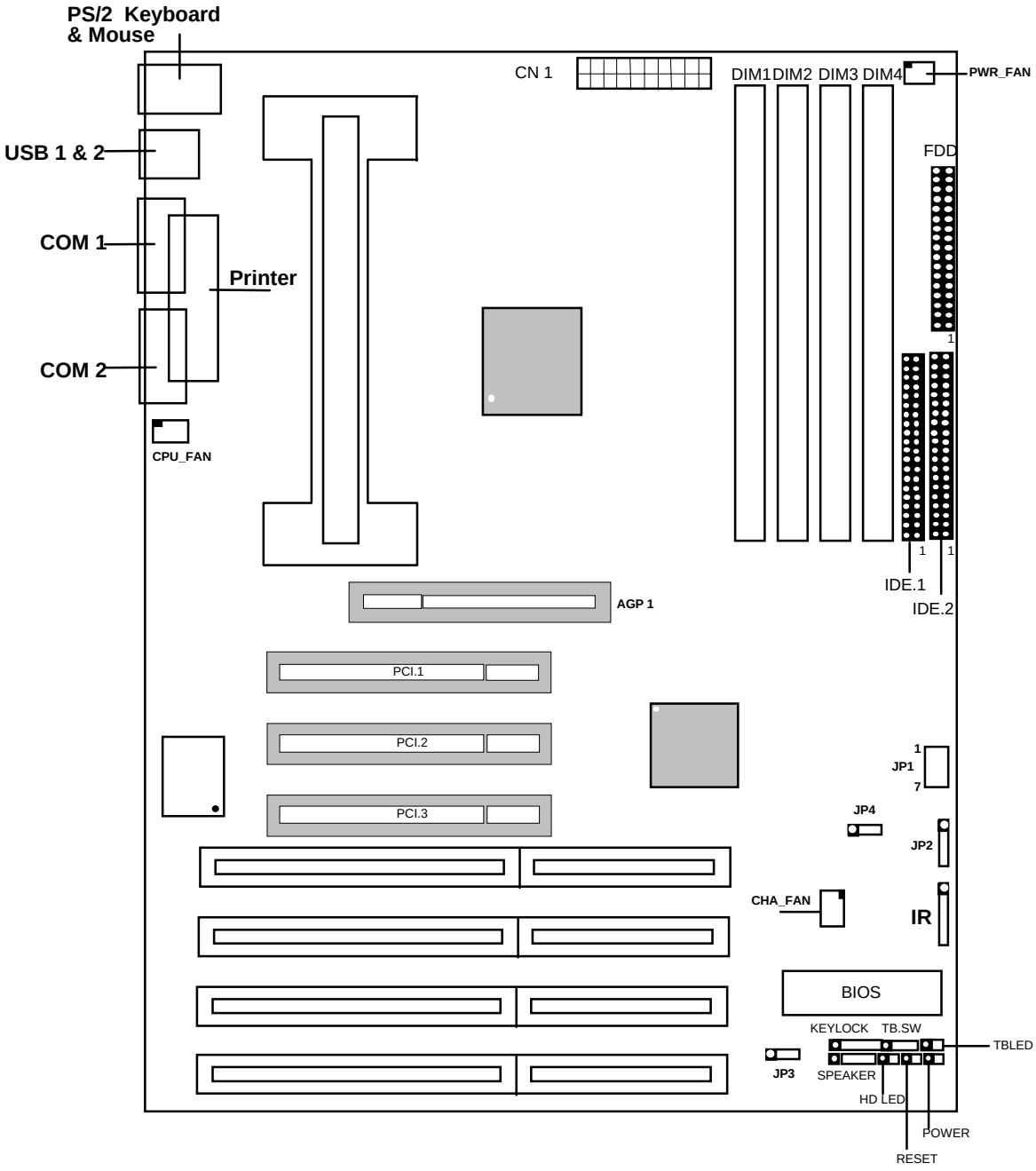
B. Put out the DIMM module from the DIMM socket.

