DXPL-U
DXPL Plus-U

Online Manual

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What's in this manual

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Before You Start

This Online Manual will introduce you how this product is installed. All useful information will be described in later chapters. Please keep this manual carefully for future upgrades or system configuration changes. This Online Manual is saved in PDF format, we recommend using Adobe Acrobat Reader 4.0 for online viewing, it is included in Bonus CD disc or you can get free download from Adobe web site.

Although this Online Manual is optimized for screen viewing, it is still capable for hardcopy printing, you can print it by A4 paper size and set 2 pages per A4 sheet on your printer. To do so, choose **File > Page Setup** and follow the instruction of your printer driver.

Thanks for the help of saving our earth.

Overview

Thank you for choosing AOpen DXPL-U/DXPL Plus-U motherboard. DXPL-U/DXPL Plus-U is Intel® Socket 604 motherboard (M/B) based on the BIG ATX form factor featuring the Intel® E7505 Chipset. As high performance chipset built in the M/B, DXPL-U/DXPL Plus-U motherboard can support Intel® Socket 604 Intel® Xeon™ and 400/533MHz Front Side Bus (FSB) clock. The dual channel SCSI architecture supports Ultra320 SCSI with bandwidth of up to 320MB/s for each channel. The DXPL-U/DXPL Plus-U also integrates the Intel® 82545 GbE PCI Ethernet controller that supports 1 Gbites function for better remote site management. According to different customer's requirements, the chipset memory interface supports ECC DDR RAM devices with densities of 64, 128, 256, 512Mb, and 1Gb DDR RAM DIMM modules and the maximum memory size can be up to 8GB.
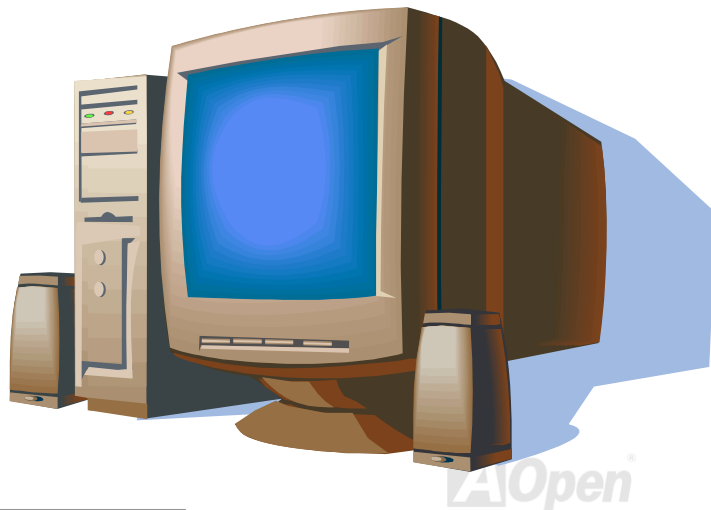
Feature Highlight

CPU

Supports Intel® Xeon™ 1.8GHz above with FSB400/533MHz (<u>Front Side Bus)</u> designed for Socket 604 technology.

Chipset

With Intel® E7505 chipset is designed for use with the Intel® Xeon™ processor in the 604-pin package. It is optimized for the Intel® Xeon™ processor, supporting Dual channel of DDR 200/266.

Expansion Slots

Including three 64-bit/100MHz PCI-X, one 32-bit/33MHz PCI slot and one 64bit/100MHz PCI-X slot with ZCR Function support (DXPL Plus-U).

SCSI On-board (DXPL Plus-U)

The dual channel Adaptec AIC-7902W chip host adapter delivers Ultra320/m SCSI data transfer rates which doubles the Ultra3 SCSI data transfer rate of up to 320MB/s. With two channels, it delivers a total of 640MB/s bandwidth. In addition, the AIC-7902W features a 66MHz, 64bit PCI interface that supports zero wait-state memory that also operates on 33MHz, 32bit PCI buses. It supports up to 30 devices on a 12 meters cable (or 25 meters in a point to point configuration), making it ideal for both clustering and RAID configurations.

Intel® 82545 GbE LAN controller

Another cost-effective feature for network solution is the integration of Intel 82545 GbE Fast Ethernet controllers. The Intel 82545 GbE integrates Intel's fourth-generation Gigabit MAC design with fully integrated, physical-layer circuitry to provide a standard IEEE 802.3 Ethernet interface for 1000BASE-T and 100BASE-TX applications.

Memory

This motherboard provides four 184-pin DDR RAM DIMM sockets that support up to 8GB of DDR200/DDR266 compliant unbuffered DDR RAM. You may install 64, 128, 256, 512Mb and 1Gb DDR RAM DIMM modules into each socket.

Six USB2.0 Connectors

There are four connectors on the back pane for USB interface devices, such as mouse, keyboard, modem, scanner, etc. All two USB Connectors support USB2.0. You can use proper cables to connect USB devices from PC99 back panel or connect the 3rd USB channel header to the front panel of chassis.

Power Management/Plug and Play

Supports the power management function that conforms to the power-saving standards of the U.S. Environmental Protection Agency (EPA) Energy Star program. It also offers Plug-and-Play, helping save users from configuration problems and makes the system user-friendly.

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Hardware Monitoring Management

Supports CPU or system fans' status, temperature, voltage monitoring and alert through the on-board hardware monitor module.

Enhanced ACPI

The fully implemented ACPI standard is Windows® 2000 series compatible; it also supports S1, S3, S4, S5 features.

Super Multi-I/O

Provides two high-speed UART compatible serial ports and one parallel port with EPP and ECP capabilities. You can also connect UART from COM1 to an Infrared Module for wireless connection.

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Quick Installation Procedure

This page gives you a quick procedure on how to install your system. Follow each step accordingly.

1.   Installing <u>CPU</u> and <u>Fan</u>

2.   <u>Installing System Memory (DIMM</u>)

3.   <u>Connecting Front Panel Cable</u>

4.   <u>Connecting IDE and Floppy Cable</u>

5.   <u>Connecting ATX Power Cable</u>

6.   <u>Connecting Back Panel Cable</u>

7.   <u>Power-on and Load BIOS Setup Default</u>

8.   <u>Setting CPU Frequency</u>

9.   Reboot

10. Installing Operating System

11. <u>Installing Driver and Utility</u>

Motherboard Map

Intel® 82545 GbE
Ethernet Controller
S/PDIF Connector

CD IN Connector

Wake On LAN Connector

Standby LED

32bit/33MHz PCI Slot x1

64bit/100MHz PCI-X Slot x1
with ZCR function (DXPL Plus-U)

64bit/100MHz PCI-X Slot x3

USB2.0 connector

JP3 BIOS Configuration /
Recovery Select Jumper

Adaptec AIC-7902W
Ultra320 SCSI Controller
(DXPL Plus-U)

IPMI connector

JP2 Clear CMOS Jumper

Flash ROM BIOS

68pin SCSI Connector A
(DXPL Plus-U)

68pin SCSI Connector B
(DXPL Plus-U)

Front Panel Connector

JP1 BIOS Password ON/OFF Jumper

SMB1 / SMB2 connector

IPMB connector

PC99 Back Panel

System Fan Connector

CPU1 Fan Connector

CPU2 Fan Connector

System Fan Connector

604-pin CPU socket x2
FSB400/533 MHz Intel® Xeon™
CPU Supported

AGP 8X Pro Slot

Intel E7505 Chipset

South Bridge: Intel ICH4+P64H2

EPS 8-pin 12V Power Connector

EPS 24-pin 12V Power Connector

184-pin DIMM Sockets x4
supporting ECC DDR200/266
DDR RAM

Heath LED

IDE Connector (IDE2)

FDD Connector

IDE Connector (IDE1)

System Fan Connector

Hardware Installation

This chapter describes jumpers, connectors and hardware devices of this motherboard.

Note: *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.*

About "User Upgrade Optional" and "Manufacture Upgrade Optional"…

When you read this online manual and start to assemble your computer system, you may notice that some of the functions are marked as "User Upgrade Optional" or "Manufacture Upgrade Optional". Although all of AOpen's motherboards have included many amazing and powerful features, sometimes not every user is familiar with these powerful features. As a result of this we define features that can be upgraded by users as "User Upgrade Optional". You can upgrade these functions by purchasing additional devices. As for functions that cannot be upgraded by users, we define them as "Manufacture Upgrade Optional". If need be, you can contact our local distributors or resellers to purchase "Manufacture Upgrade Optional" components, and again you are also welcome to visit our official website at Http://english.aopen.com.tw for detail information.

CPU Installation

This motherboard supports Intel® Xeon™ Socket 604 series CPU. Be careful of CPU orientation when you plug it into CPU socket.

CPU cut edge
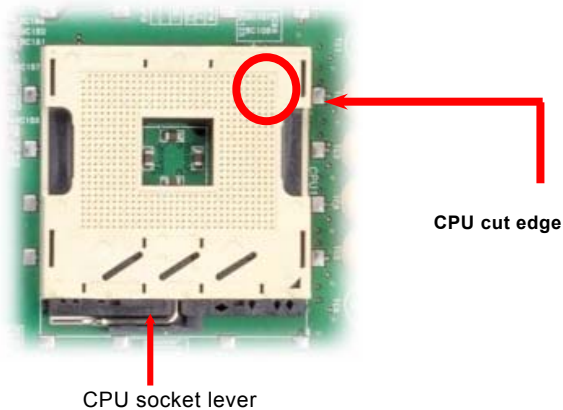
CPU socket lever

1. Pull up the CPU socket level and up to 90-degree angle.

2. Locate Pin 1 in the socket and look for a (golden) cut edge on the CPU upper interface. Match Pin 1 and cut edge. Then insert the CPU into the socket.

3. Press down the CPU socket level and finish CPU installation.

Note: If you do not match the CPU socket Pin 1 and CPU cut edge well, you may damage the CPU.

Note: Those pictures are for example only; it may not exactly look the same with your motherboard.

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Installing CPU and Housing Fans

Plug in the CPU fan cable to the 3-pin CPU FAN connector and System Fan cable to the System Fan connectors.

SENSOR
+12V
GND

CPU1 Fan

GND
+12V
SENSOR

CPU2 Fan

GND
+12V
SENSOR

Chassis Fan

GND
+12V
SENSOR

Chassis Fan

SENSOR
+12V
GND

Chassis Fan
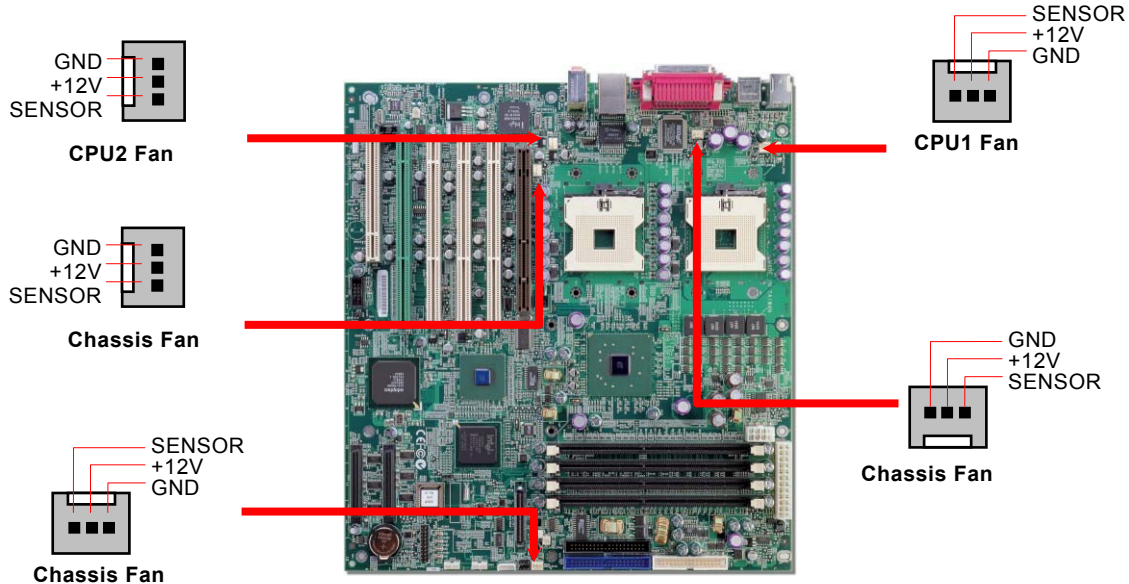
Note: Some CPU fans do not have sensor pin, so that cannot support fan monitoring.

AGP 8x (Accelerated Graphic Port) Expansion Slot

DXPL-U/DXPL Plus-U provides an AGP 8x slot. Accelerated Graphics Port (AGP) is a high-performance, component level interface targeted at 3D graphical display applications. Retaining backward compatibility with the older AGP 4x technology, AGP 8x doubles the graphics bandwidth of the AGP interface to 2.1 gigabytes per second (GB/s) which is designed to benefit applications on today's most popular workstation platforms.
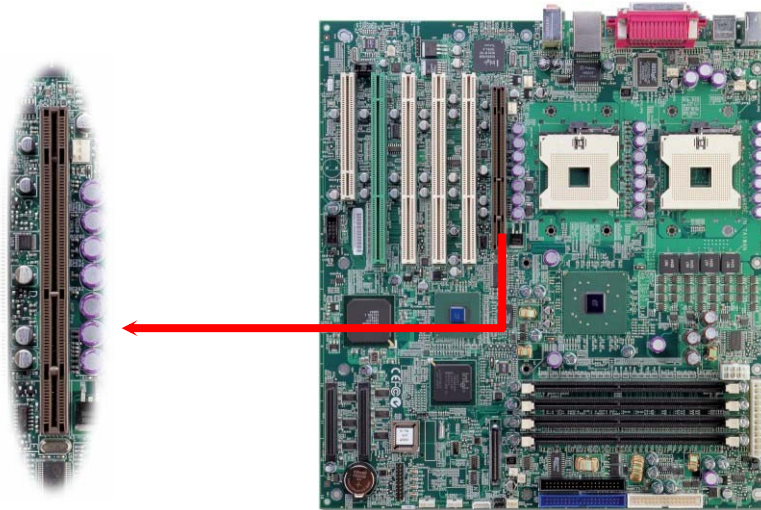
DIMM Sockets

This motherboard has four 184-pin DDR DIMM sockets that allow you to install DDR200 or DDR266 ECC memory up to 8GB. The unbuffered DDR RAM is supported.
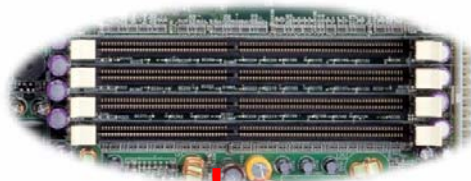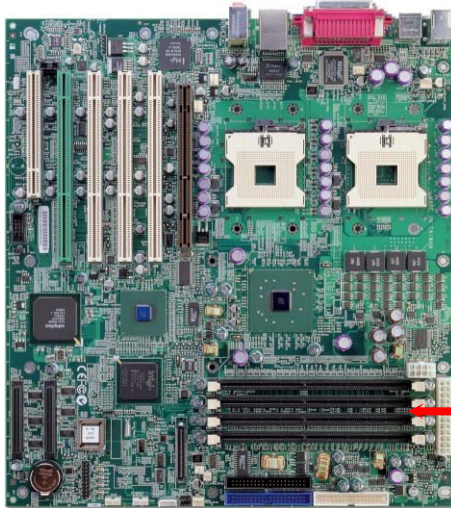
DIMM 1
DIMM 2
DIMM 3
DIMM 4

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How to Install Memory Modules

Please follow the procedure as shown below to finish memory installation.

1.   Make sure the DIMM module's pin face down and match the socket's size as depicted below.

Pin 1

52 pins   40 pins

2.   Insert the module straight down to the DIMM slot with both hands and press down firmly until the DIMM module is securely in place.

Tab

Key   Pin 1
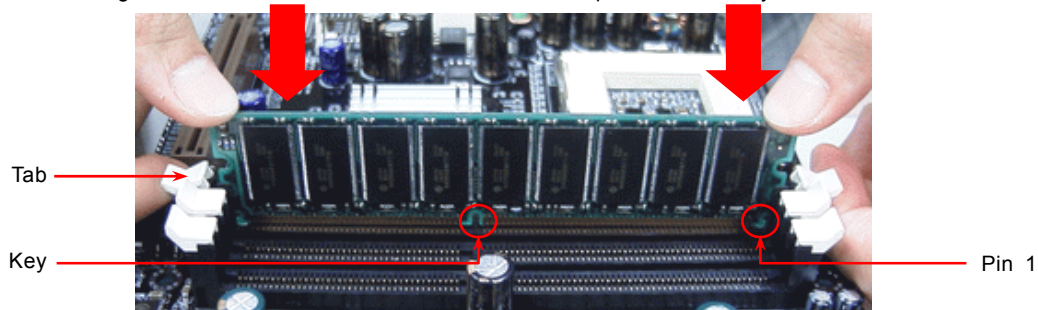
3.   Repeat step 2 to finish additional DIMM modules installation.

