

Preface

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Version 1.1

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Federal Communications Commission (FCC)

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

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and the receiver
- Connect the equipment onto an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help


Shielded interconnect cables and a shielded AC power cable must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system's manufacturer could void the user's authority to operate the equipment.

Declaration of Conformity

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

This device is in conformity with the following EC/EMC directives:

- EN 55022** Limits and methods of measurement of radio disturbance characteristics of information technology equipment
- EN 61000-3-2** Disturbances in supply systems caused
- EN 61000-3-3** Disturbances in supply systems caused by household appliances and similar electrical equipment “ Voltage fluctuations”
- EN 55024** Information technology equipment-Immunity characteristics-Limits and methods of measurement
- EN 60950** Safety for information technology equipment including electrical business equipment
- CE marking** 

Canadian Department of Communications

This class B digital apparatus meets all requirements of the Canadian Interference-causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

About the Manual

The manual consists of the following:

- | | |
|--|---|
| Chapter 1
Introducing the Motherboard | Describes features of the motherboard. ➡ page 1 |
| Chapter 2
Installing the Motherboard | Describes installation of motherboard components. ➡ page 7 |
| Chapter 3
Using BIOS | Provides information on using the BIOS Setup Utility. ➡ page 23 |
| Chapter 4
Using the Motherboard Software | Describes the motherboard software. ➡ page 45 |
| Chapter 5
Setting Up AMD SB950 RAID Configuration | Provides information about SATA RAID Setup ➡ page 49 |
| Chapter 6
ATI CrossFire™ Technology Support | Describes the ATI Crossfire™ Technology ➡ page 57 |
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Trouble Shooting | Provides basic trouble shooting tips. ➡ page 61 |

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Chapter 1

Introducing the Motherboard

Introduction

Thank you for choosing the A990FXM-A motherboard. This motherboard is a high performance, enhanced function motherboard that supports socket for AMD Phenom™ and later desktop processors (socket AM3+) for high-end business or personal desktop markets.

The motherboard incorporates the AMD 990FX Northbridge (NB) and SB950 Southbridge (SB) chipsets. The Northbridge supports the HyperTransport™ 3.0 interface. The memory controller supports DDR3 memory DIMM frequencies of 2133 (OC)/1866/1600/1333*. It supports four DDR3 slots with maximum memory size of 128 GB*. Three PCI Express x16 slots, intended for Graphics Interface, are fully compliant to the PCI Express Gen2 (version 2.0). In addition, two PCI Express x1 slots are supported.

The SB950 Southbridge supports one PCI slot which is PCI v2.3 compliant. It integrates USB 2.0 interface, supporting up to ten USB 2.0 ports (six USB ports and two USB 2.0 headers support additional four USB 2.0 ports). The Southbridge integrates a Serial ATA host controller, supporting six SATA ports with maximum transfer rate up to 6Gb/s each.

In addition, the mainboard assembles extra USB3.0 chip, which supports two USB 3.0 ports at rear panel with high speed of 5Gb/s.

There is an advanced full set of I/O ports in the rear panel, including one PS/2 mouse and keyboard combo connector, six USB 2.0 ports, two USB 3.0 ports, two LAN ports, one optical SPDIF0 port and audio jacks for microphone, line-in and 8-ch line-out.



* Due to the limitation of AMD CPU spec, please refer to Memory QVL for more information.

Package Contents

Your motherboard package ships with the following items:

- A990FXM-A Motherboard
- Quick Installation Guide
- User Manual
- DVD
- I/O Shield
- 2 SATA 6Gb/s Cables



The package contents above are for reference only, please take the actual package items as standard.

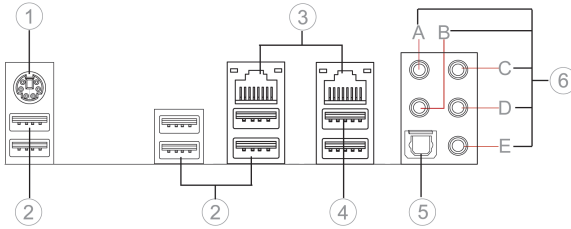
Specifications	
CPU	<ul style="list-style-type: none"> • Socket AM3+ for AMD Phenom™ and later desktop processors • Supports HyperTransport™ (HT) 3.0 interface speeds • Supports CPU up to 140W TDP <p><i>Note: Please go to ECS website for the latest CPU support list.</i></p>
Chipset	<ul style="list-style-type: none"> • NB: AMD 990FX SB: SB950
Memory	<ul style="list-style-type: none"> • Dual-channel DDR3 memory architecture • 4 x 240-pin DDR3 DIMM sockets support up to 128 GB • Supports DDR3 DDR3 2133 (OC)* /1866/1600/1333SDRAM <p><i>Note: * Due to the limitation of AMD CPU spec, please refer to Memory QVL for more information.</i></p>
Expansion Slots	<ul style="list-style-type: none"> • 3 x PCI Express x16 Gen2 slot • 2 x PCI Express x1 Gen2 slot • 1 x PCI slot
Storage	<ul style="list-style-type: none"> • Supported by AMD SB950 Express Chipset - 6 x Serial ATA 6.0 Gb/s Host Controllers - Supports RAID 0, 1, 5 and 10
Audio	<ul style="list-style-type: none"> • ALC892 8-Channel - 8 Channel High Definition Audio Codec - Compliant with HD audio specification
LAN	<ul style="list-style-type: none"> • Dual Realtek 8111E Giga Lan
Rear Panel I/O	<ul style="list-style-type: none"> • 1 x PS/2 keyboard and mouse combo port • 6 x USB 2.0 ports • 2 x USB 3.0 blue ports • 2 x RJ45 LAN ports • 1 x Audio port (Line in, microphone in, line out, and optical SPDIF out)
Internal I/O Connectors & Headers	<ul style="list-style-type: none"> • 1 x 24-pin ATX Power Supply connector • 1 x 8-pin ATX12V connector • 6 x Serial ATA 6Gb/s connectors • 2 x USB 2.0 headers support additional 4 USB 2.0 ports • 1 x Front panel header • 1 x Chassis Intrusion Detect header • 1 x SPDIF out header • 1 x Front panel audio header • 1 x Buzzer • 1 x CLR_COMS header • 1 x 4-pin CPU_FAN connector • 1 x 3-pin SYS_FAN connector • 1 x 3-pin PWR_FAN connector

System BIOS	<ul style="list-style-type: none">• AMI BIOS with 32Mb SPI Flash ROM<ul style="list-style-type: none">- Supports FSB adjustment, increase in a increase of 1MHz- Supports Plug and Play, STR(S3)/STD(S4)- Supports Hardware Monitor- Supports ACPI 3.0 version & DMI- Supports Audio, LAN, can be disabled in BIOS- Supports Over-Clocking- Supports Dual Display- F7 hot key for boot up devices option- Supports Pgup clear CMOS Hotkey (Has PS2 KB Model only)
Form Factor	<ul style="list-style-type: none">• Micro-ATX Size, 305mm x 244mm

Table of Motherboard Components

LABEL	COMPONENTS
1. CPU Socket	AMD Phenom™ and later desktop processors (socket AM3+)
2. CPU_FAN	CPU cooling fan connector
3. DDR3_1/2/3/4	240-pin DDR3 SDRAM slots
4. BZ	Buzzer
5. ATX_POWER	Standard 24-pin ATX power connector
6. PWR_FAN	Power cooling fan connector
7. SATA1~6	Serial ATA 6Gb/s connectors
8. PANEL	Front panel switch/LED header
13. F_USB2	Front panel USB 2.0 header
9. CLR_CMOS	Clear CMOS jumper
10. F_USB1~2	Front panel USB 2.0 headers (F_USB1 with EZ Charge function)
11. CASE	Case open header
12. SYS_FAN	System cooling fan connector
13. SPDIF0	SPDIF out header
14. F_AUDIO	Front panel audio header
15. PCI	32-bit add-on card slot
16. PCIEX16_S	PCI Express slot for graphics interface
17. PCIE1~2	PCI Express x1 slots
18. PCIEX16_1~2	PCI Express slots for graphics interface
19. ATX12V	8-pin +12V power connector

I/O Ports



1. PS/2 Mouse and PS/2 Keyboard combo connector

Use this PS/2 port to connect a PS/2 mouse or a PS/2 keyboard.

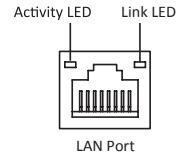
2. USB 2.0 Ports

Use the USB 2.0 ports to connect USB 2.0 devices.

3. LAN Ports

Connect an RJ-45 jack to the LAN port to connect your computer to the Network.

LAN LED	Status	Description
Activity LED	OFF	No data
	Orange blinking	Active
Link LED	OFF	No link
	Green	Link



4. USB 3.0 Ports

Use the USB 2.0 ports to connect USB 3.0 devices.

5. Optical SPDIF Output

This jack connects to external optical digital audio output devices.

6. Audio Ports

Use the audio jacks to connect audio devices. The C port is for stereo line-in signal, while the E port is for microphone in signal. This motherboard supports audio devices that correspond to the A, B and D port respectively. In addition, all of the 3 ports, B, and D provide users with both right & left channels individually. Users please refer to the following note for specific port function definition.

A: Center & Woofer	D: Front Out
B: Back Surround	E: Mic. in Rear
C: Line-in	-



The above port definition can be changed to audio input or audio output by changing the driver utility setting.

Chapter 2

Installing the Motherboard

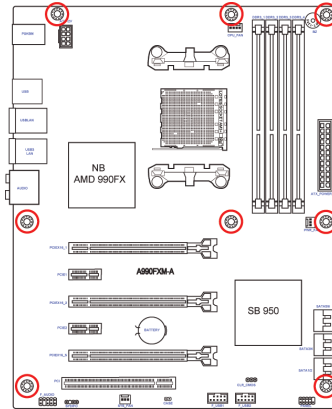
2-1. Safety Precautions

Follow these safety precautions when installing the motherboard:

- Wear a grounding strap attached to a grounded device to avoid damage from static electricity.
- Discharge static electricity by touching the metal case of a safely grounded object before working on the motherboard.
- Leave components in the static-proof bags.
- Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.

2-2. Installing the motherboard in a Chassis

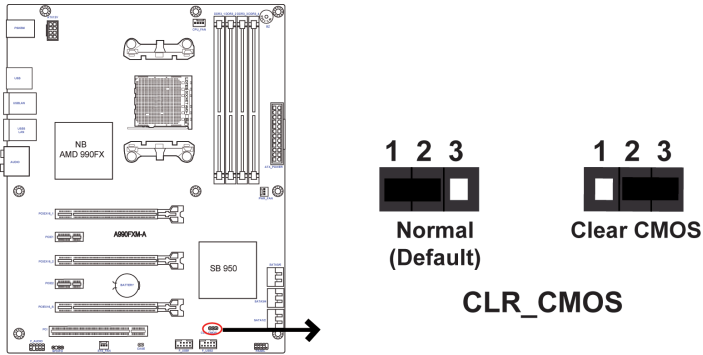
This motherboard carries an ATX form factor of 305 x 244 mm. Choose a chassis that accommodates this form factor. Make sure that the I/O template in the chassis matches the I/O ports installed on the rear edge of the motherboard. Most system chassis have mounting brackets installed in the chassis, which corresponds to the holes in the motherboard. Place the motherboard over the mounting brackets and secure the motherboard onto the mounting brackets with screws.



Do not over-tighten the screws as this can stress the motherboard.

2-3. Checking Jumper Settings

The following illustration shows the location of the motherboard jumpers. Pin 1 is labeled.



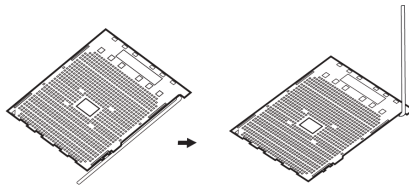
To avoid the system instability after clearing CMOS, we recommend users to enter the main BIOS setting page to “Load Default Settings” and then “Save and Exit Setup”.

2-4. Installing Hardware

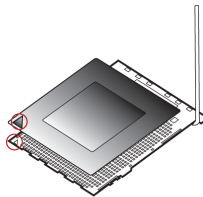
2-4-1. Installing the Processor

- This motherboard has an AM3+ socket.
- When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.
- You may be able to change the settings in the system Setup Utility. We strongly recommend you do not over-clock processor or other components to run faster than their rated speed.
- The following illustration shows CPU installation components.

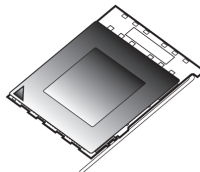
A. Pull up the lever away from the socket and lift up to 90-degree angle.



