# **/SRock**

# ALiveXFire-eSATA2

# **User Manual**

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- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

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The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance. "Perchlorate Material-special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate"

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## 1. Introduction

Thank you for purchasing ASRock *ALiveXFire-eSATA2* motherboard, a reliable motherboard produced under ASRock's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock's commitment to quality and endurance.

In this manual, chapter 1 and 2 contain introduction of the motherboard and step-bystep guide to the hardware installation. Chapter 3 and 4 contain the configuration guide to BIOS setup and information of the Support CD.



Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRock website without further notice. You may find the latest VGA cards and CPU support lists on ASRock website as well. ASRock website <a href="http://www.asrock.com">http://www.asrock.com</a> If you require technical support related to this motherboard, please visit our website for specific information about the model you are using.

## 1.1 Package Contents

- 1 x ASRock ALiveXFire-eSATA2 Motherboard
  - (ATX Form Factor: 12.0-in x 8.2-in, 30.5 cm x 20.8 cm)
- 1 x ASRock ALiveXFire-eSATA2 Quick Installation Guide
- 1 x ASRock ALiveXFire-eSATA2 Support CD
- 1 x Ultra ATA 66/100/133 IDE Ribbon Cable (80-conductor)
- 1 x 3.5-in Floppy Drive Ribbon Cable
- 2 x Serial ATA (SATA) Data Cables (Optional)
- 1 x Serial ATA (SATA) HDD Power Cable (Optional)
- 1 x HDMI SPDIF Cable (Optional)
- 1 x ASRock 6CH\_eSATAII I/O Shield
- 1 x USB Bracket
- 1 x PCIE Switch Card



This motherboard is bundled with one PCIE Switch card installed on PCIE2/ PCIE SWITCH slot, which allows you better flexibility to choose PCIE functions between one PCIE x16 slot and two PCIE slots for ATI<sup>TM</sup> CrossFire<sup>TM</sup> without setting up jumpers.

## 1.2 Specifications

Platform	- ATX Form Factor: 12.0-in x 8.2-in, 30.5 cm x 20.8 cm			
CPU	- Socket AM2 for AMD Phenom <sup>™</sup> X4 / X2, Athlon 64FX / 64X2 /			
	X2 / 64 and Sempron processors			
	- AMD LIVE!™ Ready			
	- Supports AMD's Cool 'n' Quiet™ Technology			
	- FSB 1000 MHz (2.0 GT/s)			
	- Supports Untied Overclocking Technology (see CAUTION 1)			
	- Supports Hyper-Transport Technology			
Chipset	- Northbridge: AMD 480X CrossFire™			
	- Southbridge:ATI™ SB600			
Memory	- Dual Channel DDR2 Memory Technology (see CAUTION 2)			
	- 4 x DDR2 DIMM slots			
	- Support DDR2 1066/800/667/533 (see CAUTION 3)			
	- Max. capacity: 16GB (see CAUTION 4)			
Hybrid Booster	- CPU Frequency Stepless Control (see CAUTION 5)			
	- ASRock U-COP (see CAUTION 6)			
	- Boot Failure Guard (B.F.G.)			
	- AM2 Boost: ASRock Patented Technology to boost memory			
	performance up to 12.5% (see CAUTION 7)			
Expansion Slot	- Supports ATI™ CrossFire™ graphics cards			
	(see CAUTION 8)			
	- 1 x PCI Express x16 slot with PCIE Switch card or 2 x PCI			
	Express Graphics slots for ATI <sup>™</sup> CrossFire <sup>™</sup>			
	(see CAUTION 9)			
	- 1 x PCI Express x1 slot			
	- 3 x PCI slots			
Audio	- 5.1 CH Windows <sup>®</sup> Vista <sup>™</sup> Premium Level HD Audio			
	(ALC662 Audio Codec)			
LAN	- PCIE x1 Gigabit LAN 10/100/1000 Mb/s			
	- Realtek RTL8111B			
	- Supports Wake-On-LAN			
Rear Panel I/O	ASRock 6CH_eSATAII I/O			
	- 1 x PS/2 Mouse Port			
	- 1 x PS/2 Keyboard Port			
	- 1 x Serial Port: COM1			
	- 1 x Parallel Port (ECP/EPP Support)			
	- 2 x Ready-to-Use USB 2.0 Ports			
	- 2 x eSATAII Ports			
	- 1 x RJ-45 Port			

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	- HD Audio Jack: Rear Speaker / Central/Bass / Line in / Front			
	Speaker / Microphone (see CAUTION 10)			
Connector	- 4 x SATAII 3.0Gb/s connectors, support RAID (RAID 0,			
	RAID 1 and RAID 10), NCQ, AHCI and "Hot Plug" functions			
	(see CAUTION 11)			
	- 2 x eSATAII 3.0Gb/s connectors (shared with 2 SATAII ports),			
	support RAID (RAID 0 and RAID 1), NCQ, AHCI and "Hot Plug"			
	functions (see CAUTION 12)			
	- 1 x ATA133 IDE connector (supports 2 x IDE devices)			
	- 1 x Floppy connector			
	- 1 x IR header			
	- 1 x HDMI_SPDIF header			
	- CPU/Chassis FAN connector			
	- 20 pin ATX power connector			
	- 4 pin 12V power connector			
	- SLI/XFire power connector			
	- CD in header			
	- Front panel audio connector			
	- 4 x USB 2.0 headers (support 8 USB 2.0 ports)			
	(see CAUTION 13)			
BIOS Feature	- 4Mb AMI BIOS			
	- AMI Legal BIOS			
	- Supports "Plug and Play"			
	- ACPI 1.1 Compliance Wake Up Events			
	- Supports jumperfree			
	- SMBIOS 2.3.1 Support			
Support CD	- Drivers, Utilities, AntiVirus Software (Trial Version)			
Hardware	- CPU Temperature Sensing			
Monitor	- Chassis Temperature Sensing			
	- CPU Fan Tachometer			
	- Chassis Fan Tachometer			
	- CPU Quiet Fan			
	- Voltage Monitoring: +12V, +5V, +3.3V, Vcore			
os	- Microsoft® Windows® 2000 / XP / XP Media Center / XP 64-bi			
	/ Vista™ / Vista™ 64-bit compliant			
Certifications	<ul> <li>FCC, CE, Microsoft<sup>®</sup> WHQL Certificated</li> </ul>			

#### WARNING

Please realize that there is a certain risk involved with overclocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using the third-party overclocking tools. Overclocking may affect your system stability, or even cause damage to the components and devices of your system. It should be done at your own risk and expense. We are not responsible for possible damage caused by overclocking.

## **CAUTION!**

- This motherboard supports Untied Overclocking Technology. Please read "Untied Overclocking Technology" on page 42 for details.
- This motherboard supports Dual Channel Memory Technology. Before you implement Dual Channel Memory Technology, make sure to read the installation guide of memory modules on page 14 for proper installation.
- Whether 1066MHz memory speed is supported depends on the AM2+ CPU you adopt. If you want to adopt DDR2 1066 memory module on this motherboard, please refer to the memory support list on our website for the compatible memory modules.

ASRock website <u>http://www.asrock.com</u>

- 4. Due to the chipset limitation, if you adopt 4GB or more memory, the actual memory size may be less than the installed memory size.
- Although this motherboard offers stepless control, it is not recommended to perform over-clocking. Frequencies other than the recommended CPU bus frequencies may cause the instability of the system or damage the CPU.
- 6. While CPU overheat is detected, the system will automatically shutdown. Before you resume the system, please check if the CPU fan on the motherboard functions properly and unplug the power cord, then plug it back again. To improve heat dissipation, remember to spray thermal grease between the CPU and the heatsink when you install the PC system.
- 7. This motherboard supports ASRock AM2 Boost overclocking technology. If you enable this function in the BIOS setup, the memory performance will improve up to 12.5%, but the effect still depends on the AM2 CPU you adopt. Enabling this function will overclock the chipset/CPU reference clock. However, we can not guarantee the system stability for all CPU/DRAM configurations. If your system is unstable after AM2 Boost function is enabled, it may not be applicative to your system. You may choose to disable this function for keeping the stability of your system.
- Please remove PCIE Switch card from PCIE2/PCIE SWITCH slot before you use ATI<sup>™</sup> CrossFire<sup>™</sup> function. In CrossFire<sup>™</sup> mode, the two ATI<sup>™</sup> graphics cards you install should be from the same GPU family.

- 9. This motherboard is bundled with one PCIE Switch card installed on PCIE2/ PCIE SWITCH slot, which allows you better flexibility to choose PCIE functions between one PCIE x16 slot and two PCIE slots for ATI<sup>TM</sup> CrossFire<sup>TM</sup> without setting up jumpers. To avail of the PCI Express x16 graphics card installed on PCIE3 slot work at PCIE x16 bandwidth, please make sure that PCIE Switch card is installed on PCIE2/PCIE SWITCH slot. Please refer to page 18 for details of installing a single graphics card.
- For microphone input, this motherboard supports both stereo and mono modes. For audio output, this motherboard supports 2-channel, 4-channel and
- 6-channel modes. Please check the table on page 11 for proper connection.
  11. Before installing SATAII hard disk to SATAII connector, please read the "SATAII
- Hard Disk Setup Guide" on page 34 to adjust your SATAII hard disk drive to SATAII mode. You can also connect SATA hard disk to SATAII connector directly.
- 12. This motherboard supports eSATAII interface, the external SATAII specification. Please read "eSATAII Interface Introduction" on page 31 for details about eSATAII and eSATAII installation procedures.
- Power Management for USB 2.0 works fine under Microsoft<sup>®</sup> Windows<sup>®</sup> Vista<sup>™</sup> 64-bit / Vista<sup>™</sup> / XP 64-bit / XP SP1 or SP2 / 2000 SP4.

## Minimum Hardware Requirement Table for Windows<sup>®</sup> Vista<sup>™</sup> Premium 2007 and Basic Logo

For system integrators and users who purchase this motherboard and plan to submit Windows<sup>®</sup> Vista<sup>™</sup> Premium 2007 and Basic logo, please follow below table for minimum hardware requirements.

CPU	Sempron 2800+		
Memory	1GB system memory (Premium)		
	512MB Single Channel (Basic)		
VGA	DX9.0 with WDDM Driver		
	with 128bit VGA memory (Premium)		
	with 64bit VGA memory (Basic)		

\* After June 1, 2007, all Windows<sup>®</sup> Vista<sup>™</sup> systems are required to meet above minimum hardware requirements in order to qualify for Windows<sup>®</sup> Vista<sup>™</sup> Premium 2007 logo.

