6EX

USER'S MANUAL

1   System power on by PS/2 Mouse: If you are using ATX power supply, you are able to power on the system by double clicking any button of your PS/2 Mouse.
2   System power on by Keyboard: If your ATX power supply supports 720 mA 5V Stand-By function, you can choose to power on your system by entering password and then pressing the ENTER key from your keyboard.
3   Support 3 steps ACPI LED.

Pentiumsymbol 226 \f "Symbol" \s 9®} **II Processor MAINBOARD**[1]
REV. 1 Second Edition

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

Third-party brands and names are the property of their respective owners.

April 30, 1998 Taipei, Taiwan

I. Quick Installation Guide :

CPU SPEED SETUP

The default system bus speed is 66.6MHz. The user can select the system bus speed (JP2, JP3, JP4) and change the DIP SWITCH (SW) selection to set up the CPU speed for 200 - 633MHz 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.**
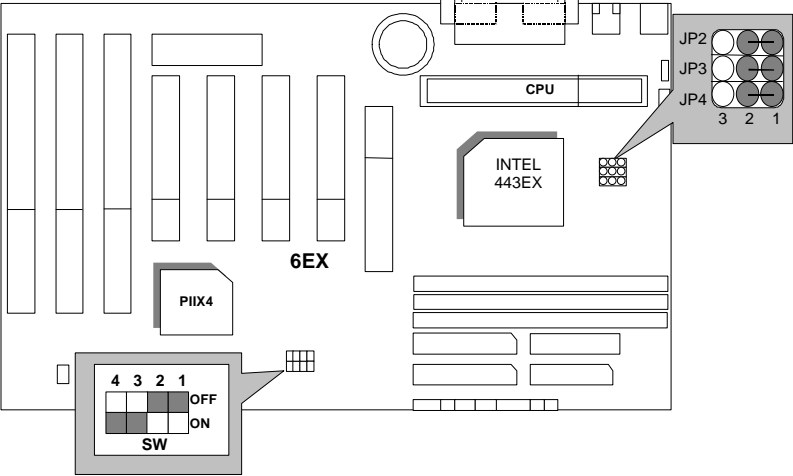
FREQ. RATIO	DIP SWITCH (SW)			
	SW1	**SW2**	**SW3**	**SW4**
X 3	ON	OFF	ON	ON
X 3.5	OFF	OFF	ON	ON

X 4	ON	ON	OFF	ON
X 4.5	OFF	ON	OFF	ON
X 5	ON	OFF	OFF	ON
X 5.5	OFF	OFF	OFF	ON

♠※**JP2, JP3, JP4** (Select the system speed66.6 MHz)

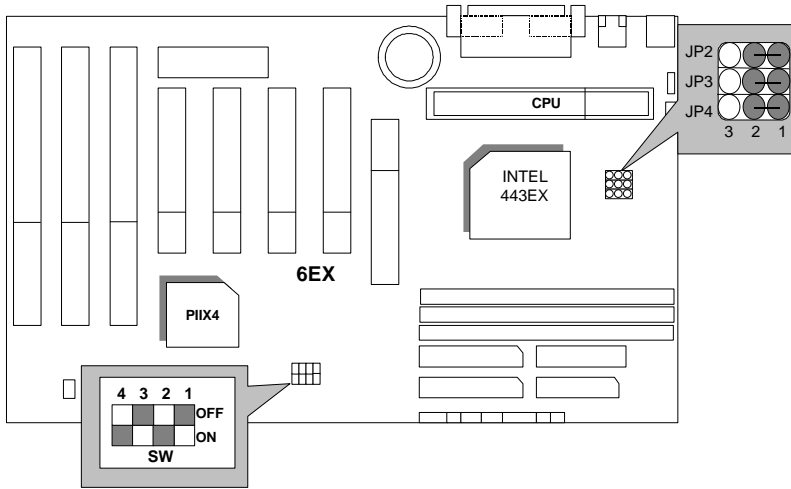| MAIN CLOCK	JP2	JP3	JP4
66MHz	1-2	1-2	1-2

1.**Pentium**symbol 226 \f "Symbol" \s 10®**} II 233 / 66MHz FSB**
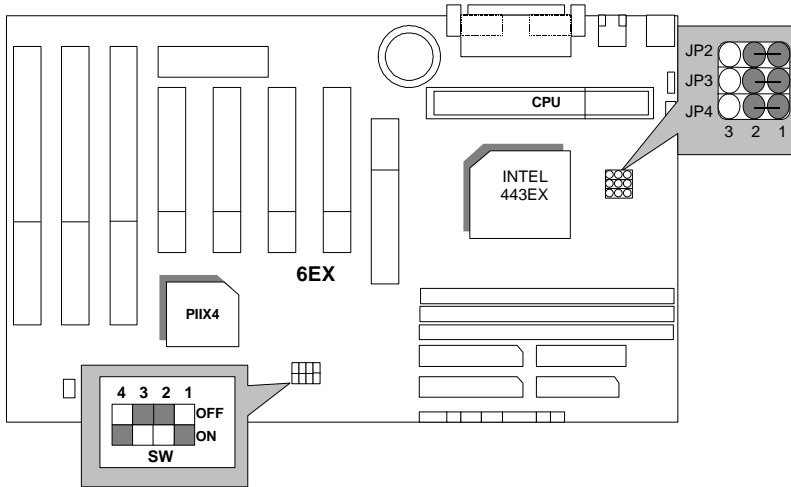

2. **Pentium**symbol 226 \f "Symbol" \s 10®**} II 266 / 66MHz FSB**
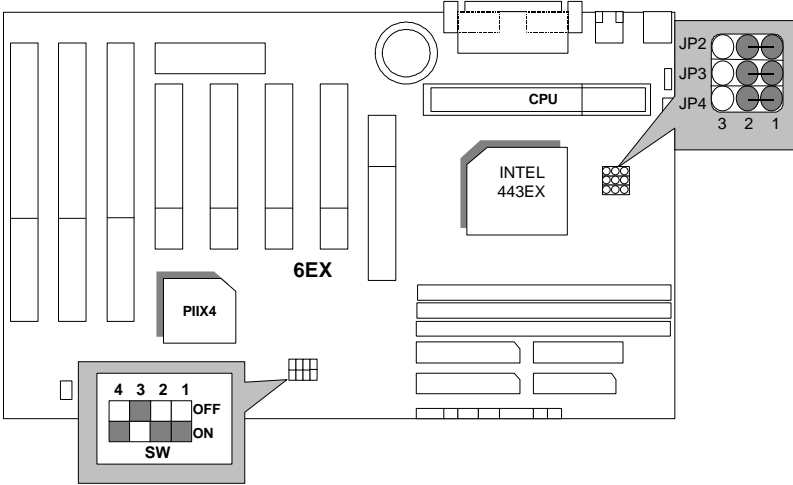
3. Pentium*symbol 226 \f "Symbol" \s 10®}* II 300 / 66MHz FSB

