

Preface

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Version 1.0

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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.

Preface

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, and
- This device must accept any interference received, including interference that may cause undesired operation.

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:







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Chapter 1

Introducing the Motherboard

Introduction

Thank you for choosing the A960M-M2 motherboard. This motherboard is a high performance, enhanced function motherboard that supports socket AM3+ for AMD AM3+ FX™ / Phenom™ II / Athlon™ II / Sempron™ 100 Series processors for high-end business or personal desktop markets.

The motherboard incorporates the AMD 760G Northbridge (NB) and SB710 Southbridge (SB) chipsets. The Northbridge supports the HyperTransport™ 3.0 interface. It supports two DDR3 slots with maximum memory size of 16 GB. One PCI Express x16 slot, intended for Graphics Interface, is fully compliant to the PCI Express Base Specification Revision 2.0.

The SB710 Southbridge supports two PCI slots which are PCI 2.3 compliant. In addition, one PCI Express x1 slot is supported, fully compliant to the PCI Express Base Specification, Revision 1.1. It integrates USB 2.0 interface, supporting up to eight functional ports (four USB ports and two USB 2.0 headers support additional four USB ports). One onboard IDE connector supports two IDE devices in Ultra ATA 133/100/66/33 modes. The Southbridge integrates a Serial ATA host controller, supporting six SATA ports with maximum transfer rate up to 3.0 Gb/s each. It provides AMD SATA RAID configuration with RAID 0, 1 and 10 modes supported.

There is an advanced full set of I/O ports in the rear panel, including PS/2 mouse and keyboard connector, one COM port, one D-SUB (VGA) port, one HDMI port (or DVI port), four USB ports, one LAN port and audio jacks for microphone, line-in and line-out.

Feature

Processor

This motherboard uses a Socket AM3+ that carries the following features:

- Accommodates socket AM3+ for AMD AM3+ FX™/Phenom™II/Athlon™II/Sempron™ 100 Series processors
- Supports 125W Phenom™II X6 processors
- Supports HyperTransport™ (HT) 3.0 interface speeds

HyperTransport™ Technology is a point-to-point link between two devices, it enables integrated circuits to exchange information at much higher speeds than currently available interconnect technologies.

Chipset

The AMD 760G (RS780L) Northbridge (NB) and SB710 Southbridge (SB) chipsets are based on an innovative and scalable architecture with proven reliability and performance.

- AMD 760G (RS780L)(NB)**
- One x4 A-Link Express II interface (PCI Express 2.0 compliant) for connection to an AMD Southbridge
 - Supports one PCI Express x16 for Graphics Interface, fully compliant to the PCI Express Base Specification revision 2.0
 - Proven Radeon™ graphics powering DirectX®10
 - Enhanced Digital Display integration
 - Fully ACPI 2.0, OnNow, and IAPC (Instantly Available PC) power management
 - Single chip solution in 55nm, 1.1 V CMOS technology
- SB710 (SB)**
- Compliant with PCI 2.3 specification at 33 MHz
 - Supports six Serial ATA devices which speeds up to 3.0 Gb/s
 - Integrated USB 2.0 Host Controller supporting up to eight USB 2.0 ports
 - Integrated IDE controller supports Ultra ATA 133/100/66/33 modes
 - Supports integrated RAID0, RAID1, and RAID10 (requires use of 4 or more SATA ports) functionalities across all 4 ports

Memory

- Supports Dual-Channel DDR3 up to 1866 with AM3+ CPU
- Supports Dual-Channel DDR3 1333 / 1066 with AM3 CPU
- Accommodates two unbuffered DIMMs
- Up to 8 GB per DIMM with maximum memory size up to 16 GB

Audio

The onboard Audio provides the following features:

- 5.1 Channel High Definition Audio Codec
- Exceeds Microsoft Windows Logo Program (WLP) Requirements
- ADCs support 44.1K/48K/88.2K/96K/192KHz sample rate
- Power Support: Digital: 3.3V; Analog: 5.0V

Introducing the Motherboard

Onboard LAN

The onboard LAN provides the following features:

- Supports PCI Express™ 1.1
- Integrated 10/100/1000 transceiver
- Wake-on-LAN and remote wake-up support

Expansion Options

The motherboard comes with the following expansion options:

- One PCI Express x16 for Graphics Interface
- One PCI Express x1 slot
- Two 32-bit PCI v2.3 compliant slots
- One IDE connector supporting up to two IDE devices
- Six 7-pin SATA connectors

This motherboard supports Ultra DMA bus mastering with transfer rates of 133/100/66/33 MB/s.

Integrated I/O

The motherboard has a full set of I/O ports and connectors:

- Two PS/2 ports for mouse and keyboard
- One serial port (COM)
- One D-SUB (VGA) port
- One HDMI port (or DVI port)
- Four USB ports
- One LAN port
- 6 channel audio jacks for microphone, line-in and line-out

BIOS Firmware

The motherboard uses AMI BIOS that enables users to configure many system features including the following:

- Power management
- Wake-up alarms
- CPU parameters
- CPU and memory timing
- ECS M.I.B III Support

The firmware can also be used to set parameters for different processor clock speeds.




1. Some hardware specifications and software items are subject to change without prior notice.

2. Due to chipset limitation, we recommend that motherboard be operated in the ambience between 0 and 50°C.

3. Because AMD AM3+ FX™ 8-Core CPU may cause harsh thermal condition to the system, it is recommended to use AMD CPU Cooler to maintain the optimum system temperature. ECS does not warrant the damage of the system caused by any improper use or configuration not recommended by the component vendors. Please visit AMD CPU website for detailed information:

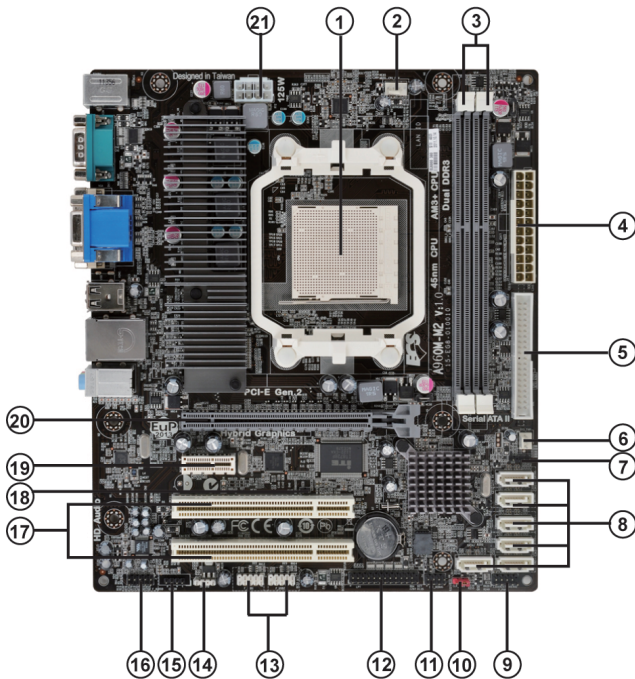
<http://www.amd.com/us/products/desktop/processors/amd/fx/Pages/amd/fx-pib.aspx>

Specifications

CPU	<ul style="list-style-type: none"> • Socket AM3+ for AMD AM3+ FX™ / Phenom™ II / Athlon™ II / Sempron™ 100 Series processors • Supports 125W Phenom™ II X6 processors • Supports “Hyper-Threading” technology CPU
Chipset	<ul style="list-style-type: none"> • AMD 760G (RS780L) & AMD SB710
Graphics	<ul style="list-style-type: none"> • On Chip (AMD 760G-based with AT1™ Radean HD3000 graphics) • Integrated DirectX 10 graphics processor • Share memory maximum update to 512MB
Memory	<ul style="list-style-type: none"> • 2 x 240-pin DDR3 DIMM sockets support up to 16 GB • Supports Dual-Channel DDR3 up to 1866 with AM3+ CPU • Supports Dual-Channel DDR3 1333 / 1066 with AM3 CPU <p> <i>Due to AMD CPU spec limitation, please refer to Memory QVL on ECS website for more information.</i></p>
Expansion Slots	<ul style="list-style-type: none"> • 1 x PCI Express x16 slot • 1 x PCI Express x1 slot • 2 x PCI slots
Storage	<ul style="list-style-type: none"> • Supported by AMD SB710 Express Chipset • 6 x Serial ATA 3.0 Gb/s Host Controllers • RAID 0, RAID 1, RAID 10 Configuration
Audio	<ul style="list-style-type: none"> • VIA VT1705 6-ch High Definition audio CODEC • Compliant with HD audio specification
LAN	<ul style="list-style-type: none"> • Realtek RTL8111E Gigabit LAN
Rear Panel I/O	<ul style="list-style-type: none"> • 1 x PS/2 keyboard & PS/2 mouse connector • 4 x USB 2.0 ports • 1 x Serial port (COM) • 1 x HDMI port (or DVI port) • 1 x VGA port • 1 x RJ45 LAN connector • 1 x Audio port (Line in, microphone in and line out)
Internal I/O Connectors & Headers	<ul style="list-style-type: none"> • 1 x 24-pin ATX Power Supply connector • 1 x 8-pin 12V connector • 1 x 4-pin CPU_FAN connector • 1 x 3-pin SYS_FAN connector • 6 x SATA 3Gb/s connectors • 2 x USB 2.0 headers support additional 4 USB 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 Speaker header • 1 x parallel port header (LPT) • 1 x CD IN header • 1 x CLR_CMOS header • 1 x IDE connector

- System BIOS
- AMI BIOS with 16Mb SPI Flash ROM
 - Supports Plug and Play, STR(S3) / STD (S4), Hardware monitor, Multi Boot
 - Audio, LAN, can be disabled in BIOS
 - F7 hot key for boot up devices option
 - Support Over-Clocking
 - Support eBLU / Support eDLU / Support eOC
 - Support ECS M.I.B III Utility
 - CPU Voltage Adjustable
 - Memory Voltage Adjustable
 - Chipset Voltage Adjustable
 - HT Voltage Adjustable
 - External Clock Adjustable
 - Multiple Frequency Adjustable
-
- Form Factor
- Micro ATX Size, 244mm x 210mm