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Front Panel Connector

Attaching such as power switch, reset switch, HDD LED connector, etc to corresponding pins. Locate the power switch cable from your ATX housing. It is 2-pin female connector from the housing front panel. Plug this connector to the soft-power switch connector marked **SPWR**.

INTRUDER — Power Switch

IDE LED — ACPI & Power LED

External NMI

Buzzer — Reset
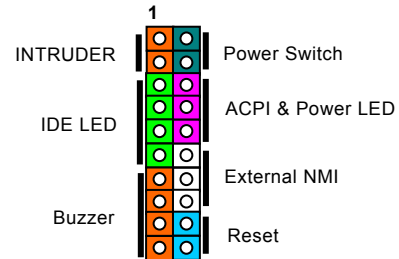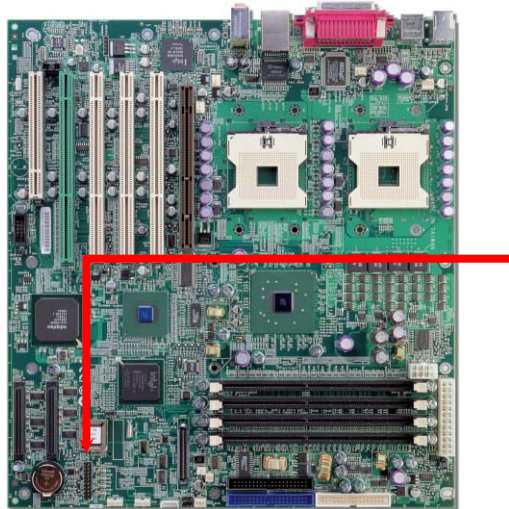
ATX Power Connector

This motherboard comes with a 24-pin and 8-pin ATX power connector. Make sure you plug in the right direction. We strongly recommend you to connect the 8-pin 12V ATX connector before connecting the 24-pin ATX power connector

+12V +12V +12V +12V

1

GN GN GN GN

	2	1	
+3.3V			Ground
+12V			+5V
+12V			+5V
+5Vsb			+5V
PWR_OK			NC
Ground			Ground
+5V			Ground
Ground			Ground
+5V			PS_ON
Ground			Ground
+3.3V			12V
+3.3V			+3.3V

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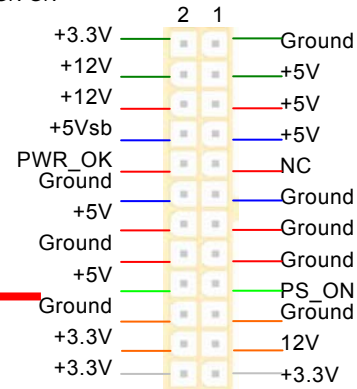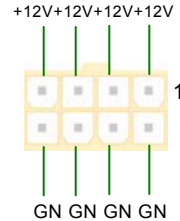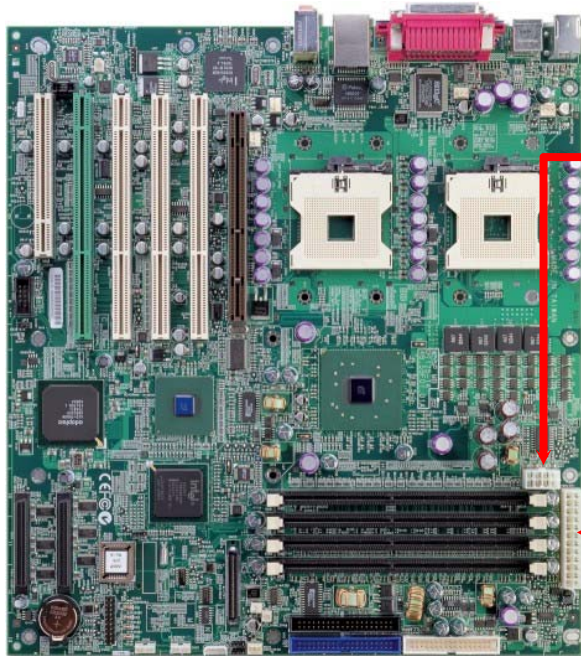
AC Power Auto Recovery

A traditional ATX system remains at power off stage when AC power resumes from power failure. This design is inconvenient for a network server or workstation without an UPS. This motherboard implements an AC Power Auto Recovery function to solve this problem.

IDE and Floppy Connector

Connect 34-pin floppy cable and 40-pin IDE cable to floppy connector FDC and IDE connector. Pin1 of cable is normally marked with red color.

Secondary IDE Channel

Primary IDE Channel

FDD Connector
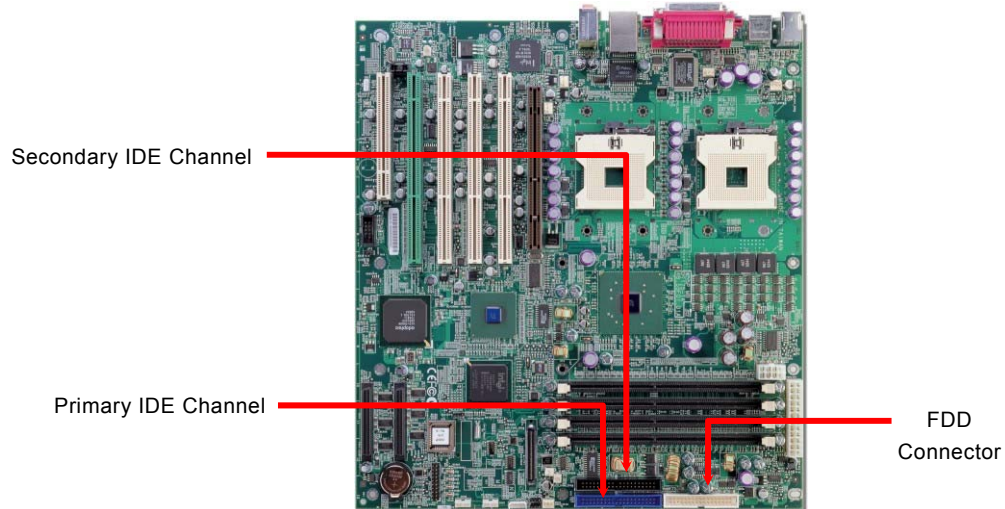
IDE1 is also known as the primary channel and IDE2 as the secondary channel. Each channel supports two IDE devices that make a total of four devices. In order to work together, the two devices on each channel must be set differently to **Master** and **Slave** mode. Either one can be the hard disk or the CDROM. The setting as master or slave mode depends on the jumper on your IDE device, so please refer to your hard disk and CDROM manual accordingly.

Warning: The specification of the IDE cable is a maximum of 46cm (18 inches); make sure your cable does not exceed this length.

Tip:

1. *For better signal quality, it is recommended to set the far end side device to master mode and follow the suggested sequence to install your new device. Please refer to above diagram*

2. *To achieve the best performance of Ultra DMA 66/100 hard disks, a special* **80-wires IDE cable** *for Ultra DMA 66/100 is required.*

ATA100 Supported

This motherboard supports ATA66 or ATA100 IDE devices. Following table lists the transfer rate of IDE PIO and DMA modes.

Mode	Clock Period	Clock Count	Cycle Time	Data Transfer Rate
PIO mode 0	30ns	20	600ns	(1/600ns) x 2byte = 3.3MB/s
PIO mode 1	30ns	13	383ns	(1/383ns) x 2byte = 5.2MB/s
PIO mode 2	30ns	8	240ns	(1/240ns) x 2byte = 8.3MB/s
PIO mode 3	30ns	6	180ns	(1/180ns) x 2byte = 11.1MB/s
PIO mode 4	30ns	4	120ns	(1/120ns) x 2byte = 16.6MB/s
DMA mode 0	30ns	16	480ns	(1/480ns) x 2byte = 4.16MB/s
DMA mode 1	30ns	5	150ns	(1/150ns) x 2byte = 13.3MB/s
DMA mode 2	30ns	4	120ns	(1/120ns) x 2byte = 16.6MB/s
DMA MODE3-4 (ATA 66)	30ns	2	60ns	(1/60ns) x 2byte x2 = 66MB/s
DMA MODE5 (ATA 100)	20ns	2	40ns	(1/40ns) x 2byte x2 = 100MB/s

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PC99 Color Coded Back Panel

The onboard I/O devices are PS/2 Keyboard, PS/2 Mouse, COM1/COM2, Printer and USB2.0. The view angle of drawing shown here is from the back panel of the housing.
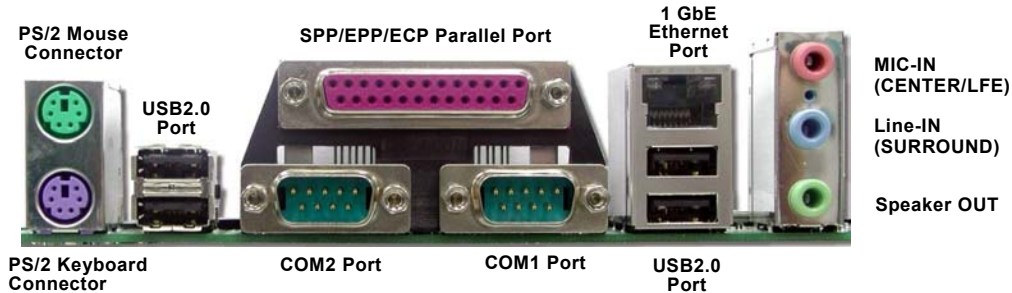
PS/2 Keyboard: For standard keyboard, which is using a PS/2 plug.
PS/2 Mouse: For PC-Mouse, which is using a PS/2 plug.
USB Port: Available for connecting USB devices.
Parallel Port: To connect with SPP/ECP/EPP printer.
COM1/COM2:   To connect with pointing devices, modem or others serial devices.
1GbE Ethernet Port: To connect RJ-45 Ethernet Cable.
Speaker Out: To External Speaker, Earphone or Amplifier. (Support 5.1 Channel)
Line-In: Comes from the signal sources, such as CD/Tape player. (Support 5.1 Channel)
MIC-In: From Microphone. (Support 5.1 Channel)

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Connecting 68pin Ultra320 SCSI Cable (DXPL Plus-U)

The DXPL Plus-U provides two 68-pin Ultra320 SCSI connectors for 16-bit or 16-bit differential SCSI devices. The Adaptec AIC-7902W controller provides 320MB/sec maximum data throughput per channel available.

68pin SCSI connector B

68pin SCSI connector A

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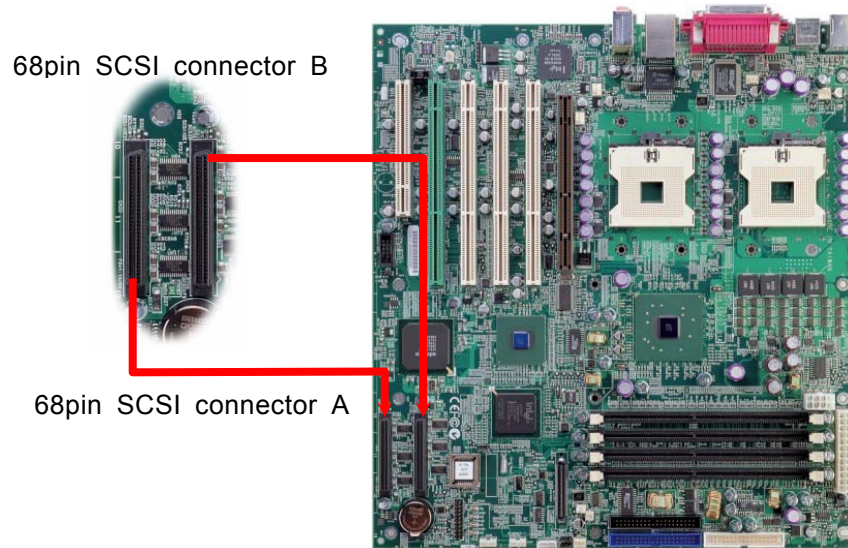
ZCR (Zero Channel RAID) Function (DXPL Plus-U)

A ZCR card is a PCI card that allows a RAID card to use the onboard SCSI chip, thus lowering cost of RAID solution. A "Zero-channel" RAID adapter is a PCI RAID controller that doesn't have any SCSI channels on board. Instead, it is designed to use the on-board SCSI channels of the motherboard to implement a cost-effective Hardware RAID solution. Please be informed that only the green PCI-X slot supports ZCR function. (DXPL Plus-U)
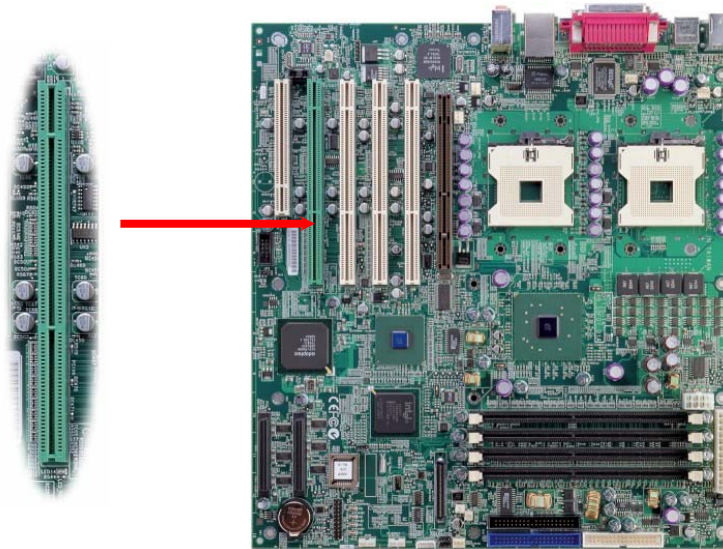
Chassis Intrusion Sensor

The "CASE OPEN" header provides chassis intrusion-monitoring function. This function will log an event in the system BIOS when this header is connected. You can use the 2-pin chassis intrusion sensor to connect with this header, and enable the chassis monitoring function of system BIOS.
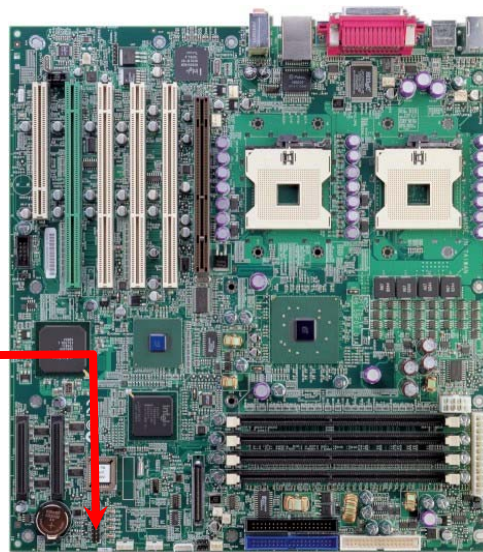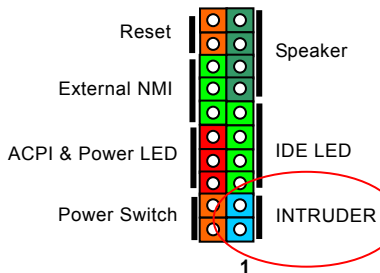
CD Audio Connector

This connector is used to connect CD Audio cable from CDROM or DVD drive to onboard sound.

