

Preface

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Version 1.1A

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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:

Chapter 1 Introducing the Motherboard	Describes features of the motherboard. Go to  page 1
Chapter 2 Installing the Motherboard	Describes installation of motherboard components. Go to  page 7
Chapter 3 Using BIOS	Provides information on using the BIOS Setup Utility. Go to  page 27
Chapter 4 Using the Motherboard Software	Describes the motherboard software Go to  page 45
Chapter 5 Setting Up eJIFFY	Describes the eJIFFY setting up Go to  page 53
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Chapter 1

Introducing the Motherboard

Introduction

Thank you for choosing the A780GM-A motherboard. This motherboard is a high performance, enhanced function motherboard that supports socket for AMD Phenom™ II/Phenom™ processor (socket AM2+)/Athlon™ 64 X2 Dual-Core/Athlon™ 64/Sempron™ processors for high-end business or personal desktop markets.

The motherboard incorporates the AMD 780G Northbridge (NB) and SB700 Southbridge (SB) chipsets. The Northbridge supports the HyperTransport™ 3.0 interface. It supports four DDR2 slots with maximum memory size of 8 GB. One PCI Express x16 slot, intended for Graphics Interface, is fully compliant to the PCI Express Generation 2.0 (version 2.0).

The SB700 Southbridge supports three PCI slots which are PCI 2.3 compliant. It integrates USB 2.0 interface. 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 five SATA ports with maximum transfer rate up to 3.0 Gb/s each.

There is an advanced full set of I/O ports in the rear panel, including PS/2 mouse and keyboard connectors, one VGA port, one HDMI port, six USB ports, one eSATA port, one LAN port and audio jacks for microphone, line-in and 8-ch line-out.

Feature

Processor

This motherboard uses a Socket AM2+ that carries the following features:

- Accommodates AMD Phenom™ II/Phenom™ processor (socket AM2+)/AMD Athlon™ 64X2 Dual-Core/Athlon™ 64/Sempron™ 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 780G Northbridge (NB) and SB700 Southbridge (SB) chipsets are based on an innovative and scalable architecture with proven reliability and performance.

- AMD 780G (NB)**
 - One x4 A-Link Express II interface (PCI Express 1.1 compliant) for connection to an AMD Southbridge
 - Supports one PCI Express x16 for Graphics Interface, fully compliant to the PCI Express Generation 2.0 (version 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
 - Integrated ATI Hybrid Graphics, ATI Avivo™ HD¹, ATI PowerPlay™, Low Power Design, AMD Cool'nQuiet™ 2.0, ATI SurroundView™, AMD OverDrive and AMD RAIDXpert™
- SB700 (SB)**
 - Compliant with PCI 2.3 specification at 33 MHz
 - Supports six Serial ATA devices which speeds up to 3.0 Gb/s
 - Complies with SATA 2.5 specification
 - Supports both SATA 1.5 and SATA3.0 compliance devices
 - Supports AHCI hardware assist to support advanced features such as NCQ (Native Command Queuing), Hot Plug, and Device or Host initiated power Management (DIPM/HIPM)
 - Integrated USB 2.0 Host Controller supporting up to twelve USB 2.0 ports
 - Integrated IDE controller supports Ultra ATA 133/100/66/33 modes
 - Supports ReadyBoost and ReadyDrive features of Windows Vista

Introducing the Motherboard

Memory

- Supports DDR2 1066 (AM2+)/800/667/533/400 DDR SDRAM with Dual-channel architecture
- Accommodates four unbuffered DIMMs
- Up to 2 GB per DIMM with maximum memory size up to 8 GB

Audio

- 7.1 Channel High Definition Audio Codec
- SPDIF Out supports 96K/88.2K/48K/44.1KHz
- Power support: Digital:3.3V; Analog:5.0V
- MAxx Player™ from Waves
- Provides single ended CD input with DRM solutions and legacy OS issues

Onboard LAN

- 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
- Two PCI Express x1 slot
- Three 32-bit PCI v2.3 compliant slots
- One IDE connector supporting up to two IDE devices
- One floppy disk drive interface
- Five 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 VGA port
- One HDMI port
- One eSATA port
- Six USB ports
- One LAN port
- Audio jacks for microphone, line-in and 8-ch 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

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

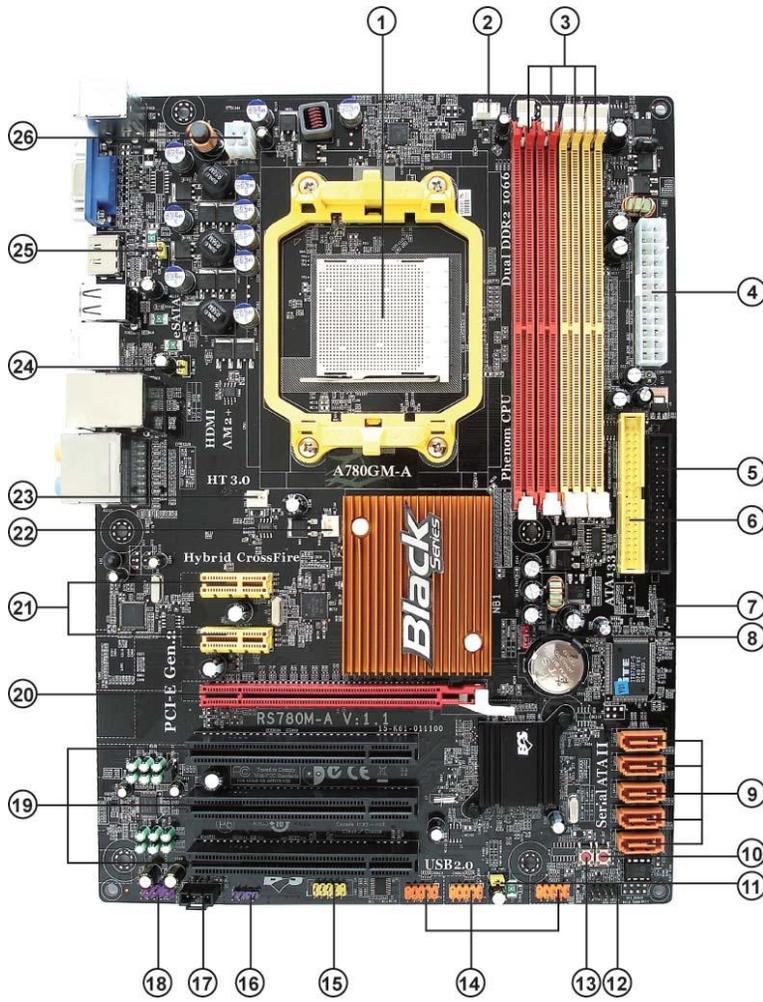


1. Some hardware specifications and software items are subject to change without prior notice.

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

Introducing the Motherboard

Motherboard Components



Introducing the Motherboard

Table of Motherboard Components

LABEL	COMPONENTS
1. CPU Socket	Socket for AMD Phenom™ II/Phenom™ processor (socket AM2+) /Athlon™ 64 X2 Dual-Core/Athlon™ 64/Sempron™ processors
2. CPU_FAN	CPU cooling fan connector
3. DRR2_1~4	240-pin DDR2 SDRAM slots
4. ATX_POWER	Standard 24-pin ATX power connector
5. FDD	Floppy disk connector
6. IDE	Primary IDE connector
7. SPK	Speaker header
8. CLR_CMOS	Clear CMOS jumper
9. SATA1~5	Serial ATA connectors
10. PWR_BOT	Reset button
11. USB_PWR2	USB Power Select Jumper
12. F_PANEL	Front panel switch/LED header
13. RST_BOT	Power on button
14. F_USB1~3	Front Panel USB headers
15. COM	Onboard Serial port header
16. SPDIF0	SPDIF out header
17. CD_IN	Analog audio input header
18. F_AUDIO	Front panel audio header
19. PCI1~3	32-bit add-on card slots
20. PCIEX16	PCI Express x16 slot for graphics interface
21. PCIE1~2	PCI Express x1 slots
22. NB_FAN	Northbridge cooling fan connector
23. SYS_FAN	System cooling fan connector
24. USB_PWR3	USB Power Select Jumper
25. USB_PWR1	USB Power Select Jumper
26. ATX12V1	4-pin +12V power connector

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

Introducing the Motherboard

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Memo

Introducing 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 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 one floppy diskette drive and 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.

