Chapter   1

Overview

MX6B EZ is a new generation Pentium II / Pentium III based system board that utilizes Intel **82440ZX/BX** AGPset on **Micro ATX** PCI/ISA platform. This AGPset is designed for the Pentium II / Pentium III / Celeron CPU, and supports new architectures such as a high speed **AGP** graphics port, **SDRAM**, **Ultra DMA/33**, **Bus master IDE** and **USB** ports. It has **three Dual in-line Memory Module (DIMM)** slots that allow to install SDRAM memory and expand up to a maximum of **512MB**. Since the cache is on the **CPU card (connector SLOT1)**, there is no secondary level cache onboard. Also, MX6B EZ uses a **2M bit Flash ROM** BIOS to reserve for future new functions.

In addition to the above features, MX6B EZ also implements plenty of special features as follows.

Jumper-less Design Pentium II / Pentium III / Celeron VID signal and SMbus clock generator provide CPU voltage auto-detection and allows the user to set the CPU frequency through the CMOS setup, therefore no jumpers or switches are used. The correct CPU information is saved into the EEPROM. With these technologies, the disadvantages of the Pentium based jumper-less designs are eliminated. There will be no worry of wrong CPU voltage detection and no need to re-open the housing in case of CMOS battery loss. The only jumper left is to clear the CMOS, which is a safety hook if you forget the password.

Full-range CPU Core Voltage This motherboard supports a CPU core voltage from 1.3V to 3.5V, that can be applied to various CPU types in future.

Battery-less Motherboard This motherboard implements EEPROM and a special circuit (patent applied) that allows you to save your current CPU and CMOS Setup configurations without the need of a battery. The RTC (real time clock) can also keep running as long as the power cord is plugged. If you lose your CMOS data by accident, you can just reload the CMOS configurations from EEPROM and the system will recover as usual.

APM Suspend To Hard Drive "Immediately" turns on system and goes back to the original screen before power down. You can resume your original work directly from hard disk without go through the Win95 booting process and run

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your application again. Suspend to Hard Drive saves your current work (system status, memory image) into hard disk. Note that you have to use VESA compatible PCI VGA, Sound Blaster compatible sound card with APM driver, for Suspend to Hard Drive to work properly.

ACPI Suspend to Hard Drive The conventional "Suspend to Hard Drive" function is a private design of AOpen motherboards, the requirement to run it is a BIOS revision and correct chipset that supports this function. However, nowadays "Suspend to Hard Drive" has been become widely known as the "S4 - Hibernation" state defined in the ACPI specification; in this case not only the BIOS itself but also the operation system (i.e. Windows98) and even the display card are involved in the execution of this function. With regard to how to implement this function, please refer to section "1.4 ACPI Suspend to Hard Drive".

0V Wake On Modem In conjunction with ATX soft power On/Off, it is possible to have the system totally power off and wakeup to automatically answer a phone call to serve as an answering machine or to send/receive a fax. The most important break through is not only an externally cased modem but also an internal modem card can be used to support Wake On Modem. The MX6B EZ and MP56 internal modem card implement a special circuit (patent applied) to make sure the modem card works properly without any power.

Wake On LAN This feature is very similar as the Wake On Modem feature, but it is through a local area network. To use the Wake On LAN function, you must have a network card that supports this feature and have installed proper network management software.

Wake On RTC Timer The Wake Up Timer is more like an alarm, which wakes up and powers on your system at a pre-defined time for a specific application. It can be set to wake up everyday or on specific date within a month. The date/time is accurate to within a second.

Wake On Keyboard This function allows you to power on your system by clicking the hot key that you specified. Besides, you also may disable the function of power button and let the system can only be powered on through the preset keys (like a password).

Wake On Mouse This function allows you power on the system by clicking a specified mouse button twice successively.

High Efficiency Synchronous Switching Regulator Most of the current switching designs are Asynchronous mode, which from a technical point of view, still consumes very high power and generates heat. This motherboard implements a high efficient synchronous switching design so that the temperature of MOS FET is far less than the Schottky diode of the asynchronous design.

CPU and Housing Fan Monitoring The MX6B EZ has one more "fan monitoring" function to prevent system overheat. There are two fan connectors.

One is for the CPU and the other can be an extra housing fan. The system will report an alarm fan malfunction through utility software such as Hardware Monitoring Utility.

CPU Thermal Protection The MX6B EZ has a special thermal detection circuit to provide warning through application software when the temperature is higher than a predefined value.

System Voltage Monitoring Further more, the MX6B EZ implements a voltage monitoring system, As you turn on your system, this smart design will continue to monitor your system's working voltage. If any of the system's voltage is over the component's standard an alarm will be sounded through utility software such as a Hardware Monitoring Utility for a warning to user.

AC Power Auto Recovery A traditional ATX system should remain at power off stage when AC power resumes from power failure. This design is inconvenient for a network server or workstation, without an UPS, that needs to keep power-on. This motherboard implements an AC Power Auto Recovery function to solve this problem. In BIOS Setup settings if this item is set to "Enabled" the system will automatically power-on after AC power resumes.

PC99 Ready For user's convenience in installing the PC system, AOpen adopts the recommended PC99 color scheme in all connectors that mount on this motherboard.

FCC DoC Certificate The MX6B EZ has passed the FCC DoC test. The radiation is very low, you can use any kind of housing.

Powerful Utility Software AOpen Bonus Pack CD disc contains many useful utilities, such as Norton Antivirus, AOchip, Hardware Monitoring Utility, etc.

> *Note: This motherboard is battery-less, that means the RTC (real time clock) can continue running without a battery as long as the power cord is plugged. But in case of power failure or the power cord being unplugged, you will need to reset the date and time from the "Standard CMOS Setup" section of the BIOS Setup. For more information, please see "Chapter 3 BIOS Setup".*

Overview

1.1 Specifications

Form Factor	Micro ATX
Board Size	244 mm x 220 mm
CPU	Intel Pentium II / Pentium III / Celeron Processor
System Memory	SDRAM, 168-pin DIMM x3, maximum 512MB.
Second-level Cache	On the CPU card (Slot1 connector)
Chipset	Intel 82440ZX/BX AGPset
Onboard Audio	ESS Solo-1
Expansion Slots	ISA x1, PCI x 3 and AGP x1
Serial Port	Two serial ports UART 16C550 compatible, and the 3rd UART for IR function.
Parallel Port	One parallel port supports standard parallel port (SPP), enhanced parallel port (EPP) or extended capabilities port (ECP).
Floppy Interface	Floppy interface supports 3.5 inches drives with 720KB, 1.44MB or 2.88MB format or 5.25 inches drives with 360KB, 1.2MB format
IDE Interface	Dual-channel IDE interface support maximum 4 IDE hard disks or CDROM, mode 4 , bus master hard disk drives and Ultra DMA/33 mode hard drives are also supported.
USB Interface	Two USB ports supported by USB bracket, the BIOS also supports USB driver to simulate legacy keyboard.
PS/2 Mouse	Mini-Din PS/2 mouse connector onboard.
Keyboard	Mini-Din PS/2 keyboard connector onboard.
RTC and Battery	RTC within Intel PIIX4E chipset. Lithium (CR-2032) battery is an option, no battery is needed if power cord is plugged.
BIOS	AWARD Plug-and-Play, 2M bit Flash ROM BIOS. Multi-language versions supported.

1.2   APM Suspend to Hard Drive

Suspend to Hard Drive saves your current work (system status, memory and screen image) into hard disk, and then the system can be totally power off. Next time, when power is on, you can resume your original work directly from hard disk within few seconds without go through the Win95 booting process and run your application again. If your memory is 16MB, normally, you need to reserve at least 16MB HDD space to save your memory image. Note that you have to use VESA compatible PCI VGA (AOpen PV70/PT70), Sound Blaster compatible sound card and sound driver that supports APM (AOpen AW32/AW35) for Suspend to Hard Drive to work properly. Of course, we recommend choosing AOpen products for best compatibility.

To use Suspend to Hard Drive:

1. Go into BIOS setup, Power Management à Suspend Mode Option, select "Suspend to Disk".
2. Go into BIOS setup, PNP/PCI Configuration à PnP OS Installed, select "No". This can give BIOS the capability to allocate system resources for Suspend to Hard Drive.
3. Boot up your system into DOS command prompt. If you are Win'95 user, Please restart your Windows 95 under "Command Prompt" by pressing "F8" while system shows "Windows 95 Starting ...". Choose "Safe Mode Command Prompt Only" from selection so that system will start in DOS command prompt.
4. Copy AOZVHDD.EXE to the root directory of your C: drive.
5. Option 1: Use **/file** switch (applied to FAT16 file system):

    Please use following command to create a hidden file in the root directory of your hard disk for Suspend to Hard Drive to save the system status and memory image.

    > C:>AOZVHDD /c /file

    Please make sure that you have enough continuous HDD space for creating this hidden file. For example, if you have 32MB of system memory and 4MB of VGA memory, you need at least 36MB (32MB + 4MB) of continuous HDD space. If AOZVHDD failed to allocate the HDD space, you may run "DEFRAG" Utility or "Disk Defragmenter" which come with MS-DOS or Win'95 to free HDD space.

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Option2: Use **/partition** switch (applied to FAT16/FAT32 file system):

To create a separate partition for Suspend to Hard Drive, please make sure you have reserved a free partition. We suggest you reserve the free partition which space is appropriate for your future memory expansion. For example, if you have 32MB of system memory and 4MB of VGA memory currently, but you plan to upgrade system memory to 64MB in the near future, then you may reserve a 68MB (64MB+4MB) space by using a disk utility (such as fdisk). Next, use following command to create a suspend partition:

    C:>AOZVHDD /c /partition

If there is no extra free partition and you don't want your data lost, please do not use this partition method.

6. After creating above partition or hidden file, please reboot your system.

7. Push suspend switch (momentary mode) or use Win95 Suspend icon to force system goes into Suspend to Hard Drive mode and then turn system power off by power switch of your power supply.

8. Next time when you turn on your system, it will resume to your original work automatically.

> ***Warning:*** *Note that Intel Bus Master and Ultra DMA/33 IDE driver are not fully compatible with Suspend to Hard Drive function, installing these drivers may cause the system unstable. Under this situation, please uninstall the drivers.*

> ***Warning:*** *This function does not support SCSI hard disks.*

Tip: *The following VGA cards have been tested & recognized as VESA compatible VGA device.*

> *AOpen PV90 (Trident 9680)*
> *AOpen PT60 (S3 Virge/BIOS R1.00-01)*
> *AOpen PV60 (S3 Tiro64V+)*
> *AOpen PT70 (S3 Virge/DX)*
> *ProLink Trident GD-5440*
> *ProLink Cirrus GD-5430*
> *ProLink Cirrus GD-5446*
> *ATI Mach 64 GX*
> *ATI 3D RAGE II*
> *Diamond Stealth64D (S3 868)*
> *Diamond Stealth64V (S3 968)*
> *KuoWei ET-6000*
> *ATI 3D RAGE PRO 2x (AGP)*
> *PLOTECH 3D IMAGE 9850 (AGP)*
> *CARDEX S3 Virge/GX (AGP)*

Tip: *The following sound cards have been tested OK for Suspend to Hard Drive.*

> *AOpen AW32*
> *AOpen AW35*
> *AOpen MP32*
> *Creative SB 16 Value PnP*
> *Creative SB AWE32 PnP*
> *ESS 1868 PnP*

If your sound card can not work after resume from Suspend to Hard Drive, check your sound card vendor see if there is driver to support APM, and install it again.

Note: *The USB function has not been tested for Suspend to Hard Drive. If you find any unstable problem, please go into BIOS, Integrated Peripherals à USB Legacy Support. Disable the USB Legacy function.*

1.3   ACPI Suspend to Hard Drive

For a detailed installation procedure please refer to the following procedure to enable ACPI Suspend to Hard Drive on the AOpen MX6B EZ motherboard. First please check if your system meets the following requirements, then follow the procedure step by step.