DIMM

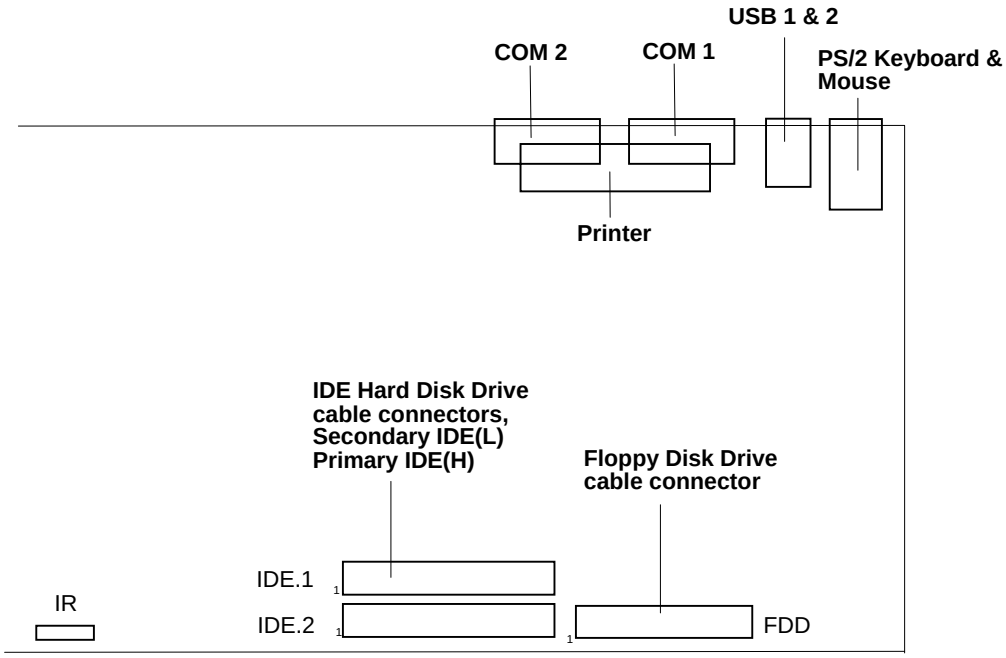


2.2. Connectors

The Connectors are made of the same component as the jumper switchs. There are connectors for the switchs and indicator lights from the system case. There are also connectors for the on-board I/O port and the leads from a system power supply.



2.2.1 I/O Ports .



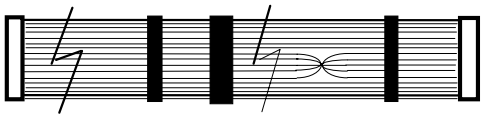
When you connect a ribbon cable to any of these I/O connectors, you must orient the cable connector so that the Pin 1 edge of the cable is at the Pin 1 end of the on-board connector.

The pin 1 edge of the ribbon cable is colored to indentify it.

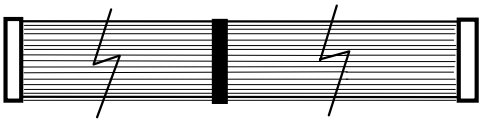
Port & Controller Cables

The mainboard comes with One IDE ribbon connector cable and One Floppy Disk drive ribbon connector cable.
The COM1, COM2 and LPT with D-Type Connector On-board.

(1) Floppy Drive ribbon cable



(3) IDE Drive ribbon cable



2.2.2 External Connections

There are several connectors on the system board for switches and indicator lights from the system case. The connectors are made of the same components as the jumper switches.

KEYLOCK Connector for both a case-mounted lock and a Power-On LED.

SPEAKER Connector for the lead from a speaker mounted inside the system case.

RESET Connector for the lead from a Reset switch mounted on the system case.

TBSW Connector for the lead from a turbo-switch mounted on the system case.

TBLED Connector for the lead from a turbo-LED mounted on the system case.

SUSPEND Conntctor for the lead from a case-mounted Suspend switch. (Option)

HD LED Connector for IDE activity LED.

CN1 ATX Form Power Supply Connector.

POWER ATX Power ON/OFF Switch. (refer Page 2-5)

USB1, USB2 Two USB ports connector.

Pin assignment of the USB Connectors as following :

USB 1	Pin Name
Pin 1	SBV0
Pin 2	-SBD0
Pin 3	+SBD0
Pin 4	SBG0

USB 2	Pin Name
Pin 1	SBV1
Pin 2	-SBD1
Pin 3	+SBD1
Pin 4	SBG1

IR IR Connector.

Pin assignment :

Pin Number	Pin Name
Pin 1	+ 5V
Pin 2	------
Pin 3	IR RxL
Pin 4	GND
Pin 5	IRTX

3. BIOS Setup

The mainboard's BIOS setup program is the ROM PCI/ISA BIOS from Award Software Inc. Enter the Award BIOS program's Main Menu as follows:

1. Turn on or reboot the system. After a series of diagnostic checks, you are asked to press DEL to enter Setup.

2. Press the <DEL> key to enter the Award BIOS program and the main screen appear:

ROM PCI/ISA BIOS (2A69JR09)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	SUPERVISOR PASSWORD
BIOS FEATURES SETUP	USER PASSWORD
CHIPSET FEATURES SETUP	IDE HDD AUTO DETECTION
POWER MANAGEMENT SETUP	SAVE & EXIT SETUP
PNP / PCI CONFIGURATION	EXIT WITHOUT SAVING
INTEGATED PERIPHERALS	
LOAD SETUP DEFAULTS	
Esc: Quit	↑↓→← : Select Item
F10: Save & Exit Setup	(Shift)F2: Change Color
Onboard I/O, IRQ,	DMA Assignment...

