BX2000+

USER'S MANUAL

1. **Support Suspend To RAM Function.**

2. **CPU Over Voltage Select (Magic Booster).**

3. **Support Dual BIOS and BIOS Write Protection.**

4. **System power on by PS/2 Mouse: First, enable this function in CMOS Setup, then you can power on the system by double clicking the right or left button of your PS/2 Mouse.**

5. **System power on by Keyboard: If your ATX power supply supports 300 mA 5V Stand-By current (depends on the specification of keyboards) , you can power on your system by entering password from the keyboard after setting the "Keyboard power on" password in CMOS Setup.**

6. **Supports 3 steps ACPI LED.**

7. **Modem Ring-On (COM A , B).**

8. **Wake-Up on LAN (The ATX power supply supports larger than 720 mA 5V Stand-By current).**

Pentiumâ II / III / Celeron Processor MAINBOARD
REV. 1.2 Second Edition

R-12-02-091220

Dec. 20, 1999 Taipei, Taiwan

I. Quick Installation Guide :

CPU SPEED SETUP

The system bus speed is selectable between 66 / 100 MHz. The user can select the system bus speed and change the DIP SWITCH **(SW)** selection to set up the CPU speed for 233 - 800MHz processor.

Pentium® II / III CPU	1	2	3	4	5	6	7	8
233 / 66MHz	OFF	OFF	ON	ON	ON	OFF	OFF	ON
266 / 66MHz	ON	ON	OFF	ON	ON	OFF	OFF	ON
300 / 66MHz	OFF	ON	OFF	ON	ON	OFF	OFF	ON
333 / 66MHz	ON	OFF	OFF	ON	ON	OFF	OFF	ON
366 / 66MHz	OFF	OFF	OFF	ON	ON	OFF	OFF	ON
400 / 66MHz	ON	ON	ON	OFF	ON	OFF	OFF	ON
433 / 66MHz	OFF	ON	ON	OFF	ON	OFF	OFF	ON
466 / 66MHz	ON	OFF	ON	OFF	ON	OFF	OFF	ON
500 / 66MHz	OFF	OFF	ON	OFF	ON	OFF	OFF	ON
533 / 66MHz	ON	ON	OFF	OFF	ON	OFF	OFF	ON
* 566 / 66MHz	OFF	ON	OFF	OFF	ON	OFF	OFF	ON
350 / 100MHz	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
400 / 100MHz	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
450 / 100MHz	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
500 / 100MHz	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
550 / 100MHz	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
600 / 100MHz	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
650 / 100MHz	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
700 / 100MHz	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
750 / 100MHz	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
800 / 100MHz	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
* 850 / 100MHz	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF

★ **We don't recommend you to setup your CPU ratio above 8 nth, it doesn't support now.**

Main Clock Table				
CLK	5	6	7	8
66 MHz	ON	OFF	OFF	ON
152 MHz	ON	OFF	ON	OFF
142MHz	ON	ON	OFF	OFF
100 MHz	OFF	OFF	OFF	OFF
112MHz	OFF	OFF	ON	OFF
124 MHz	OFF	ON	ON	OFF
133 MHz	OFF	ON	OFF	OFF
PCI Run 44.3 MHz				
133 MHz	ON	ON	ON	OFF
PCI Run 33.3 MHz				

★ **Note: We don't recommend you to setup your system speed to 152, 142, 112, 124 or 133MHz because these frequencies are not the standard specifications for CPU, Chipset and most of the peripherals. Whether your system can run under 152, 142, 112, 124 or 133MHz properly will depend on your hardware configurations: CPU, SDRAM, Cards, etc.**
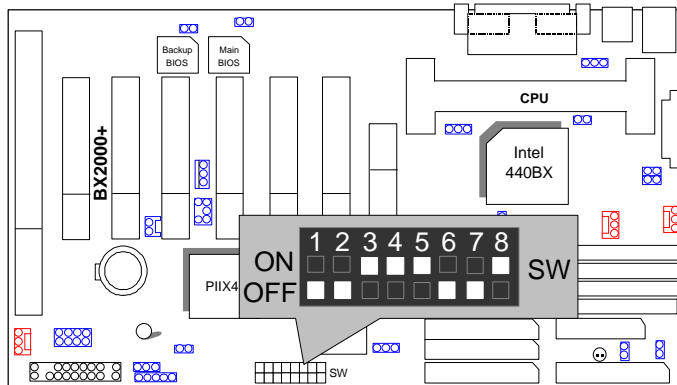
Frequency Table:

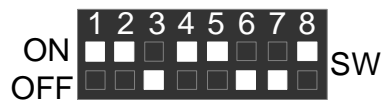| FREQ. RATIO	DIP SWITCH (SW)			
	1	2	3	4
X 3	ON	OFF	ON	ON
X 3.5	OFF	OFF	ON	ON
X 4	ON	ON	OFF	ON
X 4.5	OFF	ON	OFF	ON
X 5	ON	OFF	OFF	ON
X 5.5	OFF	OFF	OFF	ON
X 6	ON	ON	ON	OFF
X 6.5	OFF	ON	ON	OFF
X 7	ON	OFF	ON	OFF
X 7.5	OFF	OFF	ON	OFF
X 8	ON	ON	OFF	OFF
X 8.5	OFF	ON	OFF	OFF
X 9	ON	OFF	OFF	OFF
X 9.5	OFF	OFF	OFF	OFF

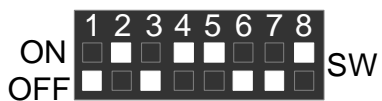★ **We don't recommend you to setup your CPU ratio above 8 nth, it doesn't support now.**
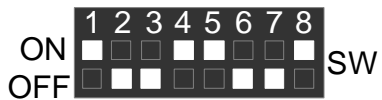
1. Pentium® II / Celeron 233 / 66 MHz FSB

```
        1 2 3 4 5 6 7 8
ON                       SW
OFF
```

CPU
Backup BIOS
Main BIOS
BX2000+
Intel 440BX
PIIX4
SW

2. Pentium® II / Celeron 266 / 66 MHz FSB

```
    1 2 3 4 5 6 7 8
ON                  SW
OFF
```

3. Pentium® II / Celeron 300 / 66 MHz FSB

```
    1 2 3 4 5 6 7 8
ON                  SW
OFF
```

4. Pentium® II / Celeron 333 / 66 MHz FSB

```
    1 2 3 4 5 6 7 8
ON                  SW
OFF
```

5. Pentium® II / Celeron 366 / 66MHz FSB

ON OFF SW
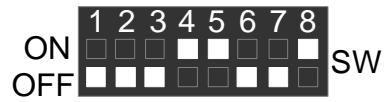
6. Pentium® II / Celeron 400 / 66MHz FSB

ON OFF SW
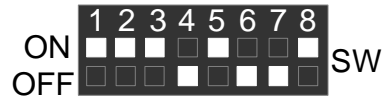
7. Pentium® II / Celeron 433 / 66MHz FSB

ON OFF SW
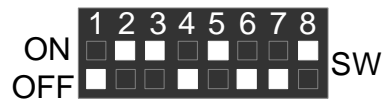
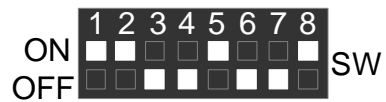8. Pentium® II / Celeron 466 / 66MHz FSB

ON OFF SW
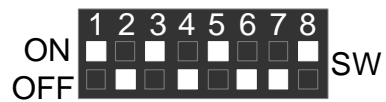
9. Pentium® II / Celeron 500 / 66MHz FSB

ON OFF SW
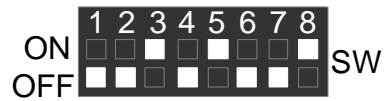
10. Pentium® II / Celeron 533 / 66MHz FSB

ON OFF SW

★ 11. Pentium® II / Celeron 566 / 66MHz FSB (Reserve)

```
      1 2 3 4 5 6 7 8
ON    ■ □ ■ ■ □ ■ ■ □   SW
OFF   □ ■ □ □ ■ □ □ ■
```
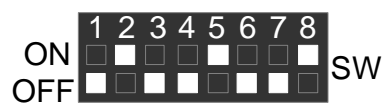
12. Pentium® II 350 / 100 MHz FSB

```
      1 2 3 4 5 6 7 8
ON    ■ ■ □ ■ □ ■ ■ ■   SW
OFF   □ □ ■ □ ■ □ □ □
```

13. Pentium® II 400 / 100 MHz FSB

```
      1 2 3 4 5 6 7 8
ON    □ ■ ■ □ ■ ■ ■ ■   SW
OFF   ■ □ □ ■ □ □ □ □
```

14. Pentium® III 450 / 100 MHz FSB

```
      1 2 3 4 5 6 7 8
ON    ■ □ ■ □ ■ ■ ■ ■   SW
OFF   □ ■ □ ■ □ □ □ □
```
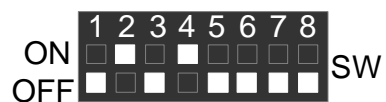
15. Pentium® III 500 / 100 MHz FSB

```
      1 2 3 4 5 6 7 8
ON    ■ ■ ■ □ ■ ■ ■ ■   SW
OFF   □ □ □ ■ □ □ □ □
```

16. Pentium® III 550 / 100 MHz FSB

```
      1 2 3 4 5 6 7 8
ON    ■ ■ ■ □ ■ ■ ■ ■   SW
OFF   □ □ □ ■ □ □ □ □
```
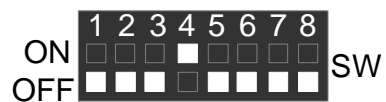
17. Pentium® III 600 / 100 MHz FSB

```
      1 2 3 4 5 6 7 8
ON    ■ ■ ■ □ □ □ □ □   SW
OFF   □ □ □ ■ ■ ■ ■ ■
```
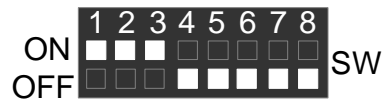
18. Pentium® III 650 / 100 MHz FSB

```
      1 2 3 4 5 6 7 8
ON    □ ■ ■ □ □ □ □ □   SW
OFF   ■ □ □ ■ ■ ■ ■ ■
```
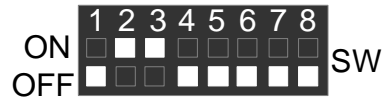
19. Pentium® III 700 / 100 MHz FSB

```
      1 2 3 4 5 6 7 8
ON    ■ □ ■ □ □ □ □ □   SW
OFF   □ ■ □ ■ ■ ■ ■ ■
```
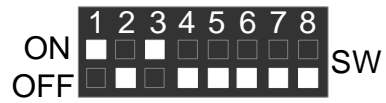
20. Pentium® III 750 / 100 MHz FSB

```
      1 2 3 4 5 6 7 8
ON    □ □ ■ □ □ □ □ □   SW
OFF   ■ ■ □ ■ ■ ■ ■ ■
```
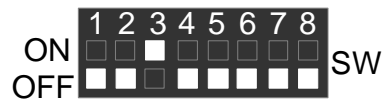
21. Pentium® III 800 / 100 MHz FSB

```
      1 2 3 4 5 6 7 8
ON    ■ ■ □ □ □ □ □ □   SW
OFF   □ □ ■ ■ ■ ■ ■ ■
```
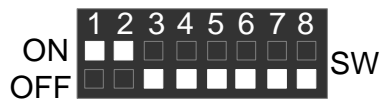
★ 22. Pentium® III 850 / 100 MHz FSB (Reserve)

```
      1 2 3 4 5 6 7 8
ON    □ ■ □ □ □ □ □ □   SW
OFF   ■ □ ■ ■ ■ ■ ■ ■
```
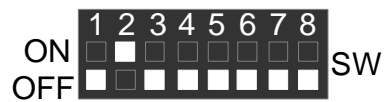
★ **We don't recommend you to setup your CPU ratio above 8 nth, it doesn't support now.**

II. Jumper setting :

SPK : External Speaker/ Internal Buzzer Connector
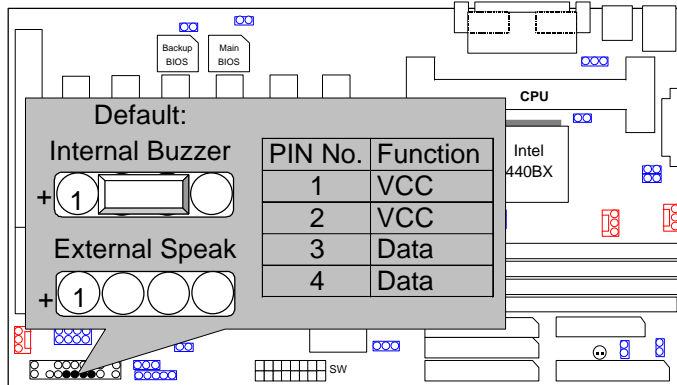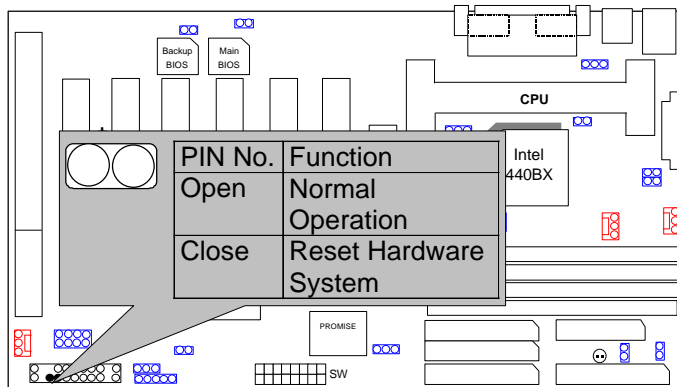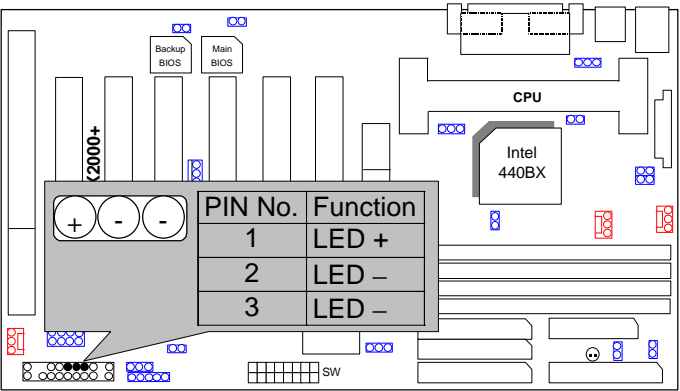
PIN No.	Function
1	VCC
2	VCC
3	Data
4	Data

Default:
Internal Buzzer
External Speak

RST : Reset Switch

PIN No.	Function
Open	Normal Operation
Close	Reset Hardware System

PW LED : Power LED Connector

PIN No.	Function
1	LED +
2	LED −
3	LED −

HD : IDE Hard Disk Active LED

PIN No.	Function
1	LED +
2	LED −

IR : Infrared Connector (Optional)

PIN No.	Function
1	IR data output
2	GND
3	IR data input
4	NC
5	VCC (+5V)