CD-IN Connector
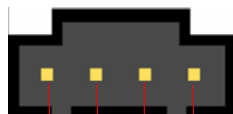
R GND GND L
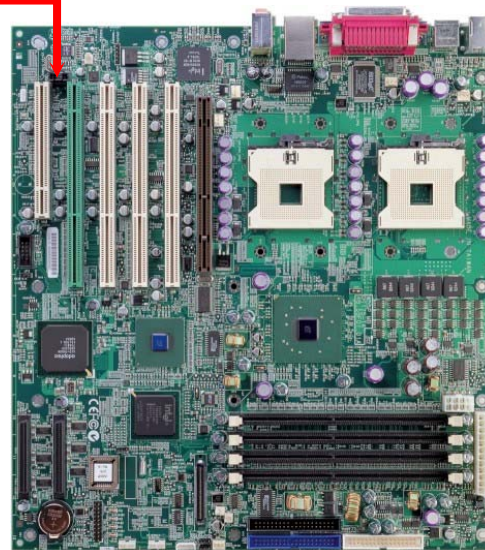
Connecting IPMB Connector

IPMB offers good support for communication with on-board devices that are accessed on an occasional basis. IPMB's competitive advantage over other low-speed short-distance communication schemes is that its cost and complexity don't scale up with the number of devices on the bus. The IPMB connector comes with foolproof design, please connect it with correct orientation.

IPMB Connector

AOpen
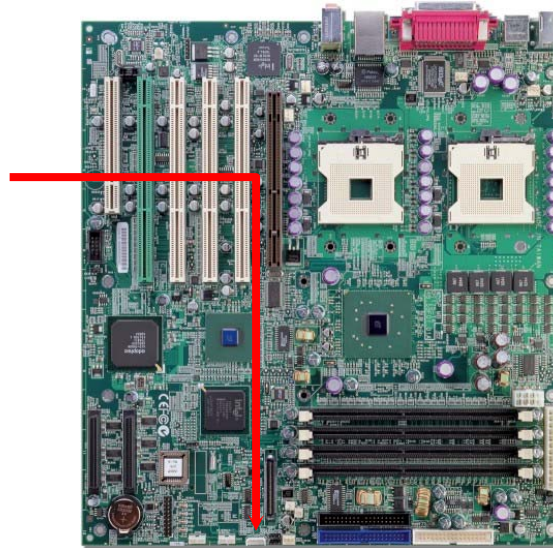
JP1 Check Password Jumper

This motherboard provides check password function. You can use JP1 to enable or disable this function, which could prevent your system from unauthorized invasion. The factory default setting is set to "Enable"(1-2), and you may disable this function by setting the jumper to 2-3.
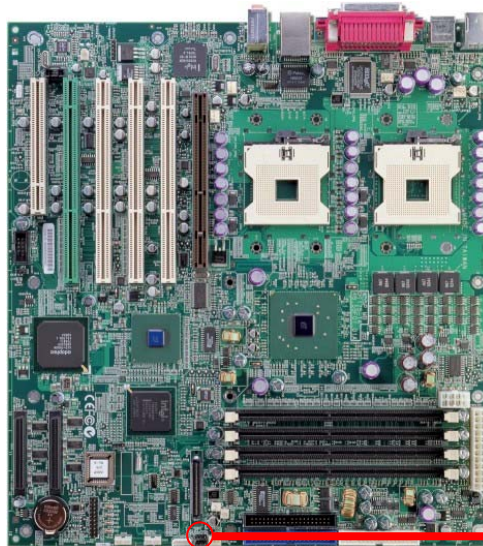
Pin1

1 Enable (Default)

1 Disable

JP2 Clear CMOS Jumper

You can clear CMOS to restore system default setting. To clear the CMOS, follow the procedure below.

1. Turn off the system and unplug the AC power.

2. Remove ATX power cable from connector PWR2.

3. Locate JP2 and short pins 2-3 for a few seconds.

4. Return JP2 to its normal setting by shorting pin 1 & pin 2.

5. Connect ATX power cable back to connector PWR2.
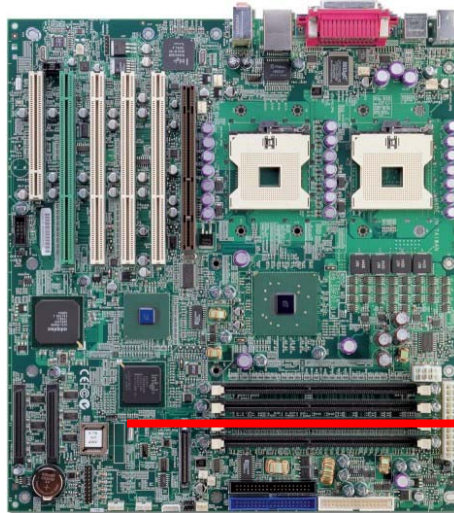
Normal Operation (default)

Clear CMOS

JP3 BIOS Configuration / Recovery Select Jumper

You can use JP3 to configure or recover your BIOS. The factory default setting is set to "Normal" (1-2), and you may configure your BIOS bye by setting the jumper to 2-3, and recover your BIOS by removing the jumper.

1 ⬤⬤◯

Normal (default)

1 ◯⬤⬤

Configure

1 ◯◯◯
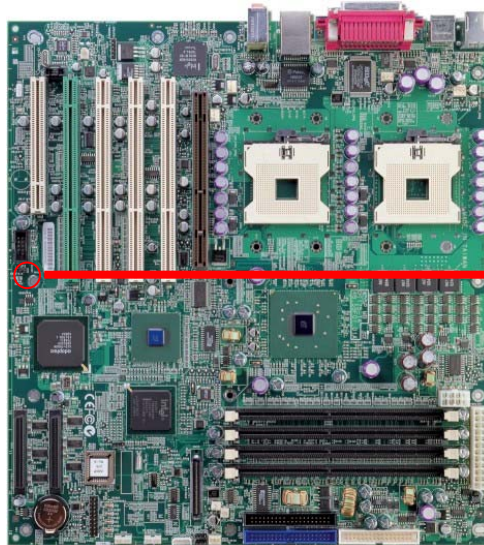
Recovery

JP5 SCSI On/Off Select Jumper

The DXPL Plus-U provides an AIC-7902W controller for SCSI function. You can use JP5 to enable or disable this function. The factory default setting is set to 1-2 (Enable), and you may disable this function by setting the jumper to 2-3
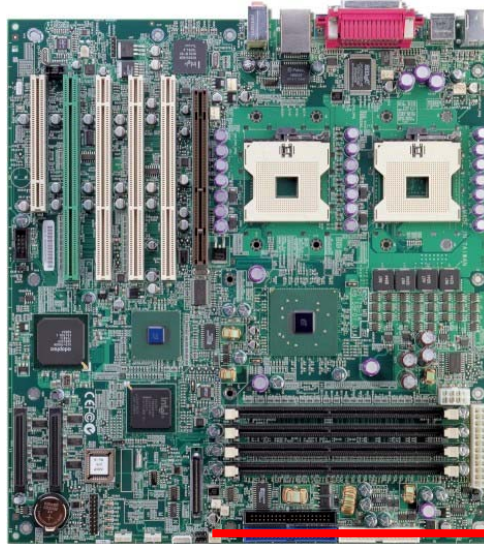
**Enable SCSI
(Default)**

Disable SCSI

S/PDIF (Sony Philips Digital Interface) Connector

S/PDIF (Sony/Philips Digital Interface) is a newest audio transfer file format, which provides impressive audio quality through optical fiber and allows you to enjoy digital audio instead of analog audio. Normally there are two S/PDIF outputs as shown, one for RCA connector, the most common one used for consumer audio products, and the other for optical connector with better audio quality. Through a specific audio cable, you can connect the S/PDIF connector to other end of the S/PDIF audio module, which bears S/PDIF digital output. However, you must have a S/PDIF supported speaker/amplifier/decoder with S/PDIF digital input to connect to the S/PDIF digital output to make the most out of this function.

(RCA)
S/PDIF OUT
S/PDIF IN
S/PDIF OUT
S/PDIF IN
(Optical)

S/PDIF Module
(User Upgrade Optional)

S/PDIF Cable
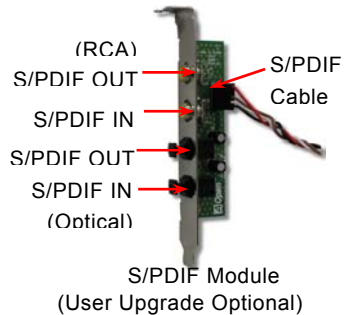
1 +5VSB
   NC
   S/PDIFOUT
   GND
   S/PDIFIN

AOpen
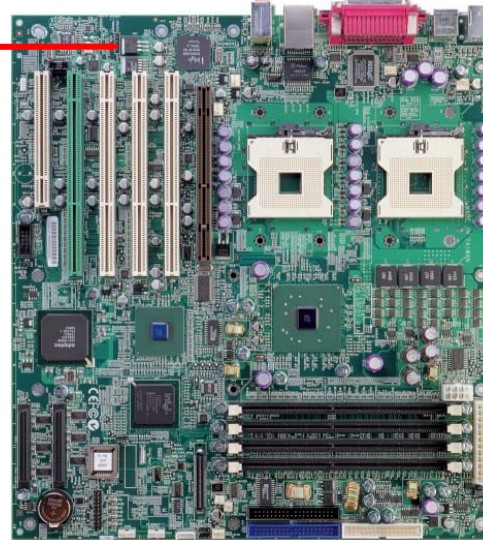
Support Three USB2.0 Channels (Six Ports)

This motherboard provides three USB channels to link USB devices, such as mouse, keyboard, modem, printer, etc. There are two connectors on the PC99 back panel. You can use proper cable to connect other USB connectors to the back panel or front panel of chassis.

```
        1   2
 +5V  [ o   o ]  +5V
SBD2- [ o   o ]  SBD3-
SBD2+ [ o   o ]  SBD3+
 GND  [ o   o ]  GND
 KEY  [     o ]  NC
```
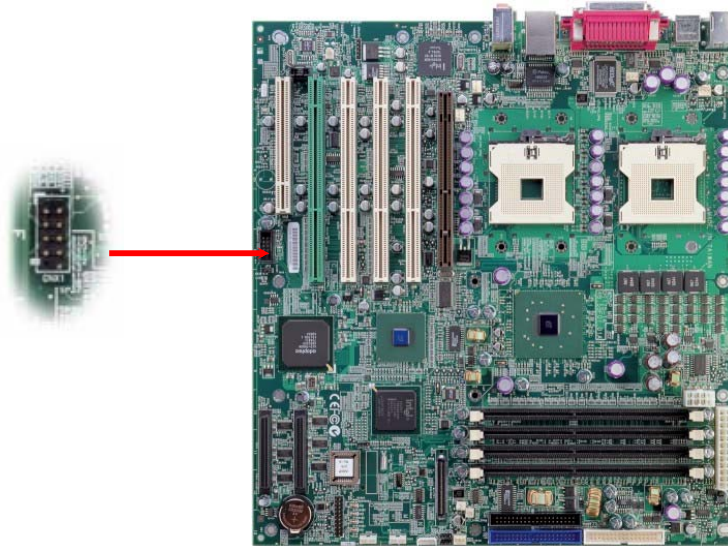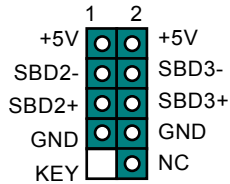
Support 1Gbps LAN onboard

The Intel 82545EM integrates Intel's fourth-generation Gigabit MAC design with fully integrated, physical-layer circuitry to provide a standard IEEE 802.3 Ethernet interface for 1000BASE-T and 100BASE-TX applications. The right green LED indicates the link mode, it lights when linking to network and blinking when transferring data in 100Mbps mode. The left yellow LED indicates the transfer mode, and it lights when data is transferring in 1Gbps mode.

Yellow/1G

Green/link/100

1GbE Ethernet Port

AOpen
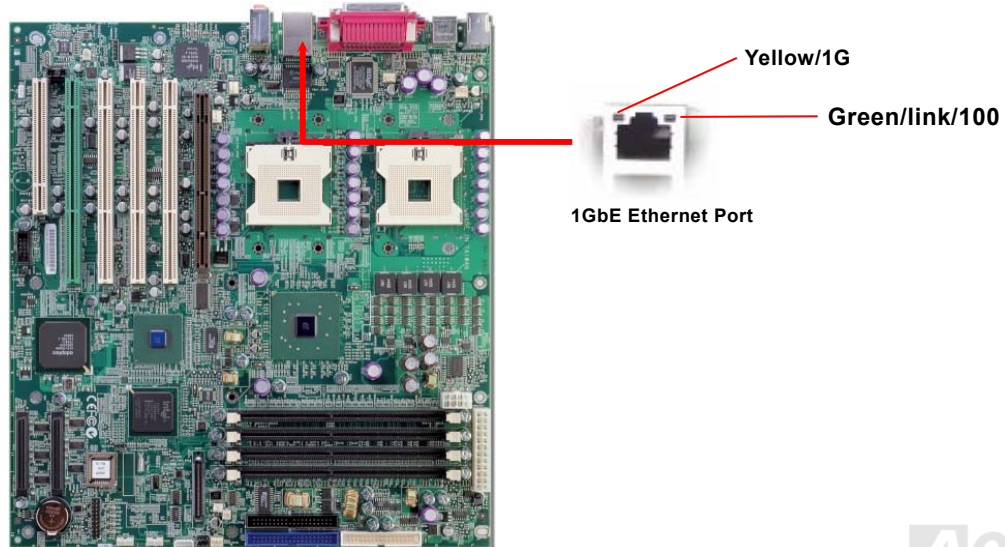
WOL (Wake on LAN)

To use Wake On LAN function, you must have a network card with chipset that supports this feature, and connect a cable from LAN card to motherboard WOL connector. The system identification information (probably IP address) is stored on network card and because there is a lot of traffic on the Ethernet, you need to install network management software, such as ADM, for the checking of how to wake up the system. Note that, at least 600mA ATX standby current is required to support the LAN card for this function.

+5VSB

GND

LID

WOL connector

WOL Connector
(Ethernet Card Side)

WOL Connector
(Motherboard Side)

Note: This picture is for example only; it may not exactly look the same with the motherboard you purchased.

STBY LED

STBY LED is AOpen's considerate designs that we aim at providing you friendly system information. The STBY LED will light up when power is provided to the motherboard. This is a convenient indication for you to check the system power status in many circumstances such as power on/off, stand-by mode and RAM power status.

STBY LED
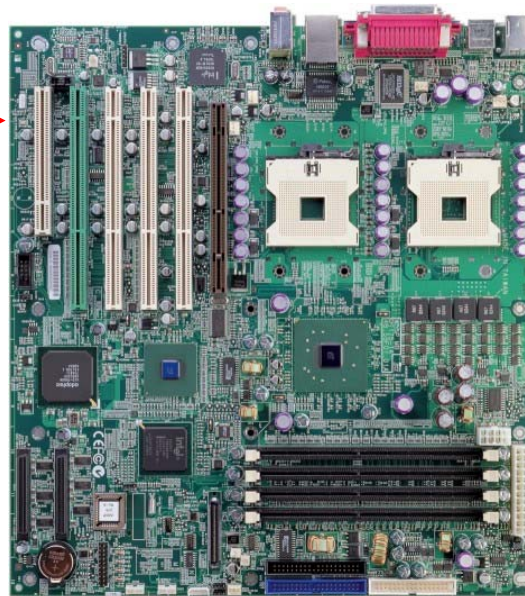
Warning: *Do not install or remove the DIMM module or others devices when the STBY*

Connecting IPMI connector

Intelligent Platform Management Interface (IPMI) is a hardware level interface specification, defines a message-based interface to platform monitoring and control function. IPMI's monitoring abilities enable user to monitor server physical health characteristics such as temperature, voltage, fans, power supplies and chassis.
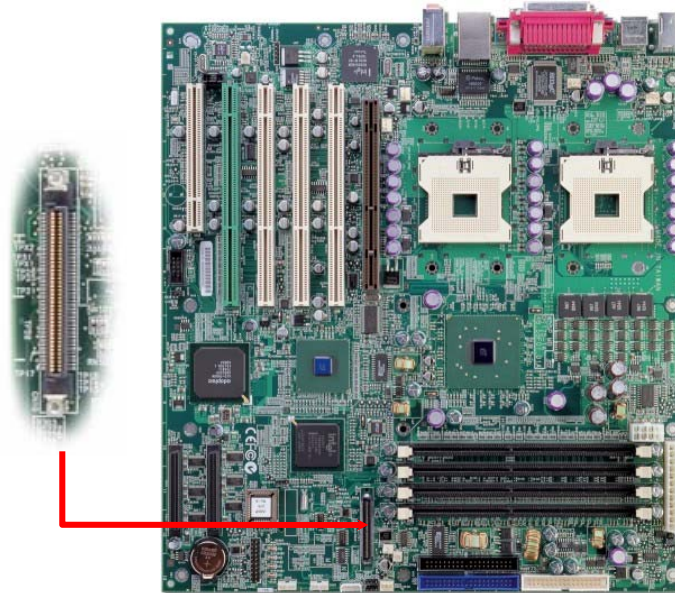
Resettable Fuse

Traditional motherboard uses fuses to prevent Keyboard and USB port from over-current or shortage. These fuses are soldered onboard that when it is broken (function to protect motherboard), user cannot replace them and result in malfunction of motherboard.