System Requirement

1. AOZVHDD.EXE 1.30b or later (http://www.aopen.com.tw/tech/mbdrv/ default.htm#Suspend to Hard Disk Drivers).

2. Delete config.sys and autoexec.bat.

I. Fresh installation

1. Execute "Setup.exe /p j" to install Windows 98.

2. After Windows 98's installation is completed, go to Control Panel --> Power Management.

   a. Set "Power Schemes -> System Standby" to "Never".

   b. Click on "Hibernate" and select "Enable Hibernate Support" then "Apply".

   c. Click on the "Advanced" tab, you'll see "Hibernate" on "Power Buttons". Note that this option will only be seen after step b mentioned above has been completed, otherwise only "Standby" and "Shutdown" will be shown. Select "Hibernate" and "Apply".

3. Run AOZVHDD utility.

   a. If you assign the whole disk to your Win 98 system (FAT 16 or FAT 32), please run "aozvhdd /c /file" in DOS mode. Please remember sufficient free space has to be reserved in the disk, e.g. if you have 64 MB DRAM and 16 MB VGA card installed, the system needs at least 80 MB free space. The utility will locate the space automatically.

   b. If you assign an individual partition for Win 98, please run "aozvhdd /c /partition". Of course, the system needs to provide unformatted an empty partition.

4. Reboot system.

5. You've already implemented ACPI with Suspend-to-Harddisk. Click "Start -> Shut Down -> Standby" then the screen will go off immediately. And 1 minute or so will be taken for the system to save what's in the memory to the harddrive; the larger the memory size the longer this process will take.

II. Changing from APM to ACPI (Windows 98 only)

1. Run "Regedit.exe"

    a. Go through the following path

        HKEY_LOCAL_MACHINE

          SOFTWARE

            MICROSOFT

              WINDOWS

                CURRENT VERSION

                DETECT

    b. Select "ADD Binary" and name it as "ACPIOPTION".

    c. Right click and select Modify, add "01" after "0000" to make it "0000 01".

    d. Save changes.

2. Select "Add New Hardware" under Control Panel. Allow Windows 98 to detect new hardware. (It will find "ACPI BIOS" and remove "Plug and Play BIOS")

3. Reboot system.

4. Clean boot into DOS and run "AOZVHDD.EXE /C /File"

III. Changing from ACPI to APM

1. Run "Regedit.exe"

    a. Go through the following path

        HKEY_LOCAL_MACHINE

          SOFTWARE

            MICROSOFT

              WINDOWS

                CURRENT VERSION

                DETECT

                  ACPI OPTION

    b. Right click and select Modify, change "01" to "00" to make it "0000 02".

    <Note> "02" means Windows 98 is ACPI acknowledged but disable ACPI function.

    c. Save changes.

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2. Select "Add New Hardware" under Control Panel. Allow Windows 98 to detect new hardware. (It will find "Plug and Play BIOS" and remove "ACPI BIOS")

3. Reboot system.

4. Run "Add New Hardware" again and it will find "Advanced Power Management Resource".

5. Click "OK".

1.4 Zero Voltage Modem Wake Up

The Wake On Modem discussed here is to wakeup from true power off (defined as the fan of power supply being off), This motherboard still supports traditional green PC suspend mode but is not discussed here.

With the help ATX soft power On/Off, it is possible to have system totally power off (The traditional suspend mode of power management function does not really turn off the system power supply), and wakeup to automatically answer a phone call such as answering machine or to send/receive fax. You may identify the true power off by checking fan of your power supply. Both external box modem and internal modem card can be used to support 0V Wake On Modem, but if you use external modem, you have to keep the box modem always power-on. AOpen MX6B EZ and internal modem card implement special circuit (patent applied) and make sure the modem card works properly without any power. We recommend you choose AOpen modem card (For example, FM56-P, FM56-H, etc.) for 0V Wake On Modem applications.

COM port **External Box Modem** **TEL Line**

External Modem Wake Up

TEL Line

Internal Modem Card Wake Up (such as FM56-P)
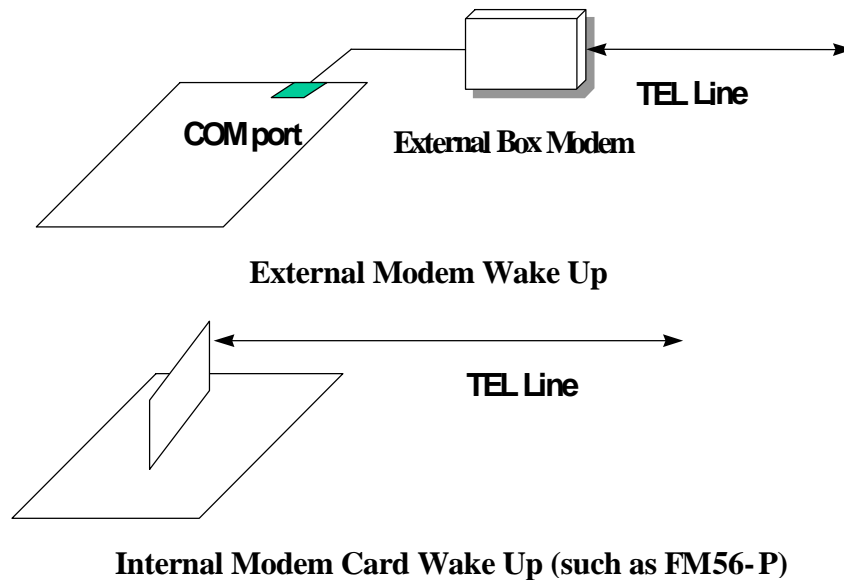
Overview

For Internal Modem Card (AOpen FM56-P):

1. Go into the BIOS Setup, select Power Management and à 0V Wake On Modem. Select "Enabled."

2. Install your application, put into Windows 95 StartUp.

3. Turn the system power off by soft power switch.

4. Connect the 4-pin Wake On Modem cable from FM56-P RING connector to the MX6B EZ **WOM** connector.

5. Connect your telephone line to the FM56-P modem. You are now ready to use Wake On Modem.

For External Box Modem:

1. Go into the BIOS Setup, select Power Management and à 0V Wake On Modem. Select "Enabled."

2. Setup your application, put into Windows 95 StartUp.

3. Turn your system power off by soft power switch.

4. Connect your RS232 modem cable from your external box Modem to COM1 or COM2.

5. Connect telephone line to external box Modem. Turn on Modem power (you must keep Modem power always on). You are now ready to use Wake On Modem.

> ***Tip:*** *External modem wake up signal is detected through COM1 or COM2. An internal modem card wake up signal is detected through a cable from the connector RING (on the modem card) to WOM (on the mainboard).*

> ***Note:*** *If you use an external modem, the power of the external modem must be kept on to receive a signal from the telephone line. An internal modem card has no such limitation.*

1.5   System Voltage Monitoring

This motherboard implements a voltage monitoring system. As you turn on your system, this smart design will continue to monitor your system's working voltage. If any of the system's voltage is over the component's standard there will be an alarm through application software such as the Hardware Monitoring Utility to warn the user. The system voltage monitoring function monitors CPU core voltage. It is automatically implemented by the BIOS and Hardware Monitoring Utility (the program's file name is like aohwxxx.exe, where xxx means the version number), no hardware installation is needed.

1.6   Fan Monitoring
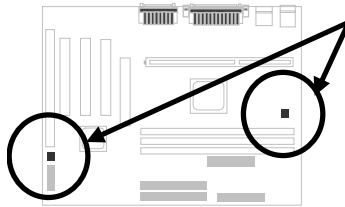
There are two fan connectors, one is for the CPU, and the other can be a housing fan. The fan monitoring function is implemented by connecting a fan to the 3-pin fan connector **CPUFAN1** or **FAN1** and installing the Hardware Monitoring Utility.

Note: You need a 3-pin fan that supports SENSE signal for the fan monitoring function to work properly.

1.7 CPU Thermal Protection

This motherboard implements special thermal protection circuits. When temperature is higher than a predefined value, there will be warning through application software such as the Hardware Monitor utility to notify the user. It is automatically implemented by the BIOS and the Hardware Monitoring Utility, no hardware installation is needed.

1.8 Battery-less Design

To preserve the earth, this motherboard implements the battery-less motherboard design. There is no need to have a battery for RTC (real time clock) and CMOS Setup as long as the ATX power cable is plugged in. In case the AC power is shutdown or the power cord is removed by accident, the CMOS Setup and system configuration can be restored from EEPROM, only the system clock needs to be re-set to current date/time.

For the convenience of the end user, the MX6B EZ still ships with one Lithium (CR-2032) battery. If you prefer to use a battery, you can still insert it into battery socket. The RTC will still keep running even when the power cord is removed.

Chapter 2

Hardware Installation

This chapter gives you a step-by-step procedure on how to install your system. Follow each section accordingly.

> *Caution: Electrostatic discharge (ESD) can damage your processor, disk drives, expansion boards, and other components. Always observe the following precautions before you install a system component.*
>
> *1. Do not remove a component from its protective packaging until you are ready to install it.*
>
> *2. Wear a wrist ground strap and attach it to a metal part of the system unit before handling a component. If a wrist strap is not available, maintain contact with the system unit throughout any procedure requiring ESD protection.*

Hardware Installation

2.1 Jumper and Connector Locations

The following figure shows the locations of the jumpers and connectors on the system board:
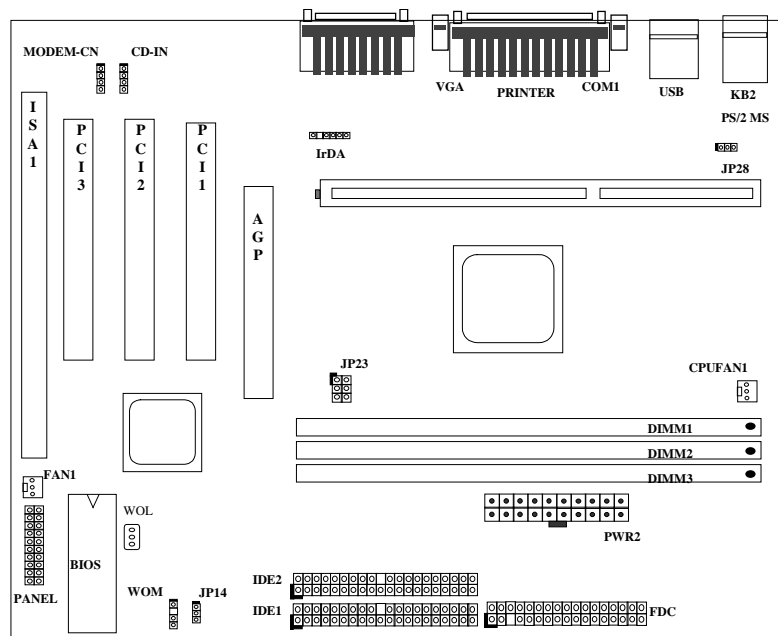
Jumpers:

JP14:	Clear CMOS
JP23:	AGP Ratio
JP28:	Enable/Disable KB/MS Wake Up

Connectors:

PS2:	PS/2 mouse connector
KB:	PS/2 keyboard connector
COM1:	COM1 connector
COM2:	COM2 connector
PRINTER:	Printer connector
PWR2:	ATX power connector
USB:	USB connector
FDC:	Floppy drive connector
IDE1:	IDE1 primary channel
IDE2:	IDE2 secondary channel
CPUFAN1:	CPU fan connector
FAN1:	Housing fan connector
IrDA:	IrDA (Infrared) connector
PANEL:	Front panel (Multifunction) connector
CD-IN:	CD-audio connector
MODEM-CN:	Mono in (Pin 1-2) and Mic out (Pin 3-4)
WOM:	Wake On Modem connector
WOL:	Wake On LAN connector

2.2 Jumpers

With the help of Pentium II / Pentium III / Celeron VID signal and SMbus, this motherboard is jumper-less design.