B. Locate the CPU cut edge (the corner with the pin hold noticeably missing). Align and insert the CPU correctly.



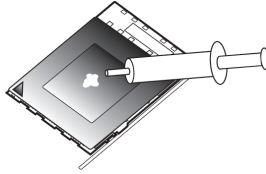
C. Press the metal lever back into its original position.



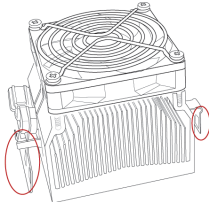
2-4-2. Installing the CPU Cooler

- Install the cooling fan in a well-lit work area so that you can clearly see the motherboard and processor socket.
- Avoid using cooling fans with sharp edges in case the fan casing and the clips cause serious damage to the motherboard or its components.
- To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 3800 rpm at least. CPU fan and heat sink installation procedures may vary with the type of CPU fan/heatsink supplied. The form and size of fan/heatsink may also vary.
- The following illustration shows how to install CPU fan.

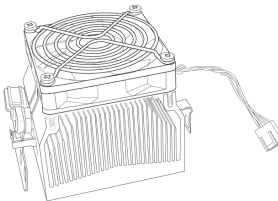
A. Apply some thermal grease onto the contacted area between the heatsink and the CPU, and make it to be a thin layer.



B. Put the CPU Fan down on the retention module and flip the levers over the heat sink in place.



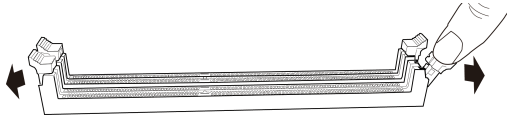
C. Connect the CPU cooler power connector to the CPU_FAN connector.



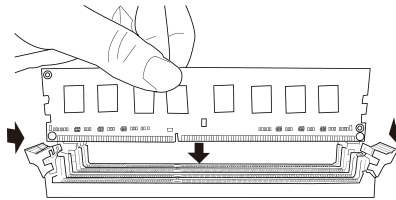
2-4-3. Installing Memory Modules

- This motherboard accommodates four memory modules. It can support four 240-pin DDR3 2133 (OC)/1866/1600/1333*.
- Do not remove any memory module from its antistatic packaging until you are ready to install it on the motherboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.
- You must install at least one module in any of the four slots. Total memory capacity is 128 GB.
- Refer to the following to install the memory modules.

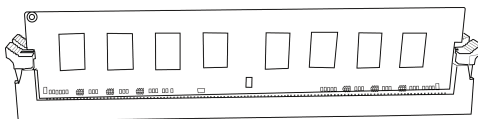
A. Push the latches on each side of the DIMM slot down.



B. Install the DIMM module into the slot and press it firmly down until it seats correctly. Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.



C. The slot latches are levered upwards and latch on to the edges of the DIMM.



* Due to the limitation of AMD CPU spec, please refer to Memory QVL for more information.



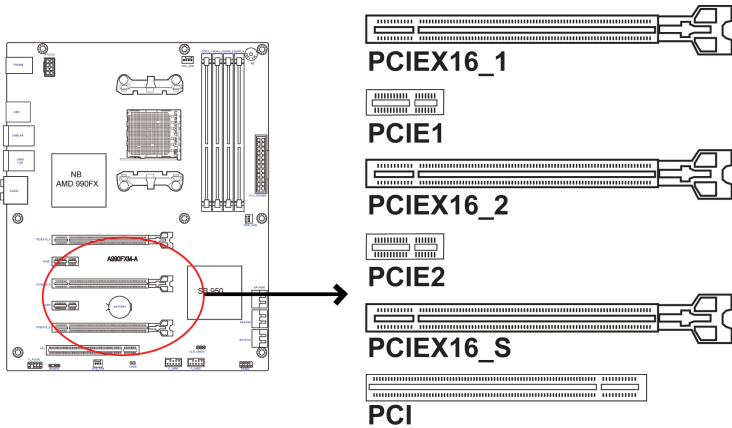
For best performance and compatibility, we recommend AMD AM3+ CPU with the RAM Module sequence as below.

Recommend memory configuration

Mode	Sockets			
	DDR3_1	DDR3_2	DDR3_3	DDR3_4
1 DIMM	--	Populated	--	--
	--	--	--	Populated
2 DIMMs	Populated	Populated	--	--
	--	Populated	Populated	--
	--	--	Populated	Populated
	--	Populated	--	Populated
	Populated	--	--	Populated
3 DIMMs	Populated	Populated	--	Populated
	--	Populated	Populated	Populated
4 DIMMs	Populated	Populated	Populated	Populated

2-4-4. Installing Add-on Cards

The slots on this motherboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the motherboard's features and capabilities. With these efficient facilities, you can increase the motherboard's capabilities by adding hardware that performs tasks that are not part of the basic system.



PCIEX16_1~2 Slots The PCI Express x16 slots are used to install external PCI Express graphics cards that are fully compliant to the PCI Express Base Specification revision 2.0.

PCIE1~2 Slots The PCI Express x1 slots are fully compliant to the PCI Express Base Specification revision 2.0.

PCIEX16_S Slot The PCI Express x16_S slot is used to install an external PCI Express graphics card that is fully compliant to the PCI Express Gen2 (version 2.0).

PCI Slot This motherboard is equipped with one standard PCI slot. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, which for the most part, is a supplement of the older ISA bus standard. The PCI slot on this board is PCI v2.3 compliant.



Before installing an add-on card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.

Follow these instructions to install an add-on card:

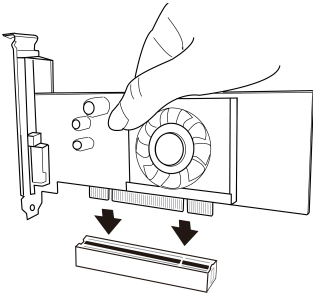
- 1 Remove a blanking plate from the system case corresponding to the slot you are going to use.
- 2 Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
- 3 Secure the metal bracket of the card to the system case with a screw.



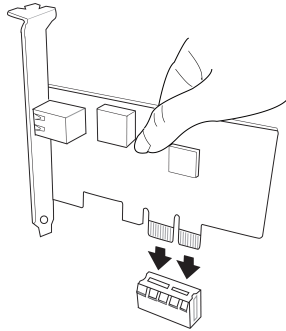
1. For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.

2. The onboard PCI interface does not support 64-bit SCSI cards.

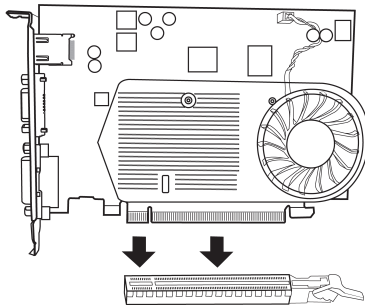
Please refer the following illustrations to install the add-on card:



Install the VGA Card in the PCI slot



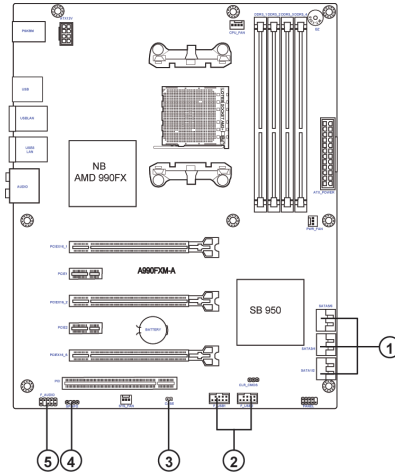
Install the LAN Card in the PCIe X1 slot



Install the VGA Card in the PCIe X16 slot

2-4-5. Connecting Optional Devices

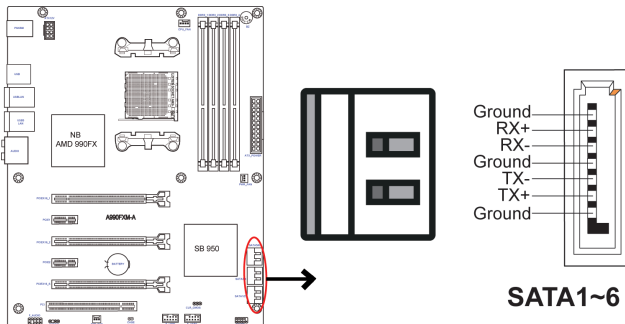
Refer to the following for information on connecting the motherboard's optional devices:



No.	Components	No.	Components
1	SATA1~6	4	SPDIF0
2	F_USB1~2	5	F_AUDIO
3	CASE	--	--

1. SATA 1~6: Serial ATA 6Gb/s connectors

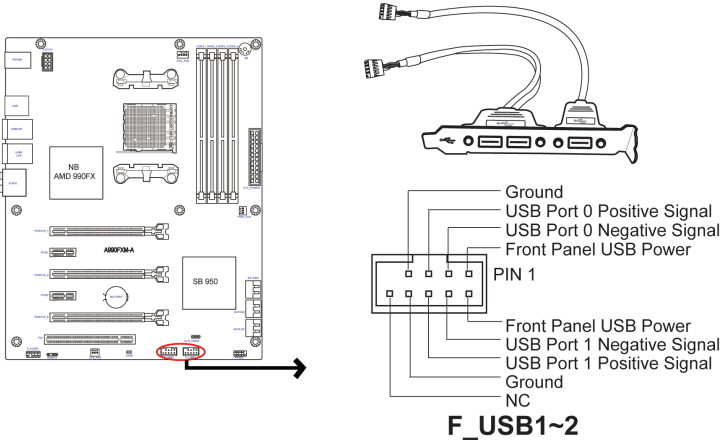
SATA1~6 connectors are used to support the Serial ATA 6Gb/s device, simpler disk drive cabling and easier PC assembly. It eliminates limitations of the current Parallel ATA interface. But maintains register compatibility and software compatibility with Parallel ATA.



2. F_USB1~2: Front Panel USB 2.0 headers

The motherboard has two USB 2.0 headers supporting four USB 2.0 ports. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB connector to connect the front-mounted ports to the motherboard.

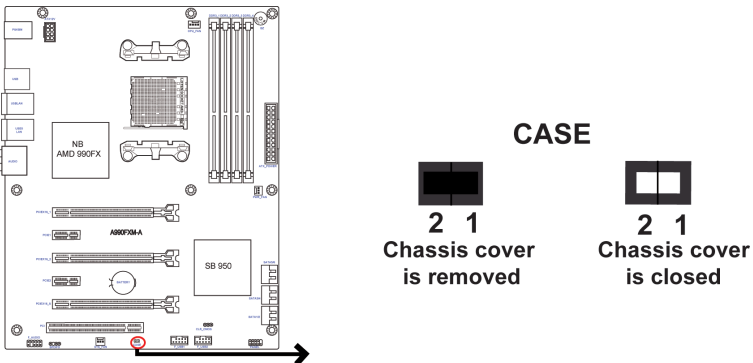
Unlike F_USB2 in this mainboard, F_USB1 supports EZ Charger technology (optional), provides 3 times current than general USB port in off mode for USB devices. It is useful and excellent, especially for the iPhone, iPad and iPod touch devices that need a large amount of current for faster recharging within less time.



Please make sure that the USB cable has the same pin assignment as indicated above. A different pin assignment may cause damage or system hang-up.

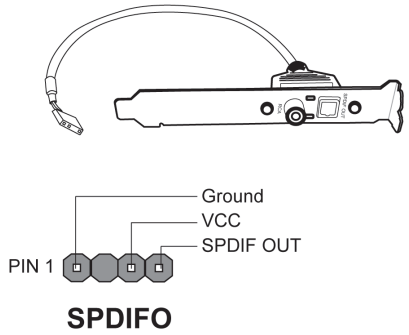
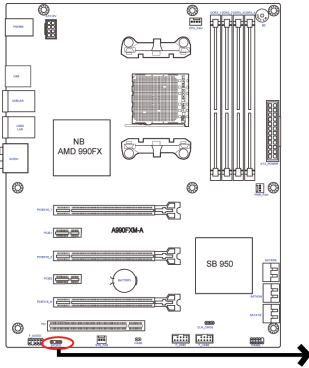
3. CASE: Chassis Intrusion Detect Header

This detects if the chassis cover has been removed. This function needs a chassis equipped with intrusion detection switch and needs to be enabled in BIOS.