With expensive Resettable Fuse, the motherboard can be resumed back to normal function even after the fuse had done its protection job.
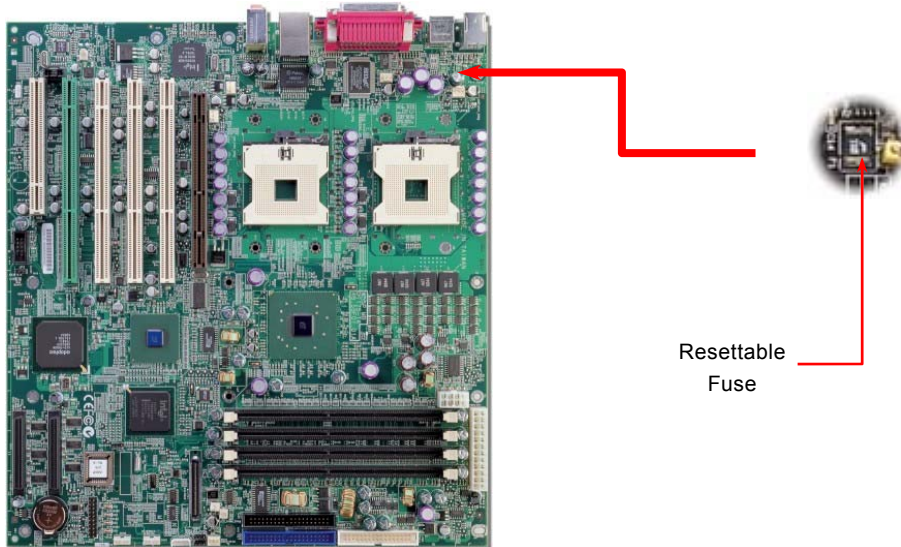
Resettable
Fuse

Low ESR Capacitor

The quality of low ESR capacitor (Low Equivalent Series Resistance) during high frequency operation is very important for stability of CPU power. The location of where to put these capacitors is another know-how that requires experience and detail calculation.
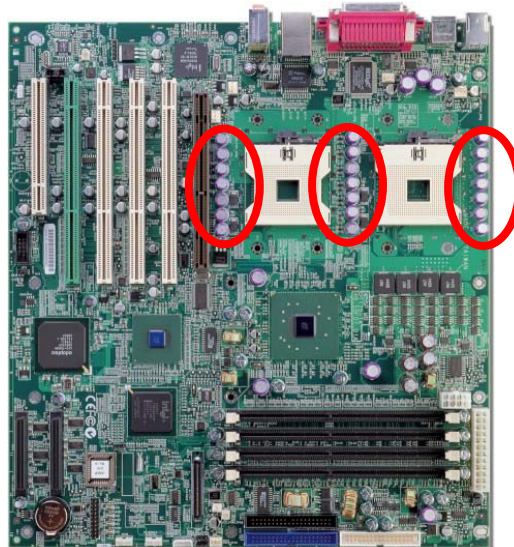
Driver and Utility

There are motherboard drivers and utilities included in AOpen Bonus CD. You don't need to install all of them in order to boot your system. But after you finish the hardware installation, you have to install your operation system first before you can install any drivers or utilities. Please refer to your operation system's installation guide.

BIOS Setup Utility

Most of system had already configured by the manufacturer or the dealer. There is no need to run BIOS setup program when starting the computer unless you get a run setup program message.

The setup program loads configuration values into the battery-backed nonvolatile memory called CMOS RAM. This memory area is not part of the system RAM.

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If you repeatedly receive Run Setup messages, the battery may be bad. In this case, the system cannot retain configuration values in CMOS. Ask a qualified technician for assistance.

The system will reboot immediately after you exit Setup.

Entering Setup

To enter Setup, press the DELETE key.

You must press DELETE while the system is booting.   This key does not work during any other time.

The Setup Utility Main Menu appears:

Setup Utility

- System Information
- Product Information
- Disk Drives
- Onboard Peripherals
- Power Management
- Boot Options
- Date and Time
- System Security
- Health Monitor

Load Default Settings
About Settings　Change

The system supports two BIOS Utility levels:　Basic and Advanced.

If you are an advanced user, you may want to check the detailed configuration of your system.
Detailed system configurations are contained in the Advanced Level.　To view the Advanced Level,
press [F8].

The asterisk (*) mark indicates that the parameter appears only when you are in the Advanced Level.
The parameters on the screens show default values. These values may not be the same as those in your system.
The grayed items on the screens have fixed settings and are not user-configurable.

Use the arrow keys [↑] and [↓] to move around the Setup Utility screen.

Use [←] to move to the next page or [→] to return to the previous page if the setup screen has more than one page available.
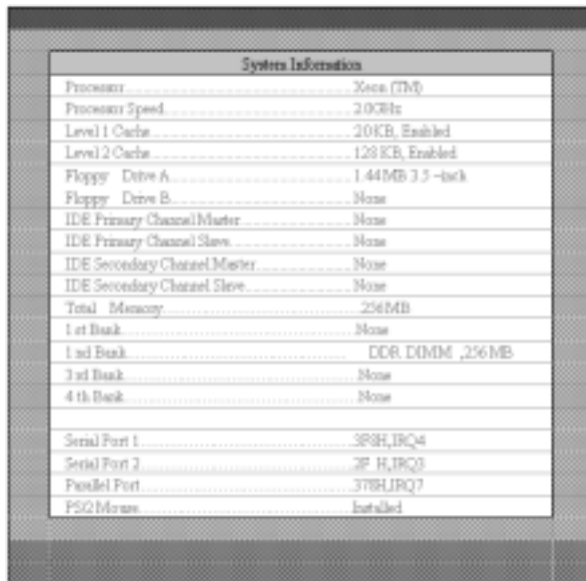
Use [PGUP], [PGDN], "+" or "-" to select the options if they are available.

Press [ESC] to return to the Main menu.

System Information

The following screen appears if you select System Information from the Main menu:

Systems Information	
Processor	Xeon (TM)
Processor Speed	2.0GHz
Level 1 Cache	20KB, Enabled
Level 2 Cache	128 KB, Enabled
Floppy Drive A	1.44MB 3.5 –inch
Floppy Drive B	None
IDE Primary Channel Master	None
IDE Primary Channel Slave	None
IDE Secondary Channel Master	None
IDE Secondary Channel Slave	None
Total Memory	256 MB
1 st Bank	None
2 nd Bank	DDR DIMM , 256 MB
3 rd Bank	None
4 th Bank	None
Serial Port 1	3F8H, IRQ4
Serial Port 2	2F H, IRQ3
Parallel Port	378H, IRQ7
PS2 Mouse	Installed

The System Information menu shows the current basic configuration of your system.

The sections below explain the parameters.

Processor

The Processor parameter specifies the type of processor currently installed in your system. The system supports Intel Xeon[TM] 1.8 GHz above.

Processor Speed

The Processor Speed parameter specifies the speed of the processor currently installed in yur system.

Level 1 Cache

This parameter specifies the first-level or the internal fast accessed memory (i.e., the memory integrated into the CPU) size, and whether it is enabled or disabled.

Level 2 Cache

This parameter specifies the second-level cache memory size that comes with the CPU. The available cache size is 128 / 1024KB.

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Floppy Drive A

This parameter specifies the system's current diskette drive A settings.

Floppy Drive B

This parameter specifies the system's current diskette drive B settings.

IDE Primary Channel Master

This parameter specifies the current configuration of the IDE device connected to the master port of the primary IDE channel.

IDE Primary Channel Slave

This parameter specifies the current configuration of the IDE device connected to the slave port of the primary IDE channel.

IDE Secondary Channel Master

This parameter specifies the current configuration of the IDE device connected to the master port of the secondary IDE channel.

IDE Secondary Channel Slave

This parameter specifies the current configuration of the IDE device connected to the slave port of the secondary IDE channel.

Total Memory

This parameter specifies the total amount of onboard memory. The memory size is automatically detected by BIOS during the POST. If you install additional memory, the system automatically adjusts this parameter to display the new memory size. Intel strongly commented the user using double channel for DIMM plugged.

1st Bank/2nd Bank/3rd Bank/4th Bank

The 1st Bank, 2nd Bank, 3rd Bank, and 4th Bank parameters indicate the type and size of DRAM installed in DIMM sockets 1, 2, 3 and 4 respectively. The "**None**" setting indicates that there is no DRAM installed.

1st/2nd/3rd /4th Bank

Type and Size of DRAM installed in DIMM socket 1, 2, 3 and 4 respectively. The "**None**" setting indicates that there is no DRAM installed.

Serial Port 1

This parameter shows the serial port 1 address and IRQ setting.

Serial Port 2

This parameter shows the serial port 2 address and IRQ setting.

Parallel Port

This parameter shows the parallel port address and IRQ setting.
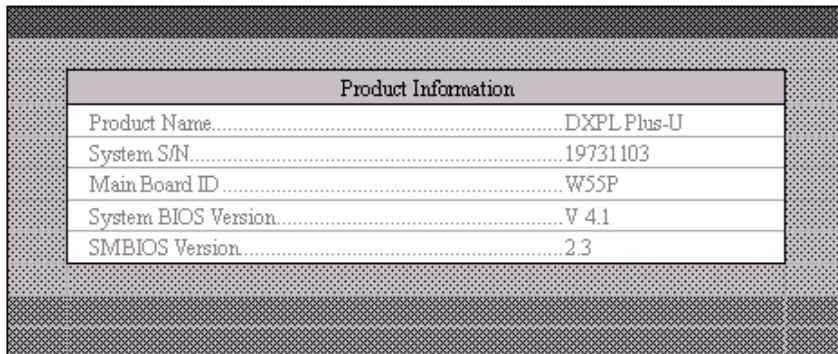
PS/2 Mouse

The BIOS utility automatically detects if there is a pointing device connected to your system. If there is, this parameter displays the "**Installed**" setting. Otherwise, this is set to "**None**".

Product Information

The Product Information contains the general data about the system, such as the product name, serial number, BIOS version, etc. This information is necessary for troubleshooting (may be required when asking for technical support).

The following shows how the Product Information screen appears:

Product Information	
Product Name	DXPL Plus-U
System S/N	19731103
Main Board ID	W55P
System BIOS Version	V 4.1
SMBIOS Version	2.3

Product Name

This parameter specifies the official name of the system.

System S/N

This parameter specifies the system's serial number.

Main Board ID

This parameter specifies the motherboard's identification number.

System BIOS Version

This parameter specifies the version of the BIOS utility.

SMBIOS Version

This parameter specifies the version of the SMBIOS version.

Disk Devices

Select Disk Drives to input configuration values for disk drives.

The following screen shows the Disk Drives menu:

Disk Devices	
Floppy Drive A..	[1.44MB 3.5 inch]
IDE Primary Channel Master	
IDE Primary Channel Slave	
IDE Secondary Channel Master	
IDE Secondary Channel Slave	

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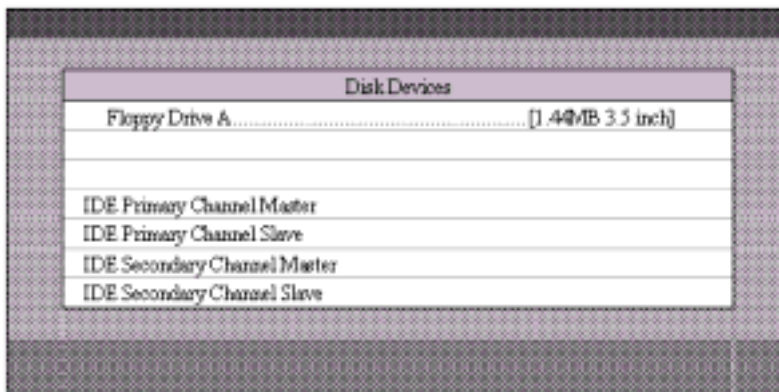
Floppy Drive A

To enter the configuration value for the first floppy drive, highlight the Floppy Drive A parameter. Press [PGUP] or [PGDN] key to view the options and select the appropriate value.

Drive A/Drive B
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 motherboard are listed to the left.

Follow the same procedure to configure floppy drive B. Choose "**None**" if you do not have a second floppy drive.

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IDE Drives

To configure the IDE drives connected to your system, select the parameter that represents the channel and port where the desired hard disk to configure is connected. The options are:

IDE Primary Channel Master

This option lets you configure the hard disk drive connected to the master port of IDE channel 1.

```
                        IDE Primary Channel Master
Device Detection Mode.................................[Auto]
  Device Type...............................................None

  Cylinder...............................................[    0]
  Head...................................................[    0]
  Sector.................................................[    0]
  Size...............................................  [    0]  M.B.

  Hard Disk LBA Mode................................[Auto]
```

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IDE Primary Channel Slave

This option lets you configure the hard disk drive connected to the slave port of IDE channel 1.

IDE Secondary Channel Master

This option lets you configure the hard disk drive connected to the Master port of IDE channel 2.

IDE Secondary Channel Master	
Device Detection Mode	[Auto]
Device Type	None
Cylinder	[0]
Head	[0]
Sector	[0]
Size	[0] M.B.
Hard Disk LBA Mode	[Auto]

IDE Secondary Channel Slave

This option lets you configure the hard disk drive connected to the Slave port of IDE channel 2.

```
                   IDE Secondary Channel Slave
Device Detection Mode.......................................[Auto]
Device Type................................................None

Cylinder...................................................[    0]
Head.......................................................[    0]
Sector.....................................................[    0]
Size.......................................................[    0]  M.B.

Hard Disk LBA Mode.........................................[Auto]
```

The following screen appears if you select any of the IDE Drive parameters:

Device Detection Mode

Device Detection Mode	If you select "Manual", you need to fill in all remaining field, such as Cylinder, Head, and Sector on this selected item. If the item "Auto" is selected, the items will remain "0". And when the system boot up, system will detect the hard disk and configure it automatically. "None" means there is no device in the channel.
Auto (Default)	
User	
None	

Device Type

This parameter shows which type of IDE drive currently used.

Cylinder

This parameter specifies the number of cylinders of your hard disk, and is automatically set depending on your Type parameter setting.

Head

This parameter specifies the number of heads of your hard disk, and is automatically set depending on your Type parameter setting.

Sector

This parameter specifies the number of sectors of your hard disk, and is automatically set depending on your Type parameter setting.

Size

This parameter specifies the size of your hard disk, in MB.

Hard Disk LBA Mode

Hard Disk Block Mode
Auto (Default)
Disabled

This function enhances disk performance depending on the hard disk in use. If you set this parameter to "**Auto**", the BIOS utility automatically detects if the installed hard disk drive supports the Block Mode function. If supported, it allows data transfer in blocks (multiple sectors) at a rate of 256 bytes per cycle. To disregard the feature, change the setting to "**Disable**".

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Onboard Peripherals

The Onboard Peripherals Configuration allows you to configure the onboard communication ports and the onboard devices. Selecting this option displays the following screen:

Serial Ports 1 and 2

Serial Port 1 & 2
Enabled (Default)
Disabled

These parameters allow you to enable or disable serial ports 1 and 2.

Base Address

Base Address
Serial Port 1:
3F8h (Default)
3E8h
2E8h
Serial Port 2:
2F8h (Default)
2E8h
3E8h

This item allows you to assign address and interrupt for the board serial port.

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IRQ

IRQ	This function lets you assign an interrupt for serial ports 1 and 2. The options for serial ports 1 are IRQ 4 and 11. The options for serial port 2 are IRQ 3 and 10.
Serial Port 1:	
4 (Default), 11	
Serial Port 2:	
3 (Default), 10	

The Base Address and IRQ parameters for each port are configurable only if the port is enabled.

Parallel Port

Parallel Port	This parameter allows you to enable or disable the parallel port.
Enabled (Default)	
Disabled	

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Base Address

Base Address
378h (Default)
3BCh
278h

This item allows you to assign address and interrupt for the board serial port.

IRQ

IRQ
7 (Default), 5

This function lets you assign an interrupt for the parallel port. The options are IRQ 5 and 7.

The Base Address and IRQ parameters are configurable only if Parallel Port is enabled.

If you install an add-on card that has a parallel port whose address conflicts with the onboard parallel port, a warning appears on the screen.

