

FATAL1TY AN9 32X



**Motherboard
AMD Socket AM2**

User's Manual



- AMD Socket AM2
ATX Motherboard**

- NB: NVIDIA C51XE**

- SB: NVIDIA MCP55PXE**

- 2GHz HT**

- Dual DDR2 800 DIMM Slots**

- NVIDIA SLI Technology**

- Dual PCI-E X16 Slots**

- Dual GbE LAN**

- IEEE 1394a**

- 6x SATA 3Gb/s with
RAID 0/1/0+1/5/JBOD**

- Fatal1ty Guru™ Technology**

- ABIT OTES GT™ Technology**

- 7.1 Channel HD Audio**

For more information:

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Introduction

Hardware Setup

BIOS Setup

Driver & Utility CD

Appendix

FATAL1TY AN9 32X

User's Manual
English, 1st Edition
May, 2006

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1. Introduction

1.1 Fatality

FATALITY STORY

Who knew that at age 19, I would be a World Champion PC gamer. When I was 13, I actually played competitive billiards in professional tournaments and won four or five games off guys who played at the highest level. I actually thought of making a career of it, but at that young age situations change rapidly. Because I've been blessed with great hand-eye coordination and a grasp of mathematics (an important element in video gaming) I gravitated to that activity.



GOING PRO

I started professional gaming in 1999 when I entered the CPL (Cyberathlete Professional League) tournament in Dallas and won \$4,000 for coming in third place. Emerging as one of the top players in the United States, a company interested in sponsoring me flew me to Sweden to compete against the top 12 players in the world. I won 18 straight games, lost none, and took first place, becoming the number one ranked Quake III player in the world in the process. Two months later I followed that success by traveling to Dallas and defending my title as the world's best Quake III player, winning the \$40,000 grand prize. My earned frags allowed at this tournament were 2.5. From there I entered competitions all over the world, including Singapore, Korea, Germany, Australia, Holland and Brazil in addition to Los Angeles, New York and St. Louis.

WINNING STREAK

I was excited to showcase my true gaming skills when defending my title as CPL Champion of the year at the CPL Winter 2001 because I would be competing in a totally different first person shooter (fps) game, Alien vs. Predator II. I won that competition and walked away with a new car. The next year I won the same title playing Unreal Tournament 2003, becoming the only three-time CPL champion. And I did it playing a different game each year, something no one else has ever done and a feat of which I am extremely proud.

At QuakeCon 2002, I faced off against my rival ZeRo4 in one of the most highly anticipated matches of the year, winning in a 14 to (-1) killer victory. Competing at Quakecon 2004, I became the World's 1st Doom3 Champion by defeating Daler in a series of very challenging matches and earning \$25,000 for the victory.

LIVIN' LARGE

Since my first big tournament wins, I have been a "Professional Cyberathlete", traveling the world and livin' large with lots of International media coverage on outlets such as MTV, ESPN and G4TV to name only a few. It's unreal - it's crazy. I'm living a dream by playing video games for a living. I've always been athletic and took sports like hockey and football very seriously, working out and training hard. This discipline helps me become a better gamer and my drive to be the best has opened the doors necessary to become a professional.

A DREAM

Now, another dream is being realized – building the ultimate gaming computer, made up of the best parts under my own brand. Quality hardware makes a huge difference in competitions...a couple more frames per second and everything gets really nice. It's all about getting the computer processing faster and allowing more fluid movement around the maps.

My vision for Fatal1ty hardware is to allow gamers to focus on the game without worrying about their equipment, something I've preached since I began competing. I don't want to worry about my equipment. I want it to be there – over and done with - so I can focus on the game. I want it to be the fastest and most stable computer equipment on the face of the planet, so quality is what Fatal1ty brand products will represent.

FATAL1TY BRAIN TRUST

This is just the beginning. We're already in development for several new products, and I'm really grateful to all my Fatal1ty Brain Trust partners for helping make my dreams a reality.

I know there is a business side to all of this, but for me the true reward is making products that are so good I can win with them – and making them available to fellow gamers. Gaming is my life, and many fellow gamers around the world are also some of my best friends, so giving back to the gaming community is really important to me.

A handwritten signature in black ink, appearing to read "Johnathan" with a stylized "1" above the "n". The signature is fluid and cursive, with a large loop at the end.

Johnathan "Fatal1ty" Wendel

1.2 Features & Specifications

CPU

- Supports Socket 940 AM2 Processor with 2GHz system bus using Hyper-Transport™ Technology
- Supports AMD CPU Cool 'n' Quiet Technology

Chipset

- Northbridge: NVIDIA® C51XE Chipset
- Southbridge: NVIDIA® MCP55PX Chipset

Memory

- Four 240-pin DIMM slots
- Supports Dual Channel DDR2 800 Un-buffered ECC/Non-ECC memory
- Supports maximum memory capacity up to 8GB

ABIT Engineered

- ABIT Fatal1ty Guru™ Technology
- ABIT OTES GT™ Technology

NVIDIA SLI Technology

- Two PCI-Express X16 slots support NVIDIA Scalable Link Interface

SATA 3Gb/s RAID

- Supports 6 ports NV SATA 3Gb/s RAID 0/1/0+1/5/JBOD

Dual GbE LAN

- Dual NVIDIA® Gigabit Ethernet

IEEE 1394

- Supports 2 Ports IEEE 1394a at 400Mb/s transfer rate

Audio

- ABIT AudioMAX HD 7.1 CH
- Supports auto jack sensing and optical S/PDIF In/Out

Expansion Slots

- 2x PCI Express x16 slots
- 2x PCI Express x1 slots
- 1x PCI slot
- 1x AudioMAX slot

Internal I/O Connectors

- 1x Floppy port
- 1x UDMA 133/100/66/33 connector
- 6x SATA connectors
- 3x USB 2.0 headers

- 2x IEEE1394a headers

Rear Panel I/O

- OTEG GT™
- 1x PS/2 Keyboard connector
- 1x PS/2 Mouse connector
- 2x RJ-45 Gigabit LAN ports
- 4x USB 2.0 ports

Miscellaneous

- ATX form factor (305mm x 245mm)

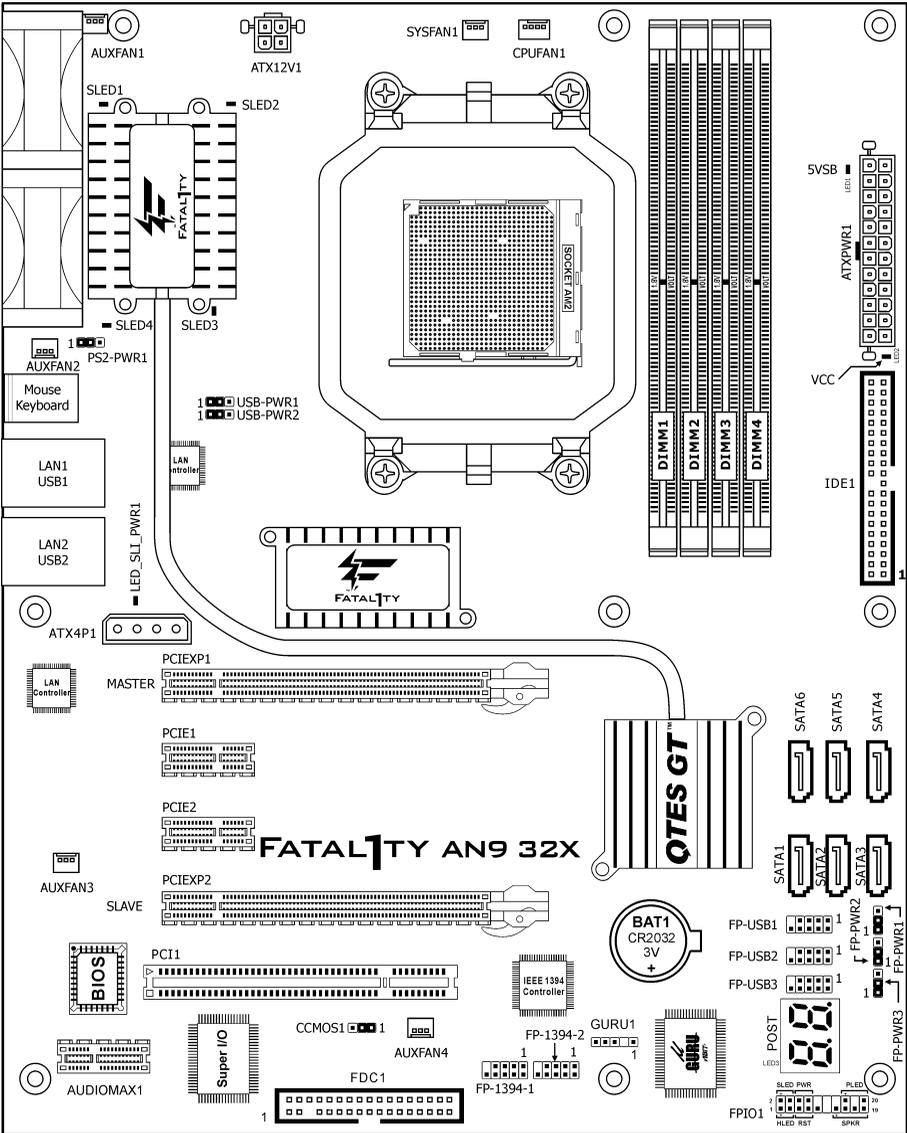
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1.3 Motherboard Layout



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2. Hardware Setup

In this chapter we will elaborate all the information you need upon installing this motherboard to your computer system.

✘ **Always power off the computer and unplug the AC power cord before adding or removing any peripheral or component. Failing to do so may cause severe damage to your motherboard and/or peripherals. Plug in the AC power cord only after you have carefully checked everything.**

2.1 Choosing a Computer Chassis

- This motherboard carries an ATX form factor of 305 x 245 mm. Choose a chassis big enough to install this motherboard.
- As some features for this motherboard are implemented by cabling connectors on the motherboard to indicators and switches or buttons on the chassis, make sure your chassis supports all the features required.
- If there is possibility of adopting some more hard drives, make sure your chassis has sufficient power and space for them.
- Most chassis have alternatives for I/O shield located at the rear panel. Make sure the I/O shield of the chassis matches the I/O port configuration of this motherboard. You can find an I/O shield specifically designed for this motherboard in its package.

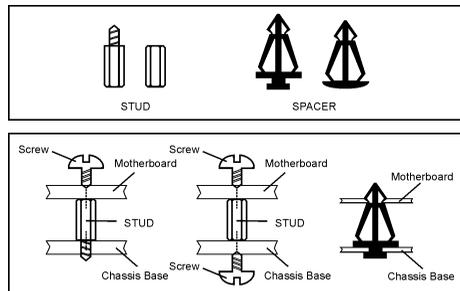
2.2 Installing Motherboard

Most computer chassis have a base with many mounting holes to allow the motherboard to be securely attached, and at the same time, prevent the system from short circuits. There are two ways to attach the motherboard to the chassis base:

1. with studs,
2. or with spacers

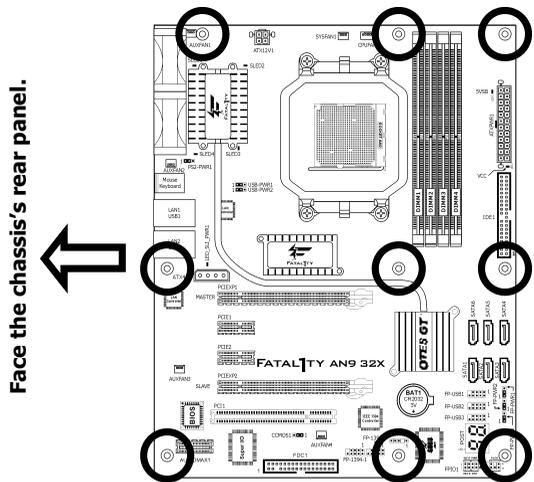
In principle, the best way to attach the board is with studs. Only if you are unable to do this should you attach the board with spacers.