GN : Green Function Switch

PIN No.	Function
Open	Normal Operation
Close	Entering Green Mode
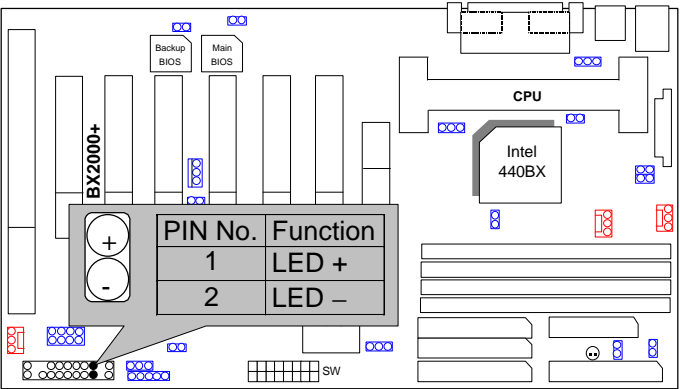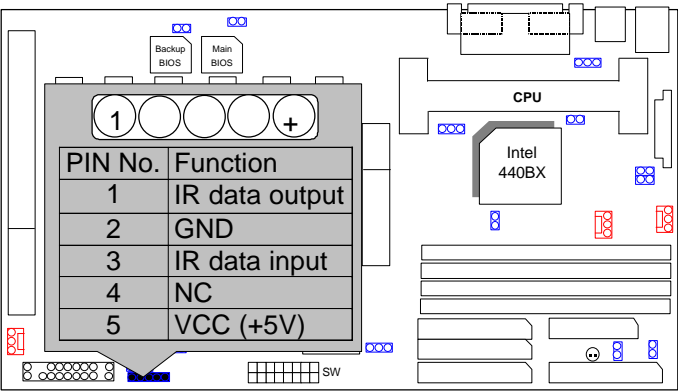
GD : Green LED
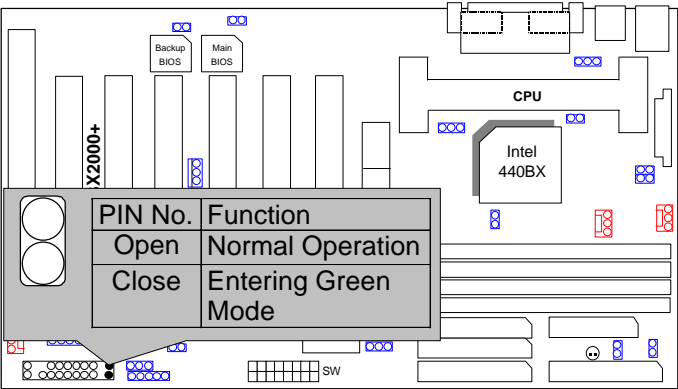
PIN No.	Function
1	LED +
2	LED −
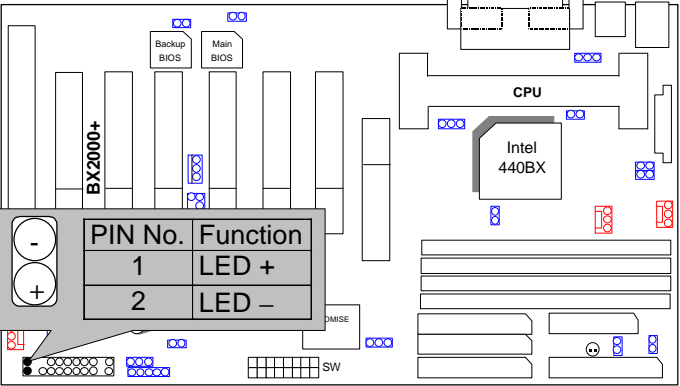
Soft Power: Soft Power Connector

PIN No.	Function
Open	Normal Operation
Close	Power On/Off
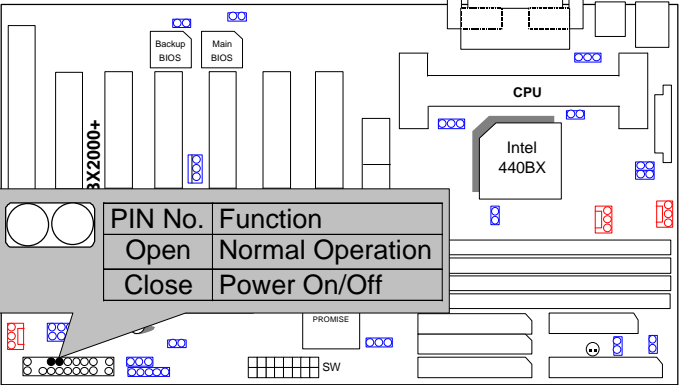
ATX POWER: ATX Power Connector

Pin No.	Function
3,5,7,13,15-17	GND
1,2,11	3.3V
4,6,19,20	VCC
10	+12V
12	-12V
18	-5V
8	Power Good
9	5V SB stand by+5V
14	PS-ON(Soft On/Off)
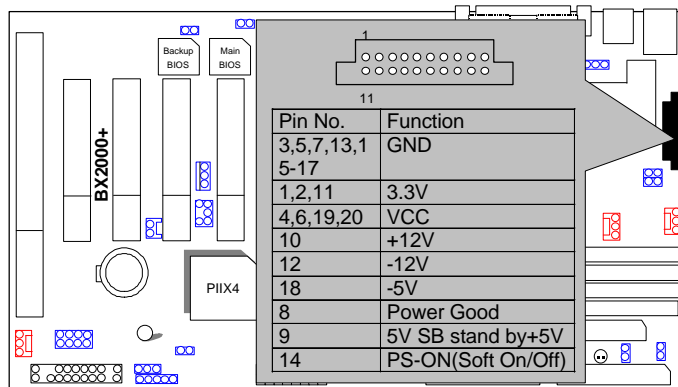
PS/2 Mouse / Keyboard Connector

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

USB : USB Port

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

CPU FAN : CPU Cooling Fan Power Connector

PIN No.	Function
1	GND
2	+12V
3	SENSE
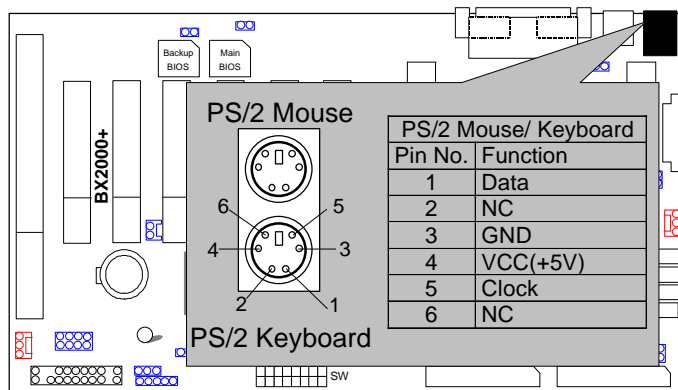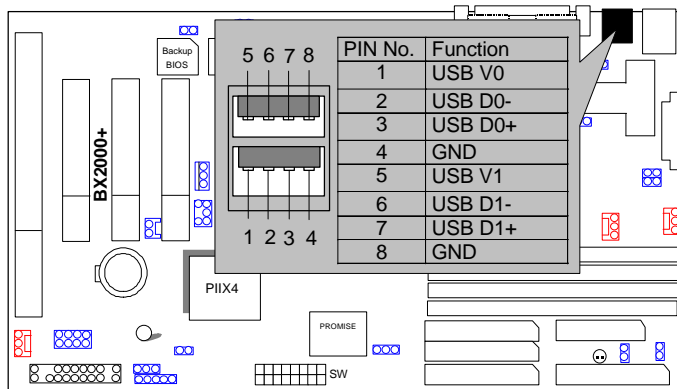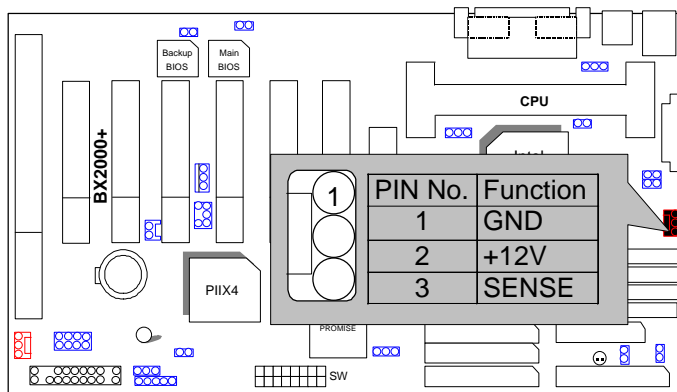
POWER FAN : Power Fan Connector

PIN No.	Function
1	GND
2	+12V
3	SENSE
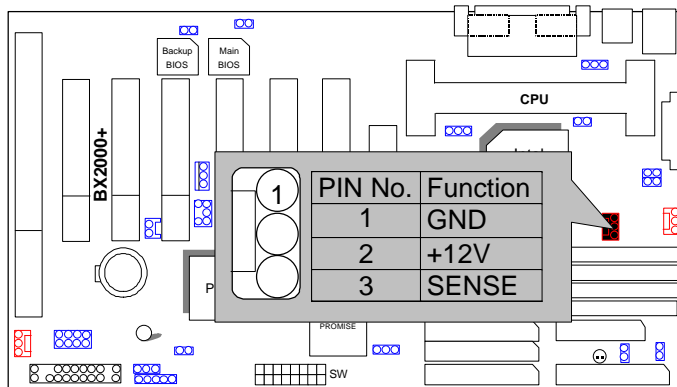
PANEL (SYSTEM) FAN : Panel (System) Fan Connector

PIN No.	Function
1	GND
2	+12V
3	SENSE
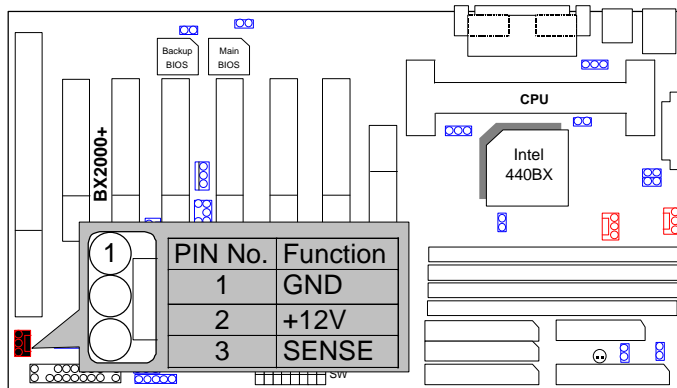
IDE1: For Primary IDE Port
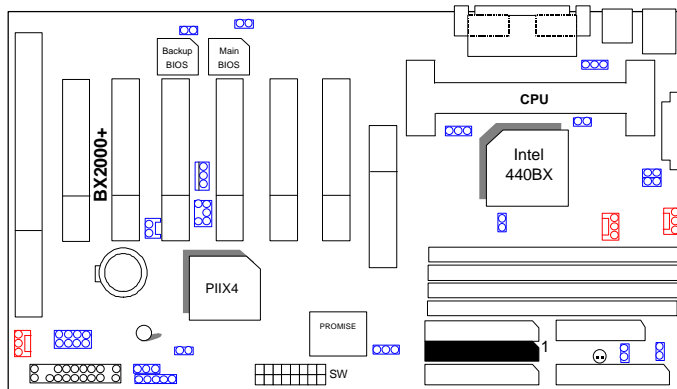
IDE2: For Secondary IDE Port
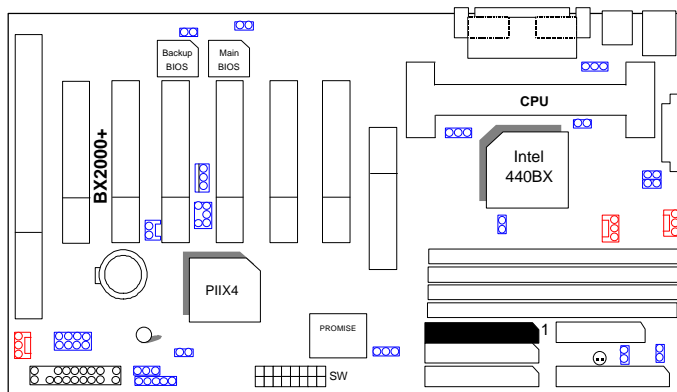
ULTRA66-1: For Ultra66 Primary IDE Port
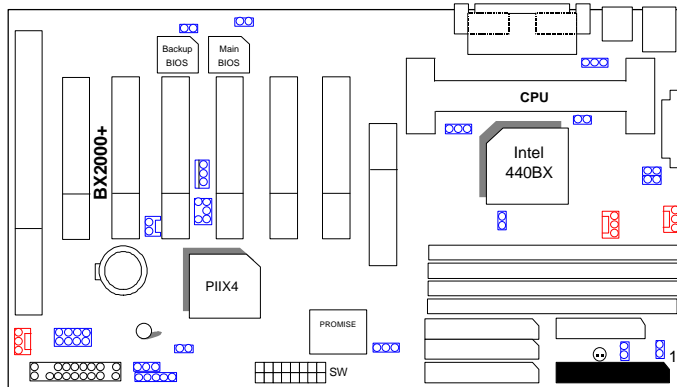
ULTRA66-2: For Ultra66 Secondary IDE Port

JP4 :ATA66 Disable / Enable

PIN No.	Function
1-2 close	ATA66 Disable
2-3 close	ATA66 Enable (Default)
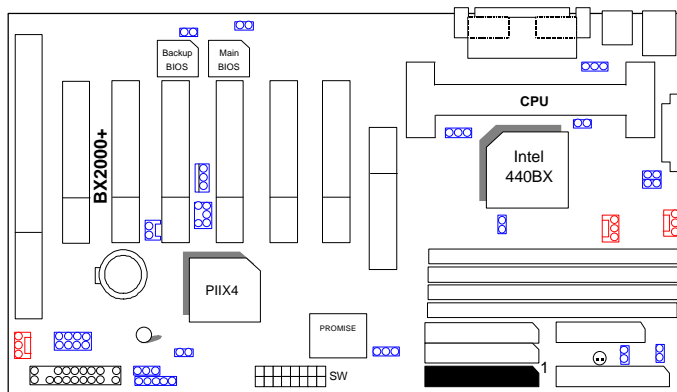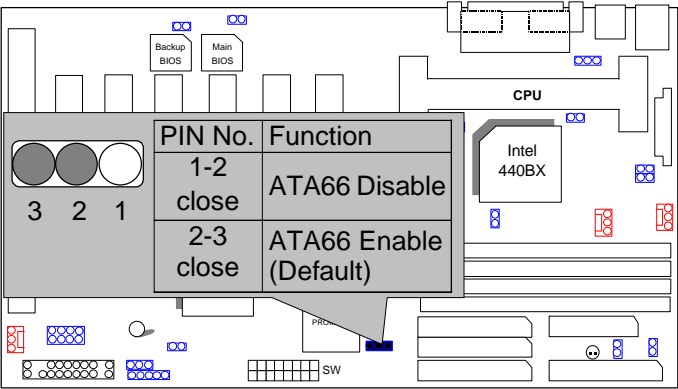
FLOPPY : Floppy Port
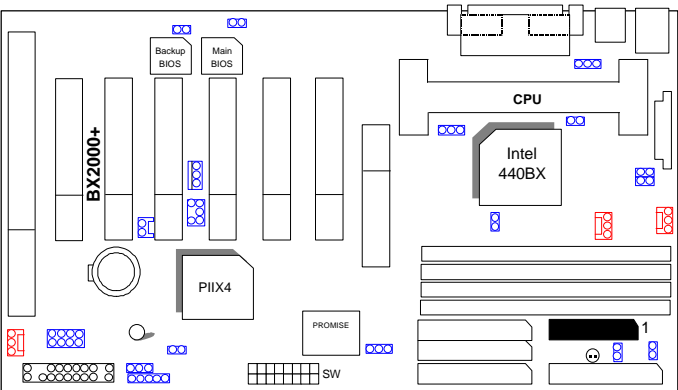
LPT PORT / COM A / COM B
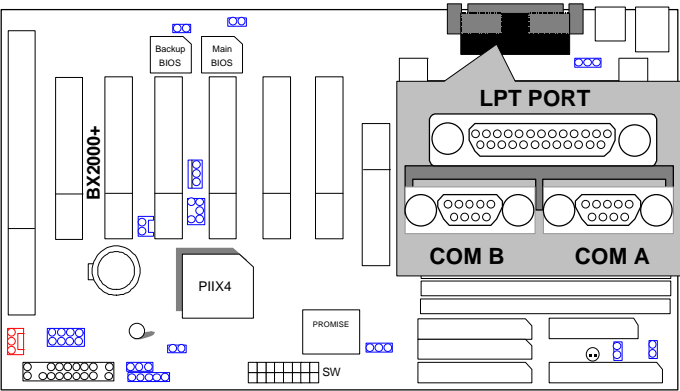
JP1 : PS/2 Keyboard Power On Selection