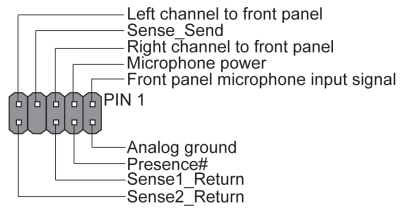
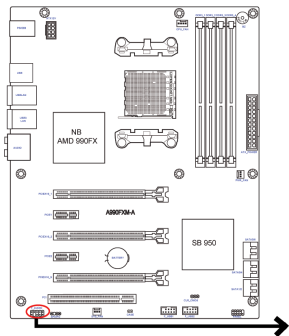
4. SPDIF: SPDIF out header

This is an optional header that provides an SPDIF (Sony/Philips Digital Interface) output to digital multimedia device through optical fiber or coaxial connector.

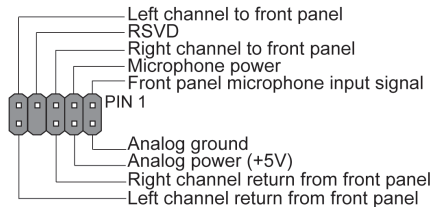


5. F_AUDIO: Front Panel Audio Header

The front panel audio header allows the user to install auxiliary front-oriented microphone and line-out ports for easier access. This header supports HD audio by default. If you want connect an AC' 97 front panel audio to HD onboard headers, please set as below picture.



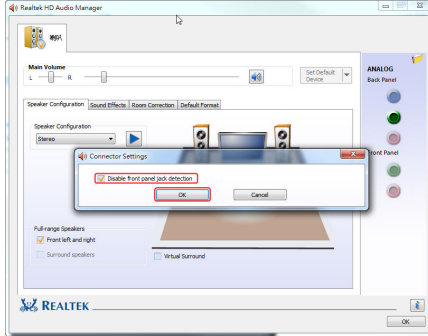
HD Audio



AC 97' Audio

AC' 97 Audio Configuration: To enable the front panel audio connector to support AC97 Audio mode.

If you use AC' 97 Front Panel, please tick off the option of "Disabled Front Panel Detect". If you use HD Audio Front Panel, please don't tick off "Disabled Front Panel Detect".



** For reference only*

If you use AC' 97 Front Panel, please don't tick off "Using Front Jack Detect". If you use HD Audio Front Panel, please tick off the option of "Using Front Jack Detect".



** For reference only*

2-4-6. Installing a SATA Hard Drive

This section describes how to install a SATA Hard Drive.

About SATA Connectors

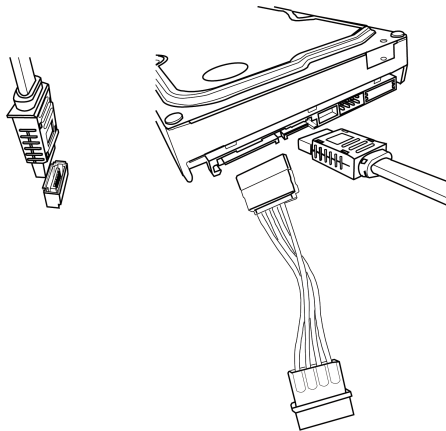
Your motherboard features six SATA connectors supporting a total of six drives. SATA refers to Serial ATA (Advanced Technology Attachment) is the standard interface for the IDE hard drives which are currently used in most PCs. These connectors are well designed and will only fit in one orientation. Locate the SATA connectors on the motherboard and follow the illustration below to install the SATA hard drives.

Installing Serial ATA Hard Drives

To install the Serial ATA (SATA) hard drives, use the SATA cable that supports the Serial ATA protocol. This SATA cable comes with a SATA power cable. You can connect either end of the SATA cable to the SATA hard drive or the connector on the motherboard.

Refer to the illustration below for proper installation:

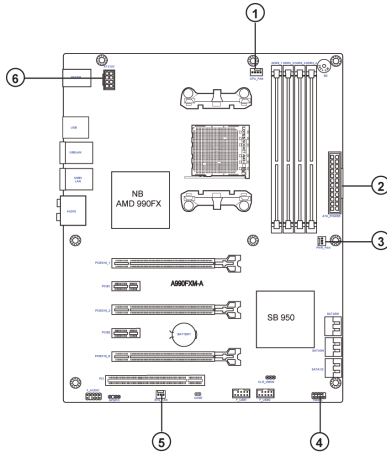
- 1 Attach either cable end to the connector on the motherboard.
- 2 Attach the other cable end to the SATA hard drive.
- 3 Attach the SATA power cable to the SATA hard drive and connect the other end to the power supply.



** For reference only*

2-4-7. Connecting Case Components

After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:



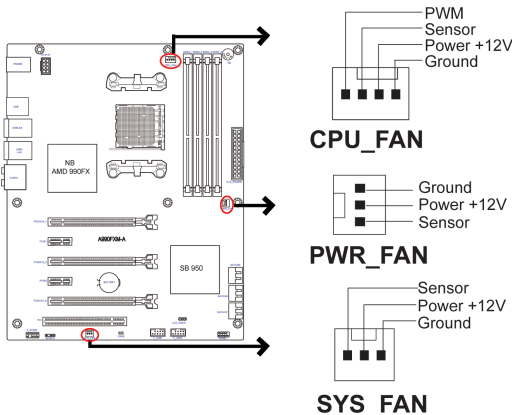
No.	Components	No.	Components
1	CPU_FAN	4	PANEL
2	ATX_POWER	5	SYS_FAN
3	PWR_FAN	6	ATX_12V

1, 3 & 5. CPU_FAN(CPU cooling FAN Power Connector), PWR_FAN(Power Cooling FAN Power Connector) & SYS_FAN(System Cooling FAN Power Connector)

Connect the CPU cooling fan cable to **CPU_FAN**.

Connect the power cooling fan connector to **PWR_FAN**.

Connect the system cooling fan connector to **SYS_FAN**.

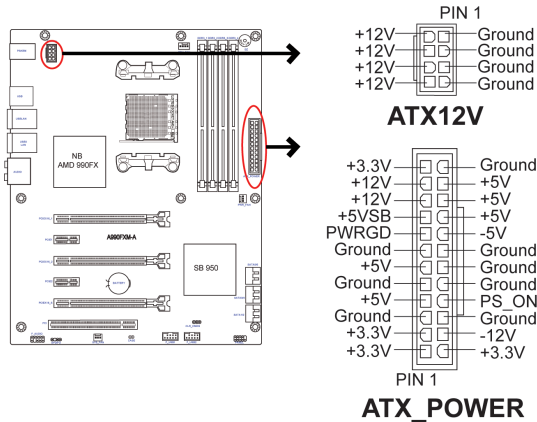


 Users please note that the fan connector supports the CPU cooling fan of 1.1A ~ 2.2A (26.4W max) at +12V.

2 & 6. ATX_POWER (ATX 24-pin Power Connector) & ATX12V (ATX 12V Power Connector)

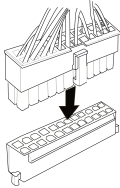
Connect the standard power supply connector to **ATX_POWER**.

Connect the auxiliary case power supply connector to **ATX12V**.



Connecting 24-pin power cable

The ATX 24-pin connector allows you to connect to ATX v2.x power supply.



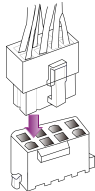
24-pin power cable

With ATX v2.x power supply, users please note that when installing 24-pin power cable, the latches of power cable and the ATX match perfectly.



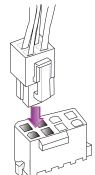
Connecting 8/4-pin power cable

The ATX12V8P power connector is used to provide power to the CPU.



8-pin power cable

When installing 8-pin power cable, the latches of power cable and the ATX12V8P match perfectly.

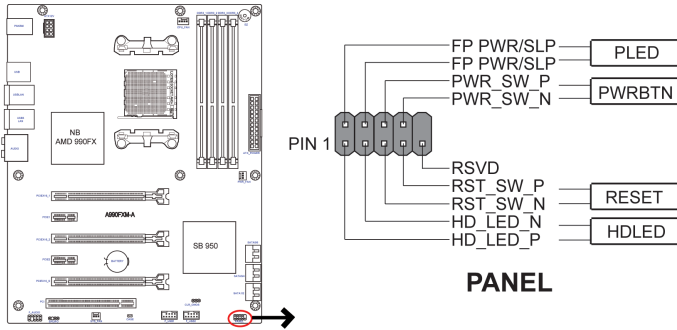


4-pin power cable

When installing 4-pin power cable, the latches of power cable and the ATX12V8P match perfectly.

4. Front Panel Header

The front panel header (**PANEL**) provides a standard set of switch and LED headers commonly found on ATX or Micro ATX cases. Refer to the table below for information:



Hard Drive Activity LED

Connecting pins 1 and 3 to a front panel mounted LED provides visual indication that data is being read from or written to the hard drive. For the LED to function properly, an IDE drive should be connected to the onboard IDE interface. The LED will also show activity for devices connected to the SCSI (hard drive activity LED) connector.

Power/Sleep/Message waiting LED

Connecting pins 2 and 4 to a single or dual-color, front panel mounted LED provides power on/off, sleep, and message waiting indication.

Reset Switch

Supporting the reset function requires connecting pin 5 and 7 to a momentary-contact switch that is normally open. When the switch is closed, the board resets and runs POST.

Power Switch

Supporting the power on/off function requires connecting pins 6 and 8 to a momentary-contact switch that is normally open. The switch should maintain contact for at least 50 ms to signal the power supply to switch on or off. The time requirement is due to internal de-bounce circuitry. After receiving a power on/off signal, at least two seconds elapses before the power supply recognizes another on/off signal.

This concludes Chapter 2. The next chapter covers the BIOS.

Chapter 3

Using BIOS

About the Setup Utility

The computer uses the latest “American Megatrends Inc. ” BIOS with support for Windows Plug and Play. The CMOS chip on the motherboard contains the ROM setup instructions for configuring the motherboard BIOS.

The BIOS (Basic Input and Output System) Setup Utility displays the system’s configuration status and provides you with options to set system parameters. The parameters are stored in battery-backed-up CMOS RAM that saves this information when the power is turned off. When the system is turned back on, the system is configured with the values you stored in CMOS.

The BIOS Setup Utility enables you to configure:

- Hard drives, diskette drives and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power Management features

The settings made in the Setup Utility affect how the computer performs. Before using the Setup Utility, ensure that you understand the Setup Utility options.

This chapter provides explanations for Setup Utility options.

The Standard Configuration

A standard configuration has already been set in the Setup Utility. However, we recommend that you read this chapter in case you need to make any changes in the future.

This Setup Utility should be used:

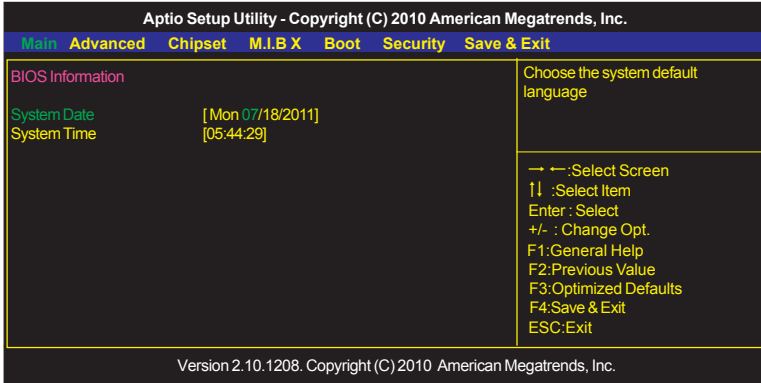
- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security Setup

Entering the Setup Utility

When you power on the system, BIOS enters the Power-On Self Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, the following message appears:

Press DEL to enter SETUP

Press the delete key to access the BIOS Setup Utility.



Resetting the Default CMOS Values

When powering on for the first time, the POST screen may show a “CMOS Settings Wrong” message. This standard message will appear following a clear CMOS data at factory by the manufacturer. You simply need to Load Default Settings to reset the default CMOS values.

Note: Changes to system hardware such as different CPU, memories, etc. may also trigger this message.



Using BIOS

When you start the Setup Utility, the main menu appears. The main menu of the Setup Utility displays a list of the options that are available. A highlight indicates which option is currently selected. Use the cursor arrow keys to move the highlight to other options. When an option is highlighted, execute the option by pressing <Enter>.

Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute that option. Other options lead to dialog boxes that prompt you for information.

Some options (marked with a triangle ▶) lead to submenus that enable you to change the values for the option. Use the cursor arrow keys to scroll through the items in the submenu.

In this manual, default values are enclosed in parenthesis. Submenu items are denoted by a triangle ▶.



The default BIOS setting for this motherboard applies for most conditions with optimum performance. It is not suggested to change the default values in the BIOS setup and the manufacture takes no responsibility to any damage caused by changing the BIOS settings.