Line up the holes on the board with the mounting holes on the chassis. If the holes line up and there are screw holes, you can attach the board with studs. If the holes line up and there are only slots, you can only attach with spacers. Take the tip of the spacers and insert them into the slots. After doing this to all the slots, you can slide the board into position aligned with slots. After the board has been positioned, check to make sure everything is OK before putting the chassis back on.



To install this motherboard:

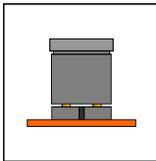
1. Locate all the screw holes on the motherboard and the chassis base.
2. Place all the studs or spacers needed on the chassis base and have them tightened.
3. Face the motherboard's I/O ports toward the chassis's rear panel.
4. Line up all the motherboard's screw holes with those studs or spacers on the chassis.
5. Install the motherboard with screws and have them tightened.



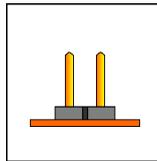
- ※ To prevent shorting the PCB circuit, please REMOVE the metal studs or spacers if they are already fastened on the chassis base and are without mounting-holes on the motherboard to align with.

2.3 Checking Jumper Settings

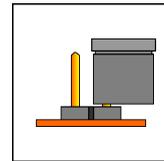
For a 2-pin jumper, plug the jumper cap on both pins will make it CLOSE (SHORT). Remove the jumper cap, or plug it on either pin (reserved for future use) will leave it at OPEN position.



SHORT

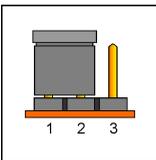


OPEN

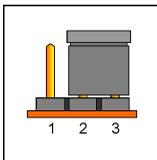


OPEN

For 3-pin jumper, pin 1~2 or pin 2~3 can be shorted by plugging the jumper cap in.



Pin 1~2 SHORT



Pin 2~3 SHORT

2.3.1 CMOS Memory Clearing Header and Backup Battery

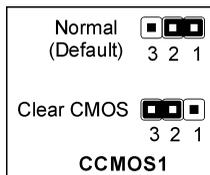
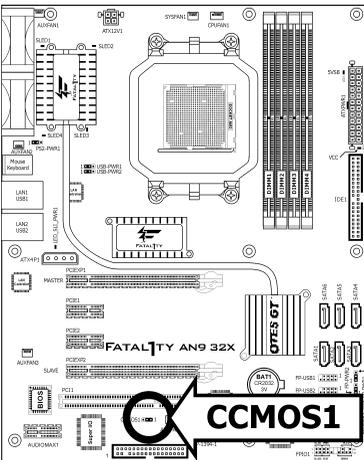
The time to clear the CMOS memory occurs when (a) the CMOS data becomes corrupted, (b) you forgot the supervisor or user password preset in the BIOS menu, (c) you are unable to boot-up the system because the CPU ratio/clock was incorrectly set in the BIOS menu.

This header uses a jumper cap to clear the CMOS memory and have it reconfigured to the default values stored in BIOS.

- **Pins 1 and 2 shorted (default):** Normal operation.
- **Pins 2 and 3 shorted:** Clear CMOS memory.

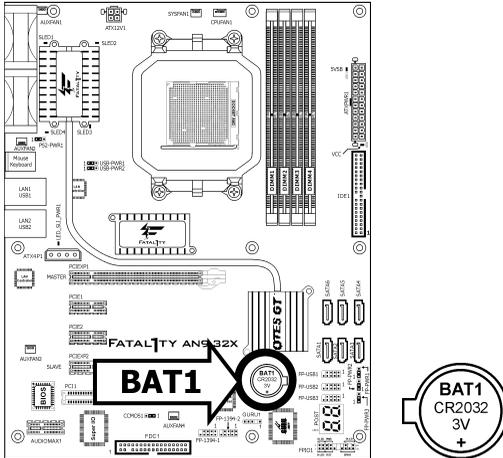
To clear the CMOS memory and load in the default values:

1. Power off the system and disconnect with AC power source.
2. Set pin 2 and pin 3 shorted by the jumper cap. Wait for a few seconds. Set the jumper cap back to its default settings --- pin 1 and pin 2 shorted.
3. Power on the system.
4. For incorrect CPU ratio/clock settings in the BIOS, press key to enter the BIOS setup menu right after powering on system.
5. Set the CPU operating speed back to its default or an appropriate value.
6. Save and exit the BIOS setup menu.



CMOS Backup Battery:

An onboard battery saves the CMOS memory to keep the BIOS information stays on even after disconnected your system with power source. Nevertheless, this backup battery exhausts after some five years. Once the error message like "**CMOS BATTERY HAS FAILED**" or "**CMOS checksum error**" displays on monitor, this backup battery is no longer functional and has to be renewed.



To renew the backup battery:

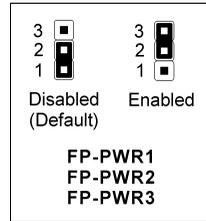
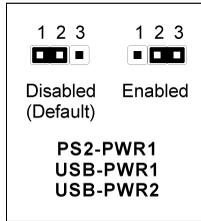
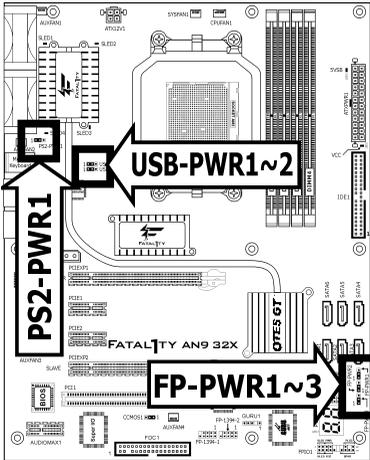
1. Power off the system and disconnect with AC power source.
2. Remove the exhausted battery.
3. Insert a new CR2032 or equivalent battery. Pay attention to its polarity. The "+" side is its positive polarity.
4. Connect AC power source and power on the system.
5. Enter the BIOS setup menu. Reconfigure the setup parameters if necessary.

CAUTION:

- ⌘ **Danger of explosion may arise if the battery is incorrectly renewed.**
- ⌘ **Renew only with the same or equivalent type recommended by the battery manufacturer.**
- ⌘ **Dispose of used batteries according to the battery manufacturer's instructions.**

2.3.2 Wake-up Headers

These headers use a jumper cap to enable/disable the wake-up function.

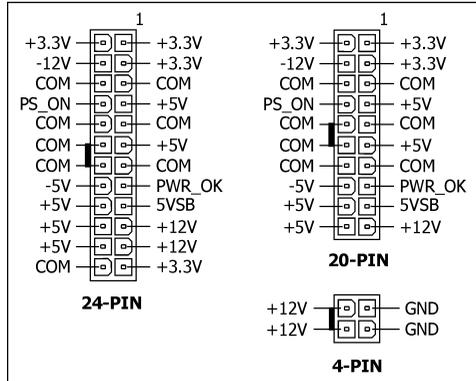
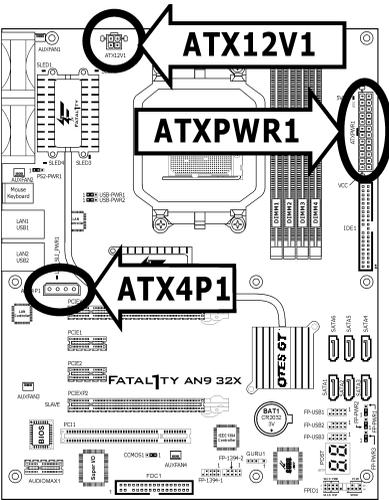


- **PS2-PWR1:**
 Pin 1-2 shorted (Default): Disable wake-up function support at Keyboard/Mouse port.
 Pin 2-3 shorted: Enable wake-up function support at Keyboard/Mouse port.
- **USB-PWR1:**
 Pin 1-2 shorted (Default): Disable wake-up function support at USB1 port.
 Pin 2-3 shorted: Enable wake-up function support at USB1 port.
- **USB-PWR2:**
 Pin 1-2 shorted (Default): Disable wake-up function support at USB2 port.
 Pin 2-3 shorted: Enable wake-up function support at USB2 port
- **FP-PWR1:**
 Pin 1-2 shorted (Default): Disable wake-up function support at FP-USB1 port.
 Pin 2-3 shorted: Enable wake-up function support at FP-USB1 port.
- **FP-PWR2:**
 Pin 1-2 shorted (Default): Disable wake-up function support at FP-USB2 port.
 Pin 2-3 shorted: Enable wake-up function support at FP-USB2 port
- **FP-PWR3:**
 Pin 1-2 shorted (Default): Disable wake-up function support at FP-USB3 port.
 Pin 2-3 shorted: Enable wake-up function support at FP-USB3 port

2.4 Connecting Chassis Components

2.4.1 ATX Power Connectors

These connectors provide the connection from an ATX power supply. As the plugs from the power supply fit in only one orientation, find the correct one and push firmly down into these connectors.



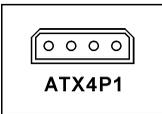
ATX 24-Pin Power Connector:

The power supply with 20-pin or 24-pin cables can both be connected to this 24-pin connector. Connect from pin-1 for either type. However, a 20-pin power supply may cause the system unstable or even unbootable for the sake of insufficient electricity. A minimum power of 300W or higher is recommended.

ATX 12V 4-Pin Power Connector:

This connector supplies power to CPU. The system will not start without connecting power to this one.

Auxiliary 12V Power Connector:

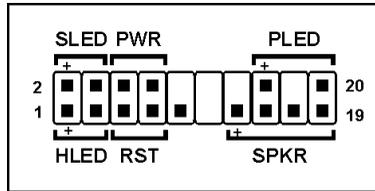
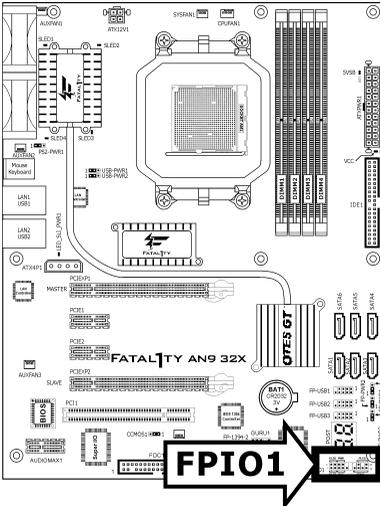


This connector provides an auxiliary power source for devices added on PCI Express slots.

2.4.2 Front Panel Switches & Indicators Headers

This header is used for connecting switches and LED indicators on the chassis front panel.

Watch the power LED pin position and orientation. The mark "+" align to the pin in the figure below stands for positive polarity for the LED connection. Please pay attention to connect these headers. A wrong orientation will only cause the LED not lighting, but a wrong connection of the switches could cause system malfunction.