4. Pentium*symbol 226 \f "Symbol" \s 10®}* II 333 / 66MHz FSB

5. Pentium*symbol 226 \f "Symbol" \s 10®}* II 366 / 66MHz FSB

JP2
JP3
JP4
3 2 1

CPU

INTEL
443EX

6EX

PIIX4

4 3 2 1
OFF
ON
SW
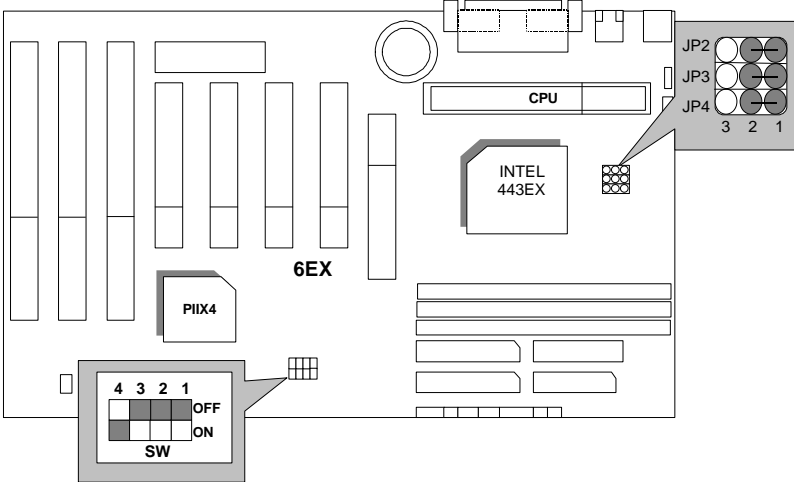
II. Jumper setting :

SPK : Speaker Connector

CPU

INTEL
443EX

6EX

PIIX4

Pin No.	Function
1	VCC (+)
2	NC
3	NC
4	Data (-)

1
+ -

1

RST : Reset Switch

CPU

INTEL
443EX

6EX

PIIX4

Open:
Normal operation

Short:
**For Hardware
Reset System**

PWR : Power LED

Pin No.	Function
1	LED anode (+)
2	LED cathode (-)
3	LED cathode (-)

Pin No.	Function
1	LED anode (+)
2	NC
3	LED cathode (-)

HD : IDE Hard Disk Active LED

Pin No.	Function
1	LED anode (+)
2	LED cathode (-)
3	LED cathode (-)
4	LED anode (+)

Pin No.	Function
1	LED anode (+)
2	LED cathode (-)
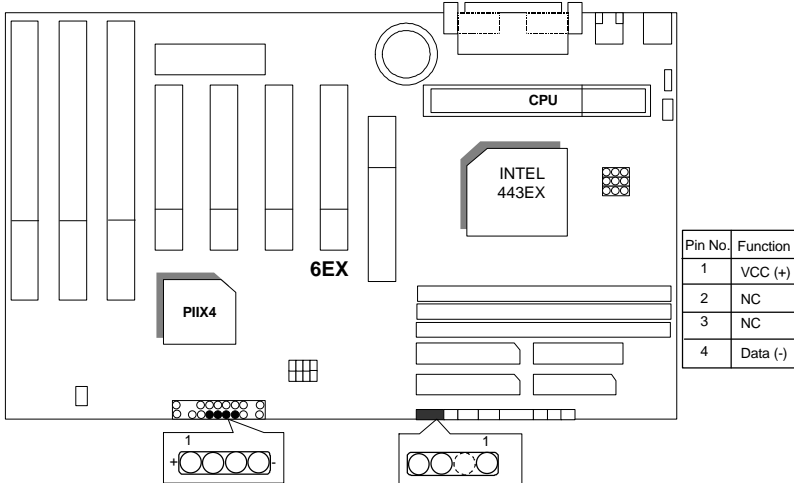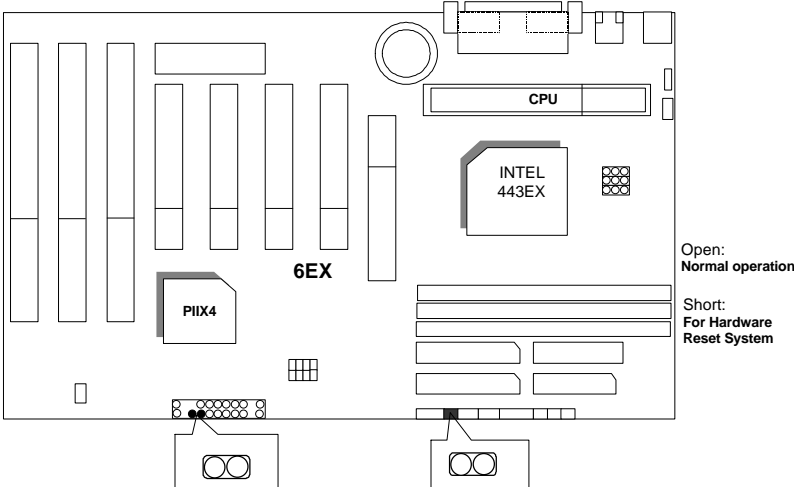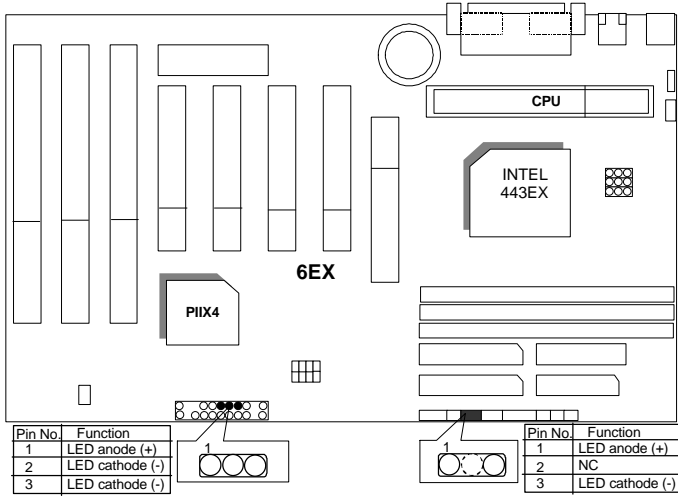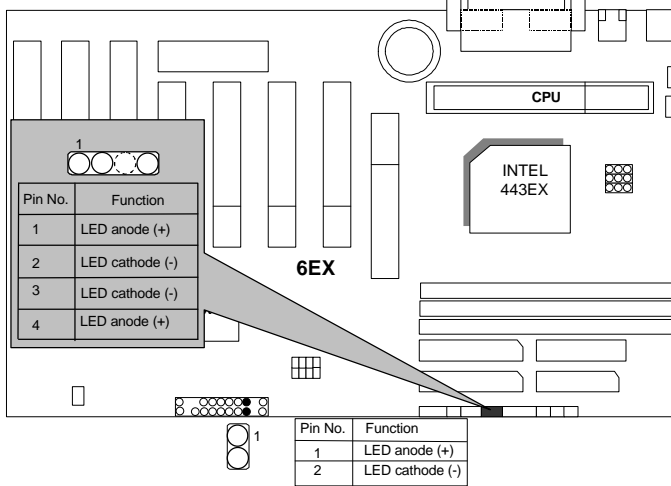
IR : Infrared Connector (Optional)

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

GN : Green Function Switch

Open:
Normal operation

Short:
Entering Green Mode.