## 1.4 Motherboard Layout



- PS2 USB PW1 Jumper 1
- 2 ATX 12V Connector (ATX12V1)
- 3 CPU Fan Connector (CPU\_FAN1)
- ATX Power Connector (ATXPWR1) 4
- AM2 940-Pin CPU Socket 5
- **CPU Heatsink Retention Module** 6
- 7 2 x 240-pin DDR2 DIMM Slots
- (Dual Channel A: DDRII\_1, DDRII\_2; Yellow) 2 x 240-pin DDR2 DIMM Slots 8
- (Dual Channel B: DDRII\_3, DDRII\_4; Orange) IDE1 Connector (IDE1, Blue) 9
- 10 North Bridge Controller
- Clear CMOS Jumper (CLRCMOS1) 11
- PCI Express x16 Slot (PCIE3) 12
- 13 South Bridge Controller
- Serial ATAII Connector (SATAII\_ORANGE (PORT 2))33 14
- 15 Serial ATAII Connector (SATAII\_RED (PORT 1))
- Serial ATAII Connector (SATAII\_BLACK (PORT 3)) 35 eSATAII Connector (eSATAII\_TOP) 16
- USB 2.0 Header (USB2\_3, Blue) 17
- USB 2.0 Header (USB4\_5, Blue) 18

- USB 2.0 Header (USB6 7, Blue) 19
- 20 USB 2.0 Header (USB8\_9, Blue)
- Serial ATAII Connector 21
- (SATAII\_BLUE (PORT 4))
- Chassis Fan Connector (CHA\_FAN1) 22
- System Panel Header (PANEL1) 23
- 24 Chassis Speaker Header (SPEAKER 1)
- 25 Floppy Connector (FLOPPY1)
- 26 Front Panel Audio Header (HD\_AUDIO1)
- PCI Slots (PCI1-3)
- 27
- 28 HDMI\_SPDIF Header (HDMI\_SPDIF1)
- 29 **BIOS LPC Chip**
- 30 Infrared Module Connector (IR1)
- PCIE Express Slot (PCIE2/PCIE SWITCH) 31
- 32 PCI Express x1 Slot (PCIE1)
- SLI / XFIRE Power Connector
- 34 Internal Audio Connector: CD1 (Black)
- eSATAII Connector (eSATAII\_BOTTOM) 36

## 1.5 ASRock 6CH\_eSATAII I/O



\* If you use 2-channel speaker, please connect the speaker's plug into "Front Speaker Jack". See the table below for connection details in accordance with the type of speaker you use.

TABLE for Audio Output Connection

Audio Output Channels	Front Speaker	Rear Speaker	Central / Bass
	(No. 6)	(No. 3)	(No. 4)
2	V		
4	V	V	
6	V	V	V

\* To enable Multi-Streaming function, you need to connect a front panel audio cable to the front panel audio header. Please refer to below steps for the software setting of Multi-Streaming. For Windows® XP:

After restarting your computer, you will find "Mixer" tool on your system. Please select "Mixer ToolBox" , click "Enable playback multi-streaming", and click "ok". Choose "2CH" or

"4CH" and then you are allowed to select "Realtek HDA Primary output" to use Rear Speaker and Front Speaker, or select "Realtek HDA Audio 2nd output" to use front panel audio. Then reboot your system.

For Windows<sup>®</sup> Vista<sup>™</sup>:

After restarting your computer, please double-click "Realtek HD Audio Manager" on the system tray. Set "Speaker Configuration" to "5.1 Speaker". Click "Device advanced settings", choose "Make front and rear output devices playbacks two different audio streams simultaneously", and click "ok". Then reboot your system.

## 2. Installation

This is an ATX form factor (12.0-in x 8.2-in, 30.5 cm x 20.8 cm) motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

## **Pre-installation Precautions**

Take note of the following precautions before you install motherboard components or change any motherboard settings.



Before you install or remove any component, ensure that the power is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

- Unplug the power cord from the wall socket before touching any component.
- To avoid damaging the motherboard components due to static electricity, NEVER place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle components.
- 3. Hold components by the edges and do not touch the ICs.
- 4. Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that comes with the component.
- When placing screws into the screw holes to secure the motherboard to the chassis, please do not over-tighten the screws! Doing so may damage the motherboard.

## 2.1 CPU Installation

- Step 1. Unlock the socket by lifting the lever up to a  $90^{\circ}$  angle.
- Step 2. Position the CPU directly above the socket such that the CPU corner with the golden triangle matches the socket corner with a small triangle.
- Step 3. Carefully insert the CPU into the socket until it fits in place.



The CPU fits only in one correct orientation. DO NOT force the CPU into the socket to avoid bending of the pins.

Step 4. When the CPU is in place, press it firmly on the socket while you push down the socket lever to secure the CPU. The lever clicks on the side tab to indicate that it is locked.







STEP 1: Lift Up The Socket Lever

STEP 2 / STEP 3: Match The CPU Golden Triangle To The Socket Corner Small Triangle

STEP 4: Push Down And Lock The Socket Lever

## 2.2 Installation of CPU Fan and Heatsink

After you install the CPU into this motherboard, it is necessary to install a larger heatsink and cooling fan to dissipate heat. You also need to spray thermal grease between the CPU and the heatsink to improve heat dissipation. Make sure that the CPU and the heatsink are securely fastened and in good contact with each other. Then connect the CPU fan to the CPU FAN connector (CPU\_FAN1, see Page 10, No. 3). For proper installation, please kindly refer to the instruction manuals of the CPU fan and the heatsink.

## 2.3 Installation of Memory Modules (DIMM)

This motherboard provides four 240-pin DDR2 (Double Data Rate 2) DIMM slots, and supports Dual Channel Memory Technology. For dual channel configuration, you always need to install **identical** (the same brand, speed, size and chip-type) DDR2 DIMM pair in the slots of the same color. In other words, you have to install **identical** DDR2 DIMM pair in **Dual Channel A** (DDRII\_1 and DDRII\_2; Yellow slots; see p.10 No.7) or **identical** DDR2 DIMM pair in **Dual Channel A** (DDRII\_1 and DDRII\_2; Yellow slots; see p.10 No.7) or **identical** DDR2 DIMM pair in **Dual Channel B** (DDRII\_3 and DDRII\_4; Orange slots; see p.10 No.8), so that Dual Channel Memory Technology can be activated. This motherboard also allows you to install four DDR2 DIMMs for dual channel configuration, and please install **identical** DDR2 DIMMs in all four slots. You may refer to the Dual Channel Memory Configuration Table below.

	DDRII_1	DDRII_2	DDRII_3	DDRII_4
	(Yellow Slot)	(Yellow Slot)	(Orange Slot)	(Orange Slot)
(1)	Populated	Populated	-	-
(2)	-	-	Populated	Populated
(3)*	Populated	Populated	Populated	Populated

**Dual Channel Memory Configurations** 

\* For the configuration (3), please install identical DDR2 DIMMs in all four slots.



- If you want to install two memory modules, for optimal compatibility and reliability, it is recommended to install them in the slots of the same color. In other words, install them either in the set of yellow slots (DDRII\_1 and DDRII\_2), or in the set of orange slots (DDRII\_3 and DDRII\_4).
- If only one memory module or three memory modules are installed in the DDR2 DIMM slots on this motherboard, it is unable to activate the Dual Channel Memory Technology.
- If a pair of memory modules is NOT installed in the same Dual Channel, for example, installing a pair of memory modules in DDRII\_1 and DDRII\_3, it is unable to activate the Dual Channel Memory Technology.
- It is not allowed to install a DDR memory module into DDR2 slot; otherwise, this motherboard and DIMM may be damaged.

## Installing a DIMM



Please make sure to disconnect power supply before adding or removing DIMMs or the system components.

- $Step \ 1. \quad Unlock \ a \ DIMM \ slot \ by \ pressing \ the \ retaining \ clips \ outward.$
- Step 2. Align a DIMM on the slot such that the notch on the DIMM matches the break on the slot.







The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.

Step 3. Firmly insert the DIMM into the slot until the retaining clips at both ends fully snap back in place and the DIMM is properly seated.

## 2.4 Expansion Slots (PCI and PCI Express Slots)

There are 3 PCI slots and 3 PCI Express slots on this motherboard.

**PCI slots:** PCI slots are used to install expansion cards that have the 32-bit PCI interface.

PCIE Slots: PCIE1 slot (PCI Express x1 slot) is used for PCI Express cards with

x1 lane width, such as Gigabit LAN card, SATA2 card, etc.

For PCIE2/PCIE SWITCH slot and PCIE3 slot, you may choose to use one PCI Express x16 slot with PCIE Switch card or two PCI Express Graphics slots for ATI<sup>™</sup> CrossFire<sup>™</sup>.

#### NOTE:

If you want the PCI Express x16 graphics card on PCIE3 slot to work at PCIE x16 bandwidth, you need to install PCIE Switch card on PCIE2/PCIE SWITCH slot. Please refer to page 18 for details of installing a single graphics card. If you want to enable ATI<sup>™</sup> CrossFire<sup>™</sup> feature, please refer to page 19 for details of installing CrossFire<sup>™</sup> graphics cards.

Please refer to the table below for possible PCIE2/PCIE SWITCH slot and PCIE3 slot configurations.

	PCIE2/PCIE SWITCH Slot	PCIE3 Slot
	Card Type	Card Type
Single Graphics Card *	PCIE Switch Card	PCIE x16 graphics card
Dual Graphics Cards in CrossFire™ Mode **	ATI <sup>™</sup> Standard Radeon (CrossFire <sup>™</sup> Ready) graphics card	ATI <sup>™</sup> Radeon CrossFire <sup>™</sup> Edition graphics card

#### PCIE2/PCIE Switch Slot and PCIE3 Slot Configurations

\* To avail of the PCI Express x16 graphics card installed on PCIE3 slot work at PCIE x16 bandwidth, please make sure that PCIE Switch card is installed on PCIE2/PCIE SWITCH slot. Please refer to page 18 for details of installing a single graphics card.

\*\* Please remove PCIE Switch card from PCIE2/PCIE SWITCH slot before you use ATI<sup>™</sup> CrossFire<sup>™</sup> function. In CrossFire<sup>™</sup> mode, the two ATI<sup>™</sup> graphics cards you install should be from the same GPU family.

## Installing an expansion card

Step 1.	Before installing the expansion card, please make sure that the power
	supply is switched off or the power cord is unplugged. Please read the
	documentation of the expansion card and make necessary hardware
	settings for the card before you start the installation.
Step 2.	Remove the system unit cover (if your motherboard is already installed in
	a chassis).
Ctop 2	Demove the breaket facing the elet that you intend to use. Keen the

Step 3. Remove the bracket facing the slot that you intend to use. Keep the screws for later use.