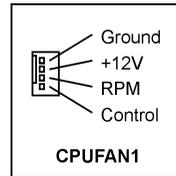
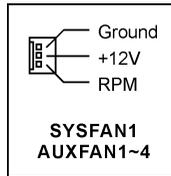
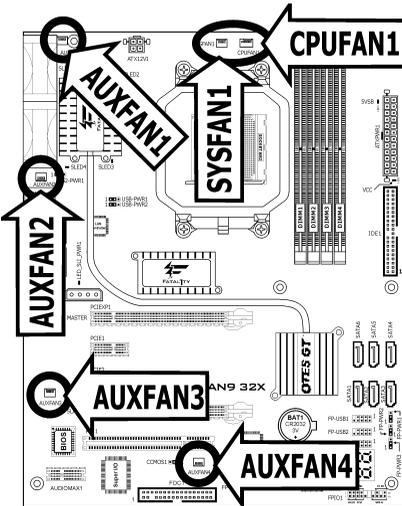


- **HLED (Pin 1, 3):**
Connects to the HDD LED cable of chassis front panel.
- **RST (Pin 5, 7):**
Connects to the Reset Switch cable of chassis front panel.
- **SPKR (Pin 13, 15, 17, 19):**
Connects to the System Speaker cable of chassis.
- **SLED (Pin 2, 4):**
Connects to the Suspend LED cable (if there is one) of chassis front panel.
- **PWR (Pin 6, 8):**
Connects to the Power Switch cable of chassis front panel.
- **PLED (Pin 16, 18, 20):**
Connects to the Power LED cable of chassis front panel.

2.4.3 FAN Power Connectors

These connectors each provide power to the cooling fans installed in your system.

- **CPUFAN1:** CPU Fan Power Connector
 - **SYSFAN1:** System Fan Power Connector
 - **AUXFAN1~4:** Auxiliary Fan Power Connector
- ※ **These fan connectors are not jumpers. DO NOT place jumper caps on these connectors.**



2.5 Installing Hardware

- ※ **DO NOT scratch the motherboard when installing hardware. An accidentally scratch of a tiny surface-mount component may seriously damage the motherboard.**

2.5.1 CPU Socket AM2

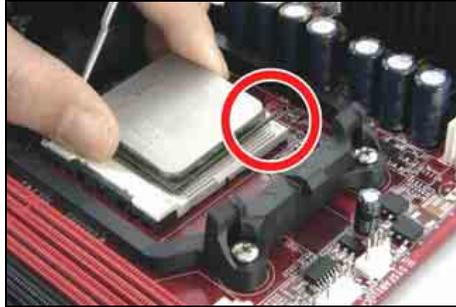
- ※ **DO NOT touch or bend the delicate pins on the CPU whenever you are holding it.**

The installation procedures vary with different types of CPU fan-and-heatsink assembly. The one shown here is served for **DEMO** only. For detailed information on how to install the one you bought, refer to its installation guidelines.

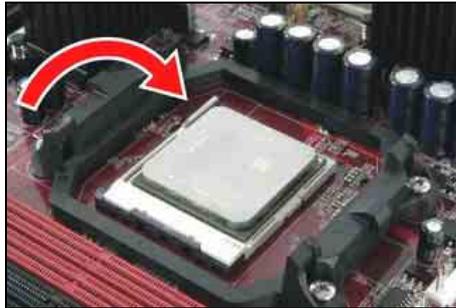
1. Pull out the socket lever away from the socket and fully lift it up over 90-degree angle.

Locate and align the triangle mark with both the CPU and the socket body. Vertically place the CPU with its pin-side down into the socket.

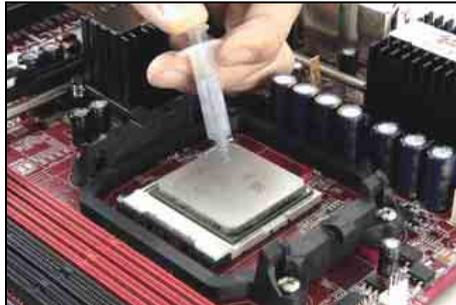
Be careful to insert the CPU into the socket. The CPU only fits in one orientation with the socket. **DO NOT** force the CPU into the socket.



2. After placing the CPU into position, push the socket lever down into its locked position to secure the CPU. The lever clicks when it's locked into position.



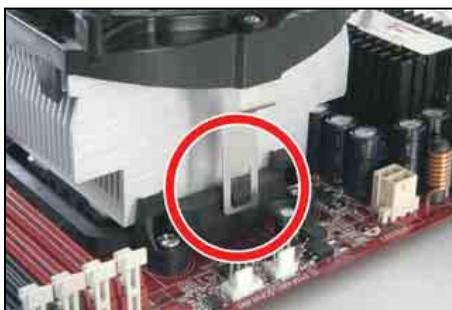
3. The heatsink for CPU may have thermal interface material attached to its bottom. If not, applying a few squeeze of thermal paste to the CPU die will help to increase the contact.



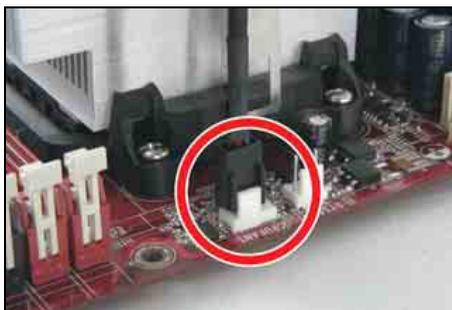
4. Place the heatsink and fan assembly onto the retention frame. Match the heatsink clip with the socket mounting-lug. Hook the spring clip to the mounting-lug.



5. On the other side, push the retention clip straight down to lock into the plastic lug on the retention frame.



6. Connect the CPU cooling fan power cable to the CPUFAN1 connector on this motherboard.



※ A higher fan speed will be helpful for better airflow and heat-dissipation. Nevertheless, stay alert to touch any heatsink since the high temperature generated by the working system is still possible.

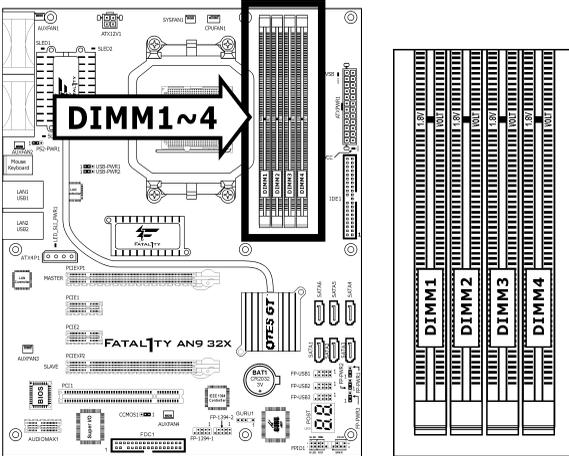
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2.5.2 DDR2 Memory Slots

This motherboard provides four 240-pin DIMM slots for Dual Channel DDR2 800 memory modules with memory expansion size up to 8GB.



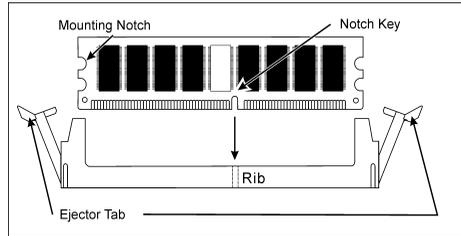
To reach the performance of Dual Channel DDR2, the following rules must be obeyed:

- **For a 2-DIMM dual-channel installation:**
Populate DIMM modules of the same type and size on slots [DIMM1]+[DIMM2], or slots [DIMM3]+[DIMM4].
 - **For a 4-DIMM dual-channel installation:**
Populate 2 DIMM modules of the same type and size on slots [DIMM1]+[DIMM2], and another 2 DIMM modules of the same type and size on slots [DIMM3]+[DIMM4].
- ※ [DIMM1] and [DIMM2] slots are made of the same color.
[DIMM3] and [DIMM4] are made of another same color.

Usually there is no hardware or BIOS setup requires after adding or removing memory modules, but you will have to clear the CMOS memory first if any memory module related problem occurs.

To install system memory:

1. Power off the computer and unplug the AC power cord before installing or removing memory modules.
2. Locate the DIMM slot on the board.
3. Hold two edges of the DIMM module carefully, keep away of touching its connectors.
4. Align the notch key on the module with the rib on the slot.
5. Firmly press the module into the slots until the ejector tabs at both sides of the slot automatically snaps into the mounting notch. Do not force the DIMM module in with extra force as the DIMM module only fit in one direction.
6. To remove the DIMM modules, push the two ejector tabs on the slot outward simultaneously, and then pull out the DIMM module.



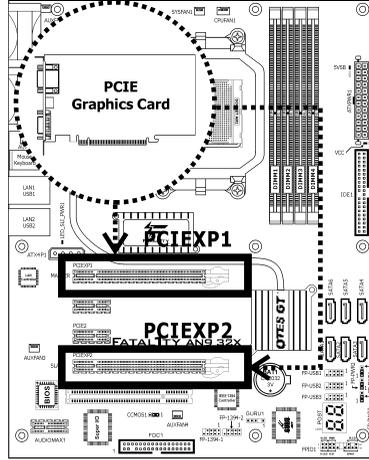
※ **Static electricity can damage the electronic components of the computer or optional boards. Before starting these procedures, ensure that you are discharged of static electricity by touching a grounded metal object briefly.**

2.5.3 PCI Express X16 Add-on Slots (Install Graphics Card)

These slots support the connections of graphics cards that comply with PCI Express specifications. This motherboard provides dual PCI-Express X16 slots for one or two graphics cards installation:

One PCIE graphics card installation (Normal Mode):

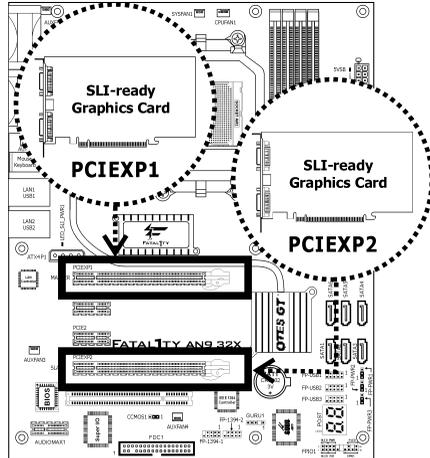
Insert your PCIE graphics card into either [PCIEXP1] or [PCIEXP2] slot.



Two PCIE graphics cards installation (SLI Mode):

Insert two identical SLI-ready graphics cards into both PCIEXP1 and PCIEXP2 slots.

- ※ The NVIDIA SLI technology currently supports the Windows XP operating system only.



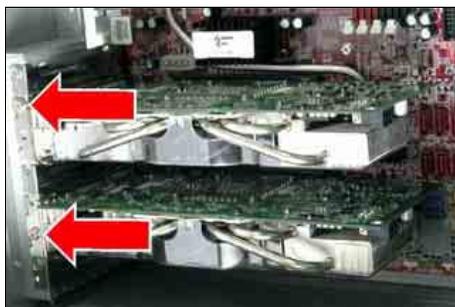
To install two SLI-ready graphics cards under SLI Mode, you will need to:

- Prepare two identical NVIDIA certified, SLI-ready PCI Express x16 graphics cards (the same model from the same manufacturer).
- Make sure the graphics card driver supports the NVIDIA SLI technology. Download the latest driver from NVIDIA website (www.nvidia.com).
- Make sure your power supply unit is sufficient to provide the minimum power required.

