

KI690-AM2

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FCC Compliance Statement

This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. However, there is no guarantee that interference will not occur in a particular installation.

CE Mark

The device is in accordance with 89/336 ECC-ENC Directive.

Ver: EG102

KI690-AM2

AMD® 690G & SB600

Supports Socket AM2

**AMD® Athlon™ 64 x2 Dual-Core/
Athlon™ x2 Dual-Core/ Athlon™ 64/
Sempron™ Processors**

**(The power consumption for the aforementioned
processors must be rated at 65W or less.)**

User Manual

Dimensions (Mini-ITX Form-Factor):

- 170mm x 170mm (W x L)

Operating System:

- Windows® Vista/ Windows® XP

Things You Should Know

- The images and pictures in this manual are for reference only and may vary from the product you received depending on specific hardware models, third party components and software versions.
- This mainboard contains very delicate IC chips. Always use a grounded wrist strap when working with the system.
- Do not touch any IC chip, lead, connector or other components.
- Always unplug the AC power when you install or remove any device on the mainboard or when configuring pins and switches.

Packing List

- ◇ KI690-AM2 mainboard
- ◇ I/O Shield
- ◇ Setup Driver & Mainboard User Manual CD
- ◇ Mainboard Quick Installation Guide

Symbols

The following list explains the convention for symbols that will be used throughout this manual:



Attention- Important Information



Follow the procedures below...



Troubleshooting Tips



Refer to other sections in this manual...

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Chapter 1. Getting Started

Introduction

Congratulations on the choosing the KI690-AM2 Mainboard. It is based on the AMD® 690G Northbridge chipset and the SB600 Southbridge chipset with ATI® Radeon® Xpress 1250 integrated graphics feature. The mainboard supports the AMD® Athlon™ 64 X2 Dual-Core/ Athlon™ X2 Dual-Core/ Athlon™ 64/ Sempron™ Processor (The power consumption for the aforementioned processors must be rated at 65W or less.) with FSB (Front Side Bus) frequencies of 1000 MHz (2000 MT/s).

KI690-AM2 provides two DDRII SO-DIMM sockets with Dual Channel Technology supported. These sockets allow you to install 200-pin, non-ECC & unbuffered DDR II 667/ 533/ 400 SO-DIMMs, and they also support a total memory capacity of 2GB.

This mainboard provides one standard PCI slot for use with a standard PCI expansion card. There is also one IDE connector for connecting two hard disk drives supporting Ultra ATA 133/100/66/33. Moreover, four onboard SATA II connectors which can provide up to 3 Gbps transmit rates are allowed, also supporting RAID 0/ 1/ 0+1/ JBOD mode **< See Appendix II >** .

KI690-AM2 provides VGA connector (equal to D-Sub connector), DVI connector, HDMI port, TV_OUT connector, and SPDIF IN/ SPDIF OUT ports for use with compatible devices. Several headers are also available on the mainboard for a SCART header and a XPC header that can be connected additionally with cables, also being able to be set on the back panel of your case for use.

The onboard High Definition Audio CODEC (ALC883) supports high quality performance 8-channel audio play (Super 7.1 Channel Audio Effect) **< See Appendix I >** . The mainboard also supports the Sony/Philips Digital Interfaces (S/PDIF) input/ output function.

This mainboard also comes with an onboard 10/100/1000 Mbps Ethernet LAN chip. There is a LAN port on the back panel of your case that you can directly plug into an internet cable.

In addition, there are maximal ten USB2.0/ 1.1 ports which can be set up on this mainboard.

All the information (including hardware installation and software installation) in this manual are for reference only. The contents in this manual may be updated without notice. The company will not assume any responsibility for any errors or mistakes within.

Specification

CPU:

- Supports Socket AM2
- Supports AMD® Athlon™ 64 x2 Dual-Core/ Athlon™ x2 Dual-Core/ Athlon™ 64/ Sempron™ Processor (The power consumption for the aforementioned processors must be rated at 65W or less.)
- Supports Hyper-Transport™ Link Technology
- Supports 1000 MHz (2000MT/s) FSB (Front Side Bus) Frequencies

Chipset:

- Northbridge Chipset – AMD® 690G
 - Integrated ATI® Avivo™ Technology
 - Supports HDCP Encoder
 - Supports H.264 to be compliant with many future standards
 - Supports MPEG-2 (DVD)/ WMV9 (HD-Video) Hardware Acceleration
- Southbridge Chipset – SB600
- I/O Controller – ITE® IT8712F
- IEEE1394 Controller – VIA® VT6307
- HD Audio Codec – Realtek® ALC883
- Gbit LAN Controller – Marvell® 88E8056