GD : Green LED

PIN1:LED Anode (+)

PIN2:LED Cathode(-)

Soft PWR : Soft Power Connector

Open:
Normal
operation

Short:
Power On/Off
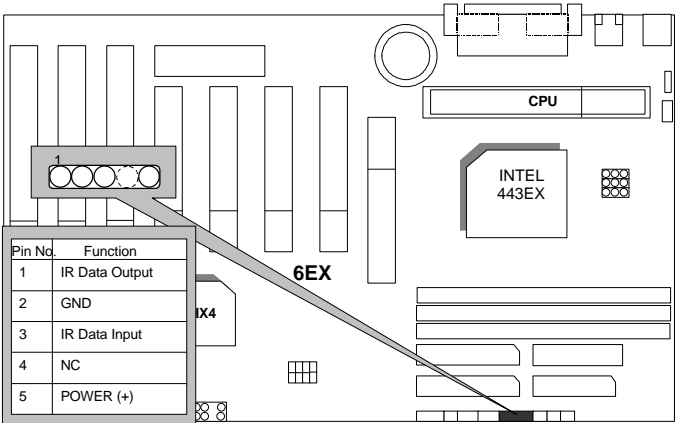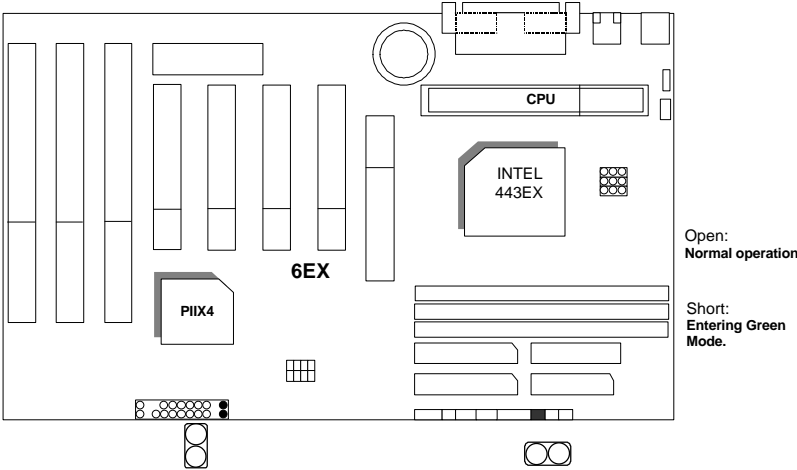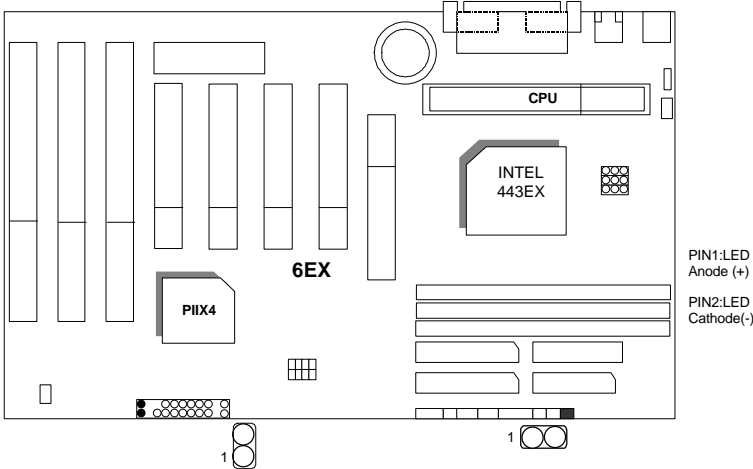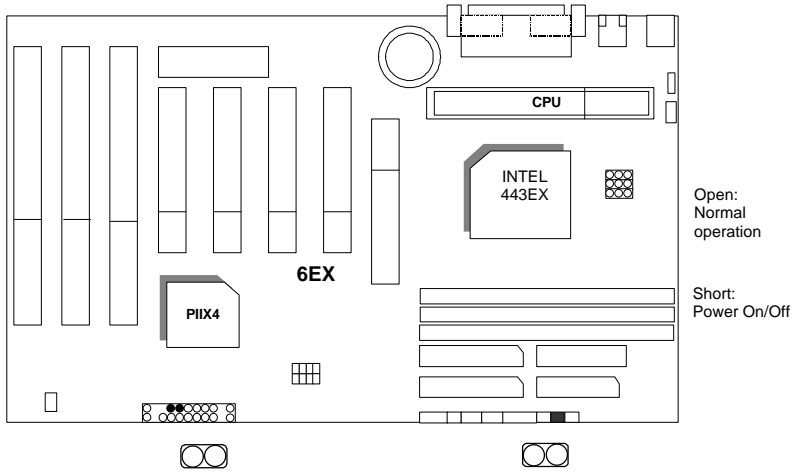
POWER : ATX Power Connector

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)
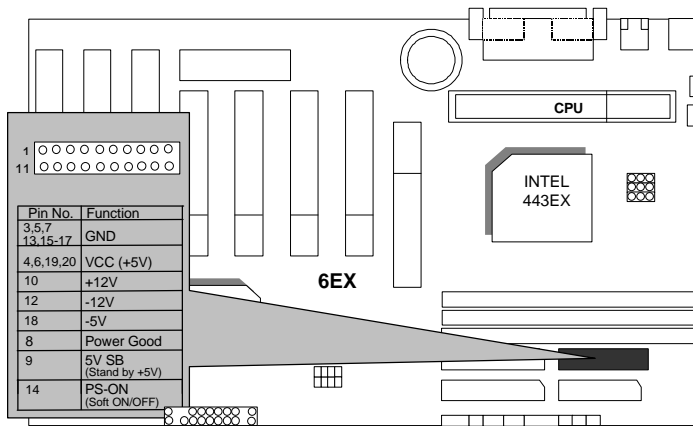
FAN PWR : CPU Cooling Fan Power Connector