3. Chose an option and press <Enter>. Modify the system parameters to reflect the options installed in the system. (See the following sections.)

4. Press <ESC> at anytime to return to the Main Menu.

5. In the Main Menu, choose "SAVE AND EXIT SETUP" to save your changes and reboot the system. Choosing "EXIT WITHOUT SAVING" ignores your changes and exits the program.

The Main Menu options of the Award BIOS are described in the sections that follow.

【3】

3.1 Standard CMOS Setup

Run the Standard CMOS Setup as follows.

1. Choose "STANDARD CMOS SETUP" from the Main Menu. A screen appears.

ROM PCI/ISA BIOS (2A69JR09)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC

Date (mm:dd:yy) : Tue, Aug.12 1997
Time (hh:mm:ss) : 7:30:33

HARD DISK	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master :	Auto	0	0	0	0	0	0	Auto
Primary Slave :	Auto	0	0	0	0	0	0	Auto
Secondary Master :	Auto	0	0	0	0	0	0	Auto
Secondary Slave :	Auto	0	0	0	0	0	0	Auto

Drive A: 1.44M, 3.5 in.
Drive B: None

Video : EGA/VGA
Halt On: All Errors

Base Memory :	640K	
Extended Memory :	31744K	
Other Memory :	384K	
Total Memory	32768K	

ESC:Quit ↑↓→← :Select Item PU/PD/+/- :Modify
F11:Help (Shift)F2 :Change Color

2. Use arrow keys to move between items and select values. Modify selected fields using PgUg/PgDn/+/- keys. Some fields let you enter values directly.

Date (mm/dd/yy) Type the current date.
Time (hh/mm/ss) Type the current time.
Primary (Secondary) Master & Slave Choose from the standard hard disk types 1 to 46. Type 47 is user definable. If a hard disk is not installed choose "None".
Drive A & B Choose 360KB, 5 1/4"
1.2MB, 5 1/4"
720KB, 3 1/2"
1.4MB, 3 1/2" (Default),
2.88MB, 3 1/2" or
None
Video Choose
VGA/EGA (Default),
CGA 40
CGA 80
Mono

3. When you finish, press the <ESC> key to return to the Main Menu.

3.2 BIOS Features Setup

Run the BIOS Features Setup as follows.

1. Choose "BIOS FEATURES SETUP" from the Main Menu and a screen with a list of items appears. (The screen below shows the BIOS default settings.)

ROM PCI/ISA BIOS (2A69JR09)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video Bios Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000-CFFFF Shadow	: Disabled
Quick Power on Self Test	: Enabled	D0000-D3FFF Shadow	: Disabled
Boot Sequence	: C,A,SCSI	D4000-D7FFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	D8000-DBFFF Shadow	: Disabled
Boot Up Floppy Seek	: Enabled	DC000-DFFFF Shadow	: Disabled
Boot Up Numlock Status	: On		
Gate A20 Option	: Fast		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup		
PS/2 mouse function control	: Enabled		
PCI/VGA Palette Snoop	: Disabled	ESC: Quit	↑ ↓ → ← : Select Item
Assign IRQ For VGA	: Disabled	F1 : Help	PU/PD/+/- : Modify
OS Select For DRAM > 64MB	: Non-OS2	F5 : Old Values	(Shift)F2 : Color
Report No FDD For WIN 95	: No	F7 : Load Setup Defaults	

2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUg/PgDn/+/- keys. <F> keys are explained below:

<F1>: "Help" gives options available for each item.

Shift<F2>: Change color.

<F5>: Get the old values. These values are the values with which the user stanted the current session.

<F6>: Load all options with the BIOS Setup default values.

<F7>: Load all options with the Power-On default values.