- Step 4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.
- Step 5. Fasten the card to the chassis with screws.
- Step 6. Replace the system cover.

## 2.5 Installing a Single Graphics Card

- Step 1. Install a PCI Express x16 graphics card on PCIE3 slot. Please refer to page 17 for proper procedures of installing an expansion card.
- Step 2. Make sure that the PCIE Switch card is installed on PCIE2/PCIE SWITCH slot to avail of the PCI Express x16 graphics card full x16 bandwidth.



- Step 3. Connect one end of the monitor cable to the PCI Express x16 graphics card on PCIE3 slot.
- Step 4. Connect another end of the monitor cable to the corresponding port on your monitor.
- Step 5. Connect an auxiliary power source from the power supply to the PCI Express x16 graphics card on PCIE3 slot. (Only when your graphics card provides such a power connector.)

## 2.6 Installing CrossFire™ Graphics Cards

This motherboard supports CrossFire<sup>™</sup> feature. CrossFire<sup>™</sup> technology offers the most advantageous means available of combining multiple high performance Graphics Processing Units (GPU) in a single PC. Combining a range of different operating modes with intelligent software design and an innovative interconnect mechanism, CrossFire<sup>™</sup> enables the highest possible level of performance and image quality in any 3D application. Currently CrossFire<sup>™</sup> feature is supported with Windows<sup>®</sup> XP with Service Pack 2. Please check ATI<sup>™</sup> website for driver updates.



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#### What graphics cards work with CrossFire™?

A complete CrossFire<sup>™</sup> system requires a CrossFire<sup>™</sup> Ready motherboard, a CrossFire<sup>™</sup> Edition graphics card and a compatible standard Radeon (CrossFire<sup>™</sup> Ready) graphics card from the same series, or two CrossFire<sup>™</sup> Ready cards if they are software enabled. This applies to cards from ATI<sup>™</sup> or any of its partners.

Cards For PCIE3 Slot
Radeon X1950Pro Series
Radeon X1950XTX CrossFire <sup>™</sup> Edition
Radeon X1950 CrossFire <sup>™</sup> Edition
Radeon X1900 CrossFire <sup>™</sup> Edition
Radeon X1800 CrossFire™ Edition
Radeon X1650Pro Series
Radeon X1600 Series
Radeon X1300 Series
Radeon X850 CrossFire™ Edition

 If a customer incorrectly configures their system they will not see the performance benefits of CrossFire<sup>™</sup>. All three CrossFire<sup>™</sup> components, a CrossFire<sup>™</sup> Ready graphics card, a CrossFire<sup>™</sup> Ready motherboard and a CrossFire<sup>™</sup> Edition co-processor graphics card, must be installed correctly to benefit from the CrossFire<sup>™</sup> multi-GPU platform.

2. If you pair a 12-pipe CrossFire™ Edition card with a 16-pipe card, both cards will operate as 12-pipe cards while in CrossFire™ mode.

## Enjoy the benefit of CrossFire™

Currently, ATI<sup>™</sup> has released Radeon X850XT, X1800XT, X1900XT, X1950XT, X1950Pro, X1950XTX, X1300, X1650 and X1600 CrossFire<sup>™</sup> cards, which require different methods to enable CrossFire<sup>™</sup> feature. In the below procedures, we use Radeon X850XT as the example graphics card. For other CrossFire<sup>™</sup> cards that ATI<sup>™</sup> has released or will release in the future, please refer to ATI<sup>™</sup> graphics card manuals for detailed installation guide.

- Step 1. Remove PCIE Switch card from PCIE2/PCIE SWITCH slot if one is installed.
- Step 2. Connect to the system power supply. Please connect a hard disk power connector to SLI/XFIRE Power connector on this motherboard.



It is recommended to use 500-Watt power supply or greater to perform the benefit of CrossFire<sup>™</sup> feature for Radeon X850XT, X1900 and X1950 series.

Step 3. Install the standard Radeon (CrossFire<sup>™</sup> Ready) graphics card to PCIE2/ PCIE SWITCH slot. For the proper installation procedures, please refer to section "Expansion Slots".



Install the Radeon CrossFire<sup>™</sup> Edition graphics card to PCIE3 slot. For the Step 4. proper installation procedures, please refer to section "Expansion Slots".

> Standard Radeon (CrossFire<sup>™</sup> Ready) graphics card



Radeon CrossFire<sup>™</sup> Edition graphics card



1. You are allowed to install two CrossFire<sup>™</sup> Edition graphics cards to both slots, or you may use one CrossFire™ Edition graphics cards and a compatible standard Radeon (CrossFire<sup>™</sup> Ready) graphics card from the same series.

- 2. For ATI<sup>™</sup> Radeon X1300, X1600, X1650 and X1950Pro series, there are no CrossFire<sup>™</sup> Edition graphics cards. You can still install two regular graphics cards from the same series on PCIE2/PCIE SWITCH slot and PCIE3 slot to support CrossFire™. Besides, please connect the monitor cable to the graphics card on PCIE3 slot.
- Step 5. Correctly connect the DVI-DMS cable to the monitor connector and two graphics cards that you install. (If you install two standard Radeon (CrossFire<sup>™</sup> Ready) graphics cards to this motherboard, please skip this step.)







DMS connector

DVI connector



Connect the DVI-DMS cable to DVI connector of the compatible standard Radeon (CrossFire<sup>™</sup> Ready) graphics card.

CrossFire™

Radeon

card

Edition graphics



graphics card

**DVI** connector

Standard Radeon (CrossFire<sup>™</sup> Ready)

There are two DVI connectors on the standard Radeon (CrossFire<sup>™</sup> Ready)

, the graphics card will not work.

graphics card. Please connect the DVI-DMS

cable to the correct DVI connector; otherwise



Connect the DVI-DMS cable to DMS connector of the CrossFire<sup>™</sup> Edition graphics card.

Connect the DVI-DMS cable to the monitor connector.

If you install two CrossFire™ Edition graphics cards to this motherboard, please connect one end of DVI-DMS cable to the monitor, another end to DMS of one of the CrossFire<sup>™</sup> Edition graphics cards to PCIE3 slot, and the other end to DVI of another CrossFire<sup>™</sup> Edition graphics card to PCIE2/PCIE SWITCH slot. If you install one CrossFire<sup>™</sup> Edition graphics card and one compatible standard Radeon (CrossFire<sup>™</sup> Ready) graphics card to this motherboard, please connect one end of DVI-DMS cable to the monitor, another end to DMS of the CrossFire™ Edition graphics card, and the other end to DVI of the compatible standard Radeon (CrossFire<sup>™</sup> Ready) graphics card.

Step 6. Power on your computer and boot into OS.

Step 7. Remove the ATI<sup>™</sup> driver if you have any VGA driver installed in your system.



The Catalyst Uninstaller is an optional download. We recommend using this utility to uninstall any previously installed Catalyst drivers prior to installation. Please visit this website for the driver: http://support.ati.com/ics/support/DLRedirect.asp? fileIDExt=050553d40196ef109fff37cbb40aaf28&accountID=737&deptID=894

- Step 8. Install the required drivers to your system. Please visit the websites below for installing the drivers that ATI<sup>™</sup> recommends:
  - A. ATI<sup>™</sup> recommends Windows<sup>®</sup> XP Service Pack 2 or higher to be installed (If you have Windows<sup>®</sup> XP Service Pack 2 or higher installed in your system, there is no need to download it again): <u>http://www.microsoft.com/windowsxp/sp2/default.mspx</u>
  - B. You must have Microsoft .NET Framework installed prior to downloading and installing the CATALYST Control Center: <u>http://www.microsoft.com/downloads/details.aspx?</u> FamilyId=262D25E3-F589-4842-8157-034D1E7CF3A3&displaylang=en
- Step 9. Restart your computer.
- Step 10. Install the VGA card drivers to your system, and restart your computer. Then you will find "ATI Catalyst Control Center" on your desktop.



You will find "ATI Catalyst Control Center" on your desktop.

Step 11. Double-click "ATI Catalyst Control Center". Click "View", and select "Advanced View". Click "CrossFire<sup>™</sup>", and then set the option "Enable CrossFire<sup>™</sup>" to "Yes".



If you install one Radeon CrossFire<sup>™</sup> Edition graphics card and one compatible standard Radeon (CrossFire<sup>™</sup> Ready) graphics card to this motherboard but not two Radeon CrossFire<sup>™</sup> Edition graphics cards, please as well follow the above steps. However, although you have selected the option "Enable CrossFire<sup>™</sup>, the CrossFire<sup>™</sup> function can not work actually. Your computer will automatically reboot. After restarting your computer, please confirm whether the option "Enable CrossFire<sup>™</sup> in "ATI Catalyst Control Center" is selected or not; if not, please select it again, and then you are able to enjoy the benefit of CrossFire<sup>™</sup> feature.

Step 12. You can freely enjoy the benefit of CrossFire<sup>™</sup> feature.

\* CrossFire™ appearing here is a registered trademark of ATI<sup>™</sup> Technologies Inc., and is used only for identification or explanation and to the owners' benefit, without intent to infringe.

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## 2.7 Surround Display Feature

This motherboard supports Surround Display upgrade. With the external add-on ATI PCI Express VGA cards, you can easily enjoy the benefits of Surround Display feature. For the detailed instruction, please refer to the document at the following path in the Support CD:

..\ Surround Display Information

## 2.8 Jumpers Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on pins, the jumper is "Short". If no jumper cap is placed on pins, the jumper is "Open". The illustration shows a 3-pin jumper whose pin1 and pin2 are "Short" when jumper cap is placed on these 2 pins.



Jumper	Setti	ng	
PS2_USB_PW1	1_2	2_3	Short pin2, pin3 to enable
(see p.10, No. 1)			+5VSB (standby) for PS/2 or
	+5V	+2428	USB wake up events.

Note: To select +5VSB, it requires 2 Amp and higher standby current provided by power supply.

Clear CMOS Jumper	1_2	2_3
(CLRCMOS1)		$\bigcirc \bullet \bullet$
(see p.10, No. 11)	Default	Clear CMOS

Note: CLRCMOS1 allows you to clear the data in CMOS. The data in CMOS includes system setup information such as system password, date, time, and system setup parameters. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short pin2 and pin3 on CLRCMOS1 for 5 seconds. However, please do not clear the CMOS right after you update the BIOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action.

# 2.9 Onboard Headers and Connectors Onboard headers and connectors are NOT jumpers. Do NOT place

Pin1

jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage of the motherboard!