2.2.1 Selecting the CPU Frequency

Celeron PPGA VID signal and SMbus clock generator provide CPU voltage auto-detection and allow user to set CPU frequency through CMOS setup, no jumper or switch is needed. The correct CPU information is saved into EEPROM, with these technologies, the disadvantages of Pentium base jumper-less design are eliminated. There will be no worry of wrong CPU voltage detection and no need to re-open the housing if CMOS battery loss.

The CPU frequency selection is set by going into:

BOIS Setup à **Chipset Features Setup** à **CPU Clock Frequency**
(The possible setting is 66.8, 75, 83.3, 100, 103, 112, 124/31, 124/41, 133/33, 133/44, , 138, 143, 148 and 153 MHz)

BOIS Setup à **Chipset Features Setup** à **CPU Clock Ratio**
(The possible setting is 1.5x, 2x, 2.5x, 3x, 3.5x, 4x, 4.5x, 5x, 5.5x, 6x, 6.5x, 7x, 7.5x, and 8x)

Core frequency = CPU Ratio * CPU FSB

Intel Pentium II /Pentium III	CPU Core Frequency	Ratio	External Bus Clock
Pentium II - 233	233MHz =	3.5x	66MHz
Pentium II - 266	266MHz =	4x	66MHz
Pentium II - 300	300MHz =	4.5x	66MHz
Pentium II - 333	333MHz =	5x	66MHz
Pentium II - 350	350MHz=	3.5x	100MHz
Pentium II - 400	400MHz=	4x	100MHz
Pentium II - 450	450MHz=	4.5x	100MHz
Pentium III - 450	450MHz =	4.5x	100MHz
Pentium III - 500	500MHz =	5x	100MHz
Pentium III - 550	550MHz =	5.5x	100MHz

INTEL Celeron	CPU Core Frequency	Ratio	External Bus Clock

INTEL Celeron	CPU Core Frequency	Ratio	External Bus Clock
Celeron 266	266MHz =	4x	66MHz
Celeron 300	300MHz =	4.5x	66MHz
Celeron 300A	300MHz =	4.5x	66MHz
Celeron 333	333MHz =	5x	66MHz
Celeron 366	366MHz =	5.5x	66MHz
Celeron 400	400MHz =	6x	66MHz
Celeron 433	433MHz =	6.5x	66MHz
Celeron 466	466MHz =	7x	66MHz

> *Warning:* INTEL 440ZX/BX chipset supports a maximum of 100MHz FSB, the higher clock settings are for internal test only. **These settings exceed the specification of ZX/BX chipset, which may cause serious system damage**.

2.2.2 Setting the CPU Voltage

This motherboard supports Pentium II \ Pentium III \ Celeron VID function, the CPU core voltage is automatically detected, the range is from 1.3V to 3.5V.

2.2.3 Clearing the CMOS

JP14	**Clear CMOS**
1-2	Normal operation (default)
2-3	Clear CMOS

You need to clear the CMOS if you forget your system password. To clear the CMOS, follow the procedures as below:

JP14

1
2
3
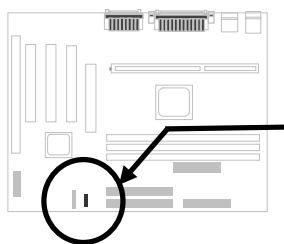
Normal Operation
(default)

JP14

1
2
3

Clear CMOS

Hardware Installation

The procedure to clear CMOS:

1. Turn off the system and unplug the AC power.
2. Remove ATX power cable from connector PWR2.
3. Locate **JP14** and short pins 2-3 for a few seconds.
4. Return **JP14** to its normal setting by shorting pins 1-2.
5. Connect ATX power cable back to connector PWR2.
6. Turn on the system power.
7. Press ▉▉▉ during bootup to enter the BIOS Setup Utility and specify a new password, if needed.

> *Tip: If your system hangs or fails to boot because of over-clocking, please clear CMOS and the system will go back to the default setting (233MHz or 350MHz).*
>
> *Tip: If your system hangs or fails to boot because of over-clocking, simply use <Home> key to restore to the default setting. By this smart design, it would be more convenient to clear CPU frequency setting. For using this function, you just need to press <Home> key first and then press Power button at the same time. Note that do not release <Home> key until POST screen appearing.*

2.2.4 KB/MS Wakeup

JP28	KB/MS Wakeup
1-2	Disabled
2-3	Enabled

This jumper is used to enable or disable Keyboard/Mouse Power ON function. If you select Enabled, you may decide the wakeup mode from BIOS Setup. To implement this function, the 5V Stand By current must be greater than 800mA.

Note that only PS/2 mouse supports Wake On Mouse function.
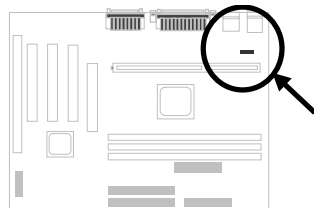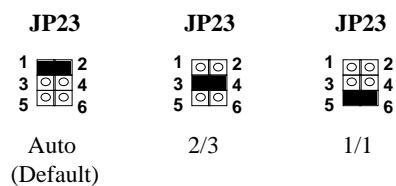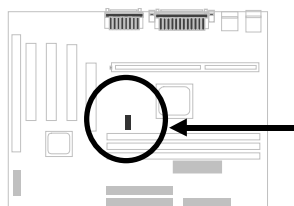

JP28

1 2 3

Disabled

JP28

1 2 3

Enabled

2.2.5 AGP Ratio

JP23	DC/Host Ratio
1-2	Auto (default)
3-4	2/3
5-6	1/1

To improve system performance, this motherboard has implemented this jumper for setting the ratio of the display cache and CPU external frequency.

There is a "66/100" signal pin from CPU for ZX/BX chipset to automatically identify AGP clock, this is important for jumperless design. When a 66MHz Pentium II CPU is used, the north bridge will synchronize the CPU external frequency and the AGP bus frequency. Therefore, when you set the CPU external frequency to 100MHz, the AGP bus will also runs at 100MHz.

With 100MHz Pentium II CPU, the north bridge automatically set AGP frequency to 2/3 AGP frequency. In other words, the AGP card will still runs at 66MHz while the CPU is running at 100MHz external frequency.

Except Auto setting, you may also set this jumper to 2/3 or 1/1. Below is a table for better understanding:

CPU Type	66/100 signal	Bus clock	AGP clock	JP23
66MHz	Low	66MHz	66MHz	1-2
66MHz	Low	100MHz	100MHz	1-2
66MHz	Low	100MHz	66MHz	3-4
100MHz	High	100MHz	66MHz	1-2
100MHz	High	100MHz	66MHz	3-4
100MHz	High	100MHz	100MHz	5-6
100MHz	High	133MHz	88.6MHz	1-2
100MHz	High	133MHz	88.6MHz	3-4
100MHz	High	133MHz	133MHz	5-6

Warning: The specification of AGP has a maximum of 100Mhz clock. A higher setting may cause the system damage.
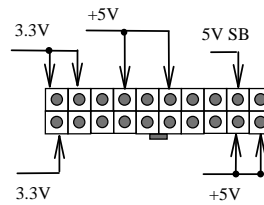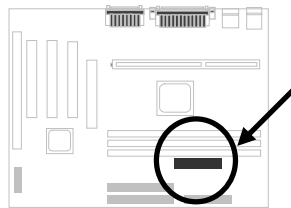
2.3 Connectors

2.3.1 Power Cable

The ATX power supply uses 20-pin connector shown below. Make sure you plug in the right direction.
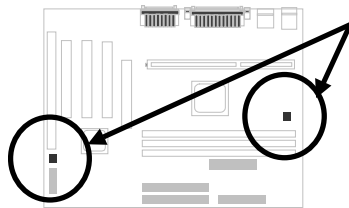
Caution: Make sure that the power supply is off before connecting or disconnecting the power cable.

PWR2

2.3.2 Fan

Plug in the fan cable to the 3-pin fan connector onboard. The fan connector is marked **CPUFAN1** and **FAN1** on the system board.
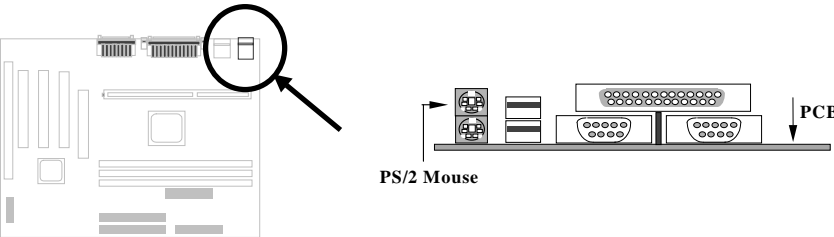
GND
+12V
SENSE

CPUFAN1
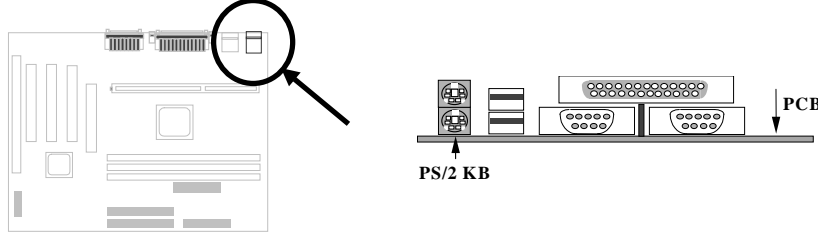**FAN1**

2.3.3 PS/2 Mouse

The onboard PS/2 mouse connector is a 6-pin Mini-Din connector marked **PS2**. The view angle of drawing shown here is from back panel of the housing.

PS/2 Mouse

PCB

2.3.4 Keyboard

The onboard PS/2 keyboard connector is a 6-pin Mini-Din connector marked **KB2**. The view angle of drawing shown here is from back panel of the housing.

PS/2 KB

PCB

2.3.5 Serial Devices

The onboard serial connectors **COM1** and **COM2** are 9-pin D-type connectors on the back panel of mainboard.
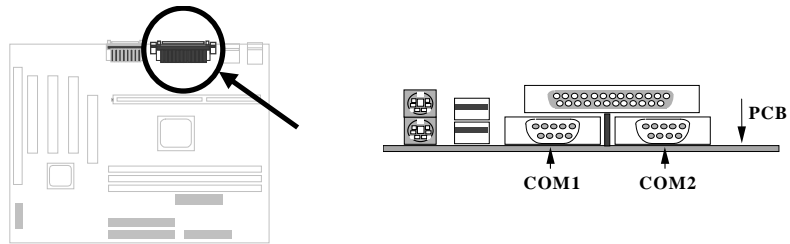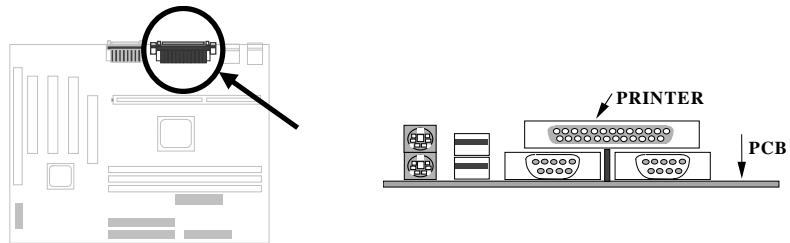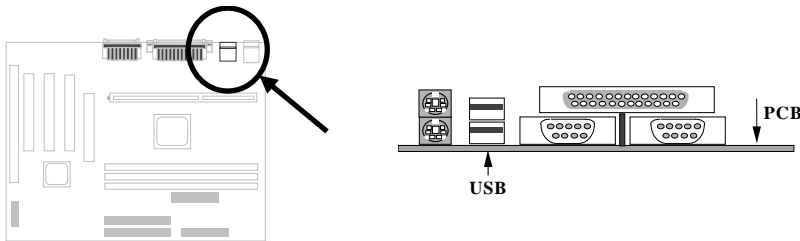

2.3.6 Printer

The onboard printer connector is a 25-pin D-type connector marked **PRINTER**. The view angle of drawing shown here is from back panel of the housing.
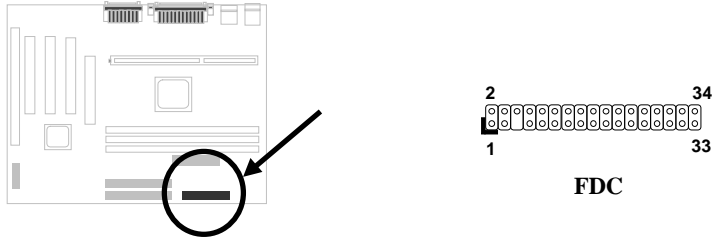
2.3.7 USB Device

You can attach USB devices to the USB connector. The motherboard contains two USB connectors, which are marked as **USB.**

PCB

USB

2.3.8 Floppy Drive

Connect the 34-pin floppy drive cable to the floppy drive connector marked as **FDC** on the system board.