PIN No.	Function
1-2 close	PS/2 Keyboard Power on Enabled
2-3 close	PS/2 Keyboard Power on Disabled (Default)

J15: System After AC Back

PIN No.	Function
Open	Soft Off (Default)
Close	Full On

JP7: Wake On LAN

PIN No.	Function
1	+5V SB
2	GND
3	Signal
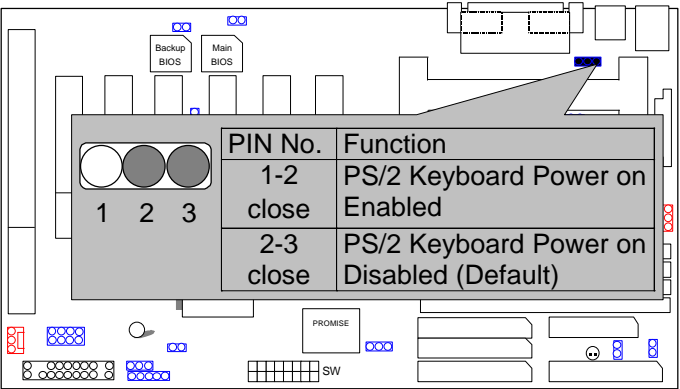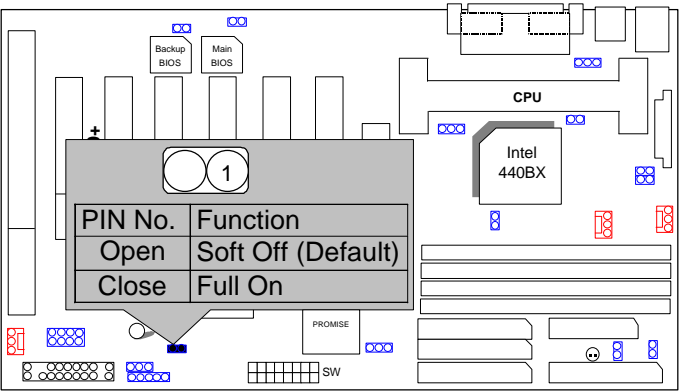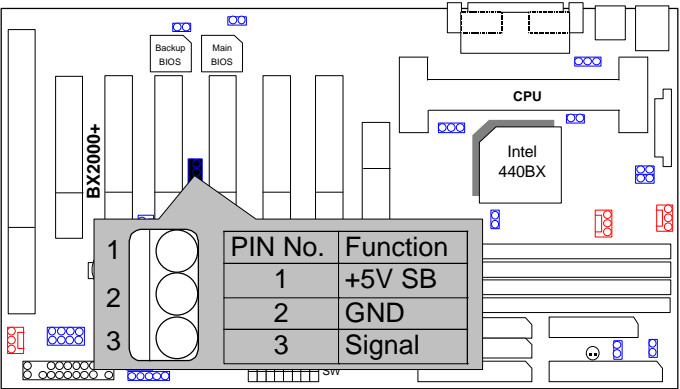
JP8:SB-LINK Creative PCI Sound Card Support (Optional)

PIN No.	Function
1	Signal
2	GND
3	NC
4	Signal
5	GND
6	Signal

JP11 : System Acceleration

PIN No.	Function
1-2 close	For 100MHz Turbo and other frequencies.
2-3 close	For 100MHz Normal(Default)

JP12 : Case Open

PIN No.	Function
1	Signal
2	GND
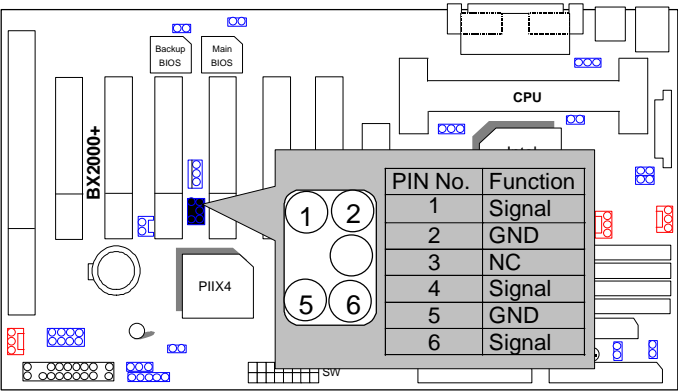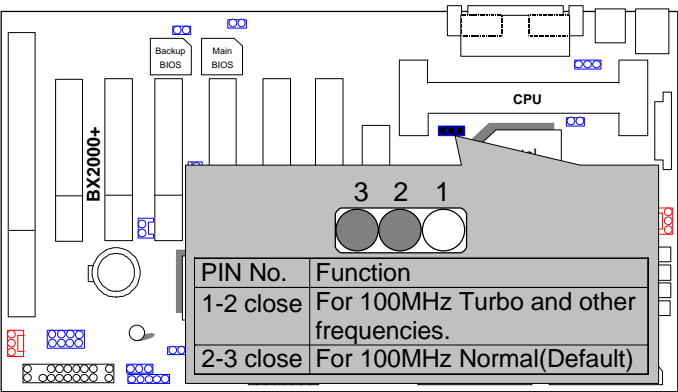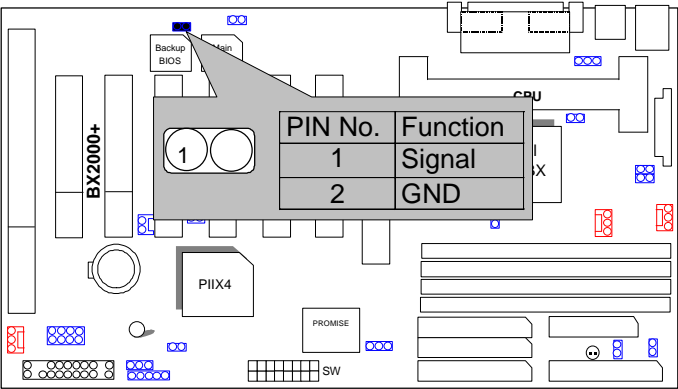
JP14 : Clear CMOS Function

PIN No.	Function
1-2 close	Clear CMOS
2-3 close	Normal (Default)
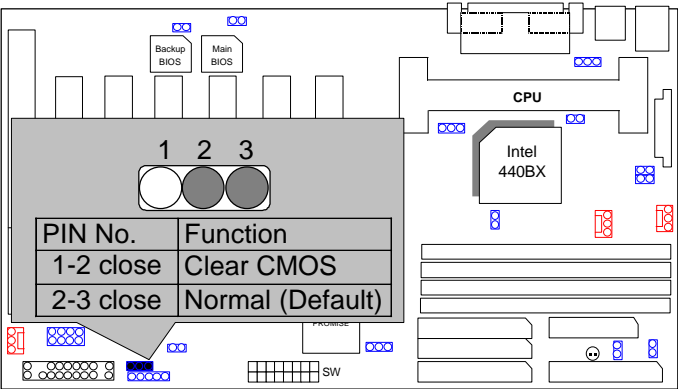
JP13 / JP17 : Close STR Enable

(If you want to use STR Function, please set jumper JP13 & JP17 Closed.)

If you use INTEL i740 Chipset AGP Card, please set jumper JP17 /JP13 "OPEN", because i740 not support STR Function.

JP17

PIN No.	Function
1	Signal
2	GND

JP13

PIN No.	Function
1	Signal
2	GND
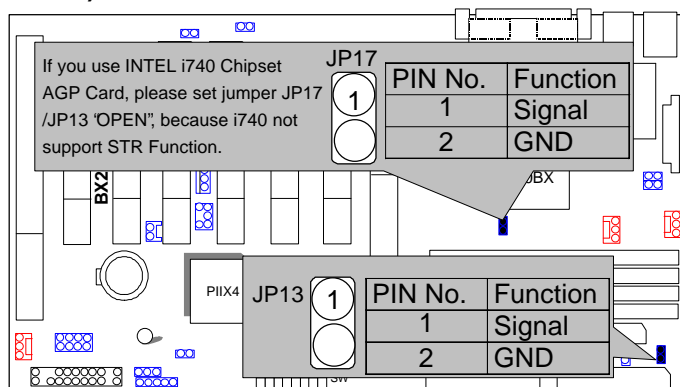
JP16 : STR LED Connector & DIMM LED
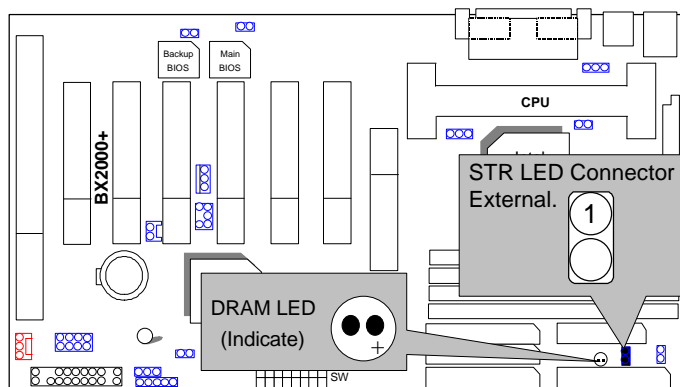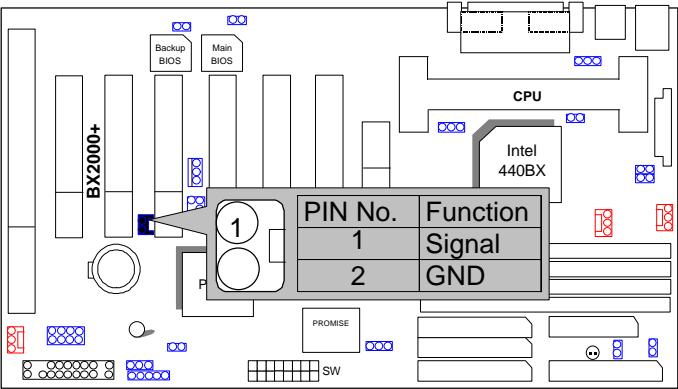
STR LED Connector External.

DRAM LED (Indicate)

J18: Ring Pwr On: Internal Modem Ring Power On

PIN No.	Function
1	Signal
2	GND

JP20 & JP21 : Close for Voodoo

PIN No.	Function
Open	Normal (Default)
Close	Close for Voodoo III VGA Card

JP22 : BIOS Flash ROM Write Protection

PIN No.	Function
Open	Normal(Default)
Close	Write Protection

When you add/update new device , set Jumper JP22 to 'Open", thi s need to be enable to update BIOS data.

JP22 Open Close

T3 : FPUSB

Pin No.	Definition
1	VCC
2	USB D0-
3	USB D0+
4	GND
5	VCC
6	USB D1-
7	USB D1+
8	GND
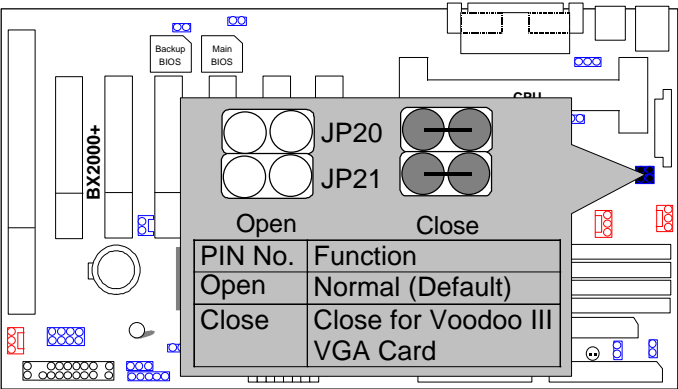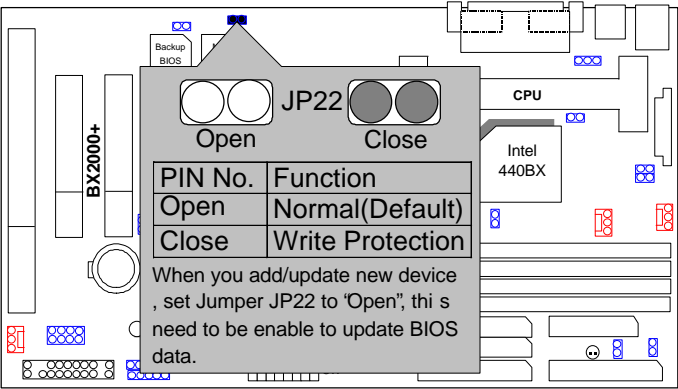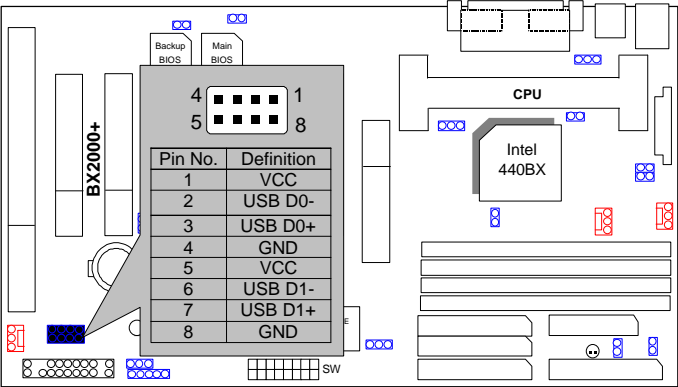
JP3 : Over Voltage **(Magic Booster)**

(When JP3 set "Open", CPU Voltage is rising 10%)

PIN No.	Function
Open	Turbo
Close	Normal (Default)

BAT1:Battery

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.
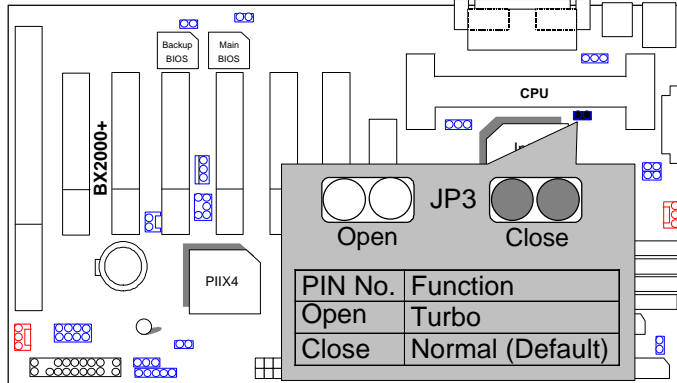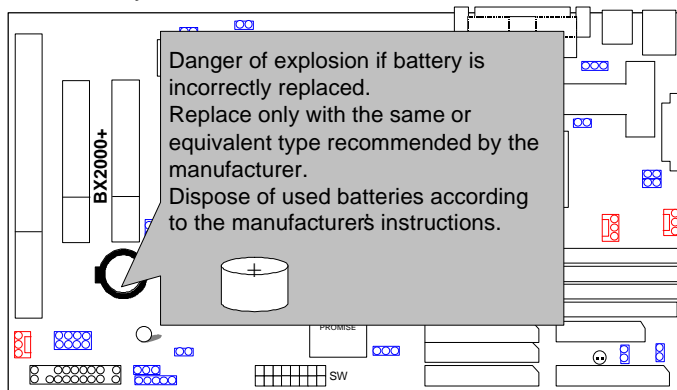
III. Top Performance Test Setting:

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.