※ **The following illustration is served for DEMO only. All the devices, including the motherboard, the graphics cards, the SLI Bridge Connector, or the SLI bracket, may not be exactly the same type, shape, or model as the one you bought.**

1. Unscrew and remove five of the I/O brackets at the chassis's rear panel starting from the first one for PCIEXP1 slot.

Carefully insert two graphics cards into both the PCI Express X16 slots on this motherboard. Secure the graphics cards with the two screws removed from the I/O bracket to the first and last screw holes. Leave the three screw holes in between unscrewed.



2. Place Abit's exclusive SLI FAN assembly "SLIstream" atop the two graphics cards. For not installing the SLI supporting bracket, you may secure the fan assembly now with the three screws removed from the I/O bracket.

Keep any components on the graphics cards away from been touched by the metal frame of the SLI FAN assembly.



3. Bridge connect two graphics cards with the "SLI Connector Card" (fit in both direction).

Keep any components on the "SLI Connector Card" away from been touched by the metal frame of the SLI FAN assembly.

Now complete the installation of two graphics cards, SLI FAN assembly, and the "SLI Connector Card".

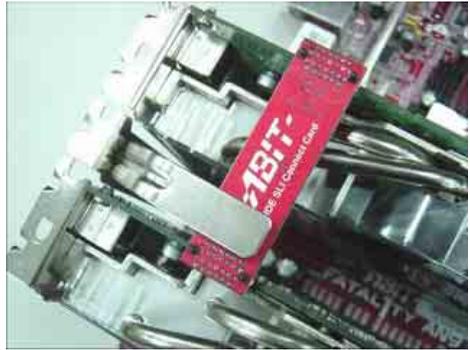


- To install together with the SLI supporting bracket, unscrew the central hole of the I/O panel, insert the SLI supporting bracket, and then have it secured.

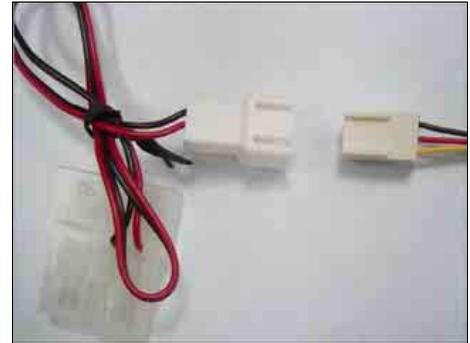
The default airflow direction blows the motherboard. To reverse the airflow, pull out the fan body from the frame, overturn and push it in.



- To install without the SLI FAN assembly, connect the "SLI Connector Card" right after having installed two graphics cards, and then insert and secure the SLI supporting bracket.



- Connect the power plug from the SLI FAN assembly either to the three-leaded fan-power connector on your motherboard, or directly to the ATX12V power supply.



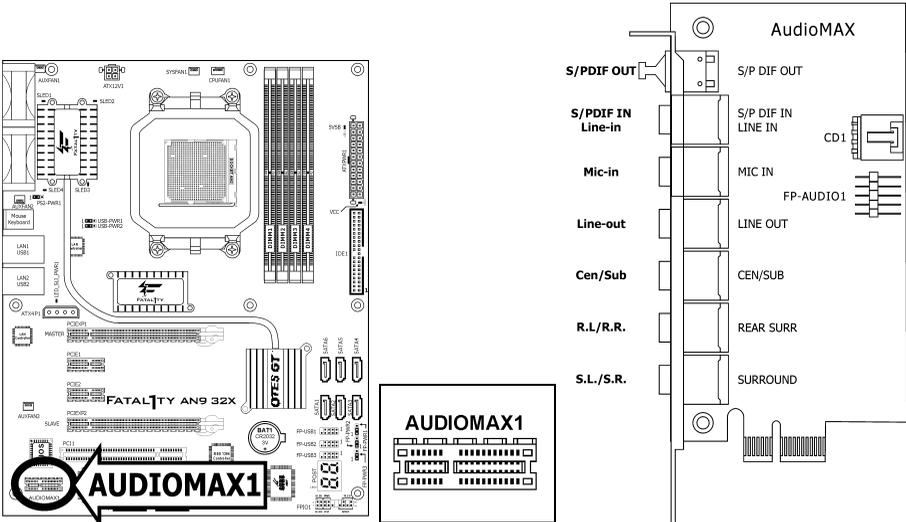
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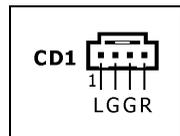
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2.5.4 AudioMAX Connection Slot

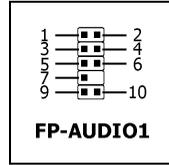
This slot provides the audio input/output connection over the rear I/O part through an add-on daughter-card. Find your "AudioMAX" daughter-card and its driver in the motherboard package.



- **S/PDIF Out:** This connector provides an S/PDIF-Out connection through optical fiber to digital multimedia devices.
- **S/PDIF In:** This connector provides an S/PDIF-In connection through optical fiber to digital multimedia devices.
- **Line-In:** Connects to the line out from external audio sources.
- **Mic-In:** Connects to the plug from external microphone.
- **Line-Out:** Connects to the front left and front right channel in the 7.1-channel or regular 2-channel audio system.
- **Cen/Sub:** Connects to the center and subwoofer channel in the 7.1-channel audio system.
- **R.L./R.R. (Rear Left / Rear Right):** Connects to the rear left and rear right channel in the 7.1-channel audio system.
- **S.L./S.R. (Surround Left / Surround Right):** Connects to the surround left and surround right channel in the 7.1-channel audio system.
- **CD1:** This connector connects to the audio output of internal CD-ROM drive or add-on card.



- **FP-AUDIO1:** This header provides the connection to audio connector at front panel.



This header provides the front panel connection for HD (High Definition) Audio, yet for AC'97 Audio CODEC connection, you must carefully check the pin assignment before connecting from the front panel module. An incorrect connection may cause malfunction or even damage the motherboard.

※ **Please do not connect the "Ground" cable or "USB VCC" cable from the front panel module to the Pin 4 "AVCC" of this header.**

Pin	Pin Assignment (HD AUDIO)
1	MIC2 L
2	AGND
3	MIC2 R
4	AVCC
5	FRO-R
6	MIC2_JD
7	F_IO_SEN
9	FRO-L
10	LINE2_JD

Pin	Pin Assignment (AC'97 AUDIO)
1	MIC In
2	GND
3	MIC Power
4	NC
5	Line Out (R)
6	NC
7	NC
9	Line Out (L)
10	NC

Driver Configuration for AC'97 audio connection:

The audio driver is originally configured to support HD Audio. For AC'97 audio connection, you may:

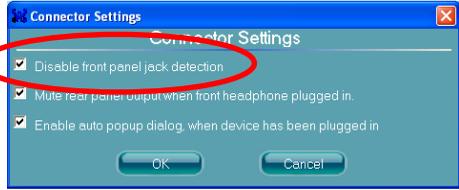
1. Right-click the "Realtek HD Audio Manager" icon  in system tray.



2. Click "Audio I/O" tab, and then click "Connector Settings".



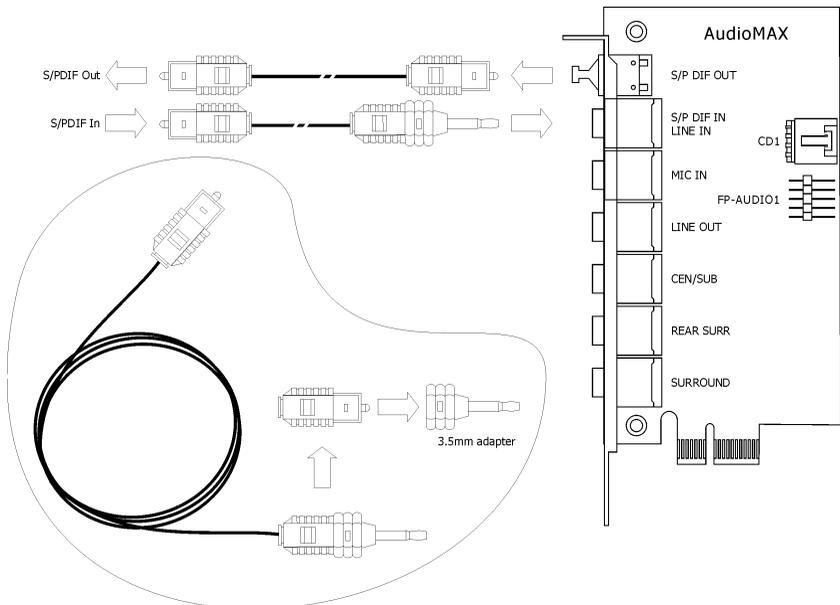
3. Click "**Disabled front panel jack detection**", and then click "OK" to confirm.



S/PDIF Connection:

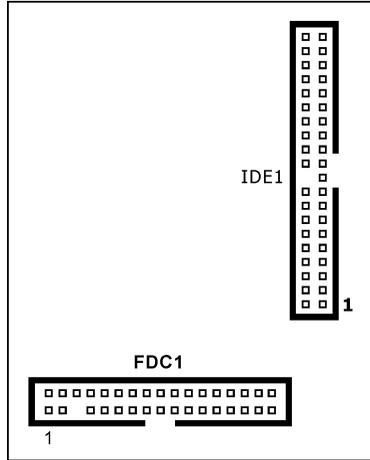
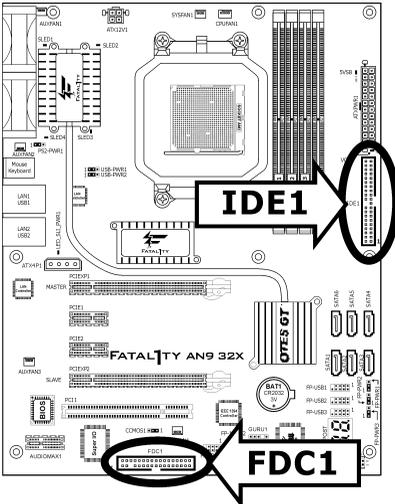
In the motherboard package you can find one audio daughter-card and one optical-fiber cable.

- S/PDIF Input Connection:
 1. Remove the rubber protection-cap. Attach one end of the optical cable with the 3.5mm Optical-to-Stereo adapter, and have it plugged into the [Line-In] jack on this daughter-card. (This jack is served for either optical or line input.)
 2. Connect the other end of the optical cable to the [Digital-Out] (SPDIF-Out) jack on your digital multimedia device.
- S/PDIF Output Connection:
 1. Remove the rubber protection-cap. Plug one end of the optical cable into the [SPDIF-Out] jack on this daughter-card.
 2. Connect the other end of the optical cable to the [Digital-In] (SPDIF-In) jack on your digital multimedia device.