2   **34**

1   **33**

FDC

2.3.9   IDE Hard Disk and CD ROM

This mainboard supports two 40 pin IDE connectors marked as **IDE1** and **IDE2.** IDE1 is also known as primary channel and IDE2 as secondary channel, each channel supports two IDE devices that make total of four devices.

In order to work together, the two devices on each channel must be set differently to master and slave mode, either one can be hard disk or CDROM. The setting as master or slave mode depends on the jumper on your IDE device, please refer to your hard disk and CDROM manual accordingly.

Connect your first IDE hard disk to master mode of the primary channel. If you have second IDE device to install in your system, connect it as slave mode on

Hardware Installation

the same channel, and the third and fourth device can be connected on secondary channel as master and slave mode respectively.

IDE2

IDE1
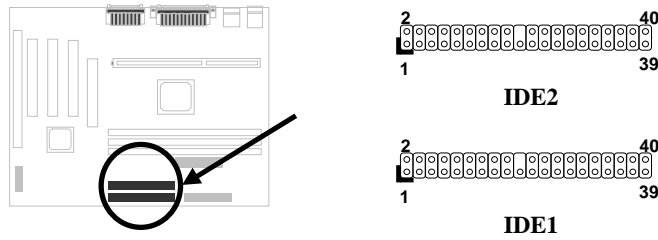
Caution: The specification of IDE cable is maximum 46cm (18 inches), make sure your cable does not excess this length.

Caution: For better signal quality, it is recommended to set far end side device to master mode and follow the suggested sequence to install your new device. Please refer to the following figure.

IDE1 (Primary Channel)

Slave (2nd)   **Master (1st)**

IDE2 (Second Channel)

Slave (4th)   **Master (3rd)**

2.3.10 Panel Connector

The Panel (multifunction) connector is a 20-pin connector marked as **PANEL** on the board. Attach the power LED, keylock, speaker, SPWR, IDE LED and reset switch to the corresponding pins as shown in the figure.

If your ATX housing supports ACPI specification, the ACPI & Power LED will keep flashing if you have enabled "suspend mode" item in the BIOS Setup.

```
            1   11
      GND  [○ ○]  SPWR
  KEYLOCK  [○ ○]  GND
      +5V  [○ ○]  ACPI & POWER LED
  IDE LED  [○ ○]  GND
  IDE LED  [○ ○]  +5V
      +5V  [○ ○]  NC
      +5V  [○ ○]  NC
      GND  [○ ○]  GND
       NC  [○ ○]  RESET
  SPEAKER  [○ ○]  GND
           10  20
```

PANEL


```
              1  11
                      +
  Keylock  +  [○ ○]  ←  SPWR
              [○ ○]
  IDE LED  →  [○ ○]  ←
              [○ ○]  +  ACPI &
           +  [○ ○]     Power LED
           +  [○ ○]
              [○ ○]  +
  Speaker  →  [○ ○]  ←  Reset
              10  20
```

PANEL

### 2.3.11 IrDA Connector

The IrDA connector can be configured to support wireless infrared module, with this module and application software such as Laplink or Win95 Direct Cable Connection, the user can transfer files to or from laptops, notebooks, PDA devices and printers. This connector supports HPSIR (115.2Kbps, 2 meters) and ASK-IR (56Kbps).

Install the infrared module onto the **IrDA** connector and enable the infrared function from the BIOS setup, make sure to have the correct orientation when you plug in the IrDA connector.

Pin	Description
1	+5V
2	NC
3	IRRX
4	GND
5	IRTX
6	NC

**IrDA**
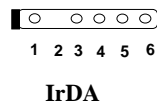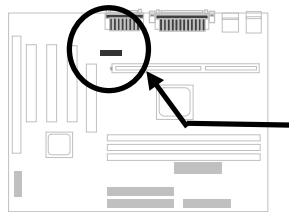
2.3.12 Wake On Modem Connector

This motherboard implements special circuit to support Wake On Modem, both Internal Modem Card (AOpen MP56) and external box Modem are supported. Since Internal Modem card consumes no power when system power is off, it is recommended to use Internal Modem. To use AOpen MP56, connect 4-pin cable from **RING** connector of MP56 to **WOM** connector on the mainboard.

Pin	Description
1	+5V SB
2	NC
3	RING
4	GND

WOM
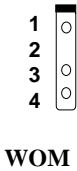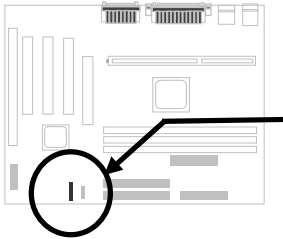
2.3.13 Wake On LAN Connector

This mainboard implements a **WOL** connector. To use Wake On LAN function, you need a network card that supports this feature. In addition, you also need to install a network management software.

Pin	Description
1	+5V SB
2	GND
3	LID

WOL
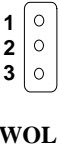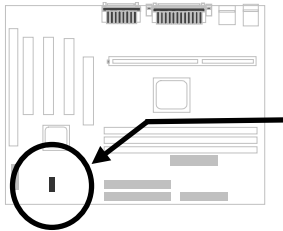
2.3.14 CD Audio Connector

This connector is used to connect CD audio cable.

Pin	Description
1	L
2	GND
3	GND
4	R
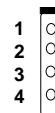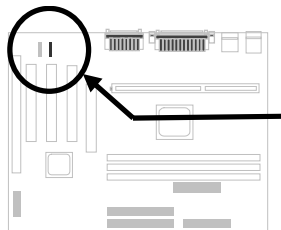
CD-IN

2.3.15 Mono In/Mic Out Connector

This connector is used to connect Mono In/Mic Out connector of an internal modem card. The pin 1-2 is **Mono In**, and the pin 3-4 is **Mic Out**. Please note that there is no standard for this kind of connector yet, only some internal modem cards implement this connector.

Please see the pin definitions to connect the cable.

Pin	Description
1	Mono In
2	GND
3	GND
4	Mic Out
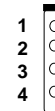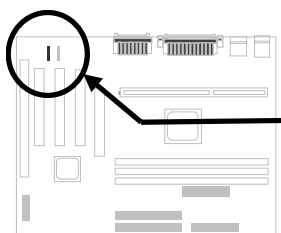
MODEM-CN

2.3.16 Audio Connector

This motherboard comes with an onboard 16-bit audio processor (ESS Solo-1).
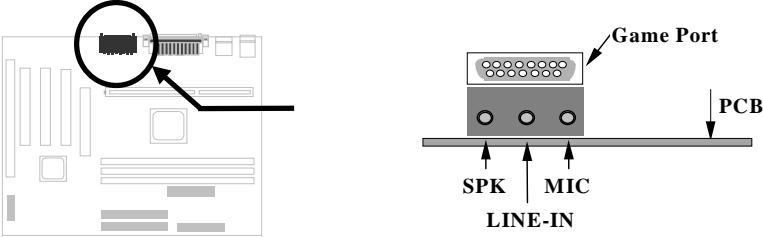
To fully utilize the audio functions, you may connect various peripheral devices that the audio chip supports. The following figure shows the different devices that you can connect.
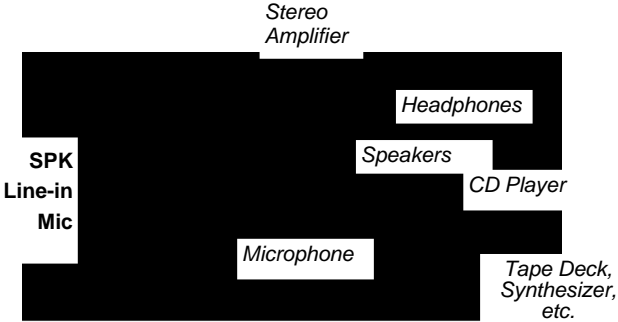
The audio drivers and applications are included in the AOpen Bonus Pack CD disc.

2.4 Configuring the System Memory
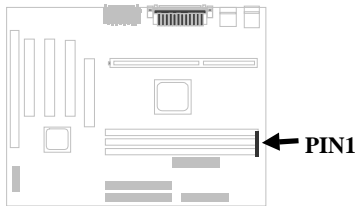
The DIMM types supported are SDRAM (Synchronous DRAM) only. This motherboard has three 168 pin DIMM sockets (Dual-in-line Memory Module) that allow you to install system memory up to **512MB**.

In case you install SDRAMs on DIMM2 and DIMM3 at the same time, it is crucial to identify single/double side. For this configuration, only single-side SDRAMs are acceptable.

Warning: This motherboard does not support Registered SDRAMs and EDO DRAMs.

Warning: If you install two double-side SDRAMs, the possible combinations are DIMM1&DIMM2 or DIMM1&DIMM3.

Warning: The maximum of 512MB can be implemented by installing two 256MB SDRAM modules.

I. Size: single side, 1Mx64 (8MB), 2Mx64 (16MB), 4Mx64 (32MB), 8Mx64 (64MB), 16Mx64 (128MB), and double side, 1Mx64x2 (16MB), 2Mx64x2 (32MB), 4Mx64x2 (64MB), 8Mx64x2 (128MB).

Tip: Here is a trick to check if your DIMM is single-side or double-side -- if there are traces connected to golden finger pin 114 and pin 129 of the DIMM, the DIMM is probably double-side; otherwise, it is single-side. The following figure is for your reference.

168   85

Pin 129   Pin 114
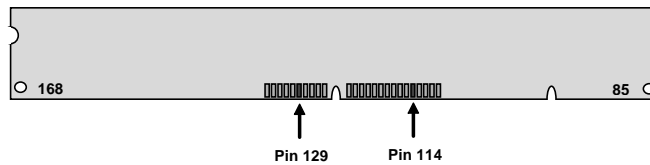
II. Speed: Normally marked as -12, which means the clock cycle time is 12ns and the maximum clock of this SDRAM is 83MHz. Sometimes you can also find the SDRAM marked as -67, which means maximum clock is 67MHz.

> ***Caution:*** *Some SDRAMs marked as -10 may work fine with 100 MHz CPU clock, but not all of these kinds of modules can work properly under 100MHz external clock. We suggest you choose and install SDRAMs that match **PC 100** specification if 100MHz or above CPU clock is selected.*

III. Buffered and non-buffered: This motherboard supports non-buffered DIMMs only. You can identify non-buffered DIMMs and buffered DIMMs according to the position of the notch. The following figure is for your reference:

Reserved   non-buffered
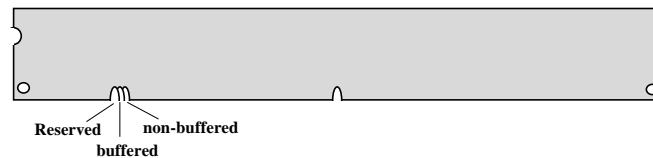
buffered

Because the positions are different, only non-buffered DIMMs can be inserted into the DIMM sockets on this motherboard. Although most DIMMs available in the current market are non-buffered, we still recommend you ask your dealer for the correct type.

IV. 2-clock and 4-clock signals: Although both 2-clock and 4-clock signals are supported by this motherboard, we strongly recommend choosing 4-clock SDRAM for its reliability.