A short description of screen items follows:

CPU Internal Cache	This option enables/desables the CPU's internal cache. (The Default setting is Enabled.)
External Cache	This option enables/disables the external cache memory. (The Default setting is Enabled.)
Quick Power On Self Test	Enabled provides a Fast POST at boot-up.
Boot Sequence	The default setting attempts to first boot from drive C:then from Floppy drive A: and then from SCSI. other boot sequence are A, C, SCSI -- C,CDROM, A -- CDROM, C,A --D, A, SCSI -- E, A, SCSI -- F, A, SCSI -- SCSI, A,C --SCSI, C, A -- C only.
Swap Floppy Drive	Enabled changes the sequence of the A: and B: drives. (The Default setting is Disabled.)
Boot Up Num Lock Status	Choose On or Off. On puts numeric keypad in Num Lock mode at boot-up. Off puts this keypad in arrow key mode at boot-up.
Gate A20 Option	Choose Fast (default) or Normal. Fast allows RAM accesses above 1MB using the fast gate A20 line.
Typematic Rate Setting	Enable this option to adjust the keystroke repeat rate.
Typematic Rate (Chars/Sec)	Choose the rate a character keeps repeating.

Typematic Rate (Msec)	Choose how long after you press a key that a character begins repeating.
Security Option	Choose Setup or System. Use this feature to prevent unauthorized system boot-up or use of BIOS Setup. "System"-Each time the system is booted the passward prompt appears. "Setup"- If a passward is set, The passeord Prompt only appears if you attempt to enter the Setup program.
PS/2 mouse function Control	Select Enabled(default), or disabled, depending on the type of mouse installed in your system. If PS/2 mouse is installed, select Enabled to activate it.
PCI/VGA Palette Snoop	Enable : The color of the monitor may be incorrect if uses with MPEG card. Enable this option to make the monitor normal. Disable: Default setting.
Assign IRQ for VGA	Select Disabled, BIOS will not Assign IRQ for VGA. Default set Disabled.
OS Select for DRAM > 64MB	OS2: Choosing this when you are using OS/2 operation system. Non-OS/2: Choosing this when you are using no-OS/2 operation system.
Report No FDD for WIN 95	Select No(default) or Yes, Select Yes only when submitting your system to Microsoft Lab for testing.
Video or Adapter BIOS Shadow	BIOS shadow copies BIOS code from slower ROM to faster RAM. BIOS can then execute from RAM.16K segments can be shadowed from ROM to RAM. BIOS is shadowed in a 16K segment if it is enable and it has BIOS present.

3. After you have finished with the BIOS Features Setup program, Press the <ESC> key and follow the screen instructions to save or disregard your settings.

3.3 Chipset Features Setup

ROM PCI/ISA BIOS (2A69JR09)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration : Enabled	SDRAM CAS latency Time : 3
DRAM Speed Selection : 60ns	Auto Detect DIMM/PCI Clk : Enabled
MA Wait State : Slow	Spread Spectrum Modulated: Disabled
EDO RAS# To CAS# Delay : 3	CPU Clock Frequency : 66 MHz
EDO RAS# Precharge Time : 3	Current System Temp. : 22°C / 71°F
EDO DRAM Read Burst : x333	Current CHA_FAN Speed : 0 RPM
EDO DRAM Write Burst : x222	Current PWR_FAN Speed : 0 RPM
DRAM Data Integrity Mode : Non-ECC	Current CPU_FAN Speed : 0 RPM
CPU-To-PCI IDE Posting : Enabled	IN0(V) : 2.73 V IN1 (V) : 1.52 V
System BIOS Cacheable : Disabled	IN2(V) : 3.36 V IN3 (V) : 5.09 V
Video BIOS Cacheable : Disabled	IN4(V) : 11.98 V IN5 (V) : -11.91 V
Video RAM Cacheable : Disabled	IN6(V) :- 4.99 V
8 Bit I/O Recovery Time : 1	
16 Bit I/O Recovery Time : 1	
Memory Hole At 15M-16M : Disabled	
Passive Release : Enabled	ESC : Quit ↑↓→← : Select Item
Delayed Transaction : Disabled	F1 : Help PU/PD/+/- : Modify
AGP Aperture Size (MB) : 64	F5 : Old Values (Shift) F2 : Color
SDRAM RAS-to-CAS Delay : Slow	F7 : Load Setup Defaults
SDRAM RAS Precharge Time : Slow	

ADVANCED OPTIONS. The parameters in this screen are for system designers, service personnel, and technically competent users only. Do not reset these values unless you understand the consequences of your changes.

NOTE: This chapter describes all fields offered by Award Software in this screen. Your system board designer may omit or modify some fields.

Auto Configuration Auto Configuration selects predetermined optimal vaules of chipset parameters. When Disabled, chipset parameters revert to setup information stored in CMOS. Many fields in this screen are not available when Auto Configuration is Enabled.

The Choice: Enabled, Disabled.