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

- CPU   Pentium® III 667MHz processor

- DRAM   (128x1) MB BUFFALO SEC KOREA 928 KM48S8030CT-GH)

- CACHE SIZE   256 KB included in CPU

- DISPLAY   Gigabyte GA-660Plus (Driver 4.00.1381.0208,4.0.0)

- STORAGE   Onboard IDE (IBM DJNA-371350)

- Promise Ultra Driver   Driver Rev 1.44 (BIOS 0728)

- O.S.   Windows NT™ 4.0 SPK5

- DRIVER   Display Driver at 1024 x 768 x 16bit colors x 75Hz.

Processor	Intel Pentium® III 667MHz
	667MHz (100 x 6.5)
Winbench99	
CPU mark99	60.4
FPU Winmark99	3490
Business Disk Winmark99	5110
Hi-End Disk Winmark99	11600
Business Graphics Winmark99	306
Hi-End Graphics Winmark99	608
Winstone99	
Business Winstone99	40.5
Hi-End Winstone99	35.7

IV. Suspend to RAM Installation

A.1 Introduce STR function:

Suspend-to-RAM (STR) is a Windows 98 ACPI sleep mode function. When recovering from STR (S3) sleep mode, the system is able, in just a few seconds, to retrieve the last "state" of the system before it went to sleep and recover to that state. The "state" is stored in memory (RAM) before the system goes to sleep. During STR sleep mode, your system uses only enough energy to maintain critical information and system functions, primarily the system state and the ability to recognize various "wake up" triggers or signals, respectively.

A.2 STR function Installation

Please use the following steps to complete the STR function installation.
Step-By-Step Setup
Step 1:
To utilize the STR function, the system must be in Windows 98 ACPI mode.

Putting Windows 98 into ACPI mode is fairly easy.

There are two ways to accomplish this:

1. Setup with Windows 98 CD:

A. Insert the Windows 98 CD into your CD-ROM drive, select Start, and then Run.

B. Type (without quotes) **"D:\setup /p j"** in the window provided. Hit the enter key or click OK.

   (In Windows 98 second edition version, all the bios version dated 12/01/99 or later are ACPI compatible. Just type" D:\Setup", the operating system will be installed as ACPI mode).

C. After setup completes, remove the CD, and reboot your system

   (This manual assumes that your CD-ROM device drive letter is D:).

2. Update from Windows98 APM mode:
  If your Windows 98 system is in APM mode, use the following steps
  to update your system to ACPI mode.

1. When Windows 98 finishes loading, open the "Control Panel" in
   Windows 98 "My Computer" area.
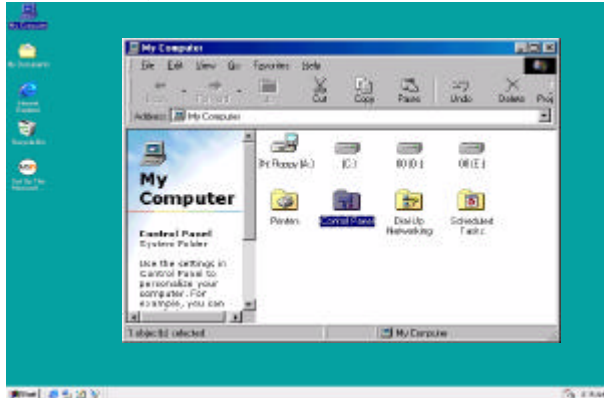
2. Double click the "System" item.
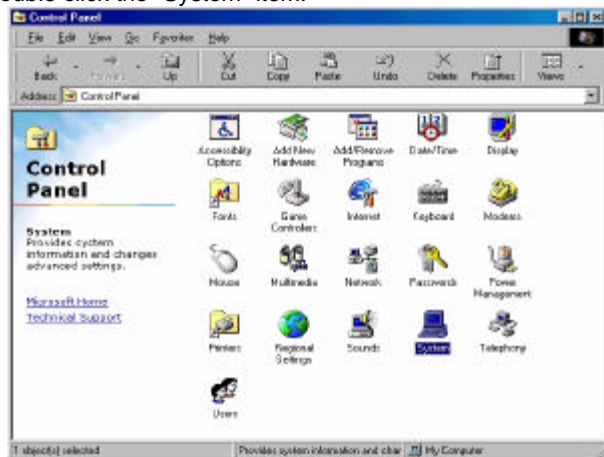
3. Select the "Device Manager" tab and then the "System Devices" item.
    Double click the "Plug and Play BIOS" item or select "Properties"
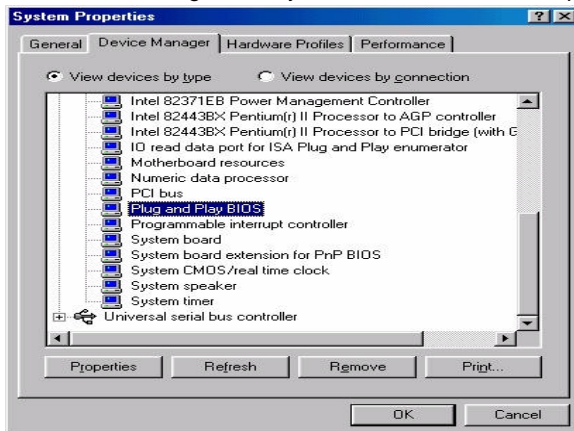
4. Select the "Driver" item and "Update Driver"
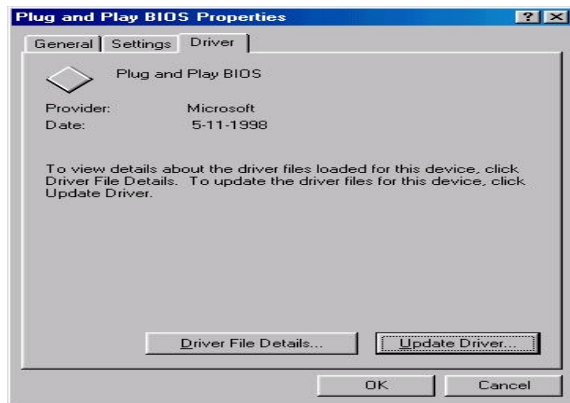
5. The "Update Device Driver Wizard" will appear.
   Press the "Next" button

6. In the "Update Device Driver Wizard" window, select the "Display a list of all the drivers in a specific location, so you can select the driver you want." Then press the "Next" button "

7. Select the "Show all hardware" item → then select the "Advance Configuration and Power Interface (ACPI) BIOS" and press the "Next" button.
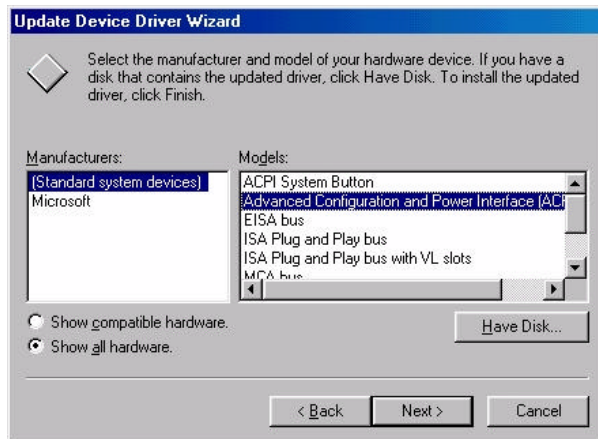
8. "Update Driver Warning" will show up and ask "Are you sure you want to use this driver?" Select the "Yes" button.
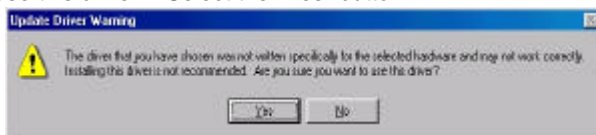
9. "Update Device Driver Wizard" will show up again. Select the "Next" button and start copying files to the system.

10. When complete, press the "Finish" button.

11. Restart your computer. Your system will start up using the ACPI mode.

Step 2:
To use STR Function, you will need to set motherboard jumpers JP13 & JP17 closed per the figure below (i.e., put a jumper over both pins at each location).

If you use INTEL i740 Chipset AGP Card, please set jumper JP17 /JP13 "OPEN", because i740 not support STR Function.

JP17

PIN No.	Function
1	Signal
2	GND

JP13

PIN No.	Function
1	Signal
2	GND
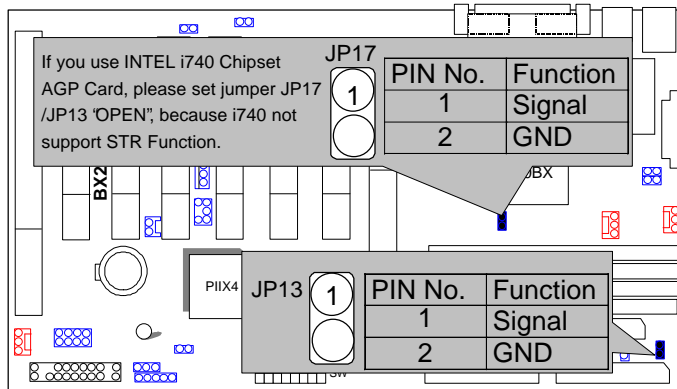
Step 3:

Power on the computer and as soon as memory counting starts, press <Del>. You will enter BIOS Setup. Select the item **"POWER MANAGEMENT SETUP",** then select **"ACPI Suspend Type: Suspend to RAM"**. Remember to save the settings by pressing "ESC" and choose the **"SAVE & EXIT SETUP"** option.

Congratulation! You have completed the installation and now can use the STR function.

A.3 How to put your system into STR mode?

There are two ways to accomplish this:

1. Choose the "Stand by" item in the "Shut Down Windows" area.

   A. Press the "Start" button and then select "Shut Down"

   B. Choose the "Stand by" item and press "OK"

2. Define the system "power on" button to initiate STR sleep mode:

A. Double click "My Computer" and then "Control Panel"

B. Double click the " Power Management" item.
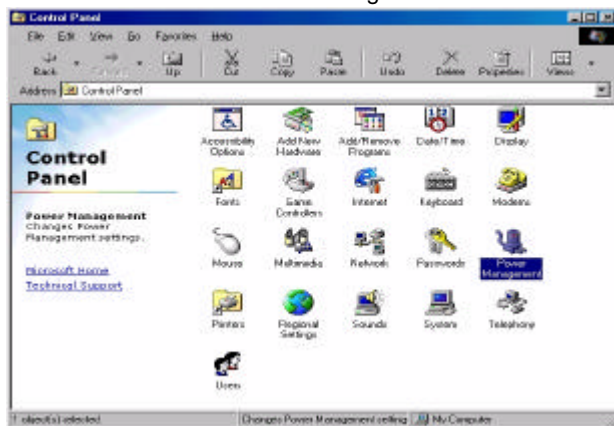
C. Select the "Advanced" tab and "Standby" mode in Power Buttons.
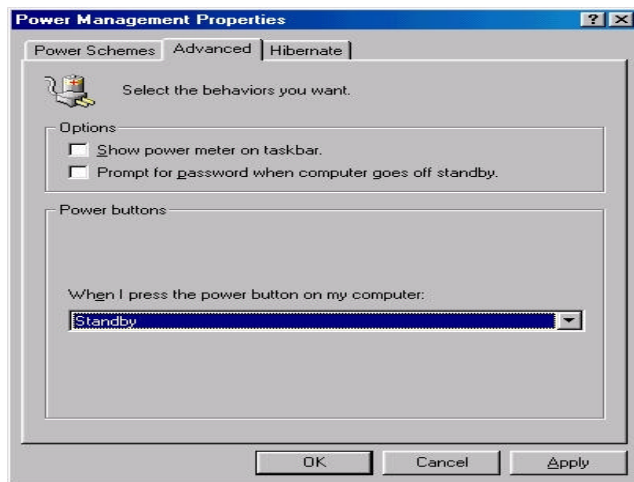
Step 4:

Restart your computer to complete setup.

Now when you want to enter STR sleep mode, just momentarily press the "Power on" button..

A.4 How to recover from the STR sleep mode?

There are six ways to "wake up" the system:

1. Press the "Power On" button
2. Use the "Keyboard Power On" function.
3. Use the "Mouse Power On" function
4. Use the "Resume by Alarm" function
5. Use the "Modem Ring On" function
6. Use the "Wake On LAN" function.

A.5 Notices & Limitations:

1. In order for STR to function properly, several hardware and software requirements must be satisfied:

    A.   Your ATX power supply must comply with the ATX 2.01 specification (provide more than 720 mA 5V Stand-By current).

    B.   Your SDRAM must be PC-100 compliant.

2.   Jumper JP16 is provided to connect to the STR LED in your system chassis. [Your chassis may not provide this feature.] The STR LED will be illuminated when your system is in STR sleep mode.
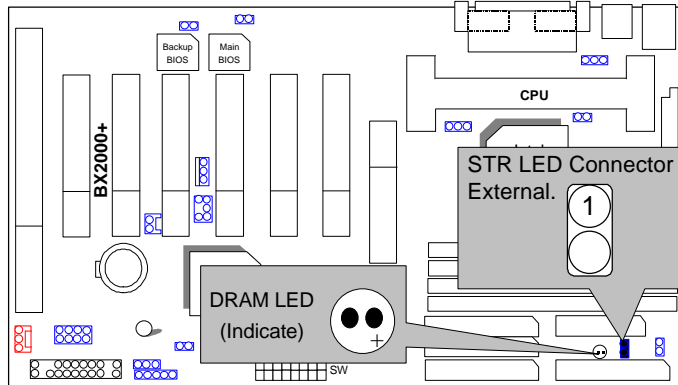
3.   The following is a listing of popular peripherals which have been successfully tested, on an individual basis, to function correctly in an STR environment. NOTE: All combinations of these peripherals have NOT been tested and therefore we do not warrant any particular combination.