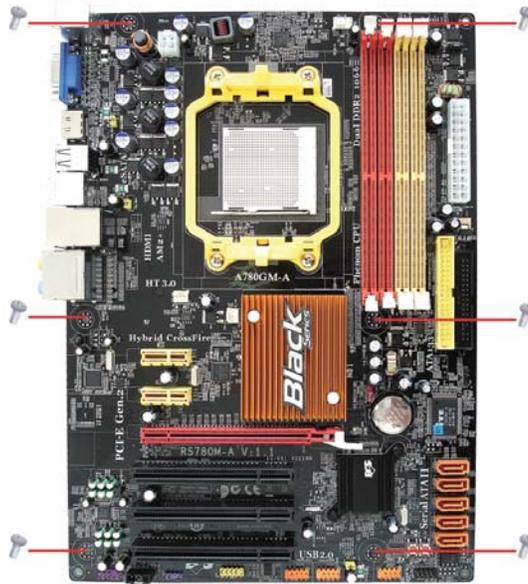
This motherboard carries an ATX form factor of 305 X 220 mm. Choose a case that accommodates this form factor.

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 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**.

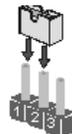


SHORT



OPEN

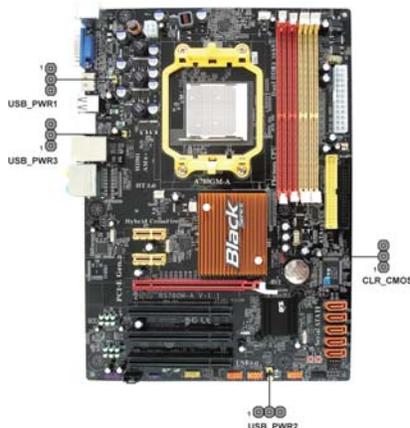
This illustration shows a 3-pin jumper. Pins 1 and 2 are **SHORT**.



Installing the Motherboard

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.	1 CLR_CMOS
USB_PWR1	3-pin	USB Power Cotroller	1-2: VCC5 2-3: 5VSB	1 USB_PWR1
USB_PWR2	3-pin	USB Power Cotroller	1-2: VCC5 2-3: 5VSB	1 USB_PWR2
USB_PWR3	3-pin	USB Power Cotroller	1-2: VCC5 2-3: 5VSB	1 USB_PWR3



1. 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 & Exit Setup".

2. Make sure the power supply provides enough 5VSB voltage before selecting the 5VSB function.

3. It is required that users place the USB_PWR1 & USB_PWR2 & USB_PWR3 cap onto 2-3 pin rather than 1-2 pin as default if you want to wake up the computer by USB/PS2 KB/Mouse.

Installing the Motherboard

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 AM2+ 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.

Fail-Safe Procedures for Over-clocking

When end-users encounter failure after attempting over-clocking, please take the following steps to recover from it.

1. Shut down the computer.
2. Press and hold the “Page Up Key (PgUp)” of the keyboard, and then boot the PC up.
3. Two seconds after the PC boots up, release the “Page Up Key (PgUp)”.
4. The BIOS returns to the default setting by itself.

Installing the Motherboard

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 four memory modules. It can support four 240-pin DDR2 1066 (AM2+)/800/667/533/400. The total memory capacity is 8 GB.

DDR2 SDRAM memory module table

Memory module	Memory Bus
<i>DDR2 400</i>	<i>200 MHz</i>
<i>DDR2 533</i>	<i>266 MHz</i>
<i>DDR2 667</i>	<i>333 MHz</i>
<i>DDR2 800</i>	<i>400 MHz</i>
<i>DDR2 1066</i>	<i>533 MHz</i>

You must install at least one module in any of the four slots. Each module can be installed with 2 GB of memory.



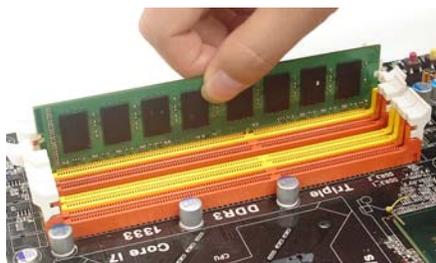
Do not remove any memory module from its antistatic packaging until you are ready to install it on the motherboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.

Installing the Motherboard

Installation Procedure

Refer to the following to install the memory modules.

- 1 This motherboard supports unbuffered DDR2 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 best performance and compatibility, we recommend that users install DIMMs in the sequence of DIMM3, DIMM4, DIMM1 and DIMM2.

Recommend configuration for best performance and compatibility

Number of DIMMs	DIMM 1	DIMM 2	DIMM 3	DIMM 4	AM2	AM2+ *
1					Single Channel	Unganged Mode
2					Dual Channel	Ganged Mode
3					Single Channel	Unganged Mode
4					Dual Channel	Ganged Mode

 : operation with *normal performance*

 : operation with *the best performance*

Installing the Motherboard

Table A: DDR2 (memory module) QVL (Qualified Vendor List)

The following DDR2 1066(AM2+)/800/667/533/400 memory modules have been tested and qualified for use with this motherboard.

Type	Size	Vendor	Module Name	
DDR2 400	512MB	Nanya	NT512T64U88A0F-5A	
DDR2 533	256MB	Elixir	M2U25664TUH4A0F-37B	
		Aeneon	AET660UD00-370A98Z	
	512MB	Infineon	HYS64T64400HU-3.7-A	
		Kingston	KVR533D2N4/512	
	1GB	Infineon	HYS64T128920HU-3.7-A	
		PQI	MEABR421LA0106	
DDR2 667	512 MB	A-DATA	M2OAD5G3H316611C52	
		Apacer	AU512E667C5KBGC	
		Apacer	AU512E667C5KGBY	
		APOGEE	AU51082-667P005	
		Cosair	VS512MB667D2	
		Nanya	NT512T64U88A0BY-3C	
		PSC	AL6E8E63B-6E1T	
		PSC	AL6E8E63J-6E1	
		Ramaxel	RML1520HC38D6F-667	
		Transcend	K4T51083QC ZCE6	
	Twinmos	8D23JK-TT		
	1GB	A-DATA	M2OAD5G3I417611C52	
		Apacer	AU01GE667C5KGBY	
		APOGEE	AU1G082-667P005	
		Infineon	HYS64T128920HU-3S-A	
		PQI	MEABR421LA0107	
		PSC	AL7E8E63B-6E1T	
		PSC	AL7E8E63J-6E1	
		Ramaxel	RML1320HC38D7F-667	
	Twinmos	8D23KK-TT		
	2GB	Hynix	HYMP125U64AP8-Y5-AB-A	
		Kingston	KVR667D2N5/2G	
		Nanya	NT2GT64U8HB0JY-3C	
		PQI	MEA DR522PA0102-07B6	
		Twinmos	8D-23MK-ED	
	DDR2 800	512 MB	Aeneon	AET660UD00-25DB98X
			Infineon	HYS64T64000HU-25F-B
Kingston			KHX6400D2ULK2/1G	
Nanya			NT512T64U88B0BY-25C	
PSC			AL6E8E63H-8E1	
1 GB		APOGEE	AU1G082-800P000	
		Infineon	HYS64T128020HU-25F-B	
		Kingston	KHX6400D2ULK2/2G	
		Nanya	NT1GT64U8HB0BY-25C	
		Silicon Power	SP001GBLRU800S01	
		UMAX	53016042-7100B	
2 GB		Silicon Power	SP002GBLRU800S01	