DRAM Speed Selection

The DRAM timing is controlled by the DRAM timing Registers. The timings programmed into this register are dependent on the system design. Slower rates may be required in certain system designs to support loose layouts or slower memory.

50ns	DRAM Timing Type.
60ns	DRAM Timing Type.

MA Wait State

This item allows you to select MA Wait State.

The Choice: Fast, Slow.

EDO RAS# To CAS# Delay

This sets the relative delay between the row and column address strobes from DRAM (EDO).

The Choice: 2, 3.

EDO RAS# Precharge Time

Defines the length of time for Row Address Strobe from DRAM (EDO) is allowed to precharge.

The Choice: 3, 4.

EDO DRAM Read Burst(EDO).

This sets the timing for burst mode reads from DRAM Burst read and write request are generated by the CPU in four separate parts. The lower the timing numbers, the faster the system will address memory.

x222	Read DRAM(EDO) timings are 2-2-2
x333	Read DRAM(EDO) timings are 3-3-3

EDO DRAM Write Burst

This sets the timing for burst mode writes from DRAM (EDO). Burst read and write requests are generated by the CPU in four separate parts. The lower the timing numbers, the faster the system will address memory.

x222	Write DRAM timings are 2-2-2-2
x333	Write DRAM timings are 3-3-3-3

DRAM Data Integrity Mode

Select Parity, ECC, or Non-ECC, depending on the type of DRAM installed in your system.

The Choice: ECC, Non-ECC.

CPU-To-PCI IDE Posting

Select Enabled to post write cycles from the CPU to the PCI IDE interface. IDE accesses areposted in the CPU to PCI buffers, for cycle optimization.

The Choice: Enabled, Disabled.

Cache Features

System BIOS Cacheable

Select Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Enabled	BIOS access cached
Disabled	BIOS access not cached

Video BIOS Cacheable

Select Enabled allows caching of the video BIOS ROM at C0000-C8000F, resulting in better system performance. However, if any program writes to this memory area, a ystem error may result.

Enabled	Video BIOS access cached
Disabled	Video BIOS access not cached

Video RAM Cacheable

Select Enabled allows caching of the Video RAM, resulting in better system performance.

Enabled	Video RAM access cached
Disabled	Video RAM access not cached

AGP Aperture Size (MB)

This sets the size for AGP Aperture.

The Choice: 4, 8, 16, 32, 64,128, 256.

SDRAM RAS-to-CAS Delay	Select Fast rate may be require faster memories. The Choice: Slow, Fast
SDRAM RAS Precharge Time	Select Fast rate may be require faster memories. The Choice: Slow Fast
SDRAM CAS latency Time	Set CAS latency used for all SDRAM cycles. The Choice: 2, 3
Spread Spectrum Modulated	Select Enabled to Activate Spread Spectrum Modulated. The Choice: Enabled, Disabled.
CPU Clock Frequency	This setting is using for over clocking, if the system can not be booted after the setting, please turn off power and clear CMOS. And turn on the power, then set CMOS again. The Choice: 60MHz, 66MHz, 75MHz, 83MHz

Following list items will not appear if the M/B LM78 option IC does not load.

Current System Temp : 22° C / 71° F
Current CHA_FAN Speed : 0 RPM
Current PWR_FAN Speed : 0 RPM
Current CPU_FAN Speed : 0 RPM
IN 0 (V) : 2.73 V IN 1 (V) : 1.52 V
IN 2 (V) : 3.36 V IN 3 (V) : 5.09 V
IN 4 (V) : 11.98 V IN 5 (V) :-11.91 V
IN 6 (V) : - 4.99 V

Above are only for example, your system may be show different. It depends on your power supply and peripherals loads.

PCI and IDE Configuration

8 Bit I/O Recovery Time

The recovery time is the length of time, measured in CPU clocks, which the system will delay after the completion of an input/output request. This delay takes place because the CPU is operating so much faster than the input/output bus that the CPU must be delayed to allow for the completion of the I/O.

This item allows you to determine the recovery time allowed for 8 bit I/O. Choices are from NA, 1 to 8 CPU clocks.

16 Bit I/O Recovery Time

This item allows you to determine the recovery time allowed for 16 bit I/O. Choise are from NA, 1 to 4 CPU clocks.

The Choice: Enabled, Disabled.

Memory Hole At 15M-16M

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16 MB.

Enabled	Memory hole supported
Disabled	Memory hole not supported

Passive Release

When Enabled, CPU to PCI bus accesses are allowed during passive release. Otherwise, the arbiter only accepts another PCI master access to local DRAM.