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

6EX

PIIX4

INTEL 443EX
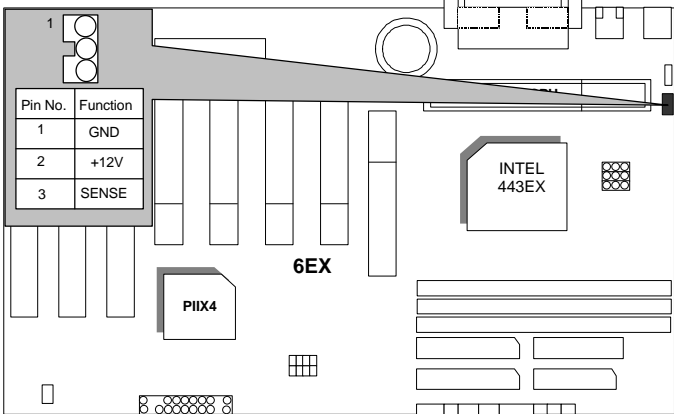
J2: Keyboard Connector & PS/2 Mouse
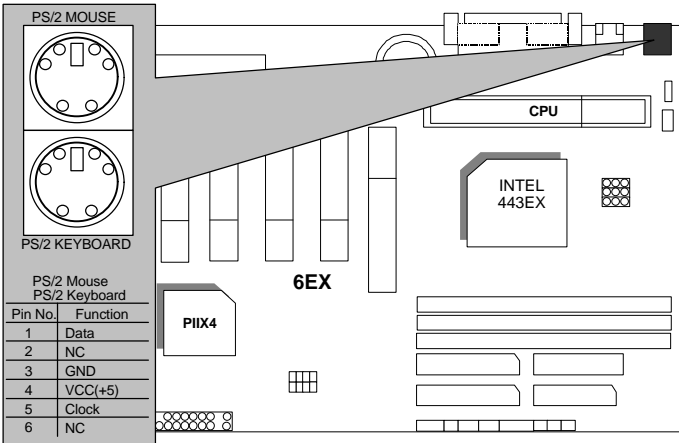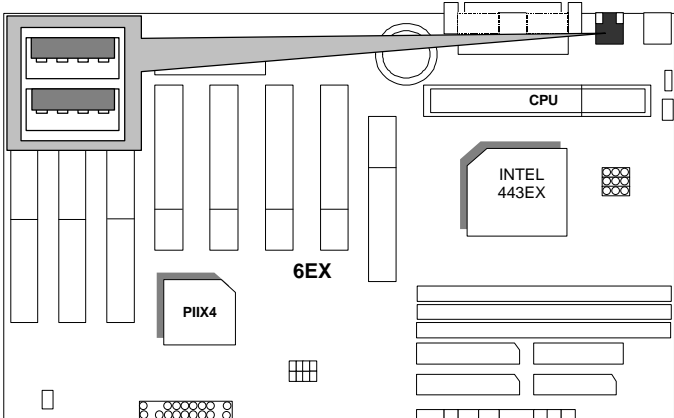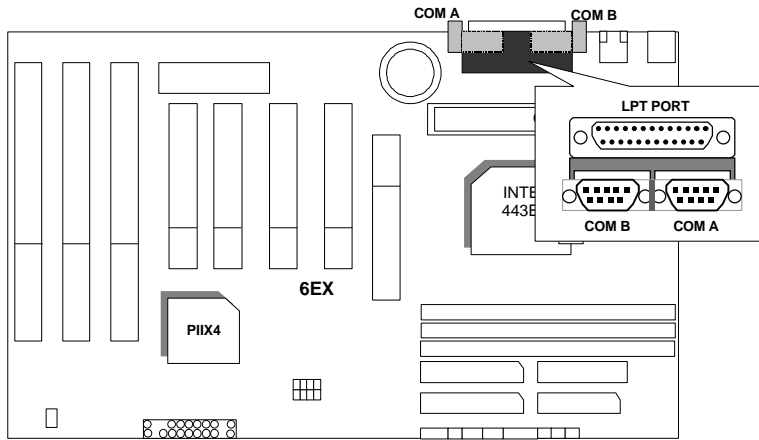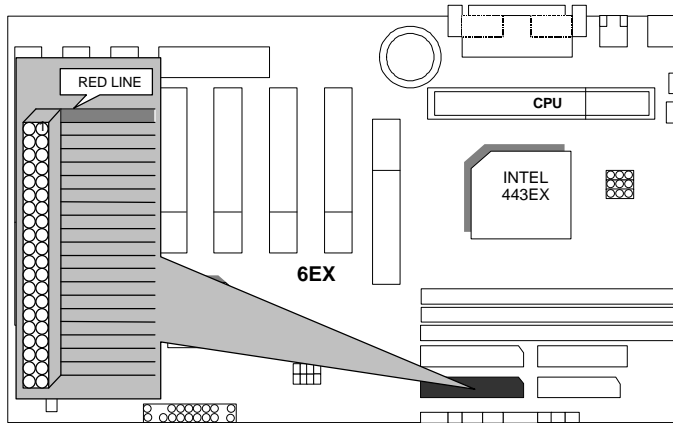
PS/2 MOUSE

PS/2 KEYBOARD

PS/2 Mouse
PS/2 Keyboard

Pin No.	Function
1	Data
2	NC
3	GND
4	VCC(+5)
5	Clock
6	NC

6EX

PIIX4

CPU

INTEL 443EX

USB Port

CPU

6EX

PIIX4

INTEL 443EX

LPT PORT / COM A / COM B

COM A   COM B

LPT PORT

INTE
443E

COM B   COM A

6EX

PIIX4

IDE1: Primary IDE port

RED LINE

CPU

INTEL
443EX

6EX

IDE2: Secondary IDE port

6EX

FLOPPY : FLOPPY PORT

6EX

JP1 : Keyboard Power On

1,2 Short :

Enable Keyboard Power On.

2,3 Short :

Disable Keyboard Power On.

6EX

J13: System After Ac Back

```
1
Open: Soft Off
Short: Full on
```

Pin No.	Function
1	Signal
2	GND

CPU

INTEL
443EX

6EX

PIIX4
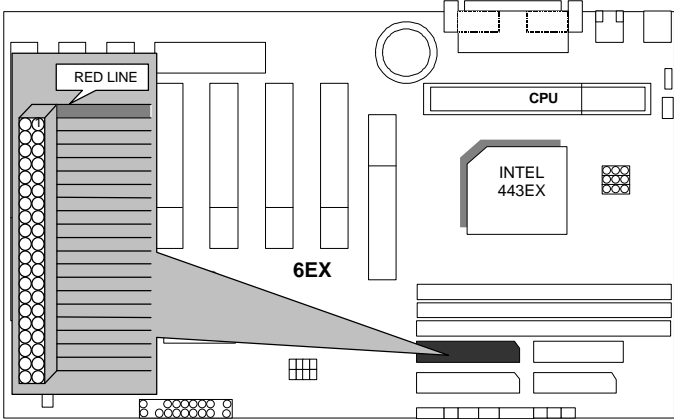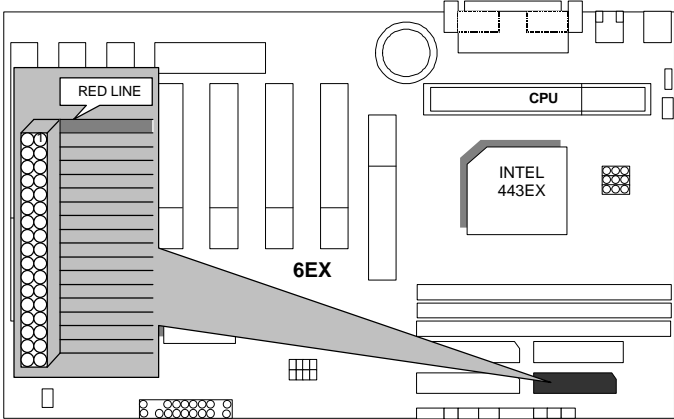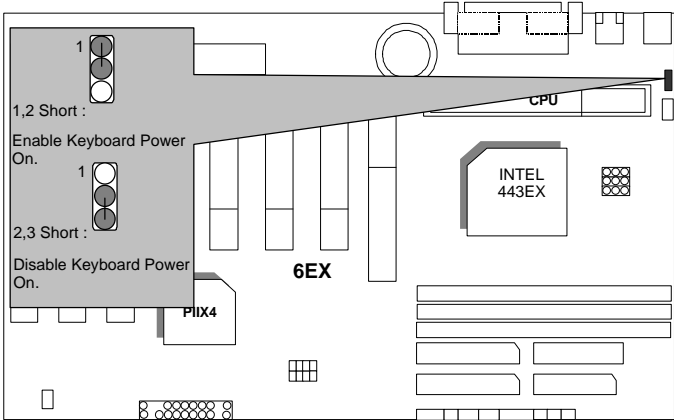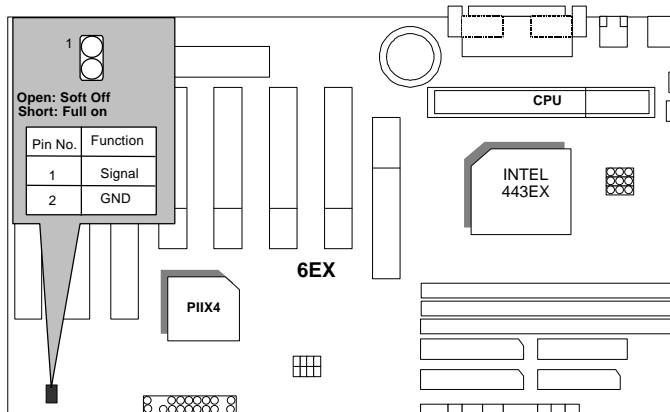
III. Top Performance Test Setting:

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
for top performance setting.