Motherboard Components



Introducing the Motherboard

Table of Motherboard Components

LABEL	COMPONENTS
1. CPU Socket	Socket AM3+ for AMD AM3+ FX™ /Phenom™ II /Athlon™ II/Sempron™ 100 Series processors
2. CPU_FAN	CPU cooling fan connector
3. DDR3_1~2	240-pin DDR3 SDRAM slots
4. ATX_POWER	Standard 24-pin ATX power connector
5. IDE	Primary IDE connector
6. SYS_FAN	System cooling fan connector
7. SPK	Speaker header
8. SATA1~6	Serial ATA connectors
9. F_PANEL	Front panel switch/LED header
10. CLR_CMOS	Clear CMOS jumper
11. SPI_DEBUG	SPI_debug header for factory use only
12. LPT	Parallel port header
13. F_USB1~2	Front Panel USB headers
14. SPDIFO	SPDIF out header
15. CD_IN	Analog audio input header
16. F_AUDIO	Front panel audio header
17. PCI1~2	32-bit add-on card slots
18. CASE	Chassis detect jumper
19. PCIEX1	PCI Express x1 slot
20. PCIEX16	PCI Express x16 slot for graphics interface
21. ATX12V	8-pin +12V power connector

This concludes Chapter 1. The next chapter explains how to install the motherboard.

Chapter 2

Installing the Motherboard

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 they came in
- Hold all circuit boards by the edges. Do not bend circuit boards

Choosing a Computer Case

There are many types of computer cases on the market. The motherboard complies with the specifications for the Micro ATX system case. Firstly, some features on the motherboard are implemented by cabling connectors on the motherboard to indicators and switches on the system case. Make sure that your case supports all the features required. Secondly, this motherboard supports two enhanced IDE drives. Make sure that your case has sufficient power and space for all drives that you intend to install.

Most cases have a choice of I/O templates in the rear panel. Make sure that the I/O template in the case matches the I/O ports installed on the rear edge of the motherboard.

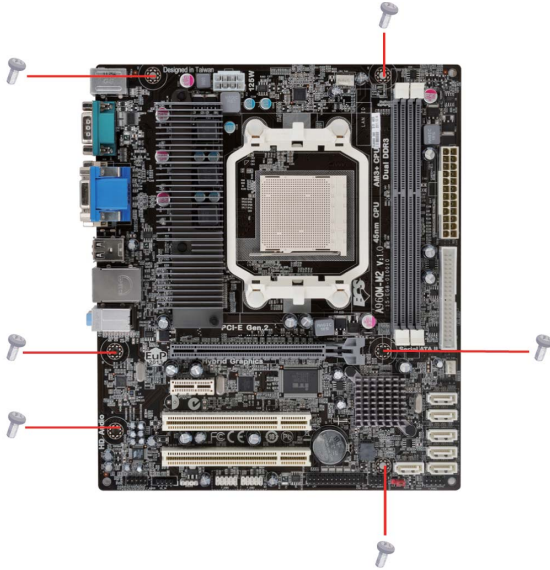
This motherboard carries a Micro ATX form factor of 244 X 210 mm. Choose a case that accommodates this form factor.

Installing the Motherboard in a Case

Refer to the following illustration and instructions for installing the motherboard in a case.

Most system cases have mounting brackets installed in the case, which correspond to the holes in the motherboard. Place the motherboard over the mounting brackets and secure the motherboard onto the mounting brackets with screws.

Ensure that your case has an I/O template that supports the I/O ports and expansion slots on your motherboard.



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

Checking Jumper Settings

This section explains how to set jumpers for correct configuration of the motherboard.

Setting Jumpers

Use the motherboard jumpers to set system configuration options. Jumpers with more than one pin are numbered. When setting the jumpers, ensure that the jumper caps are placed on the correct pins.

The illustrations show a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is **SHORT**. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is **OPEN**.

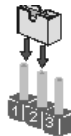


SHORT



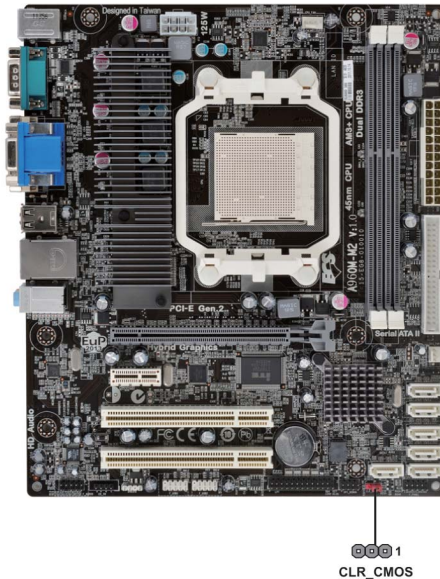
OPEN

This illustration shows a 3-pin jumper. Pins 1 and 2 are **SHORT**.




Checking Jumper Settings

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



Jumper Settings

Jumper	Type	Description	Setting (default)
CLR_CMOS	3-pin	Clear CMOS	1-2: NORMAL 2-3: CLEAR CMOS Before clearing the CMOS, make sure to turn off the system.



CLR_CMOS



1. To avoid the system instability after clearing CMOS, we recommend users to enter the main BIOS setting page to “Load Optimal Defaults” and then “Save Changes and Exit”.

Installing Hardware

Installing the Processor



Caution: When installing a CPU heatsink and cooling fan make sure that you DO NOT scratch the motherboard or any of the surface-mount resistors with the clip of the cooling fan. If the clip of the cooling fan scrapes across the motherboard, you may cause serious damage to the motherboard or its components.

On most motherboards, there are small surface-mount resistors near the processor socket, which may be damaged if the cooling fan is carelessly installed.

Avoid using cooling fans with sharp edges on the fan casing and the clips. Also, install the cooling fan in a well-lit work area so that you can clearly see the motherboard and processor socket.

Before installing the Processor

This motherboard automatically determines the CPU clock frequency and system bus frequency for the processor. You may be able to change these settings by making changes to jumpers on the motherboard, or changing the settings in the system Setup Utility. We strongly recommend that you do not over-clock processors or other components to run faster than their rated speed.



Warning:

1. Over-clocking components can adversely affect the reliability of the system and introduce errors into your system. Over-clocking can permanently damage the motherboard by generating excess heat in components that are run beyond the rated limits.

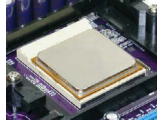
2. Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.

This motherboard has a Socket AM3+ processor 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.

CPU Installation Procedure

The following illustration shows CPU installation components.

- 1 Install your CPU. Pull up the lever away from the socket and lift up to 90-degree angle.
- 2 Locate the CPU cut edge (the corner with the pin hold noticeably missing). Align and insert the CPU correctly.
- 3 Press the lever down and apply thermal grease on top of the CPU.
- 4 Put the CPU Fan down on the retention module and snap the four retention legs of the cooling fan into place.
- 5 Flip the levers over to lock the heat sink in place and connect the CPU cooling Fan power cable to the CPUFAN connector. This completes the installation.



To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 4800 rpm at least. CPU fan and heatsink installation procedures may vary with the type of CPU fan/heatsink supplied. The form and size of fan/heatsink may also vary.

Installing Memory Modules

This motherboard accommodates two memory modules. It can support two 240-pin DDR3 1866 with AM3+ CPU, or two 240-pin DDR3 1333/1066 with AM3 CPU. The total memory capacity is 16 GB.

You must install at least one module in any of the two slots. Each module can be installed with 8 GB of memory.

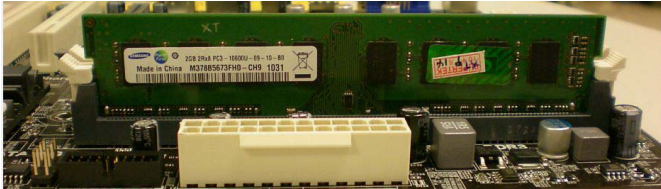


Do not remove any memory module from its antistatic packaging until you are ready to install it on the motherboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.

Installation Procedure

Refer to the following to install the memory modules.

- 1 This motherboard supports unbuffered DDR3 SDRAM only.
- 2 Push the latches on each side of the DIMM slot down.
- 3 Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.
- 4 Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.
- 5 Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the DIMM.
- 6 Install any remaining DIMM modules.

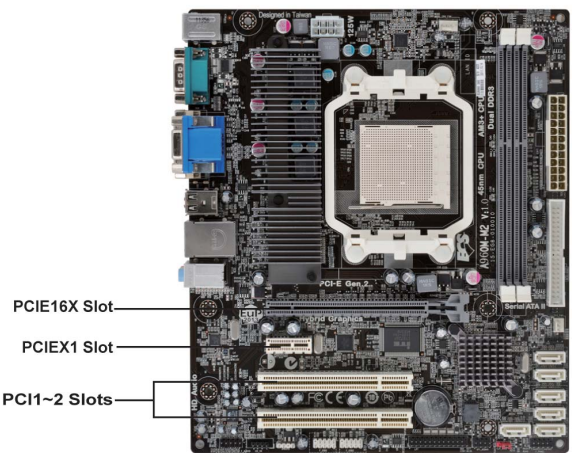


For reference only

Expansion Slots

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 Slot The PCI Express x16 slot is used to install an external PCI Express graphics card that is fully compliant to the PCI Express Base Specification revision 2.0.

PCIEX1 Slot The PCI Express x1 slot is fully compliant to the PCI Express Base Specification revision 2.0 as well.