Floppy Connector (33-pin FLOPPY1) (see p.10 No. 25)



Note: Make sure the red-striped side of the cable is plugged into Pin1 side of the connector.

FLOPPY1



Note: Please refer to the instruction of your IDE device vendor for the details.





Infrared Module Header (5-pin IR1) (see p.10 No. 30)		This header supports an optional wireless transmitting and receiving infrared module.
Internal Audio Connectors (4-pin CD1) (CD1: see p.10 No. 34)	CD-L GND GND CD-R CD1	This connector allows you to receive stereo audio input from sound sources such as a CD-ROM, DVD-ROM, TV tuner card, or MPEG card.
Front Panel Audio Header (9-pin HD_AUDIO1) (see p.10 No. 26)	GND PRESENCE # MIC_RET OUT_RET OUT_L J SENSE OUT2_R MIC2_L	This is an interface for the front panel audio cable that allows convenient connection and control of audio devices.
1. High Definition chassis must instruction in     2. If you use AC header as bell A. Connect M B. Connect A C. Connect G D. MIC_RET need to co E. Enter BIO Chipset C [Auto] to [ F. Enter Window Click "Aud "Disable fr clicking "C For Window Click the r	on Audio supports Jack t support HDA to functio our manual and chass C'97 audio panel, please low: Mic_IN (MIC) to MIC2_L Audio_R (RIN) to OUT2_ Ground (GND) to Groun and OUT_RET are for ponnect them for AC'97 a S Setup Utility. Enter A Configuration. Set the F [Enabled]. dows system. Click the enter Realtek HD Audii ws® 2000 / XP / XP 64- lio I/O", select "Connect cont panel jack detection DK". ws® Vista™ / Vista™ 64 ight-top "Folder" icon	Sensing, but the panel wire on the on correctly. Please follow the is manual to install your system. e install it to the front panel audio  _R and Audio_L (LIN) to OUT2_L. d (GND). HD audio panel only. You don't audio panel. Movanced Settings, and then select ront Panel Control option from icon on the lower right hand o Manager. bit OS: tor Settings" (, choose n", and save the change by -bit OS: (, choose "Disable front

System Panel Header (9-pin PANEL1) (see p.10 No. 23)	PLED+ PLED- GND OOOO NOOO RESET# HDLED- HDLED+	This header accommodates several system front panel functions.
Chassis Speaker Header (4-pin SPEAKER 1) (see p.10 No. 24)		Please connect the chassis speaker to this header.
Chassis Fan Connector (3-pin CHA_FAN1) (see p.10 No. 22)	GND ICHA_FAN_SPEED	Please connect a chassis fan cable to this connector and match the black wire to the ground pin.
CPU Fan Connector (4-pin CPU_FAN1) FAN_SPEEC (see p.10 No. 3)	D_CONTROL -0 4 FAN_SPEED -0 3 +12V -0 2 GND -0 1	Please connect the CPU fan cable to this connector and match the black wire to the ground pin.
Though this mothe CPU fan still can If you plan to con motherboard, plea	erboard provides 4-Pin Cl work successfully even v nect the 3-Pin CPU fan t ase connect it to Pin 1-3.	PU fan (Quiet Fan) support, the 3-Pin without the fan speed control function. o the CPU fan connector on this <b>Pin 1-3 Connected</b> • 3-Pin Fan Installation
ATX Power Connector (20-pinATXPWR1) (see p.10 No. 4)		Please connect an ATX power supply to this connector.
ATX 12V Power Connector (4-pin ATX12V1) (see p.10 No. 2)	48	Please note that it is necessary to connect a power supply with ATX 12V plug to this connector. Failing to do so will cause power up failure.
SLI/XFIRE Power Connector (4-pin SLI/XFIRE_POWER1) (see p.10 No. 33)	SLI/XFIRE_POWER1	It is not necessary to use this connector, but please connect it with a hard disk power connecor when two graphics cards are plugged to this motherboard at the same time.



## 2.10 HDMI SPDIF Header Connection Guide

HDMI (High-Definition Multi-media Interface) is an all-digital audio/video specification, which provides an interface between any compatible digital audio/video source, such as a set-top box, DVD player, A/V receiver and a compatible digital audio or video monitor, such as a digital television (DTV). A complete HDMI system requires a HDMI VGA card and a HDMI ready motherboard with a HDMI\_SPDIF header. This motherboard is equipped with a HDMI\_SPDIF header, which provides SPDIF audio output to HDMI VGA card, allows the system to connect HDMI Digital TV/projector/ LCD devices. To use HDMI function on this motherboard, please carefully follow the below steps.

Step 1. Install the HDMI VGA card to the PCI Express Graphics slot on this

motherboard. For the proper installation of HDMI VGA card, please refer to the installation guide on page 17 and page 18.

Connect the black end (A) of HDMI\_SPDIF cable to the Step 2. HDMI\_SPDIF header (HDMI\_SPDIF1, yellow, see page 10, No. 28) on the motherboard.





Make sure to correctly connect the HDMI\_SPDIF cable to the motherboard and the HDMI VGA card according to the same pin definition. For the pin definition of HDMI\_SPDIF header and HDMI\_SPDIF cable connectors, please refer to page 29. For the pin definition of HDMI SPDIF connectors on HDMI VGA card, please refer to the user manual of HDMI VGA card vendor. Incorrect connection may cause permanent damage to this motherboard and the HDMI VGA card.

Connect the white end (B or C) of HDMI\_SPDIF cable to the HDMI\_SPDIF Step 3. connector of HDMI VGA card. (There are two white ends (2-pin and 3-pin) on HDMI SPDIF cable. Please choose the appropriate white end according to the HDMI\_SPDIF connector of the HDMI VGA card you install





white end (3-pin) (C)



of HDMI VGA card or other VGA card. Otherwise, the motherboard and the VGA card may be damaged. For example, this picture shows the wrong example of connecting HDMI SPDIF cable to the fan connector of PCI Express VGA card. Please refer to the VGA card user manual for connector usage in advance



Step 4. Connect the HDMI output connector on HDMI VGA card to HDMI device, such as HDTV. Please refer to the user manual of HDTV and HDMI VGA card vendor for detailed connection procedures.



Step 5. Install HDMI VGA card driver to your system.

## 2.11 eSATAII Interface Introduction

#### What is eSATAII?

This motherboard supports eSATAII interface, the external SATAII specification. eSATAII allows you to enjoy the SATAII function provided by the I/O of your computer, offering the high speed data transfer rate up to 3.0Gb/s, and the convenient mobility like USB. eSATAII is equipped with Hot Plug capability that enables you to exchange drives easily. For example, with eSATAII interface, you may simply plug your eSATAII hard disk to the eSATAII ports instead of opening your chassis to exchange your SATAII hard disk. Currently, on the market, the data transfer rate of USB 2.0 is up to 480Mb/s, and for IEEE 1394 is up to 400Mb/s. However, eSATAII provides the data transfer rate up to 3000Mb/s, which is much higher than USB 2.0 and IEEE 1394, and still keeps the convenience of Hot Plug feature. Therefore, on the basis of the advantageous transfer speed and the facilitating mobile capability, in the near future, eSATAII will replace USB 2.0 and IEEE 1394 to be a trend for external interface.

#### NOTE:

- If you set "SATA Operation Mode" option in BIOS setup to AHCI or RAID mode, Hot Plug function is supported with eSATAII devices. Therefore, you can insert or remove your eSATAII devices to the eSATAII ports while the system is power-on and in working condition.
- 2. If you set "SATA Operation Mode" option in BIOS setup to non-RAID mode, Hot Plug function is not supported with eSATAII devices. If you still want to use eSATAII function in non-RAID mode, please insert or remove your eSATAII devices to the eSATAII ports only when the system is power-off.
- Please refer to page 37 to 41 for detailed information of RAID mode, non-RAID mode, and AHCI mode.

#### How to install eSATAII?



SATAII\_RED (PORT 1) and SATAII\_ORANGE (PORT 2)



eSATAII\_TOP and eSATAII\_BOTTOM

If you just plan to install one eSATAII device to this motherboard, it is recommended to enable the bottom eSATAII port of the I/O shield. In order to enable the bottom eSATAII port of the I/O shield, you need to connect the red SATAII connector (SATAII\_RED (PORT 1); see p.10 No.15) and the red eSATAII connector (eSATAII\_BOTTOM; see p.10 No.36) with a SATA data cable first. Then the bottom eSATAII port of the I/O shield is enabled.







Connect the SATA data cable to the red eSATAII connector (eSATAII\_BOTTOM)



2. If you plan to install two eSATAII devices to this motherboard, you need to enable both the top and the bottom eSATAII ports of the I/O shield. In order to enable the top and the bottom eSATAII ports of the I/O shield, you have to connect the red SATAII connector (SATAII\_RED (PORT 1); see p.10 No.15) and the red eSATAII connector (eSATAII\_BOTTOM; see p.10 No.36) with a SATA data cable first, and then connect the orange SATAII connector (SATAII\_ORANGE (PORT 2); see p.10 No.14) and the orange eSATAII connector (eSATAII\_TOP; see p.10 No.35) with another SATA data cable. After that, both the top and the bottom eSATAII ports of the I/O shield are enabled.



Connect the SATA data cables to both red SATAII connector (SATAII\_RED (PORT 1)) and orange SATAII connector (SATAII\_ ORANGE (PORT 2))



Connect the SATA data cables to both red eSATAII connector (eSATAII\_BOTTOM) and orange eSATAII connector (eSATAII\_TOP)



Please make sure to correctly connect the SATAII and eSATAII connectors with corresponding color so that the eSATAII function will work successfully.

 Use the eSATAII device cable to connect eSATAII device and the eSATAII port of the I/O shield according to the eSATAII connector that you connect the SATA data cable.



Connect one end of the eSATAII device cable to eSATAII device



Connect the other end of the eSATAII device cable to eSATAII port of the I/O shield

#### Comparison between eSATAII and other devices

IEEE 1394	400Mb/s
USB 2.0	480Mb/s
SATA	1.5Gb/s (1500Mb/s)
eSATAII/SATAII	3.0Gb/s (3000Mb/s)



## 2.12 SATAII Hard Disk Setup Guide

Before installing SATAII hard disk to your computer, please carefully read below SATAII hard disk setup guide. Some default setting of SATAII hard disks may not be at SATAII mode, which operate with the best performance. In order to enable SATAII function, please follow the below instruction with different vendors to correctly adjust your SATAII hard disk to SATAII mode in advance; otherwise, your SATAII hard disk may fail to run at SATAII mode.