BIOS Navigation Keys

The BIOS navigation keys are listed below:

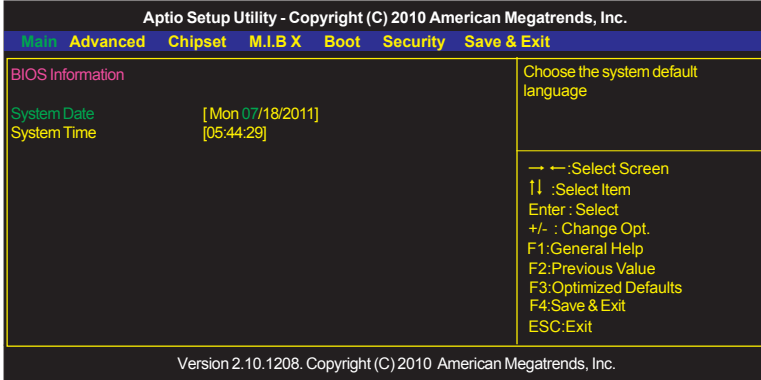
KEY	FUNCTION
ESC	Exits the current menu
↑↓	Select Screen
→ ←	Select Item
+/-	Change opt.
Enter	Select
F1	General Help
F2	Previous Value
F3	Optimized Defaults
F4	Save & Exit



For the purpose of better product maintenance, the manufacture reserves the right to change the BIOS items presented in this manual. The BIOS setup screens shown in this chapter are for reference only and may differ from the actual BIOS. Please visit the manufacture's website for updated manual.

Main Menu

When you enter the BIOS Setup program, the main menu appears, giving you an overview of the basic system information. Select an item and press <Enter> to display the submenu.

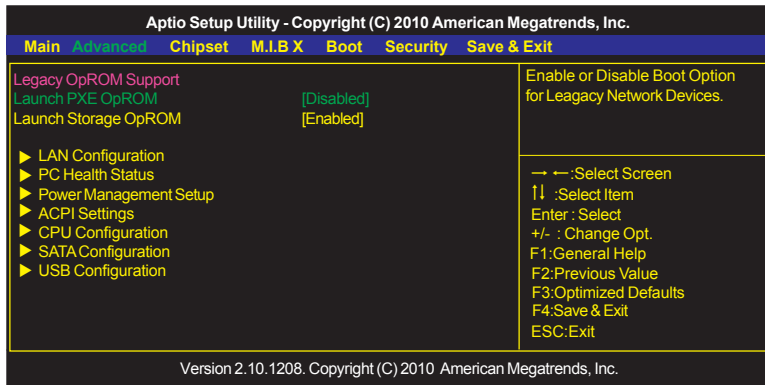


Date & Time

The Date and Time items show the current date and time on the computer. If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Date and Time Properties utility.

Advanced Menu

The Advanced menu items allow you to change the settings for the CPU and other system.



Launch PXE OpROM (Disabled)

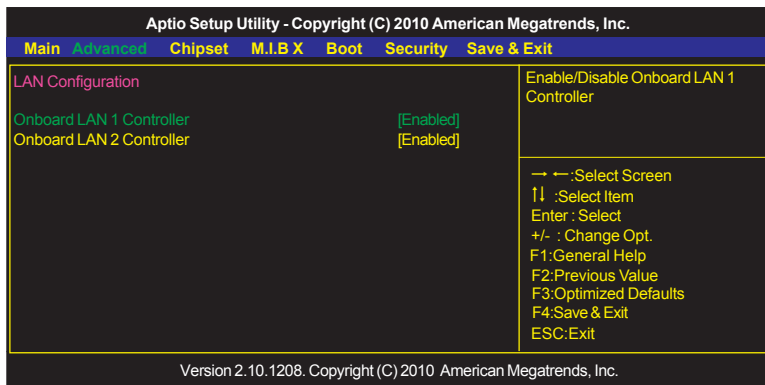
Use this item to enable or disable the PXE OpROM.

Launch Storage OpROM (Enabled)

Use this item to enable or disable the Storage OpROM.

▶ LAN Configuration

The item in the menu shows the LAN-related information that the BIOS automatically detects.



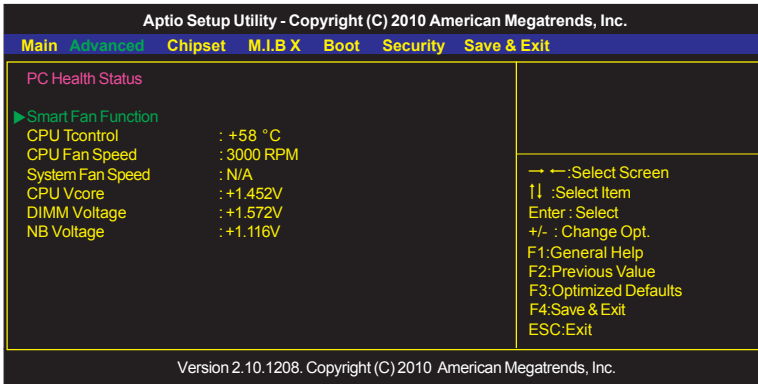
Onboard LAN1/2 Controller (Enabled)

Use this item to enable or disable the Onboard LAN.

Press <Esc> to return to the Advanced Menu page.

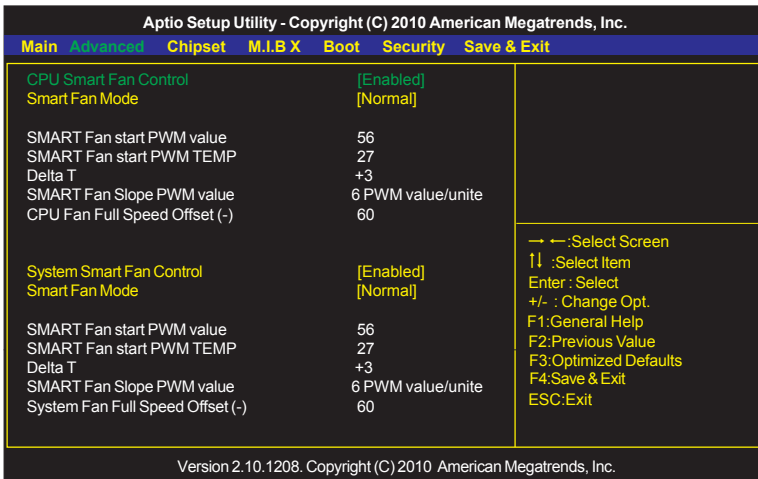
► PC Health Status

On motherboards support hardware monitoring, this item lets you monitor the parameters for critical voltages, temperatures and fan speeds.



► Smart Fan Function

Scroll to this item and press <Enter> to view the following screen:



CPU/System Smart FAN Control (Enabled)

This item allows you to enable/disable the control of the CPU/system fan speed by changing the fan voltage.

Smart Fan Mode (Normal)

This item allows you to select the fan mode (Normal, Quiet, Silent, or Manual) for a better operation environment. If you choose Normal mode, the fan speed will be auto adjusted depending on the CPU temperature. If you choose Quiet mode, the fan speed will be auto minimized for quiet environment. If you choose Silent mode, the fan speed will be auto restricted to make system more quietly. If you choose Manual mode, the fan speed will be adjust depending on users' parameters.

SMART Fan start PWM value (56)

This item is used to set the start PWM value of the smart fan.

SMART Fan start TEMP (27)

This item is used to set the start temperature of the smart fan.

DeltaT (+3)

This item specifies the range that controls CPU temperature and keeps it from going so high or so low when smart fan works.

SMART Fan Slope PWM value (6 PWM value/unite)

This item is used to set the Slope Select PWM of the smart fan.

CPU/System Fan Full Speed Offset(-) (60)

This item is used to set the CPU/system fan full speed offset value.

Press <Esc> to return to the PC Health Status page.

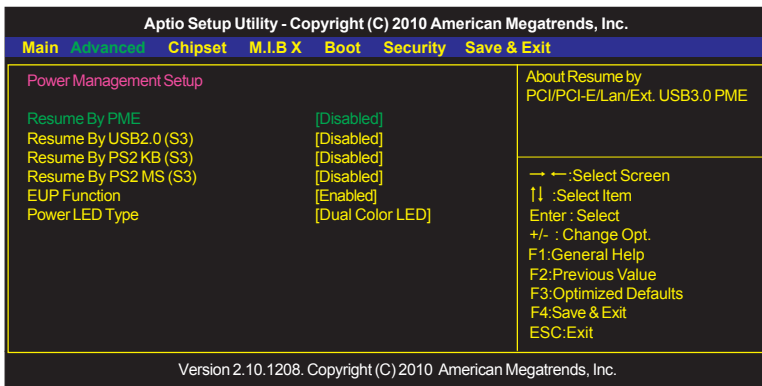
System Component Characteristics

These items display the monitoring of the overall inboard hardware health events, such as System & CPU temperature, CPU & DIMM voltage, CPU & system fan speed,... etc.

- CPU Tcontrol
- CPU FAN Speed
- System FAN Speed
- CPU Vcore
- DIMM Voltage
- NB Voltage

► Power Management Setup

This page sets up some parameters for system power management operation.



Resume By PME (Disabled)

These items specify whether the system will be awakened from power saving modes when activity or input signal of the specified hardware peripheral or component is detected.

Resume By USB2.0 (S3) (Disabled)

This item allows you to enable/disable the USB2.0 device wakeup function from S3 mode.

Resume By PS2 KB (S3) (Disabled)

This item enables or disables you to allow PS2 keyboard activity to awaken the system from power saving mode.

Resume By PS2 MS (S3) (Disabled)

This item enables or disables you to allow PS2 mouse activity to awaken the system from power saving mode.

EUP Support (Enabled)

This item allows user to enable or disable EUP support.

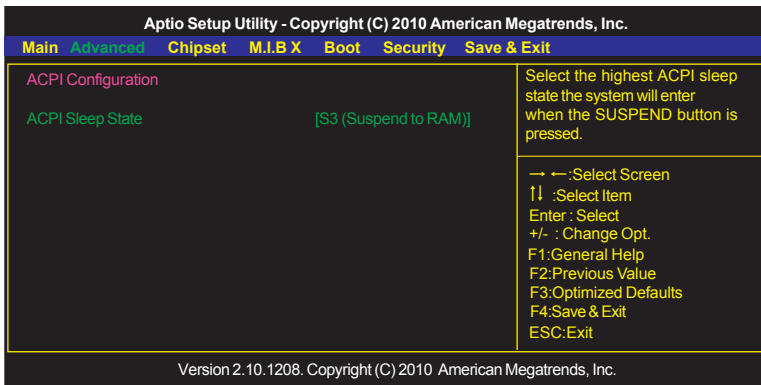
Power LED Type (Dual Color LED)

This item enables you to set Power LED type.

Press <Esc> to return to the Advanced Menu page.

► ACPI Configuration

The item in the menu shows the highest ACPI sleep state when the system enters suspend.



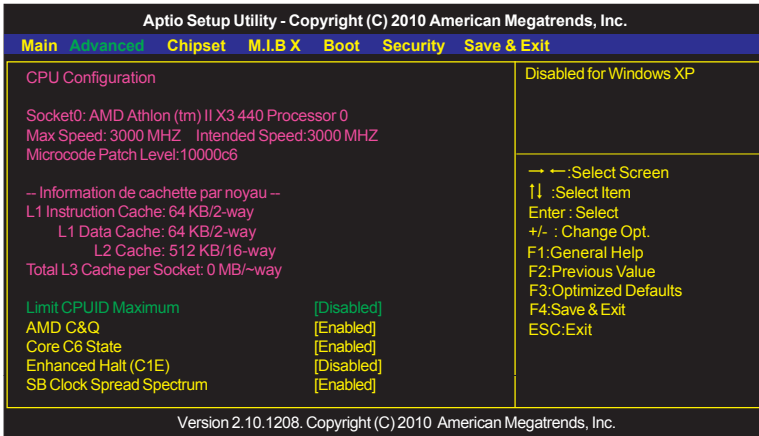
ACPI Sleep State (S3(Suspend to RAM))

This item allows user to enter the ACPI S3 (Suspend to RAM) Sleep State(default).

Press <Esc> to return to the Advanced Menu page.

► CPU Configuration

Scroll to this item and press <Enter> to view the following screen:



Limit CPUID Maximum (Disabled)

Use this item to enable or disable the maximum CPUID value limit. Set this item to Disabled for Windows XP operation system; set this to Enabled for legacy operating system such as Windows N4.0.