2.6 Connecting Peripheral Devices

2.6.1 Floppy and IDE Disk Drive Connectors

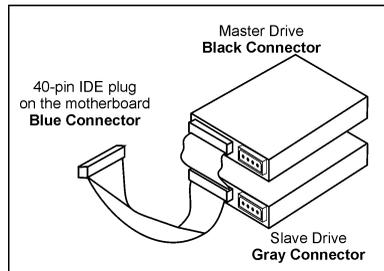


The FDC1 connector connects up to two floppy drives with a 34-wire, 2-connector floppy cable. Connect the single end at the longer length of ribbon cable to the FDC1 on the board, the two connectors on the other end to the floppy disk drives connector. Generally you need only one floppy disk drive in your system.

※ **The red line on the ribbon cable must be aligned with pin-1 on both the FDC1 port and the floppy connector.**

Each of the IDE port connects up to two IDE drives at Ultra ATA/100 mode by one 40-pin, 80-conductor, and 3-connector Ultra ATA/66 ribbon cables.

Connect the single end (blue connector) at the longer length of ribbon cable to the IDE port of this board, the other two ends (gray and black connector) at the shorter length of the ribbon cable to the connectors of your hard drives.

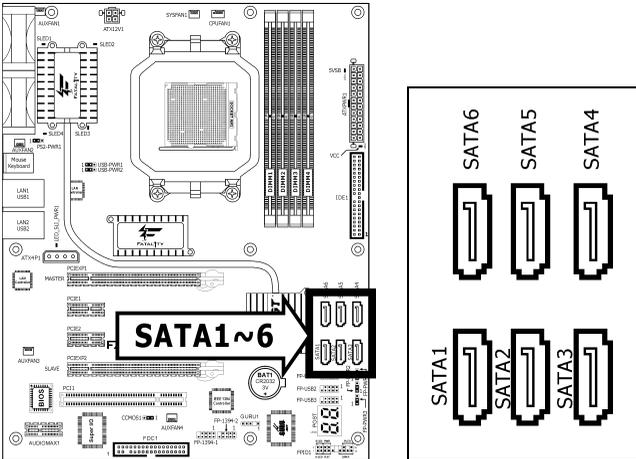


※ **Make sure to configure the "Master" and "Slave" relation before connecting two drives by one single ribbon cable. The red line on the ribbon cable must be aligned with pin-1 on both the IDE port and the hard-drive connector.**

2.6.2 Serial ATA Connectors

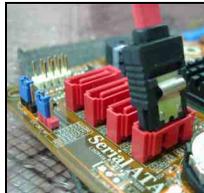
Each SATA connector serves as one single channel to connect one SATA device by a thin SATA cable.

The RAID 0/1/0+1/5/JBOD configuration is also possible through the combination of disk arrays through these SATA connectors:



To connect SATA device:

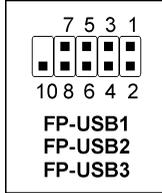
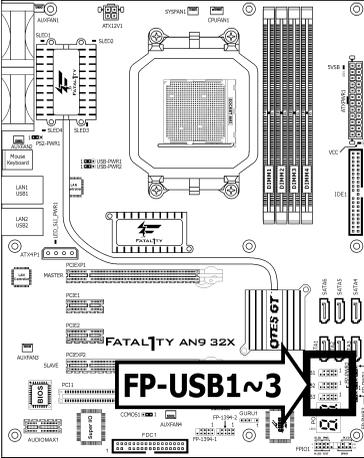
1. Attach either end of the signal cable to the SATA connector on motherboard. Attach the other end to SATA device.
2. Attach the SATA power cable to the SATA device and connect the other end from the power supply.



The motherboard in this illustration is served for demonstration only, may not be the same type or model as the one described in this user's manual.

2.6.3 Additional USB 2.0 Port Headers

Besides the 4x USB 2.0 ports located at rear I/O part, this motherboard also features 3x more USB 2.0 headers onboard. Each header supports 2x additional USB 2.0 ports by connecting bracket or cable to the rear I/O panel or the front-mounted USB ports of your chassis.

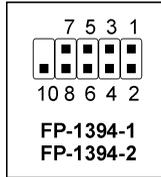
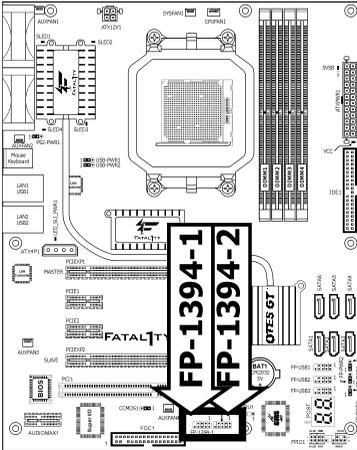


Pin	Pin Assignment	Pin	Pin Assignment
1	VCC	2	VCC
3	Data0 -	4	Data1 -
5	Data0 +	6	Data1 +
7	Ground	8	Ground
		10	NC

✘ Make sure the connecting cable bears the same pin assignment.

2.6.4 Additional IEEE1394 Port Headers

Each header supports 1x additional IEEE1394 port by connecting bracket or cable to the rear I/O panel or the front-mounted IEEE1394 port of your chassis.

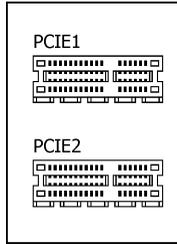
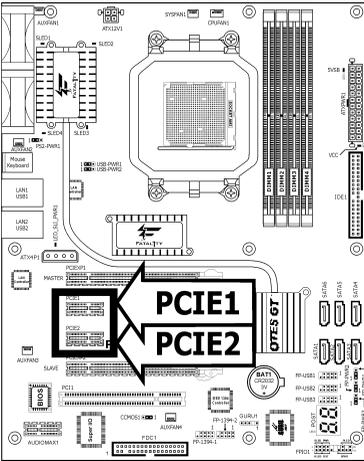


Pin	Pin Assignment	Pin	Pin Assignment
1	TPA0 +	2	TPA0 -
3	Ground	4	Ground
5	TPB0 +	6	TPB0 -
7	+12V	8	+12V
		10	Ground

※ Make sure the connecting cable bears the same pin assignment.

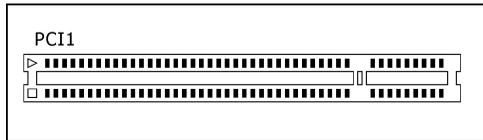
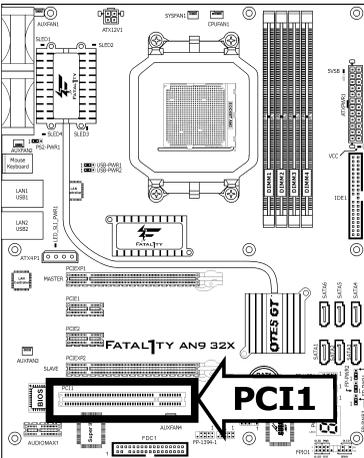
2.6.5 PCI Express X1 Add-on Slots

These slots provide the connection of add-on cards that comply with PCI Express specifications.



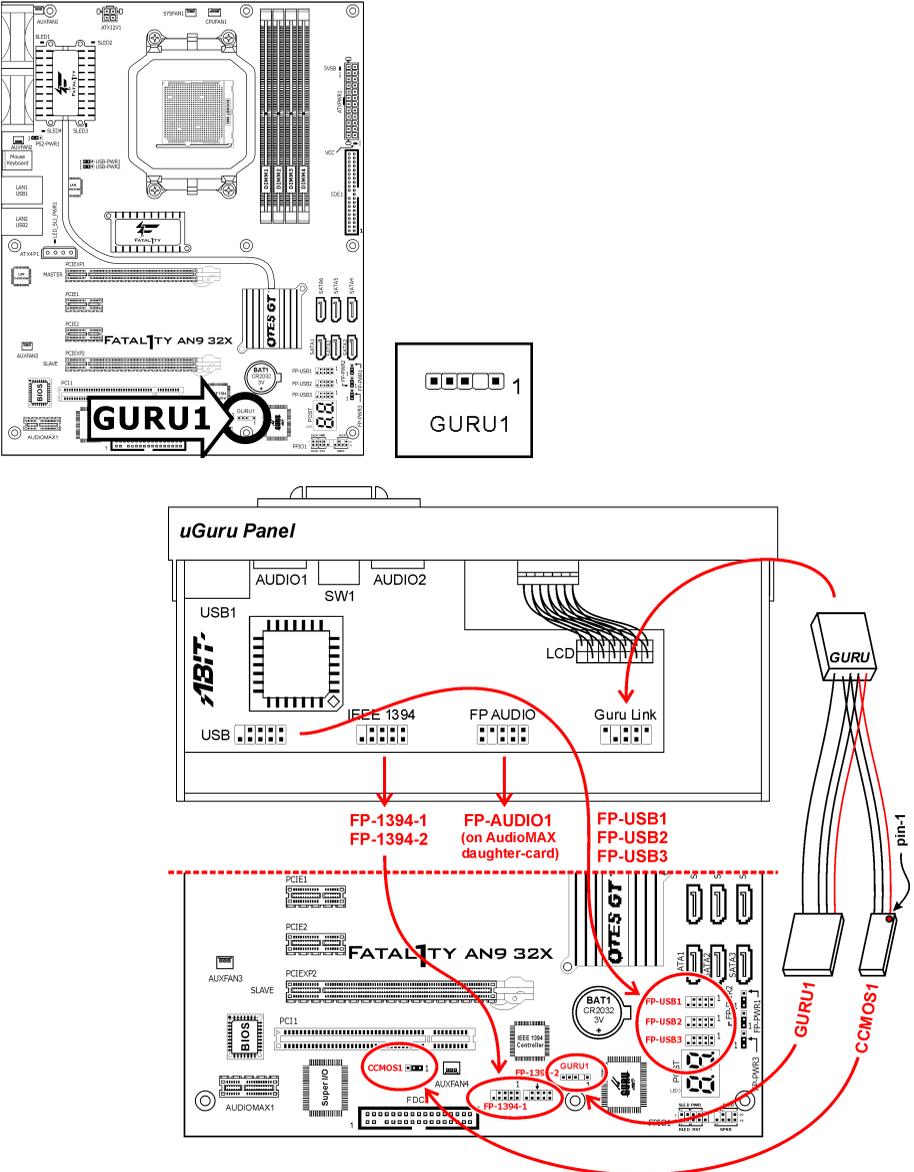
2.6.6 PCI Add-on Slots

This slot provides the connection of add-on cards that comply with PCI specifications.



2.6.7 GURU Panel Connection Header

This header is reserved for connecting ABIT's exclusive GURU Panel. For more information, please refer to the included GURU Panel Installation Guide.



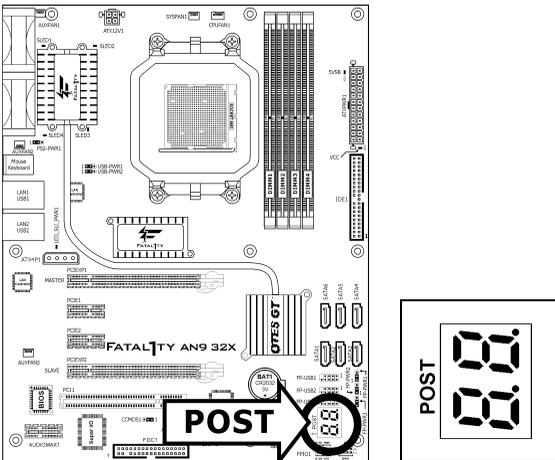
2.7 Onboard Status Display

2.7.1 POST Code Displayer

This is an LED device to display the “**POST**” Code, the acronym of **Power On Self Test**. The computer will execute the POST action whenever you power on the computer. The POST process is controlled by the BIOS. It is used to detect the status of the computer’s main components and peripherals. Each POST Code corresponds to different checkpoints that are also defined by the BIOS in advance. For example, “memory presence test” is an important checkpoint and its POST Code is “C1”. When the BIOS execute any POST item, it will write the corresponding POST Code into the address 80h. If the POST passes, the BIOS will process the next POST item and write the next POST Code into the address 80h. If the POST fails, we can check the POST Code in address 80h to find out where the problem lies.