Check the parallel port address of the add-on card and change

the address to one that does not conflict.

Operation Mode

Operation Mode
EPP (Default)
Bi-Directional
Standard
ECP

This item lets you set the parallel port mode. The mode options are Standard, Bi-directional, EPP (Enhanced Parallel Port) and ECP (Extended Parallel Port).

Setting	Function
Standard Parallel Port (Standard)	Allows normal speed one-way operation
Bi-directional Parallel Port (Bi-directional)	Allows normal speed operation in a two-way mode
Enhanced Parallel Port (EPP)	Allows bi-directional parallel port operation at maximum speed

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Setting	Function
Extended Capabilities Port (ECP)	Allows parallel port to operate in bi-directional mode and at a speed higher than the maximum data transfer rate

ECP DMA Channel

ECP Mode Use DMA	This item becomes active only if you select Extended Capabilities Port (ECP) as the operation mode. It allows you to assign DMA channel 1 or DMA channel 3 for the ECP parallel port function (as required in Windows 95).
3	
1 (Default)	

PS/2 Mouse Controller

PS/2 Mouse Controller	This parameter enables or disables the onboard PS/2 mouse controller.
Enabled (Default)	
Disabled	

USB Host Controller

USB Host Controller
Enabled (Default)
Disabled

This parameter lets you enable or disable the USB controller on board. When enabled, it activates the USB function of the system. When disabled, it deactivates the function.

USB Legacy Mode

USB Legacy Mode
Enabled
Disabled (Default)

This parameter lets you enable or disable the USB controller on board. When enabled, it activates the USB function of the system. When disabled, it deactivates the function.

On-board SCSI

On-board SCSI
Enabled (Default)
Disabled

This parameter lets you enable or disable the SCSI controller on board. When enabled, it activates the SCSI function of the system.   When disabled, it also deactivates the function.

Onboard Ethernet Chip

On-board Ethernet Chip	This parameter allows you to enable or disable the onboard network feature.
Enabled (Default)	
Disabled	

Onboard Audio Chip
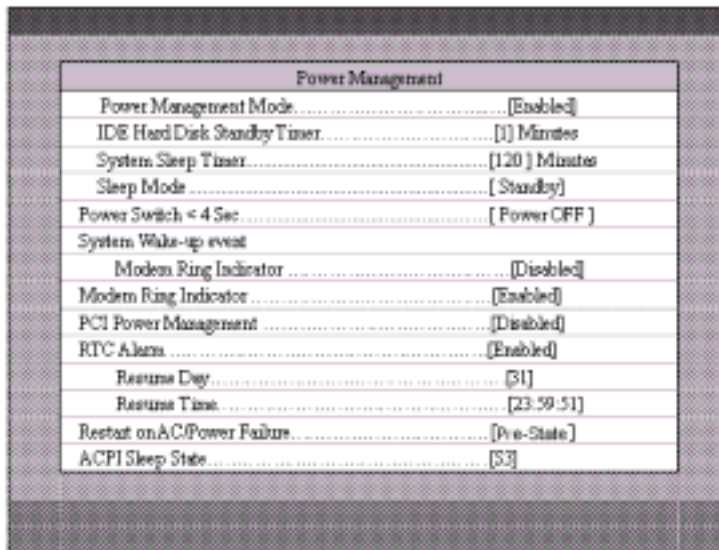
On-board Audio Chip	This parameter allows you to enable or disable the onboard audio feature.
Enabled (Default)	
Disabled	

Power Management

The Power Management menu allows you to configure the system power-management feature.

The following screen shows the Power Management parameters and their default settings:

```
                          Power Management
   Power Management Mode..........................................[Enabled]
   IDE Hard Disk Standby Timer.............................[1] Minutes
   System Sleep Timer.............................................[120] Minutes
   Sleep Mode ......................................................[Standby]
 Power Switch < 4 Sec...........................................[ Power OFF ]
 System Wake-up event
      Modem Ring Indicator ...................................[Disabled]
 Modem Ring Indicator.........................................[Enabled]
 PCI Power Management .......................................[Disabled]
 RTC Alarm ..........................................................[Enabled]
      Resume Day..................................................[31]
      Resume Time................................................[23:59:51]
 Restart on AC/Power Failure...............................[Pre-State]
 ACPI Sleep State ...............................................[S3]
```

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A parameter with an asterisk (*) mark indicates that the parameter appears only when you are using in the **Advanced Level**. See "**Entering Setup**" on Page

Power Management Mode

| **Power Management Mode** |
| Enabled (Default) |
| Disabled |

This parameter allows you to reduce power consumption. When this parameter is set to "**Enabled**", you can configure the IDE hard disk and system timers. Setting it to "**Disabled**" deactivates the power-management feature and its timers.

IDE Hard Disk Standby Timer

IDE Hard Disk Standby Timer
Off (Default)
1 to 15min

This parameter allows the hard disk to enter standby mode after inactivity of **1 to 15** minutes, depending on your setting. When you access the hard disk again, allow 3 to 5 seconds (depending on the hard disk) for the disk to return to normal speed. Set this parameter to "**Off**" if your hard disk does not support this function.

System Sleep Timer

System Sleep Timer
Off (Default)
120, 110, 100…20, 15, 10, 5, 2min

This parameter sets the system to the lowest power-saving mode after a specified period of inactivity. Any keyboard or mouse action or any activity detected from the IRQ channels resumes system operation.

Sleep Mode

Sleep Mode
Standby
Suspend (Default)

This parameter lets you specify the power-saving mode that the system will enter after a specified period of inactivity. The options are "**Standby**" and "**Suspend**" modes. This parameter becomes configurable only if the System Sleep Timer is enabled. Any keyboard or mouse action, or any enabled monitored activities occurring through the IRQ channels resume system operation.

Power Switch < 4 sec.

Power Switch < 4 Sec.
Suspend
Power Off (Default)

When set to "**Power Off**", the system automatically turns off when the power switch is pressed for less than 4 seconds. When set to "**Suspend**", the system enters the suspend mode when pressed for less than 4 seconds.

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System Wake-up Event

The system wake-up event allows the system to resume operation when the modem ring indicator is enabled.

Modem Ring Indicator

Modem Ring Indicator	When "**Enabled**" any fax/modem activity wakes up the system from suspend mode. The default setting is "**Enabled**".
Enabled (Default)	
Disabled	

PCI Power Management

PCI Power Management	This item allows you to enable or disable the PCI power management function.
Enabled (Default)	
Disabled	

RTC Alarm

RTC Alarm
Enabled
Disabled (Default)

This item allows you to set a certain time on a certain day to wake-up the system from suspend mode.

Resume Day

Resume Day
1 to 31

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

Resume Time

Resume Time
Hh:mm:ss

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

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Restart On AC/Power Failure

Restart On AC/Power Failure
Enabled (Default)
Disabled
Pre-State

When "**Enabled**", the system automatically turns on when the power comes back. When "**Disabled**" the system turns off and does not turn on when the power comes back. When set to "**Pre-State**", the system maintains the last power state when the power comes back.

Boot Options

This option allows you to specify your preferred setting for boot up.

The following screen appears if you select Boot Options from the Basic Configuration menu:
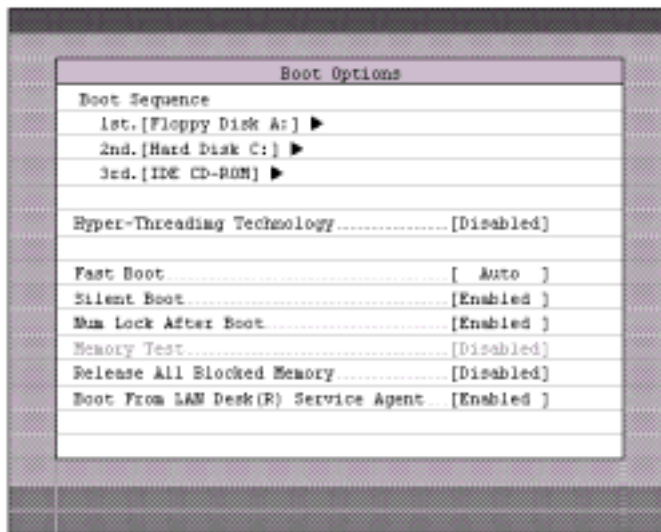
Boot Sequence

This parameter allows you to specify the boot search sequence during POST.

- 1st. The system checks this drive first.

- 2nd. The system then checks this drive if it can not boot from the 1st specified drive.

- 3rd. If the 1st and 2nd searches fail then it boots from this drive.

- 4th. If the 1st, 2nd, and 3rd searches fail then it boots from this drive.

BIOS will display an error message if the drive(s) specified is not bootable.

Hyper-Threading Technology

Hyper-Threading Technology	This parameter allows the system to use hyper-threading technology.
Enable	
Disabled(Default)	

Fast Boot

Fast Boot
Auto (Default)
Disabled

This parameter allows the system to boot faster by skipping some POST routines.

Silent Boot

Silent Boot
Enabled (Default)
Disabled

This parameter enables or disables the Silent Boot function. When set to "**Enabled**", BIOS is in graphical mode and displays only an identification logo during POST and while booting. After booting the screen displays the operating system prompt (such as DOS) or logo (such as Windows 95). If any error occurs while booting, the system automatically switches to the text mode.

Even if your setting is "**Enabled**", you may also switch to the text mode while booting by pressing [DEL] when you see the "**Press DELETE key to enter setup**" message on the screen.

When set to "**Disabled**", BIOS is in the conventional text mode where you see the system initialization details on the screen.

Num Lock After Boot

Num Lock After Boot	This parameter allows you to activate the Num Lock function upon booting.
Enabled (Default)	
Disabled	

Memory Test

Memory Test	When set to "**Enabled**", this parameter allows the system to perform a RAM test during the POST routine. When set to "**Disabled**", the system detects only the memory size and bypasses the test routine.
Enabled	
Disabled (Default)	

Boot From LAN Desk (R) Service Agent

Boot From LAN Desk(R) Service Agent	When set to "**Enabled**", this parameter allows system to boot from LAN Desk (R) Service Agent.
Enabled	
Disabled (Default)	

Date and Time

The real-time clock keeps the system date and time. After setting the date and time, you do not need to enter them every time you turn on the system. As long as the internal battery remains good (approximately seven years) and connected, the clock continues to keep the date and time accurately even when the power is off.

Date and Time	
Date --[Thu Feb 15,2002]	
Time-- [HH:MM:SS]	
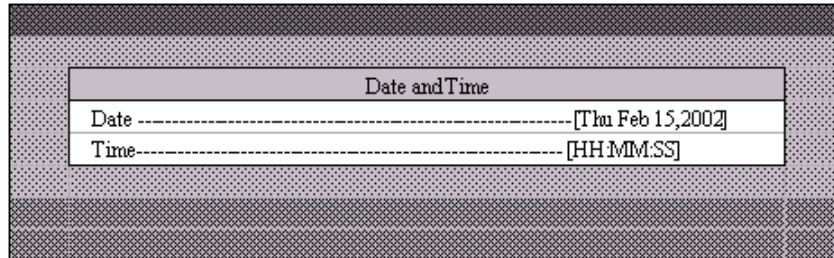
Date

Date
ww:mm:dd:yy

Highlight the items on the Date parameter and press [PGUP] or [PGDN] to set the date following the weekday-month-day-year format.

Valid values for weekday, month, day, and year are:

- Weekday: Sun, Mon, Tue, Wed, Thu, Fri, Sat

- Month: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec

- Day: 1 to 31

- Year: 1980 to 2079

Time

Time
hh:mm:ss

Highlight the items on the Time parameter and press [PGUP] or [PGDN] to set the time following the hour-minute-second format.

Valid values for hour, minute, and second are:

- Hour   00 to 23

- Minute   00 to 59

- Second 00 to 59

System Security

The Setup program has a number of security features to prevent unauthorized access to the system and its data.

The following screen appears if you select System Security from the Main menu:

Supervisor Password

Supervisor Password	This item can prevent unauthorized access to the BIOS utility.
None (Default)	The "**Present**" setting allows you to set a setup password.
Present	

1. Enable the Supervisor Password parameter in the System Security menu by pressing the ENTER key. The Supervisor Password windows will appear as shown above.

2. Type a password. The password may consist of up to seven characters.

> Be very careful when typing your password because the actual characters do not appear on the screen.

3. Press the ENTER key. Re-type the password to verify your first entry then press ENTER key again.

4. Highlight the "**Set or change password**" option and press ENTER key.

5. Press the ESC key to return the System Security screen.

6. Press the ESC key to exit setup. The Exit Setup screen will appear.

7. Choose "**Yes**" to save your setting and exit Setup. Your password will be saved to CMOS.

8. If you want to remove the password, please select "**Disabled**" to disable this function.

User Password

User Password	This item can secure your system against unauthorized use.
None (Default)	Once you set this password, you have to type it whenever you boot the system. This item is available when only Supervisor Password is set.
Present	

Disk Drive Control

The disk drive control features allow you to control the floppy drive or the hard disk drive boot function to prevent loading operating systems or other programs from a certain drive while the other drives are operational (under DOS mode only).

The table below lists the drive control settings and their corresponding functions.

Floppy Drive	
Setting	Description
Normal	Floppy drive functions normally

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Write Protect All Sectors	Disables the write function on all sectors
Write Protect Boot Sector	Disables the write function only on the boot sector
Hard Disk Drive	
Setting	Description
Normal	Hard disk drive functions normally
Write Protect All Sectors	Disables the write function on all sectors
Write Protect Boot Sector	Disables the write function only on the boot sector

Health Monitor Status

As you turn on your system, the health monitor status will continue to monitor your system's working voltage, fan status and CPU temperature. Selecting the option displays the following screen:

Load Default Settings

Use this option to load the default settings for the optimized system configuration. When you load the default settings, some of the parameters are grayed-out with their fixed settings. These grayed parameters are not user-configurable.

The following dialog box appears when you select Load Default Settings from the main menu:

Load Default Settings

Do you want to load default settings?

[Yes]   [No]
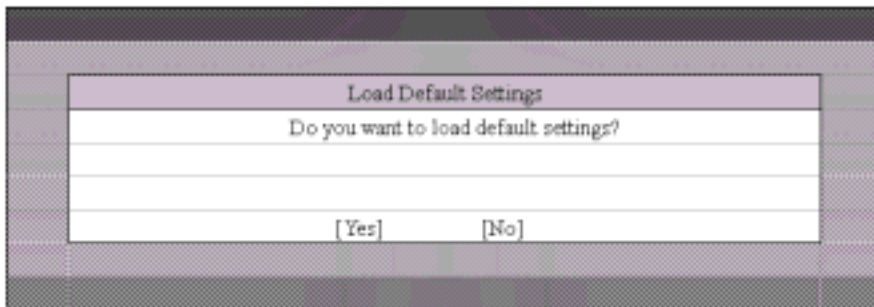
Select "**Yes**" to load the default settings.

Select "**No**" to ignore the message and return to the BIOS utility.

Abort Settings Change

Use this option to disregard your changes to the BIOS and reload your previous settings.

The following dialog box appears when you select Abort Settings Change from the main menu:
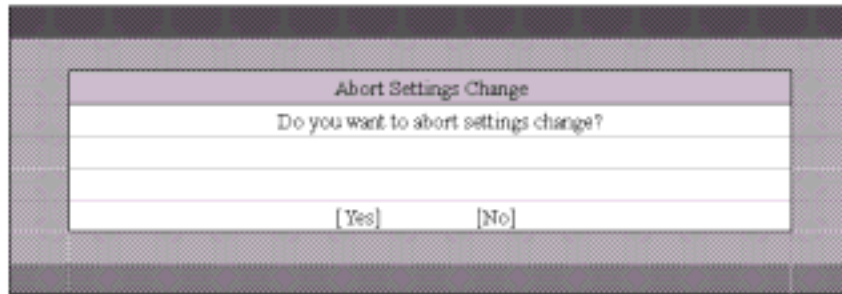
Select "**Yes**" to disregard your changes and reload your previous settings. After reload, the main menu appears on screen.

Select "**No**" to ignore the message and return to the BIOS utility.

AOpen

SCSISelect™ Utility

The SCSISelect™ utility allows you to change SCSI controller settings without opening the system or changing jumpers.

The table below lists the settings that you can change using the SCSISelect™ utility and the default value for each setting. Some settings apply globally to the SCSI controller and all SCSI devices on the bus. Other settings apply individually to each device on the bus.