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

Auto Configuration	: Enabled
DRAM Speed Selection	: Fast
Memory Buffer Strength	: Middle
DRAM Data Integrity Mode	: Non-ECC
Video RAM Cacheable	: Disabled
16 Bit I/O Recovery	: 1
Memory Hole At 15M-16M	: Disabled
Delayed Transaction	: Disabled
SDRAM RAS-to-CAS Delay	: Fast
SDRAM RAS Precharge Time	: Fast
SDRAM CAS latency Time	: 2

ESC : Quit   ¡ ρ̂ ρ̃ ŗ ö   : Select Item
F1   : Help   PU/PD/+/-   : Modify
F5   : Old Values   (Shift)F2   : Color
F7   : Load Setup Defaults

✲✲ Each value of items as above depends on your hardware configuration : CPU , SDRAM , Cards , etc.
Please modify each value of items If your system does not 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.)

symbol 183 \f   Pentium*symbol 226 \f "Symbol" \s 9®}* II processor

symbol 183 \f   (128 x 1) MB SDRAM (NEC D4564841G5-A10-9JF)

symbol 183 \f   512 KB included in CPU

symbol 183 \f   GA-600 AGP Display Card (4MB SGRAM)

symbol 183 \f   Onboard IDE (IBM DHEA-38451)

symbol 183 \f   Windows NT™ 4.0

symbol 183 \f   Display Driver at 1024 x 768 x 256colors x 75Hz.

"Symbol"   \s
10 \h   TRIONES Bus Master IDE Driver 3.70

Processor	Intel Pentium*symbol 226 \f "Symbol" \s 12®}* II	
	266MHz(66x4)	333MHz(66x5)
Winbench98		
CPU mark32	721	839
FPU Winmark	1380	1710
Business Disk	1870	1880
Hi-End Disk	4450	4570
Business Graphics	159	181
Hi-End Graphics	175	200
Winstone98		
Business	29.7	32.5
Hi-End	33.0	36.3

TABLE OF CONTENTS

4. BIOS CONFIGURATION

1.INTRODUCTION

1.1. PREFACE

Welcome to use the **6EX** motherboard. It is a Pentium^{symbol 226 \f "Symbol" \s 9®}} II Processor based PC / AT compatible system with AGP / PCI / ISA Bus, and has been designed to be the fastest PC / AT system. There are some new features allow you to operate the system with just the performance you want.

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

1.2. KEY FEATURES

symbol 113 \f "Wingdings" \s 8 \h   Intel Pentium^{symbol 226 \f "Symbol" \s 9®}} II Processor based PC / AT compatible mainboard.

symbol 113 \f "Wingdings" \s 8 \h   Slot 1 supports Pentium^{symbol 226 \f "Symbol" \s 9®}} II Processor running at 200-633 MHz.

symbol 113 \f "Wingdings" \s 8 \h   Intel 440EX chipset, Supports AGP / SDRAM / Ultra DMA/33 IDE / Keyboard and PS/2 Mouse Power On / ACPI features.

symbol 113 \f "Wingdings" \s 8 \h   Supports 3xDIMMs using 3.3V EDO or SDRAM DIMM module.

symbol 113 \f "Wingdings" \s 8 \h   Supports 8 MB - 256 MB EDO / 256MB SDRAM memory on board.

symbol 113 \f "Wingdings" \s 8 \h   Supports ECC or Non-ECC type DRAM module.

symbol 113 \f "Wingdings" \s 8 \h   1xAGP slot, 4xPCI Bus slots, 3xISA Bus slots.

symbol 113 \f "Wingdings" \s 8 \h   Supports 2 channels Ultra DMA/33 IDE ports for 4 IDE Devices.

symbol 113 \f "Wingdings" \s 8 \h   Supports 2xCOM (16550), 1xLPT (EPP / ECP), 1x Floppy port.

symbol 113 \f "Wingdings" \s 8 \h   Supports 2xUSB ports, 1xPS/2 Mouse / Keyboard.

symbol 113 \f "Wingdings" \s 8 \h   Licensed AWARD BIOS, 2Mbits FLASH RAM.

symbol 113 \f "Wingdings" \s 8 \h   30.5 cm *18 cm ATX SIZE form factor, 4 layers PCB.

1.3. PERFORMANCE LIST

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

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

symbol   183   \f   Pentium*symbol 226 \f "Symbol" \s 9®}* II processor

symbol   183   \f   (128 x 1) MB SDRAM (NEC D4564841G5-A10-9JF)

symbol   183   \f   512 KB included in CPU

symbol   183   \f   GA-600 AGP Display Card (4MB SGRAM)

symbol   183   \f   Onboard IDE (IBM DHEA-38451)

symbol   183   \f   Windows NT™ 4.0

symbol   183   \f   Display Driver at 1024 x 768 x 256colors x 75Hz.

"Symbol"   \s 10 \h   TRIONES Bus Master IDE Driver 3.70

Processor	Intel Pentium*symbol 226 \f "Symbol" \s 12®}* II	
	266MHz(66x4)	333MHz(66x5)
Winbench98		
CPU mark32	721	839
FPU Winmark	1380	1710
Business Disk	1870	1880
Hi-End Disk	4450	4570
Business Graphics	159	181
Hi-End Graphics	175	200
Winstone98		
Business	29.7	32.5
Hi-End	33.0	36.3

1.4. BLOCK DIAGRAM

66MHZ

1.5. INTRODUCE THE Pentium symbol 226 \f "Symbol" \s 10®} II Processor & AGP

Figure 1:Retention Mechanism & attach Mount

Figure 2:OEM Pentium symbol 226 \f "Symbol" \s 9®} II Processor

Figure 3:Heatsink / FAN & Heat sink support for OEM Pentium*symbol 226 \f "Symbol" \s 9®}* II Processor
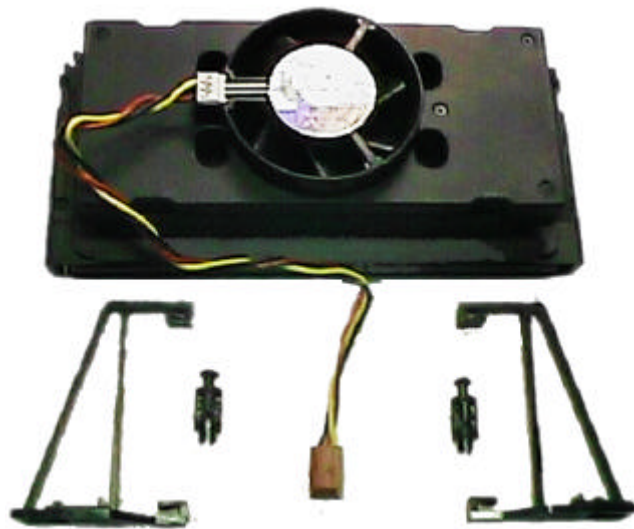
Figure 4:Boxed Pentium*symbol 226 \f "Symbol" \s 9®}* II Processor & Heat sink support