#### Western Digital



If pin 5 and pin 6 are shorted, SATA 1.5Gb/s will be enabled. On the other hand, if you want to enable SATAII 3.0Gb/s, please remove the jumpers from pin 5 and pin 6.

#### SAMSUNG

|--|

If pin 3 and pin 4 are shorted, SATA 1.5Gb/s will be enabled. On the other hand, if you want to enable SATAII 3.0Gb/s, please remove the jumpers from pin 3 and pin 4.

#### HITACHI

Please use the Feature Tool, a DOS-bootable tool, for changing various ATA features. Please visit HITACHI's website for details:

http://www.hitachigst.com/hdd/support/download.htm



The above examples are just for your reference. For different SATAII hard disk products of different vendors, the jumper pin setting methods may not be the same. Please visit the vendors' website for the updates.

## 2.13 Serial ATA (SATA) / Serial ATAII (SATAII) Hard Disks Installation

This motherboard adopts ATI<sup>™</sup> SB600 south bridge chipset that supports Serial ATA (SATA) / Serial ATAII (SATAII) hard disks and RAID (RAID 0, RAID 1, and RAID 10) functions. You may install SATA / SATAII hard disks on this motherboard for internal storage devices. This section will guide you to install the SATA / SATAII hard disks.

- STEP 1: Install the SATA / SATAII hard disks into the drive bays of your chassis.
- STEP 2: Connect the SATA power cable to the SATA / SATAII hard disk.
- STEP 3: Connect one end of the SATA data cable to the motherboard's SATAII connector.
- STEP 4: Connect the other end of the SATA data cable to the SATA / SATAII hard disk.



 If you plan to use RAID 0 or RAID 1 function, you need to install at least 2 SATA / SATAII hard disks. If you plan to use RAID 10 function, you need to install 4 SATA / SATAII hard disks.

- It is recommended to build RAID 0, RAID 1 or RAID 10 on internal SATA/ SATAII ports. In other words, if SATAII\_RED (PORT 1) and SATAII\_ORANGE (PORT 2) are used for eSATAII ports, please build RAID on SATAII\_BLUE (PORT 4) and SATAII\_BLACK (PORT 3).
- 3. For OS installation on SATA / SATAII HDDs, please refer to page 37 to 41 for details. If you install a new SATA / SATAII HDD just for data storage purpose, and your SATA / SATAII mode is in RAID or AHCI mode, this empty SATA / SATAII HDD information will not appear in "Disk Management". You need to enter WebPAM to create JBOD first, which means, after you enter WebPAM, please click "Logical Drive View" → "Create" → "JBOD". After that, you can find the empty SATA / SATAII HDDs information in "Disk Management" and start to use it. (WebPAM is an utility for ATI<sup>TM</sup> Windows RAID. Please refer to RAID Installation Guide in our support CD for detailed operation procedures.)

## 2.14 Hot Plug and Hot Swap Functions for SATA / SATAII HDDs and eSATAII Devices

This motherboard supports Hot Plug and Hot Swap functions for SATA / SATAII / eSATAII Devices in RAID / AHCI mode. ATI<sup>™</sup> SB600 south bridge chipset provides hardware support for Advanced Host controller Interface (AHCI), a new programming interface for SATA host controllers developed thru a joint industry effort. AHCI also provides usability enhancements such as Hot Plug.



## What is Hot Plug Function?

NOTE

If the SATA / SATAII HDDs are NOT set for RAID configuration, it is called "Hot Plug" for the action to insert and remove the SATA / SATAII HDDs while the system is still power-on and in working condition. However, please note that it cannot perform Hot Plug if the OS has been installed into the SATA / SATAII HDD.

#### What is Hot Swap Function?

If SATA / SATAII HDDs are built as RAID1 then it is called "Hot Swap" for the action to insert and remove the SATA / SATAII HDDs while the system is still power-on and in working condition.

eSATAII is equipped with Hot Plug capability that enables you to exchange drives easily. For example, with eSATAII interface, you may simply plug your eSATAII devices to the eSATAII ports instead of opening your chassis to exchange your SATAII hard disk.

## 2.15 Driver Installation Guide

To install the drivers to your system, please insert the support CD to your optical drive first. Then, the drivers compatible to your system can be auto-detected and listed on the support CD driver page. Please follow the order from up to bottom side to install those required drivers. Therefore, the drivers you install can work properly.

# 2.16 Installing Windows<sup>®</sup> 2000 / XP / XP 64-bit / Vista<sup>™</sup> / Vista<sup>™</sup> 64-bit With RAID Functions

If you want to install Windows<sup>®</sup> 2000, Windows<sup>®</sup> XP, Windows<sup>®</sup> XP 64-bit, Windows<sup>®</sup> Vista<sup>™</sup> or Windows<sup>®</sup> Vista<sup>™</sup> 64-bit on a RAID disk composed of 2 or more SATA / SATAII HDDs with RAID functions, please follow below procedures according to the OS you install.



Before installing Windows<sup>®</sup> 2000 to your system, your Windows<sup>®</sup> 2000 optical disk is supposed to include SP4. If there is no SP4 included in your disk, please visit the below website for proper procedures of making a SP4 disk: <u>http://www.microsoft.com/Windows2000/downloads/servicepacks/sp4/spdeploy.</u> <u>htm#the\_integrated\_installation\_fmay</u>

## 2.16.1 Installing Windows<sup>®</sup> 2000 / XP / XP 64-bit With RAID Functions

If you want to install Windows<sup>®</sup> 2000, Windows<sup>®</sup> XP or Windows<sup>®</sup> XP 64-bit on a RAID disk composed of 2 or more SATA / SATAII HDDs with RAID functions, please follow below steps.

#### STEP 1: Set up BIOS.

D.

- A. Enter BIOS SETUP UTILITY → Advanced screen → IDE Configuration.
- B. Set the "SATA Operation Mode" option to [RAID].

#### STEP 2: Make a SATA / SATAII Driver Diskette.

- A. Insert the ASRock Support CD into your optical drive to boot your system.
- B. During POST at the beginning of system boot-up, press <F11> key, and then a window for boot devices selection appears. Please select CD-ROM as the boot device.
- C. When you see the message on the screen, "Generate Serial ATA driver diskette [YN]?", press <Y>.
  - Then you will see these messages,

#### Please insert a blank

- formatted diskette into floppy
- drive A:

#### press any key to start

Please insert a floppy diskette into the floppy drive, and press any key.

E. The system will start to format the floppy diskette and copy SATA / SATAII drivers into the floppy diskette.

#### STEP 3: Use "RAID Installation Guide" to set RAID configuration.

Before you start to configure RAID function, you need to check the RAID installation guide in the Support CD for proper configuration. Please refer to the BIOS RAID installation guide part of the document in the following path in the Support CD:

.. \ RAID Installation Guide

# STEP 4: Install Windows<sup>®</sup> 2000 / Windows<sup>®</sup> XP / Windows<sup>®</sup> XP 64-bit OS on your system.

After step 1, 2, 3, you can start to install Windows<sup>®</sup> 2000 / Windows<sup>®</sup> XP / Windows<sup>®</sup> XP 64-bit OS on your system. At the beginning of Windows<sup>®</sup> setup, press F6 to install a third-party RAID driver. When prompted, insert the SATA / SATAII driver diskette containing the ATI<sup>™</sup> RAID driver. After reading the floppy disk, the driver will be presented. Select the driver to install according to the OS you install. (Select "ATI AHCI Compatible RAID Controller-x86 platform" for Windows<sup>®</sup> 2000 and Windows<sup>®</sup> XP, or "ATI AHCI Compatible RAID Controller-x64 platform" for Windows<sup>®</sup> XP 64-bit.)

- NOTE1. If you install Windows® 2000 / Windows® XP / Windows® XP 64-bit on IDE HDDs and want to manage (create, convert, delete, or rebuild) RAID functions on SATA / SATAII HDDs, you still need to set up "SATA Operation Mode" to [RAID] first. Then, please set the RAID configuration by using the Windows RAID installation guide in the following path in the Support CD:
  - .. \ RAID Installation Guide
- NOTE2. If your operating system is Windows<sup>®</sup> 2000, please install the graphics card driver before you install "SATA2 Utility" from our support CD to your system.

## 2.16.2 Installing Windows<sup>®</sup> Vista<sup>™</sup> / Vista<sup>™</sup> 64-bit With RAID Functions

If you want to install Windows<sup>®</sup> Vista<sup>™</sup> or Windows<sup>®</sup> Vista<sup>™</sup> 64-bit on a RAID disk composed of 2 or more SATA / SATAII HDDs with RAID functions, please follow below steps.

#### STEP 1: Set up BIOS.

A. Enter BIOS SETUP UTILITY → Advanced screen → IDE Configuration.
 B. Set the "SATA Operation Mode" option to [RAID].

#### STEP 2: Use "RAID Installation Guide" to set RAID configuration.

Before you start to configure RAID function, you need to check the RAID installation guide in the Support CD for proper configuration. Please refer to the BIOS RAID installation guide part of the document in the following path in the Support CD:

#### .. \ RAID Installation Guide

STEP 3: Install Windows<sup>®</sup> Vista<sup>™</sup> / Vista<sup>™</sup> 64-bit OS on your system.

Insert the Windows<sup>®</sup> Vista<sup>TM</sup> / Windows<sup>®</sup> Vista<sup>TM</sup> 64-bit optical disk into the optical drive to boot your system, and follow the instruction to install Windows<sup>®</sup> Vista<sup>TM</sup> /

Windows<sup>®</sup> Vista<sup>™</sup> 64-bit OS on your system. When you see "Where do you want to install Windows?" page, please insert the ASRock Support CD into your optical drive, and click the "Load Driver" button on the left on the bottom to load the ATI<sup>™</sup> RAID drivers. ATI<sup>™</sup> RAID drivers are in the following path in our Support CD:

.. \ I386 (For Windows<sup>®</sup> Vista<sup>™</sup>OS)

..\AMD64 (For Windows<sup>®</sup> Vista<sup>™</sup> 64-bit OS)

After that, please insert Windows<sup>®</sup> Vista<sup>™</sup> / Windows<sup>®</sup> Vista<sup>™</sup> 64-bit optical disk into the optical drive again to continue the installation.

- NOTE1. If you install Windows<sup>®</sup> Vista<sup>™</sup> / Windows<sup>®</sup> Vista<sup>™</sup> 64-bit on IDE HDDs and want to manage (create, convert, delete, or rebuild) RAID functions on SATA / SATAII HDDs, you still need to set up "SATA Operation Mode" to [RAID] in BIOS first. Then, please set the RAID configuration by using the Windows RAID installation guide in the following path in the Support CD:
  - .. \ RAID Installation Guide
- NOTE2. Currently, if you install Windows<sup>®</sup> Vista<sup>™</sup> / Windows<sup>®</sup> Vista<sup>™</sup> 64-bit on IDE HDDs and there are no SATA / SATAII device used, please set up "SATA Operation Mode" to [non-RAID] in BIOS.