The Choice: Enabled, Disabled.

Delayed Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1.

The Choice: Enabled, Disabled.

3.4 Power Management Setup

The Power Management Setup allows you to configure you system to most effectively save energy while operating in a manner consistent with your own style of computer use.

ROM PCI/ISA BIOS (2A69JR09)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management : Disable	** Reload Global Timer Events **
PM Control by APM : Yes	IRQ[3-7, 9-15], NMI : Enabled
Video Off Method : V/H SYNC+Blank	Primary IDE 0 : Disabled
Video Off After : Standby	Primary IDE 1 : Disabled
MODEM Use IRQ : 3	Secondary IDE 0 : Disabled
	Secondary IDE 1 : Disabled
Doze Mode : Disable	Floppy Disk : Disabled
Standby Mode : Disable	Serial Port : Enabled
Suspend Mode : Disable	Parallel Port : Disabled
HDD Power Down : Disable	
Throttle Duty Cycle : 62.5%	
VGA Active Monitor : Enabled	
Soft-Off by PWR-BTTN : Instant-Off	
CPU Fan Off in Suspend: Enabled	ESC : Quit ↑↓→← : Select Item
Resume by Ring : Enabled	F1 : Help PU/PD/+/- : Modify
Resume by Alarm : Disabled	F5 : Old Values (Shift) F2 : Color
	F7 : Load Setup Defaults
IRQ 8 Clock Event : Disabled	

Power Management

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

a. Doze Mode

b. Standby Mode

c. Suspend Mode

e. HDD Power Down

There are four selections for Power Management, three of which have fixed mode settings.

Disable(default)	No power management. Disables all four modes
Min. Power Saving	Minimum power management. Doze Mode= 1 hr. Standby Mode= 1 hr., Suspend Mode = 1 hr., and HDD Power Down = 15 min.
Max. Power Saving	Maximum power management -- **ONLY AVAILABLE FOR SL CPU.** Doze Mode = 1 min., Standby Mode= 1 min., Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Defined	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

PM Control by APM When enabled, an advanced Power Management device will be activated to enhance to Max. Power Saving mode and stop the CPU internal clock.

If the Max. Power Saving is not enabled, this will be preset to No.

Video Off Method This determines the manner in which the monitor is blanked.

V/H SYNC + Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Initial display power management signaling.

Video Off After When enabled, this feature allows the VGA adapter to operate in a power saving mode.

N/A	Monitor will remain on during power saving modes.
Suspend	Monitor blanked when the systems enters the Suspend mode.
Standby	Monitor blanked when the system enters Standby mode.
Doze	Monitor blanked when the system enters any power saving mode.

MODEM Use IRQ Select IRQ # depends on your MODEM used.

The Choice: 3, 4, 5, 7, 9, 10 ,11, NA

PM Timers

The following four modes are Green PC power saving functions which are only user configurable when User Defined Power Management has been selected. See above for available selections.

Doze Mode When enabled and after the set time of system inactivity, the CPU clock will run at slower speed while all other devices still operate at full speed.

Standby Mode When enabled and after the set time of system inactivity, the fixed disk drive and the video would be shut off while all other devices still operate at full speed.

Suspend Mode When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

HDD Power Down When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

Throttle Duty Cycle Whe the system enters Doze mode, the CPU clock runs only part of the time. You may select the percent of time that the clock runs.

The Choice: 12.5%, 25.0%, 37.5%, 50.0%, 62.5%, 75.0%

VGA Active Monitor When Enabled, any video activity restarts the global timer for Standby mode.

The Choice: Enabled, Disabled.

Soft-Off by PWR_BTTN

Instant Off: Turn the power off immediately after booted OS.
Delay 4 sec. : Turn the power off Delay 4 second.

Note: Reference 2.1.2 ATX Power ON/OFF Switch

The Choice: Enabled, Disabled

Resume by Ring

Select Enabled to Activate Remote Power On when Modem Ring.

The Choice: Enabled.

Resume By Alarm

Select Enabled to Activate Alarm Power On .

Date (of month) Alarm

0 : every day
1~ 31 : day of month

Time (hh:mm:ss) Alarm

Auto power on time

Date and Time Alarm do not appear if Resume by Alarm field disabled.

Break Event From Suspend

IRQ 8 Clock Event

You can turn On or Off monitoring of IRQ 8 (the Real Time Clock) so it does not awaken the system from Suspend mode.

The Choice: Enabled, Disabled.

Reload Global Timer Events

When Enabled, an event occurring on each device listed below restarts the global time for Standby mode.