1.6 What is AGP?

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

The AGP port can be used either as fast PCI port (32-bits at 66MHz vs. 32-bits at 33MHz) or as an AGP port which supports 2x data-rate, a read queue, and side band addressing. When the 2x-data rate is used, the port can transmit data at 533MB/sec (66.6*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
  – Pentiumsymbol 226 \f "Symbol" \s 9®} II Processor 200 – 633 MHz.

  symbol 45 \f "Symbol" \s 8 \h 242 pins 66 MHz slot1 on board.

symbol 183 \f "Symbol" \s 10 \h SPEED

symbol 45 \f "Symbol" \s 8 \h 66 MHz system speed.

symbol 45 \f "Symbol" \s 8 \h 66 MHz AGP bus speed. (133MHz 2*mode)

symbol 45 \f "Symbol" \s 8 \h 33 MHz PCI-Bus speed.

symbol 45 \f "Symbol" \s 8 \h 8 MHz AT bus speed.

symbol 183 \f "Symbol" \s 10 \h DRAM MEMORY

symbol 45 \f "Symbol" \s 8 \h 3 banks 168 pins DIMM module sockets on board.

symbol 45 \f "Symbol" \s 8 \h Use 8 / 16 / 32 / 64 / 128 / 256 MB DIMM module DRAM.

symbol 45 \f "Symbol" \s 8 \h 8 ~ 256MB EDO/256 MB SDRAM.

symbol 45 \f "Symbol" \s 8 \h Supports 3.3V SDRAM / EDO type DRAM.

symbol 45 \f "Symbol" \s 8 \h Supports ECC or Non-ECC type DRAM.

symbol 183 \f "Symbol" \s 10 \h CACHE MEMORY

symbol 45 \f "Symbol" \s 8 \h 32 KB 1st cache memory included in CPU.

symbol 45 \f "Symbol" \s 8 \h 256KB/512 KB 2nd cache in CPU.

symbol 45 \f "Symbol" \s 8 \h Supports DIB speed mode for L2 Cache.

symbol 183 \f "Symbol" \s 10 \h I/O BUS SLOTS	symbol 45 \f "Symbol" \s 8 \h 4 33MHz Master / Slave PCI-BUS.
	symbol 45 \f "Symbol" \s 8 \h 3 8MHz 16 bits ISA BUS.
	symbol 45 \f "Symbol" \s 8 \h 1 66MHz / 133MHz AGP bus.
symbol 183 \f "Symbol" \s 10 \h IDE PORTS	symbol 45 \f "Symbol" \s 8 \h 2 Ultra DMA/33 Bus Master IDE channels on board.(Using IRQ14,15)
	symbol 45 \f "Symbol" \s 8 \h Support Mode 3,4 IDE & ATAPI CD – ROM.
symbol 183 \f "Symbol" \s 10 \h I/O PORTS	symbol 45 \f "Symbol" \s 8 \h Supports 2 16550 COM ports.
	symbol 45 \f "Symbol" \s 8 \h Supports 1 EPP/ECP LPT port.
	symbol 45 \f "Symbol" \s 8 \h Supports 1 1.44/2.88 MB Floppy port.
	symbol 45 \f "Symbol" \s 8 \h Supports 2 USB ports.
	symbol 45 \f "Symbol" \s 8 \h Supports PS/2 Mouse.
symbol 183 \f "Symbol" \s 10 \h GREEN FUNCTION	symbol 45 \f "Symbol" \s 8 \h Suspend mode support.
	symbol 45 \f "Symbol" \s 8 \h Green switch & ACPI LED support.
	symbol 45 \f "Symbol" \s 8 \h IDE & Display power down support.
	symbol 45 \f "Symbol" \s 8 \h Monitor all IRQ / DMA / Display / I/O events.
symbol 183 \f "Symbol" \s 10 \h BIOS	symbol 45 \f "Symbol" \s 8 \h 2M bits FLASH RAM.
	symbol 45 \f "Symbol" \s 8 \h Supports Plug & Play, DMI Function.
symbol 183 \f "Symbol" \s 10 \h DIMENSION	symbol 45 \f "Symbol" \s 8 \h ATX Form Factor, 4 layers PCB.

2.2. SOFTWARE

symbol 183 \f "Symbol" \s 10 \h DRIVER	symbol 45 \f "Symbol" \s 8 \h Bus Master IDE Driver.
	symbol 45 \f "Symbol" \s 8 \h Suspend to HD utility.
symbol 183 \f "Symbol" \s 10 \h BIOS	symbol 45 \f "Symbol" \s 8 \h Licensed AWARD BIOS.
	symbol 45 \f "Symbol" \s 8 \h AT CMOS Setup, BIOS / Chipset Setup, Green Setup, Hard Disk Utility included.
symbol 183 \f "Symbol" \s 10 \h O.S.	symbol 45 \f "Symbol" \s 8 \h Operation with MS-DOSsymbol 226 \f "Symbol" \s 9®}, Windowssymbol 226 \f "Symbol" \s 9®}95, WINDOWSsymbol 228 \f "Symbol" \s 9™} NT, OS/2, NOVELL and SCO UNIX.

2.3. ENVIRONMENT

symbol 183 \f "Symbol" \s 10 \h Ambient Temp.	symbol 45 \f "Symbol" \s 8 \h 0symbol 176 \f "Symbol" \s 9°}C to +50symbol 176 \f "Symbol" \s 9°}C (Operating).
symbol 183 \f "Symbol" \s 10 \h Relative Hum.	symbol 45 \f "Symbol" \s 8 \h 0 to +85% (Operating).
symbol 183 \f "Symbol" \s 10 \h Altitude	symbol 45 \f "Symbol" \s 8 \h 0 to 10,000 feet (Operating).
symbol 183 \f "Symbol" \s 10 \h Vibration	symbol 45 \f "Symbol" \s 8 \h 0 to 1,000 Hz.
symbol 183 \f "Symbol" \s 10 \h Electricity	symbol 45 \f "Symbol" \s 8 \h 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 **6EX** mainboard.

- The Retention Mechanism & Attach Mount

- USER'S MANUAL for mainboard.

- Cable set for IDE, Floppy & I/O devices.

- Diskette or CD for Mainboard Utility.

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

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

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

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

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

3.2. MAINBOARD LAYOUT
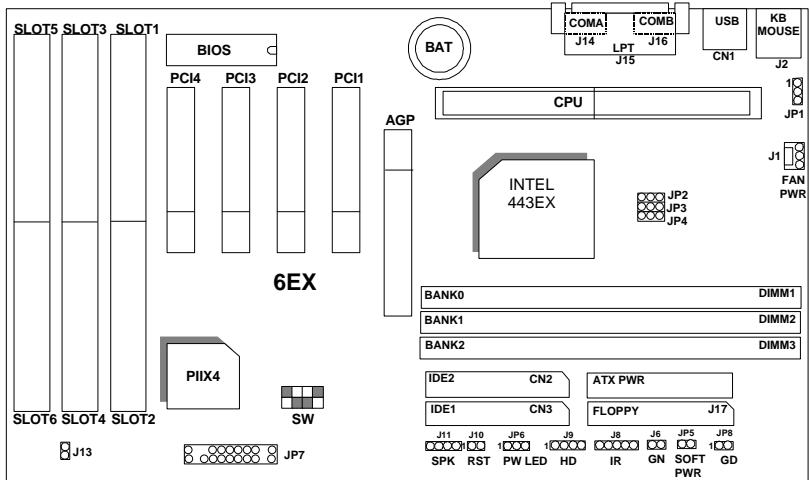
symbol 215 \f "Wingdings" \s 9   Figure 3.1symbol 216 \f "Wingdings" \s 9

symbol 77 \f "Wingdings" \s 10✸ **PCI 4 Only can use slave device**

3.3. QUICK REFERENCE FOR JUMPERS & CONNECTORS

symbol 116 \f "Wingdings" \s 8 \h I/O Ports Connector	
CN1	USB port.
CN3	For Primary IDE port.
CN2	For Secondary IDE port.
J2	For PS/2 Keyboard / Mouse port.
J17	For Floppy port
J16	For Serial port2 (COM B).
J14	For Serial port1 (COM A).
J15	For LPT port.