Settings for the SCSI Controller and All Devices

Item	Default
Host Adapter SCSI ID	7
SCSI Parity Checking	Enabled
Host Adapter SCSI Termination	Enabled
Boot Device Option	0 (zero)
Host Adapter BIOS*	Enabled
Support Removable Disks under BIOS as Hard Disks	Boot only
Extended BIOS Translation for DOS Drives > 1 GB	Enabled
Display <Ctrl-A> Message During BIOS Initialization	Enabled
Multiple LUN Support	Disabled
BIOS Support for Bootable CD-ROM	Enabled
Item	Default
BIOS Support for Int13 Extensions	Enabled
Support for Ultra SCSI Speed	Disabled

---

*   **Some settings are valid only if the host adapter BIOS is enabled.**

AOpen

Individual Settings for SCSI Drives

Item	Default
Initiate Sync Negotiation	Yes
Maximum Sync Transfer Rate	160MB/sec.
Enable Disconnection	Yes
Send Start Unit SCSI Command*	No
Initiate Wide Negotiation	Yes

When to Use the SCSI*Select™* Utility

Use the SCSI *S*elect utility if you need to do any one of the following:

- Change any of the default values listed in the SCSI Controller and All Devices Table.

- Check and/or change SCSI device settings that may conflict with those of other devices.

- Perform low-level formatting on new SCSI disk devices.

---

*   Some settings are valid only if the host adapter BIOS is enabled.

AOpen

Running the SCSISelect™ *Utility*

A screen message giving the option to access the SCSISelect™ utility appears after the BIOS and POST routine.

To start the utility, press CTRL + A when the following message appears during power-on or system reset:

> Press <Ctrl> <A> for SCSI*Select*™ Utility!

Your screen may show the key sequence as CTRL + <Hot Key> instead of CTRL + A. The correct sequence is CTRL + A.

Utility Options

When the SCSI Select utility detects that the AIC-7902W SCSI controller is in the system, it displays the following Options menu:

```
Adaptec AIC-7902W SCSISelect (TM) Utility v2.10

  You have an AIC-7902W          Bus:Device:Channel
  SCSI host adapter in your sys
  the cursor to the bus:device:c       02:09:A
  the one to be configured and         02:09:B
  press <Enter>

  <F5> - Toggle color/monochrome




  Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (*=default)
```

AOpen

Configuring Channel A

The following screens appear if you select Channel A:

If you choose to configure Channel B, a similar SCSI
Utility Screen will appear. The only difference is the I/O
Port Address:

A000h   for   Channel A

A400h   for   Channel B

AOpen

```
Adaptec AIC-7902W SCSISelect (TM) Utility v2.10


      AIC-7902W at Bus:02h Device:09h Channel: A

   Would you like to configure the host adapter, or run the SCSI disk
   utilities? Select the option and press <Enter>. Press <F5> to
   switch between color and monochrome modes.


                         Options

         Configure/View Host Adapter Settings
                   SCSI Disk Utilities



Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (*=default)
```

Using ⬆ and ⬇ and then press ENTER to make selections in the SCSI*Select™* utility.   Press ESC at any time to return to the previous menu.

You can press F5 to toggle the display between color and monochrome modes.

This feature may not work with some kinds of monitors.

Configure/View Host Adapter Settings Menu

The Configure/View Host Adapter Settings menu lists three settings under SCSI Bus Interface Definitions and three additional options.

```
┌─────────────────────────────────────────────────────────────────┐
│           Adaptec AIC-7902W SCSISelect (TM) Utility v2.10         │
├─────────────────────────────────────────────────────────────────┤
│           AIC-7902W at Bus:02h Device:09h Channel:A               │
│   ┌─────────────────────────────────────────────────────────┐    │
│   │                    Configuration                         │    │
│   │  SCSI Bus Interface Definitions                          │    │
│   │      Host Adapter SCSI ID ………………………………….7             │    │
│   │      SCSI Parity Checking   ……………………….……Enabled        │    │
│   │                                                          │    │
│   │      Host Adapter SCSI Termination……………………..Enabled    │    │
│   │  Additional Options                                      │    │
│   │      Boot Device Options……………………………Press <Enter>       │    │
│   │      SCSI Device Configuration……………………..Press <Enter>  │    │
│   │      Advanced Configuration Options          Press <Enter>│   │
│   ├─────────────────────────────────────────────────────────┤    │
│   │                    BIOS Information                      │    │
│   │  Interrupt (IRQ) Channel………………………………..11              │    │
│   │  I/O Port Address…………………………………………..A000h             │    │
│   └─────────────────────────────────────────────────────────┘    │
├─────────────────────────────────────────────────────────────────┤
│  Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (*=default) │
└─────────────────────────────────────────────────────────────────┘
```

Using [↑] and [↓] to select a parameter.   Press [ENTER] to display a pop-up menu with a list of possible settin

parameter.　Press　ESC　at any time to return to the previous menu.

> SCSI controller default settings are marked with an asterisk (*) throughout the selection submenus.

Host Adapter SCSI ID

This parameter allows you to change the host controller SCSI ID. The following screen shows the available IDs used for the AIC-7902. The default setting is SCSI ID 7, which has the highest priority on the SCSI bus. We recommend that you keep the default setting since most system applications run only in this setting.

AOpen

```
┌──────────────────────────────────────────────────────────┐
│         Adaptec AIC-7902W SCSISelect (TM) Utility v2.10     │
├──────────────────────────────────────────────────────────┤
│                                                              │
│  ┌────────────────────────────────────────────────────┐   │
│  │       AIC-7902W at Bus:02h Device:09h Channel:A      │   │
│  │  ┌──────────────────────────────────────────────┐   │   │
│  │  │              Configuration                    │   │   │
│  │  │  SCSI Bus Interface Definitions    0          │   │   │
│  │  │                                    1          │   │   │
│  │  │     Host Adapter SCSI ID ………     …………7      │   │   │
│  │  │     SCSI Parity Checking    ……    2 ……Enabled │   │   │
│  │  │                                    3          │   │   │
│  │  │                                    4          │   │   │
│  │  │     Host Adapter SCSI Terminatio  …………Enabled │   │   │
│  │  │                                    5          │   │   │
│  │  │  Additional Options                6          │   │   │
│  │  │     Boot Device Options…………       *7 …………Press│   │   │
│  │  ├──────────────────────────────────8───────────┤   │   │
│  │  │              BIOS Info             9           │   │   │
│  │  │  Interrupt (IRQ) Channel…………      10 ……………11   │   │   │
│  │  │                                   11           │   │   │
│  │  └──────────────────────────────────────────────┘   │   │
│  └────────────────────────────────────────────────────┘   │
├──────────────────────────────────────────────────────────┤
│  Arrow keys to move cursor, <Enter> to select option,      │
│  <Esc> to exit (*=default)                                 │
└──────────────────────────────────────────────────────────┘
```
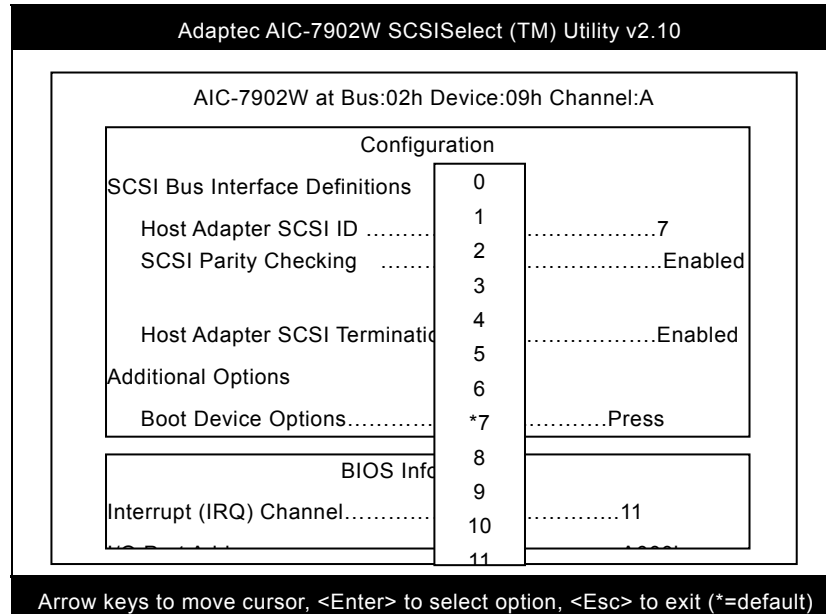
Each device on the SCSI bus, including the SCSI controller, must be set to a unique SCSI ID. The SCSI ID serves two purposes. It uniquely identifies each SCSI device on the bus, and it determines the device's priority on the bus during the arbitration phase. The arbitration phase determines which device controls the bus when two or more devices request for the use of it.

Using [↑] and [↓] then press [ENTER] to select the SCSI ID if you need to change it. Press [ESC] at any time to return to the previous menu.

SCSI Parity Checking

Select this option to enable or disable the SCSI parity checking function on the SCSI controller.   The screen below displays the selections. The default setting is "**Enabled**".

```
 Adaptec AIC-7902W SCSISelect (TM) Utility v2.10

      AIC-7902W at Bus:02h Device:09h Channel:A

                    Configuration

 SCSI Bus Interface Definitions
     Host Adapter SCSI ID …………………………………..7
     SCSI Parity Checking   …………………………………..Enabled

     Host Adapter SCSI Te    * Enabled    ………………..Enabled
                              Disabled
      Additional Options
       Boot Device Options………………………………Press <Enter>
       SCSI Device Configuration………………………Press <Enter>

                   BIOS Information
       Interrupt (IRQ) Channel…………………………………..11
       I/O Port Address……………………………………..A000h


 Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (*=default)
```

The SCSI controller always checks parity when reading from the SCSI bus to verify the correct transmission of data from the SCSI devices. You should disable the SCSI Parity Checking parameter if any of the installed SCSI devices do not support SCSI parity. Most currently available SCSI devices support this feature.

Using 🠕 and 🠗 then press ENTER to select options. Press ESC at any time to return to the previous menu.

Boot Device Options

This parameter shows the target ID of your boot device. The default setting is 0 (zero). We recommend that you keep the default setting since most system applications run only in this setting. Below is the Boot Device Configuration menu screen.

```
               Adaptec AIC-7902W SCSISelect (TM) Utility v2.10

                    AIC-7902W at Bus:02h Device:09h Channel:A

                                   Configuration
            SCSI Bus Interface Definitions
                Host Adapter SCSI ID …………………………………7
                            Boot Device Configuration
            Select SCSI peripheral from which to boot.
            To view peripheral by ID# select "SCSI Disk Utilities" from previous menu.
            Boot Channel……………………………………………….A First

         Boot SCSI ID……………………………………………0

         ------Option Listed Below Has NO EFFECT if MULTI LUN Support is disabled------
            Boot LUN Number………………………………………0

   Interrupt (IRQ)
```
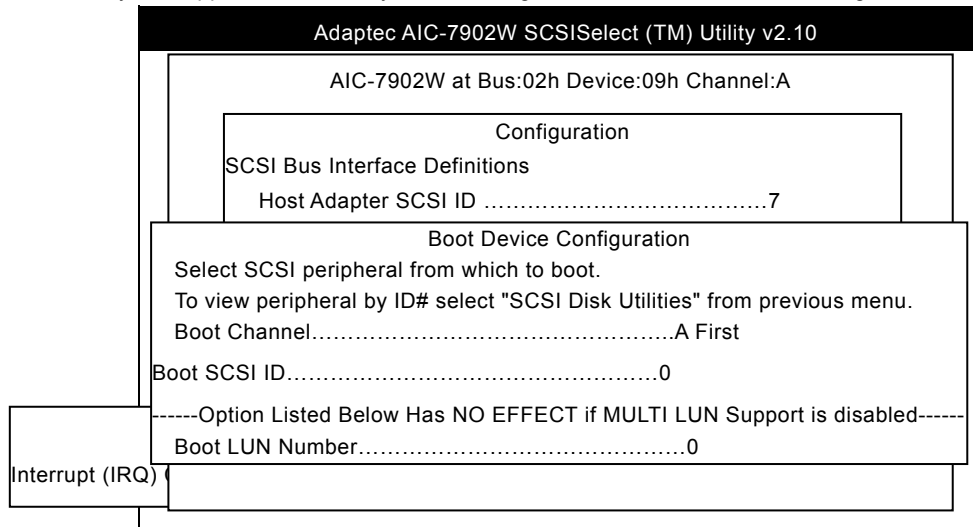
Boot Channel Options

This parameter lets you choosing boot the system from SCSI channel A or B first. The default setting is A (zero). We recommend that you keep the default setting since most system applications run only in this setting. Below is the Boot Device Configuration menu screen.

```
 Adaptec AIC-7902W SCSISelect (TM) Utility v2.10

       AIC-7902W at Bus:02h Device:09h Channel:A

                     Configuration
 SCSI Bus Interface Definitions

                Boot Device Configuration

 Select SCSI peripheral from which    *A First
 To view peripheral by ID# select "S  B First    ties" from previous menu.
 Boot Channel………………………………………   First
 Boot SCSI ID……………………………………………0
                     BIOS Information
 Interrupt (IRQ) Channel                    11

 Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (*=default)
```
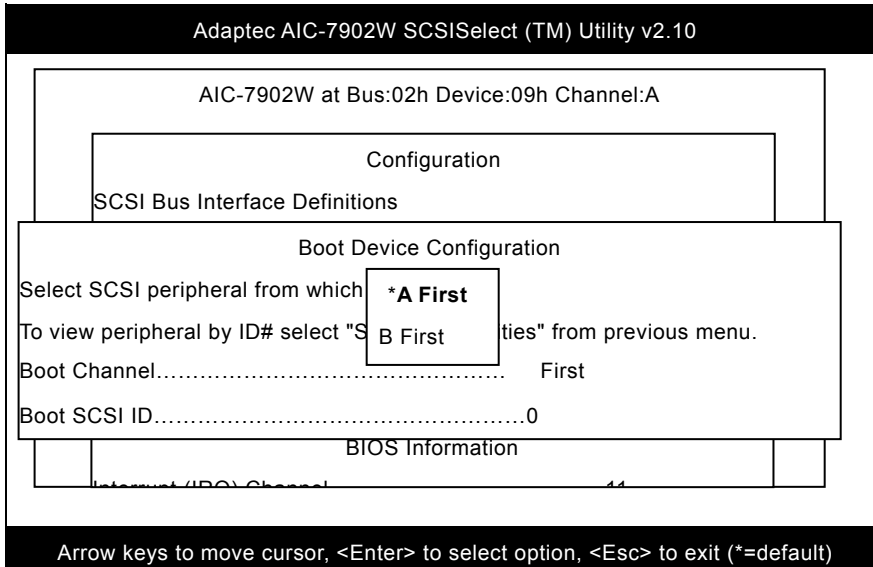
Boot SCSI ID Options

This parameter lets you choosing the SCSI ID of SCSI device to be a boot device. The default setting is 0 (zero). We recommend that you keep the default setting since most system applications run only in this setting. Below is the Boot Device Configuration menu screen.

```
┌──────────────────────────────────────────────────────────────────┐
│           Adaptec AIC-7902W SCSISelect (TM) Utility v2.10          │
├──────────────────────────────────────────────────────────────────┤
│            AIC-7902W at Bus:02h Device:09h Channel:A               │
│  ┌────────────────────────────────────────────────────────────┐   │
│  │                      Configuration                          │   │
│  │   SCSI Bus Interface Definitions       * 0                  │   │
│  │                                          1                  │   │
│  │                  Boot Device            2    ration         │   │
│  │   Select SCSI peripheral from which to b                    │   │
│  │                                          3                  │   │
│  │   To view peripheral by ID# select "SCSI    ies" from previous menu. │
│  │   Boot Channel………………………………          4        First         │   │
│  │                                          5                  │   │
│  │   Boot SCSI ID……………………………………          …0         │   │
│  │                   BIOS In               6                  │   │
│  │                                          7                  │   │
│  │   Interrupt (IRQ) Channel…………                  …………11        │   │
│  │                                          8                  │   │
│  │                                          9                  │   │
│  └────────────────────────────────────────────────────────────┘   │
└──────────────────────────────────────────────────────────────────┘
```

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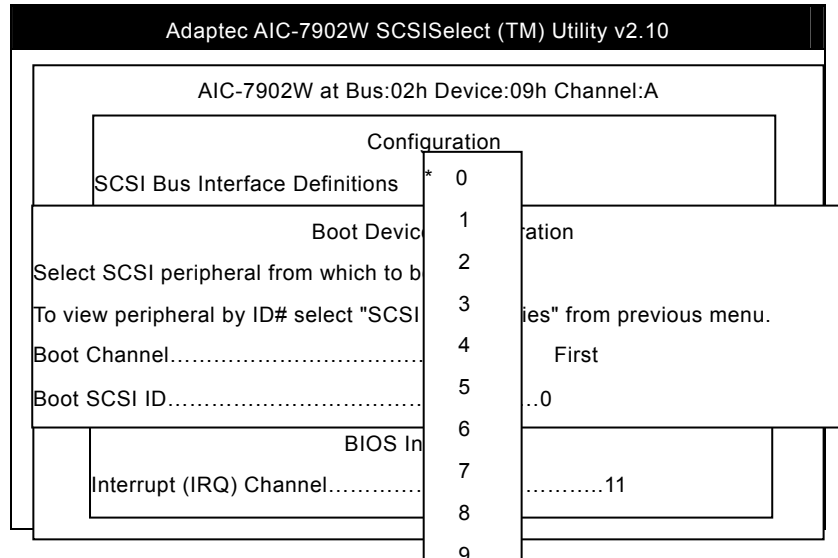
Boot LUN Number Options

```
Adaptec AIC-7902W SCSISelect (TM) Utility v2.10

AIC-7902W at Bus:02h Device:09h Channel:A

              Configursation

SCSI Bus Interface Definitions

            Boot Devi      *  0   uration
                              1
Select SCSI peripheral from which to
                              2
To view peripheral by ID# select "SCS      ties" from previous menu.
                              3
Boot Channel…………………………            First
                              4
Boot SCSI ID                          0
                              5
            BIOS          on
Interrupt (IRQ) Channel………            …………….11
                              6

                              7

Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (*=default)
```

Boot LUN Number

LUN (Logic unit number) can support more devices, like RAID box or RAID card.