This LED device also displays the “POST” Code of AC2005, an “uGuru” chipset developed exclusively by ABIT computer.

※ The decimal point lights up during the AC2005 POST action.



See Appendix for both AWARD and AC2005 POST Code definitions.

2.7.2 Power Source Indicators

These indicators work as a reminding device to display the power status of this motherboard with power source connected.

- **5VSB:**

Lights On: Your ATX power supplier is connected with power source, and its power switch is on.

Lights Off: Your ATX power supplier is not connected with power source, or connected with power source but its power switch is off.

- **VCC:**

Lights On: The system power is on.

Lights Off: The system power is off.

- **SLED1~4:**

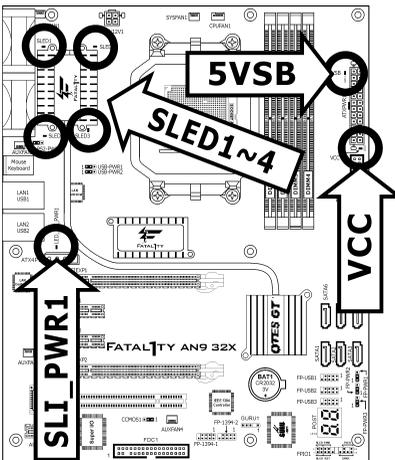
Lights On: The system power is on.

Lights Off: The system power is off.

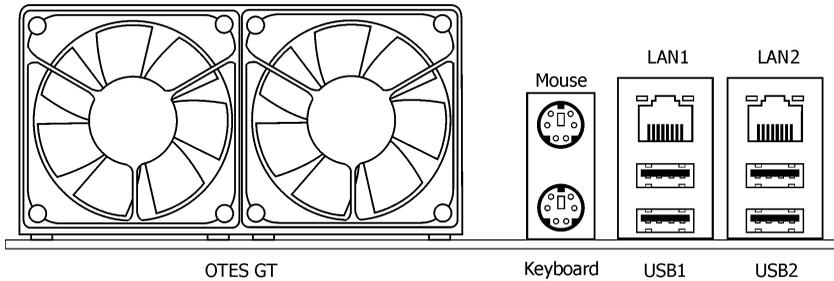
- **SLI_PWR1:**

Lights On: The system power is on.

Lights Off: The "ATX4P1" connector is connected with power source from your ATX power supplier.



2.8 Connecting I/O Devices



- **OTES GT™:** This exclusive technology is served to cool the motherboard's heat-source by the cool-assembly consisted of fin-heatsink, heat pipe, and fans. (Keep the area for outgoing heat wave open.)
- **Mouse:** Connects to PS/2 mouse.
- **Keyboard:** Connects to PS/2 keyboard.
- **LAN1/LAN2:** Connects to Local Area Network.
- **USB1/USB2:** Connects to USB devices such as scanner, digital speakers, monitor, mouse, keyboard, hub, digital camera, joystick etc.

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3. BIOS Setup

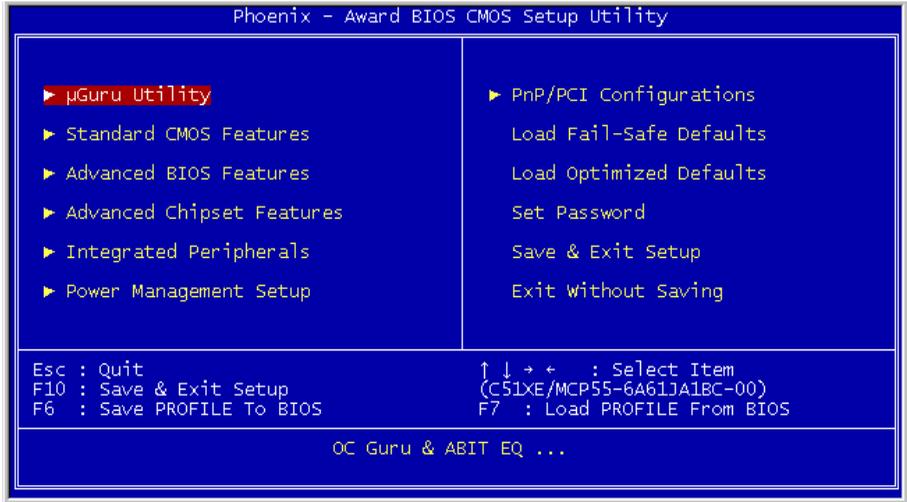
This motherboard provides a programmable EEPROM that you can update the BIOS utility. The BIOS (Basic Input/Output System) is a program that deals with the basic level of communication between processor and peripherals. Use the BIOS Setup program only when installing motherboard, reconfiguring system, or prompted to "Run Setup". This chapter explains the Setup Utility of BIOS utility.

After powering up the system, the BIOS message appears on the screen, the memory count begins, and then the following message appears on the screen:

PRESS DEL TO ENTER SETUP

If this message disappears before you respond, restart the system by pressing <Ctrl> + <Alt> + keys, or by pressing the Reset button on computer chassis. Only when it failed by these two methods can you restart the system by powering it off and then back on.

After pressing key, the main menu screen appears.



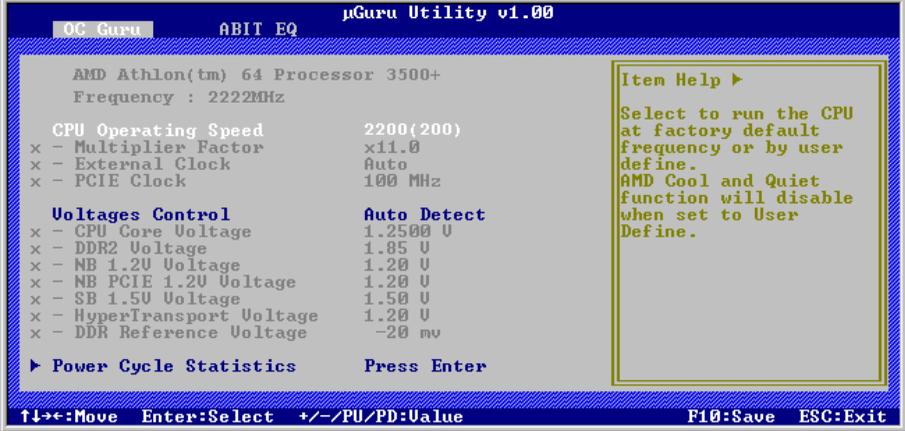
※ In order to increase system stability and performance, our engineering staff is constantly improving the BIOS menu. The BIOS setup screens and descriptions illustrated in this manual are for your reference only, and may not completely match with what you see on your screen.

3.1 µGuru™ Utility

There are two setup menus in this µGuru utility. You may switch between these two by clicking the left or right arrow key on keyboard:

3.1.1 OC Guru

This option configures the CPU's clock and voltage.



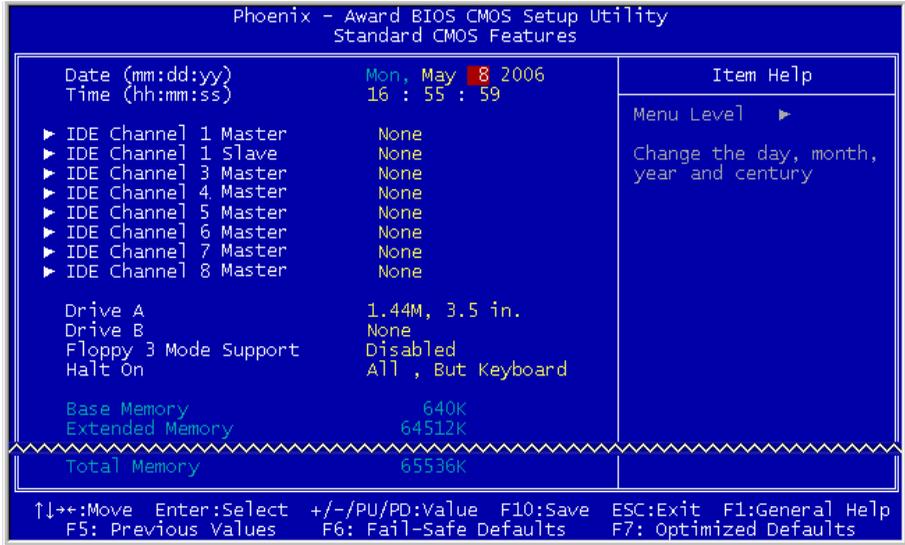
3.1.2 ABIT EQ

This option displays CPU/system temperature, fan speed, and voltage.



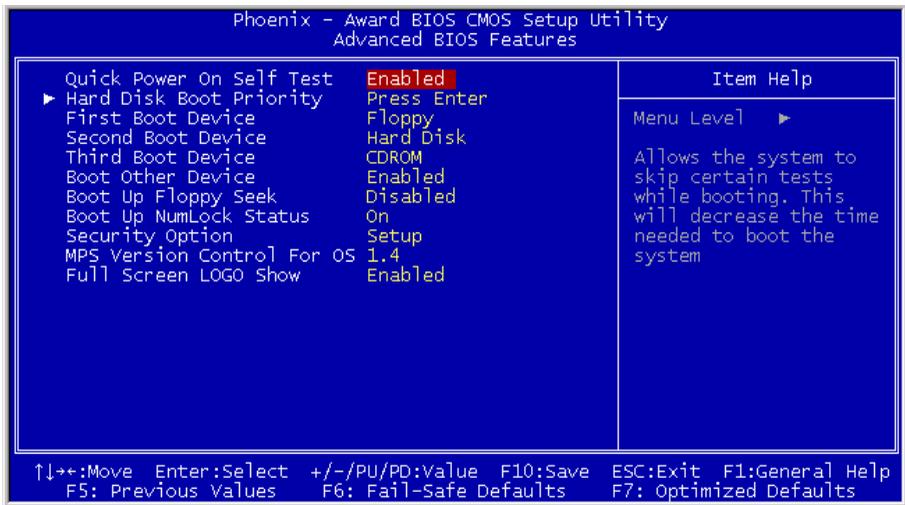
3.2 Standard CMOS Features

This option configures the time, date, and hard disk type, etc.