IRQ[3-7, 9-15], NMI
Primary IDE 0
Primary IDE 1
Secondary IDE 0
Secondary IDE 1
Floppy Disk
Serial Port
Parallel Port

3.5 PnP/PCI Configuration Setup

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

ROM PCI/ISA BIOS (2A69JR09)
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.

PNP OS Installed : No	PCI IDE IRQ Map To : PCI-AUTO
Resources Controlled By : Manual	Primary IDE INT# : A
Reset Configuration Data : Disabled	Secondary IDE INT# : B
IRQ-3 assigned to : Legacy ISA	Used MEM base addr : N/A
IRQ-4 assigned to : Legacy ISA	
IRQ-5 assigned to : PCI/ISA PnP	Assign IRQ For USB : Enabled
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 : PCI/ISA PnP	
IRQ-14 assigned to : Legacy ISA	
IRQ-15 assigned to : PCI/ISA PnP	
DMA-0 assigned to : PCI/ISA PnP	
DMA-1 assigned to : PCI/ISA PnP	
DMA-3 assigned to : PCI/ISA PnP	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

PnP OS Installed

Select Yes if the system operating environment is Plug-and-Play software (e.g., Windows 95).

The Choice: Yes and No.

Resource Controlled By

The Award Plug and Play BIOS can automatically configure all the boot and Plug and Play-compatible devices. If you select Auto, all the interrupt request (IRQ) and DMA assignment fields disappear, as the BIOS automatically assigns them.

The Choice: Auto and Manual.

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.

The Choice: Enabled and Disabled.

IRQ n Assigned to

When resources are controlled manually, assign each system interrupt as one of the following types, depending on the type of device using the interrupt:

Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt (such as IRQ4 for serial port 1).

PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

DMA n Assigned to

When resources are controlled manually, assign each system DMA channel as one of the following types, depending on the type of device using the interrupt:

Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific DMA channel

PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

PCI IDE IRQ Map to

This field lets you select PCI IDE IRQ mapping or PC AT (ISA) interrupts. If your system does not have one or two PCI IDE connectors on the system board, select values according to the type of IDE interface(s) installed in your system (PCI or ISA). Standard ISA interrupts for IDE channels are IRQ14 for primary and IRQ15 for secondary.

The Choice: PCI-SLOT1, PCI-SLOT2, PCI-SLOT3, PCI-SLOT4, ISA, PCI-AUTO

Primary/ Secondary

Each PCI peripheral connection is capable of activating up to four interrupts: INT# A, INT# B, INT# C and INT# D. By default, a PCI connection is assigned INT# A. Assigning INT# B has no meaning unless the peripheral device requires two interrupt services rather than just one. Because the PCI IDE interface in the chipset has two channels, it requires two interrupt services. The primary and secondary IDE INT# fields default to values appropriate for two PCI IDE channels, with the primary PCI IDE channel having a lower interrupt than the secondary.

Used MEM base addr

Select a base address for the memory area used by any peripheral that requires high memory.

The Choice: C800, CC00, D000, D400, D800, DC00, N/A.

Used MEM Length

Select a length for the memory area specified in the previous field. This Field does not appear if no base address is specified.

The Choice: 8K, 16K, 32K, 64K.

Assign IRQ for USB

Select Disabled, BIOS will not Assign IRQ for USB. Default set Enabled.

3.6 Integrated Peripherals

The Integrated Peripherals option changes the values of the Chipset registers. These registers control system options in the computer.

Note: Change these settings only if you are familear with the Chipset.

Run the Integrated Peripherals as follows.

1. Choose "Integrated Peripherals" from the Main Menu and the following screen appears. (The screen below shows default settings.)

ROM PCI/ISA BIOS (2A69JR09)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

IDE HDD Block Mode : Enabled	Onboard Parallel Port : 378/IRQ7
IDE Primary Master PIO : Auto	Parallel Port Mode : SPP
IDE Primary Slave PIO : Auto	
IDE Secondary Master PIO : Auto	
IDE Secondary Slave PIO : Auto	
IDE Primary Master UDMA : Auto	
IDE Primary Slave UDMA : Auto	
IDE Secondary Master UDMA : Auto	
IDE Secondary Slave UDMA : Auto	
On-Chip Primary PCI IDE : Enabled	
On-Chip Secondary PCI IDE : Enabled	
USB Keyboard Support : Disabled	
Onboard FDC Controller : Enabled	ESC : Quit ↑↓→← : Select Item
Onboard Serial Port 1 : Auto	F1 : Help PU/PD/+/- : Modify
Onboard Serial Port 2 : Auto	F5 : Old Values (Shift) F2 : Color
UART 2 Mode Select : Normal	F7 : Load Setup Defaults

2. Use the arrow keys to move between items and select values. Modify selected fields using the PgUp/PgDn/+/- keys.

A short description of screen items follows:

IDE HDD Block Mode — Choose Enabled (default) or Disabled. Enabled invokes multi-sector transfer instead of one sector per transfer. Not all HDDs support this function.