SCSI Device Configuration

This parameter allows you to configure details of each SCSI device on the SCSI bus. The screen shows a column of information for each SCSI ID, even if some SCSI IDs are not assigned to a device. To configure a specific SCSI device, you need to know which SCSI ID it uses. See the SCSI Disk Utilities later in this section for instructions on how to determine the SCSI ID used by a device.

```
┌─────────────────────────────────────────────────────────────────────────────┐
│              Adaptec AIC-7902W SCSISelect (TM) Utility v2.10                  │
├─────────────────────────────────────────────────────────────────────────────┤
│                        SCSI Device Configuration                             │
│                                                                              │
│ SCSI Device ID           #0    #1    #2    #3    #4    #5    #6              │
│ #7                                                                           │
│                                                                              │
│ ------------------------------------------------------------------------------│
│ Sync Transfer Rate (MB/Sec).320.0   320.0  320.0  320.0  320.0  320.0  320.0│
│                                                                              │
│                                                                              │
│ Initiate Wide Negotiation………Yes    Yes   Yes   Yes   Yes   Yes   Yes   Yes  │
│                                                                              │
│ Enable Disconnection………….Yes     Yes   Yes   Yes   Yes   Yes   Yes   Yes    │
│                                                                              │
│ Send Start Unit Command…….Yes     Yes   Yes   Yes   Yes   Yes   Yes   Yes    │
│                                                                              │
│ Enable Write Back Cache……..N/C    N/C   N/C   N/C   N/C   N/C   N/C          │
│ N/C                                                                          │
│                                                                              │
│ -------------Options Listed Below Have NO EFFECT if the BIOS is Disabled-----│
│                                                                              │
│ BIOS Multiple LUN Support…...No    No    No    No    No    No    No          │
│ No                                                                           │
│                                                                              │
│ Include in BIOS Scan………..…Yes    Yes   Yes   Yes   Yes   Yes   Yes   Yes     │
├─────────────────────────────────────────────────────────────────────────────┤
│      Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (*=default) │
└─────────────────────────────────────────────────────────────────────────────┘
```

Using ⬆ or ⬇ to move between options, then press ENTER to display a pop-up menu with a list of values.

Using ⬆ or ⬇ to select a value, then press ENTER.

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Sync Transfer Rate

This option determines the maximum synchronous data transfer rate that the SCSI controller can support.   The SCSI controller supports rates up to the Fast Wide SCSI maximum of 80.0 MB per second.   The default value is 80.0.

In most cases, you can use the maximum value of 80.0.   However, if the SCSI controller is not set to negotiate data transfer (i.e., Initiate Sync Negotiation is set to No), the value selected here is the maximum rate that the SCSI controller accepts from the device during negotiation.   This is a standard SCSI protocol.

> Some older SCSI-1 devices do not support Fast SCSI data transfer rates.   This may cause the system to operate erratically or hang if the transfer rate is too high.

Initiate Wide Negotiation

This option allows communication between all devices (lower 8-bit or upper 8-bit) on the wide (16-bit) SCSI bus. When set to **Yes**, each device can connect on the bus. When set to **No** (disabled), communication can only occur on the lower eight bits of the 16-bit SCSI bus. The default setting is **Yes**.

Enable Disconnection

This option determines whether the SCSI controller allows a SCSI device to disconnect from the SCSI bus (sometimes called Disconnect/Reconnect). Disconnect/Reconnect allows the SCSI controller to perform other operations on the SCSI bus while the SCSI device is temporarily disconnected.

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When set to **Yes**, the SCSI device may disconnect from the SCSI bus. The SCSI device, however, may choose not to disconnect, even if permitted by the SCSI controller. When set to **No**, the SCSI device is not allowed to disconnect from the SCSI bus. The default setting is **Yes**.

Keep this item set to **Yes** if two or more SCSI devices are connected to the SCSI controller. This can optimize SCSI bus performance. If only one SCSI device is connected to the SCSI controller, set this item to No to achieve better system performance.

Send Start Unit Command

This option determines whether the Start Unit Command (SCSI command 1B) is sent to the SCSI device (most devices do not require this). Enabling this item reduces the load on the system power supply by allowing the SCSI controller to power up SCSI devices one at a time upon booting. Otherwise, all the devices power up at the same time. Most devices require you to set a jumper before they can respond to this command.

When set to **Yes**, the Start Unit Command is sent to the SCSI device at system boot. When set to **No**, each SCSI device powers up in the normal procedure.

The Send Start Unit Command setting is valid only if the host adapter BIOS is enabled.

If this option is enabled for more than one SCSI device, the Start Unit Command is sent first to the device with the lowest SCSI ID. When this device responds to the SCSI controller, the Start Unit Command is sent to the next highest SCSI ID with a setting of Yes. The process continues until all supported devices respond to the SCSI controller.

If many drives are set to **Yes** for Send Start Unit Command, the boot time varies depending on how long it takes each drive to spin up.

Advanced Configuration Options

Selecting the Advanced Configuration Options displays a screen as shown below. Do not change the settings of the items under this parameter unless it is absolutely necessary.

```
Adaptec AIC-7902W SCSISelect (TM) Utility v2.10

AIC-7902W at Bus:02h Device:09h Channel:A

                 Advanced Configuration Options

Reset SCSI Bus at IC Initialization……………………………….Enabled

Display <Ctrl><A> Message During BIOS Initialization………...Enabled

Extended BIOS Translation for DOS Drives > 1 Gbyte…………Enabled

Verbose/Silent Mode……………………………………………….Verbose

-----------Options Listed Below Have NO EFFECT if the BIOS is
Disabled------------

Host Adapter BIOS……………………………………………………Enabled

Support Removable Disks Under BIOS as Fixed Disks………...Boot Only


  Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (*=default)
```

Using ⬆ or to move between options, then press ENTER to display a pop-up menu with a list of options.

Using ⬆ or ⬇ to select an option, then press ENTER.

Host Adapter BIOS

This option enables or disables the SCSI controller BIOS. The default setting is **Enabled**.

The SCSI controller BIOS must be enabled if you want the system to boot from a SCSI hard disk drive connected to the SCSI controller. Several SCSISelect™ options cannot be used unless the SCSI controller BIOS is enabled.

Display <Ctrl-A> Message During BIOS Initialization

This option allows entering the SCSISelect™ utility during BIOS initialization. The default setting is **Enabled**.

Extended BIOS Translation for DOS Drives > 1 GByte

This option allows you to enable or disable extended translation for SCSI hard disks with a capacity greater than 1 GB. This is valid only if the SCSI controller BIOS is enabled. The default factory setting is **Enabled**.

When enabled, this option uses the following translation schemes:

● **SCSI hard disks < 1 GB** use a translation scheme of 64 heads, 32 sectors per track

● **SCSI hard disks > 1 GB** use a translation scheme of 255 heads, 63 sectors per track

> See the section Disk Drives Over 1 GB" in this chapter, for more information on this option. This option should be left disabled for most operating systems except DOS.

Support Removable Disks Under BIOS as Fixed Disks

This option allows you to control which removable-media drives are supported by the SCSI controller BIOS. This is only valid when the SCSI controller BIOS is enabled. The default setting is **Boot Only**. The following choices are available:

● **Boot Only** - Only the removable-media drive designated as the boot device is treated as a hard disk drive.

● **All Disks** - All removable-media drives supported by the BIOS are treated as hard disk drives.

● **Disabled** - No removable-media drives are treated as hard disk drives. In this case, software drivers are needed because the drives are not controlled by BIOS.

Support for removable-media drives means that the SCSI controller BIOS allows use of a removable-media drive as if it is a hard disk drive. It does not mean that you can remove the disk media during operation.

If a removable-media SCSI device is controlled by the SCSI controller BIOS, do not remove the media while the drive is powered-on or you may lose data!

BIOS Support for Bootable CD-ROM

When enabled, this option allows you to use a bootable CD-ROM device to directly load an operating system. The default setting is **Enabled**.

BIOS Support for Int13 Extensions

This option allows access to attached SCSI devices through BIOS Int13 functions. The default setting is **Enabled**.

SCSI Disk Utilities

When you select SCSI Disk Utilities from the Options menu, the SCSISelect™ Utility scans the SCSI bus and lists all SCSI devices installed on the SCSI bus. The list shows the individual SCSI IDs assigned to each device on the SCSI bus.

```
Adaptec AIC-7902W SCSISelect (TM) Utility v2.10




                Scanning SCSI ID:0   :   LUN   Number:0




Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (*=default)
```

```
Adaptec AIC-7902W SCSISelect (TM) Utility v2.10

AIC-7902W at Bus:02h Device:09h Channel:A

        Select SCSI Disk and press <Enter>

SCSI ID #0:                No device
SCSI ID #1:                No device

SCSI ID #2:                No device

SCSI ID #3:                No device

SCSI ID #4:                No device

SCSI ID #5:                No device

SCSI ID #6:                No device

SCSI ID #7:                 AIC-7896

SCSI ID #8:                No device

Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (*=default)
```

Select a disk device to display a small menu window.　From this menu, select **Format Disk** or **Verify Media**.

Using ⬆ or ⬇ to move between options, then press ENTER to display a pop-up menu with a list of values.

Using ⬆ or ⬇ to select a value, then press ENTER.

Format Disk

The Format Disk utility performs a low-level format on disk devices.

Most SCSI disk devices are preformatted and do not need to be formatted again. The Adaptec Format Disk utility is compatible with the vast majority of SCSI disk drives. Run it on hard disk drives or removable-media drives that were previously used with a non-Adaptec SCSI controller.

A low-level format destroys all data on the drive. Be sure to back up your data before performing this operation.   You cannot abort a low-level format once it is started.

Verify Media

The Verify Media utility scans the selected device's media for defects. If the utility finds bad blocks, it prompts you to reassign them. If you select **Yes**, those blocks will no longer be used.

You can press ESC at any time to abort the Verify Disk Media utility.

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Disk Drives Over 1 GByte

Extended Translation

Adaptec SCSI controllers have always supported the full range of disk drive capacities under all major operating systems. As disk drives have recently grown beyond 1 GB in formatted capacity, they have run up against the DOS 1024-cylinder limit.

To continue its support for all SCSI disk drive capacities under DOS, Adaptec has included an extended translation scheme for the AIC-7902W SCSI controllers. This feature supports disk drives of up to 8 GB capacity under DOS. The section Extended BIOS Translation for DOS Drives > 1 GB explains how to change the setting of this option. Most operating systems leave this option disabled.

DOS 1 GByte Limit

All current versions of DOS are limited to 1024 cylinders per drive. The standard translation scheme for SCSI host controllers, using 64 heads and 32 sectors, gives a maximum capacity of 1 GB.

To eliminate the 1-GB limit, Adaptec's extended translation feature uses 255 heads and 63 sectors, extending the disk drive capacity limit under DOS to 8 GB.

If you have already partitioned a large hard disk drive with one translation method, conversion to another method erases the data on the drive. Be sure to back up your disk drive prior to any change in the translation method.

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When to Use the Extended Translation

With DOS 5.0 and above

NetWare 386 (version 3.0 and above) and some versions of UNIX that do not share the 1024 cylinder limit of DOS do not require extended translation to support large disk drives and should not be enabled.

Drives with mixed partitions

Use standard translation (not extended translation) on drives formatted with two or more partitions for different operating systems. Partitions for UNIX and NetWare can be larger than 1 GB when using standard translation.

Using FDISK

To install a new disk, or to re-partition an existing disk, use the FDISK DOS utility as you normally would. The cylinder size increases to 8 MB when you enable extended translation. The size of the partition you request must therefore be a multiple of 8 MB. If you request a partition size that is not a multiple of 8 MB, FDISK rounds up to the nearest whole multiple of 8 MB.

Glossary

AC97 CODEC

Basically, AC97 CODEC is the standard structure of PCI sound card. As we know, computer is digital-based, but music is based on analog-based. Therefore, there must be a process to turn digital into analog during the last stage processing of sound in computer. Hence, the component on sound card that play this important task is what we called CODEC.

Audio CODEC 97 (briefly called AC97) is the specification regulated by Intel, and it's about the structure of audio conversion. The special place about CODEC is that it is separated from sound card (CODEC is an independent chipset). Therefore, PCI sound card could possess with 90db and do other application process as well. We called CODEC that meets this structure AC97 CODEC.

ACPI (Advanced Configuration & Power Interface)

ACPI is the power management specification of PC97 (1997). It intends to save more power by taking full control of power management to operating system and bypass BIOS. The chipset or super I/O chip needs to provide standard register interface to operating system (such as Windows 98). This is a bit similar as the PnP register interface. ACPI defines ATX momentary soft power switch to control the power state transition.

ACR (Advanced Communication Riser)

Building on the PC motherboard riser architecture, ACR slot is backward compatible with AMR but beyond the limitation of it. The ACR specification is designed to support modem, audio, Local Area Network (LAN) and Digital Subscriber Line (DSL).

AGP (Accelerated Graphic Port)

The main function of AGP simply put is to tell monitor what screen information had to be shown, a visual transmission device actually. With the rapid developing of AGP card, we can see that it had been developed from single colorful AGP card to 2D and 3D graphic. AGP supports only memory read/write operation and single-master single-slave one-to-one only. Though AGP and PCI share the same algorithm of 32-bit, its frequencies are 66MHz and 33MHz respectively. AGP interface had been developed from 2X to 8x.

1X AGP, data transfer rate is 66MHz x 4byte x 1 = 264MB/s

2X AGP, data transfer rate is 66MHz x 4byte x 2 = 528MB/s

4X AGP, data transfer rate is 66MHz x 4byte x 4 = 1056MB/s.

8X AGP, data transfer rate is 66MHz x 4byte x 8 = 2112MB/s.

AMR (Audio/Modem Riser)

The CODEC circuit of AC97 sound/modem solution can be put on motherboard or put on a riser card (AMR card) that connects to motherboard through AMR connector.

ATA (AT Attachment)

Before talking about ATA (AT Attachment), we must understand **DMA** (Direct Memory Access), which allows devices to skip the CPU devices and access memory directly. DMA specification could not only eliminate the workload of CPU, but also accelerate the transmission of data. DMA begins with a data transfer rate of 16.6MB/Sec, but afterward developed to new data rate of 33.3MB/Sec, which is twice the data rate and we called it **Ultra DMA**. **ATA** details power and data signals between the drive

and integrated drive controller and the computer's motherboard. Two drives (master and slave) are supported. The ATA specification allows the drive to connect directly to the ISA bus on the computer. ATA transfer rate then had been developed to 133MHz/Sec and would come out with fastest rate later (please refer to Serial ATA).

DMA, data transfer rate is 16.6MHz/s.