A.   VGA Card:
    (1) AGP: Winfast L2300   Driver Ver.: 7-1-1998
    (2) AGP: ATi 3D RAGE Pro AGP 2X   Driver Ver.: 535
    (3) AGP: ATi RAGE TURBO AGP   Driver Ver.: 535
    (4) AGP: GA-600   Driver Ver.: win95.342

B.   VGA +Sound Card:
    (1) AGP: Winfast L2300   Driver Ver.: 7-1-998
       Sound: Creative PCI64   Driver Ver.: 3-18-1998
    (2) AGP: ATi 3D RAGE Pro x2   Driver Ver.: 535
       Sound: Creative PCI64   Driver Ver.: 3-18-1998
    (3) AGP: ATi RAGE TURBO AGP Driver Ver.:535
       Sound: Creative PCI64   Driver Ver.: 3-18-1998
    (4) AGP: GA-600   Driver Ver.: win95.342
       Sound: Creative PCI64   Driver Ver.: 3-18-1998

C.   VGA + LAN Card:
    AGP Card: Winfast L2300   Driver Ver.: 7-1-1998
             ATi 3D RAGE Pro AGP 2X Driver Ver.: 535
             ATi RAGE TURBO AGP   Driver Ver.: 535
             GA-600   Driver Ver.: win95.342

    LAN Card: Intel E100B(82557)   Driver
    Ver.:   WIn98 embedded
             Intel PILA8461(82558B)   Driver Ver.: WIn98 embedded
             Intel PILA8465(82558)   Driver Ver.: WIn98 embedded
             SMC9432TX   Driver Ver.: WIn98 embedded
             SMC EtherPower   Driver Ver.: WIn98 embedded
             D-Link DFE-500TX   Driver Ver.: WIn98 embedded
             D-Link DE-530CT   Driver Ver.: WIn98 embedded
             D-Link DE-220P   Driver Ver.: WIn98 embedded
             3COM 3C900   Driver Ver.: 10-29-1998
             3COM 3C905B-TX   Driver Ver.: 10-29-1998
             3COM 3C905   Driver Ver.: 10-29-1998
             Digital LM-P100TX   Driver Ver.: WIn98 embedded
             Digital DE500-BA   Driver Ver.: WIn98 embedded
             Adaptec ANA-6911/TX   Driver Ver.: WIn98 embedded

D.   VGA +Sound+LAN Card:

(1) AGP: Winfast L2300   Driver Ver.: 7-1-1998
    Sound: Creative PCI64   Driver Ver.: 3-18-1998
    LAN: Intel PILA8461(82558B)   Driver Ver.: WIn98 embedded

(2) AGP: Winfast L2300   Driver Ver.: 7-1-1998
    Sound: Creative PCI64   Driver Ver.: 3-18-1998
    LAN: Intel PILA8465(82558)   Driver Ver.: WIn98 embedded

(3) AGP: Winfast L2300   Driver Ver.: 7-1-1998
    Sound: Creative PCI64   Driver Ver.: 3-18-1998
    Lan: 3COM 3C905B-TX   Driver Ver.: 10-29-1998

(4) AGP: ATi 3D RAGE Pro AGP 2X   Driver Ver.: 535
    Sound: Creative PCI64   Driver Ver.: 3-18-1998
    LAN: Intel PILA8461(82558B)   Driver Ver.: WIn98 embedded

(5) AGP: ATi 3D RAGE Pro AGP 2X   Driver Ver.: 535
    Sound: Creative PCI64   Driver Ver.: 3-18-1998
    LAN: Intel PILA8465(82558)   Driver Ver.: WIn98 embedded

(6) AGP: ATi 3D RAGE Pro AGP 2X   Driver Ver.: 535
    Sound: Creative PCI64   Driver Ver.: 3-18-1998
    LAN: 3COM 3C905B-TX   Driver Ver.: 10-29-1998

(7) AGP: ATi RAGE TURBO AGP   Driver Ver.: 535
    Sound: Creative PCI64   Driver Ver.: 3-18-1998
    LAN: Intel PILA8461(82558B)   Driver Ver.: WIn98 embedded

(8) AGP: ATi RAGE TURBO AGP   Driver Ver.: 535
    Sound: Creative PCI64   Driver Ver.: 3-18-1998
    LAN: Intel PILA8465(82558)   Driver Ver.: WIn98 embedded

(9) AGP: ATi RAGE TURBO AGP   Driver Ver.: 535
    Sound: Creative PCI64   Driver Ver.: 3-18-1998
    LAN: 3COM 3C905B-TX   Driver Ver.: 10-29-1998

E.   SDRAM:
  (1) SDRAM: Apacer (AM2V168A1T8)   32MB
  (2) SDRAM: Trandscend (MITSUBISHI M5M4V16S30BTP –10) 32MB
  (3) SDRAM: BUFFALO(NEC D4516821AG5-A10-75F)   32MB
  (4) SDRAM: HYUNDAI (HYUNDIA 7V75A400 DTFG-10P)   32MB
  (5) SDRAM: ATP (SEC KM48S2020CT-G8)   32MB
  (6) SDRAM: CRUCIAL (MICRON MT48LC2M8A-8)   32MB
  (7) SDRAM: BUFFALO (FUJITSU 81F16822D-102LFN M00)   32MB
  (8) SDRAM: UMAX (MITSUBISHI M5M4V16S30DTP –8)   32MB
  (9) SDRAM: UMAX (MITSUBISHI M5M4V16S30BTP –10)   32MB
  (10) SDRAM: ARMAS (NEC D4564841G5-A10)   64MB
  (11) SDRAM: SAMSUNG (SEC KM48S8030CT-GA)   64MB
  (12) SDRAM: BUFFALO (MICRON MT48LC2M8A1-8)   64MB
  (13) SDRAM: ADTEC (MITSUBISH M5M4V64S30ATP-8)   128MB
  (14) SDRAM: (NEC D4564441G5-A10-9JF)   256MB
F.   Power Supply:

Vender	Model	Spec.
(1). HIGH POWER	HPC-250G1 REV:A0-01	(5VSB 1A)
(2). PC WINNER	ST-235ATX	(5VSB 1.5A)
(3). Enhance	ATX-725B	(5VSB 1A)
(4). Enhance	ATX-723B	(5VSB 1A)
(5). Sseasanic	SS-200FS	(5VSB 1A)
(6). SPI	FSP-235-60GT	(5VSB 0.8A)
(7). ETASIS	EPR-2305	(5VSB 0.8A)
(8). DVE	DSP-ATX-230	(5VSB 0.75A)

4.   Limitation List:

   a.   Don't get into STR mode right away when the system just resume
        from STR mode, Please wait a few seconds to let the system
        completely restore the last status's data.
   b.   SCSI HD devices are not supported for STR function for now on.
   c.   If you use a ZIP of external connector type, please modify the item
        "Parallel Port Mode" of "INTEGRATED PERIPHERALS" in your
        BIOS setting to "ECP or ECP+EPP" mode.

d. If your PS/2 Mouse fails in "Mouse Power On" function, please contact your vendor and update your Mouse Driver.

V. Introduce Dual BIOS

A. What is Dual BIOS Technology?

Dual BIOS means that there are two system BIOS (ROM) on the motherboard, one is the Main BIOS and the other is Backup BIOS. Under the normal circumstances, the system works on the Main BIOS. If the Main BIOS is corrupted or damaged, the Backup BIOS can take over while the system is powered on. This means that your PC will still be able to run stably as if nothing has happened in your BIOS.

B. How to use Dual BIOS?

a. Boot Screen

```
  ○   Award Modular BIOS v 4.51PG, An Energy Star Ally
  W   Copyright (C) 1984-98, Award Software, Inc.

  Intel 440BX AGPSet BIOS for XXX Vx.x
  Check System Health ok , Vcore =2.00V
  Pentium III-MMX CPU at 600MHz
  <CPU ID:0652 Patch ID:0014>
  Memory Test :16384K OK

  Award Plug and Play BIOS Extension Vx.x
  Copyright (C ) 1998, Award software, Inc.
  <Press F1 to enter Dual BIOS Utility>


      Press F1 to enter Dual BIOS Utility


  03/29/1999-I440BX-8671-2A69KG0EC-00
```
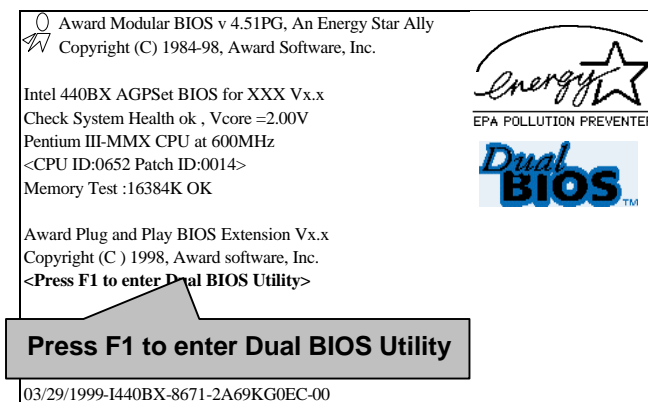
b. Dual BIOS Utility

```
Dual BIOS Utility V6.60.g.01K
(C) 1999, Gigabyte Technology Co., LTD.


Wide Range Protection              :Disabled
Halt On BIOS Defects               :Disabled
Auto Recovery                      :Enabled
Boot From                          :Main BIOS
BIOS Recovery                      :Main to Backup

F3: Load Default        F5:Start BIOS Recovery
F7: Save And Restart    F9:Exit Without Saving



Use <Space> key to toggle setup
```

c. Dual BIOS Item explanation:

Wide Range Protection: Disabled(Default), Enabled

Status 1:

If any failure (ex. Update ESCD failure, checksum error or reset…)
occurs in the Main BIOS , just before the Operating System is loaded
and after the power is on, and that the Wide Range Protection is set to
"Enable", the PC will boot from Backup BIOS automatical ly.

Status 2:

If the ROM BIOS on peripherals cards(ex. SCSI Cards, LAN Cards,..)
emits signals to request restart of the system after the user make any
alteration on it, the boot up BIOS will not be changed to the Backup
BIOS.

Halt On BIOS Defects : Disabled(Default), Enabled

If the BIOS occurs a checksum error or the Main BIOS occurs a WIDE RANGE PROTECTION error and Halt On BIOS Defects set to Enable, the PC will show messages on the boot screen, and the system will pause and wait for the user's instruction.

If Auto Recovery :**Disabled**, it will show ***<or the other key to continue.>***
If Auto Recovery :**Enabled**, it will show ***<or the other key to Auto Recover.>***

Auto Recovery : Enabled(Default), Disabled

When one of the Main BIOS or Backup BIOS occurs checksum failure, the working BIOS will automatically recover the BIOS of checksum failure. (In the Power Management Setup of the BIOS Setting, if ACPI Suspend Type is set to Suspend to RAM, the Auto Recovery will be set to Enable automatically.)
(If you want to enter the BIOS setting, please press **"Del"** key when the boot screen appears.)

Boot From : Main BIOS(Default), Backup BIOS

Status 1:

The user can set to boot from main BIOS or Backup BIOS.
Status 2:

If one of the main BIOS or the Backup BIOS fails, this item *"Boot From : Main BIOS(Default)"* will become gray and will not be changed by user.

BIOS Recovery : Main to Backup

Auto recovery message:

BIOS Recovery: Main to Backup

The means that the Main BIOS works normally and could automatically recover the Backup BIOS.

BIOS Recovery: Backup to Main

The means that the Backup BIOS works normally and could automatically recover the Main BIOS.

(This auto recovery utility is set by system automatically and can't be changed by user.)

DualBIOS™ Technology FAQ

GIGABYTE Technology is pleased to introduce DualBIOS technology, a hot spare for your system BIOS. This newest "Value-added" feature, in a long series of innovations from GIGABYTE, is available on GA-BX2000+ motherboard. Future GIGABYTE motherboards will also incorporate this innovation.

What's DualBIOS™?

On GIGABYTE motherboards with DualBIOS there are physically two BIOS chips. For simplicity we'll call one your "Main BIOS" and the other we'll call your "Backup" BIOS (your "hot spare"). If your Main BIOS fails, the Backup BIOS almost automatically takes over on your next system boot. Almost automatically and with virtually zero down time! Whether the problem is a failure in flashing your BIOS or a virus or a catastrophic failure of the Main BIOS chip, the result is the same - the Backup BIOS backs you up, almost automatically.

I. Q: What is DualBIOS™ technology?
Answer:
DualBIOS technology is a patented technology from Giga-Byte Technology. The concept of this technology is based on the redundancy and fault tolerance theory. DualBIOS™ technology simply means there are two system BIOSes (ROM) integrated onto the motherboard. One is a main BIOS, and the other is a backup BIOS. The mainboard will operate normally with the main BIOS, however, if the main BIOS is corrupt or damaged for various reasons, the backup BIOS will be automatically used when the system powered-On. Your PC will operate as before the main BIOS was damaged, and is completely transparent to the user.

II. Q: Why does anyone need a motherboard with DualBIOS™ technology?
Answer:
In today's systems there are more and more BIOS failures. The most common reasons are virus attacks, BIOS upgrade failures, and/or deterioration of the BIOS (ROM) chip itself.
1. New computer viruses are being found that attack and destroy the system BIOS. They may corrupt your BIOS code, causing your PC to be unstable or even not boot normally.
2. BIOS data will be corrupted if a power loss/surge occurs, or if a user resets the system, or if the power button is pressed during the process of performing a system BIOS upgrade.
3. If a user mistakenly updates their mainboard with the incorrect BIOS file, then the system may not be able to boot correctly. This may cause the PC system hang in operation or during boot.
4. A flash ROM's life cycle is limited according to electronic characteristics. The modern PC utilizes the Plug and Play BIOS, and is updated regularly. If a user changes peripherals often, there is a slight chance of damage to the flash ROM.

With Giga-Byte Technology's patented DualBIOS ™ technology you can reduce the possibility of hangs during system boot up, and/or loss BIOS data due to above reasons. This new technology will eliminate valuable system down time and costly repair bills cause by BIOS failures.

III. Q: How does DualBIOS^{TM} technology work?
Answer:

1. DualBIOS^{TM} technology provides a wide range of protection during the boot up procedure. It protects your BIOS during system POST, ESCD update, and even all the way to PNP detection/assignment.
2. DualBIOS^{TM} provides automatic recovery for the BIOS. When the first BIOS used during boot up does not complete or if a BIOS checksum error occurs, boot-up is still possible. In the DualBIOS^{TM} utility, the "Auto Recovery" option will guarantee that if either the main BIOS or backup BIOS is corrupted, the DualBIOS^{TM} technology will use the good BIOS and correct the wrong BIOS automatically.
3. DualBIOS^{TM} provides manual recovery for the BIOS. DualBIOS^{TM} technology contains a built-in flash utility, which can flash your system BIOS from backup to main and/or visa versa. There is no need for an OS-dependent flash utility program.
4. DualBIOS^{TM} contains a one-way flash utility. The built-in one-way flash utility will ensure that the corrupt BIOS is not mistaken as the good BIOS during recovery and that the correct BIOS (main vs. backup) will be flashed. This will prevent the good BIOS from being flashed.