symbol 116 \f "Wingdings" \s 8 \h J1 : CPU cooling FAN Power Connector	
Pin No.	Function
1	GND.
2	+12V
3	SENSE

symbol 116 \f "Wingdings" \s 8 \h Slot 1
For Pentium^{symbol 226 \f "Symbol" \s 9®}} II Processor installed

symbol 116 \f "Wingdings" \s 8 \h J11 (SPK): SPEAKER Connector	
Pin No.	Function
1	VCC
2	NC.
3	NC.
4	Data

symbol 116 \f "Wingdings" \s 8 \h J10 (RST) : RESET Switch	
Open	Normal operation
Short	For Hardware Reset System

symbol 116 \f "Wingdings" \s 8 \h JP6 (PWR) : POWER ON LED (PW-LED)	
Pin No.	Function
1	LED anode (+)
2	NC
3	LED cathode (-)

symbol 116 \f "Wingdings" \s 8 \h J9 (HD) : Hard Disk active LED (HD-LED)	
Pin No.	Function
1	LED anode (+)
2	LED cathode (-)
3	LED cathode (-)
4	LED anode (+)

symbol 116 \f "Wingdings" \s 8 \h J8: INFRARED Connector (IR) -- Function Optional	
Pin No.	Function
1	IR Data Output
2	GND
3	IR Data Input
4	NC

5	POWER (+)

symbol 116 \f "Wingdings" \s 8 \h J6 (GN) : GN-SW	
Open	Normal Operation
Short	Enter Green Mode

symbol 116 \f "Wingdings" \s 8 \h JP5 (Soft PWR) : Soft Power Switch	
Open	Normal Operation
Short	Power On/Off

symbol 116 \f "Wingdings" \s 8 \h J13 : System After Ac Back	
Open	Soft Off
Short	Full On

symbol 116 \f "Wingdings" \s 8 \h JP1 : Keyboard Power On Selection	
Pin No.	Function
1-2 Short	Enabled Keyboard power on.
2-3 Short	Disabled Keyboard power on.

symbol 116 \f "Wingdings" \s 8 \h JP8 (GD) : GD-LED	
Pin No.	Function
1	LED anode (+)
2	LED cathode (-)

JP7 : 2*11 PIN Jumper

Soft PWR: Soft Power Connector

> Open: Normal Operation
> Short: Power On/Off

RES: Reset Switch

> Open: Normal Operation
> Short: For Hardware Reset System

LED: Power LED

> PIN 1 : anode (+)
> PIN 2 : cathode (-)
> PIN 3 : cathode (-)

RKPS: Speaker Connector

> PIN 1 : VCC
> PIN 2 : NC
> PIN 3 : NC
> PIN 4 : Data

HD: IDE Hard Disk Active LED

> 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 (-)

3.4. DRAM INSTALLATION

The mainboard can be installed with 8 / 16 / 32 / 64 / 128 / 256 MB 168 pins DIMM module DRAM, and the DRAM speed must be 50 or 60 ns for EDO & 67~100 MHz for SDRAM. The DRAM memory system on mainboard consists of bank 0, 1 & bank 2. (symbol 46 \f "CommercialPi BT" \s 9.**Bank 0 and Bank2 can't be installed at the same time if the DRAM is double side**.)

Since 168 pins DIMM module is 64 bits width, using 1 PCS which can match a 64 bits system. The total memory size is 8MB ~ 256MB EDO / 256MB SDRAM. The DRAM installation position refer to Figure 3.1, and notice the Pin 1 of DIMM module must match with the Pin 1 of DIMM socket. Insert the DRAM DIMM module into the DIMM socket at Vertical angle. If there is a wrong direction of Pin 1, the DRAM DIMM module couldn't be inserted into socket completely.

3.5. CPU SPEED SETUP

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

ON: symbol 109 \f "Monotype Sorts" \s 8❍
OFF: symbol 53 \f "Monotype Sorts" \s 8✕

DIP SWITCH (SW)				FREQ. RATIO	EXT.CLK. MHz	INT.CLK. MHz	CPU Type
1	2	3	4				
ON	OFF	ON	ON	3	**66**	200	**Pentium**symbol 226 \f "Symbol" \s 8®} **II 200 MHz**
OFF	OFF	ON	ON	3.5	**66**	233	**Pentium**symbol 226 \f "Symbol" \s 8®} **II 233 MHz**
ON	ON	OFF	ON	4	**66**	266	**Pentium**symbol 226 \f "Symbol" \s 8®} **II 266 MHz**
OFF	ON	OFF	ON	4.5	**66**	300	**Pentium**symbol 226 \f "Symbol" \s 8®} **II 300 MHz**
ON	OFF	OFF	ON	5	**66**	333	**Pentium**symbol 226 \f "Symbol" \s 8®} **II 333 MHz**

| OFF | OFF | OFF | ON | 5.5 | **66** | 366 | **Pentium**symbol 226 \f "Symbol" \s 8®} **II 366 MHz** |

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

symbol 77 \f "Wingdings" \s 10 \h The CPU is a sensitive electric component and it can be easily damaged by static electricity, so users must keep it away from metal surface when the CPU is installed onto mainboard.

3.6. CMOS RTC & ISA CFG CMOS SRAM

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

symbol 77 \f "Wingdings" \s 9♠Danger of explosion if battery is incorrectly replaced.

symbol 77 \f "Wingdings" \s 9♠Replace only with the same or equivalent type recommended by the

   manufacturer.

symbol 77 \f "Wingdings" \s 9♠Dispose of used batteries according to the manufacturer's instructions.

3.7. SPEAKER CONNECTOR INSTALLATION

There is a speaker in AT system for sound purpose. The 4 - Pins connector 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 PWR of mainboard in correct direction.

3.10. IDE & ATAPI DEVICE INSTALLATION

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

3.11. PERIPHERAL DEVICE INSTALLATION

After the I/O device installation and jumpers setup, the mainboard can be mounted into the case and fixed by screw. To complete the mainboard installation, the peripheral device could be installed now. The basic system

needs a display interface card. If the PCI - Bus device is to be installed in the system, any one of four PCI - Bus slots can be used. **(**symbol 46 \f "CommercialPi BT" \s 9.**PCI 4 Only can use slave device.)**

3.12. KEYBOARD & PS/2 MOUSE INSTALLATION

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

4. BIOS CONFIGURATION

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

4.1. ENTERING SETUP

● Suspend Mode Option

   The default value is PowerOn Suspend

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

● VGA Active Monitor

   The default value is Disabled.