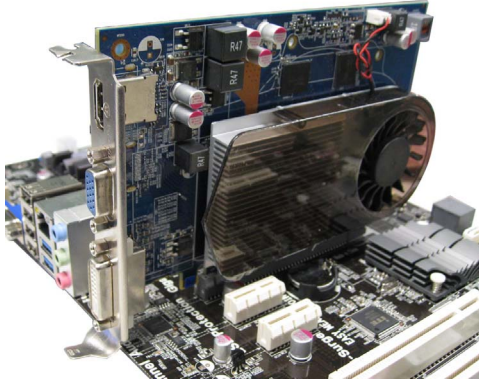
PCI1~2 Slots This motherboard is equipped with two standard PCI slots. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, which for the most part, is a supplement of the older ISA bus standard. The PCI slots on this board are PCI v2.3 compliant.



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.



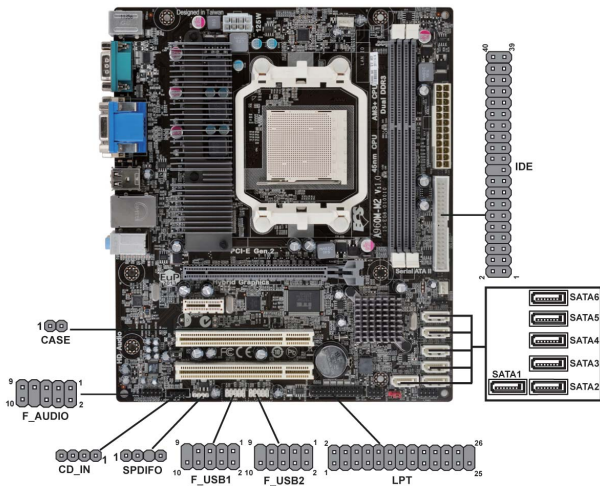
For reference only



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.

Connecting Optional Devices

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



F_USB1~2: Front Panel USB headers

The motherboard has four USB ports installed on the rear edge I/O port array. 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.

Pin	Signal Name	Function
1	USBPWR	Front Panel USB Power
2	USBPWR	Front Panel USB Power
3	USB_FP_P0-	USB Port 0 Negative Signal
4	USB_FP_P1-	USB Port 1 Negative Signal
5	USB_FP_P0+	USB Port 0 Positive Signal
6	USB_FP_P1+	USB Port 1 Positive Signal
7	GND	Ground
8	GND	Ground
9	Key	No pin
10	USB_FP_OC0	Overcurrent signal



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.

LPT: Onboard parallel port header

This is a header that can be used to connect to the printer, scanner or other devices.

Pin	Signal Name	Pin	Signal Name
1	STROBE	14	ALF
2	PD0	15	ERROR
3	PD1	16	INIT
4	PD2	17	SLCTIN
5	PD3	18	Ground
6	PD4	19	Ground
7	PD5	20	Ground
8	PD6	21	Ground
9	PD7	22	Ground
10	ACK	23	Ground
11	BUSK	24	Ground
12	PE	25	Ground
13	SLCT	26	Key

F_AUDIO: Front Panel Audio header

This header allows the user to install auxiliary front-oriented microphone and line-out ports for easier access.

Pin	Signal Name	Pin	Signal Name
1	PORT 1L	2	AUD_GND
3	PORT 1R	4	PRESENCE#
5	PORT 2R	6	SENSE1_RETURN
7	SENSE_SEND	8	KEY
9	PORT 2L	10	SENSE2_RETURN

SATA1~6: Serial ATA connectors

These connectors are used to support the new Serial ATA devices for the highest data transfer rates (3.0 Gb/s), 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.

Pin	Signal Name	Pin	Signal Name
1	Ground	2	TX+
3	TX-	4	Ground
5	RX-	6	RX+
7	Ground	-	-

SPDIFO: SPDIF out header

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

Pin	Signal Name	Function
1	SPDIF	SPDIF digital output
2	+5VA	5V analog Power
3	Key	No pin
4	GND	Ground

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.

Pin 1-2	Function
Short	Chassis cover is removed
Open	Chassis cover is closed

CD_IN: Analog audio input header

Pin	Signal Name	Function
1	CD_L	Left CD-in signal
2	GND	Ground
3	GND	Ground
4	CD_R	Right CD-in signal

Installing a Hard Disk Drive/CD-ROM/SATA Hard Drive

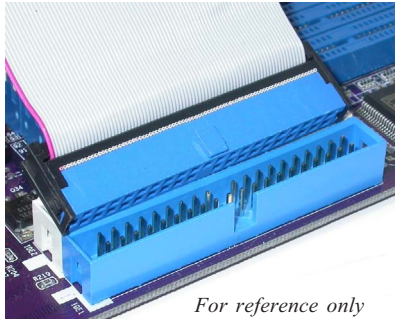
This section describes how to install IDE devices such as a hard disk drive and a CD-ROM drive.

About IDE Devices

Your motherboard has one IDE interface.

IDE1: IDE Connector

This motherboard supports Six high data transfer SATA ports with each runs up to 3.0 Gb/s. To get better system performance, we recommend users connect the CD-ROM to the IDE channel, and set up the hard drives on the SATA ports.



For reference only

IDE devices enclose jumpers or switches used to set the IDE device as MASTER or SLAVE. Refer to the IDE device user's manual. Installing two IDE devices on one cable, ensure that one device is set to MASTER and the other device is set to SLAVE. The documentation of your IDE device explains how to do this.

About SATA Connectors

Your motherboard features four SATA connectors supporting a total of four 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 an SATA power cable. You can connect either end of the SATA cable to the SATA hard drive or the connector on the motherboard.



SATA cable (optional)



SATA power cable (optional)

Installing the Motherboard

Refer to the illustration below for proper installation:

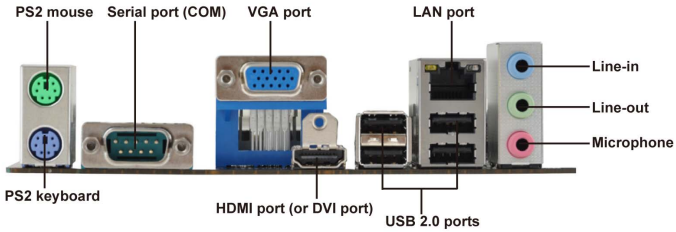
- 1 Attach either cable end to the connector on the motherboard.
- 2 Attach the other cable end to the SATA hard drive.
- 3 Attach the SATA power cable to the SATA hard drive and connect the other end to the power supply.



This motherboard does not support the “Hot-Plug” function.

Connecting I/O Devices

The backplane of the motherboard has the following I/O ports:

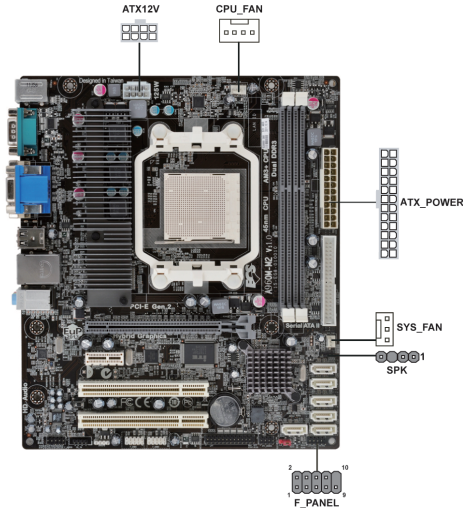


- PS2 Mouse** Use the upper PS/2 port to connect a PS/2 pointing device.
- PS2 Keyboard** Use the lower PS/2 port to connect a PS/2 keyboard.
- Serial port (COM)** Use the COM port to connect serial devices such as mouse or fax/modems.
- VGA Port** Connect your monitor to the VGA port.
- HDMI Port (or DVI Port)** Connect your monitor to the HDMI or DVI port.
- LAN Port** Connect an RJ-45 jack to the LAN port to connect your computer to the network.
- USB Ports** Use the USB ports to connect USB devices.
- Audio Ports** Use the three audio jacks to connect audio devices. The first jack is for stereo line-in signal. The second jack is for stereo line-out signal. The third jack is for microphone.

Connecting Case Components

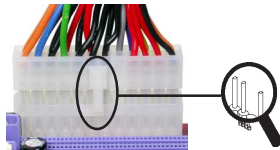
After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:

- 1 Connect the CPU cooling fan cable to **CPU_FAN**.
- 2 Connect the standard power supply connector to **ATX_POWER**.
- 3 Connect the case speaker cable to **SPK**.
- 4 Connect the case switches and indicator LEDs to the **F_PANEL**.
- 5 Connect the system cooling fan connector to **SYS_FAN**.
- 6 Connect the auxiliary case power supply connector to **ATX12V**.



Connecting 24-pin power cable

Users please note that the 24-pin power cable can be connected to the ATX_POWER connector.

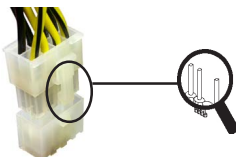


24-pin power cable

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

Connecting 8-pin power cable

The ATX12V 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 ATX12V match perfectly.

CPU_FAN: Cooling FAN Power Connector

Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor
4	PWM	CPU FAN control



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

ATX_POWER: ATX 24-pin Power Connector

Pin	Signal Name	Pin	Signal Name
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	Ground	15	COM
4	+5V	16	PS_ON
5	Ground	17	COM
6	+5V	18	COM
7	Ground	19	COM
8	PWRGD	20	-5V
9	+5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	COM

SYS_FAN: System Cooling FAN Power Connector

Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor

SPK: Internal speaker

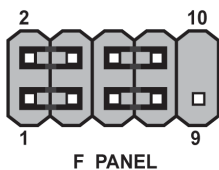
Pin	Signal Name
1	VCC
2	Key
3	NC
4	Signal

ATX12V: ATX 12V Power Connector

Pin	Signal Name	Pin	Signal Name
1	Ground	5	Ground
2	+12V	6	+12V
3	Ground	7	Ground
4	+12V	8	+12V

Front Panel Header

The front panel header (F_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:



Pin	Signal	Function	Pin	Signal	Function
1	HD_LED_P	Hard disk LED (+)	2	FP PWR/SLP	*MSG LED (+)
3	HD_LED_N	Hard disk LED (-)	4	FP PWR/SLP	*MSG LED (-)
5	RST_SW_N	Reset Switch (-)	6	PWR_SW_P	Power Switch (+)
7	RST_SW_P	Reset Switch (+)	8	PWR_SW_N	Power Switch (-)
9	RSVD	Reserved	10	Key	No pin

* MSG LED (dual color or single color)

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.