Installing the Motherboard

Type	Size	Vendor	Module Name	Memory Recommend Volt
DDR2 1066	512 MB	Kingston	KVR1066D2N7/512 1.8V / 9905315-094.A00LF	1.8 V
		Apacer	78.0AG9S.9K4	1.9 V
	1 GB	Kingston	KVR1066D2N7/1G 1.8V / 9905316-106.A01LF	1.8 V
		Micron	MT8HTF12864AY-1GAE1	1.9 V
		OCZ	OCZ2RPR10662GK	1.9 V ~ 2.3 V
		Qimonda	HYS64T128020EU-19F-C	1.9 V
	2 GB	Apacer	78.AAGAL.9KF	1.9V
		Micron	MT16HTF25664AY-1GAE1	1.9 V



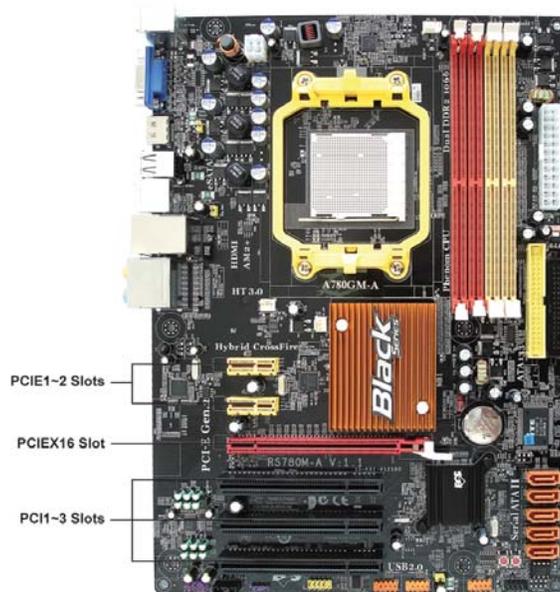
Due to the Phenom CPU and memory module limitation, the DRAM may need to adjust the voltage for supporting DDR2 1066. The memory modules which can be used stably are listed in the above QVL table for reference.

Installing the Motherboard

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.



PCIe1~2 Slots The PCI Express x1 slots are fully compliant to the PCI Express Generation 2.0 (version 2.0).

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 Generation 2.0 (version 2.0).

PCI1~3 Slots This motherboard is equipped with three 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.

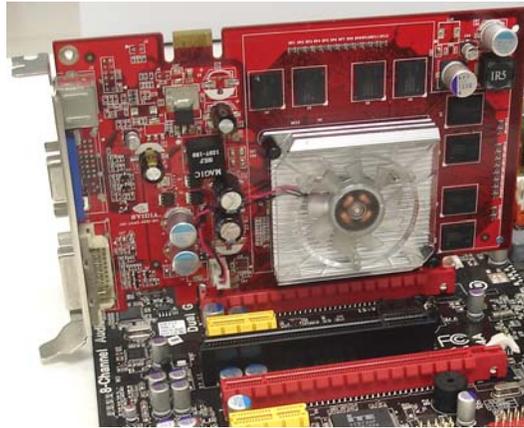


Before installing an add-on card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.

Installing the Motherboard

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.

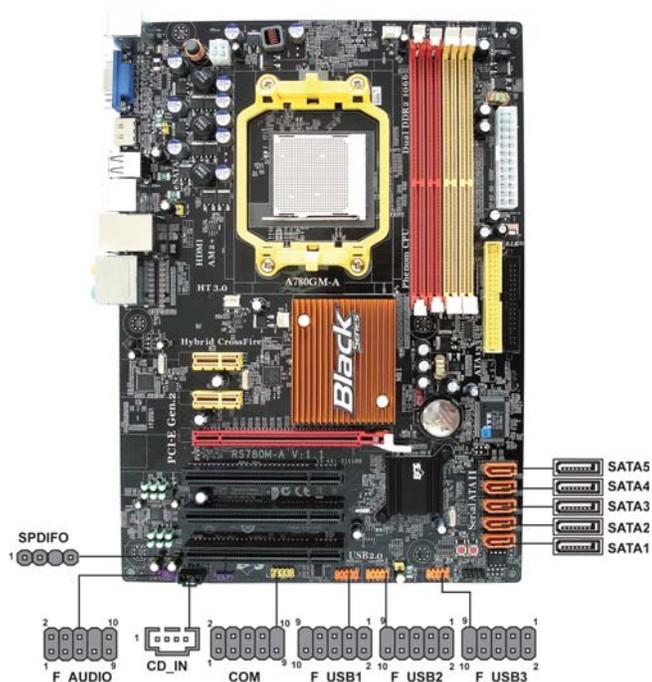


For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.

Installing the Motherboard

Connecting Optional Devices

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



COM: Onboard serial port header

Connect a serial port extension bracket to this header to add a second serial port to your system.

Pin	Signal Name	Function
1	DCDB	Data Carrier Detect
2	SINB	Serial Input
3	SOUTB	UART B Serial Output
4	DTRB	UART B Data Terminal Ready
5	GND	Ground
6	DSRB	Data Set Ready
7	RTSB	UART B Request to Send
8	CTSB	Clear to Send
9	RI	Ring Indicator
10	Key	No pin

Installing the Motherboard

SATA1-5: 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	-	-

SPDIF: 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

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

CD_IN: Analog audio input connector

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

F_USB1~3: Front Panel USB headers

The motherboard has six 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.

Installing the Motherboard

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. An IDE ribbon cable supporting two IDE devices is bundled with the motherboard.



You must orient the cable connector so that the pin1 (color) edge of the cable corresponds to the pin 1 of the I/O port connector.

IDE: IDE Connector

This motherboard supports five 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.



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 five SATA connectors supporting a total of five 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 supports the "Hot-Plug" function.