AMD C&Q (Enabled)

This item helps the system to lower the frequency when CPU idles. When the frequency decreases, the temperature will drop automatically as well.

Enhanced Halt (C1E) (Disabled)

This item enables or disables enhanced halt.

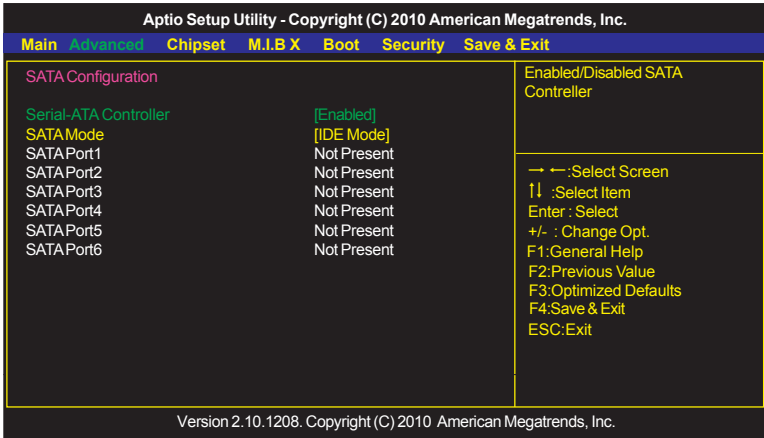
SB Clock Spread Spectrum (Enabled)

This item is used to enable or disable the Southbridge clock spread spectrum.

Press <Esc> to return to the Advanced Menu page.

► SATA Configuration

Use this item to show the mode of serial-ATA configuration options.



Serial-ATA Controller (Enabled)

This item allows you to enable or disable the onboard SATA controller.

SATA Mode (IDE Mode)

Use this item to select SATA mode.

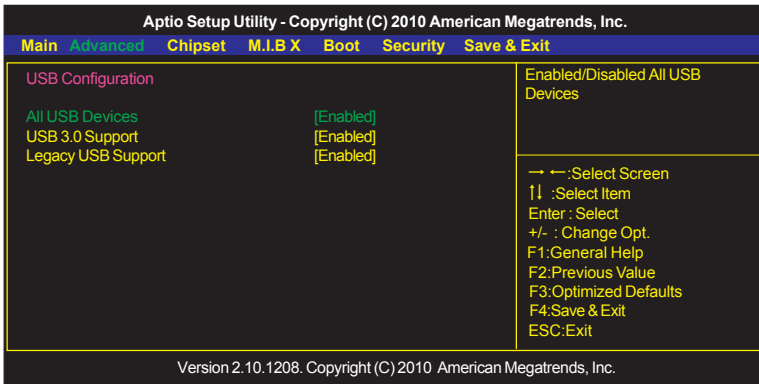
SATA Port 1~6 (Not Present)

This motherboard supports six SATA channel and each channel allows one SATA device to be installed. Use these items to configure each device on the SATA channel.

Press <Esc> to return to the Advanced Menu page.

► USB Configuration

Scroll to this item and press <Enter> to view the following screen:



All USB Devices (Enabled)

Use this item to enable or disable all USB devices.

USB 3.0 Support (Enabled)

Use this item to enable or disable USB 3.0 controller. We recommend users keep the default value. Disabling it might cause the USB devices not to work properly.

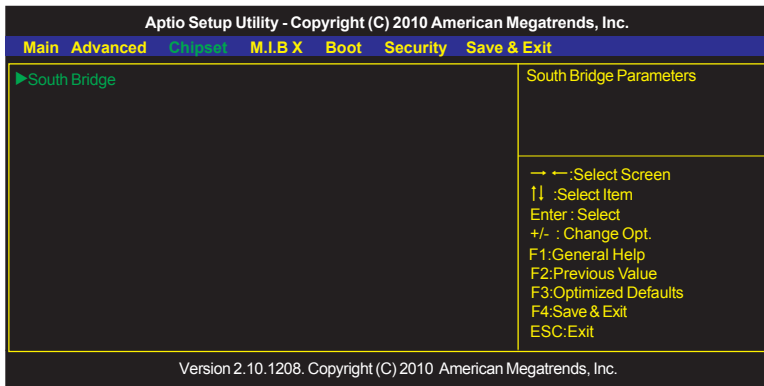
Legacy USB Support (Enabled)

Use this item to enable or disable support for legacy USB devices. Setting to Audio allows the system to detect the presence of the USB device at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.

Press <Esc> to return to the Advanced Menu page.

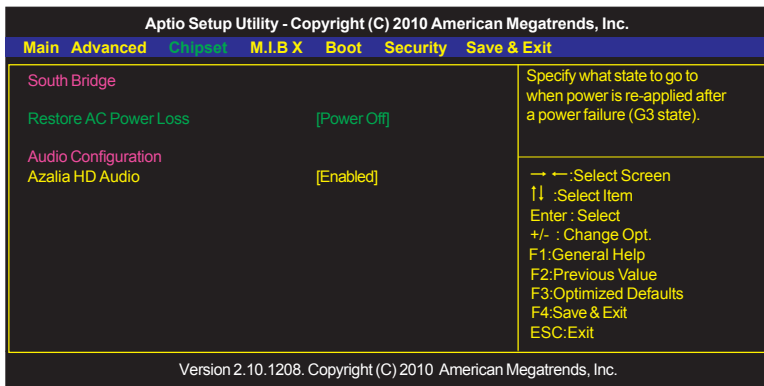
Chipset Menu

The chipset menu items allow you to change the settings for the South Bridge chipset and other system.



► South Bridge

Scroll to this item and press <Enter> and view the following screen:



Restore AC Power Loss (Power Off)

This item enables your computer to automatically restart or return to its operating status.

Audio Configuration

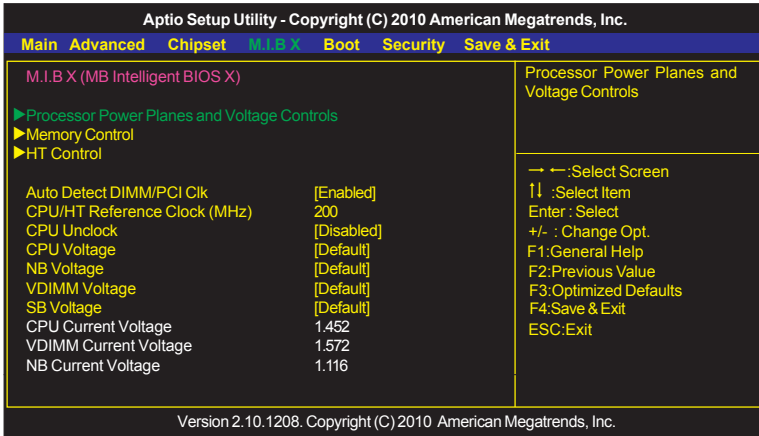
This item shows the information of the audio configuration.

Azalia HD Audio (Enabled)

This item enables or disables Azalia HD audio.

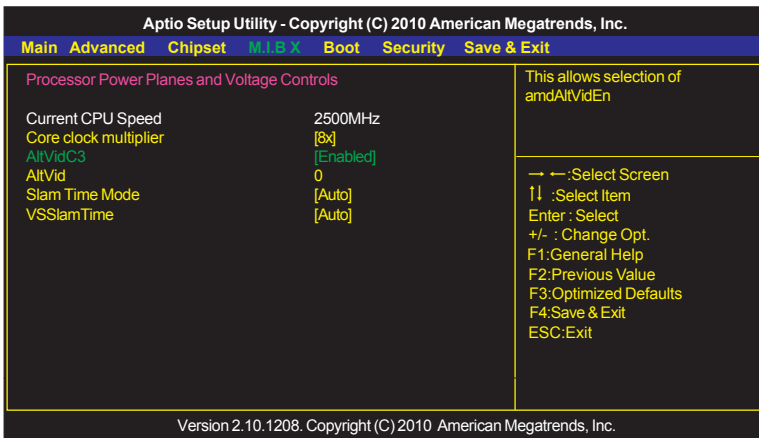
M.I.B.X (MB Intelligent BIOS X)

This page enables you to set the clock speed and system bus for your system. The clock speed and system bus are determined by the kind of processor you have installed in your system.



▶ Processor Power Planes and Voltage Controls

Scroll to this item and press <Enter> to view the following screen:



Current CPU Speed (2500 MHz)

This item shows current CPU speed.

Core clock multiplier (8x)

Use this item to set the core clock multiplier.

AltVidC3 (Enabled)

This item allows users to select amdAltVidEn 0:24N:3x80[12].

AltVid (0)

This item specifies the VID driven to the VDD power plane(s) while in the low power state 0:24N:3xDC[6:0].

Slam Time Mode (Auto)

This item enables you to set slam time mode, this option is only for RB-C3, BL-C3, DA-C3.

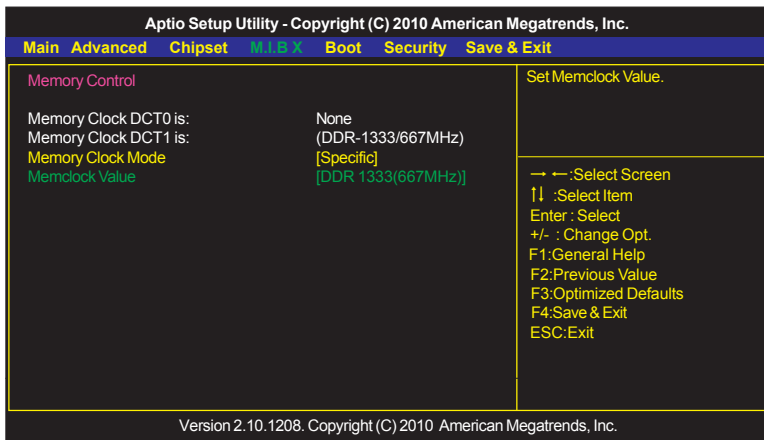
VSSlamTime (Auto)

This item specifies the time to wait for voltage stabilization during altvid transitions if a new VID is provided to the voltage regulator without ramping. 0:24N:3xDC [31:29]

Press <Esc> to return to the M.I.B X Menu page.

► Memory Control

Scroll to this item and press <Enter> to view the following screen:

**Memory Clock DCT0 is (None)**

This item shows current memory clock of DCT0.

Memory Clock DCT1 is (DDR-1333/667MHz)

This item shows current memory clock of DCT1.

Memory Clock Mode (Specific)

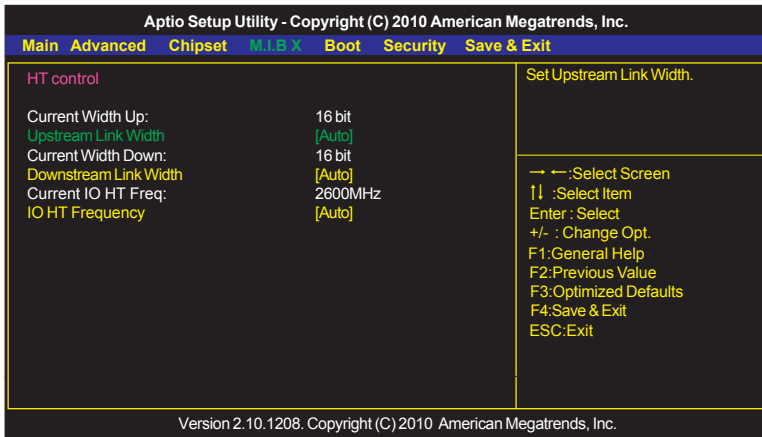
This item allows user to set the memory clock mode.

Memclock Value (DDR 1333(667MHz))

This item allows user to set the memclock value.

► HT Control

Scroll to this item and press <Enter> to view the following screen:



Current Width Up (16 bit)

This item shows the current Upstream Link Width.

Upstream Link Width (Auto)

This item allows you to set Upstream Link Width.

Current Width Down (16 bit)

This item shows the current Downstream Link Width.

Downstream Link Width (Auto)

This item allows you to set Downstream Link Width.

Current IO HT Freq (2600MHz)

This item shows the current IO HT Frequency.

IO HT Frequency (Auto)

This item allows you to set IO HT Frequency.

Press <Esc> to return to the M.I.B X Menu page.

Auto Detect DIMM/PCI Clk (Enabled)

When this item is enabled, BIOS will disable the clock signal of free DIMM/PCI slots.

CPU/HT Reference Clock (MHz) (200)

Use this item to set the CPU/HT Reference Clock through clock gen.

CPU Unlock (Disabled)

This item allows you to enable or disable CPU unlock function. It works depends on your CPU.