> ***Tip:*** *To identify 2-clock and 4-clock SDRAM, you may check if there are traces connected to the golden finger pins 79 and 163 of the SDRAM. If there are traces, the SDRAM is probably 4-clock; Otherwise, it is 2-clock.*

V. Parity: This motherboard supports standard 64 bit wide (without parity) DIMM modules.

VI. SPD support: The BIOS will automatically detect DIMMs with SPD, and set to the appropriate timing. DIMMs without SPD are still able to work fine on this board, but the BIOS POST screen will give you a warning message that you use a DIMM without SPD.

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There is no jumper setting required for the memory size or type. It is automatically detected by the system BIOS, and the total memory size is all of them added together.

Total Memory Size = Size of DIMM1 + Size of DIMM2 + Size of DIMM3

The following table lists the recommended SDRAM combinations of DIMM:

DIMM Data chip	Bit size per side	Single/ Double side	Chip count	DIMM size	Recommended
1M by 16	1Mx64	x1	4	8MB	Yes
1M by 16	1Mx64	x2	8	16MB	Yes
2M by 8	2Mx64	x1	8	16MB	Yes
2M by 8	2Mx64	x2	16	32MB	Yes
4M by 16	4Mx64	x1	4	32MB	Yes
4M by 16	4Mx64	x2	8	64MB	Yes
8M by 8	8Mx64	x1	8	64MB	Yes.
8M by 8	8Mx64	x2	16	128MB	Yes.

DIMM Data chip	Bit size per side	Single/ Double side	Chip count	DIMM size	Recommended
2M by 32	2Mx64	x1	2	16MB	Yes, but not tested.
2M by 32	2Mx64	x2	4	32MB	Yes, but not tested.

The following table lists possible SDRAM combinations that is **NOT** recommended:

DIMM Data chip	Bit size per side	Single/ Double side	Chip count	DIMM size	Recommended
4M by 4	4Mx64	x1	16	32MB	No
4M by 4	4Mx64	x2	32	64MB	No
16M by 4	16Mx64	x1	16	128MB	No

Chapter 3
Award BIOS

This chapter tells how to configure the system parameters. You may update your BIOS via AWARD Flash Utility.

Important: Because the BIOS code is the most often changed part of the mainboard design, the BIOS information contained in this chapter (especially the Chipset Setup parameters) may be a little different compared to the actual BIOS that came with your mainboard.

AWARD BIOS

3.1 Entering the Award BIOS Setup Menu

The BIOS setup utility is a segment of codes/routines residing in the BIOS Flash ROM. This routine allows you to configure the system parameters and save the configuration into the 128 byte CMOS area, (normally in the RTC chip or directly in the main chipset). To enter the BIOS Setup, press ▄▄▄ during POST (Power-On Self Test). The BIOS Setup Main Menu appears as follows.
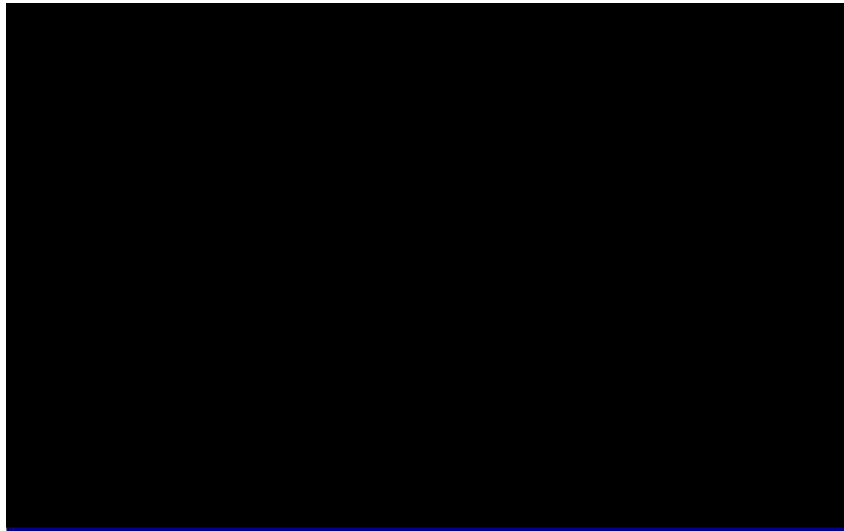
> **Tip**: Choose "Load Setup Defaults" for recommended optimal performance. Choose "Load Turbo Defaults" for best performance with light system loading. Refer to section 3.7.

The section at the bottom of the screen tells how to control the screen. Use the arrow keys to move between items, F9 to change language, ESC to exit, and F10 to save the changes before exiting. Another section at the bottom of the screen displays a brief description of the highlighted item.

After selecting an item, press Enter to select or enter a submenu.

3.2 Standard CMOS Setup

The "Standard CMOS Setup" sets the basic system parameters such as the date, time, and the hard disk type. Use the arrow keys to highlight an item and ▭▭ or PGDN to select the value for each item.
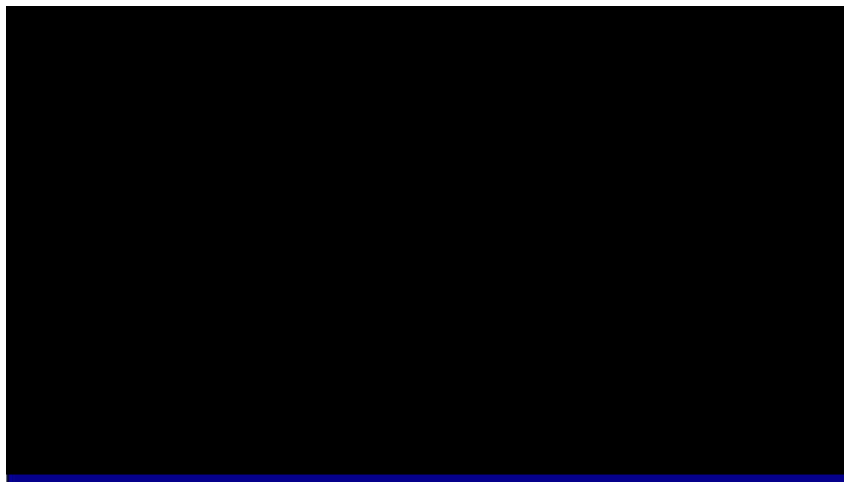
Standard CMOS à Date

To set the date, highlight the Date parameter. Press ▭▭ or ▭▭ to set the current date. The date format is month, date, and year.

Standard CMOS à Time

To set the time, highlight the Time parameter. Press ▭▭ or ▭▭ to set the current time in hour, minute, and second format. The time is based on the 24 hour military clock.

AWARD BIOS

Standard CMOS à **Primary Master** à **Type**
Standard CMOS à **Primary Slave** à **Type**
Standard CMOS à **Secondary Master** à **Type**
Standard CMOS à **Secondary Slave** à **Type**

Type
Auto
User
None

This item lets you select the IDE hard disk parameters that your system supports. These parameters are Size, Number of Cylinder, Number of Head, Start Cylinder for Pre-compensation, Cylinder number of Head Landing Zone and Number of Sector per Track. The default setting is **Auto**, which enables BIOS to automatically detect the parameters of installed HDD (Hard Disk Drive) at POST (Power-On Self Test). If you prefer to enter HDD parameters manually, select User. Select None if no HDD is connected to the system.

The IDE CDROM is always automatically detected.

Tip: For an IDE hard disk, we recommend that you use the "IDE HDD Auto Detection" to enter the drive specifications automatically. See the section "IDE HDD Auto Detection".

Standard CMOS à **Primary Master** à **Mode**
Standard CMOS à **Primary Slave** à **Mode**
Standard CMOS à **Secondary Master** à **Mode**
Standard CMOS à **Secondary Slave** à **Mode**

Mode
Auto
Normal
LBA
Large

The enhanced IDE feature allows the system to use a hard disk with a capacity of more than 528MB. This is made possible through the Logical Block Address (LBA) mode translation. The LBA is now considered a standard feature of current IDE hard disk on the market because of its capability to support capacity larger than 528MB. Note that if a HDD is formatted with LBA On, it will not be able to boot with LBA Off.

Standard CMOS à **Drive A**
Standard CMOS à **Drive B**

Drive A
None
360KB 5.25"
1.2MB 5.25"
720KB 3.5"
1.44MB 3.5"
2.88MB 3.5"

These items select the floppy drive type. The available settings and types supported by the mainboard are listed to the left.

Standard CMOS à **Video**

Video
EGA/VGA
CGA40
CGA80
Mono

This item specifies the type of video card in use. The default setting is VGA/EGA. Since current PCs use VGA only, this function is almost useless and may be disregarded in the future.

Standard CMOS à **Halt On**

Halt On
No Errors
All Errors
All, But Keyboard
All, But Diskette
All, But Disk/Key

This parameter enables you to control the system stops in case of Power-On Self Test (POST) error.

3.3   BIOS Features Setup

This screen appears when you select the option "BIOS Features Setup" from the main menu.
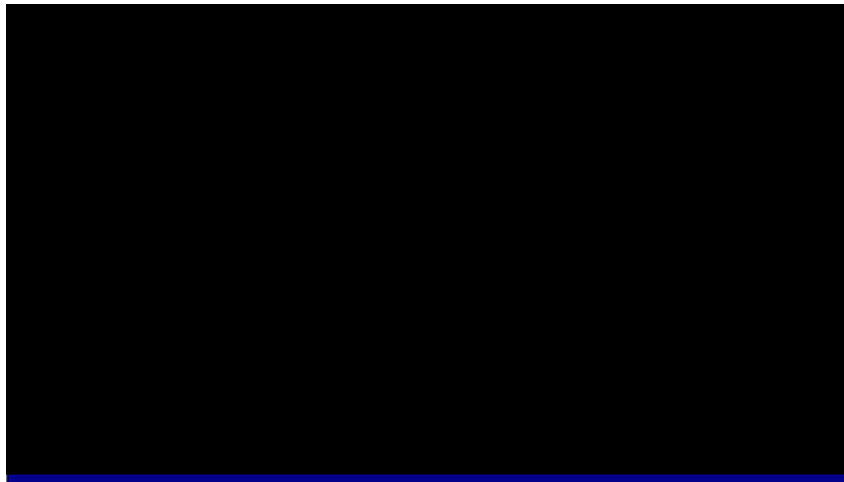
BIOS Features à Virus Warning

Virus Warning
Enabled
Disabled

Set this parameter to Enabled to activate the warning message.   This feature protects the boot sector and partition table of your hard disk from virus intrusion. Any attempt during boot up to write to the boot sector of the hard disk drive stops the system and the following warning message appears on the screen. Run an anti-virus program to locate the problem.

```
                      ! WARNING !
          Disk Boot Sector is to be modified
   Type "Y" to accept write, or "N" to abort write
                  Award Software, Inc.
```

BIOS Features à External Cache

External Cache	Enabling this parameter activates the secondary cache (currently, PBSRAM cache). Disabling the parameter slows down the system. Therefore, we recommend that you leave it enabled unless you are troubleshooting a problem.
Enabled	
Disabled	

BIOS Features à CPU L2 Cache ECC Checking

CPU L2 Cache ECC Checking	This item lets you enable or disable L2 Cache ECC checking.
Enabled	
Disabled	

BIOS Features à Processor Number Feature

Processor Number Feature	This item is used to enable or disable Pentium III CPU Number Feature.
Enabled	
Disabled	

BIOS Features à Quick Power On Self Test

Quick Power on Self test	This parameter speeds up POST by skipping some items that are normally checked.
Enable	
Disabled	

BIOS Features à Boot From LAN First

Boot From LAN First	This item is used to boot the system from a network server.
Enable	
Disabled	

AWARD BIOS

BIOS Features à Boot Sequence

Boot Sequence
A,C,SCSI
C,A,SCSI
C,CDROM,A
CDROM,C,A
CDROM,A,C
D,A,SCSI
E,A,SCSI
F,A,SCSI
SCSI,A,C
SCSI,C,A
C only
LS/ZIP,C

This parameter allows you to specify the system boot up search sequence. The hard disk ID are listed below:

C: Primary master

D: Primary slave

E: Secondary master

F: Secondary slave

LS: LS120

Zip: IOMEGA ZIP Drive

BIOS Features à Swap Floppy Drive

Swap Floppy Drive
Enabled
Disabled

This item allows you to swap floppy drives. For example, if you have two floppy drives (A and B), you can assign the first drive as drive B and the second drive as drive A or vice-versa.