IV. Q: Who Needs DualBIOS^{TM} technology?
Answer:

1. Every user should have DualBIOS^{TM} technology due to the advancement of computer viruses.
   Everyday, there are new BIOS-type viruses discovered that will destroy your system BIOS. Most commercial products on the market do not have solutions to guard against this type of virus intrusion. The DualBIOS^{TM} technology will provide a state-of-the-art solution to protect your PC:
   Case I.) Vicious computer viruses may wipe out your entire system BIOS. With a conventional single system BIOS PC, the PC will not be functional until it is sent for repairs.
   Case II.) If the "Auto Recovery" option is enabled in the DualBIOS^{TM} utility, and if a virus corrupts your system BIOS, the backup BIOS will automatically reboot the system and correct the main BIOS.
   Case III.) A user may override booting from the main system BIOS. The DualBIOS^{TM} utility may be entered to manually change the boot sequence to

boot from the backup BIOS.

2. During or after a BIOS upgrade, if DualBIOS^{TM} detects that the main BIOS is corrupt, the backup BIOS will take over the boot-up process automatically. Moreover, it will verify the main and backup BIOS checksums when booting-up. DualBIOS^{TM} technology examines the checksum of the main and backup BIOS while the system is powered on to guarantee your BIOS operates properly.

3. Power Users will have the advantage of having two BIOS versions on their mainboard. The benefit is being able to select either version BIOS to suit the performance system needs.

4. Flexibility for high-end desktop PCs and workstation/servers. In the DualBIOS^{TM} utility, the option can be set, "Halt On When BIOS Defects," to be enabled to halt your system with a warning message that the main BIOS has been corrupted. Most workstation/servers require constant operation to guarantee services have not been interrupted. In this situation, the "Halt On When BIOS Defects" message may be disabled to avoid system pauses during normal booting. Another advantage you gain from Giga-Byte's DualBIOS^{TM} technology is the ability to upgrade from dual 2 Mbit BIOS to dual 4 Mbit BIOS in the future if extra BIOS storage is need.

TABLE OF CONTENTS

1. INTRODUCTION

1.1. PREFACE

Welcome to use the **BX2000+** motherboard. It is a Pentium® II / III / Celeron Processor based PC / AT compatible system with AGP / PCI / ISA Bus, and has been designed to be the fastest PC / AT system. There are some new features allow you to operate the system with just the performance you want.

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

1.2. KEY FEATURES

❑ Intel Pentium® II / III / Celeron Processor based PC / AT compatible main board.

❑ Slot 1 supports Pentium® II / III / Celeron processor running at 233-800 MHz.

❑ Intel 440BX chipset, Supports AGP / SDRAM / Ultra DMA/33 IDE / Keyboard and PS/2 Mouse Power On / ACPI features.

❑ Supports 4xDIMMs using 3.3V SDRAM DIMM module.

❑ Supports Intel LDCM® Network Manageability.

❑ Supports 8 MB – 1GB SDRAM memory on board.

❑ Supports ECC or Non-ECC type DRAM module.

❑ 1xAGP slot, 6xPCI Bus slots, 1xISA Bus slots.

❑ Supports 2 channels Ultra DMA/33 IDE ports for 4 IDE Devices.
❑ Promise Chipset supports 2 channels Ultra DMA66/33 IDE Port for 4 IDE Device.

❑ Supports 2xCOM (16550), 1xLPT (EPP / ECP), 1x Floppy port.

❑ Supports 4xUSB ports (Front Panel USBx2, Back Panel USBx2), 1xPS/2 Mouse & 1xPS/2 Keyboard.

❑ Licensed AWARD BIOS, 2M bits FLASH ROM.

❑ Support **Dual BIOS** and **BIOS Write Protection**.

❑ Support **Suspend To RAM** Function.

❑ Support **CPU Over Voltage Select** (**Magic Booster**).

❑ 30.5 cm x 19.5 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. (Different Hardware & Software configuration will result in different benchmark testing results.)

- CPU   Pentium® III 667MHz processor

- DRAM   (128x1) MB BUFFALO SEC KOREA 928 KM48S8030CT-GH)

- CACHE SIZE   256 KB included in CPU

- DISPLAY   Gigabyte GA-660Plus (Driver 4.00.1381.0208,4.0.0)

- STORAGE   Onboard IDE (IBM DJNA-371350)

- Promise Ultra Driver   Driver Rev 1.44 (BIOS 0728)

- O.S.   Windows NT™ 4.0 SPK5

- DRIVER   Display Driver at 1024 x 768 x 16bit colors x 75Hz.

Processor	Intel Pentium® III 667MHz
	667MHz (100 x 6.5)
Winbench99	
CPU mark99	60.4
FPU Winmark99	3490
Business Disk Winmark99	5110
Hi-End Disk Winmark99	11600
Business Graphics Winmark99	306
Hi-End Graphics Winmark99	608
Winstone99	
Business Winstone99	40.5
Hi-End Winstone99	35.7

1.4. BLOCK DIAGRAM

SLOT 1

14.318MHz

AGP

Host Bus

INTEL
82443BX
CHIPSET

66 /
100 MHz

66 /
100 MHz

AGP Bus

33MHz

66MHz

66 /
100 MHz

3.3V SDRAM
DIMM Sockets

PCI Bus

Ultra DMA/33
IDE Ports

ICS 9248-63 /
9279-01

33 MHz

24MHz

33 MHz

33 MHz

PIIX4
82371EB
CHIPSET

48 MHz

14.318MHz

FPUSB

BPUSB

IDE Bus

USB Bus

Promise

14.318MHz

COM Ports

I/O
CHIPSET
ITE 8671

LPT Port

Floppy Port

Keyboard

ISA
Bus

PS/2 Mouse

Ultra DMA66/33
IDE Ports

1.5. INTRODUCE THE Pentiumâ II / III Processors
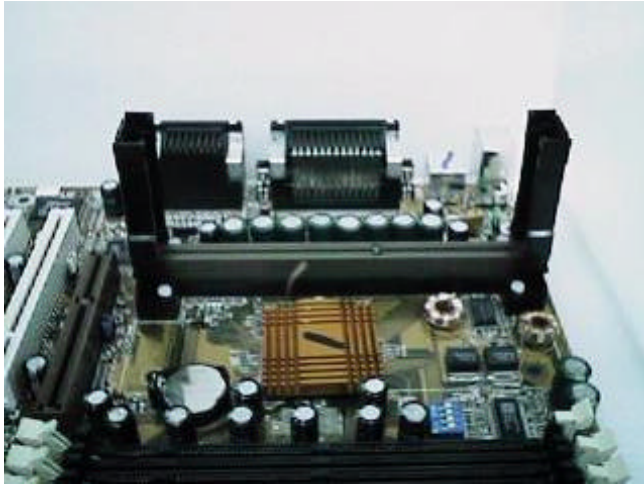
Figure 1: Universal Retention Mechanism & attach Mount

Figure 2:OEM Pentium® II Processor

Figure 3: OEM Pentium® III Processor

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
  - − Pentium® II/III/Celeron processor 233 – 800 MHz.
  - − 242 pins 66 / 100MHz slot1 on board.

- PROTECTION
  - − Supports **CPU Over Voltage Select** (**Magic Booster**).
  - − Speaker Alarm when detect "CPU FAN Failure" or "CPU Overheat".
  - − Automatically slow down CPU speed when "CPU Overheat".
  - − Intel LDCM® supported.
  - − H/W monitor power status (±5V, ±12V, VGTL,5VSB, CPU voltage & CMOS battery voltage).(Optional)

- SPEED
  - − 66/100 MHz system speed.
  - − 66 MHz AGP bus speed. (2X mode 133MHz)
  - − 33 MHz PCI-Bus speed.
  - − 8 MHz AT bus speed.

- DRAM MEMORY
  - − 4 banks 168 pins DIMM module sockets on board.
  - − Use 8 / 16 / 32 / 64 / 128 / 256 MB DIMM module DRAM.
  - − 8 ~ 1GB SDRAM.
  - − Supports 3.3V SDRAM.
  - − Supports ECC or Non-ECC type DRAM.
  - − Supports **Suspend To RAM** Function.

- CACHE MEMORY
  - − 32 KB L1 cache memory included in CPU.
  - − L2 cache memory included in CPU (depends on CPU type)
  - − Supports DIB speed mode for L2 Cache.

- I/O BUS SLOTS
  - − 6 33MHz Master / Slave PCI-BUS.
  - − 1 8MHz 16 bits ISA BUS.
  - − 1 66MHz / 133MHz AGP bus.

- IDE PORTS
  - 2 Ultra DMA/33 Bus Master IDE channels onboard. (Using IRQ14,15)
  - Support Mode 3,4 IDE & ATAPI CD – ROM.
  - Promise Chipset supports 2 Channels Ultra DMA66/33 IDE Port for 4 IDE device.

- I/O PORTS
  - Supports 2 16550 COM ports.
  - Supports 1 SPP/EPP/ECP LPT port.
  - Supports 1 Floppy port.
  - Supports 4 USB ports.
  - Supports PS/2 Mouse & PS/2 Keyboard.

- GREEN FUNCTION
  - Suspend mode support.
  - Green switch & ACPI LED support.
  - IDE & Display power down support.
  - Monitor all IRQ / DMA / Display / I/O events.

- BIOS
  - 2M bits FLASH ROM.
  - Support **Dual BIOS** and **BIOS Write Protection**.
  - Supports Plug & Play, DMI , ACPI Function.

- DIMENSION
  - ATX Form Factor, 4 layers PCB.

2.2. SOFTWARE

- DRIVER
  - IUCD.
- BIOS
  - Licensed AWARD BIOS.
  - AT CMOS Setup, BIOS / Chipset Setup, Green Setup, Hard Disk Utility included.
- O.S.
  - Operation with MS-DOS®, Windows®95, Windows®98, WINDOWS NT™, OS/2, NOVELL and SCO UNIX.

2.3. ENVIRONMENT

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

3.   HARDWARE INSTALLATION

3.1. UNPACKING

The main board package should contain the following:

- The **BX2000+** main board.

- The Universal Retention Mechanism & Attach Mount

- USER'S MANUAL for main board.

- Cable set for DMA66/33 device, Floppy device.

- CD for main board Utility.

The main board contains sensitive electric components, which can be easily damaged by static electricity, so the main board 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 main board 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 main board 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
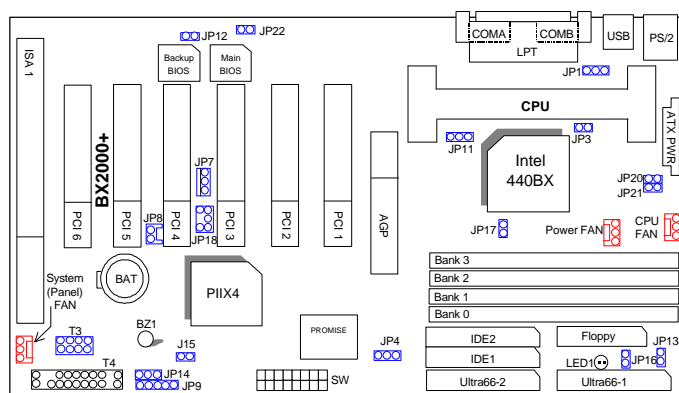
≺Figure 3.1≻

3.3. QUICK REFERENCE FOR JUMPERS & CONNECTORS

♦ I/O Ports Connector	
USB	USB port.
PS/2	For PS/2 Keyboard / Mouse port.
IDE 1	For Primary IDE port.
IDE 2	For Secondary IDE port.
Ultra66-1	For Ultra DMA66 Primary IDE port.
Ultra66-2	For Ultra DMA66 Secondary IDE port.
Floppy	For Floppy port
COM B	For Serial port2 (COM B).[Support External Modem Ring On]
COM A	For Serial port1 (COM A).[Support External Modem Ring On]
LPT	For LPT port.
ATX POWER	For ATX Power Connector.

♦ Slot 1
For Pentium® II / III / Celeron Processor installed

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

3	SENSE

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

♦ PANEL(SYSTEM) FAN: PANEL(SYSTEM) FAN Power Connector	
Pin No.	Function
1	GND.
2	+12V
3	SENSE

♦ J15 : System After Ac Back	
Pin No.	Function
Open	Soft Off (Default)
Close	Full On

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

♦ JP11 : System Acceleration	
1-2 close	For 100MHz Turbo and other frequencies
2-3 close	For 100MHz Normal (Default)

♦ JP7 : Wake on LAN Connector	
Pin No.	Function
1	+5VSB
2	GND
3	CTRL-Signal

♦ JP12 : Case Open	
Pin No.	Function
1	Signal
2	GND

♦ JP18 SB-LINK : For PCI Sound Card Connector (Optional)

Pin No.	Function
1	Signal
2	GND
3	NC
4	Signal
5	GND
6	Signal

♦ JP9 IR: INFRARED Connector (Optional)

Pin No.	Function
1	IR DATA OUTPUT
2	GND
3	IR DATA INPUT
4	NC
5	VCC (+5V)

♦ JP14 : CLEAR CMOS

Pin No.	Function
1-2 close	Clear CMOS
2-3 close	Normal (Default)

♦ JP13 / JP17 :Close STR Enable

Pin No.	Function
1	Signal
2	GND

♦ JP8 Ring Pwr On : Internal Modem Ring Power On.

Pin No.	Function
1	Signal
2	GND

♦ JP20 & JP21 : Close for Voodoo

Pin No.	Function
Open	Normal (Default)
Close	Close for Voodoo III VGA Card.

♦ JP3 : Over Voltage (Magic Booster)

Pin No.	Function

Open	Turbo.
Close	Normal (Default)

♦ JP4 : ATA66 Disable / Enable	
Pin No.	Function
1-2 close	Disabled
2-3 close	Enabled (Default)

♦ JP22 : BIOS Flash ROM Write Protection	
Pin No.	Function
Open	Normal (Default)
Close	Write Protection

♦ T3 : FPUSB	
Pin No.	Function
1	VCC
2	USB D0-
3	USB D0+
4	GND
5	VCC
6	USB D1-
7	USB D1+
8	GND

T4 : 2*11PIN Jumper
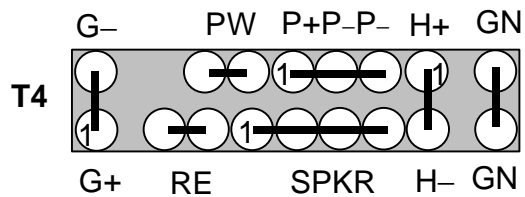
PW : Soft Power Connector

Open: Normal Operation
Short: Power On/Off

RE : Reset Switch

Open: Normal Operation
Short: For Hardware Reset System

P+P- P- : Power LED

PIN 1 : LED anode (+)
PIN 2 : LED cathode (−)
PIN 3 : LED cathode (−)
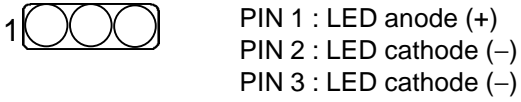
SPKR : External Speaker Connector

PIN 1 : VCC (+)
PIN 2 : VCC
PIN 3 : Data
PIN 4 : Data (−)

H+H- : IDE Hard Disk Active LED

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

GN: Green Function Switch

Open : Normal operation
Short : Entering Green Mode

G- G+: Green LED

PIN 1 : LED anode (+)
PIN 2 : LED cathode (−)
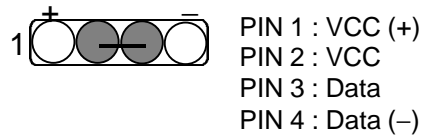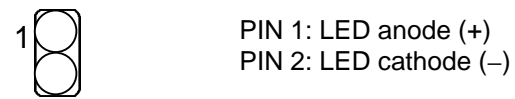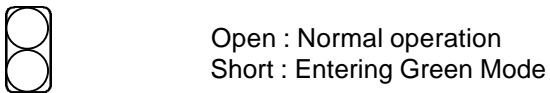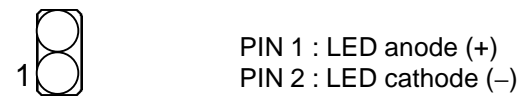
3.4. DRAM INSTALLATION

The main board can be installed with 8 / 16 / 32 / 64 / 128 / 256 MB 168 pins DIMM module DRAM, and the DRAM speed must be 67~100 MHz for SDRAM when system bus speed is set to 66MHz. When system bus speed is set to 100MHz, 100MHz SDRAM is required. The DRAM memory system on main board consists of bank 0, 1, 2 & bank 3.