# 2.17 Installing Windows<sup>®</sup> 2000 / XP / XP 64-bit / Vista<sup>™</sup> / Vista<sup>™</sup> 64-bit Without RAID Functions

If you want to install Windows<sup>®</sup> 2000, Windows<sup>®</sup> XP, Windows<sup>®</sup> XP 64-bit, Windows<sup>®</sup> Vista<sup>™</sup> or Windows<sup>®</sup> Vista<sup>™</sup> 64-bit OS on your SATA / SATAII HDDs and eSATAII devices without RAID functions, please follow below procedures according to the OS you install.



Before installing Windows® 2000 to your system, your Windows® 2000 optical disk is supposed to include SP4. If there is no SP4 included in your disk, please visit the below website for proper procedures of making a SP4 disk: http://www.microsoft.com/Windows2000/downloads/servicepacks/sp4/spdeploy. htm#the integrated installation fmay

## 2.17.1 Installing Windows<sup>®</sup> 2000 / XP / XP 64-bit Without RAID Functions

If you want to install Windows<sup>®</sup> 2000, Windows<sup>®</sup> XP or Windows<sup>®</sup> XP 64-bit on your SATA / SATAII HDDs without RAID functions, please follow below steps.

- NOTE1. If you install single or multiple SATA / SATAII HDDs on this motherboard and plan to install Windows<sup>®</sup> 2000 / XP / XP 64-bit on SATA / SATAII HDDs, it is still suggested to use RAID mode even you don't plan to use RAID functions. Please follow the steps of "Using SATA / SATAII HDDs with NCQ and Hot Plug functions" below.
- NOTE2. AHCI mode is only recommended for Windows<sup>®</sup> Vista<sup>™</sup> / Vista<sup>™</sup> 64-bit users. If you install Windows<sup>®</sup> 2000 / XP / XP 64-bit, it is not suggested to use AHCI mode.

Using SATA / SATAII HDDs and eSATAII devices with NCQ and Hot Plug functions

#### STEP 1: Set Up BIOS.

A. Enter BIOS SETUP UTILITY  $\rightarrow$  Advanced screen  $\rightarrow$  IDE Configuration.

B. Set the "SATA Operation Mode" option to [RAID].

#### STEP 2: Make a SATA / SATAII driver diskette.

Make a SATA / SATAII driver diskette by following section 2.16.1 step 2 on page 37.

# STEP 3: Enter BIOS RAID utility (FastBuild Utility) to create JBOD on SATA / SATAII HDD.

Restart your system. Press <Ctrl+F> to enter BIOS RAID utility (FastBuild Utility) to create JBOD on SATA / SATAII HDD. For the proper operating procedures of creating JBOD, please refer to the BIOS RAID installation guide part of the document in the following path in the Support CD:

#### .. \ RAID Installation Guide



1. JBOD function on this motherboard is only supported with single SATA / SATAII HDD.

2. If you want to enable Hot Plug function on eSATAII ports but you install OS on IDE HDD, please skip step 2 and step 3.

# STEP 4: Install Windows<sup>®</sup> 2000 / Windows<sup>®</sup> XP / Windows<sup>®</sup> XP 64-bit OS on your system.

After step 1, 2, 3, you can start to install Windows<sup>®</sup> 2000 / Windows<sup>®</sup> XP / Windows<sup>®</sup> XP 64-bit OS on your system. At the beginning of Windows<sup>®</sup> setup, press F6 to install a third-party RAID driver. When prompted, insert the SATA / SATAII driver diskette containing the ATI<sup>™</sup> RAID driver. After reading the floppy disk, the driver will be presented. Select the driver to install according to the OS you install. (Select "ATI AHCI Compatible RAID Controller-x86 platform" for Windows<sup>®</sup> 2000 and Windows<sup>®</sup> XP, or "ATI AHCI Compatible RAID Controller-x64 platform" for Windows<sup>®</sup> XP 64-bit.)

# Using SATA / SATAII HDDs and eSATAII devices without NCQ and Hot Plug functions

#### STEP 1: Set up BIOS.

- A. Enter BIOS SETUP UTILITY  $\rightarrow$  Advanced screen  $\rightarrow$  IDE Configuration.
- B. Set the "SATA Operation Mode" option to [non-RAID].
- STEP 2: Install Windows<sup>®</sup> 2000 / Windows<sup>®</sup> XP / Windows<sup>®</sup> XP 64-bit OS on your system.

## 2.17.2 Installing Windows<sup>®</sup> Vista<sup>™</sup> / Vista<sup>™</sup> 64-bit Without RAID Functions

If you want to install Windows<sup>®</sup> Vista<sup>™</sup> or Windows<sup>®</sup> Vista<sup>™</sup> 64-bit on your SATA / SATAII HDDs without RAID functions, please follow below steps.

Using SATA / SATAII HDDs and eSATAII devices with NCQ and Hot Plug functions

#### STEP 1: Set Up BIOS.

A. Enter BIOS SETUP UTILITY  $\rightarrow$  Advanced screen  $\rightarrow$  IDE Configuration.

B. Set the "SATA Operation Mode" option to [AHCI].

#### STEP 2: Make a SATA / SATAII driver diskette.

Make a SATA / SATAII driver diskette by following section 2.16.1 step 2 on page 37.

STEP 3: Install Windows<sup>®</sup> Vista<sup>™</sup> / Vista<sup>™</sup> 64-bit OS on your system.

Insert the Windows<sup>®</sup> Vista<sup>™</sup> / Windows<sup>®</sup> Vista<sup>™</sup> 64-bit optical disk into the optical drive to boot your system, and follow the instruction to install Windows<sup>®</sup> Vista<sup>™</sup> / Windows<sup>®</sup> Vista<sup>™</sup> 64-bit OS on your system. When you see "Where do you want to install Windows?" page, please insert the ASRock Support CD into your optical drive, and click the "Load Driver" button on the left on the bottom to load the ATI<sup>™</sup> AHCI drivers. ATI<sup>™</sup> AHCI drivers are in the following path in our Support CD:

.. \ I386 (For Windows<sup>®</sup> Vista<sup>™</sup> OS)

..\AMD64 (For Windows<sup>®</sup> Vista<sup>™</sup> 64-bit OS)

After that, please insert Windows<sup>®</sup> Vista<sup>™</sup> / Windows<sup>®</sup> Vista<sup>™</sup> 64-bit optical disk into the optical drive again to continue the installation.

Using SATA / SATAII HDDs and eSATAII devices without NCQ and Hot Plug functions

#### STEP 1: Set up BIOS.

A. Enter BIOS SETUP UTILITY  $\rightarrow$  Advanced screen  $\rightarrow$  IDE Configuration.

B. Set the "SATA Operation Mode" option to [non-RAID].

STEP 2: Install Windows<sup>®</sup> Vista<sup>™</sup> / Vista<sup>™</sup> 64-bit OS on your system.

## 2.18 Untied Overclocking Technology

This motherboard supports Untied Overclocking Technology, which means during overclocking, FSB enjoys better margin due to fixed PCI / PCIE buses. Before you enable Untied Overclocking function, please enter "Overclock Mode" option of BIOS setup to set the selection from [Auto] to [Manual]. Then set the "PCIE Frequency (MHz)" option from [100MHz] to [101MHz], [102MHz] or [104MHz]. Therefore, CPU FSB is untied during overclocking, but PCI / PCIE buses are in the fixed mode so that FSB can operate under a more stable overclocking environment.



Please refer to the warning on page 8 for the possible overclocking risk before you apply Untied Overclocking Technology.

## 3. BIOS SETUP UTILITY

## 3.1 Introduction

This section explains how to use the BIOS SETUP UTILITY to configure your system. The Flash Memory on the motherboard stores the BIOS SETUP UTILITY. You may run the BIOS SETUP UTILITY when you start up the computer. Please press <F2> during the Power-On-Self-Test (POST) to enter the BIOS SETUP UTILITY, otherwise, POST will continue with its test routines.

If you wish to enter the BIOS SETUP UTILITY after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.



Because the BIOS software is constantly being updated, the following BIOS setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

## 3.1.1 BIOS Menu Bar

The top of the screen has a menu bar with the following selections:

Main	To set up the system time/date information
Advanced	To set up the advanced BIOS features
H/W Monitor	To display current hardware status
Boot	To set up the default system device to locate and load the
	Operating System
Security	To set up the security features
Exit	To exit the current screen or the BIOS SETUP UTILITY

Use <  $\leftrightarrow$ > key or <  $\rightarrow$ > key to choose among the selections on the menu bar, and then press <Enter> to get into the sub screen.

## 3.1.2 Navigation Keys

Please check the following table for the function description of each navigation key.

Navigation Key(s)	Function Description
← / →	Moves cursor left or right to select Screens
│ ↑ / ↓	Moves cursor up or down to select items
+ / -	To change option for the selected items
<enter></enter>	To bring up the selected screen
<f1></f1>	To display the General Help Screen
<f9></f9>	To load optimal default values for all the settings
<f10></f10>	To save changes and exit the BIOS SETUP UTILITY
<esc></esc>	To jump to the Exit Screen or exit the current screen

## 3.2 Main Screen

When you enter the BIOS SETUP UTILITY, the Main screen will appear and display the system overview.

		BIOS SI	ETUP U	FILITY			
Main Ad	vanced	H/W M	onitor	Boot	Secu	rity	Exit
System Overvie	w				Use [	Enter],	[TAB]
System Time System Date		[17:0 [Fri	00:09] 08/25/20	06]	or [S] select	HIFT-T a field	'AB] to I.
BIOS Version Processor Type	: ALiveX : AMD A Process	Fire-eSAT thlon(tm) or 4200+ (	A2 BIOS 64 X2 D 64bit sur	P1.0 ual Core (ported)	Use [· config	+] or [· gure sy	-] to stem Time.
Processor Speed Microcode Updat	: 2200 M e: 40FB2/	Hz 0					
Cache Size	: 1024KH	3			+++ 11	Selec	t Screen t Item
Total Memory	: 512MB	annel Mer	nory Mo	le	+- Tab	Chan	ge Field
DDRII1	: 256MB/	266MHz (I	DDRII533	i)	F1	Gener	ral Help
DDRII2	:256MB/	266MHz (I	DDRII533	5)	<b>F9</b>	Load	Defaults
DDRII3	: None				F10	Save	and Exit
DDRII4	: None				ESC	Exit	
00.54	0.0	-b4 1095	2002 4-				

System Time [Hour:Minute:Second] Use this item to specify the system time. System Date [Day Month/Date/Year] Use this item to specify the system date.