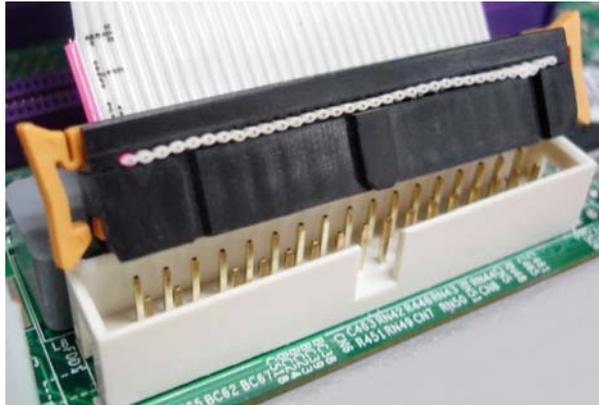
Installing a Floppy Diskette Drive

FDD: Floppy Disk Connector

Connect the single end of the floppy connector to the onboard floppy connector firstly, and then connect the remaining plugs on the other end to the floppy drives correspondingly.



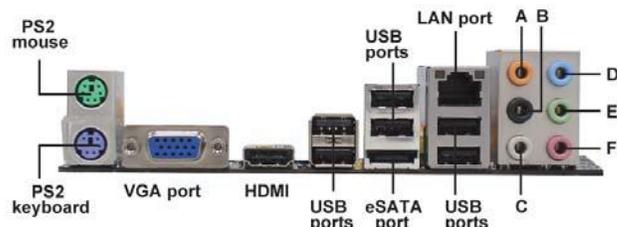
You must orient the cable connector so that the pin 1 (color) edge of the cable corresponds to the pin 1 of the I/O port connector.



Installing the Motherboard

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.

VGA Port Connect your monitor to the VGA port.

HDMI Port Connect the HDMI port to the HDMI devices.

USB Ports Use the USB ports to connect USB devices.

eSATA Port Use this port to connect to an external SATA box or a Serial ATA port multiplier.

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

Audio Ports Use the audio jacks to connect audio devices. The D port is for stereo line-in signal, while the F port is for microphone in signal. This motherboard supports 8-channel audio devices that correspond to the A,B, C, and E port respectively. In addition, all of the 3 ports, B, C, and E provide users with both right & left channels individually. Users please refer to the following note for specific port function definition.



A: Center & Woofer	D: Line-in
B: Back Surround	E: Front Out
C: Side Surround	F: Mic_in Rear

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

Installing the Motherboard

Connecting Case Components

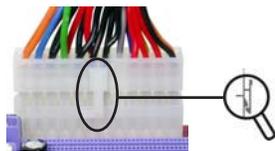
After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:

- 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 **ATX12V1**.
- 7 Connect the northbridge cooling fan connector to **NB_FAN**.



1. 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

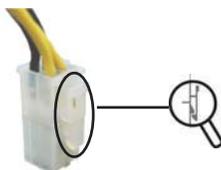
With ATX v2.x power supply, users please note that when installing 24-pin power cable, the latches of power cable and the ATX_POWER match perfectly.

Installing the Motherboard

2. Connecting 4-pin power cable



Users please note that the 4-pin power cables can be connected to the ATX12V connector.



4-pin power cable

When installing 4-pin power cable, the latch falls on the left side of the ATX12V connector.

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/NB_FAN: FAN Power Connectors

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

Installing the Motherboard

SPK: Internal speaker

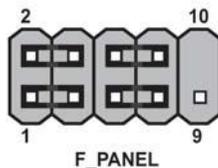
Pin	Signal Name
1	VCC
2	Key
3	NC
4	Signal

ATX12V1: ATX 12V Power Connector

Pin	Signal Name
1	Ground
2	Ground
3	+12V
4	+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.

Installing the Motherboard

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

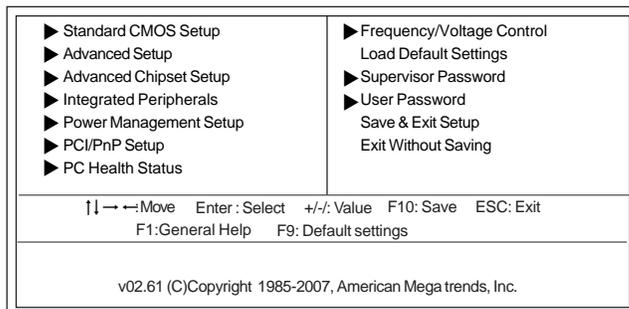
When you power on the system, BIOS enters the Power-On Self Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, the following message appears:

Press DEL to enter SETUP

Using BIOS

Press the delete key to access the BIOS Setup Utility.

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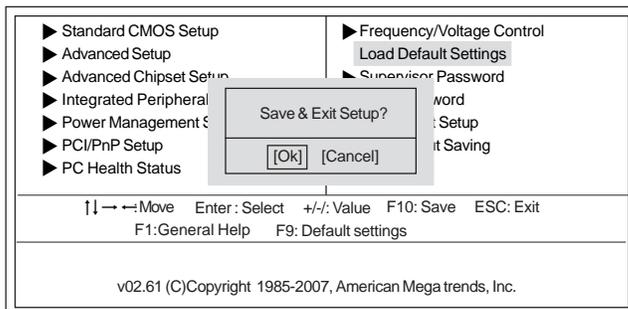
Resetting the Default CMOS Values

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.



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Using BIOS

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
↑↓↔	Scrolls through the items on a menu
+/-	Modifies the selected field's values
Enter	Select
F9	Load a default optimized setting
F10	Saves the current configuration and exits setup
F1	Displays a screen that describes all key functions



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.

Standard CMOS Setup

This option displays basic information about your system.

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Standard CMOS Setup

Date	Thu 01/03/2008	Help Item
Time	17:56:33	
▶ SATA1	Not Detected	User [Enter], [TAB] or [SHIFT-TAB] to select a field.
▶ SATA2	Not Detected	
▶ SATA3	Not Detected	Use [+] or [-] to configure system Date.
▶ SATA4	Not Detected	
▶ SATA5	Not Detected	
▶ eSATA	Not Detected	
▶ IDE Master	Not Detected	
▶ IDE Slave	Not Detected	
IDE BusMaster	Enabled	
Drive A:	1.44 MB 3 1/2"	

↑↓ → ←: Move Enter: Select +/-: Value F10: Save ESC: Exit
F1: General Help F9: Default settings

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.

▶ SATA

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

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SATA

SATA	Help Item
Device: Not Detected	
LBA/Large Mode	Disabled: Disables LBA Mode. Auto: Enables LBA Mode if the device supports it and the device is not already formatted with LBA Mode disabled.
Block (Multi-Sector Transfer)	
PIO Mode	
DMA Mode	
S.M.A.R.T	
32Bit Data Transfer	Enabled

↑↓ → ←: Move Enter: Select +/-: Value F10: Save ESC: Exit
F1: General Help F9: Default settings

Using BIOS

LBA/Large Mode (Auto)

Use this item to set the LBA/Large mode to enhance hard disk performance by optimizing the area the hard disk is visited each time.

Block (Multi-Sector Transfer) (Auto)

If the feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer.

PIO Mode (Auto)

Use this item to set the PIO mode to enhance hard disk performance by optimizing the hard disk timing.

DMA Mode (Auto)

DMA capability allows user to improve the transfer-speed and data-integrity for compatible IDE devices.

S.M.A.R.T. (Auto)

The S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) system is a diagnostics technology that monitors and predicts device performance. S.M.A.R.T. software resides on both the disk drive and the host computer.

32Bit Data Transfer (Enabled)

Use this item to set the onboard SATA-IDE channel to be disabled, IDE, or RAID.

Press <Esc> to return to the Standard CMOS Setup page.