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

● Soft-off by PWR-BTTN

   The default value is Instant-Off.

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

● Resume by Alarm

   The default value is Disabled.

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

   If the default value is Enabled.

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

● IRQ [3-7,9-15], NMI

   The default value is Enabled.

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

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)

- Suspend Mode Option

   The default value is PowerOn Suspend

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

- VGA Active Monitor

   The default value is Disabled.

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

- Soft-off by PWR-BTTN

   The default value is Instant-Off.

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

- Resume by Alarm

   The default value is Disabled.

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

   If the default value is Enabled.

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

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

   The default value is Enabled.

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

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.

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

● Suspend Mode Option

The default value is PowerOn Suspend

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

● VGA Active Monitor

The default value is Disabled.

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

● Soft-off by PWR-BTTN

The default value is Instant-Off.

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

● Resume by Alarm

The default value is Disabled.

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

If the default value is Enabled.

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

● IRQ [3-7,9-15], NMI

The default value is Enabled.

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

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

● Power management setup

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

● PNP/PCI configuration

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

● Integrated peripherals

This setup page includes all onboard peripherals.

● Load setup defaults

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

● User password

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

● IDE HDD auto detection

Automatically configure hard disk parameters.

● Save & exit setup

Save CMOS value settings to CMOS and exit setup.

● Exit without saving

Abandon all CMOS value changes and exit setup.

4.5. STANDARD CMOS SETUP MENU

The 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

● Suspend Mode Option

The default value is PowerOn Suspend

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

● VGA Active Monitor

The default value is Disabled.

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

● Soft-off by PWR-BTTN

The default value is Instant-Off.

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

● Resume by Alarm

The default value is Disabled.

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

If the default value is Enabled.

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

● IRQ [3-7,9-15], NMI

The default value is Enabled.

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

- 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.

- Suspend Mode Option

   The default value is PowerOn Suspend

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

- VGA Active Monitor

   The default value is Disabled.

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

- Soft-off by PWR-BTTN

   The default value is Instant-Off.

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

- Resume by Alarm

   The default value is Disabled.

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

   If the default value is Enabled.

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

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

   The default value is Enabled.

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

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

- Video

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

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

- Halt on

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

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

- Memory

  The category is display-only which is determined by POST (Power On

Self Test) of the BIOS.

Base Memory

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

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

- Suspend Mode Option

  The default value is PowerOn Suspend

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

- VGA Active Monitor

  The default value is Disabled.

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

- Soft-off by PWR-BTTN

  The default value is Instant-Off.

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

- Resume by Alarm

  The default value is Disabled.

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

  If the default value is Enabled.

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

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

  The default value is Enabled.

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

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 following error message will appear in the mean time. You can run anti-virus program to locate the problem.

- Suspend Mode Option

  The default value is PowerOn Suspend

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

- VGA Active Monitor

  The default value is Disabled.

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

- Soft-off by PWR-BTTN

  The default value is Instant-Off.

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

- Resume by Alarm

  The default value is Disabled.

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

  If the default value is Enabled.

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

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

  The default value is Enabled.

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

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

- Suspend Mode Option

  The default value is PowerOn Suspend

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

- VGA Active Monitor

  The default value is Disabled.

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

- Soft-off by PWR-BTTN

  The default value is Instant-Off.

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

- Resume by Alarm

  The default value is Disabled.

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

  If the default value is Enabled.

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

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

  The default value is Enabled.

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

- CPU L2 Cache ECC Checking

  The default value is Disabled.

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

- Quick Power On Self Test

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

  The default value is Enabled.

Enabled	Enable quick POST
Disabled	Normal POST

- CPU Update Data

  The default value is Enabled.

Enabled	Enable CPU Update Data
Disabled	Normal CPU Update Data

- Boot Sequence

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

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

- Swap Floppy Drive

  The default value is Disabled.

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

- VGA Boot From

- Suspend Mode Option

  The default value is PowerOn Suspend

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

- VGA Active Monitor

  The default value is Disabled.

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

- Soft-off by PWR-BTTN

  The default value is Instant-Off.

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

- Resume by Alarm

  The default value is Disabled.

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

  If the default value is Enabled.

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

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

  The default value is Enabled.

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

The default value is AGP

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

- Boot Up Floppy Seek

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

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

- Boot Up NumLock Status

    The default value is On.

On	Keypad is number keys
Off	Keypad is arrow keys

- Typematic Rate Setting

    The default value is Disabled.

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

- Typematic Rate (Chars / Sec.)

    The default value is 6.

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

- Typematic Delay (Msec.)

The default value is 250.

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

● Security Option

This category allows you to limit access to the system and Setup, or just

● Suspend Mode Option

The default value is PowerOn Suspend

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

● VGA Active Monitor

The default value is Disabled.

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

● Soft-off by PWR-BTTN

The default value is Instant-Off.

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

● Resume by Alarm

The default value is Disabled.

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

If the default value is Enabled.

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

● IRQ [3-7,9-15], NMI

The default value is Enabled.

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

to Setup. The default value is Setup.

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

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

- PCI/VGA Palette Snoop

  The default value is Disabled.

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

- OS Select For DRAM>64MB

  The default value is Non-OS2.

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

- Suspend Mode Option

  The default value is PowerOn Suspend

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

- VGA Active Monitor

  The default value is Disabled.

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

- Soft-off by PWR-BTTN

  The default value is Instant-Off.

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

- Resume by Alarm

  The default value is Disabled.

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

  If the default value is Enabled.

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

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

  The default value is Enabled.

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

- 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

Figure 4.4: Chipset Features Setup

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

- Auto Configuration

- Suspend Mode Option

    The default value is PowerOn Suspend

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

- VGA Active Monitor

    The default value is Disabled.

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

- Soft-off by PWR-BTTN

    The default value is Instant-Off.

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

- Resume by Alarm

    The default value is Disabled.

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

    If the default value is Enabled.

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

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

    The default value is Enabled.

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

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.

● 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
- Suspend Mode Option

  The default value is PowerOn Suspend

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

- VGA Active Monitor

  The default value is Disabled.

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

- Soft-off by PWR-BTTN

  The default value is Instant-Off.

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

- Resume by Alarm

  The default value is Disabled.

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

  If the default value is Enabled.

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

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

  The default value is Enabled.

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

The default value is Disabled.

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

- SDRAM RAS-to-CAS Delay

  The default value is Fast

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

- SDRAM RAS Precharge Time

  The default value is Fast.

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

- SDRAM CAS latency Time

  The default value is 2.

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

4.8. POWER MANAGEMENT SETUP

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.

- Suspend Mode Option

  The default value is PowerOn Suspend

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

- VGA Active Monitor

  The default value is Disabled.

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

- Soft-off by PWR-BTTN

  The default value is Instant-Off.

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

- Resume by Alarm

  The default value is Disabled.

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

  If the default value is Enabled.

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

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

  The default value is Enabled.

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

Enabled	Enable Green function.
Disabled	Disable Green function.

- PM Control by APM

  The default value is Yes.

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

- Suspend Mode

  The default value is Disable.

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

- HDD Power Down

- Suspend Mode Option

  The default value is PowerOn Suspend

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

- VGA Active Monitor

  The default value is Disabled.

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

- Soft-off by PWR-BTTN

  The default value is Instant-Off.

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

- Resume by Alarm

  The default value is Disabled.

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

  If the default value is Enabled.

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

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

  The default value is Enabled.

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

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.