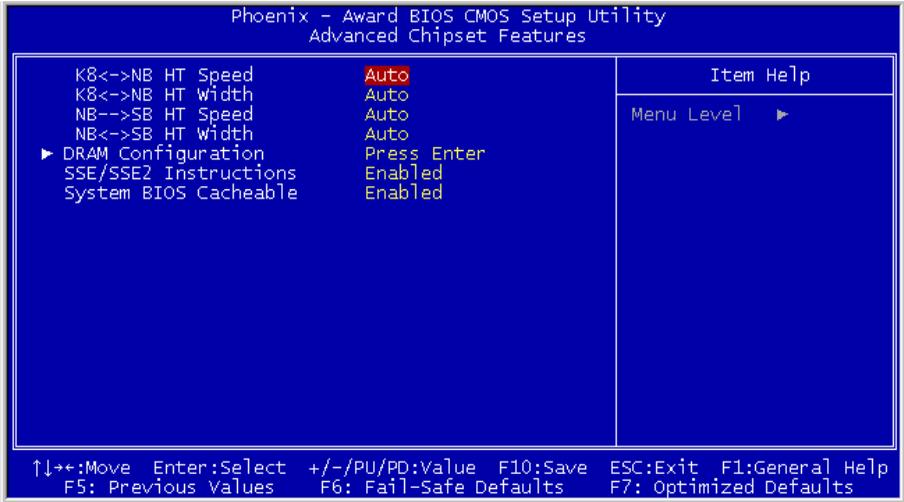
3.3 Advanced BIOS Features

This option configures the boot sequence.



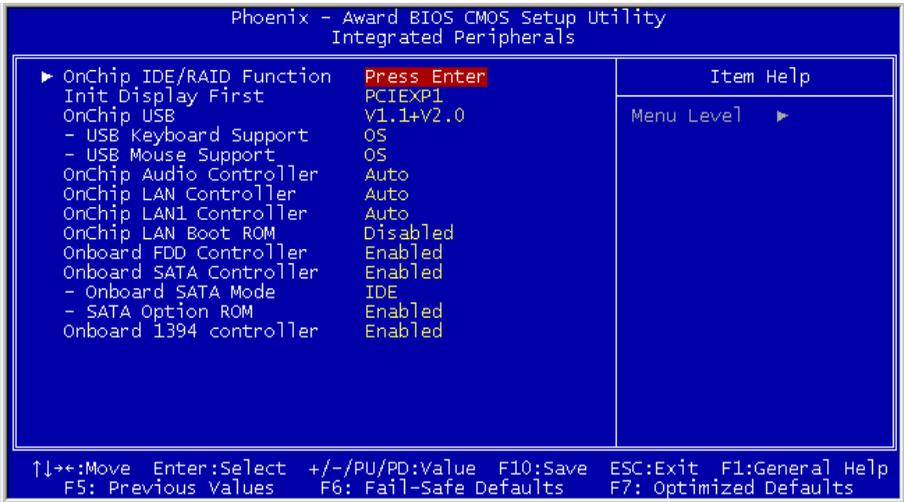
3.4 Advanced Chipset Features

This option configures the DRAM timing.



3.5 Integrated Peripherals

This option configures onboard device control.



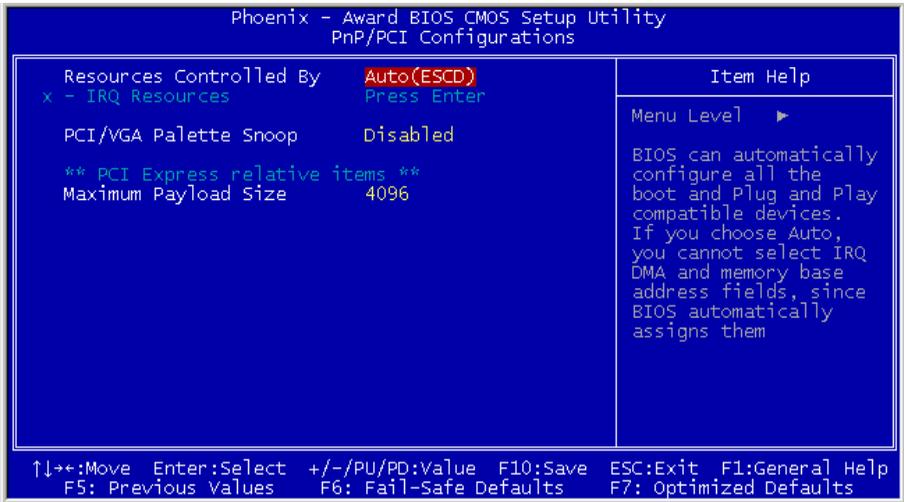
3.6 Power Management Setup

This option configures the power management.



3.7 PnP/PCI Configurations

This option configures the IRQ settings, latency timers, etc.



3.8 Load Fail-Safe Defaults

This option loads the BIOS default values for the most stable, minimal-performance system operations.

3.9 Load Optimized Defaults

This option loads the BIOS default values that are factory settings for optimal-performance system operations.

3.10 Set Password

This option protects the BIOS configuration or restricts access to the computer itself.

3.11 Save & Exit Setup

This option saves your selections and exits the BIOS setup menu.

3.12 Exit Without Saving

This option exits the BIOS setup menu without saving any changes.

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4. Driver & Utility CD

The "Driver & Utility CD" that came packed with this motherboard contains drivers, utilities and software applications required for its basic and advanced features.

Place the "Driver & Utility CD" into the CD-ROM drive in your system. The following installation auto-run screen appears. If not, browse the root directory of the CD-ROM via the File Manager, and double click the "AUTORUN" file.



- **[Drivers]:** Click to enter the driver installation menu.
- **[Manual]:** Click to enter the user's manual menu.
- **[Utility]:** Click to enter the utilities installation menu.
- **[ABIT Utility]:** Click on this tab to enter the menu for installing utilities exclusively developed by ABIT.
- [ **Browse CD**]: Click to browse the contents of this "Driver & Utility CD".
- [ **Close**]: Click to exit this installation menu.

For more information:

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5. Appendix

5.1 POST Code Definitions

5.1.1 AWARD POST Code Definitions

POST (hex)	Description
CF	Test CMOS R/W functionality
C0	Early chipset initialization: -Disable shadow RAM -Disable L2 cache (socket 7 or below) -Program basic chipset registers
C1	Detect memory -Auto-detection of DRAM size, type and ECC -Auto-detection of L2 cache (socket 7 or below)
C3	Expand compressed BIOS code to DRAM
C5	Call chipset hook to copy BIOS back to E000 & F000 shadow RAM
01	Expand the Xgroup codes locating in physical address 1000:0
03	Initial Superio_Early_Init switch
05	1. Blank out screen 2. Clear CMOS error flag
07	1. Clear 8042 interface 2. Initialize 8042 self-test
08	1. Test special keyboard controller for Winbond 977 series Super I/O chips 2. Enable keyboard interface
0A	1. Disable PS/2 mouse interface (optional) 2. Auto detect ports for keyboard & mouse followed by a port & interface swap (optional) 3. Reset keyboard for Winbond 977 series Super I/O chips
0E	Test F000h segment shadow to see whether it is R/W-able or not. If test fails, keep beeping the speaker
10	Auto detect flash type to load appropriate flash R/W codes into the run time area in F000 for ESCD & DMI support
12	Use walking 1's algorithm to check out interface in CMOS circuitry. Also set real-time clock power status, and then check for override
14	Program chipset default values into chipset. Chipset default values are MODBINable by OEM customers
16	Initial onboard clock generator if Early_Init_Onboard_Generator is defined. See also POST 26.
18	Detect CPU information including brand, SMI type (Cyrix or Intel) and CPU level (586 or 686)
1B	Initial interrupts vector table. If no special specified, all H/W interrupts are directed to SPURIOUS_INT_HDLR & S/W interrupts to SPURIOUS_soft_HDLR.
1D	Initial EARLY_PM_INIT switch
1F	Load keyboard matrix (notebook platform)
21	HPM initialization (notebook platform)
23	1. Check validity of RTC value: e.g. a value of 5Ah is an invalid value for RTC minute. 2. Load CMOS settings into BIOS stack. If CMOS checksum fails, use default value instead.
24	Prepare BIOS resource map for PCI & PnP use. If ESCD is valid, take into consideration of the ESCD's legacy information.

25	Early PCI Initialization: -Enumerate PCI bus number. -Assign memory & I/O resource -Search for a valid VGA device & VGA BIOS, and put it into C000:0
26	1. If Early_Init_Onboard_Generator is not defined Onboard clock generator initialization. Disable respective clock resource to empty PCI & DIMM slots. 2. Init onboard PWM 3. Init onboard H/W monitor devices
27	Initialize INT 09 buffer
29	1. Program CPU internal MTRR (P6 & PII) for 0-640K memory address. 2. Initialize the APIC for Pentium class CPU. 3. Program early chipset according to CMOS setup. Example: onboard IDE controller. 4. Measure CPU speed.
2B	Invoke Video BIOS
2D	1. Initialize double-byte language font (Optional) 2. Put information on screen display, including Award title, CPU type, CPU speed, full screen logo.
33	Reset keyboard if Early_Reset_KB is defined e.g. Winbond 977 series Super I/O chips. See also POST 63.
35	Test DMA Channel 0
37	Test DMA Channel 1.
39	Test DMA page registers.
3C	Test 8254
3E	Test 8259 interrupt mask bits for channel 1
40	Test 8259 interrupt mask bits for channel 2
43	Test 8259 functionality
47	Initialize EISA slot
49	1. Calculate total memory by testing the last double word of each 64K page 2. Program writes allocation for AMD K5 CPU
4E	1. Program MTRR of M1 CPU 2. Initialize L2 cache for P6 class CPU & program CPU with proper cacheable range 3. Initialize the APIC for P6 class CPU 4. On MP platform, adjust the cacheable range to smaller one in case the cacheable ranges between each CPU are not identical
50	Initialize USB
52	Test all memory (clear all extended memory to 0)
53	Clear password according to H/W jumper (Optional)
55	Display number of processors (multi-processor platform)
57	Display PnP logo Early ISA PnP initialization -Assign CSN to every ISA PnP device
59	Initialize the combined Trend Anti-Virus code
5B	(Optional Feature) Show message for entering AWDFLASH.EXE from FDD (optional)
5D	1. Initialize Init_Onboard_Super_IO 2. Initialize Init_Onboard_AUDIO
60	Okay to enter Setup utility; i.e. not until this POST stage can users enter the CMOS setup utility
63	Reset keyboard if Early_Reset_KB is not defined
65	Initialize PS/2 Mouse
67	Prepare memory size information for function call: INT 15h ax=E820h
69	Turn on L2 cache

6B	Program chipset registers according to items described in Setup & Auto-configuration table
6D	1. Assign resources to all ISA PnP devices 2. Auto assign ports to onboard COM ports if the corresponding item in Setup is set to "AUTO"
6F	1. Initialize floppy controller 2. Set up floppy related fields in 40:hardware
75	Detect & install all IDE devices: HDD, LS120, ZIP, CDROM ...
76	(Optional Feature) Enter AWDFLASH.EXE if: -AWDFLASH is found in floppy drive -ALT+F2 is pressed
77	Detect serial ports & parallel ports.
7A	Detect & install co-processor
7C	Init HDD write protect
7F	Switch back to text mode if full screen logo is supported -If errors occur, report errors & wait for keys -If no errors occur or F1 key is pressed to continue: Clear EPA or customization logo
E8POST.ASM starts	
82	1. Call chipset power management hook 2. Recover the text font used by EPA logo (not for full screen logo) 3. If password is set, ask for password
83	Save all data in stack back to CMOS
84	Initialize ISA PnP boot devices
85	1. USB final Initialization 2. Switch screen back to text mode
87	NET PC: Build SYSID Structure
89	1. Assign IRQs to PCI devices 2. Set up ACPI table at top of the memory.
8B	1. Invoke all ISA adapter ROMs 2. Invoke all PCI ROMs (except VGA)
8D	1. Enable/Disable Parity Check according to CMOS setup 2. APM Initialization
8F	Clear noise of IRQs
93	Read HDD boot sector information for Trend Anti-Virus code
94	1. Enable L2 cache 2. Program Daylight Saving 3. Program boot up speed 4. Chipset final initialization. 5. Power management final initialization 6. Clear screen & display summary table 7. Program K6 write allocation 8. Program P6 class write combining
95	Update keyboard LED & typematic rate
96	1. Build MP table 2. Build & update ESCD 3. Set CMOS century to 20h or 19h 4. Load CMOS time into DOS timer tick 5. Build MSIRQ routing table
FF	Boot attempt (INT 19h)