IDE Primary Master PIO
IDE Primary Slave PIO
IDE Secondary Master PIO
IDE Secondary Slave PIO
IDE Primary Master UDMA — Choose Auto (default) or mode 0-4 & Ultra DMA Mode 0 is the slowest speed, and HDD mode 4 is the fastest speed. For better performance and we stability, suggest you use the Auto setting to set the HDD control timing.

IDE Primary Slave UDMA
IDE Secondary Master UDMA
IDE Secondary Slave UDMA

On-Chip Primary PCI IDE Enable: Use the on-board IDE (default)

On-Chip Secondary PCI IDE Disable: Turn off the on-board IDE.

USB Keyboard Support Select Enabled if system use USB Keyboard.

Onboard FDD Controller Enable: Use the on-board floppy controller (default).
Disable: Turn off the on-board floppy controller

Onboard Serial Port 1 Choose Serial port 1 & 2's I/O address. Do not
Onboard Serial Port 2 set port 1 & 2 to the same value except for Disabled.

Onboard Parallel Port Choose the printer I/O address:
378H/IRQ7(default), 278H/IRQ5, 3BCH/IRQ7.

UART 2 Mode Select Select normal for onboard Serial port 2 operation.

ECP Mode Use DMA If Parallel Port Mode item is set ECP or ECP + EPP this item will present. Choose DMA Channel 3 (default) or 1 for ECP Mode.

3. After you have finished with the Integrated Peripherals, press the <ESC> key and follow the screen instructions to save or disregard your settings.

3.7 Load Setup Detaults

This item loads the system values you have pereviously saved.
Choose this item and the following message appears:

"Load SETUP Defaults (Y/N)? N"

To use the SETUP defaults, change the prompt to "Y" and press <Enter>.

This item is recommended if you need to reset the system setup.

3.8 Supervisor Password

Base on the setting you made in the "security Option" of the "BIOS FEATURES SETUP", This Main Menu item lets you configure the system so that a password is required every time the system boots or an attempt is made to enter the Setup program. Change the password as follows:

1. Choose "SUPERVISOR PASSWORD " in the Main Menu and Press <Enter>.
   The following message appears:

   "Enter Password:"

2. Enter a password and press <Enter>.
   (If you do not wish to use the password function, you can just press <Enter> and a "Password disabled" message appears.)

3. After you enter your password, the following message appears prompting you to confirm the new passward:

   "Confirm Password"

4. Re-enter your password and then Press <ESC> to exit to the Main Menu.

5. You have the right to change any changeable settings in the "COMS SETUP UTILITY."

Important : If you forget or lose the password, the only way to access the system is to set jumper JP38 to clear the CMOS RAM. all setup information is lost and you must run the BIOS setup program again.

3.9 User Password

Base on the setting you made in the "security Option" of the "BIOS FEATURES SETUP", This Main Menu item lets you configure the system so that a password is required every time the system boots or an attempt is made to enter the Setup program. Change the password as follows:

1. Choose "USER PASSWORD " in the Main Menu and Press <Enter>.
   The following message appears:

   "Enter Password:"

2. Enter a password and press <Enter>.
   (If you do not wish to use the password function, you can just press <Enter> and a "Password disabled" message appears.)

3. After you enter your password, the following message appears prompting you to confirm the new passward:

   "Confirm Password"

4. Re-enter your password and then Press <ESC> to exit to the Main Menu.

5. You are not allowed to change any settings in the "COMS SETUP UTILITY." except change user's password.

Important : If you forget or lose the password, the only way to access the system is to set jumper JP38 to clear the CMOS RAM. all setup information is lost and you must run the BIOS setup program again.

3.10 IDE HDD Auto Detection

This Main Menu item automatically detects the hard disk type and configures the STANDARD CMOS SETUP accordingly.

Note: This function is only valid for **IDE** hard disks.

ROM PCI/ISA BIOS (2A69JR09)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

HARD DISK	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	:None	0	0	0	0	0	0	0
Primary Slave	:None	0	0	0	0	0	0	0
Secondary Master	:None	0	0	0	0	0	0	0
Secondary Slave	:None	0	0	0	0	0	0	0

Do your accept this drive C (Y/N)?N

ESC : Skip