IDE BusMaster (Enabled)

This item enables or disables the DMA under DOS mode. We recommend you to leave this item at the default value.

Drive A (Disabled)

This item defines the characteristics of any diskette drive attached to the system. You can connect one diskette drive.

Press <Esc> to return to the main menu setting page.

Advanced Setup

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.

CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.
Advanced Setup

		Help Item
HT Frequency	Auto	The HyperTransport link will run at this speed if it is slower than or equal to the system clock and the board is capable.
CPU Virtualization	Enabled	
AMD C&Q	Enabled	
Quick Power on Self Test	Enabled	
Boot Up Numlock Status	ON	
APIC Mode	Enabled	
1st Boot Device	Hard Drive	
2nd Boot Device	CD/DVD	
3rd Boot Device	1st FLOPPY DRIVE	
► Removable Drives	Press Enter	
Boot Other Device	Yes	
ECS eJIFFY Function	Disabled	

↑↓ → ←: Move Enter: Select +/-: Value F10: Save ESC: Exit
F1: General Help F9: Default settings

HT Frequency (Auto)

This item enables users to adjust the HT frequency. The default setting is auto and we recommend users leave the setting unchanged. Modify it at will may cause the system to be unstable.

CPU Virtualization (Enabled)

Hardware Virtualization Technology enables processor feature for running multiple simultaneous Virtual Machines allowing specialized software applications to run in full isolation of each other.

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.

Quick Power on Self Test (Enabled)

Enable this item to shorten the power on testing (POST) and have your system start up faster. You might like to enable this item after you are confident that your system hardware is operating smoothly.

Boot Up Numlock Status (ON)

This item defines if the keyboard Num Lock key is active when your system is started.

APIC Mode (Enabled)

This item allows you to enable or disable the APCI (Advanced Programmable Interrupt Controller) mode. APIC provides symmetric multi-processing (SMP) for systems, allowing support for up to 60 processors.

1st/2nd/3rd Boot Device (Hard Drive/CD/DVD/1st Floppy DRIVE)

Use this item 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.

Using BIOS

► Removable Drives (Press Enter)

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

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Removable Drives

Removable Drives	Help Item
1st Drive 1st FLOPPY DRIVE	Specifies the boot sequence from the available devices.

[] → ←: Move Enter: Select +/-: Value F10: Save ESC: Exit
F1: General Help F9: Default settings

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

Boot Other Device (Yes)

When enabled, the system searches all other possible locations for an operating system if it fails to find one in the devices specified under the First, Second and Third boot devices.

ECS eJIFFY Function (Disabled)

Use this item to enable or disable the ECS eJIFFY Function. eJIFFY is ECS unique software program for the quick access to the internet without entering O.S. Please refer to Chapter 5 to know more about eJIFFY.

Press <Esc> to return to the main menu setting page.

Advanced Chipset Setup

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.

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Advanced Chipset Setup

		Help Item
DRAM Frequency	Auto	This allows selection of ungangged DRAM mode (64-bit width). Disable=Ganged mode Enable=unganged mode
DRAM Timing Mode	Auto	
Share Memory Auto Detection	Enabled	
Surround View	Auto	
DCT Unganged Mode	Enabled	
HDMI Audio	Enabled	

↑↓ → ←: Move Enter: Select +/-: Value F10: Save ESC: Exit
F1: General Help F9: Default settings

DRAM Frequency (Auto)

This item enables users to adjust the DRAM frequency. The default setting is auto and we recommend users leave the setting unchanged. Modify it at will may cause the system to be unstable.

DRAM Timing Mode (Auto)

This item enables you to specify the DRAM timing mode to be configured automatically or manually.

Share Memory Auto Detection (Enabled)

Disable this item to set the Share Memory Size. And if the item is set to Auto, Share Memory Size can be controlled according to the dram size. When the dram size is less than 512 MB, Share Memory Size should be set to 64 MB. While between 512 MB and 1 GB, it should be set to 128 MB. When more than 1 GB, it should be set to 256 MB.

Surround View (Auto)

ATI Surroundview function only support when using ATI PCIE graphics card.

DCT Unganged Mode (Enabled)

This item is used to select the DCT mode (DRAM Controller mode).

HDMI Audio (Enabled)

This item is used to enable or disable the onboard audio chip.

Press <Esc> to return to the main menu setting page.

Integrated Peripherals

This page sets up some parameters for peripheral devices connected to the system.

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Integrated Peripherals

Onboard IDE Controller	Enabled	Help Item
Onboard SATA Mode	Enabled	
SATA Configuration	IDE	Options Disabled Enabled
Onboard AUDIO Function	Enabled	
Onboard LAN Function	Enabled	
Onboard LAN Boot ROM	Disabled	
Serial Port1 Address	3F8&IRQ4	
USB Functions	Enabled	
Legacy USB Support	Enabled	

↑ ↓ ← →: Move Enter: Select +/-: Value F10: Save ESC: Exit
F1: General Help F9: Default settings

OnBoard IDE Controller (Enabled)

Use this item to enable or disable the onboard IDE interface.

OnBoard SATA Mode (Enabled)

Use this item to enable or disable the onboard SATA mode.

SATA Configuration (IDE)

Use this item to show the Serial ATA Configuration options: Disabled, Compatible, Enhanced.

OnBoard AUDIO Function (Enabled)

Use this item to enable or disable the onboard Audio function.

OnBoard LAN Function (Enabled)

Use this item to enable or disable the onboard LAN function.

OnBoard LAN Boot ROM (Disabled)

Use this item to enable or disable the booting from the onboard LAN or a network add-in card with a remote boot ROM installed.

Serial Port1 Address (3F8/IRQ4)

Use this item to enable or disable the onboard COM1 serial port, and to assign a port address.

USB Functions (Enabled)

Use this item to enable or disable the USB function.

Legacy USB Support (Enabled)

Use this item to enable or disable support for legacy USB devices. Setting to Auto allows the system to detect the presence of 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 main menu setting page.

Using BIOS

Power Management Setup

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

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Power Management Setup

	S3 (STR)	Help Item
ACPI Suspend Type	S3 (STR)	Select the ACPI state used for System Suspend.
Soft-off by PWR-BTTN	Instant Off	
PWRON After PWR-Fail	Power Off	
Resume by Ring	Disabled	
Resume By PCI/PCI-E/Lan PME	Disabled	
Resume by USB (S3)	Disabled	
Resume By PS2 KB (S3)	Disabled	
Resume By PS2 MS (S3)	Disabled	
Resume on RTC Alarm	Disabled	

↑↓ → ←: Move Enter: Select +/-: Value F10: Save ESC: Exit
F1: General Help F9: Default settings

ACPI Suspend Type (S3(STR))

Use this item to define how your system suspends. In the default, S3, the suspend mode is a suspend to RAM, i.e., the system shuts down with the exception of a refresh current to the system memory.

Soft-off by PWR-BTTN (Instant off)

Under ACPI (Advanced Configuration and Power management Interface) you can create a software power down. In a software power down, the system can be resumed by Wake Up Alarms. This item lets you install a software power down that is controlled by the power button on your system. If the item is set to Instant-Off, then the power button causes a software power down. If the item is set to Delay 4 Sec, then you have to hold the power button down for four seconds to cause a software power down.

PWRON After PWR-Fail (Power Off)

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

Resume By Ring (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the Modem. You must use an ATX power supply in order to use this feature.