CPU Voltage (Default)

This item allows user to adjust CPU voltage when enabled.

NB Voltage (Default)

This item allows user to adjust NB voltage when enabled.

VDIMM Voltage (Default)

This item allows user to adjust DIMM voltage when enabled.

SB Voltage (Default)

This item allows user to adjust SB voltage when enabled.

CPU Current Voltage (1.452V)

This item shows the current CPU voltage.

VDIMM Current Voltage (1.572V)

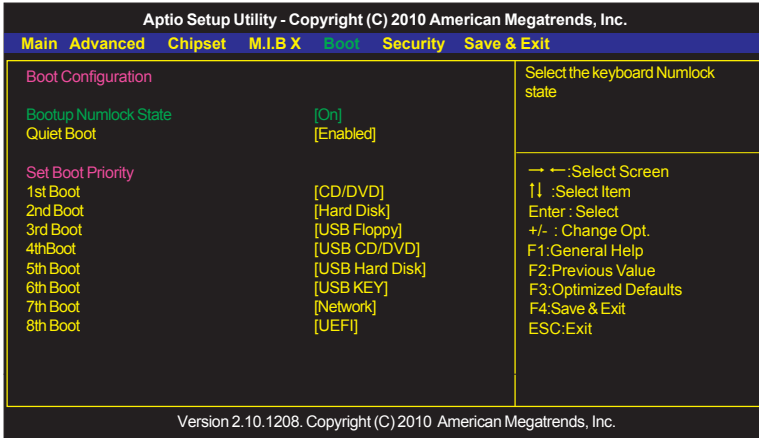
This item displays the current DIMM voltage.

NB Current Voltage (N/A)

This item shows the current NB voltage.

Boot Menu

This page enables you to set the keyboard NumLock state and Boot device priority.



Bootup NumLock State (On)

This item determines if the NumLock key is active or inactive at system start-up time.

Quiet Boot (Enabled)

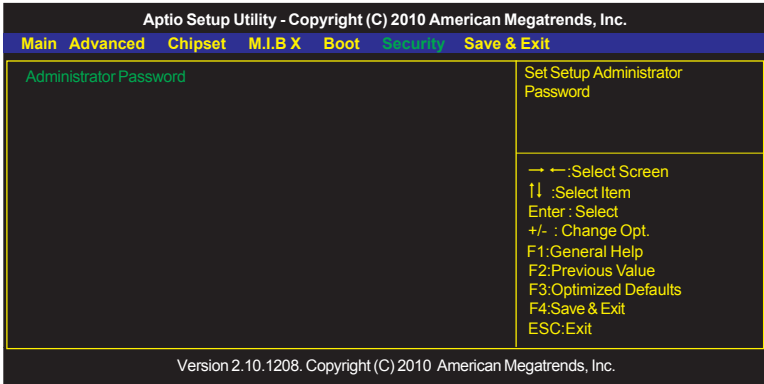
If enabled, BIOS will show a full screen logo at boot, if disabled, BIOS will set the initial display mode to BIOS and show the diagnostic POST screen at boot.

1st/2nd/3rd/4th/5th/6th/7th/8th Boot (CD/DVD /Hard Disk /USB Floppy /USB CD/ DVD /USB Hard Disk /USB KEY /Network /UEFI)

Use these items to determine the device order the computer used to look for an operating system to load at start-up time. The devices showed here will be different depending on the exact devices installed on your motherboard.

Security Menu

This page enables you to set setup administrator and password.

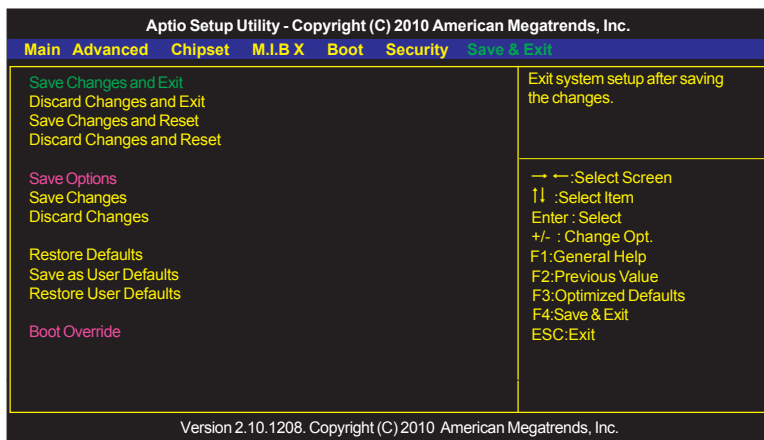


Administrator Password

This item allows you to set or change administrator password.

Save & Exit Menu

This page enables you to exit system setup after saving or without saving the changes.



Save Changes and Exit

This item enables you to save the changes that you have made and exit.

Discard Changes and Exit

This item enables you to discard any changes that you have made and exit.

Save Changes and Reset

This item enables you to save the changes that you have made and reset.

Discard Changes and Reset

This item enables you to discard any changes that you have made and reset.

Save Options

This item enables you to save the options that you have made.

Save Changes

This item enables you to save the changes that you have made.

Discard Changes

This item enables you to discard any changes that you have made.

Restore Defaults

This item enables you to restore the system defaults.

Save as User Defaults

This item enables you to save the changes that you have made as user defaults.

Restore User Defaults

This item enables you to restore user defaults.

Updating the BIOS

You can download and install updated BIOS for this motherboard from the manufacturer's Web site. New BIOS provides support for new peripherals, improvements in performance, or fixes for known bugs. Install new BIOS as follows:

- 1 If your motherboard has a BIOS protection jumper, change the setting to allow BIOS flashing.
- 2 If your motherboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten.)
- 3 Prepare a bootable device or create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)
- 4 Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the bootable device.
- 5 Turn off your computer and insert the bootable device in your computer. (You might need to run the Setup Utility and change the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the bootable device first.)
- 6 At the C:\ or A:\ prompt, type the Flash Utility program name and the file name of the new BIOS and then press <Enter>. Example: AMINF340.EXE040706.ROM
- 7 When the installation is complete, remove the bootable device from the computer and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten. The computer will restart automatically.

Memo

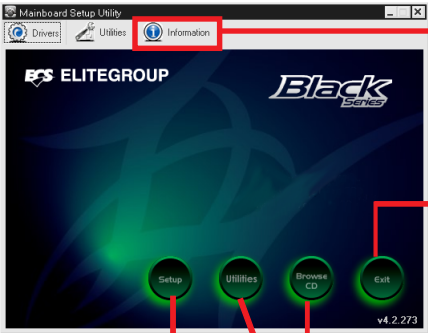
Chapter 3

Chapter 4

Using the Motherboard Software

Auto-installing under Windows XP/Vista/7

The auto-install DVD-ROM makes it easy for you to install the drivers and software. The support software DVD-ROM disc loads automatically under Windows XP/Vista/7. When you insert the DVD-ROM disc in the DVD-ROM drive, the auto-run feature will automatically bring up the installation screen. The screen has four buttons on it: **Setup**, **Utilities**, **Browse CD** and **Exit**.



Information:
Displays the path for all software and drivers available on the disk.

Click the **“Exit”** button to close the Auto-Setup window.

Browse CD:
Open Windows Explorer and show the contents of the support disk.

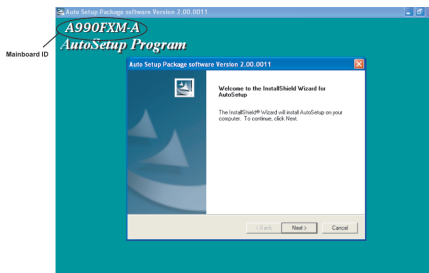
Click the **“Setup”** button to select and run the software installation program.

Click the **“Utilities”** button to select and install ECS Intelligent Utility.

Running Setup

Follow these instructions to install device drivers and software for the motherboard:

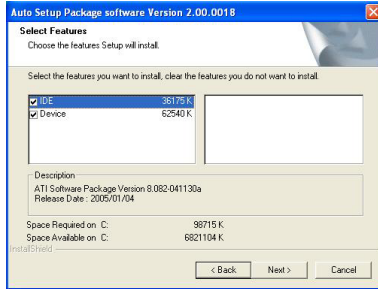
1. Click **Setup**. The installation program begins:



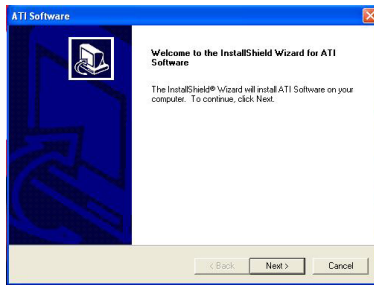
The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.

The motherboard identification is located in the upper left-hand corner.

2. Click **Next**. The following screen appears:



3. Check the box next to the items you want to install. The default options are recommended.
4. Click **Next** to run the Installation Wizard. An item installation screen appears:

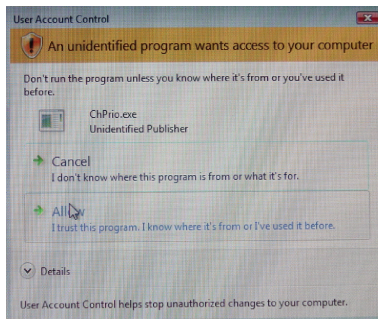


5. Follow the instructions on the screen to install the items.



Drivers and software are automatically installed in sequence. Follow the onscreen instructions, confirm commands and allow the computer to restart a few times to complete the installation.

Windows Vista/7 will appear below UAC (User Account Control) message after the system restart. You must select "Allow" to install the next driver. Continue this process to complete the drivers installation.



Manual Installation

If the auto-install DVD-ROM does not work on your system, you can still install drivers through the file manager for your OS (for example, Windows Explorer). Look for the chipset and motherboard model, and then browse to the directory and path to begin installing the drivers. Most drivers have a setup program (SETUP.EXE) that automatically detects your operating system before installation. Other drivers have the setup program located in the operating system subfolder.

If the driver you want to install does not have a setup program, browse to the operating system subfolder and locate the readme text file (README.TXT or README.DOC) for information on installing the driver or software for your operating system.

ECS Utility Software (Intelligent EZ Utility)

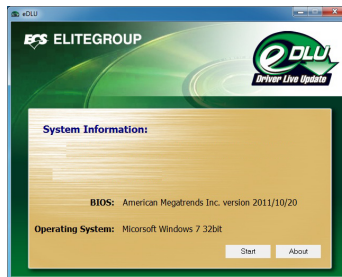
ECS Intelligent EZ Utility provides friendly interfaces under Windows O.S, which makes your computing more easily and conveniently.



These software(s) are subject to change at anytime without prior notice. Please refer to the support disk for available software.

eDLU

ECS eDLU utility makes updating drivers fast and easy. eDLU saves time and hassle by listing all the latest drivers online. Just select the one you prefer and start to download and install the drivers.



eBLU

ECS eBLU utility makes BIOS update faster and easier. eBLU will list the latest BIOS with a default check-mark. Click "install" button to install.



Memo

Chapter 5

Setting Up AMD SB950 RAID Configuration

Setting Up a bootable RAID Array

This section explains how to configure a bootable AMD RAID array.

Setting Up the BIOS

- 1 Start your computer, then press Delete to enter the BIOS setup.
The BIOS CMOS Setup Utility screen appears.

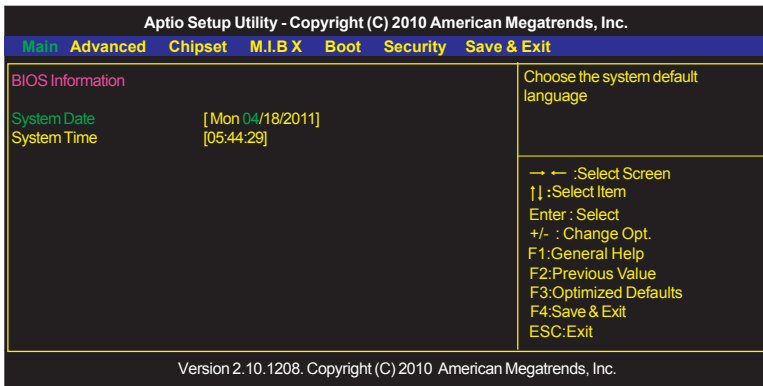


Figure 1.1 BIOS CMOS Setup Utility Main Screen

- 2 Use the arrow keys to select Advanced menu (see Figure 1.1), then select SATA Configuration and press Enter.