Since 168 pins DIMM module is 64 bits width, therefore 1 piece of DIMM module may match a 64 bits system. The total memory size is 8 MB ~1GB 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 could not be inserted into socket completely.

3.5. CPU SPEED SETUP

The system bus speed can be set to 66 / 100MHz form the DIP SWITCH (**SW**). The user can change the DIP SWITCH selection to set up the CPU speed for different processors.

Pentium® II / III CPU	1	2	3	4	5	6	7	8
233 / 66MHz	OFF	OFF	ON	ON	ON	OFF	OFF	ON
266 / 66MHz	ON	ON	OFF	ON	ON	OFF	OFF	ON
300 / 66MHz	OFF	ON	OFF	ON	ON	OFF	OFF	ON
333 / 66MHz	ON	OFF	OFF	ON	ON	OFF	OFF	ON
366 / 66MHz	OFF	OFF	OFF	ON	ON	OFF	OFF	ON
400 / 66MHz	ON	ON	ON	OFF	ON	OFF	OFF	ON
433 / 66MHz	OFF	ON	ON	OFF	ON	OFF	OFF	ON
466 / 66MHz	ON	OFF	ON	OFF	ON	OFF	OFF	ON
500 / 66MHz	OFF	OFF	ON	OFF	ON	OFF	OFF	ON
533 / 66MHz	ON	ON	OFF	OFF	ON	OFF	OFF	ON
* 566 / 66MHz	OFF	ON	OFF	OFF	ON	OFF	OFF	ON
350 / 100MHz	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
400 / 100MHz	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
450 / 100MHz	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
500 / 100MHz	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
550 / 100MHz	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF

600 / 100MHz	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
650 / 100MHz	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
700 / 100MHz	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
750 / 100MHz	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
800 / 100MHz	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
* 850 / 100MHz	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF

★ **We don't rec ommend you to setup your CPU ratio above 8 nth, it doesn't support now.**

Main Clock Table				
CLK	**5**	**6**	**7**	**8**
66 MHz	ON	OFF	OFF	ON
152 MHz	ON	OFF	ON	OFF
142MHz	ON	ON	OFF	OFF
100 MHz	OFF	OFF	OFF	OFF
112MHz	OFF	OFF	ON	OFF
124 MHz	OFF	ON	ON	OFF
133 MHz ⇄	OFF	ON	OFF	OFF
PCI Run 44.3 MHz				
133 MHz ⇄	ON	ON	ON	OFF
PCI Run 33.3 MHz				

☀ **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 main board.**

3.6. CMOS RTC & ISA CFG CMOS RAM

There're RTC & CMOS RAM 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 RAM 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 after it cannot work.

☀ Danger of explosion if battery is incorrectly replaced.

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

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

3.7. SPEAKER CONNECTOR INSTALLATION

There is a speaker in AT system for sound purpose. The 4 - Pins connector **SPKR** is used to connect speaker. Anode connects +, Cathode connects –.

3.8. HARDWARE RESET SWITCH CONNECTOR INSTALLATION

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

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

3.12. KEYBOARD & PS/2 MOUSE INSTALLATION

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

4.BIOS CONFIGURATION

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

4.1. ENTERING SETUP

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

4.2. CONTROL KEYS

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

4.3. GETTING HELP

4.3.1. Main Menu

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

4.3.2. Status Page Setup Menu / Option Page Setup Menu

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

4.4. THE MAIN MENU

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

ROM PCI/ISA BIOS (6A6LGG09)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

```
STANDARD CMOS SETUP              INTEGRATED PERIPHERALS

BIOS FEATURES SETUP             SUPERVISOR PASSWORD

CHIPSET FEATURES SETUP          USER PASSWORD

POWER MANAGEMENT SETUP          IDE HDD AUTO DETECTION

PNP/PCI CONFIGURATION           SAVE & EXIT SETUP

LOAD BIOS DEFAULTS              EXIT WITHOUT SAVING

LOAD PERFORMANCE DEFAULTS

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

Figure 4.1: Main Menu

- Standard CMOS setup

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

- BIOS features setup

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

- Chipset features setup

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

- Power management setup

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

- PNP/PCI configuration

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

- Load BIOS defaults

  BIOS Defaults indicates the most appropriate value of the system parameters that the system would be in safe configuration.

- Load Performance defaults

  Performance Defaults indicates the value of the system parameters that the system would be in the best performance configuration.

- Integrated peripherals

  This setup page includes all onboard peripherals.

- Supervisor password

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

- User password

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

- IDE HDD auto detection

  Automatically configure hard disk parameters.

- Save & exit setup

  Save CMOS value settings to CMOS and exit setup.

- Exit without saving

  Abandon all CMOS value changes and exit setup.

4.5. STANDARD CMOS SETUP MENU

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

Figure 4.2: Standard CMOS Setup Menu

- Date

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

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

- Time

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

- Primary HDDs / Secondary HDDs

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

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

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

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

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

- Drive A type / Drive B type

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

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

- Floppy 3 Mode Support (for Japan Area)

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

- Video

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

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

- Halt on

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

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

- Memory

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

  ### Base Memory

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

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

  ### Extended Memory

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

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

  ### Expanded Memory

  Expanded Memory 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

```
                 ROM PCI/ISA BIOS (2A69KG0E)
                     BIOS FEATURES SETUP
                     AWARD SOFTWARE, INC.

 Virus Warning              : Disabled   HDD S.M.A.R.T. capability : Disabled
 CPU Internal Cache         : Enabled    Report No FDD For WIN 95  : No
 External Cache             : Enabled    Video  BIOS Shadow        : Enabled
 CPU L2 Cache ECC Checking  : Disabled
*Processor Number Feature   : Enabled
 Quick Power On Self Test   : Enabled
 CPU Update Data            : Enabled
 Boot From LAN First        : Enabled
 Boot Sequence              : A,C,SCSI
 Swap Floppy Drive          : Disabled
 VGA Boot From              : AGP
 Boot Up Floppy Seek        : Enabled
 Boot Up NumLock Status     : On
 Typematic Rate Setting     : Disabled
 Typematic Rate (Chars/Sec) : 6
 Typematic Delay (Msec)     : 250        ESC : Quit         ↑↓←→ : Select Item
 Security Option            : Setup      F1  : Help         PU/PD/+/- : Modify
 PCI/VGA Palette Snoop      : Disabled   F5  : Old Values  (Shift)F2 : Color
 Assign IRQ For VGA         : Enabled    F6  : Load BIOS  Defaults
 OS Select For DRAM > 64MB  : Non-OS2    F7  : LOAD PERFORMANCE DEFAULTS
```

Figure 4.3: BIOS Features Setup

✴ System will detect automatically and show up when you install the Pentium III processor.

- Virus Warning

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

    Default value is Disabled.

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

- CPU Internal Cache / External Cache

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

Enabled	Enable cache
Disabled	Disable cache

- CPU L2 Cache ECC Checking

  The default value is Disabled.

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

- Processor Number Feature

  This item will show up when you install the Pentium III processor.

  The default value is Enabled.

Enabled	Pentium III Processor Number Feature.
Disabled	Disable this function

- Quick Power On Self Test

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

  The default value is Enabled.

Enabled	Enable quick POST
Disabled	Normal POST

- CPU Update Data

  The default value is Enabled.

Enabled	Enable CPU Update Data
Disabled	Normal CPU Update Data

- Boot From LAN First

  The default value is Enabled.

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

  ✏You can set "Auto" or "Enabled" to boot from LAN first.

- Boot Sequence

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

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

  ✏If you have the IDE device connected to the board as well as ATA66 device at the same time. In order to boot from ATA66 device, you must set "**Boot Sequence : U66, A, C**".

- Swap Floppy Drive

  The default value is Disabled.

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

- VGA Boot From

  The default value is AGP.

AGP	VGA Boot From AGP
PCI	VGA Boot From PCI

- Boot Up Floppy Seek

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

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

- Boot Up NumLock Status

  The default value is On.

On	Keypad is number keys
Off	Keypad is arrow keys

- Typematic Rate Setting

  The default value is Disabled.

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

- Typematic Rate (Chars / Sec)

  The default value is 6.

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

- Typematic Delay (Msec)

  The default value is 250.

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

- Security Option

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

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

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

- PCI/VGA Palette Snoop

  The default value is Disabled.

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

- Assign IRQ For VGA

  The default value is Enabled.

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

- OS Select For DRAM>64MB

  The default value is Non-OS2.

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

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

  The default value is Disabled.

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

- Report No FDD For WIN 95

  The default value is No.

No	Assign IRQ6 For FDD.
Yes	FDD Detect IRQ6 Automatically.

- 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
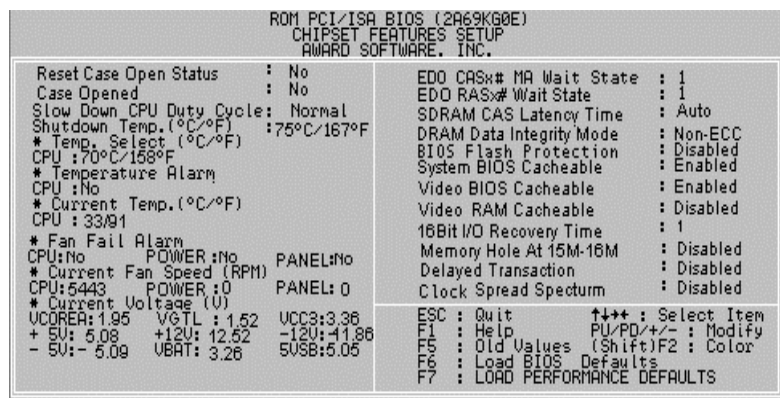
Figure 4.4: Chipset Features Setup

- Reset Case Open Status (Optional)

- Case Opened (Optional)

  If the case is closed, "Case Opened" will show "No".

  If the case have been opened, "Case Opened" will show "Yes" .

  If you want to reset "Case Opened" value, set "Reset Case Open Status"

  to "Enabled" and restart your computer.

- Slow Down CPU Duty Cycle (Optional)

  The default value is Normal.

Normal	Normal Operation
12.5%~75.0%	Monitor CPU Temp. will cause system slow down CPU Duty Cycle to 12.5%~75.0%.

- Shutdown Temp. (°C / °F) (Optional)

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

  The default value is 75°C / 167°F

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

- Temp. Select (°C / °F) (Optional)

  The default value is 70°C /158°F

60°C / 140°F	Monitor CPU Temp. at 60°C / 140°F
65°C / 149°F	Monitor CPU Temp. at 65°C / 149°F
70°C / 158°F	Monitor CPU Temp. at 70°C / 158°F
75°C / 167°F	Monitor CPU Temp. at 75°C / 167°F

- Temperature Alarm (Optional)

  The default value is No

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

- Current Temp. (Optional)

  Detect Temp. automatically.

- Fan Fail Alarm (Optional)

  CPU/POWER/PANEL

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

- Current FAN Speed (RPM) (Optional)

  Detect Fan speed status automatically.

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

  Detect system's voltage status automatically.

- EDO CASx# MA Wait State

  The default value is 1

1	Set EDO CASx# MA Wait State to 1.
2	Set EDO CASx# MA Wait State to 2.

- EDO RASx# Wait State

  The default value is 1

1	Set EDO RASx# Wait State to 1.
2	Set EDO RASx# Wait State to 2.

- SDRAM CAS latency Time

  The default value is Auto

3	For 67 / 83 MHz SDRAM DIMM module.
2	For 100 MHz SDRAM DIMM module.
Auto	CAS latency time will be set automatically if you have SPD on SDRAM

- DRAM Data Integrity Mode

  This value will depend on the DRAM type.

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

- BIOS Flash Protection

  The default value is Disabled.

Enabled	BIOS Flash Write Protection.
Disabled	Normal.

- System BIOS Cacheable

  The default value is Enabled.

Enabled	Enable System BIOS Cacheable.
Disabled	Disable System BIOS Cacheable.

- Video BIOS Cacheable

  The default value is Enabled.

Enabled	Enable video BIOS Cacheable.
Disabled	Disable video BIOS Cacheable.

- Video RAM Cacheable

  The default value is Disabled.

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

- 16 Bit I/O Recovery Time

  The default value is 1.

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

- Memory Hole At 15M-16M

  The default value is Disabled.

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

- Delayed Transaction

  The default value is Disabled.

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

- Clock Spread Spectrum

  The default value is Disabled.

Disabled	Disabled this function
Enabled	Enabled Clock Spread Spectrum

4.8. POWER MANAGEMENT SETUP
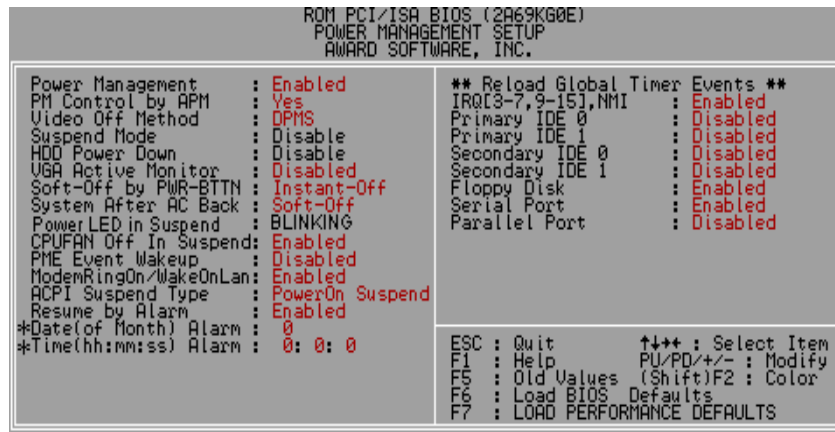
Figure 4.5: Power Management Setup

✳ These two items will show up when "Resume by Alarm" is Enabled.

- Power Management

  The default value is Enabled.

Enabled	Enable Green function.
Disabled	Disable Green function.

- PM Control by APM

  The default value is Yes.

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

- Video off Method

  The default value is DPMS.

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

- Suspend Mode

  The default value is Disabled.

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

- HDD Power Down

  The default value is Disabled.

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

- VGA Active Monitor

  The default value is Disabled.

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

- Soft-off by PWR-BTTN

  The default value is Instant-Off.

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

- System After AC Back

  The default value is Soft-Off.

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

- Power LED in Suspend

  The default value is Blinking.

Blinking	Set Power LED in Suspend at Blinking mode.
On	Set Power LED in Suspend at On mode.
Off/Dual	Set Power LED in Suspend at Off/Dual mode.

- CPUFAN Off In Suspend

  The default value is Enabled.

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

- PME Event Wakeup

  The default value is Disabled.

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

- ModemRingOn / WakeOnLan

  The default value is Enabled.

Disabled	Disable these functions.
Enabled	Enable these functions.

- ACPI Suspend Type

  The default value is Power On Suspend.

Power On Suspend	Set ACPI Suspend Type is Power On Suspend.
Suspend to RAM	Set ACPI Suspend Type is Suspend to RAM.

- Resume by Alarm

  The default value is Disabled.

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

  If the "Resume by Alarm" is Enabled.

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

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

  The default value is Enabled.

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

- Primary IDE 0/1

  The default value is Disabled.

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

- Secondary IDE 0/1

    The default value is Disabled.

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

- Floppy Disk

    The default value is Enabled.

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

- Serial Port

    The default value is Enabled.

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

- Parallel Port

    The default value is Disabled.

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

4.9. PNP/PCI CONFIGURATION


```
          ROM PCI/ISA BIOS (2A69KG0F)
              PNP/PCI CONFIGURATION
               AWARD SOFTWARE, INC.