Memory:

- Two DDRII SO-DIMM sockets with Dual Channel Technology supported
- Supports a total memory capacity of 2 GB
- Supports to use the 200-pin, non-ECC & unbuffered DDR II 667/ 533/ 400 SO-DIMMs

Slot:

- One standard PCI slot for use with a standard expansion card
- Supports one-way bandwidth per channel with 133 MB/s
- PCI specification Rev. 2.3 compliant

Onboard IDE Connector:

- One IDE connectors that support up to two IDE devices
- Supports Ultra ATA 133/ 100/ 66/ 33

Mainboard KI690-AM2

- Supports high capacity hard disk drives

Serial ATA II Connector:

- Four SATA II connectors that support up to four SATA II HDD
- Supports SATA 2.0 specification which provides up to 3 Gbps transmit rates
- Supports RAID 0/1/ 0+1/ JBOD mode

I/O facility Connectors:

- TV_OUT connector
- One DVI connector
- One VGA connector (= D-Sub connector)
- One HDMI port
- One Coaxial S/PDIF IN, one Coaxial S/PDIF OUT, and one RCA S/PDIF OUT ports
- One SCART header (Optional), one IrDA header, and one COM1 header to connect external devices by cables

Universal Serial Bus:

- Four onboard USB 2.0/ 1.1 ports
- Two front USB headers come with this mainboard supporting four additional USB ports to be set
- Supports a maximum of eight USB 2.0/ 1.1 ports for compatible devices

Onboard HD Audio Codec (ALC 883):

- High performance Codec with high S/N ratio (>90 db)
- Compliant with Azalia 1.0 specification
- Supports 8/6/4/2 channel playback capability
- Supports jack sensing and re-tasking function
- Built-in Dolby Digital Live Technology
- Supports Sony/ Philips Digital Interfaces (S/PDIF) functionality

Onboard LAN Chip:

- Supports 10/100/1000 Mbps Ethernet LAN

BIOS:

- Phoenix-Award™ BIOS
- Supports APM 1.2

Mainboard KI690-AM2

- Supports ACPI 2.0 power management

Green Function:

- Supports Phoenix-Award™ BIOS power management function
- Supports system-wake-from-power-saving-mode by keyboard or mouse touching

Shadow RAM:

- Integrated memory controller provides shadow RAM functionality and supports ROM BIOS

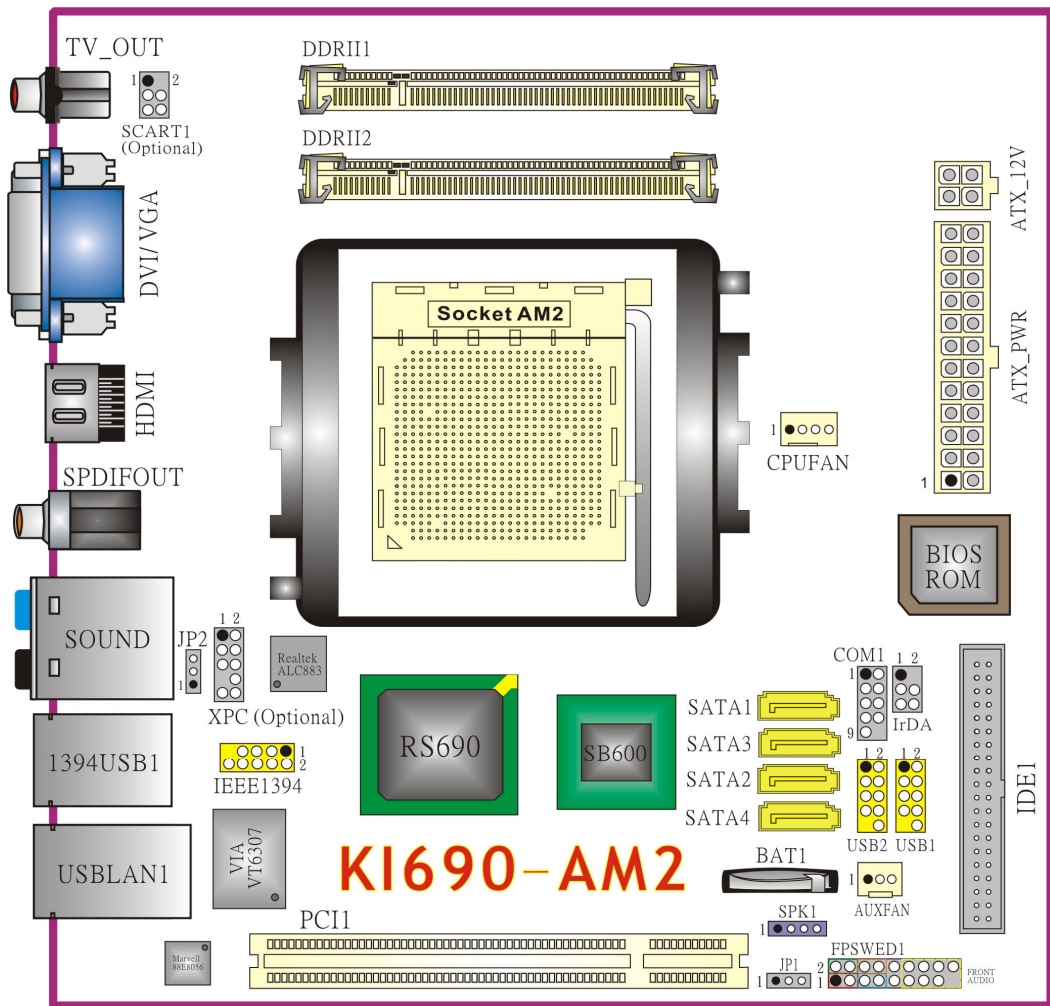
Flash Memory:

- Supports flash memory functionality
- Supports ESCD functionality

Hardware Monitor Function:

- Monitors CPU/ Chassis Fan Speed
- Monitors CPU and system temperatures
- Monitors system voltages

Configuration Layout of KI690-AM2



Hardware Installation

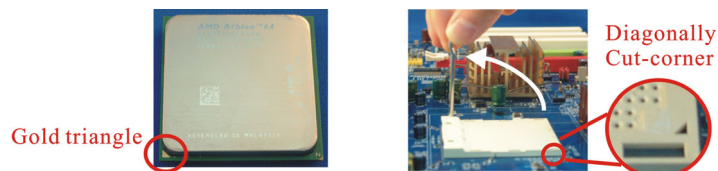
This section will assist you in quickly installing your system hardware. Wear a wrist ground strap before handling components. Electrostatic discharge may damage your system components.

CPU Processor Installation

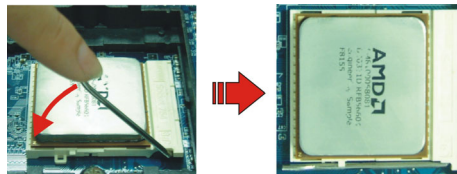
This mainboard supports AMD Athlon™ 64 x2 Dual-Core/ Athlon™ x2 Dual-Core/ Athlon™ 64/ Sempron™ processor and uses a Socket AM2. Before building your system, we suggest you visit the AMD website and review the processor installation procedures. <http://www.amd.com>

CPU Socket AM2 Configuration Steps:

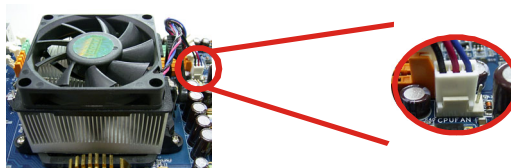
1. Locate the CPU socket on your mainboard and nudge the locking lever away from the socket. Then lift the lever to a 90-degree angle.
2. On the socket, locate the corner which has the “diagonally cut-corner” on the rectangular shaped pattern of pinholes (see diagram below-left). Match that corner with the “gold triangle” on the CPU (see diagram below-right) and lower the CPU onto the socket. The bottom of the CPU should be flush with the face of the socket.



3. Lower the lever until it snaps back into position. This will lock down the CPU.



4. Smear thermal grease on top of the CPU. Lower the CPU fan onto the CPU and use the clasps on the fan to attach it to the socket. Finally, extend the power cable from the fan and insert it onto the “CPUFAN” adapter.





Attention

DO NOT touch the CPU pins in case they are damaged. Also, make sure that you have completed all installation steps before powered on the system. Finally, double-check that the cooling fan is properly installed and the CPU fan power cord is securely attached, in case your CPU and other sensitive components are damaged because of high temperatures.