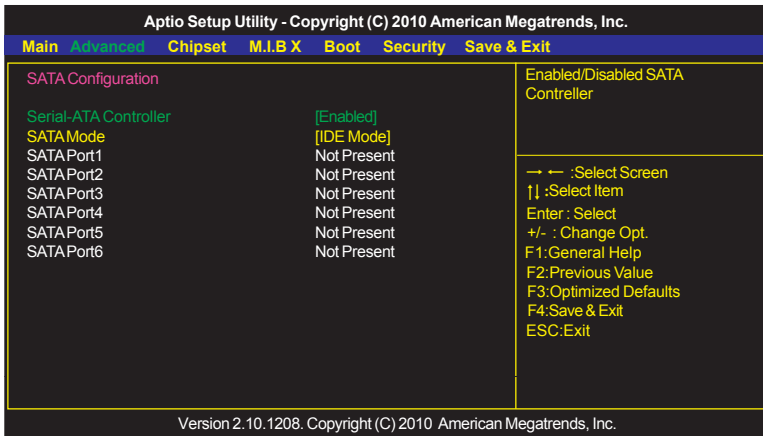


Figure 1.2 SATA Configuration Screen

- 3 Use the arrow keys to select the SATA Configuration (see Figure 1.2) and globally set SATA Configuration to RAID.

- 4 Press F4 to save the configuration and exit.
The PC reboots.
- 5 Enter the RAID BIOS Setup by pressing Ctrl-F when prompted, and proceed to set up the AMD RAID BIOS as described in the next section.

Configuring the AMD RAID BIOS (Windows XP Installation)

The AMD RAID BIOS set up lets you choose the RAID type and which hard drives you want to make part of the array.

Entering the RAID BIOS Setup:

- 1 Wait until you see the RAID software prompting you to press Ctrl-F.

The RAID prompt appears as part of the system POST and boot process prior to loading of the OS. You have a few seconds to press Ctrl-F before the screen disappears.

- 2 Press Ctrl-F.

The Main Menu screen appears (Figure 1.3).

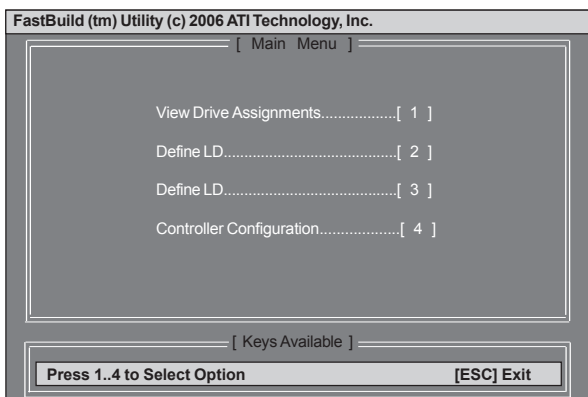


Figure 1.3 Main Menu

- 3 Select [2], then select LD 1 in the following page.

The Define LD Menu screen appears (Figure 1.4).

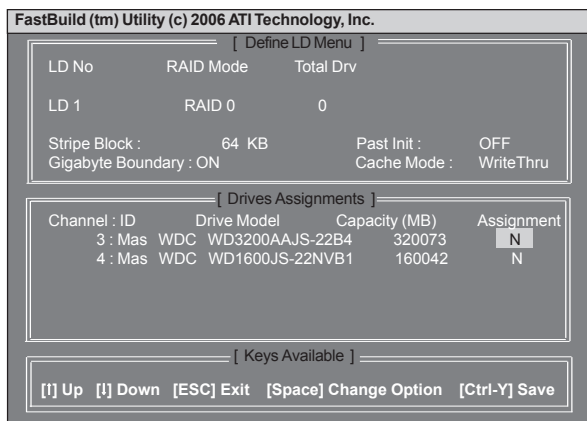


Figure 1.4 Define LD Menu

Using the Define a New Array Screen

If necessary, press the tab key to move from field to field until the appropriate field is highlighted.



Note: If you want to use the function of the following RAID Mode, you have to install enough HDD.

RAID READY (1 piece of HDD); RAID 0,1 ,JBOD (2 or more pieces of HDD); RAID 0+1 (4 pieces of HDD)

- **Selecting the RAID Mode**

By default, this is set to Mirroring. To change to a different RAID mode, press the spacebar until the mode that you want appears in the RAID Mode box—RAID0/1/10/JBOD.

Note: Not all RAID levels are supported on all platforms.

- **Selecting the Stripe Block Size**

Stripe block size is given in kilobytes, and affects how data is arranged on the disk. It is recommended to leave this value at the default Optimal, which is 64KB, but the values can be 64 KB and 128 KB. When choose RAID 1, the Stripe block size is unchangeable.

Assigning the Disks

1. Select the Assignment to Y to designate a free disk to be used as a RAID array disk.

Figure 1.5 illustrates the Define a New Array screen after two disks have been assigned as RAID 0 array disks.

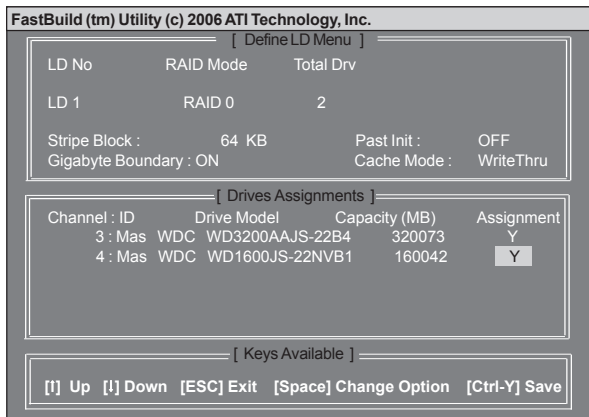


Figure 1.5 FastBuild Utility—Array Disks Assigned

2. Press Ctrl-Y to save the configuration and exit.

The Define LD Menu screen appears (Figure 1.6).

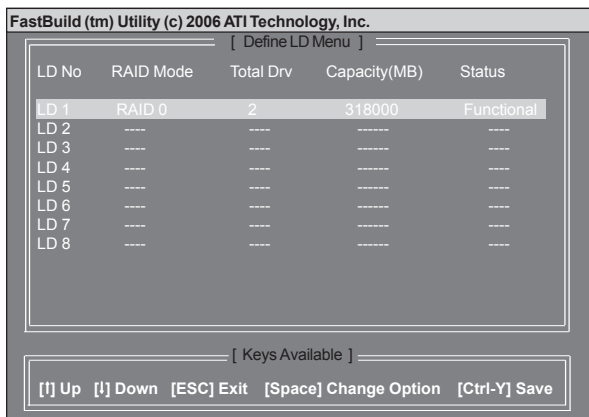


Figure 1.6 Define LD Menu

3. Press ESC to exit.

The Main Menu screen appears (Figure 1.7).

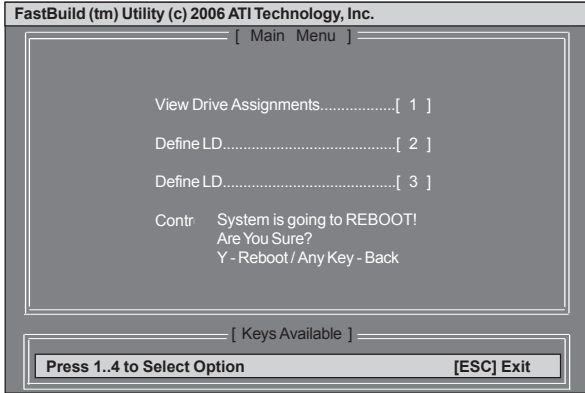


Figure 1.7 Main Menu

4. Press Y to reboot.

The following screen appears (Figure 1.8).

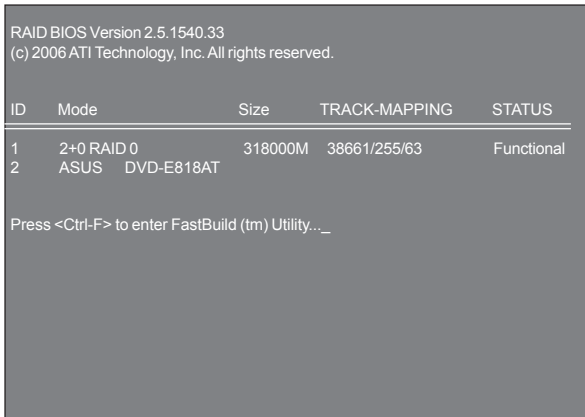


Figure 1.8

Installing the RAID Drivers

Your system may come with a Windows install CD that already includes AMD RAID drivers. If so, then this section is not relevant.

If that is not the case (or you are trying to install a new version of Windows), then you will need an AMD RAID driver F6 install floppy. Check to see if one came with your system. If not, you can create one by downloading the appropriate driver package and following the steps in this section.

- 1 Copy all files in "...\RAID\ATI\SB950\Floppy\Win3264" to a floppy disk.
- 2 After you complete the RAID BIOS setup, boot from the Windows CD. The Windows Setup program starts.



Figure 1.9

- 3 Press F6 and wait a few moments for the Windows Setup screen to appear.

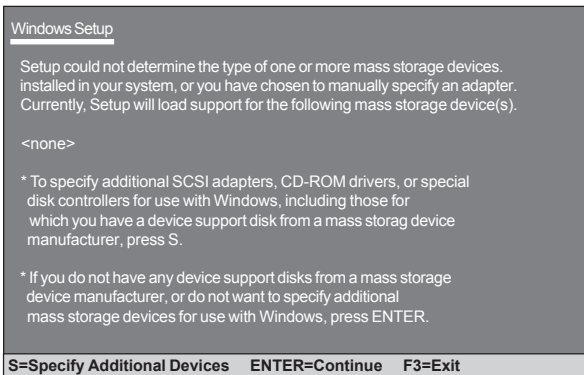


Figure 1.10 Windows Setup—Specify Devices

- 4 Specify the AMD drivers.
 - a Insert the floppy that has the RAID driver, press S, then press Enter.

The following Windows Setup screen appears:

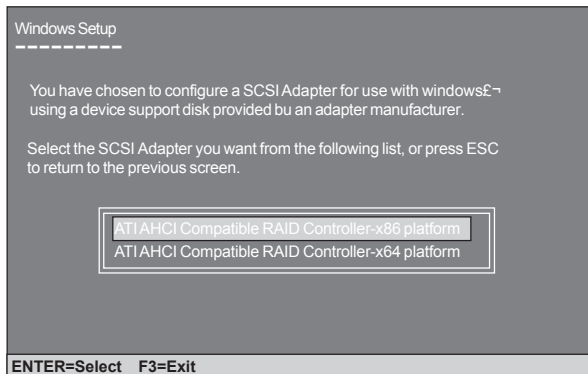


Figure 1.11 Windows Setup—Selected SCSI Adapter

- b Select “ATI AHCI Compatible RAID Controller-x86 platform” and press Enter for 32-bit OS or Select “ATI AHCI Compatible RAID Controller-x64 platform” and press Enter for 64-bit OS.

The following Windows Setup screen appears listing both drivers.:

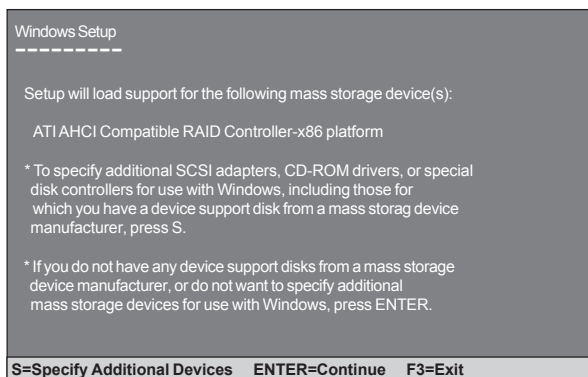


Figure 1.12 Windows Setup—AMD drives listed

- 5 Press Enter to continue with Windows XP Installation.

Be sure to leave the floppy disk inserted in the floppy drive until the blue screen portion of Windows XP installation is completed, then take out the floppy.

- 6 Follow the instructions on how to install Windows XP.

After Windows XP is completely installed, it is recommended that you install the ForceWare software in order to access the FastBuild RAID Management tool.

Note: Each time you add a new hard drive to a RAID array, the RAID driver will have to be installed under Windows once for that hard drive. After that, the driver will not have to be installed.

Memo

Chapter 6

ATI CrossFireX™ Technology Support

This motherboard supports the ATI CrossFireX™ Technology that allows you to install multi-graphics processing units (GPU) graphics cards. Follow the installation procedures in this section.