Resume By PCI/PCI-E/Lan PME (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the PCI Modem or PCI LAN card. You must use an ATX power supply in order to use this feature. Use this item to do wake-up action if inserting the PCI card.

Resume By USB (S3) (Disabled)

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

Using BIOS

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.

Resume on RTC Alarm (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume at a fixed time based on the system's RTC (realtime clock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.

Press <Esc> to return to the main menu setting page.

PCI / PnP Setup

This page sets up some parameters for devices installed on the PCI bus and those utilizing the system plug and play capability.

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PCI / PnP Setup

Init Display First	PCI	Help Item
		Options
		PCI-E PCI

↑↓ → ←: Move Enter: Select +/-: Value F10: Save ESC: Exit
F1: General Help F9: Default settings

Init Display First (PCI)

Use this item to select which graphics controller to use as the primary boot devices.

Press <Esc> to return to the main menu setting page.

PC Health Status

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

CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.
PC Health Status

-- System Hardware Monitor--		Help Item
▶ Smart Fan Function	Press Enter	
Shutdown Temperature	Disabled	
Warning Temperature	Disabled	
CPU Temperature	: 50°C/122°F	
System Temperature	: 34°C/93°F	
CPU FAN Speed	: 2616 RPM	
SYS FAN Speed	: 0	
CPU Vcore	: 1.360V	
VDIMM	: 1.824V	

↑↓ → ←: Move Enter: Select +/-: Value F10: Save ESC: Exit
F1: General Help F9: Default settings

▶ Smart Fan Function

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

CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.
Smart Fan Function

Smart Fan Function		Help Item
SMART FAN Control	Enabled	
SMART Fan start PWM value	40	
SMART Fan start TEMP.(°C)	50	
DeltaT1	+3	
SMART Fan Slope PWM value	4 PWM value/°C	
		Options
		Disabled
		Enabled

↑↓ → ←: Move Enter: Select +/-: Value F10: Save ESC: Exit
F1: General Help F9: Default settings

SMART FAN Control (Enabled)

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

SMART Fan start PWM value (40)

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

SMART Fan start TEMP. (°C) (50)

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

Using BIOS

DeltaT1 (+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 (4 PWM value/°C)

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

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

Shutdown Temperature (Disabled)

Enable you to set the maximum temperature the system can reach before powering down

Warning Temperature (Disabled)

This item enables or disables the warning temperature.

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 Temperature
- System Temperature
- CPU FAN Speed
- SYS FAN Speed
- CPU Vcore
- VDIMM

Press <Esc> to return to the main menu setting page.

Frequency/Voltage Control

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.

CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.
Frequency/Voltage Control

Auto Detect DIMM/PCI Clk	Enabled	Help item Configuration CPU frequency and voltage.
CPU Voltage	0	
DIMM Voltage	12	
SB Clock Spread Spectrum	Enabled	
Spread Spectrum	Enabled	
CPU Over-clocking Func:	Disabled	
CPU Over-clocking Freq:	200	

↑↓←→: Move Enter: Select +/-: Value F10: Save ESC: Exit
F1: General Help F9: Default settings

Auto Detect DIMM/PCI Clk (Enabled)

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

CPU Voltage (0~63)

This item allows users to adjust the CPU voltage.

DIMM Voltage (0~63)

This item allows users to adjust the DDR memory voltage.

SB Clock Spread Spectrum (Enabled)

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

Spread Spectrum (Enabled)

If you enable spread spectrum, it can significantly reduce the EMI (Electro-Magnetic Interference) generated by the system.

CPU Over-clocking Func.: (Disabled)

This item decides the CPU over-clocking function installed in your system.

CPU Over-clocking Freq.: (200~300)

This item decides the CPU over-clocking frequency installed in your system.



Incorrectly doing overclock/overvoltage may result in damage to CPU, chipset, or memory and reduce the useful life of these components.

This function is for advanced users only and we recommend you not to alter the default settings to prevent system instability or other unexpected results. (Enable for AM2+ / Disable for AM2)

Press <Esc> to return to the main menu setting page.

Using BIOS

Load Default Settings

This option opens a dialog box to ask if you are sure to install optimized defaults or not. You select [OK], and then press <Enter>, the Setup Utility loads all default values; or select [Cancel], and then press <Enter>, the Setup Utility does not load default values.

Supervisor Password

This page helps you install or change a password.

CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.
Supervisor Password

Supervisor Password :Not Installed	Help item
Change Supervisor Password <input type="button" value="Press Enter"/>	Install or Change the password.

↑↓ → ←: Move Enter: Select +/-: Value F10: Save ESC: Exit
F1: General Help F9: Default settings

Supervisor Password (Not Installed)

This item indicates whether a supervisor password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

Change Supervisor Password (Press Enter)

You can select this option and press <Enter> to access the sub menu. You can use the sub menu to change the supervisor password.

Press <Esc> to return to the main menu setting page.

User Password

This page helps you install or change a password.

CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.
User Password

User Password : Not Installed	Help item
Change User Password Press Enter	Install or Change the password.

↑↓ → ← Move Enter: Select +/-: Value F10: Save ESC: Exit
F1: General Help F9: Default settings

User Password (Not Installed)

This item indicates whether a user password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

Change User Password (Press Enter)

You can select this option and press <Enter> to access the sub menu. You can use the sub menu to change the user password. This item will show if the supervisor password is set.

Press <Esc> to return to the main menu setting page.

Save & Exit Setup

Highlight this item and press <Enter> to save the changes that you have made in the Setup Utility and exit the Setup Utility. When the Save and Exit dialog box appears, select [OK] to save and exit, or select [Cancel] to return to the main menu.

Exit Without Saving

Highlight this item and press <Enter> to discard any changes that you have made in the Setup Utility and exit the Setup Utility. When the Exit Without Saving dialog box appears, select [OK] to discard changes and exit, or select [Cancel] to return to the main menu.



If you have made settings that you do not want to save, use the "Exit Without Saving" item and select [OK] to discard any changes you have made.

Using BIOS

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.

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

Memo

Using BIOS

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#appliedto> for more information.

Auto-installing under Windows XP/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 disc loads automatically under Windows XP/Vista/7. When you insert the DVD-ROM/CD-ROM disc 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.</p> <p>In installing 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.

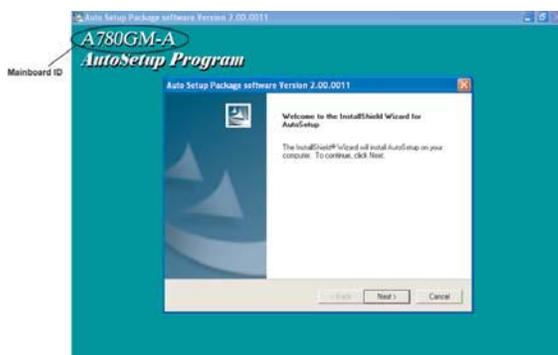
Information Tab

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:

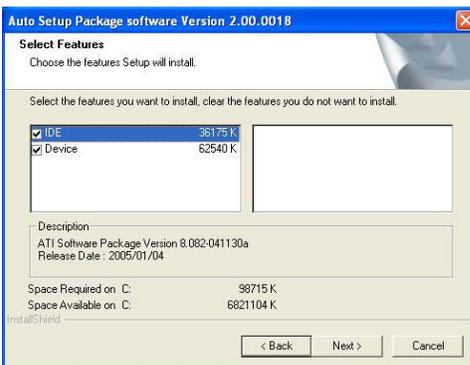


The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.