BIOS Features à Boot Up NumLock Status

Boot Up NumLock Status
On
Off

Setting this parameter to On enables the numeric function of the numeric keypad. Set this parameter to Off to disregard the function. Disabling the numeric function allows you to use the numeric keypad for cursor control.

BIOS Features à Boot Up System Speed

Boot Up System Speed
High
Low

Select High or Low system speed after boot.

BIOS Features à **Typematic Rate Setting**

Typematic Rate Setting	Set this parameter to Enable/Disable the keyboard repeat function. When enabled, continually holding down a key on the keyboard will generate repeatedly keystrokes.
Enabled	
Disabled	

BIOS Features à **Typematic Rate (Chars/Sec)**

Typematic Rate	This item allows you to control the speed of repeated keystrokes. The default is 30 characters/sec.
6	
8	
10	
12	
15	
20	
24	
30	

BIOS Features à **Typematic Delay (Msec)**

Typematic Delay	This parameter allows you to control the delay time between the first and the second keystroke (where the repeated keystrokes begin). The typematic delay settings are 250, 500, 750, and 1000 msec.
250	
500	
750	
1000	

BIOS Features à **Security Option**

Security Option	The **System** option limits access to both the System boot and BIOS setup. A prompt asking you to enter your password appears on the screen every time you boot the system.
Setup	
System	The **Setup** option limits access only to BIOS setup.
	To disable the security option, select Password Setting from the main menu, don't type anything and just press <Enter>.

AWARD BIOS

BIOS Features à PCI/VGA Palette Snoop

PCI/VGA Palette Snoop Enabled Disabled	Enabling this item informs the PCI VGA card to keep silent (and to prevent conflict) when palette register is updated (i.e., accepts data without responding any communication signals). This is useful only when two display cards use the same palette address and plugged in the PCI bus at the same time (such as MPEQ or Video capture). In such case, PCI VGA is silent while MPEQ/Video capture is set to function normally.

BIOS Features à OS Select for DRAM > 64MB

OS Select for DRAM > 64MB OS/2 Non-OS/2	Set to OS/2 if your system is utilizing an OS/2 operating system and has a memory size of more than 64 MB.

BIOS Features à Show Logo On Screen

Show Logo On Screen Enabled Disabled	This item lets you show or hide AOpen logo on the POST screen.

BIOS Features à Video BIOS Shadow

Video BIOS Shadow Enabled Disabled	VGA BIOS Shadowing means to copy video display card BIOS into the DRAM area. This enhances system performance because DRAM access time is faster than ROM.

BIOS Features à **C800-CBFF Shadow**
BIOS Features à **CC00-CFFF Shadow**
BIOS Features à **D000-D3FF Shadow**
BIOS Features à **D400-D7FF Shadow**
BIOS Features à **D800-DBFF Shadow**
BIOS Features à **DC00-DFFF Shadow**

C8000-CBFFF Shadow Enabled Disabled	These six items are for shadowing ROM code on other expansion cards. Before you set these parameters, you need to know the specific addresses of that ROM code. If you do not know this information, enable all the ROM shadow settings.

Note: The F000 and E000 segments are always shadowed because BIOS code occupies these areas.

3.4   Chipset Features Setup

The "Chipset Features Setup" includes settings for the chipset dependent features. These features are related to system performance.

> **Caution:** Make sure you fully understand the items contained in this menu before you try to change anything. You may change the parameter settings to improve system performance. However, it may cause your system to be unstable if the setting is not correct for your system configuration.

Chipset Features à SDRAM CAS Latency
Chipset Features à SDRAM RAS# to CAS# Delay

SDRAM CAS Latency
2T
3T
Auto

These are timing of SDRAM CAS Latency and RAS to CAS Delay, calculated by clocks. They are important parameters affects SDRAM performance, default is **Auto**. If you install DIMMs with SPD and set this item to Auto, BIOS will automatically detect your DIMMs and then set to a appropriate timing; If you use DIMMs without SPD and set this item to Auto, BIOS will set it to 3/3.To make sure all of these settings in BIOS are correct, it is recommended to use DIMMs with SPD.

Chipset Features à SDRAM RAS# Precharge

SDRAM RAS# precharge
2T
3T
Auto

The RAS Precharge means the timing to inactive RAS and the timing for DRAM to do precharge before next RAS can be issued. RAS is the address latch control signal of DRAM row address. The default setting is **Auto**.

Chipset Features à System BIOS Cacheable

System BIOS Cacheable
Enabled
Disabled

Enabling this item allows you to cache the system BIOS to further enhance system performance.

Chipset Features à Video BIOS Cacheable

Video BIOS Cacheable
Enabled
Disabled

This item lets you cache Video RAM C000.

Chipset Features à Video RAM Cacheable

Video RAM Cacheable
Enabled
Disabled

This item lets you cache Video RAM A000 and B000.

AWARD BIOS

Chipset Features à 8 Bit I/O Recovery Time

8 Bit I/O Recovery Time
1
2
3
4
5
6
7
8
NA

For some old I/O chips, after the execution of an I/O command, the device requires a certain amount of time (recovery time) before the execution of the next I/O command. Because of new generation CPU and mainboard chipset, the assertion of I/O command is faster, and sometimes shorter than specified I/O recovery time of old I/O devices. This item lets you specify the delay of 8-bit I/O command by count of ISA bus clock. If you find any unstable 8-bit I/O card, you may try to extend the I/O recovery time via this item. The BIOS default value is **4 ISA clock.** If set to NA, the chipset will insert 3.5 system clocks.

Chipset Features à 16 Bit I/O Recovery Time

16 Bit I/O Recovery Time
1
2
3
4
NA

The same as 16-bit I/O recovery time. This item lets you specify the recovery time for the execution of 16-bit I/O commands by count of ISA bus clock. If you find any of the installed 16-bit I/O cards unstable, try extending the I/O recovery time via this item. The BIOS default value is **1 ISA clocks**. If set to NA, the chipset will automatically insert 3.5 system clocks.

Chipset Features à Memory Hole At 15M-16M

Memory Hole At 15M-16M
Enabled
Disabled

This option lets you reserve system memory area for special ISA cards. The chipset accesses code/data of these areas from the ISA bus directly. Normally, these areas are reserved for memory mapped I/O card.

Chipset Features à Passive Release

Passive Release
Enabled
Disabled

This item lets you control the Passive Release function of the PIIX4E chipset (Intel PCI to ISA bridge). This function is used to meet latency of ISA bus master. Try to enable or disable it, if you have ISA card compatibility problem.

Chipset Features à **Delayed Transaction**

Delayed Transaction
Enabled
Disabled

This item lets you control the Delayed Transaction function of the PIIX4E chipset (Intel PCI to ISA bridge). This function is used to meet latency of PCI cycles to or from ISA bus. Try to enable or disable it, if you have ISA card compatibility problem.

Chipset Features à **AGP Aperture Size (MB)**

AGP Aperture Size (MB)
4
8
16
32
64
128
256

This item lets you determine the effective size of the AGP Graphic Aperture.

Chipset Features à **Pentium II Micro Codes**

Pentium II Micro Codes
Enabled
Disabled

The micro codes are used to fix bugs of Pentium II CPU, we strongly recommend to enable this item for system reliability reason. However, this microcode may slightly reduce CPU performance. We provide this option for your convenience if you like to test it.

Chipset Features à **Manufacture Frequency Default**

Manufacture Frequency Default
Depends on the CPU type

This item only reminds you of the actual CPU frequency while clearing CMOS or pressing "Home" key. The default setting is 233 MHz, you can modify it to match the actual CPU frequency by using the utility - flash.exe.

Chipset Features à **Clock Spread Spectrum**

Clock Spread Spectrum
On
Off

This item is used to set clock spread spectrum for EMI testing. Normally, you don't need to change the default setting.

AWARD BIOS

Chipset Features à CPU Clock Frequency

CPU Clock Frequency
66.8 MHz
68.5 MHz
75.0 MHz
83.3 MHz
100 MHz
103 MHz
112 MHz
117 MHz
124 MHz
129 MHz
133.3 MHz
138 MHz
143 MHz
148 MHz
153 MHz

This item lets you set external clock (bus clock). The correct setting may vary because of different CPU products, refer to your CPU specification for more details.

Chipset Features à CPU Clock Ratio

CPU Clock Ratio
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0

Intel Pentium II is designed to have different Internal (Core) and External (Bus) frequency. This item lets you select the ratio of Core/Bus frequency. The default value is 3.5x.

Chipset Features à Setup CPU Speed

Setup CPU Speed

The CPU Speed is derived from the product of "CPU Clock Frequency" and "CPU Clock Ratio".

Chipset Features à **Y2K CMOS Update**

Y2K CMOS Update
Enabled
Disabled

This item is designed for some Y2K testing programs, for example, Check It 98. If you are using this kind of program to test your system and fails, enable this item and redo the test again.

AWARD BIOS

3.5 Power Management Setup

The Power Management Setup screen enables you to control the mainboard green features. See the following screen.
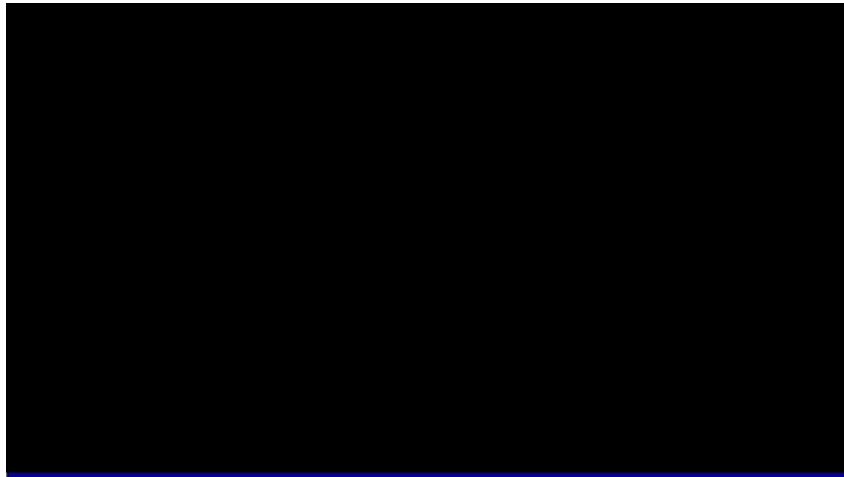
Power Management à ACPI Function

ACPI Function	If your OS is ACPI enabled you have to set this item
Enabled	to Enabled, or there may be unexpected errors. If
Disabled	your OS is APM mode, you can remain the Disabled
	setting.

Power Management à Power Management

Power Management	This function allows you to set the default parameters
Max Saving	of power-saving modes. Set to **Disable** to turn off the
Mix Saving	power management function. Set to User Define to
User Define	choose your own parameters.
Disabled	

Mode	Doze	Standby	Suspend	HDD Power Down
Min Saving	1 hour	1 hour	1 hour	15 min
Max Saving	1 min	1 min	1 min	1 min

Power Management à PM Controlled by APM

PM Controlled by APM	If "Max Saving" is selected, you can turn on this item, transfer power management control to APM (Advanced Power Management) and enhance power saving function. For example, stop CPU internal clock.
Yes	
No	

Power Management à Video Off Method

Video Off Method	This determines the way that the monitor is off. Blank Screen writes blanks to video buffer. V/H SYNC + Blank allows BIOS to control VSYNC and HSYNC signals. This function applies only for DPMS (Display Power Management Standard) monitor. The DPMS mode uses DPMS functions provided by the VGA card.
V/H SYNC + Blank	
DPMS	
Blank Screen	

Power Management à Video Off After

Video Off After	To turn off video monitor at which power down mode.
N/A	
Doze	
Standby	
Suspend	

AWARD BIOS

Power Management à Standby Mode

Standby Mode
Disabled
1 Min
2 Min
4 Min
8 Min
12 Min
20 Min
30 Min
40 Min
1 Hour

This item lets you set the period of time after which the system enters into Standby mode. In this mode, the monitor power-saving feature activates. Any activity detected returns the system to full power. The system activity (or event) is detected by monitoring the IRQ signals or other events (such as I/O).