## 3.3 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, Chipset Configuration, ACPI Configuration, IDE Configuration, PCIPnP Configuration, Floppy Configuration, SuperIO Configuration, and USB Configuration.

		BIOS SETUP UT	FILITY		
Main	Advanced	H/W Monitor	Boot	Security	y Exit
Advanced Settings WARNING : Setting wrong values in below sections may cause system to malfunction. > CPU Configuration > ACPU Configuration > IDE Configuration > PCPIPP Configuration > Floppy Configuration > SuperIO Configuration				Security Options	y Exit for CPU elect Screen elect Item o to Sub Screen
				F1 G F9 L F10 S: ESC E	eneral Help oad Defaults ave and Exit xit
v02	54 (C) Copyr	ight 1985-2003, An	nerican M	legatrends,	Inc.
$\lambda$	Setting wr	ong values in	this se	ection m	ay cause



the system to malfunction.

## 3.3.1 CPU Configuration



#### AM2 Boost

If you set this option to [Enabled], you will enable ASRock AM2 Boost function, which will improve the memory performance. The default value is [Disabled]. Please refer to caution 7 on page 8 for details.

#### **Overclock Mode**

Use this to select Overclock Mode. The default value is [Auto]. Configuration options: [Manual] and [Auto].

#### **CPU Frequency (MHz)**

Use this option to adjust CPU frequency.

#### PCIE Frequency (MHz)

Use this option to adjust PCIE frequency.

#### Spread Spectrum

This feature will be set to [Auto] as default.

#### **Boot Failure Guard**

Enable or disable the feature of Boot Failure Guard.

### Cool 'n' Quiet

Use this item to enable or disable AMD's Cool 'n' Quiet<sup>™</sup> technology. The default value is [Auto]. Configuration options: [Auto], [Enabled] and [Disabled]. If you install Windows<sup>®</sup> Vista<sup>™</sup> and want to enable this function, please set this item to [Enabled]. Please note that enabling this function may reduce CPU voltage and memory frequency, and lead to system stability or compatibility issue with some memory modules or power supplies. Please set this item to [Disable] if above issue occurs.

#### **Dual Core Support**

This item will show if you use Dual Core CPU. Configuration optiona: [Enabled], [Disabled]. The default value is [Enabled].

#### Processor Maximum Multiplier

It will display Processor Maximum Multiplier for reference.

#### Processor Maximum Voltage

It will display Processor Maximum Voltage for reference.

#### Multiplier/Voltage Change

This item is set to [Auto] by default. If it is set to [Manual], you may adjust the value of Processor Multiplier and Processor Voltage. However, it is recommended to keep the default value for system stability.



#### **Processor Multiplier**

This item will show when "Multiplier/Voltage Change" is set to [Manual]; otherwise, it will be hidden. You may set the value from [x8] up to [x25] but no higher than the value of "Processor Maximum Multiplier". For example, if the value of "Processor Maximum Multiplier" is [x11], the actual value of multiplier will be [x11] even if you set this item to a value higher than [x11]. However, for system stability, it is not recommended to adjust the value of this item.

#### **Processor Voltage**

This item will show when "Multiplier/Voltage Change" is set to [Manual]; otherwise, it will be hidden. You may set the value from [1.550V] down to [0.800V]. However, for safety and system stability, it is not recommended to adjust the value of this item.

#### **Memory Clock**

This item can be set by the code using [Auto]. You can set one of the standard values as listed: [200 MHz (DDRII 400)], [266 MHz (DDRII 533)], [333 MHz (DDRII 667)], and [400MHz (DDRII 800)].

#### **Flexibility Option**

The default value of this option is [Disabled]. It will allow better tolerance for memory compatibility when it is set to [Enabled].

#### **CAS Latency**

Use this item to adjust the means of memory accessing. Configuration options: [Auto], [3T], [4T], [5T], and [6T]. The default value is [Auto].

#### TRAS

Use this to adjust TRAS values. Configuration options: [Auto], [5CLK], [6CLK], [7CLK], [8CLK], [9CLK], [10CLK], [11CLK], [12CLK], [13CLK], [14CLK], [15CLK], [16CLK], [17CLK], and [18CLK]. The default value is [Auto].

#### TRP

Use this to adjust TRP values. Configuration options: [Auto], [3CLK], [4CLK], [5CLK], and [6CLK]. The default value is [Auto].

#### TRCD

Use this to adjust TRCD values. Configuration options: [Auto], [3CLK], [4CLK], [5CLK], and [6CLK]. The default value is [Auto].

#### TRRD

Use this to adjust TRRD values. Configuration options: [Auto], [2T], [3T], [4T], and [5T]. The default value is [Auto].

#### TRC

Use this to adjust TRC values. Configuration options: [11T] to [26T]. The default value is [Auto].

#### **MA** Timing

Use this to adjust values for MA timing. Configuration options: [Auto], [2T], [1T]. The default value is [Auto].

#### **Bank Interleaving**

Interleaving allows memory accesses to be spread out over banks on the same node, or accross nodes, decreasing access contention.

## 3.3.2 Chipset Configuration

BIO Advanced	S SETUP UTILITY	
Chipset Settings		DRAM Voltage 2.0V
Onboard LAN Onboard HD Audio Front Panel Primary Graphics Adapter	[Enabled] [Auto] [Auto] [PCI]	for overclocking usage only, which may viola memory specification.
CPU-NB Link Speed CPU-NB Link Width	[Auto] [Auto]	
DRAM Voltage NB Core Voltage NB +1.8V Voltage PCI Bridge Decode Scheme	[Auto] [Auto] [Auto] [Auto]	++ Select Screen †1 Select Item +- Change Optiv F1 General Help F9 Load Default
		F10 Save and Exi ESC Exit

#### **OnBoard LAN**

This allows you to enable or disable the onboard LAN feature.

#### **OnBoard HD Audio**

Select [Auto], [Enabled] or [Disabled] for the onboard HD Audio feature. If you select [Auto], the onboard HD Audio will be disabled when PCI Sound Card is plugged.

#### **Front Panel**

Select [Auto], [Enabled] or [Disabled] for the onboard HD Audio Front Panel. Primary Graphics Adapter

This item will switch the PCI Bus scanning order while searching for video card. It allows you to select the type of Primary VGA in case of multiple video controllers. The default value of this feature is [PCI]. Configuration options: [PCI] and [PCIE].

#### **CPU - NB Link Speed**

This feature allows you selecting CPU to NB link frequency. Configuration options: [Auto], [200 MHz], [400 MHz], [600 MHz], [800 MHz], and [1000 MHz].

#### CPU - NB Link Width

This feature allows you selecting CPU to NB link width. Configuration options: [Auto], [8 bit], and [16 bit].

#### **DRAM Voltage**

Use this to select DRAM voltage. Configuration options: [Auto], [1.85V], [1.9V], [1.95V], [2.0V], and [2.05V]. The default value is [Auto]. DRAM Voltage 2.0V and 2.05V options are for overclocking usage only, which may violate memory specification.

#### **NB Core Voltage**

Use this to select NB core voltage. Configuration options: [Auto], [Ultra High], [High], [Normal], and [Low]. The default value is [Auto].

#### NB +1.8V Voltage

Use this to select NB +1.8V voltage. Configuration options: [Auto], [High], and [Low]. The default value is [Auto].

#### PCI Bridge Decode Scheme

Use this to select PCI bridge decode scheme. Configuration options: [Auto], [Positive], and [Subtractive].

## 3.3.3 ACPI Configuration

BI	OS SETUP UTILIT	Y
Advanced		
ACPI Settings		Select auto-detect or
Suspend To RAM Repost Video on STR Resume Away Mode Support Restore on AC/Power Loss Ring-In Power On PCI Devices Power On PS12 Keyboard Power On RTC Alarm Power On ACPI HPET Table	Auto]  No   Disabled]  Disabled]  Disabled]  Disabled]  Disabled]  Disabled]	Select Screen     11 Select Item     +- Change Option     F1 General Help     P9 Load Defaults     F10 Save and Exit     ESC Exit

#### Suspend to RAM

Use this item to select whether to auto-detect or disable the Suspend-to-RAM feature. Select [Auto] will enable this feature if the OS supports it. If you set this item to [Disabled], the function "Repost Video on STR Resume" will be hidden.

#### Repost Video on STR Resume

This feature allows you to repost video on STR resume. (STR refers to suspend to RAM.)

#### Away Mode Support

Use this item to enable or disable Away Mode support under Windows<sup>®</sup> XP Media Center OS. The default value is [Disabled].

#### **Restore on AC/Power Loss**

This allows you to set the power state after an unexpected AC/power loss. If [Power Off] is selected, the AC/power remains off when the power recovers. If [Power On] is selected, the AC/power resumes and the system starts to boot up when the power recovers.

#### **Ring-In Power On**

Use this item to enable or disable Ring-In signals to turn on the system from the power-soft-off mode.

#### **PCI** Devices Power On

Use this item to enable or disable PCI devices to turn on the system from the power-soft-off mode.

#### **PS/2** Keyboard Power On

Use this item to enable or disable PS/2 keyboard to turn on the system from the power-soft-off mode.

#### **RTC Alarm Power On**

Use this item to enable or disable RTC (Real Time Clock) to power on the system.

#### **ACPI HPET Table**

Use this item to enable or disable ACPI HPET Table. The default value is [Disabled]. Please set this option to [Enabled] if you plan to use this motherboard to submit Windows<sup>®</sup> Vista<sup>™</sup> certification.

## 3.3.4 IDE Configuration

	BIOS SETUP UTILITY	
Advanced		
IDE Configuration		ENABLED: enables the onboard SATA Controller.
OnBoard SATA Controller SATA Operation Mode	[Enabled] [RAID]	DISABLED: disables the onboard SATA Controller.
<ul> <li>Primary IDE Master</li> <li>Primary IDE Slave</li> <li>SATA1</li> <li>SATA2</li> <li>SATA3</li> </ul>	[Not Detected] [Not Detected] [Not Detected] [Not Detected] [Not Detected]	
▶ SATA4	[Not Detected]	Select Screen 1:1 Select Item +- Change Option F1 General Help F9 Load Defaults F10 Save and Exit ESC Exit
0.2.54 (0) 0		

#### **OnBoard SATA Controller**

Use this item to enable or disable the "OnBoard SATA Controller" feature. **SATA Operation Mode** 

Use this item to adjust SATA Operation Mode. The default value of this option is [RAID]. If you want to operate RAID function on SATA / SATAII HDDs, please select [RAID]. Configuration options: [AHCI], [non-RAID], and [RAID].