Memo

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:

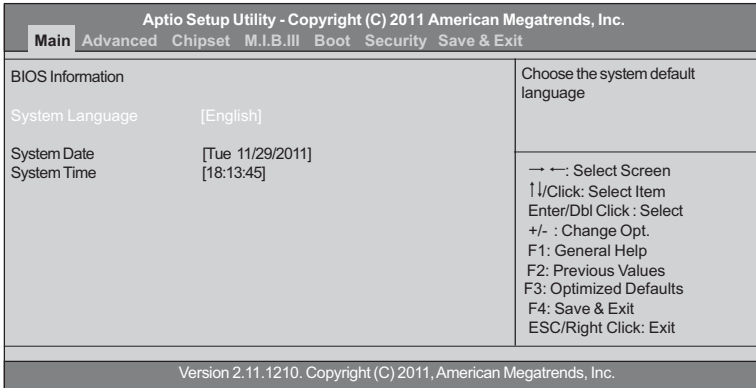
- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security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

Using BIOS

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



The default BIOS setting for this motherboard apply for most conditions with optimum performance. We do not suggest users change the default values in the BIOS setup and take 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
↑/←	Scrolls through the items on a menu
+/-	Modifies the selected field's values
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.

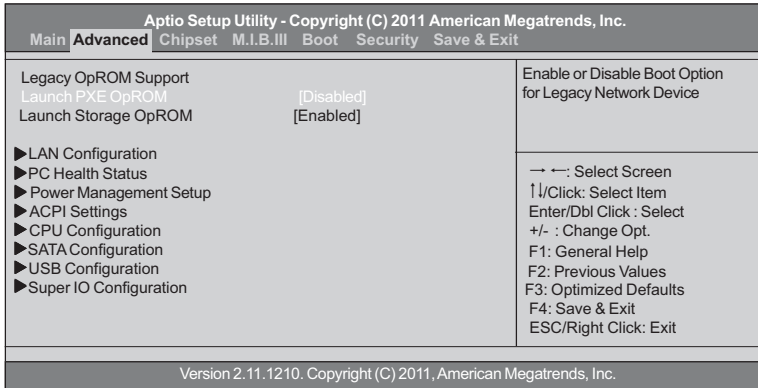
Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.	
Main Advanced Chipset M.I.B.III Boot Security Save & Exit	
BIOS Information System Date [Tue 11/29/2011] System Time [18:13:45]	Set the Date. Use Tab to Switch between Data elements ← : Select Screen ↑/Click: Select Item Enter/Dbl Click : Select +/- : Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC/Right Click: Exit
Version 2.11.1210. Copyright (C) 2011, American Megatrends, Inc.	

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.

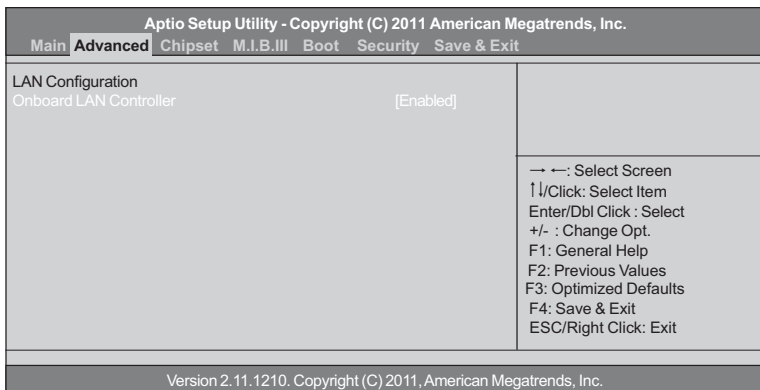


Launch PXE OpROM (Disabled)

The item enables or disables launch PXE Option ROM.

LAN Configuration

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



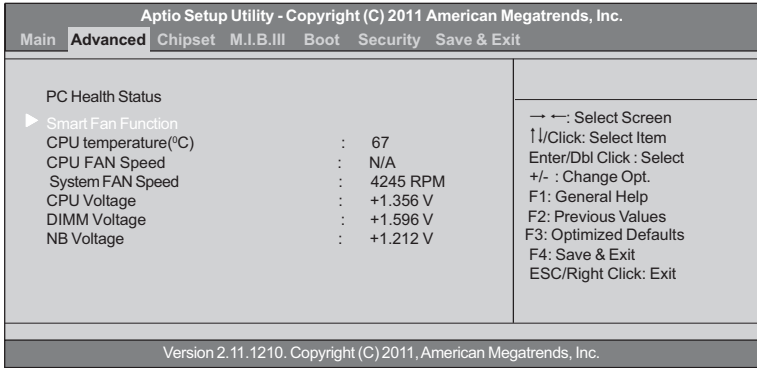
Onboard LAN Controller (Enabled)

Use this item to enable or disable the Onboard LAN.

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

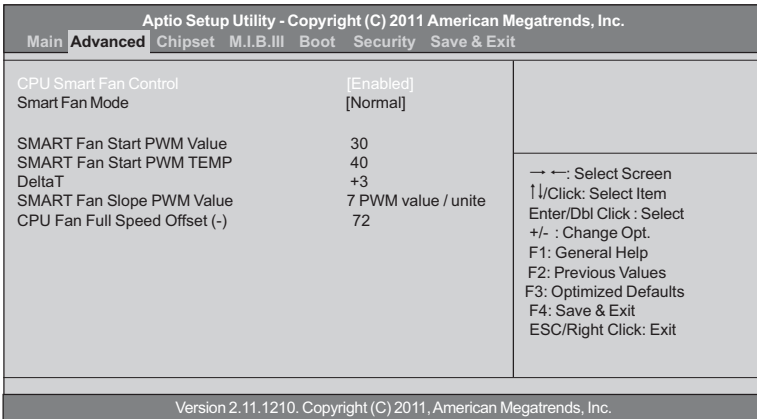
PC Health Status

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 Smart Fan Control (Enabled)

This item enables you to define the CPU temperature by smartly adjusting the CPU Fan. When it is set at certain temperature, the CPU Fan PWM value will change accordingly.

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 (30)

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

SMART Fan Start PWM Temp (40)

This item is used to set the start PWM value 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 (7 PWM value/unite)

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

CPU Fan Full Speed Offset (-) (72)

This item is used to set the CPU 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 CPU temperature, CPU & DIMM voltage, CPU & system fan speed... etc.

- CPU Temperature
- CPU FAN Speed
- SYS FAN Speed
- CPU Voltage
- DIMM Voltage
- NB Voltage

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

Power Management Setup

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

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.		
Main Advanced Chipset M.I.B.III Boot Security Save & Exit		
Power Management Setup		About Resume by RING
Resume By RING	[Disabled]	→ ←: Select Screen ↑ ↓/Click: Select Item Enter/Dbl Click : Select +/- : Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC/Right Click: Exit
Resume By PME	[Disabled]	
Resume By USB 1.x/2.0 (S3)	[Disabled]	
Resume By PS2 KB (S3)	[Disabled]	
Resume By PS2 MS (S3)	[Disabled]	
EUP Function	[Enabled]	
Power LED Type	[Dual Color LED]	
Version 2.11.1210. Copyright (C) 2011, American Megatrends, Inc.		

Resume By RING (Disabled)

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.

Resume By PME (Disabled)

This item specifies 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 USB 1.x/2.0 (S3) (Disabled)

This item allows you to enable/disable the USB 1.x/2.0 device wakeup function from S3 mode.

Resume By PS2 KB (S3) (Disabled)

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

Resume By PS2 MS (S3) (Disabled)

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

EUP Function (Enabled)

This item allows user to enable or disable EUP support.

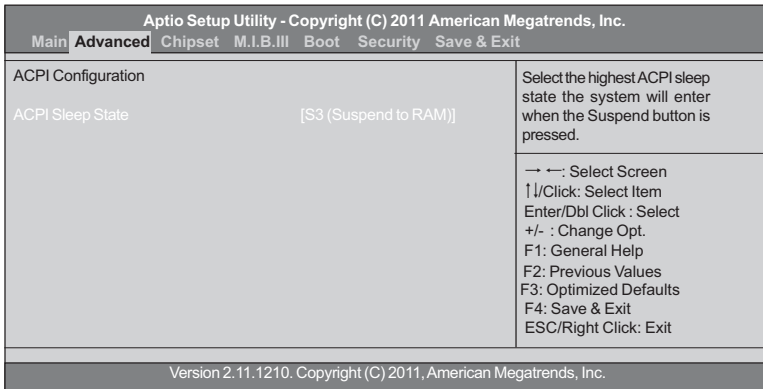
Power LED Type (Dual Color LED)

This item shows the type of the Power LED.

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

The item in the menu shows the CPU.

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.	
Main	Advanced
CPU Configuration Socket0: AMD Phenom(tm) II x4 955 Processor Max Speed: 3200 MHZ Intended Speed: 3200 MHZ Microcode Patch Level: 10000c6 --Information de cachette par noyau -- L1 Instruction Cache: 64 KB/2-way L1 Data Cache: 64 KB/2-way L2 Cache: 512 KB/16-way Total L3 Cache per Socket: 6 MB/48-way Limit CPUID Maximum [Disabled] AMD C&Q [Enabled] Enhanced Halt (C1E) [Disabled] SB Clock Spread Spectrum [Disabled]	Enable/disable C6 → ←: Select Screen ↑↓/Click: Select Item Enter/Dbl Click: Select +/- : Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC/Right Click: Exit
Version 2.11.1210. Copyright (C) 2011, American Megatrends, Inc.	