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.

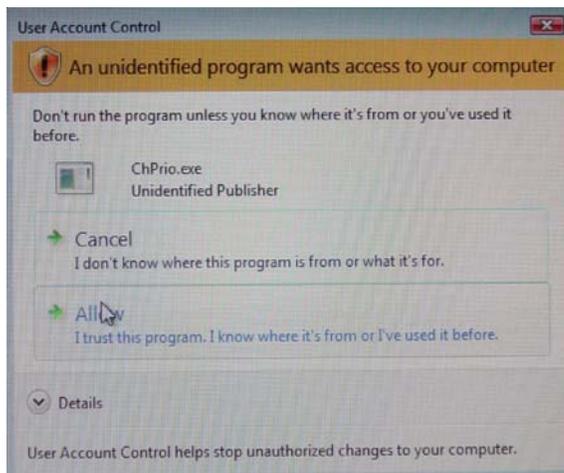


Drivers and software are automatically installed in sequence. Follow the onscreen instructions, confirm commands and allow the computer to restart a few times to complete the installation.

Using the Motherboard Software



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.



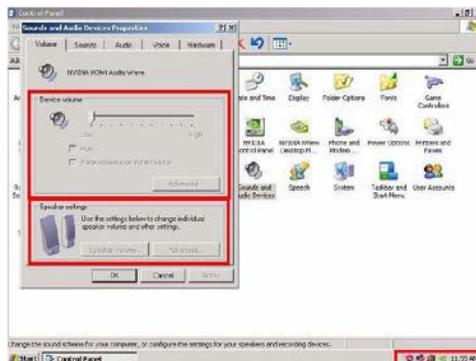
1. *These software(s) are subject to change at anytime without prior notice. Please refer to the support disk for available software.*
2. *Please go to ECS website to download AMD Cool “n” Quiet™ technology.*

Using the Motherboard Software

HDMI Audio setting SOP

OS: XP system

1. Control Panel-->Sound and Audio Device Properties



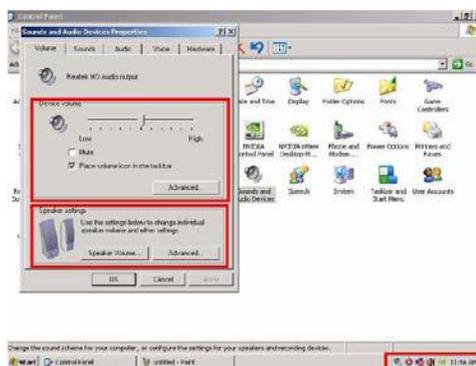
2. a. Audio--> Sound playback--> Default device--> HD Audio Output

b. Audio--> Sound playback--> Default device--> HDMI Audio Output



3. a. User Playback Audio speaker function working

b. User Playback HDMI speaker function working



Using the Motherboard Software

OS: Vista system

Control Panel--> Sound--> Playback--> Digital Output Device (HDMI) --> Set Default

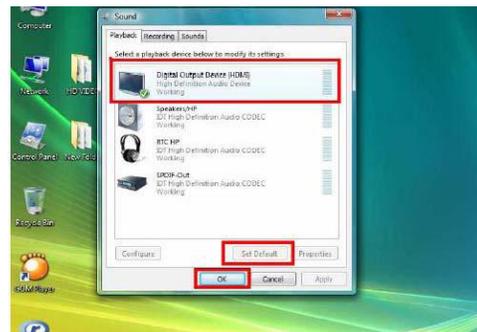


1. Volume --> Playback



2. Digital Output Device (HDMI) --> Set Default --> OK

User HDMI Playback function working



Using the Motherboard Software

3. Speaker --> Set Default --> OK

User Speaker Palyback function working



4. SPDIF-Out --> Set Default --> OK

User SPDIF-Out Playback function working



This concludes chapter 4.

Memo

Chapter 5

Setting Up eJIFFY

Introduction

eJIFFY is a fast boot program under Linux. Instead of waiting Windows O.S to start execution, eJIFFY is ready to provide users the instant enjoyment on web browsing, photo review and online chat just within several seconds after boot up.



Note: eJIFFY is ECS *optional* feature utility corresponding to the DVD activation and BIOS setup. Please check the hard copy user's guide or product color-box to see if the model has embodded eJIFFY feature. (eJIFFY icon on color-box



Version: 5.0

Setting Up eJIFFY

Installation and BIOS Setup

DVD Activation

Finish the DVD utility setup, and then set the BIOS to complete eJIFFY activation.

1. Insert ECS software utility DVD and enter below “Utilities” screen. Click eJIFFY feature item to install.



2. Follow the onscreen instructions to finish eJIFFY setup.



Setting Up eJIFFY

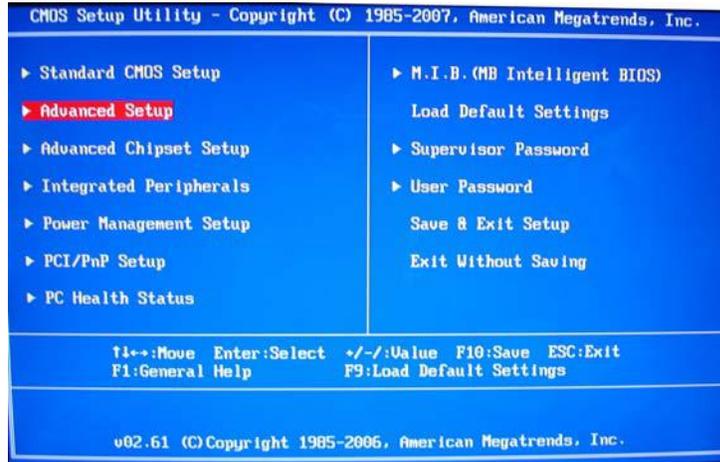
3. After setting up eJIFFY under Windows, you can switch eJIFFY display/keyboard language from English to your local language. The changes will be applied after rebooting.



Note: The keyboard language selection list offers several more regional keyboard setups to switch with the default English typing. Please refer to the usage FAQ for more tips.

Setting Up eJIFFY

4. Restart your computer after eJIFFY installation. Press or click the BIOS Setup button on the post screen to enter the BIOS setup page after boot up.



5. And then enter the *Advanced Setup* page to enable the item *ECS eJIFFY Function*. Press F10 to save the configuration and exit. Restart your computer.



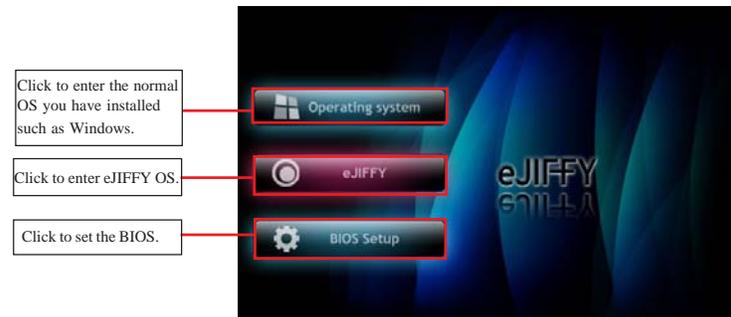
Note: 1. eJIFFY is available in SATA/IDE/AHCI mode. It does not support RAID configuration and the onboard 34-pin floppy drives.