5.1.2 AC2005 POST Code Definitions

POST (hex)	Description
Power On Sequence	
8.1.	Start power on sequence
8.2.	Enable ATX power supply
8.3.	ATX power supply ready
8.4.	DDR voltage ready
8.5.	Setup PWM for CPU core voltage
8.6.	Assert PWM for CPU core voltage
8.7.	Check CPU core voltage
8.8.	CPU core voltage ready
8.9.	Initial clock generator IC
8.A.	North Bridge chipset voltage ready
8.B.	AGP voltage ready
8.C.	3VDUAL voltage ready
8.D.	VDDA 2.5V voltage ready
8.D.	GMCHVTT voltage ready
8.E.	Check CPU fan speed
8.F.	Assert all power ready
9.0.	Complete µGuru initial process AWARD BIOS take over booting job
Power Off Sequence	
9.1.	Start power off sequence
9.2.	De-Assert all power
9.3.	De-Assert power on
9.4.	De-Assert LDT Bus power
9.5.	De-Assert PWM for CPU core voltage
9.6.	De-Assert CPU core voltage
9.7.	Check CPU core voltage
9.8.	De-Assert ATX power supply
9.9.	Complete power off sequence
Others	
F.0.	Button reset
F.1.	SoftMenu reset
F.2.	Power on sequence timeout
F.3.	Power off sequence timeout

5.2 Troubleshooting (How to Get Technical Support?)

5.2.1 Q & A

Q: Do I need to clear the CMOS before I use a new motherboard to assemble my new computer system?

A: Yes, we highly recommend that you clear the CMOS before installing a new motherboard. Please move the CMOS jumper from its default 1-2 position to 2-3 for a few seconds, and then back. When you boot up your system for the first time, follow the instructions in the user's manual to load the optimized defaults.

Q: If my system hangs when I update the BIOS or set the wrong CPU parameters, what should I do?

A: Whenever you update the BIOS or if the system hangs due to wrong CPU parameters setting, always clear CMOS jumper before booting up again.

Q: Why does the system fail to boot up again right after a mechanical power-off?

A: Please keep a 30-second interval between each mechanical power On/Off.

Q: Why does the system fail to boot up and nothing displays on the screen after I did some over-clocking or non-standard settings inside the BIOS?

A: It should not cause hardware or permanent damage to motherboard when BIOS settings were changed from default to over-clocking or non-standard status.

We suggest the following three troubleshooting methods to discharge CMOS data, recover the hardware default status, and then making the motherboard work again. There is no need to bother returning the motherboard to where you bought it from or go through an RMA process.

Step 1. Switch off the power supply unit and then switch it on again after one minute. If there is no power-switch on the power supply unit, disconnect its power cord for one minute and then reconnect.

Press and hold the <Insert> key on the keyboard, and press the power-on button to boot up system. If it works, release the <Insert> key and hit key to enter the BIOS setup page to apply the correct settings.

If the situation remains the same, repeat the procedures in Step 1 for three times, or try Step 2.

Step 2. Switch off the power supply unit or disconnect the power cord. Open the chassis cover. Locate the CCMOS jumper near the button battery. Change the jumper position from default 1-2 to 2-3 for one minute to discharge the CMOS data, and then put it back to default 1-2 position.

Close the chassis and switch on the power supply unit or plug in the power cord. Press the power-on button to boot up system. If it works, hit key to enter the BIOS setup page to do the correct settings.

If the situation remains the same, try Step 3.

Step 3. The same procedure as Step 2, but while discharging the CMOS data, pull out the ATX power connectors from motherboard and remove the button battery during CMOS discharge.

Q: How to get a quick response for my request on technical support?

A: Please carry out a simple troubleshooting before sending "Technical Support Form":

System boot-up fails after the system had been assembled:

Check the motherboard's supporting specifications first to see if all the key components attached in your system can meet.

To do so, you may:

- ✦ Remove all the unnecessary add-on devices (except the CPU, VGA card, DRAM, and Power Supply), and then reboot.
- ✦ If the trouble still exists, try another VGA card of different brand/model to see if the system will start.
- ✦ If the trouble still exists, try another memory module of different brand/model.
- ✦ If the trouble still exists, try another CPU and Power Supply.

If the system runs successfully, shut it down and start re-installing the interface cards and devices that were previously installed in the system. Re-install and start the system one at a time until the system won't start.

Malfunction in the OS:

If the system hangs after resuming from S3 or some testing program, if the CPU cannot be recognized properly, if the display resolution mixed, or if a certain program cannot be executed, etc, you may:

- ✦ Upgrade the motherboard's latest BIOS version.
- ✦ Upgrade the add-on device's latest driver version.
- ✦ Check if there is any conflict in the "Control Panel/System Properties".

Q: How to fill in the "Technical Support Form"?

A: To fill in this "Technical Support Form", please refer to the following instructions:

- **Region:** Type in your country name.
- **E-mail:** Type in your contact E-mail information.
- **First name:** Type in your first name.
- **Last name:** Type in your last name.
- **Subject:** Type in the model name and the problem of your motherboard.
Example 1: AA8XE and SCSI 29160 malfunction
Example 2: AA8XE boot fails, POST code AF
Example 3: AA8XE (system hang when S3 resume)
- **Motherboard:** Type in the model name and revision number of your motherboard.
Example: AA8XE REV: 1.00
- **BIOS Version:** Type in the BIOS version of your motherboard. (You can find it on the screen during the POST sequence.)
- **CPU:** Type in the brand name and the speed (MHz) of your CPU. (Illustrate the over-clocking status if you had done so.)
Example: Intel 650 3.4GHz (OC FSB=220MHz)
- **Memory brand:** Type in the brand and model name of your memory module.
Example: Memory brand: Kingston (KVR533D2N4/1G)

- **Memory size:** Type in the size of your memory module.
Example: 512M* 4PCS
- **Memory configuration:** Type in the memory configuration in BIOS setting.
Example: Memory Timing: 2.5-3-3-7 @533MHz
- **Graphics information:** Note Graphics card's brand, model and driver version
- **Graphics card:** Type in the brand and model name of your graphics card.
Example: ATI RADEON X850 XT PE
- **Graphics driver version:** Type in the driver version of your graphics card
Example: Catalyst 5.12V
- **Power supply maker:** Type in the brand and model name of your power supply unit.
- **Power supply wattage:** Type in the power wattage of your power supply unit.
- **Storage devices:** Type in the brand and specifications of your HDD drive and quantity. Specify if it was inserted on IDE (Master or Slave) or SATA ports, including the RAID allocation status.
Example 1: WD Caviar WD600 60GB (on IDE2 master), Maxtor DiamondMax 10 SATA 300GB (on SATA 3)
Example 2: Maxtor DiamondMax 10 SATA 300GB *2 (on SATA 3, SATA 4 RAID 1)
- **Optical devices:** Type in the brand and specifications of your optical drives and quantity. Specify if it was inserted on IDE (Master or Slave) or SATA ports.
- **Other devices:** Indicate which add-on cards or USB devices that you *absolutely sure* are related to the problem. If you cannot identify the problem's origin, indicate all the add-on cards or USB devices inserted on your system.
Example: AHA 29160 (on PCI 2), Sandisk Cruzer mini 256MB USB Flash-disk.
- **Operating system:** Indicate which OS and language version
Example: Microsoft Windows XP SP2, English version
Example: Microsoft Media Center Edition 2005, Korean version
- **Problem description:** Describe the problem of your system configuration. Indicate the steps to duplicate problem if possible.

See the next page for a blank Technical Support Form, or visit our website to fill in the form on line (<http://www.abit.com.tw/page/en/contact/technical.php>).

Q. Is the motherboard dead? Do I need to return it to where I bought from or go through an RMA process?

- A: After you had gone through the troubleshooting procedures, yet the problem still exists, or you find an evident damage on the motherboard. Please contact our RMA center. (http://www2.abit.com.tw/page/en/contact/index.php?pFUN_KEY=18000&pTITLE_IMG)

5.2.2 Technical Support Form

Country:	
First name:	
Last Name:	
Subject:	
Motherboard:	
BIOS Version:	
CPU:	
Memory brand:	
Memory size:	
Memory configuration:	
Graphics card:	
Graphics driver version:	
Power supply maker:	
Power supply wattage:	
Storage devices:	
Optical devices:	
Other devices:	
Operating system:	
Problem description:	



5.2.3 UNIVERSAL ABIT Contact Information

Taiwan Head Office

UNIVERSAL ABIT Co. Ltd.

No. 323, Yang Guang St., Neihu, Taipei, 114, Taiwan

Tel: 886-2-8751-8888

Fax: 886-2-8751-3382

North America, South America

ABIT Computer (U.S.A.) Corporation

2901 Bayview Drive, Fremont, CA 94538, U.S.A.

Tel: 1-510-623-0500

Fax: 1-510-623-1092

Website: <http://www.abit-usa.com>

RMA Center: <http://rma.abit-usa.com>

U.K., Ireland

ABIT Computer (U.K.) Corporation Ltd.

Unit 3, 24-26 Boulton Road, Stevenage, Herts SG1 4QX, U.K.

Tel: 44-1438-228888

Fax: 44-1438-226333

Austria, Czech, Romania, Bulgaria, Slovakia, Croatia, Bosnia, Serbia, Macedonia

Asguard Computer Ges.m.b.H

Schmalbachstrasse 5, A-2201 Gerasdorf / Wien, Austria

Tel: 43-1-7346709

Fax: 43-1-7346713

Germany and Benelux (Belgium, Netherlands, Luxembourg), France, Italy, Spain, Portugal, Greece, Denmark, Norway, Sweden, Finland, Switzerland

AMOR Computer B.V. (ABIT's European Office)

Jan van Riebeeckweg 15, 5928LG, Venlo, The Netherlands

Tel: 31-77-3204428

Fax: 31-77-3204420

Shanghai

ABIT Computer (Shanghai) Co. Ltd.

Tel: 86-21-6235-1829

Fax: 86-21-6235-1832

Website: <http://www.abit.com.cn>

Poland

ABIT Computer (Poland) Co. Ltd.

Przedstawicielstwo w Polsce, ul. Wita Stwosza 28, 50-149 Wrocław

Tel: 48 71 780 78 65 (Technical support/RMA)

Tel: 48 71 718 19 70 (PR/Marketing)

Fax: 48 71 780 78 66

abit

UNIVERSAL ABIT Co., Ltd.

WWW.ABIT.COM.TW

Johnathan “Fatal1ty” Wendel

WWW.FATAL1TY.COM