Max Speed (3200 MHZ) Intended Speed (3200 MHZ)

This item shows the maximum & intended speed of the CPU.

Microcode Patch Level (10000c6)

This item shows the Microcode revision.

L1 Instruction Cache (64 KB/2-way)

This item shows CPU L1 Cache.

L1 Data Cache (64 KB/2-way)

This item shows CPU L1 Cache.

L2 Cache (512 KB/16-way)

This item shows CPU L2 Cache.

Total L3 Cache per Socket (6 MB/48-way)

This item shows CPU L3 Cache.

Limit CPUID Maximum (Disabled)

Use this item to enable or disable the maximum CPUID value limit. When supports Prescott and LGA775 CPUs, enables this to prevent the system from "rebooting" when trying to install Windows NT 4.0.

AMD C&Q (Enabled)

This item enables or disables the CPU C&Q Function.

Enhanced Halt (C1E) (Disabled)

Use this item to enable or disable the Enhanced Halt (C1E) of the processor.

SB Clock Spread Spectrum (Disabled)

This item enables or disables the SB 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.

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.		
Main	Advanced	Chipset M.I.B.III Boot Security Save & Exit
SATA Configuration		Serial-ATA Controller
Serial-ATA Controller	[Enhanced]	
SATA Mode	[IDE Mode]	
SATA Master	Not Present	→ ←: Select Screen
SATA Slave	Not Present	↓ ↑/Click: Select Item
SATA Port1	Not Present	Enter/Dbl Click : Select
SATA Port2	Not Present	+/- : Change Opt.
SATA Port3	Not Present	F1: General Help
SATA Port4	ST32000641AS (2000.3G)	F2: Previous Values
SATA Port5	Not Present	F3: Optimized Defaults
SATA Port6	Not Present	F4: Save & Exit
		ESC/Right Click: Exit
Version 2.11.1210. Copyright (C) 2011, American Megatrends, Inc.		

Serial-ATA Controller (Enabled)

Use this item to select the Serial-ATA controller options: Disabled, Compatible, Enabled.

SATA Mode (IDE Mode)

Use this item to select SATA mode.

SATA Port1~6 [ST32000641AS(2000.3G /Not Present]

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

Use this item to show the information of USB configuration.

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.	
Main	Advanced Chipset M.I.B.I.II Boot Security Save & Exit
USB Configuration	Enabled/Disabled All USB Devices
All USB Devices [Enabled]	→ ←: Select Screen ↑↓/Click: Select Item Enter/Dbl Click : Select +/- : Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC/Right Click: Exit
Legacy USB Support [Enabled]	
Version 2.11.1210. Copyright (C) 2011, American Megatrends, Inc.	

All USB Devices (Enabled)

Use this item to enable or disable all USB devices.

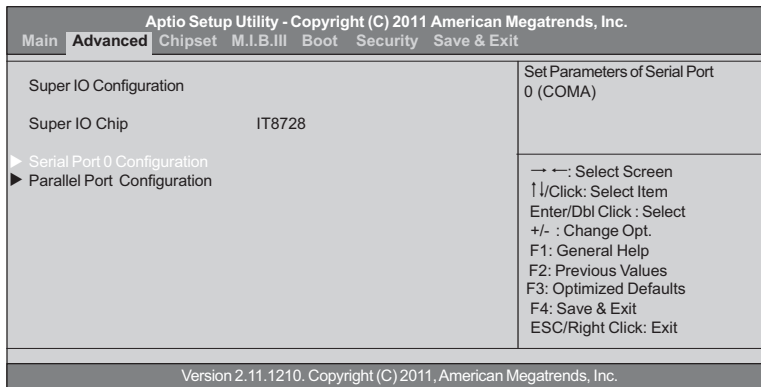
Legacy USB Support (Enabled)

Use this item to enable or disable support for legacy USB devices.

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

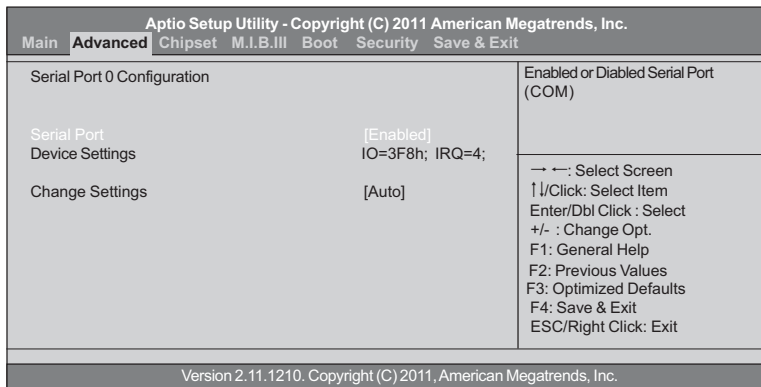
Super IO Configuration

Use this item to show the information of Super IO configuration.



► Serial Port 0 Configuration

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



Serial Port (Enabled)

This item allows you to enable or disable serial port.

Device Settings (IO=3F8h; IRQ=4)

This item shows the information of the device settings.

Change Settings (Auto)

Use this item to change device settings.

Press <Esc> to return to the Super IO Configuration page.

► Parallel Port Configuration

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

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.	
Main Advanced Chipset M.I.B.III Boot Security Save & Exit	
Parallel Port Configuration	Enable or Disable Parallel Port (LPT/LPTE)
Parallel Port [Enabled]	
Device Settings IO=378h; IRQ=5;	
Change Settings [Auto]	→ ←: Select Screen
Device Mode [Standard Parallel Po ...]	↑ ↓/Click: Select Item
	Enter/Db1 Click : Select
	+/- : Change Opt.
	F1: General Help
	F2: Previous Values
	F3: Optimized Defaults
	F4: Save & Exit
	ESC/Right Click: Exit
Version 2.11.1210. Copyright (C) 2011, American Megatrends, Inc.	

Parallel Port (Enabled)

This item allows you to enable or disable parallel port.

Device Settings (IO=378h; IRQ=5;)

This item shows the information of the device settings.

Change Settings (Auto)

Use this item to change device settings.

Device Mode (Standard Parallel Po ...)

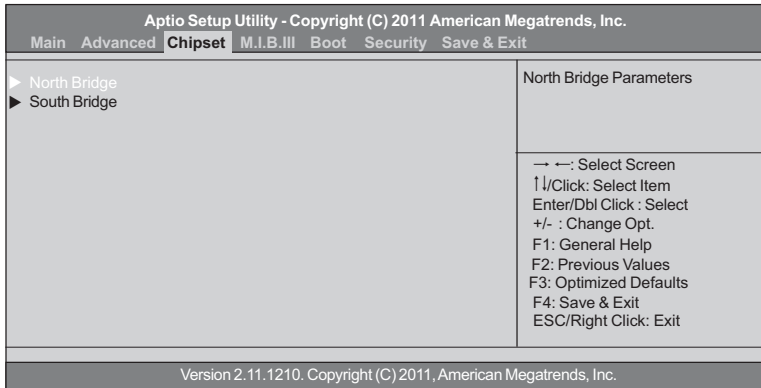
This item shows the information of the device mode.

Press <Esc> to return to the Super IO Configuration page.

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

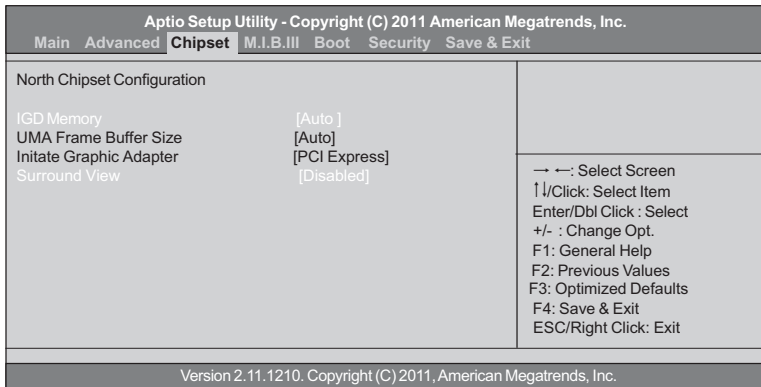
Chipset Menu

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



► North Bridge

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



IGD Memory (Auto)

This item shows the information of the IGD (Internal Graphics device) memory.

UMA Frame Buffer Size (Auto)

This item shows the information of UMA Frame Buffer Size.

Initate Graphic Adapter (PCI Express)

This item allows you to select graphics controller to use as the primary boot device.

Surround View (Disabled)

ATI Surround view function only supported when using ATI PCIE graphics card.

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

► South Bridge

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

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.		
Main	Advanced	Chipset M.I.B.III Boot Security Save & Exit
South Bridge		Specify what state to go to when power is re-applied after a power failure (G3 state).
Restore AC Power Loss	[Power Off]	→ ←: Select Screen ↑ ↓/Click: Select Item Enter/Db1 Click : Select +/- : Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC/Right Click: Exit
Audio Configuration		
Azalia internal HDMI codec	[Enabled]	
Azalia HD Audio	[Enabled]	
Case Open Warning	[Disabled]	
Chassis Opened	[No]	
Version 2.11.1210. Copyright (C) 2011, American Megatrends, Inc.		

Restore AC Power Loss (Power Off)

This item specifies what state to go to when power is re-applied after a power failure (G3 state).

Azalia Internal HDMI codec (Enabled)

This item enables or disables Azalia Internal HDMI codec.

Azalia HD Audio (Enabled)

This item enables or disables Azalia HD audio.

Case Open Warning (Disabled)

This item enables or disables the warning if the case is opened up, and the item below indicates the current status of the case.

Chassis Opened (No)

This item indicates whether the case has been opened.