#### **IDE Device Configuration**

You may set the IDE configuration for the device that you specify. We will use the "Primary IDE Master" as the example in the following instruction, which can be applied to the configurations of "Primary IDE Slave" as well.

	BIOS SETUP UTILITY			
Advanced				
IDE Master		Select the type		
Device :Hard Disk Vendor :MAXTOR 6L0804J Size :80.0 GB LBA Mode :Bopported Block Mode :10Sectors PIO Mode :4 Asyne DMA :MultiWord DMA-2 Ultra DMA :Ultra DMA-6 S.M.A.R.T. :Supported		of device connected to the system.		
bype LBA/Large Mode Block (Multi-Sector Transfer) PIO Mode DMA Mode S. M. A. R. T. 32Bit Data Transfer	[Auto] [Auto] [Auto] [Auto] [Auto] [Disabled] [Disabled]	<ul> <li>→ Select Screen</li> <li>14 Select Item</li> <li>+ Change Option</li> <li>F1 General Help</li> <li>F9 Load Defaults</li> <li>F10 Save and Exit</li> <li>ESC Exit</li> </ul>		
v02.54 (C) Copyright 1985-2003. American Megatrends. Inc.				

#### TYPE

Use this item to configure the type of the IDE device that you specify. Configuration options: [Not Installed], [Auto], [CD/DVD], and [ARMD]. [Not Installed]: Select [Not Installed] to disable the use of IDE device. [Auto]: Select [Auto] to automatically detect the hard disk drive.



After selecting the hard disk information into BIOS, use a disk utility, such as FDISK, to partition and format the new IDE hard disk drives. This is necessary so that you can write or read data from the hard disk. Make sure to set the partition of the Primary IDE hard disk drives to active.

#### [CD/DVD]: This is used for IDE CD/DVD drives.

[ARMD]: This is used for IDE ARMD (ATAPI Removable Media Device), such as MO.

#### LBA/Large Mode

Use this item to select the LBA/Large mode for a hard disk > 512 MB under DOS and Windows; for Netware and UNIX user, select [Disabled] to disable the LBA/Large mode.

#### Block (Multi-Sector Transfer)

The default value of this item is [Auto]. If this feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer.

#### PIO Mode

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

#### DMA Mode

DMA capability allows the improved transfer-speed and data-integrity for compatible IDE devices.

#### S.M.A.R.T.

Use this item to enable or disable the S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) feature. Configuration options: [Disabled], [Auto], [Enabled].

#### 32Bit Data Transfer

Use this item to enable 32-bit access to maximize the IDE hard disk data transfer rate.

## 3.3.5 PCIPnP Configuration

Advanced PCI/PnP Settings		Value in units of PCI	
PCI Latency Timer PCI IDE BusMaster	[64] [Enabled]	latency timer register.	
		Select Screen †1 Select Item +- Change Option F1 General Help F9 Load Defaults F10 Save and Exit F20 Save	



Setting wrong values in this section may cause the system to malfunction.

#### **PCI** Latency Timer

The default value is 32. It is recommended to keep the default value unless the installed PCI expansion cards' specifications require other settings.

#### PCI IDE BusMaster

Use this item to enable or disable the PCI IDE BusMaster feature.

## 3.3.6 Floppy Configuration

In this section, you may configure the type of your floppy drive.

Floppy Configuration		Select the type of	
		connected to the system.	
		Select Screen 11 Select Item +- Change Option F1 General Help F9 Load Defaults F10 Save and Exit F50 Exit	

## 3.3.7 Super IO Configuration

BIOS SETUP UTILITY		
Advanced		
Configure Super IO Chipset OnBoard Floppy Controller Serial Port Address Infrared Port Address Parallel Port Mode EPP Version ECP Mode DMA Channel Parallel Port IRQ	[Enabled] [3F8/IRQ4] [Disabled] [378] [ECP+EPP] [1.9] [DMA3] [IRQ7]	Allow BIOS to Enable or Disable Floppy Controller. Select Screen 11 Select Item +- Change Option F1 General Help F9 Load Defaults F10 Save and Exit FSC Frit
		ESC Exit
v02.54 (C) Copyright 1	985-2003, American M	legatrends, Inc.

#### **OnBoard Floppy Controller**

Use this item to enable or disable floppy drive controller.

#### Serial Port Address

Use this item to set the address for the onboard serial port or disable it. Configuration options: [Disabled], [3F8 / IRQ4], [2F8 / IRQ3], [3E8 / IRQ4], [2E8 / IRQ3].

#### **Infrared Port Address**

Use this item to set the address for the onboard infrared port or disable it. Configuration options: [Disabled], [2F8 / IRQ3], and [2E8 / IRQ3].

#### Parallel Port Address

Use this item to set the address for the onboard parallel port or disable it. Configuration options: [Disabled], [378], and [278].

#### Parallel Port Mode

Use this item to set the operation mode of the parallel port. The default value is [ECP+EPP]. If this option is set to [ECP+EPP], it will show the EPP version in the following item, "EPP Version". Configuration options: [Normal], [Bi-Directional], and [ECP+EPP].

#### **EPP Version**

Use this item to set the EPP version. Configuration options: [1.9] and [1.7].

#### ECP Mode DMA Channel

Use this item to set the ECP mode DMA channel. Configuration options: [DMA0], [DMA1], and [DMA3].

#### Parallel Port IRQ

Use this item to set the IRQ for the parallel port. Configuration options: [IRQ5] and [IRQ7].

## 3.3.8USB Configuration

BIOS SETUP UTILI Advanced	ΓY
USB Configuration USB Controller [Enabled] USB 2.0 Support [Enabled] Legacy USB Support [Disabled]	— To enable or disable the onboard USB controllers. → Select Screen 11 Select Item +> Change Option F1 General Help F9 Load Defaults F10 Save and Exit F50 Save and Exit

#### **USB** Controller

Use this item to enable or disable the use of USB controller.

## USB 2.0 Support

Use this item to enable or disable the USB 2.0 support.

#### Legacy USB Support

Use this item to enable or disable the support to emulate the I/O devices of legacy OS (DOS) such as mouse, keyboard, USB flash... etc. Or you may select [Auto] so that the system will start to auto-detect; if there is no USB device connected, "Auto" option will disable the legacy USB support.

## 3.4 Hardware Health Event Monitoring Screen

In this section, it allows you to monitor the status of the hardware on your system, including the parameters of the CPU temperature, motherboard temperature, CPU fan speed, chassis fan speed, and the critical voltage.

Main Advanced	BIOS SETUP UTIL H/W Monitor	ITY Boot	Security
Hardware Health Event	Monitoring : 37°C/98°F	_	
M/B Temperature CPU Fan Speed Chassis Fan Speed	: 31 C / 87 F : 2833 RPM : N / A		
Vcore + 3.30V + 5.00V + 12.00V	: 1.532 V : 3.129 V : 4.877 V : 11.741 V		Select Screen Select Item
CPU Quiet Fan	[Disabled]	F1 F9 F10 ESC	F1 General Help F9 Load Default F10 Save and Exi ESC Exit

#### **CPU Quiet Fan**

This item allows you to identify the temperature of CPU fan. Configuration options: [Disabled] and [Enabled]. The default value is [Disabled]. You are allowed to enable this function only when you install 4-pin CPU fan.

## 3.5 Boot Screen

In this section, it will display the available devices on your system for you to configure the boot settings and the boot priority.

		BIOS SETUP UTIL	JTY	
Main .	Advanced	H/W Monitor	Boot	Security Exit
Boot Settings				Configure Settings during System Boot.
1st Boot De 2nd Boot D 3rd Boot D ) Hard Disk ) Removable ) CD/DVD Di	vice evice Drives Drives drives rives	[1st Floppy Device] [HDD: PAI-MAXTO] [CD/DVD: SM-CD-R	R 6L08] :OM]	Select Screen 14 Select Item Enter Go to Sub Screen F1 General Help F9 Load Defaults F10 Save and Exit ESC Exit
v02.	54 (C) Copyri	ight 1985-2003, Am	erican M	egatrends, Inc.

## 3.5.1 Boot Settings Configuration



#### **Boot From Network**

Use this item to enable or disable the Boot From Network feature.

## Boot Up Num-Lock

If this item is set to [On], it will automatically activate the Numeric Lock function after boot-up.

## 3.6 Security Screen

In this section, you may set or change the supervisor/user password for the system. For the user password, you may also clear it.



## 3.7 Exit Screen



#### Save Changes and Exit

When you select this option, it will pop-out the following message, "Save configuration changes and exit setup?" Select [OK] to save the changes and exit the BIOS SETUP UTILITY.

#### **Discard Changes and Exit**

When you select this option, it will pop-out the following message, "Discard changes and exit setup?" Select [OK] to exit the BIOS SETUP UTILITY without saving any changes.

#### **Discard Changes**

When you select this option, it will pop-out the following message, "Discard changes?" Select [OK] to discard all changes.

#### Load Optimal Defaults

When you select this option, it will pop-out the following message, "Load optimal defaults?" Select [OK] to load the default values for all the setup configurations.

## 4. Software Support

## 4.1 Install Operating System

This motherboard supports various Microsoft<sup>®</sup> Windows<sup>®</sup> operating systems: 2000 / XP / XP Media Center / XP 64-bit / Vista<sup>™</sup> / Vista<sup>™</sup> 64-bit. Because motherboard settings and hardware options vary, use the setup procedures in this chapter for general reference only. Refer to your OS documentation for more information.

#### 4.2 Support CD Information

The Support CD that came with the motherboard contains necessary drivers and useful utilities that enhance the motherboard features.

## 4.2.1 Running The Support CD

To begin using the support CD, insert the CD into your CD-ROM drive. The CD automatically displays the Main Menu if "AUTORUN" is enabled in your computer. If the Main Menu did not appear automatically, locate and double click on the file "ASSETUP.EXE" from the BIN folder in the Support CD to display the menus.

## 4.2.2 Drivers Menu

The Drivers Menu shows the available devices drivers if the system detects the installed devices. Please install the necessary drivers to activate the devices.

## 4.2.3 Utilities Menu

The Utilities Menu shows the applications software that the motherboard supports. Click on a specific item then follow the installation wizard to install it.

## 4.2.4 Contact Information

If you need to contact us or want to know more about ASRock, welcome to visit our website at <u>http://www.asrock.com</u>; or you may contact your dealer for further information.