Power Management à Suspend Mode

Suspend Mode
Disabled
1 Min
2 Min
4 Min
8 Min
12 Min
20 Min
30 Min
40 Min
1 Hour

This item lets you set the period of time after which the system enters into Suspend mode. The Suspend mode can be Power On Suspend or Suspend to Hard Drive, selected by "Suspend Mode Option".

Power Management à HDD Power Down

HDD Power Down
Disabled
1 Min
.....
15 Min

This option lets you specify the IDE HDD idle time before the device enters the power down state. This item is independent from the power states previously described in this section (Standby and Suspend).

Power Management à 0V Wake On Modem

0V Wake On Modem
Enabled
Disabled

This option lets you specify enable or disable Wake On Modem function.

Power Management à **Wake On LAN**

Wake On LAN
Enabled
Disabled

This option lets you specify enable or disable Wake On LAN function.

Power Management à **Suspend Mode Option**

Suspend Mode Option
PowerOn Suspend
Suspend to Disk

You can select suspend mode by this item. **Power On Suspend** is the traditional Green PC suspend mode, the CPU clock is stop, all other devices are shut off. But power must be kept On to detect activities from modem, keyboard/mouse and returns the system to full power. The system activities is detected by monitoring the IRQ signals or I/O. **Suspend to Hard Drive** saves system status, memory and screen image into hard disk, then the power can be totally Off. Next time, when power is turned On, the system goes back to your original work within just few seconds, which depending on your memory size. You need utility AOZVHDD to reserve disk space.

Power Management à **Throttle Duty Cycle**

Throttle Duty Cycle
12.5 %
25.0 %
37.5 %
50.0 %
62.5 %
75.0 %
87.5 %

Clock Throttling means at the Doze/Standby state, the CPU clock count in a given time (not the frequency) is reduced to the ratio specified in this parameter. Actually, the period per CPU clock is not changed. For example, a 66MHz CPU clock remains the same 30ns clock period when system goes into Doze/Suspend. The chipset generates the STPCLK (stop clock) signal periodically to prevent CPU for accepting clock from clock generator. For full power on, the CPU can receive 66M count in one second. If the Slow Clock Ratio is set to 50%, the CPU will only receive 33M clock count in one second. This will effectively reduce CPU speed as well as CPU power.

AWARD BIOS

Power Management à VGA Active Monitor

VGA Active Monitor
Enabled
Disabled

To enable or disable the detection of VGA activity for power down state transition.

Power Management à Soft-Off by PWR-BTTN

Soft-Off by PWR-BTTN
Delay 4 sec.
Instant-Off

This is a specification of ACPI and supported by hardware. When **Delay 4 sec.** is selected, the soft power switch on the front panel can be used to control power On, Suspend and Off. If the switch is pressed for less than 4 seconds during power On, the system will go into Suspend mode. If the switch is pressed for longer than 4 seconds, the system will be turned Off. The default setting is **Instant-Off**. If **Instant-Off** is selected the soft power switch is only used to control On and Off, so there is no need to press it for 4 seconds, and there is no Suspend.

Power Management à Wake On RTC Timer

Wake On RTC Timer
By Date
By Week
Disabled

This option lets you enable or disable the RTC Wake Up function.

Power Management à Date (of Month)

Date (of Month)
0
1
.....
31

This item is displayed when you enable the Wake On RTC Timer option. Here you can specify what date you want to wake up the system. For Example, setting to 15 will wake up the system on the 15th day of every month.

Note: *Setting this item to 0 will wake up the system on the specified time (which can be set in the Wake On RTC Timer) every day.*

Power Management à **Time (hh:mm:ss)**

Time (hh:mm:ss)
hh:mm:ss

This item is displayed when you enable the Wake On RTC Timer option. Here you can specify what time you want to wake up the system.

Power Management à **IRQ 8 Clock Event**

IRQ 8 Clock Event
Enabled
Disabled

To enable or disable the detection of IRQ8 (RTC) event for power down state transition. OS2 has periodically IRQ8 (RTC) interruptions, If IRQ8 is not set to **Disabled**, OS/2 may fail to go into Doze/Standby/Suspend mode.

Power Management à **IRQ [3-7,9-15],NMI**

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

To enable or disable the detection of IRQ3-7, IRQ9-15 or NMI interrupt events for power down state transition.

Power Management à **Primary IDE 0**
Power Management à **Primary IDE 1**
Power Management à **Secondary IDE 0**
Power Management à **Secondary IDE 1**
Power Management à **Floppy Disk**
Power Management à **Serial Port**
Power Management à **Parallel Port**

Primary IDE 0
Enabled
Disabled

These items enable or disable the detection of IDE, floppy, serial and parallel port activities for power down state transition. Actually it detects the read/write to/from I/O port.

3.6 PNP/PCI Configuration Setup

The PNP/PCI Configuration Setup allows you to configure the ISA and PCI devices installed in your system. The following screen appears if you select the option "PNP/PCI Configuration Setup" from the main menu.

PNP/PCI Configuration à **PnP OS Installed**

PnP OS Installed	Normally, the PnP resources are allocated by BIOS during POST (Power-On Self Test). If you are using a PnP operating system (such as Windows 95), set this item to Yes to inform BIOS to configure only the resources needed for booting (VGA/IDE or SCSI). The rest of system resources will be allocated by PnP operating system.
Yes	
No	

PNP/PCI Configuration à **Resources Controlled By**

Resources Controlled by	Setting this option to Manual allows you to individually assign the IRQs and DMAs to the ISA and PCI devices. Set this to **Auto** to enable the auto-configuration function.
Auto	
Manual	

PNP/PCI Configuration à **Reset Configuration Data**

Reset Configuration Data Enabled Disabled	In case conflict occurs after you assign the IRQs or after you configure your system, you can enable this function, allow your system to automatically reset your configuration and reassign the IRQs, DMAs, and I/O address.

PNP/PCI Configuration à **IRQ3** (COM2)
PNP/PCI Configuration à **IRQ4** (COM1)
PNP/PCI Configuration à **IRQ5** (Network/Sound or Others)
PNP/PCI Configuration à **IRQ7** (Printer or Others)
PNP/PCI Configuration à **IRQ9** (Video or Others)
PNP/PCI Configuration à **IRQ10** (SCSI or Others)
PNP/PCI Configuration à **IRQ11** (SCSI or Others)
PNP/PCI Configuration à **IRQ12** (PS/2 Mouse)
PNP/PCI Configuration à **IRQ14** (IDE1)
PNP/PCI Configuration à **IRQ15** (IDE2)

IRQ 3 Legacy ISA PCI/ISA PnP	If your ISA card is not PnP compatible and requires a special IRQ to support its function, set the selected IRQ to **Legacy ISA**. This setting informs the PnP BIOS to reserve the selected IRQ for the installed legacy ISA card. The default is **PCI/ISA PnP**. Take note that PCI cards are always PnP compatible (except old PCI IDE card).

PNP/PCI Configuration à **DMA 0**
PNP/PCI Configuration à **DMA 1**
PNP/PCI Configuration à **DMA 3**
PNP/PCI Configuration à **DMA 5**
PNP/PCI Configuration à **DMA 6**
PNP/PCI Configuration à **DMA 7**

DMA 0 Legacy ISA PCI/ISA PnP	If your ISA card is not PnP compatible and requires a special DMA channel to support its function, set the selected DMA channel to **Legacy ISA**. This setting informs the PnP BIOS to reserve the selected DMA channel for the installed legacy ISA card. The default is **PCI/ISA PnP**. Take note that PCI card does not require DMA channel.

AWARD BIOS

PNP/PCI Configuration à PCI IDE IRQ Map To

PCI IDE IRQ Map To
ISA
PCI-Slot1
PCI-Slot2
PCI-Slot3
PCI-Slot4
PCI-Auto

Some old PCI IDE add-on cards are not fully PnP compatible. These cards require you to specify the slot in use to enable BIOS to properly configure the PnP resources. This function allows you to select the PCI slot for any PCI IDE add-on card present in your system. Set this item to **Auto** to allow BIOS to automatically configure the installed PCI IDE card(s).

PNP/PCI Configuration à Primary IDE INT#
PNP/PCI Configuration à Secondary IDE INT#

Primary IDE INT#
A
B
C
D

These two items, in conjunction with item "PCI IDE IRQ Map To", specify the IRQ routing of the primary or secondary channel of the PCI IDE add-on card (not the onboard IDE). Each PCI slot has four PCI interrupts aligned as listed in the table below. You must specify the slot in the "PCI IDE IRQ Map To", and set the PCI interrupt (INTx) here according to the interrupt connection on the card.

PCI Slot	Location 1 (pin A6)	Location 2 (pin B7)	Location 3 (pin A7)	Location 4 (pin B8)
Slot 1	INTA	INTB	INTC	INTD
Slot 2	INTB	INTC	INTD	INTA
Slot 3	INTC	INTD	INTA	INTB
Slot 4	INTD	INTA	INTB	INTC
Slot 5 (if any)	INTD	INTA	INTB	INTC

PNP/PCI Configuration à **Modem Use IRQ**

Modem Use IRQ
N/A
3
4
5
7
9
10
11

This item lets you set an IRQ for the modem.

PNP/PCI Configuration à **Used MEM Base Addr**

Used MEM Base Addr
N/A
C800
CC00
D000
D400
D800
DC00

This item, in conjunction with the "Used MEM Length", lets you set a memory space for non-PnP compatible ISA card. This item specifies the memory base (start address) of the reserved memory space. The memory size is specified in the "Used MEM Length".

AWARD BIOS

PNP/PCI Configuration à **Used MEM Length**

Used MEM Length
8K
16K
32K
64K

If your ISA card is not PnP compatible and requires special memory space to support its function, specify the memory size in this parameter to inform the PnP BIOS to reserve the specified memory space for installed legacy ISA card.

PNP/PCI Configuration à **PCI Slot1 IRQ (Right)**
PNP/PCI Configuration à **PCI Slot2 IRQ**
PNP/PCI Configuration à **PCI Slot3 IRQ**

PCI Slot1 IRQ
3
4
5
7
9
10
11
12
14
15
Auto

This item is reserved for engineering purpose to let you assign an IRQ manually to the add-on card on each PCI slot. If you select Auto, system will automatically assign an available value to the device.

It is suggested to use default setting, which is Auto, in order to comply with PnP specification completely.

3.7   Load Setup Defaults

The "Load Setup Defaults" option loads optimized settings for optimum system performance. Optimal settings are relatively safer than the Turbo settings. All the product verification, compatibility/reliability test report and manufacture quality control are based on "Load Setup Defaults". We recommend you to use this settings for normal operation. "Load Setup Defaults" is not the slowest setting for this motherboard. If you need to verify an unstable problem, you may manually set the parameter in the "BIOS Features Setup" and "Chipset Features Setup" to get slowest and safer setting.

3.8   Load Turbo Defaults

The "Load Turbo Defaults" option gives better performance than "Load Setup Defaults". It is provided for the convenience of power user who wants to push the motherboard to get better performance. Turbo setting does not go though all the detail reliability and compatibility test, it is tested only with limited configuration and loading (for example, a system that contains only a VGA card and two DIMMs). Use Turbo setting only when you fully understand the items in Chipset Setup menu. The performance improvement of Turbo setting is normally around 3% to 5%, depending on the chipset and the application.