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

M.I.B.III (MB Intelligent BIOS III) Menu

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.

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.	
Main Advanced Chipset M.I.B.III Boot Security Save & Exit	
M.I.B. III (MB Intelligent BIOS III)	
<ul style="list-style-type: none"> ▶ Processor Power Planes and Voltage Controls ▶ Memory Control [Auto] ▶ HT Control 	Processor Power Planes and Voltage Controls
Auto Detect DIMM/PCI Clk [Enabled] Clockgen Spread Spectrum [Enabled] CPU/HT Reference Clock (MHz) 200 CPU Unclock [Disabled] CPU Voltage [Default] VDDNB Voltage [Default] NB Voltage [Default] VDIMM Voltage [1.6V]	→ ←: Select Screen ↑/Click: Select Item Enter/DbI Click : Select +/- : Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC/Right Click: Exit
Version 2.11.1210. Copyright (C) 2011, American Megatrends, Inc.	

▶ Processor Power Planes and Voltage Controls

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

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.	
Main Advanced Chipset M.I.B.III Boot Security Save & Exit	
Processor Power Planes and Voltage Controls	
Current CPU Speed: 3200MHz Core Clock multiplier [Auto] ActiveC3 Enable [Auto] Slam Time Mode [Auto] VSSlamTime [Auto]	Core Clock multiplier
	→ ←: Select Screen ↑/Click: Select Item Enter/DbI Click : Select +/- : Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC/Right Click: Exit
Version 2.11.1210. Copyright (C) 2011, American Megatrends, Inc.	

Current CPU Speed: 3200MHz

This item shows current CPU speed.

Core Clock multiplier (Auto)

Use this item to set the core clock multiplier.

ActiveC3 Enable (Auto)

This item allows users to select amdAltVidEn 0.24N:3x80[12]

Slam Time Mode (Auto)

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

VSSlam Time (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]

► Memory Control

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

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.						
Main	Advanced	Chipset	M.I.B.III	Boot	Security	Save & Exit
Memory Control		Slow Access Mode				
Memory Clock DCT0 is :	None					
Memory Clock DCT1 is :	(DDR-1333/667Mhz)					
Command Rate	[Auto]					
Memory Clock Mode	[Auto]			→ ←: Select Screen		
Memory Timing Mode	[Auto]			↑↓/Click: Select Item		
CAS Latency	9			Enter/Dbl Click : Select		
RAS to CAS Delay	9			+/- : Change Opt.		
Row Precharge Time	9			F1: General Help		
RAS Active Time	24			F2: Previous Values		
Row Cycle Time	33			F3: Optimized Defaults		
RAS to RAS Delay	4			F4: Save & Exit		
Read CAS to Precharge Time	5			ESC/Right Click: Exit		
Version 2.11.1210. Copyright (C) 2011, American Megatrends, Inc.						

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.

Command Rate (Auto)

This item is used to set the Command Rate.

Memory Clock Mode (Auto)

This item is used to set the memory clock Mode.

Memory Timing Mode (Auto)

This item is used to set the memory Timing Mode.

CAS Latency (9)

This item determines the operation of DDR SDRAM memory CAS (column address strobe). It is recommended that you leave this item at the default value. The 2Tsetting requires faster memory that specifically supports this mode.

RAS to CAS Delay (9)

This item specifies the RAS# to CAS# delay to Rd/Wr command to the same bank.

Row Precharge Time (9)

This item specifies Row precharge to Active or Auto-Refresh of the same bank.

RAS Active Time (24)

This item specifies the RAS# active time.

Row Cycle Time (33)

Use this item to specify the Row Cycle Time.

RAS to CAS Delay (4)

This item specifies the active-to-active delay of different banks.

Read CAS to Precharge Time (5)

Read to Precharge Delay, range from 4 to 15.

► HT Control

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

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.		
Main	Advanced	Chipset M.I.B.III Boot Security Save & Exit
HT Control		Set Upstream Link Width
Current Width Up:	16 bit	→ ←: Select Screen ↑↓/Click: Select Item Enter/Dbl Click : Select +/- : Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC/Right Click: Exit
Upstream Link Width	[Auto]	
Current Width Down:	16 bit	
Downstream Link Width	[Auto]	
Current IO HT Freq:	2000MHz	
IO HT Frequency	[Auto]	
Version 2.11.1210. Copyright (C) 2011, American Megatrends, Inc.		

Current Width Up (16 bit)

This item shows the Current Width UP.

Upstream Link Width (Auto)

This item is used to set the Upstream Link Width.

Current Width Down (16 bit)

This item shows the Current Width Down.

Downstream Link Width (Auto)

This item is used to set the Downstream Link Width.

Current IO HT Freq: 2000MHz

This item shows the Current IO HT Frequency.

IO HT Frequency [Auto]

This item enables users to manually set up the HyperTransport frequency.

Boot Menu

This page enables you to set the keyboard NumLock state.

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.					
Main	Advanced	Chipset M.I.B.III	Boot	Security	Save & Exit
Boot Configuration Bootup NumLock State [On] Set Boot Priority 1st Boot [Hard Disk:ST3200064...] 2nd Boot [CD/DVD] 3rd Boot [USB IDE/Floppy] 4th Boot [USB CD/DVD] 5th Boot [USB Hard Disk] 6th Boot [USB Key: Kingmax USB2...] 7th Boot [Network] 8th Boot [UEFI] ▶ Hard Disk Drive BBS Priorities [Press Enter] ▶ CD/DVD ROM Drive BBS Priorities [Press Enter] ▶ USB Floppy/Floppy Drive BBS Priorities [Press Enter] ▶ USB CD/DVD ROM Drive BBS Priorities [Press Enter] ▶ USB HardDisk Drive BBS Priorities [Press Enter] ▶ USB KEY Drive BBS Priorities [Press Enter] ▶ Network Device BBS Priorities [Press Enter] ▶ UEFI Boot Drive BBS Priorities [Press Enter]				Select the keyboard NumLock state → ←: Select Screen ↑ ↓/Click: Select Item Enter/Db1 Click : Select +/- : Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC/Right Click: Exit	
Version 2.11.1210. Copyright (C) 2011, American Megatrends, Inc.					

Boot Configuration

This item shows the information of the Boot Configuration.

Bootup NumLock State (On)

This item enables you to select NumLock state.

Set Boot Priority

This item enables you to select boot priority for all boot devices.

1st/2nd/3rd/4th/5th/6th/7th/8th Boot

These items show the boot priorities.

Hard Disk Drive BBS Priorities

This item enables you to specify the sequence of loading the operating system from the installing hard disk drives.

CD/DVD ROM Drive BBS Priorities

This item enables you to specify the sequence of loading the operating system from the installing CD/DVD ROM drives.

USB Floppy/Floppy Drive BBS Priorities

This item enables you to specify the sequence of loading the operating system from the installing USB Floppy/Floppy drives.

USB CD/DVD ROM Drive BBS Priorities

This item enables you to specify the sequence of loading the operating system from the installing USB CD/DVD ROM drives.

USB HardDisk Drive BBS Priorities

This item enables you to specify the sequence of loading the operating system from the installing USB HardDisk drives.

USB Key Drive BBS Priorities

This item enables you to specify the sequence of loading the operating system from the installing USB Key drives.

Network Device BBS Priorities

This item enables you to specify the sequence of loading the operating system from the installing network devices.

UEFI Boot Drive BBS Priorities

This item enables you to specify the sequence of loading the operating system from the installing UEFI Boot drives.

Security Menu

This page enables you to set setup administrator password and user password.

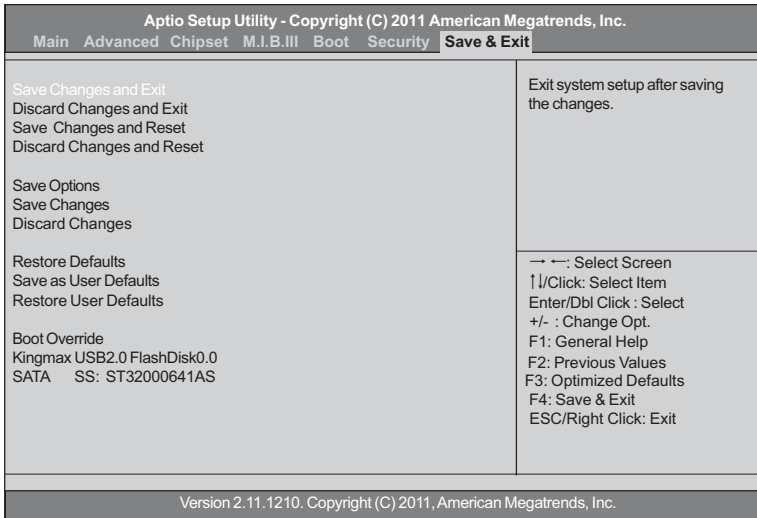
Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.		
Main	Advanced	Chipset M.I.B.III Boot Security Save & Exit
Administrator Password Status	Not Install	Set Setup Administrator Password
User Password Status	Not Install	
Administrator Password		→ ←: Select Screen ↑↓/Click: Select Item Enter/Dbt Click: Select +/- : Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC/Right Click: Exit
Version 2.11.1210. Copyright (C) 2011, American Megatrends, Inc.		

Administrator Password

Press <Enter> to setup 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 exit system setup after saving the changes.

Discard Changes and Exit

This item enables you to exit system setup without saving any changes.

Save Changes and Reset

This item enables you to reset the system setup after saving the changes.

Discard Changes and Reset

This item enables you to reset system setup without saving any changes.

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 to all the setup options.

Boot Override

This item enables you to set the device order.

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.	
Main Advanced Chipset M.I.B.III Boot Security Save & Exit	
Save Changes and Exit Discard Changes and Exit Save Changes and Reset Discard Changes and Reset Save Options Save Changes Discard Changes Restore Defaults Save as User Defaults Restore User Defaults Boot Override Kingmax USB2.0 FlashDisk0.0 SATA SS: ST32000641AS	Exit system setup after saving the changes. → ←: Select Screen ↑/Click: Select Item Enter/DbI Click : Select +/- : Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC/Right Click: Exit
Version 2.11.1210. Copyright (C) 2011, American Megatrends, Inc.	