2. Please refer to ECS website for new eJIFFY application updates.

Setting Up eJIFFY

Entering eJIFFY

The post screen appears within several seconds after boot up and it has three buttons on it, Operating system, eJIFFY and BIOS Setup.



If you click eJIFFY, the following screen will appear. And If you make no choice it will enter the normal OS automatically after ten seconds.



Setting Up eJIFFY

Feature Icons

The following illustration shows the main feature icons that eJIFFY provides on the menu.



eWeb: Firefox for web browsing/webmail and watching flash video.



ePix: Photo viewing.



ePal: On-line chat tool to use the most popular IMs in the world. (MSN, ICQ, AIM, etc.)



Shows ePal on-line connection status.



Shut Down/Restart: Ends your session and turns off the computer./Ends your session and restart the computer..



Click once to connect the storage disk to your computer. Click for the second time to remove your storage disk safely. (please refer to the FAQ for more usage information.)



Shows the network connection status.



Language Control Panel



Switch Keyboard Languages

Setting Up eJIFFY

Usage FAQ



Language Control Panel: Besides setting English as the default interface, eJIFFY offers multi-language displays and keyboard settings for language-switch. Open the language control panel to select a preferable language setting.

Keyboard Language Setup

Step1. Click  to open the language control panel.



Step 2: Click “Keyboard Language” icon  to open the keyboard selection

list, which offers several regional keyboard settings besides default English keyboard.

Step 3: Click the selected keyboard language (e.g. French) and press “OK”.



Setting Up eJIFFY

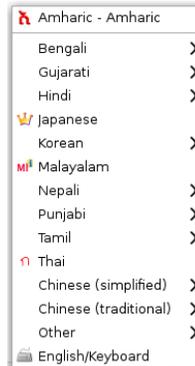
Click  to enable all possible language inputs you want to apply, and click “Apply”:



You can enable/disable input methods and set hotkeys for input methods here.



Select your desired language

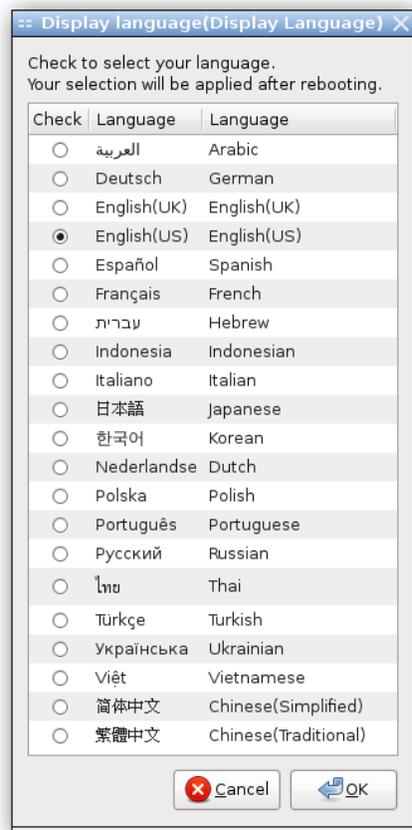


Setting Up eJIFFY

How to change display language?

Open the Language Control Panel and click  to show the display language

list. Check your desired display language. Your selected display language will be applied after rebooting.



Note: Details about eJIFFY please refer to eJIFFY in disk.

Setting Up eJIFFY

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 component may be at fault.

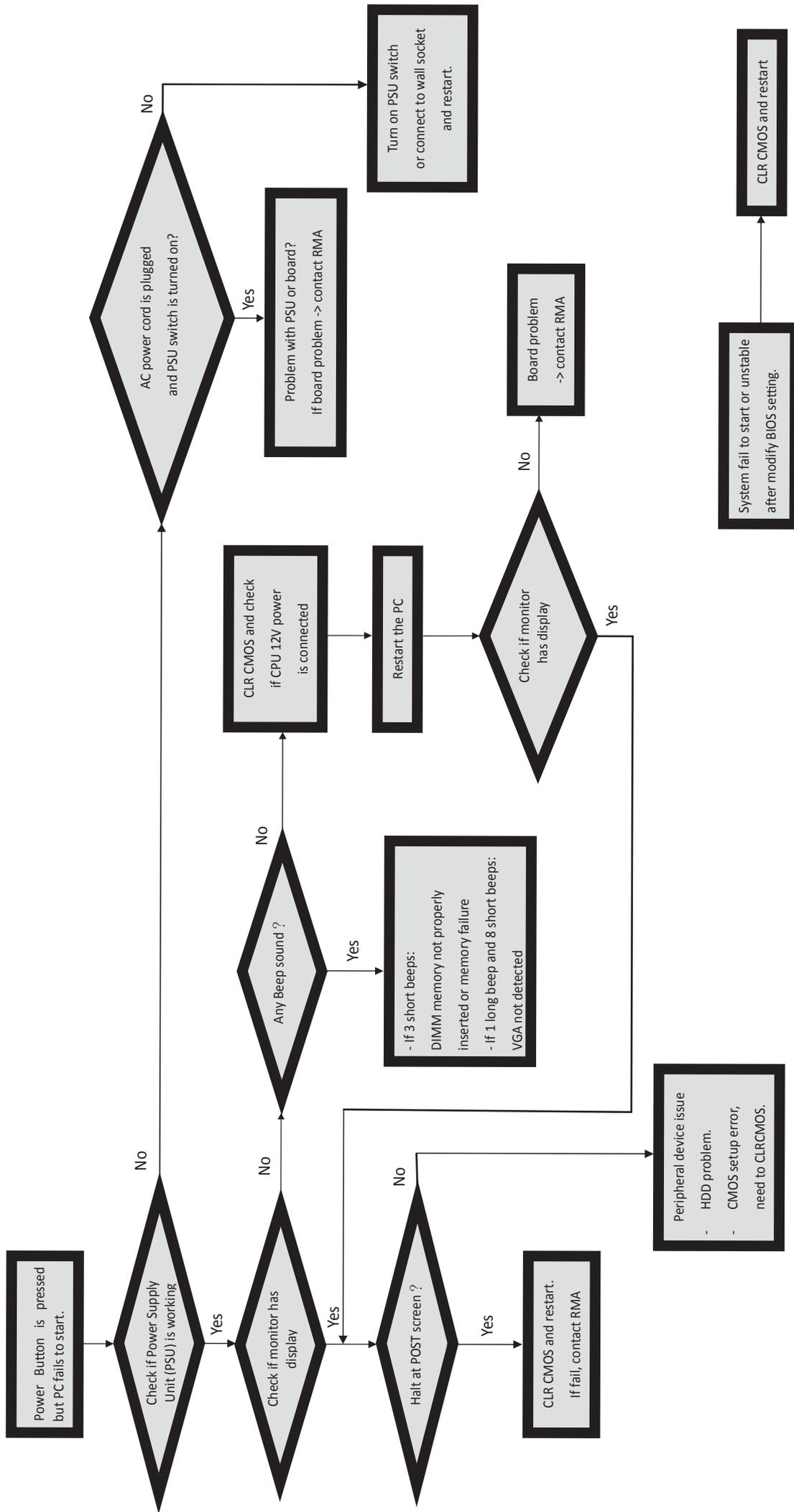
Maintenance and care tips

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.

Trouble Shooting

Basic Troubleshooting Flowchart



Memo

Trouble Shooting