3.9 Integrated Peripherals

The following screen appears if you select the option "Integrated Peripherals" from the main menu. This option allows you to configure the I/O features.

```
                    ROM PCI/ISA BIOS (00000006)
                      INTEGRATED PERIPHERALS
                       AWARD SOFTWARE, INC.

 IDE HDD Block Mode       : Disabled   Onboard FDC Controller   :
 IDE Primary Master PIO   : Auto       Onboard Serial Port 1    : 3F8/IRQ4
 IDE Primary Slave  PIO   : Auto       Onboard Serial Port 2    :
 IDE Secondary Master PIO : Auto       UART Mode Select         :
 IDE Secondary Slave  PIO : Auto       RxD , TxD Active         : Hi,Lo
 IDE Primary Master UDMA  : Auto       IR Transmission delay    : Enabled
 IDE Primary Slave  UDMA  : Auto       Onboard Parallel Port    :
 IDE Secondary Master UDMA: Auto       Parallel Port Mode       :
 IDE Secondary Slave  UDMA: Auto       ECP Mode Use DMA         : 3
 On-Chip Primary  PCI IDE: Enabled     EPP Mode Select          : EPP1.9
 On-Chip Secondary PCI IDE: Enabled    Onboard Sound Chip       : Enabled
 USB Keyboard Support     : Disabled
 Init Display First       : AGP

 POWER ON Function        :
 KB Power ON Password     : Enter       ESC : Quit         ↑↓→← : Select Item
 Hot Key Power ON         : Ctrl-F1     F1  : Help         PU/PD/+/- : Modify
 AC PWR Auto Recovery     : On          F5  : Old Values  F9      : Language
                                        F6  : Load Setup Defaults
                                        F7  : Load Turbo Defaults
```

Integrated Peripherals à IDE HDD Block Mode

IDE HDD Block Mode	This feature enhances disk performance by allowing multisector data transfers and eliminates the interrupt handling time for each sector. Most IDE drives, except with old designs, can support this feature.
Enabled	
Disabled	

Integrated Peripherals à IDE Primary Master UDMA
Integrated Peripherals à IDE Primary Slave UDMA
Integrated Peripherals à IDE Secondary Master UDMA
Integrated Peripherals à IDE Secondary Slave UDMA

IDE Primary Master UDMA Auto Disabled	This item allows you to set the Ultra DMA/33 mode supported by the hard disk drive connected to your primary IDE connector.

Integrated Peripherals à On-Chip Primary PCI IDE
Integrated Peripherals à On-Chip Secondary PCI IDE

On-Chip Primary PCI IDE Enabled Disabled	This parameter lets you enable or disable the IDE device connected to the primary IDE connector.

Integrated Peripherals à USB Keyboard Support

USB Keyboard Support Enabled Disabled	This item lets you enable or disable the USB keyboard driver within the onboard BIOS. The keyboard driver simulates legacy keyboard command and let you use USB keyboard during POST or after boot if you don't have USB driver in the operating system.

Caution: You can not use both USB driver and USB legacy keyboard at the same time. Disable "USB Keyboard Support" if you have USB driver in the operating system.

Integrated Peripherals à Init Display First

Init Display First PCI AGP	If you installed a PCI VGA card and an AGP card at the same time, this item lets you decide which one is the initial display card.

AWARD BIOS

Integrated Peripherals à Power On Function

Power On Function
Button Only
Keyboard 98
Password
Hot Key
Mouse Left
Mouse Right

This item is used to select Wake on Keyboard/Mouse mode.

Button Only: Disable Wake on KB/MS function. You can boot up your system by power button only.

Keyboard 98: If selecting this option, you can boot up the system by power button and the "Wake" key on keyboard which complies to Keyboard 98 standard.

Password: Disable the function of power button and let the system can only be powered on through the preset keys (like a password).

Hot Key: If selecting this option, you also need to specify the hot key from "Hot Key Power On" item.

Mouse Left: This function allows you wake up the system by clicking left mouse button twice successively. Note that the mouse can't be moved while double clicking.

Mouse Right: This function allows you wake up the system by clicking right mouse button twice successively. Note that the mouse can't be moved while double clicking.

Caution: *Whenever you change this item, it will only take effect after you restart the system and successfully boot the Windows or DOS.*

Caution: *To implement Wake On Keyboard/Mouse function, you must set JP28 to Enabled.*

Caution: *Wake On Mouse function applies to PS/2 mouse only.*

Caution: *If you set a Password but forget it, please clear CMOS.*

Caution: *If you want to use Wake On Mouse function in DOS, it is necessary to install the DOS driver of the mouse.*

Integrated Peripherals à **KB Power On Password**

KB Power On Password

You can specify 1-5 keys as a password.

Note: *Before setting a password you have to make sure JP28 has been enabled, or your system cannot be boot up properly any more. Under this situation, the only solution is to clear CMOS.*

Integrated Peripherals à **Hot Key Power On**

Hot Key Power On
Ctrl-F1
Ctrl-F2
Ctrl-F3
Ctrl-F4
Ctrl-F5
Ctrl-F6
Ctrl-F7
Ctrl-F8
Ctrl-F9
Ctrl-F10
Ctrl-F11
Ctrl-F12

If you select "Hot Key" option in "Power On Function" Item, you need to specify a hot key here.

AWARD BIOS

Power Management à AC PWR Auto Recovery

AC PWR Auto Recovey
Former-Sts
On
Off

A traditional ATX system should remain at power off stage when AC power resumes from power failure. This design is inconvenient for a network server or workstation, without an UPS, that needs to keep power-on. This item is used to solve this problem. Selecting On lets the system can automatically power-on after AC power resumes; in the other hand, the system will power-off if you select Off. If Former-Sts option is selected, the system will power-on or power-off based on the original state.

Integrated Peripherals à Onboard FDC Controller

Onboard FDC Controller
Enabled
Disabled

Setting this parameter to **Enabled** allows you to connect your floppy disk drives to the onboard floppy disk connector instead of a separate controller card. Change the setting to Disabled if you want to use a separate controller card.

Integrated Peripherals à Onboard Serial Port 1
Integrated Peripherals à Onboard Serial Port 2

Onboard Serial Port 1
Auto
3F8/IRQ4
2F8/IRQ3
3E8/IRQ4
2E8/IRQ3
Disabled

This item allow you to assign address and interrupt for the board serial port. Default is **Auto**.

Note: *If you are using a network card, make sure that the interrupt does not conflict.*

Integrated Peripherals à UART Mode Select

| **UART Mode Select** |
| Standard |
| HPSIR |
| ASKIR |

This item is configurable only if the "Onboard UART 2" is enabled. This allows you to specify the mode of serial port2. The available mode selections are:

- **Standard** – Sets serial port 2 to operate in normal mode. This is the default setting.

- **HPSIR** – Select this setting if you installed an Infrared module in your system via IrDA connector (refer to section 2.3 "Connectors"). This setting allows infrared serial communication at a maximum baud rate of 115K baud.

- **ASKIR** – Select this setting if you installed an Infrared module via IrDA connector (refer to section 2.3 "Connectors"). This setting allows infrared serial communication at a maximum baud rate of 19.2K baud.

Integrated Peripherals à RxD, TxD Active

| **RxD, TxD Active** |
| Hi, Hi |
| Hi, Lo, |
| Lo, Hi |
| Lo, Lo |

This item is used to select RxD (Receive Data) and TxD (Transmit Data) mode for UART, for instance, IR device, modem, etc. Normally, we suggest you keep the default setting. Please see the documentation that comes with your device.

Integrated Peripherals à IR Transmission Delay

| **IR Transmission Delay** |
| Enabled |
| Disabled |

If Enabled is selected, there will be a 4 character delay when SIR is changed from TX mode to RX mode.

AWARD BIOS

Integrated Peripherals à **Onboard Parallel Port**

Onboard Parallel Port
3BC/IRQ7
378/IRQ7
278/IRQ5
Disabled

This item controls the onboard parallel port address and interrupt.

Note: If you are using an I/O card with a parallel port, make sure that the addresses and IRQ do not conflict.

Integrated Peripherals à **Parallel Port Mode**

Parallel Port Mode
SPP
EPP
ECP
ECP + EPP

This item lets you set the parallel port mode. The mode options are SPP (Standard and Bidirection Parallel Port), EPP (Enhanced Parallel Port) and ECP (Extended Parallel Port). SPP is the IBM AT and PS/2 compatible mode. EPP enhances the parallel port throughput by directly writing/reading data to/from parallel port without latch. ECP supports DMA and RLE (Run Length Encoded) compression and decompression.

Integrated Peripherals à **ECP Mode Use DMA**

ECP Mode Use DMA
3
1

This item lets you set the DMA channel of ECP mode.

Integrated Peripherals à **EPP Mode Select**

EPP Mode Select
EPP1.7
EPP1.9

This item lets you select EPP mode.

Integrated Peripherals à **Onboard Sound Chip**

Onboard Sound Chip Enabled Disabled	This item lets you enable or disable the onboard sound chip.

3.10 Password Setting

Password prevents unauthorized use of your computer. If you set a password, the system prompts for the correct password before boot or access to Setup.

To set a password:

1. At the prompt, type your password. Your password can be up to 8 alphanumeric characters. When you type the characters, they appear as asterisks on the password screen box.

2. After typing the password, press.

3. At the next prompt, re-type your password and press again to confirm the new password. After the password entry, the screen automatically reverts to the main screen.

To disable the password, press when prompted to enter the password. The screen displays a message confirming that the password has been disabled.

3.11 IDE HDD Auto Detection

If your system has an IDE hard drive, you can use this function to detect its parameters and enter them into the "Standard CMOS Setup" automatically.

This routine only detects one set of parameters for your IDE hard drive. Some IDE drives can use more than one set of parameters. If your hard disk is formatted using different parameters than those detected, you have to enter the parameters manually. If the parameters listed do not match the ones used to format the disk, the information on that disk will not be accessible. If the auto-detected parameters displayed do not match those that used for your drive, ignore them. Type N to reject the values and enter the correct ones manually from the Standard CMOS Setup screen.

3.12 Save & Exit Setup

This function automatically saves all CMOS values before leaving Setup.

3.13 Load EEPROM Default

Except "Load Setup Default" and "Load Turbo Default", you may also use "Save EEPROM Default " to save your own settings into EEPROM, and reload by using this item. Note that you must make sure you've already executed "Save EEPROM Default" before choosing this command, otherwise, the system is likely to boot improperly.

3.14 Save EEPROM Default

You may use this item to save your own settings into EEPROM. Then, if the data in CMOS is lost or you forget the previous settings, you may use "Load EEPROM Default " to reload.

3.15 Exit without Saving

Use this function to exit Setup without saving the CMOS value changes. Do not use this option if you want to save the new configuration.

3.16 NCR SCSI BIOS and Drivers

The NCR 53C810 SCSI BIOS resides in the same flash memory chip as the system BIOS. The onboard NCR SCSI BIOS is used to support NCR 53C810 SCSI control card without BIOS code.

The NCR SCSI BIOS directly supports DOS, Windows 3.1 and OS/2. For better system performance, you may use the drivers that come with the NCR SCSI card or with your operating system. For details, refer to the installation manual of your NCR 53C810 SCSI card.

3.17 How to Upgrade the BIOS

AOpen Easy Flash is more user friendly than traditional flash method. The BIOS binary file and flash routine are combined together and you simply run a single file to complete the flash process.

1. Get new BIOS upgrade program from AOpen's web site. For example, 6BCEZ200.EXE. It is recommended to save it to a bootable DOS floppy diskette for error recovery.
2. Reboot the system to DOS mode without loading any memory handler (such as EMM386) or device driver. It needs around 520K free memory space.
3. Execute A:> 6BCEZ200
    DO NOT turn off the power during FLASH PROCESS.
4. Reboot the system by turn off the power after flash is completed.
5. Reload the "BIOS SETUP DEFAULT" and reconfigure other items as previous set. Save & Exit. Done!

Note: If you encounter BIOS flash fail, use PCI VGA card to check if it can be boot from floppy and flash again.

Note: The upgrade of new BIOS will permanently replace your original BIOS content after flashing. The original BIOS setting and Win95/Win98 PnP information will be refreshed and you probably need to re-configure your system.