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.	
Main Advanced Chipset M.I.B.III Boot Security Save & Exit	
Save Changes and Exit Discard Changes and Exit Save Changes and Reset Discard Changes and Reset Save Options Save Changes Discard Changes Restore Defaults Save as User Defaults Restore User Defaults Boot Override Kingmax USB2.0 FlashDisk0.0 SATA SS: ST32000641AS	Exit system setup after saving the changes. → ←: Select Screen ↑/Click: Select Item Enter/DbI Click : Select +/- : Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC/Right Click: Exit
Version 2.11.1210. Copyright (C) 2011, American Megatrends, Inc.	

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: AFUDOS.EXE 040706.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.

This concludes Chapter 3. Refer to the next chapter for information on the software supplied with the motherboard.

Chapter 4

Using the Motherboard Software

About the Software DVD-ROM/CD-ROM

The support software DVD-ROM/CD-ROM that is included in the motherboard package contains all the drivers and utility programs needed to properly run the bundled products. Below you can find a brief description of each software program, and the location for your motherboard version. More information on some programs is available in a README file, located in the same directory as the software. Before installing any software, always inspect the folder for files named README.TXT or something similar. These files may contain important information that is not included in this manual.



1. Never try to install all software from folder that is not specified for use with your motherboard.
2. The notice of Intel HD audio installation (optional): The Intel High Definition audio functionality unexpectedly quits working in Windows Server 2003 Service Pack 1 or Windows XP Professional x64 Edition. Users need to download and install the update packages from the Microsoft Download Center “before” installing HD audio driver bundled in the Driver disk. Please log on to <http://support.microsoft.com/default.aspx?scid=kb;en-us;901105#appliesto> for more information.

Auto-installing under Windows Vista/7

The Auto-install DVD-ROM/CD-ROM makes it easy for you to install the drivers and software for your motherboard.



If the Auto-install DVD-ROM/CD-ROM does not work on your system, you can still install drivers through the file manager for your OS (for example, Windows Explorer). Refer to the Utility Folder Installation Notes later in this chapter.

The support software DVD-ROM/CD-ROM disk loads automatically under Windows Vista/7. When you insert the DVD-ROM/CD-ROM disk in the DVD-ROM/CD-ROM drive, the autorun feature will automatically bring up the install screen. The screen has three buttons on it, Setup, Browse CD and Exit.



If the opening screen does not appear; double-click the file “setup.exe” in the root directory.

Using the Motherboard Software

Drivers Tab

Setup	Click the Setup button to run the software installation program. Select from the menu which software you want to install.
Browse CD	<p>The Browse CD button is the standard Windows command that allows you to open Windows Explorer and show the contents of the support disk.</p> <p>Before installing the software from Windows Explorer, look for a file named README.TXT or something similar. This file may contain important information to help you install the software correctly.</p> <p>Some software is installed in separate folders for different operating systems, such as Windows Vista/7. Always go to the correct folder for the kind of OS you are using.</p> <p>In install the software, execute a file named SETUP.EXE by double-clicking the file and then following the instructions on the screen.</p>
Exit	The EXIT button closes the Auto Setup window.

Utilities Tab

Lists the software utilities that are available on the disk.

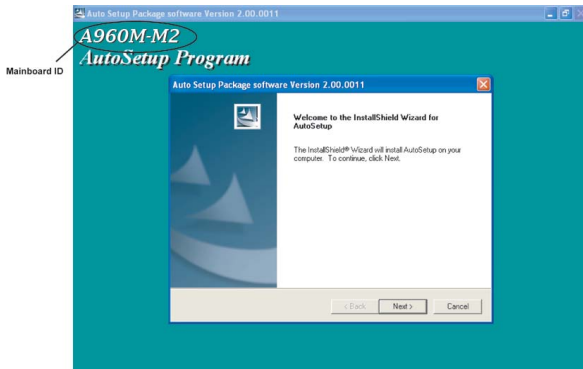
Information Tab

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

Running Setup

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

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

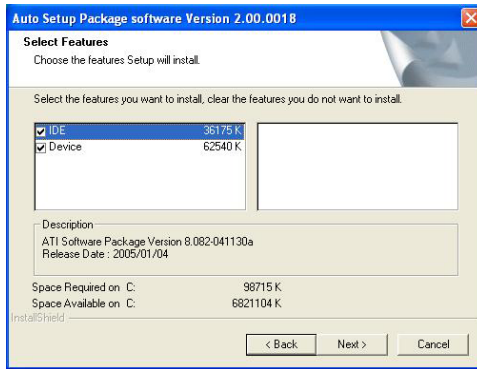


The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.

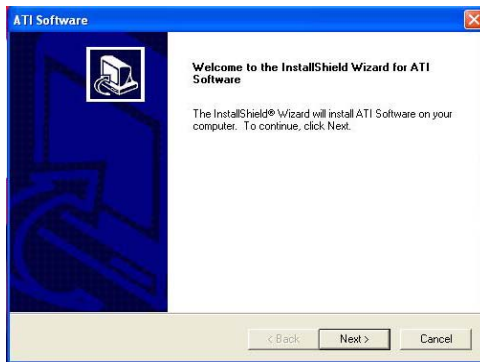
The motherboard identification is located in the upper left-hand corner.

Using the Motherboard Software

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** run the Installation Wizard. An item installation screen appears:



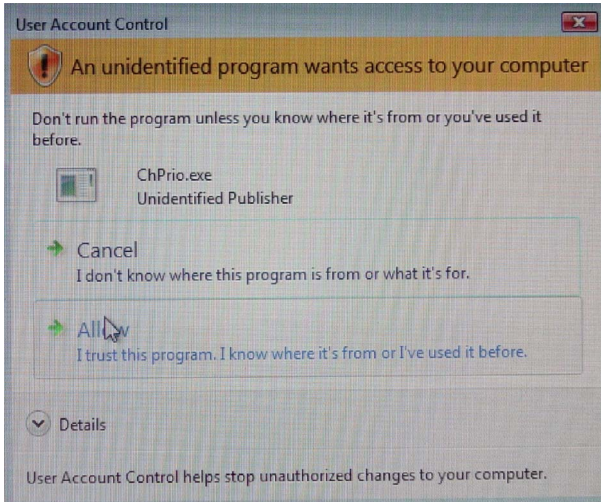
5. Follow the instructions on the screen to install the items.



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

Insert the disk in the DVD-ROM/CD-ROM drive and locate the PATH.DOC file in the root directory. This file contains the information needed to locate the drivers for your motherboard.

Look for the chipset and motherboard model; 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.

Utility Software Reference

All the utility software available from this page is Windows compliant. They are provided only for the convenience of the customer. The following software is furnished under license and may only be used or copied in accordance with the terms of the license.



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

This concludes Chapter 4.

Using the Motherboard Software

Chapter 5

Setting Up AMD SB710 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.
- 2 Select Advanced icon and press Enter (or double click it).



Figure 1.1 BIOS CMOS Setup Utility Main Screen

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

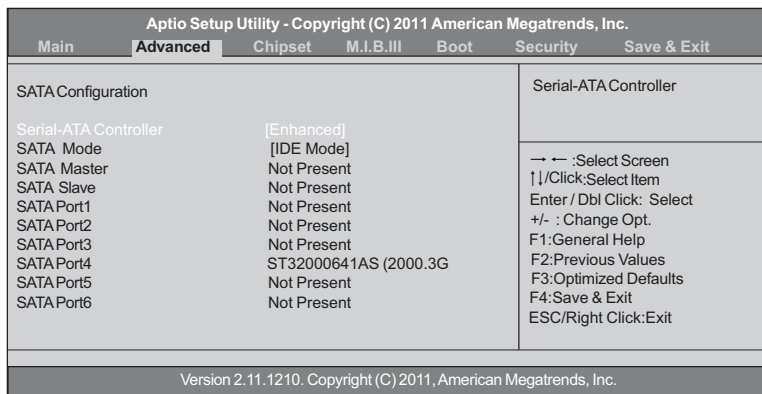


Figure 1.2 SATA Configuration Screen

- 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).

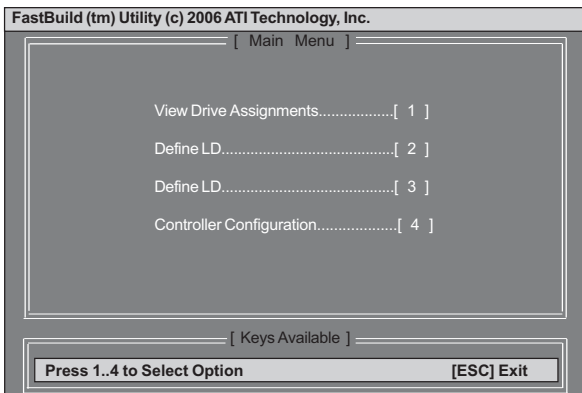


Figure 1.3 Main Menu

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

The Define LD Menu screen appears (Figure 1.4).

FastBuild (tm) Utility (c) 2006 ATI Technology, Inc.

[Define LD Menu]

LD No	RAID Mode	Total Drv
LD 1	RAID 0	0

Stripe Block : 64 KB Past Init : OFF
Gigabyte Boundary : ON Cache Mode : WriteThru

[Drives Assignments]

Channel : ID	Drive Model	Capacity (MB)	Assignment
3 : Mas WDC	WD3200AAJS-22B4	320073	N
4 : Mas WDC	WD1600JS-22NVB1	160042	N

[Keys Available]

[I] Up [I] Down [ESC] Exit [Space] Change Option [Ctrl-Y] Save

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 64KB and 128KB. 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.