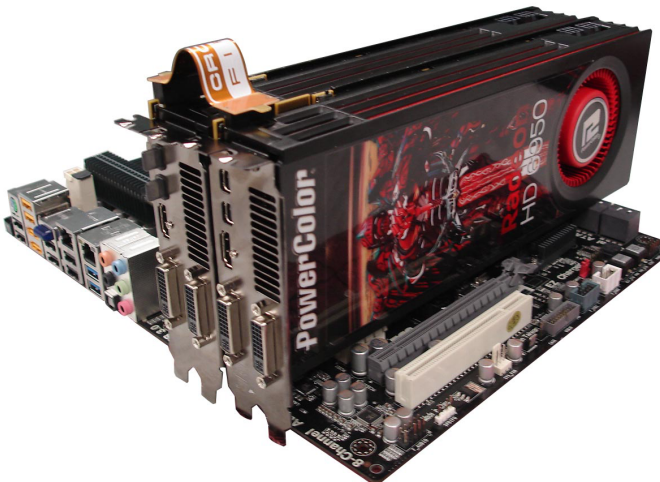
Requirements

- 1 Two or three identical CrossFireX™ ready graphic cards are needed for the setup of 2-way / 3-way CrossFireX™ configuration.
- 2 You would need one or two CrossfireX™ bridge cable.
- 3 Make sure that your graphics card driver supports the ATI CrossFireX™ technology. Download the latest driver from the ATI website (www.ati.com).
- 4 Make sure that your power supply unit (PSU) can provide at least the minimum power required by your system.

Installing CrossFireX™ graphics cards

1. Insert the CrossFireX™ graphics cards into the **PCIEX16** slots. Make sure that the card is properly seated on the slot.

A. For 2-way configuration, install two graphic cards on PCIEX16_1 & PCIEX16_2 and connect them with the CrossFire™ Bridge.

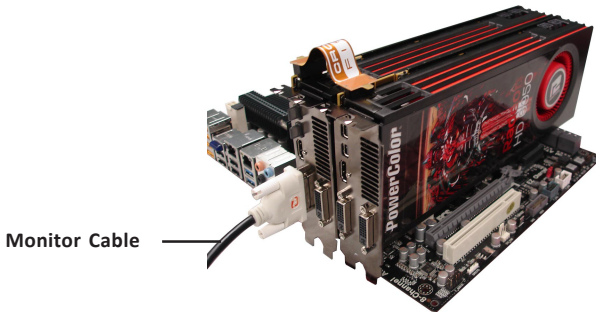


** For reference only*

B. For 3-way configuration, two CrossFire™ Bridges are needed to connect the three graphic cards.

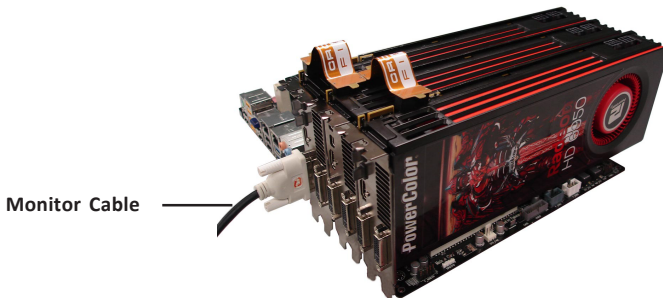


3. Connect the cable from your monitors to the CrossFireX™ ready graphics card installed on the **PCIEX16_1** slot.



Monitor Cable

** For reference only*



Monitor Cable

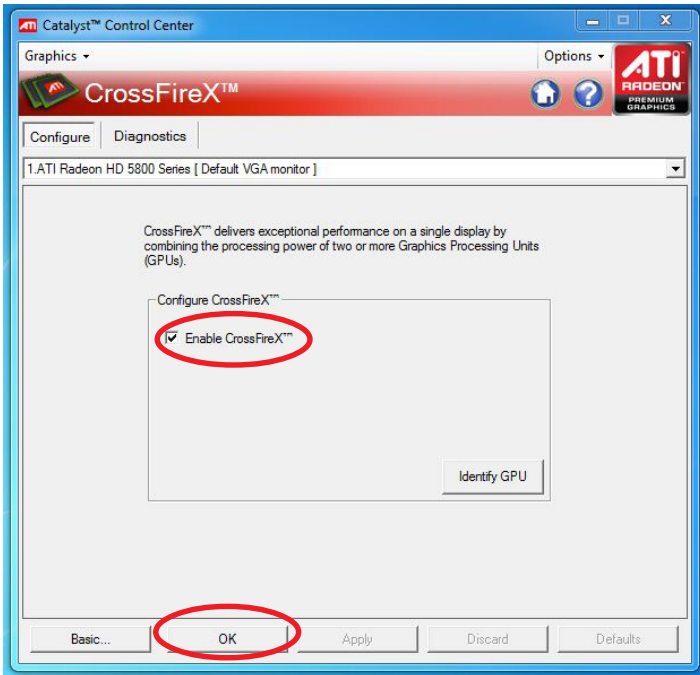
** For reference only*

4. Connect an auxiliary power source from the power supply to the graphics cards.

The Catalyst™ Control Center Dialog Box

To enable CrossFireX™:

- Install ATI graphic card driver.
- Enter the Catalyst™ Control Center Dialog Box.
- check the “Enable CrossFireX™” item.
- Click OK to apply.



Memo

Chapter 7

Trouble Shooting

Start up problems during assembly

After assembling the PC for the first time you may experience some start up problems. Before calling for technical support or returning for warranty, this chapter may help to address some of the common questions using some basic troubleshooting tips. You may also log onto our ECS website for more information: [http:// www.ecs.com.tw/ECSWebSite/Support/Support_FAQ.aspx?MenuID=49&childid=M_49&LanID=0](http://www.ecs.com.tw/ECSWebSite/Support/Support_FAQ.aspx?MenuID=49&childid=M_49&LanID=0)

a) System does not power up and the fans are not running.

1. Disassemble the PC to remove the VGA adaptor card, DDR memory, LAN, USB and other peripherals including keyboard and mouse. Leave only the motherboard, CPU with CPU cooler and power supply connected. Make sure the power cord is plugged into the wall socket & the switch on the Power Supply Unit (PSU) is turned " on " as well. Turn on again to see if the CPU and power supply fans are running.
2. Make sure to remove any unused screws or other metal objects such as screwdrivers from the inside PC case. This is to prevent damage from short circuit.
3. Check the CPU FAN connector is connected to the motherboard.
4. Check the 12V power connector is connected to the motherboard.
5. Check that the 12V power & ATX connectors are fully inserted into the motherboard connectors. Make sure the latches of the cable and connector are locked into place.

b) Power is on, fans are running but there is no display

1. Make sure the monitor is turned on and the monitor cable is properly connected to the PC.
2. Check the VGA adapter card (if applicable) is inserted properly.
3. Listen for beep sounds. If you are using internal PC speaker make sure it is connected.
 - a. continuous 3 short beeps: memory not detected
 - b. 1 long beep and 8 short beeps: VGA not detected

c) The PC suddenly shuts down while booting up.

1. The CPU may experience overheating so it will shutdown to protect itself. Apply the thermal grease onto the CPU heatsink & ensure the CPU fan is well-connected with the CPU heatsink. Check if the CPU fan is working properly while the system is running.

2. From the BIOS setting, try to disable the Smartfan function to let the fan run at default speed. Doing a Load Optimised Default will also disable the Smartfan.

Start up problems after prolong use

After a prolong period of use your PC may experience start up problems again. This may be caused by breakdown of devices connected to the motherboard such as HDD, CPU fan, etc. The following tips may help to revive the PC or identify the cause of failure.

1. Clear the CMOS values using the CLR_CMOS jumper. Refer to CLR_CMOS jumper in Chapter 2 for Checking Jumper Settings in this user manual. When completed, follow up with a Load Optimised Default in the BIOS setup.
2. Check the CPU cooler fan for dust. Long term accumulation of dust will reduce its effectiveness to cool the processor. Clean the cooler or replace a new one if necessary.
3. Check that the 12V power & ATX connectors are fully inserted into the motherboard connectors. Make sure the latches of the cable and connector are locked into place.
4. Remove the hard drive, optical drive or DDR memory to determine which of these components may be at fault.
5. Check whether there is any bulked up electrolytic capacitor or abnormal component.

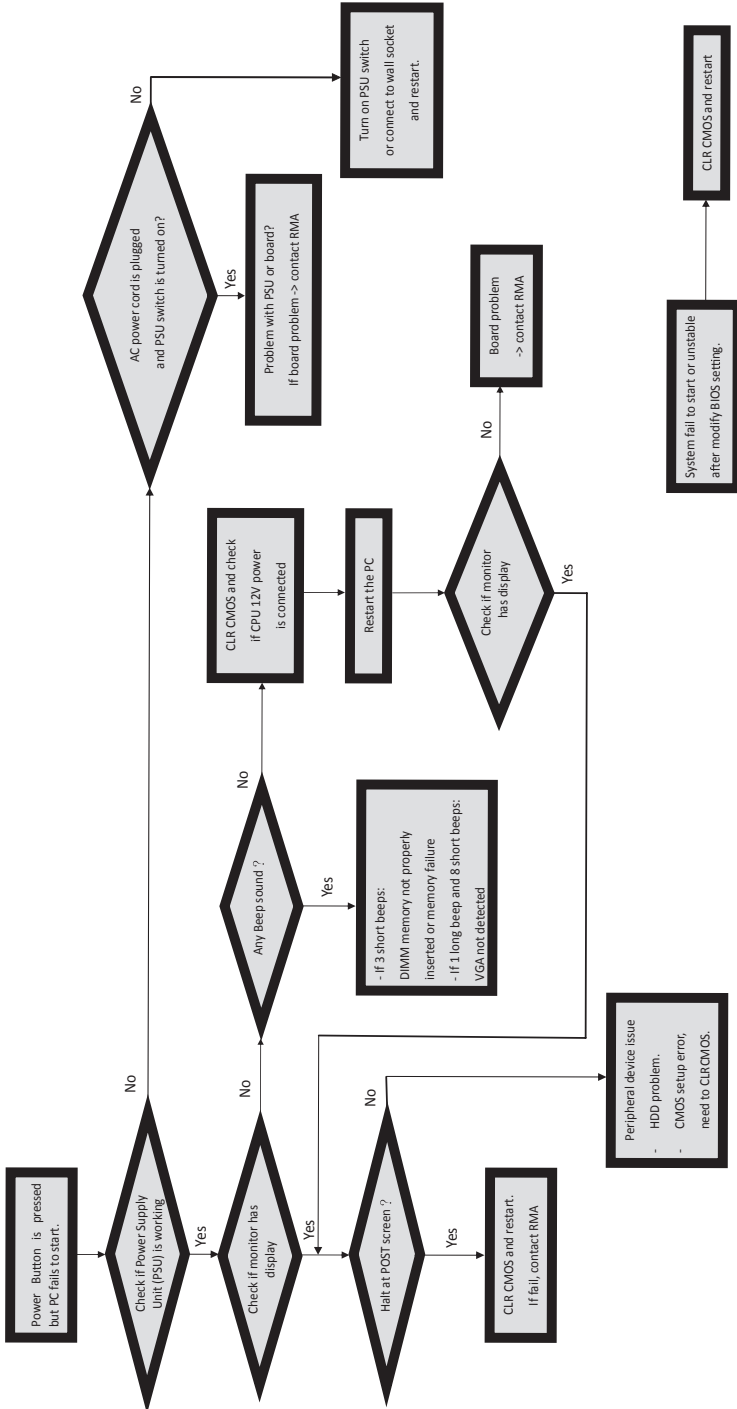
Please logo onto our ECS website: http://www.ecs.com.tw/ECSWebSite/Support/Technical_Support_List.aspx?MenuID=50&LanID=0 for more information.

Maintenance and care tips

Your computer, like any electrical appliance, requires proper care and maintenance. Here are some basic PC care tips to help prolong the life of the motherboard and keep it running as best as it can.

1. Keep your computer in a well ventilated area. Leave some space between the PC and the wall for sufficient airflow.
2. Keep your computer in a cool dry place. Avoid dusty areas, direct sunlight and areas of high moisture content.
3. Routinely clean the CPU cooler fan to remove dust and hair.
4. In places of hot and humid weather you should turn on your computer once every other week to circulate the air and prevent damage from humidity.
5. Add more memory to your computer if possible. This not only speeds up the system but also reduces the loading of your hard drive to prolong its life span.
6. If possible, ensure the power cord has an earth ground pin directly from the wall outlet. This will reduce voltage fluctuation that may damage sensitive devices.

Basic Troubleshooting Flowchart



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