Ultra DMA, data transfer rate is 16.6MHz x 2 = 33MB/s.

ATA/66, data transfer rate is 16.6MHz x 4 = 66MB/s.

ATA/100, data transfer rate is 16.6MHz x 6 = 100MB/s.

ATA/133, data transfer rate is 16.6MHz x 8 = 133MB/s.

(ATA/133 uses both rising edge and falling edge as ATA/66 but clock cycle time is reduced to 30ns.)

BIOS (Basic Input/Output System)

BIOS, is a set of assembly routine/program that reside in EPROM or Flash ROM. BIOS controls Input/output devices and other hardware devices of motherboard. In general, to provide hardware independent portability, operation system and drivers is required to access BIOS without directly access hardware devices.

Bluetooth

Bluetooth is a wireless transferring technology that enables short-range wireless connections between desktop and laptop computers, personal digital assistants (PDAs), cellular phones, printers, scanners, digital cameras and even home appliances. The principle of Bluetooth (a chipset) is to transfer information and voices at the frequency of ISM Band. Every Bluetooth technology devices do come with a standard address for you to connect one-to-one or one-to-seven (to form a Pico-net), with transferring range up to 10 meters (100 meters to follow), using low power radio. Bluetooth do not only possess

high transfer rate of 1MB/s, it also could be encrypted with pin code. With hopping rate of 1600 hops per second, it's difficult to be intercepted and are less interrupted by electromagnetic wave.

CNR (Communication and Networking Riser)

The CNR specification provides the PC industry the opportunity to deliver a flexible and cost reduced method of implementing LAN, home networking, DSL, USB, wireless, audio and modem subsystems widely used in today's "connected PCs". The CNR specification is an open industry specification and is supported by OEMs, IHV card manufacturers, silicon supplier and Microsoft.

DDR (Double Data Rate) RAM

DDR RAM utilizes the existing SDRAM (For ex, PC-100, PC-133) infrastructure and technology while doubling the nominal bandwidth available to systems in an easy to design and simple to adopt way. Based on FSB frequency, DDR RAM on the market are DDR200, DDR266 and DDR333 with more coming around soon.

DDR200, transfer bandwidth up to 200x64/8=1600MB/s (PC1600)

DDR266, transfer bandwidth up to 266x64/8=2100MB/s (PC2100)

DDR333, transfer bandwidth up to 333x64/8=2700MB/s (PC2700)

DDR400, transfer bandwidth up to 400x64/8=3200MB/s (PC3200)

ECC (Error Checking and Correction)

The ECC mode needs 8 ECC bits for 64-bit data. Each time memory is accessed; ECC bits are updated and checked by a special algorithm. The ECC algorithm has the ability to detect double-bit error and automatically correct single-bit error while parity mode can only detect single-bit error.

EEPROM (Electronic Erasable Programmable ROM)

Also known as E^2PROM. Both EEPROM and Flash ROM can be re-programmed by electronic signals, but the interface technology is different. Size of EEPROM is much smaller than flash ROM.

EPROM (Erasable Programmable ROM)

Traditional motherboard stores BIOS code in EPROM. EPROM can only be erased by ultra-violet (UV) light. If BIOS has to be upgraded, you need to remove EPROM from motherboard, clear by UV light, re-program, and then insert back.

EV6 Bus

EV6 Bus is the technology of Alpha processor from Digital Equipment Corporation. EV6 bus uses both rising and falling clock edge to transfer data, similar as DDR RAM or ATA/66 IDE bus.
EV6 Bus Speed = CPU external bus clock x 2.

200 MHz EV6 bus, 200MHz = 100 MHz external bus clock x 2

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FCC DoC (Declaration of Conformity)

The DoC is component certification standard of FCC EMI regulations. This standard allows DIY component (such as motherboard) to apply DoC label separately without a shielding of housing.

FC-PGA (Flip Chip-Pin Grid Array)

FC means Flip Chip, FC-PGA is a package of Intel for Pentium III for 0.18µm process CPU, which can be plugged into SKT370 socket.

FC-PGA2 (Flip Chip-Pin Grid Array)

After FC-PGA, FC-PGA2 is the package for 0.13µm process CPU developed by Intel, which can be plugged into SKT423/478 socket as well.

Flash ROM

Flash ROM can be re-programmed by electronic signals. It is easier for BIOS to upgrade by a flash utility, but it is also easier to be infected by virus. Because of increase of new functions, BIOS size is increased from 64KB to 512KB (4M bit).

Hyper Threading

Hyper-Threading technology is an innovative design from Intel that enables multi-threaded software applications to process threads in parallel within each processor resulting in increased utilization of processor execution resources. As a result, an average improvement of ~40% in CPU resource utilization yields higher processing throughput.

IEEE 1394

IEEE 1394, which also called Firewire, is a serial data transfer protocol and interconnection system. The main feature of the Firewire that assures its adoption for the digital video and audio (A/V) consumer application is its low cost.   Fire wire interface is capable of supporting various high-end digital A/V applications, such as consumer A/V device control and signal routing, Digital Video (DV) editing, home networking, and more than 32 channels of digital mixing. Gone are those days of expensive video capture cards. Firewire allows for video capture from both newer DV camcorders with Firewire ports and older analog equipment using A/V to Firewire converters.

The advantages of the IEEE1394:

High data transfer rate – Start from 400 Mbps, (with 800/1600/3200 Mbps coming soon), which is about 30 times faster than USB 1.1.

Supports up to 63 devices (16 - daisy chained) with cable length up to about 4.5 m (14 feet).

Hot-pluggable (like USB). No need to turn of your device to connect or disconnect, and you don't need to reboot your PC. Also, it is a plug-and-play bus.

IEEE1394 is very easy to connect (Like USB1.1/2/0).

Parity Bit

The parity mode uses 1 parity bit for each byte, normally it is even parity mode, that is, each time the memory data is updated, parity bit will be adjusted to have even count "1" for each byte. When next time, if memory is read with odd number of "1", the parity error is occurred and this is called single bit error detection.

PCI (Peripheral Component Interface) Bus

Developed by Intel, Peripheral Component Interconnect (PCI) is a local bus standard. A bus is a channel used to transfer data to (input) and from (output) a computer and to or from a peripheral device. Most PCs have a PCI bus usually implemented at 32-bits providing a 33 MHz clock speed with a throughput rate of 133 MBps.

PDF Format

With PDF file, it is easy to do universal document exchange. Virtually any document may be converted in Portable Document Format (PDF). Contents in PDF documents are exactly the same as the original file, including fonts and graphics, and they can be distributed by e-mail or stored on the World Wide Web, an intranet, a file system, or a CD-ROM for other users to view on any platforms. You may download Acrobat Reader in order to read PDF file from its website (www.adobe.com).

PnP (Plug and Play)

Oversimplified, Plug-and-Play automatically tells the software (device drivers) where to find various pieces of hardware (devices) such as modems, network cards, sound cards, etc. Plug-and-Play's task is to match up physical devices with the software (device drivers) that operates them and to establish channels of communication between each physical device and its driver.

POST (Power-On Self Test)

The BIOS self-test procedure after power-on, sometimes, it is the first or the second screen shown on your monitor during system boot.

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PSB (Processor System Bus) Clock

PSB Clock means the external bus clock of CPU.

CPU internal clock = CPU PSB Clock x CPU Clock Ratio

RDRAM (Rambus Dynamic Random Access Memory)

A DRAM technology developed by Rambus Corporation*, to achieve high speed of memory through the use of multiple channels in parallel by 16-bits. Basically, RDRAM uses new structure of Multibank, which is quite different from FPM, EDO, SDRAM. Using different memory module as well, RDRAM uses "RIMM" with transfer rate of 600/700/800MHz, providing bandwidth as high to 1.6GB.

RIMM (Rambus Inline Memory Module)

184-pin memory module that supports RDRAM memory technology. A RIMM memory module may contain up to maximum of 16 RDRAM devices.

SDRAM (Synchronous DRAM)

SDRAM is one of the DRAM technologies that allow DRAM to use the same clock as the CPU host bus (EDO and FPM are asynchronous and do not have clock signal). It is similar as PBSRAM to use burst mode transfer. SDRAM comes in 64-bit 168-pin DIMM and operates at 3.3V, and have been gradually replaced by DDR RAM.

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SATA (Serial ATA)

The Serial ATA specification is designed to overcome speed limitations while enabling the storage interface to scale with the growing media rate demands of PC platforms. Serial ATA is to replace parallel ATA with the compatibility with existing operating systems and drivers, adding performance headroom for years to come. It is developed with data transfer rate of 150 Mbytes/second, and 300M/bs, 600M/bs to come. It reduces voltage and pins count requirements and can be implemented with thin and easy to route cables.

SMBus (System Management Bus)

SMBus is also called I^{2}C bus. It is a two-wire bus developed for component communication (especially for semiconductor IC). For example, set clock of clock generator for jumper-less motherboard. The data transfer rate of SMBus is only 100Kbit/s, it allows one host to communicate with CPU and many masters and slaves to send/receive message.

SPD (Serial Presence Detect)

SPD is a small ROM or EEPROM device resided on the DIMM or RIMM. SPD stores memory module information such as DRAM timing and chip parameters. SPD can be used by BIOS to decide best timing for this DIMM or RIMM.

USB 2.0 (Universal Serial Bus)

A Universal Serial Bus (USB) is an external bus (an interconnection) standard that supports data transfer rates of 12 Mbps. A single USB port can be used to connect up to 127 peripheral devices, such as mouse, modems and keyboards. Introduced in 1996, USB has completed replaced serial and parallel ports. It also supports plug-and-play installations and hot plugging Plug-and-play is the ability to add and remove devices to a computer while the computer is running and have the operating

system automatically recognize the change. USB 2.0, which supports data transfer rates of 480 Mbps, has been widely used in motherboard these days.

VCM (Virtual Channel Memory)

NEC's Virtual Channel Memory (VCM) is a new DRAM core architecture that dramatically improves the memory system's ability to service multimedia requirements. VCM increases memory bus efficiency and performance of any DRAM technology by providing a set of fast static registers between the memory core and I/O pins. Using VCM technology results in reduced data access latency and reduced power consumption.

Wireless LAN – 802.11b

802.11 is a specification developed by IEEE and Wireless LAN technology, which is an interface between a wireless client and a base station or between two wireless clients.

802.11 family includes the following specifications and with more coming:

802.11 = 1 or 2 Mbps transmission in the 2.4 GHz band, using either frequency hopping spread spectrum (FHSS) or direct sequence spread spectrum (DSSS)).

802.11a = 54 Mbps in the 5GHz band, using orthogonal frequency division multiplexing)

802.11b (11 Mbps transmission in the 2.4 GHz band, using direct sequence spread spectrum (DSSS).

ZIP file

A compressed file format to reduce file size. To unzip file, run shareware PKUNZIP (http://www.pkware.com/) for DOS and other operating system or WINZIP (http://www.winzip.com/) for windows environment.

Troubleshooting

If you encounter any trouble to boot you system, follow the procedures accordingly to resolve the problem.

```
                        ┌─────────────┐
                        │    Start    │
                        └──────┬──────┘
                               │
       ┌───────────────────────▼───────────────────────┐
       │ Turn off the power and unplug the AC power      │
       │ cable, then remove all of the add-on cards      │
       │ and cables, including VGA, IDE, FDD, COM1,       │
       │ COM2 and printer.                               │
       └───────────────────────┬───────────────────────┘
                               │
                        ┌──────▼──────┐
                        │    Next     │
                        └─────────────┘
```

Then connect your monitor and keyboard.

Turn on the power and check if the power supply and CPU fan work properly.

Yes

No

Next

The problem is probably caused by power supply or motherboard failure. Please contact your reseller or local distributor for repairing.

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Continue

Check if there is display?

No → Perhaps your monitor is defective.

Yes

Press <Ctrl> and <Alt> key at the same time, hold them and then press <Del> to reboot the system.

Check if the system reboots?

No → It is very possible that your keyboard is defective.

Yes

Next

Continue

During system rebooting, press <Del> to enter BIOS setup. Choose "Load Setup Default".

Turn off the system and re-connect IDE cable.

Check if the system can reboot successfully?

No → The problem should be caused by the IDE cable or HDD itself.

Yes

Re-install the operating system such as Windows2000.

End

Technical Support

Dear Customer,

Thanks for choosing AOpen products. To provide the best and fastest service to our customer is our first priority. However, we receive numerous emails and phone-calls worldwide everyday, it is very hard for us to serve everyone on time. We recommend you follow the procedures below and seek help before contact us. With your help, we can then continue to provide the best quality service to more customers.

Thanks very much for your understanding!

AOpen Technical Supporting Team

1 **Online Manual:** Please check the manual carefully and make sure the jumper settings and installation procedure are correct. You can also find the manual and EIG in AOpen Bonus Pack.
http://english.aopen.com.tw/tech/download/manual/default.htm

2 **Test Report:** We recommend you to choose board/card/device from the compatibility test reports for assembling your PC. It may prevent incompatibility problems.
http://english.aopen.com.tw/tech/report/default.htm

3 **FAQ:** Here we list problems that users often encounter and FAQ (Frequently Asked Questions). You may be able to find a solution to your problem.
http://club.aopen.com.tw/faq/

4 **Download Software:** Check out this table to get the latest updated BIOS/utility and drivers. In most case, newer versions of drivers and BIOS have solved earlier bugs or compatibility problems.
http://english.aopen.com.tw/tech/download/default.htm

5   **eForum:** We welcome you to join AOpen eForum to discuss our products with other users. Your problem probably had been discussed before or will be answered by other power users here.
http://club.aopen.com.tw/forum/

6   **Contact Distributors/Resellers:** We sell our products through resellers and integrators. They should know your system configuration very well and should be able to solve your problem efficiently and provide important reference for you.

7   **Contact Us**: Please prepare detail system configuration and error symptom before contacting us. The **part number**, **serial number** and **BIOS version** are also very helpful.

Part Number and Serial Number

The Part Number and Serial number are printed on bar code label. You can find this bar code label on the outside packing, or on component side of PCB. For example:

P/N:91.88110.201   S/N:91949378KN73

Part No.   Serial No.

918811020191949378KN73

Part No.   Serial No.

P/N: 91.88110.201 is part number, **S/N: 91949378KN73** is serial number.

BIOS version

BIOS version can be found on upper left corner of first boot screen (POST screen). For example:

BIOS V4.1 R1.02 EN RAS
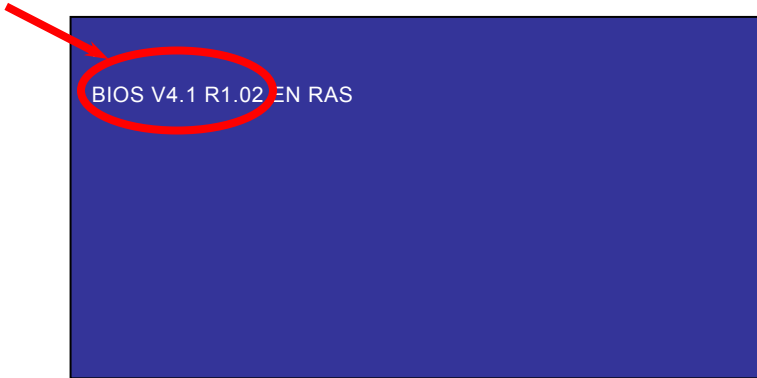
BIOS Version : R1.02 Jan 17, 2003

Product Registration

Thank you for choosing AOpen product. AOpen encourages you to spend few minutes in completing the following product registration. To register your product will ensure the high quality of services from AOpen. After the registration, you will:

- Have opportunities to play online slot machine and win a prize from AOpen by accumulating your bonuses for later prize exchange.

- Be upgraded to gold membership of Club AOpen program.

- Receive email notification about product safety alerts. Its purpose is to alert consumers quickly and conveniently when products contain technical issues.

- Receive email notification about latest product's announcements.

- Be able to personalize your AOpen web pages.

- Receive e-mail notification about latest BIOS/Driver/Software release information.

- Have opportunities to participate special product promotional programs.

- Enjoy higher service priority to receive technical assistance provided by AOpen specialists worldwide.

- Be able to join the discussions of web-based news groups.

AOpen makes sure that the information you provide is encrypted, so that it cannot be read or intercepted by other people or companies. Further, AOpen will not disclose any of information you submitted under any conditions. Please consult our online privacy policy for further information on our company policy.

> **Note:** *If registering products purchased from different dealers/retails and/or purchased on different dates, please submit a separate form for each product.*