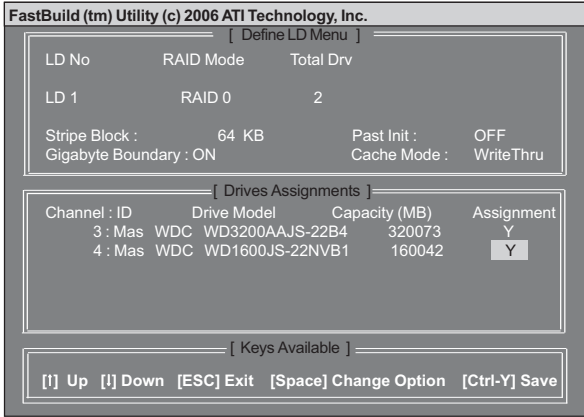


Figure 1.5 FastBuild Utility—Array Disks Assigned

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

The Define LD Menu screen appears (Figure 1.6).

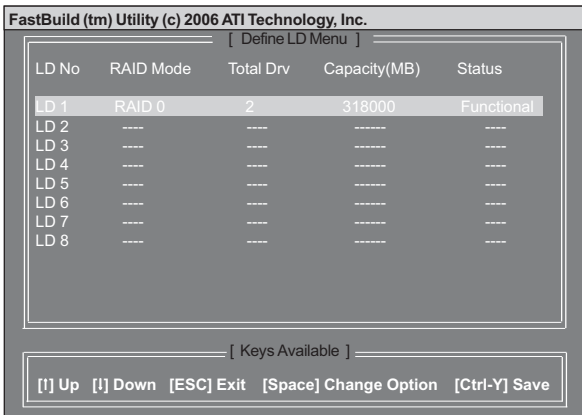


Figure 1.6 Define LD Menu

3. Press ESC to exit.

The Main Menu screen appears (Figure 1.7).

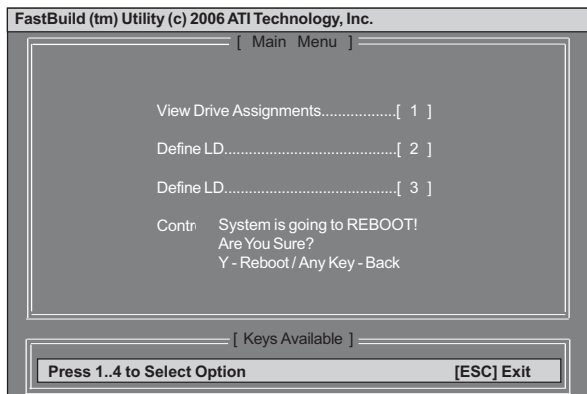


Figure 1.7 Main Menu

4. Press Y to reboot.

The following screen appears (Figure 1.8).

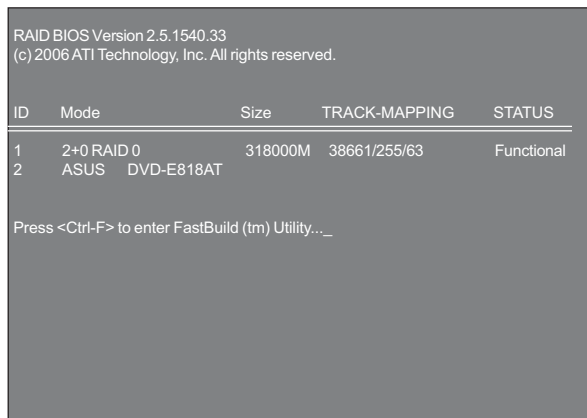


Figure 1.8

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\\SB710\\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.

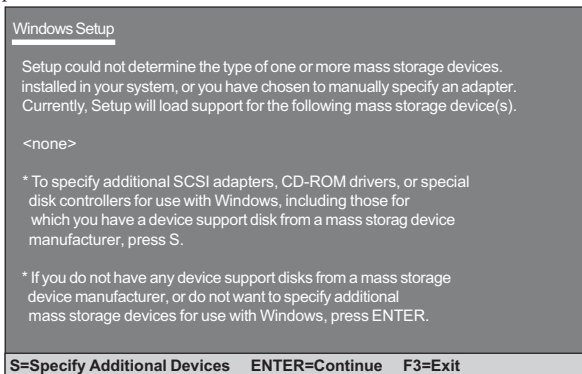


Figure 1.10 Windows Setup—Specify Devices

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

Setting Up AMD RAID Configuration

The following Windows Setup screen appears:

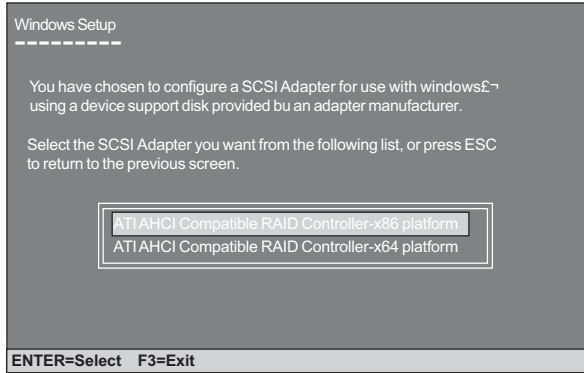


Figure 1.11 Windows Setup—Selected SCSI Adapter

- 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:.

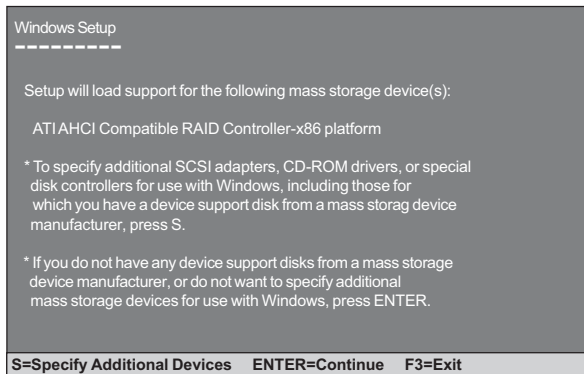


Figure 1.12 Windows Setup—AMD drives listed

- 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.

Setting Up AMD RAID Configuration

Memo

Chapter 6

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.

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. 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. For Intel platforms check the pins on the CPU socket for damage or bent. A bent pin may cause failure to boot and sometimes permanent damage from short circuit.
5. Check the 12V power connector is connected to the motherboard.
6. 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. Ensure the CPU fan is working properly.
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.

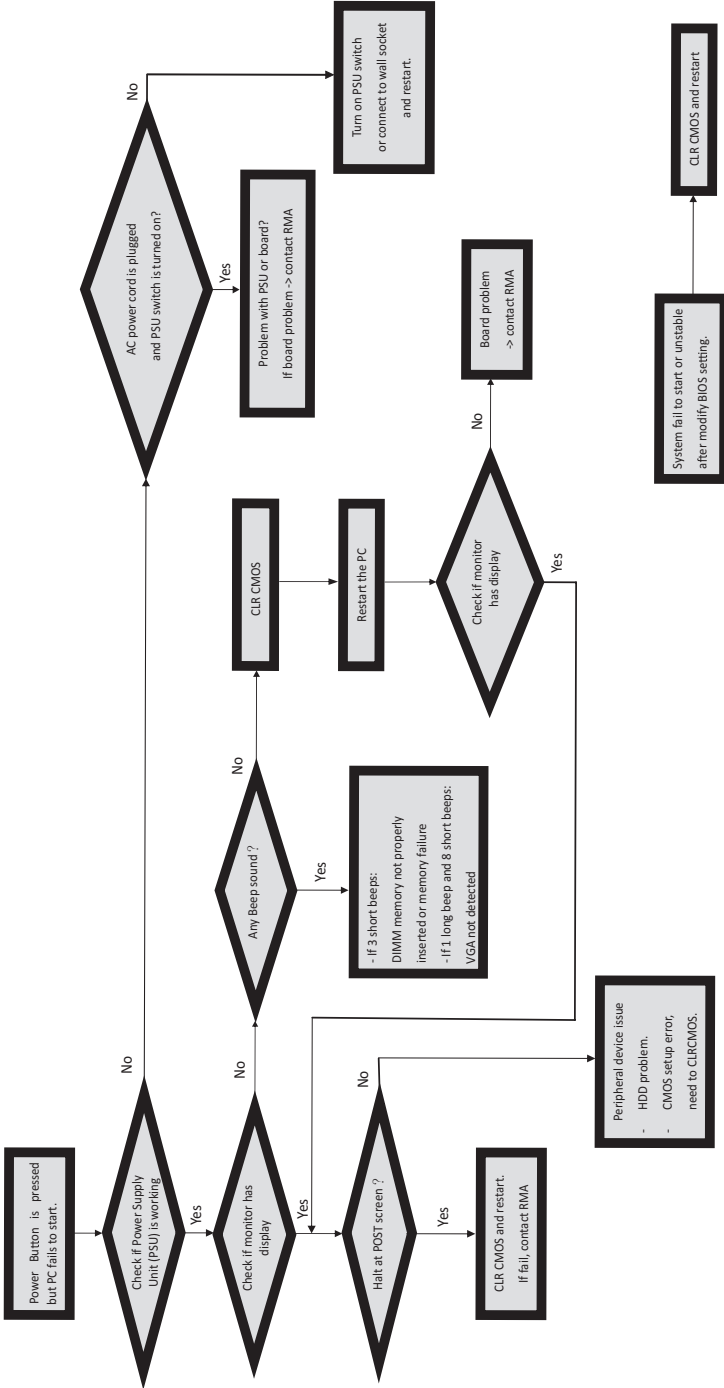
1. Clear the CMOS values using the CLR_CMOS jumper. Refer to CLR_CMOS jumper in Chapter 2 for Checking Jumper Settings in this user manual. When completed, follow up with a Load Optimised Default in the BIOS setup.
2. Check the CPU cooler fan for dust. Long term accumulation of dust will reduce its effectiveness 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.

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



Memo