PNP OS Installed      : No        Used MEM base addr  : N/A
Resources Controlled By : Manual  *Used MEM Length     : 8K
Reset Configuration Data : Disabled  Assign IRQ For USB : Enabled

IRQ-3  assigned to : PCI/ISA PnP
IRQ-4  assigned to : PCI/ISA PnP
IRQ-5  assigned to : PCI/ISA PnP
IRQ-7  assigned to : Legacy ISA
IRQ-9  assigned to : PCI/ISA PnP
IRQ-10 assigned to : PCI/ISA PnP
IRQ-11 assigned to : PCI/ISA PnP
IRQ-12 assigned to : Legacy ISA
IRQ-14 assigned to : Legacy ISA
IRQ-15 assigned to : Legacy ISA
DMA-0  assigned to : PCI/ISA PnP
DMA-1  assigned to : PCI/ISA PnP      ESC : Quit      ↑↓→← : Select Item
DMA-3  assigned to : PCI/ISA PnP      F1  : Help      PU/PD/+/- : Modify
DMA-5  assigned to : PCI/ISA PnP      F5  : Old Values  (Shift)F2 : Color
DMA-6  assigned to : PCI/ISA PnP      F6  : Load BIOS  Defaults
DMA-7  assigned to : PCI/ISA PnP      F7  : LOAD PERFORMANCE DEFAULTS
```
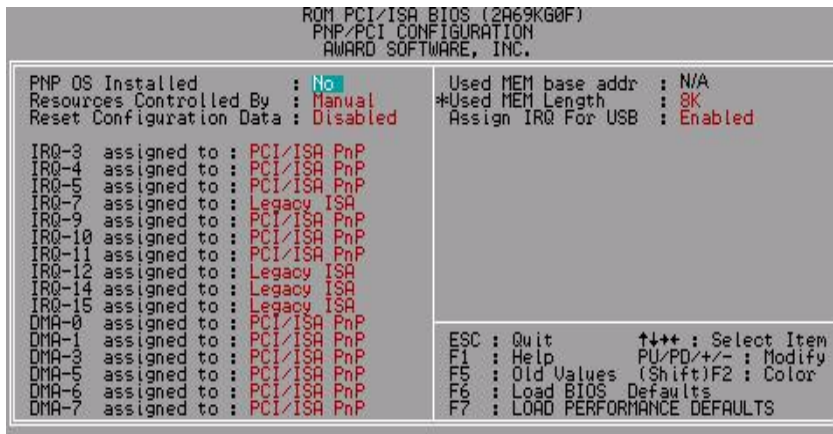
Figure 4.6: PCI Slot Configuration

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

- PNP OS Installed

  The default value is No.

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

- Resources Controlled by

  The default value is Manual.

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

- Reset Configuration Data

  The default value is Disabled.

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

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

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

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

- Used MEM base addr.

  The default value is N/A.

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

- Used MEM Length

  The default value is 8K.

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

- Assign IRQ For USB

  The default value is Enabled.

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

4.10. LOAD BIOS DEFAULTS

Figure 4.7: Load BIOS Defaults

- Load BIOS Defaults

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

4.11. LOAD PERFORMANCE DEFAULTS

Figure 4.8: Load PERFORMANCE Defaults

- Load PERFORMANCE Defaults

  To load PERFORMANCE defaults value to CMOS RAM, enter "Y". If not, enter "N".
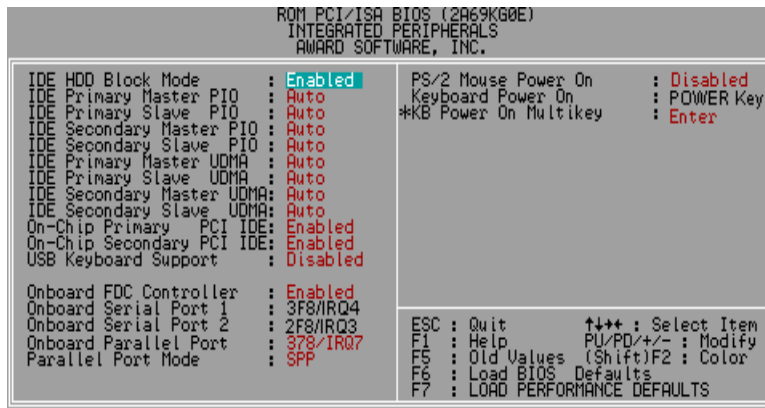
4.12. INTEGRATED PERIPHERALS

Figure 4.9: Integrated Peripherals

✳ This item will show up when "Keyboard Power On: Multikey" is selected.

● IDE HDD Block Mode

The default value is Enabled.

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

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

The default value is Auto.

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

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

The default value is Auto.

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

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

    The default value is Auto.

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

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

    The default value is Auto.

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

- IDE Primary Master UDMA.

    The default value is Auto.

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

- IDE Primary Slave UDMA.

    The default value is Auto.

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

- IDE Secondary Master UDMA.

    The default value is Auto.

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

- IDE Secondary Slave UDMA.

  The default value is Auto.

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

- On-Chip Primary PCI IDE

  The default value is Enabled.

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

- On-Chip Secondary PCI IDE

  The default value is Enabled.

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

- USB Keyboard Support

  The default value is Disabled.

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

- Onboard FDC Controller

  The default value is Enabled.

Enabled	Enable onboard FDC port.
Disabled	Disable onboard FDC port.

- Onboard Serial Port 1

  The default value is 3F8/IRQ4.

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

- Onboard Serial Port 2

  The default value is 2F8/IRQ3.

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

- Onboard Parallel port

  The default value is 378/IRQ7.

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

- Parallel Port Mode

  The default value is SPP.

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

- PS/2 Mouse Power on

    The default value is Disabled.

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

- Keyboard Power on

    The default value is POWER Key.

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

- KB Power ON Multikey

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

☀ **You can power on your system by entering the keyboard power on password. If your password consists of more than one character, you have to press the ENTER key after entering the password**.

4-30

4.13. SUPERVISOR PASSWORD / USER PASSWORD

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

Figure 4.10: Password Setting

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

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

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

4.14. IDE HDD AUTO DETECTION
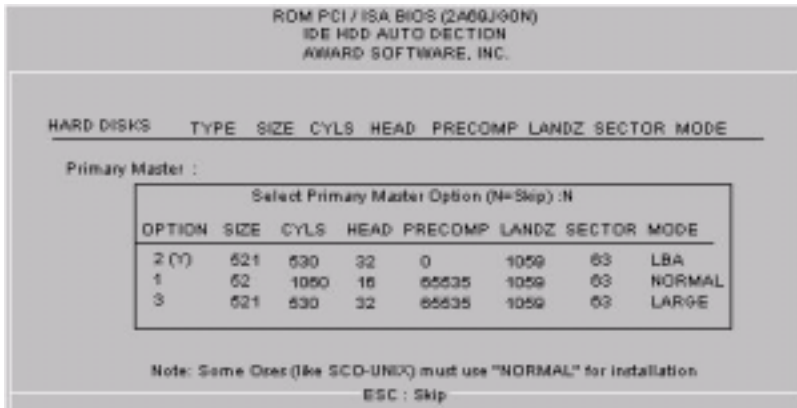
Figure 4.11: IDE HDD Auto Detection

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

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

4.15. SAVE & EXIT SETUP

Figure 4.12: Save & Exit Setup

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

Type "N" will return to Setup Utility.

4.16. EXIT WITHOUT SAVING

Figure 4.13: Exit Without Saving

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

Type "N" will return to Setup Utility.

Appendix A: Ultra66 Driver Install Procedure

Windows 98
Installing Drivers During Windows 98 Installation

●✳**(This manual assumes that your CD-ROM device drive letter is D:).**

   "ATA66 Driver" is included IUCD and the directory is \ATA66_BX\.

a.   Windows 98

1.   After installation, go to the "Start" menu and choose "Settings."

2.   From the "Settings" menu, choose " Control Panel."

3.   In the "Control Panel" window, double-click on the "System" icon.

4.   In the "System" window, choose the "Device Manager" tab.

5.   In the hierarchical display under "Other Devices" is a listing for "PCI Mass Storage Controller." Choose it and then press the "Properties" button.

6.   Choose the "Driver" tab in the "Properties" window, choose "Update Driver," and then press "Next."

7.   Choose "Search for a better driver than the one your device is using now (recommended)," then press "Next."

8.   Choose "Specify Location," and then type "D:\ATA66_BX\ ".

9.   Press the "Next" button. A message informing you that Windows has found "Promise Technology, Inc., Ultra66 IDE Controller" should appear.

10.   Press "Next", then "Finish", then "Yes" when asked if you want to restart your computer.

Installing Drivers with Existing Windows 98

a. Windows 98

1. The "Add New Hardware Wizard" will appear, informing you that it has found a "PCI Mass Storage Controller."

2. Click on "Next," and from the generated list box, choose "Search for a better driver than the one your device is using now."

3. Click on "Next," and from the generated choices, choose "Specify a location."

4. Type "D:\ATA66_BX\.

5. Click on "Next." A message informing you that Windows has found "Promise Technology, Inc., Ultra66 IDE Controller" should appear.

6. Click on "Next." And then on "Finish".

7. Choose "Yes" when asked if you want to restart your computer.

Driver Confirmation

To confirm that the driver has been properly loaded, choose "Settings" from the "Start" menu. Choose "Control Panel," and then double-click on the "System" icon. Choose the "Device Manager" tab, and then click the "+" in front of "SCSI controllers." "Promise Technology, Inc., ULTRA66 IDE controller" should appear.

Windows NT

If you're installing Ultra66 under Windows NT3.51, create a floppy disk titled "Windows NT 3.51 Ultra66 Drivers." Copy the following files onto the root directory of the diskette: "TXTSETUP.OEM" and " OEMSETUP.INF" from the "NT 3.51" directory of the " Ultra66 Driver" diskette; and "ULTRA66.SYS" and "DISK1" from the root directory of the "Ultra66 Driver" diskette. When prompted for drivers during the installation of Windows 3.51, insert this diskette in drive A:.

Under Windows 4.0, insert the "Ultra66 Driver" diskette in drive A: when prompted for the drivers.

Installing Drivers During Windows NT 3.51/ 4.0 Installation

1. Start the system installation by booting from the Windows NT disk:

    a) Floppy install: boot the system with the Windows NT installation diskettes.

    b) Floppy less install: boot from floppy and type "WINNT /B". After files have been copied, the system will reboot. On the reboot, press the "F6" key when the message "Setup is inspecting your computer's hardware configuration…" appears.

    c) CD-ROM disk install: boot from the CD-ROM disk and press the "F6" key when the message "Setup is inspecting your computer's hardware configuration…" appears.

2. When the "Welcome to Setup" window is generated, press "Enter."

3. In the "Setup Method" dialog box, press "Enter" to confirm "Express Setup."

4. Press "S" to configure an additional adapter.

5. Select "Other," and then insert the " Ultra66 Driver" diskette (for Windows NT4.0) or the "Windows 3.51 Ultra66 Drivers" diskette (for Windows NT 3.51)

6. Specify "A:" , and then press "Enter." Follow the normal installation procedure.

Installing Drivers with Existing Windows NT3.51

Hard drives should not be connected to the Ultra66 controller card before performing the following procedure. The Ultra66 drivers must be loaded on the system hard drive (running under the existing hard drive controller) before any hard drives are connected to the Ultra66 controller card.

1. In " Program Manager," double-click on "Windows NT Setup" in the " Main" group.

2. In "Windows NT Setup," select "Options" and then choose "Add/Remove SCSI Adapters…"

3. In "SCSI Adapter Setup, " press "Add…"

4. In "Select SCSI Adapter Option," select "Other (requires a disk from a hardware manufacturer)" in the "Adapter:" dialog box.

5. The "Insert Diskette" box will appear. Insert the "Windows NT3.51 Ultra66 Drivers" (created from the "Ultra66 Drivers" diskette;)

6. The "Select OEM Option" dialog box will appear. Select "Promise Technology, Inc., Ultra66 Controller, " and then press "OK".

7. The "Select SCSI Adapter Option" will appear. Press "Install."

8. After successfully installing the driver, the "SCSI Adapter Setup" dialog box will show that the "Promise Technology, Inc., Ultra66 Controller" has been installed.

Installing Drivers with Existing Windows NT4.0

Hard drivers should not be connected to the Ultra66 controller card before performing the following procedure. The Ultra66 drivers must be loaded on the system hard drive (running under the existing hard drive controller) before any hard drives are connected to the Ultra66 controller card.

1. Choose "Settings" from the "Start" menu.

2. Choose " Control Panel" from the "Settings" menu.

3. Double-click on the "SCSI Adapters" icon, which generates the "SCSI Adapters" dialog box.

4. Choose "Drivers," and then press "Add."

5. In the "Install Drivers" dialog box, press "Have Disk…"

6. When the "Install From Disk" appears, insert the "Ultra66 Driver" diskette in drive A:, and then choose "OK."

7. When the "Install Driver" dialog box appears, select "Promise Technology, Inc., ULTRA66 Controller" and then press "OK".

8. When the "Select SCSI Adapter Option" dialog box appears, press " Install"

After a successful installation, the "SCSI Adapter Setup" box will show that the "Promise Technology, Inc., ULTRA66 Controller" driver has been installed. Power off your system, and then attach the hard drives to the Ultra66 controller card.

FCC Compliance Statement:

This equipment has been tested and found to comply with limits for a Class B digital device , pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna

-Move the equipment away from the receiver

-Plug the equipment into an outlet on a circuit different from that to which the receiver is connected

-Consult the dealer or an experienced radio/television technician for additional suggestions

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

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

Declaration of Conformity
We, Manufacturer/Importer
(full address)

G.B.T. Technology Träding GMbH
Ausschlager Weg 41, 1F, 20537 Hamburg, Germany

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

Mother Board
GA-BX2000+

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

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

☒ **CE marking**

$C\epsilon$ (EC conformity marking)

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

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

Manufacturer/Importer

Signature : Rex Lin

(Stamp)   Date : Nov. 11, 1999   Name : Rex Lin