FAN Headers: CPUFAN, AUXFAN

There are two fan headers available for cooling fans. These cooling fans play an important role in maintaining ambient temperatures in your system. The CPUFAN header is attached with a CPU cooling fan. The AUXFAN header is attached with another cooling fan.

 CPUFAN	Pin Assignment	
	Pin	Assignment
	1	Ground
	2	Power (+12V)
	3	FAN RPM rate sense
	4	Smart Fan Control

 AUXFAN	Pin Assignment	
	Pin	Assignment
	1	Ground
	2	Power (+12V)
	3	FAN RPM rate sense



Attention

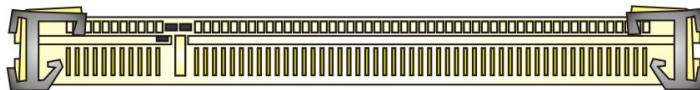
You can avoid damaging your CPU due to high temperatures with proper cooling equipment. It is recommended that attach a cooling fan on top of your CPU. Use the **CPUFAN** header to attach the fan cord.

On most fan power cord, the black wire of the fan cable is the “ground” and should be attached to pin-1 of the header.

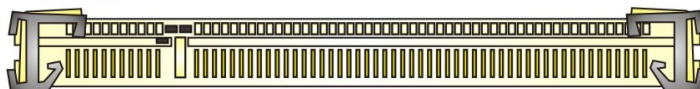
Memory Installation: DDRII1/2

The KI690-AM2 provides two DDRII SO-DIMM sockets with Dual Channel Technology supported. These two sockets allow you to install 200-pin, non-ECC & unbuffered DDR II 667/ 533/ 400 SO-DIMMs, supporting to install a total memory capacity of 2 GB.

DDRII1



DDRII2





Attention

It is recommended that to install memories which are identical specifications (same timing specifications and same DDR II speed) to achieve the best effects. It may cause the failure of power-on or lower memory speed if installing different type, SPD (series presence detects) memories.

How to Enable Dual-Channel functionality:

1. This mainboard provides Dual-Channel functionality for the two SO-DIMM sockets. Enabling Dual-Channel can significantly increase your data access rates. DDRII1 and DDRII2 share one channel.
2. For enabling Dual-Channel, you have to install two memories in the both SO-DIMM sockets at the same time; once one channel of the memory capacity is the same with the other channel, then Dual-Channel will be enabled.

For example, if you install one 256 MB memory in DDRII1 and the other one in DDRII2 (256MB x 2 = 512MB), so that the Dual-Channel can be enabled.

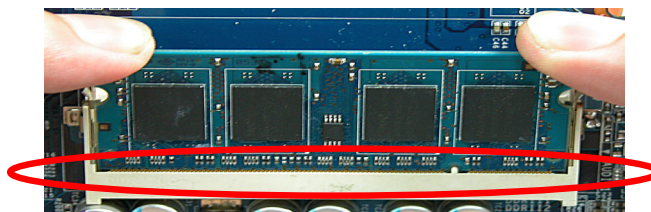
3. If you just install only one memory, then the Dual-Channel won't be enabled.

Memory Installation Steps:

1. Match the notch on the bottom of the DIMM module with the corresponding pattern in the DIMM slot. This will ensure that the module will be inserted with the proper orientation. Now the chips or pins at the bottom of the DIMM module are still visible.

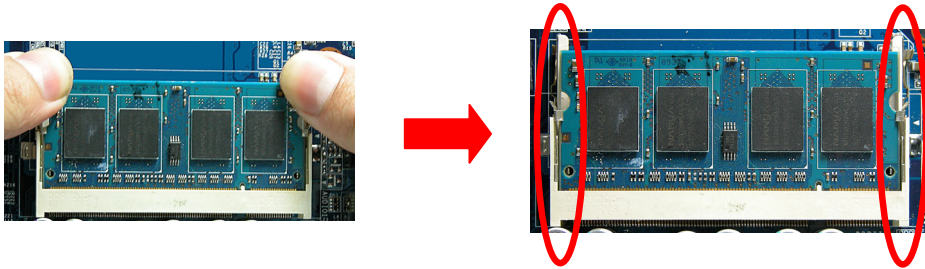


2. Lower the DIMM module into the DIMM Slot until the chips or pins at the bottom of the DIMM module are hidden.



Mainboard KI690-AM2

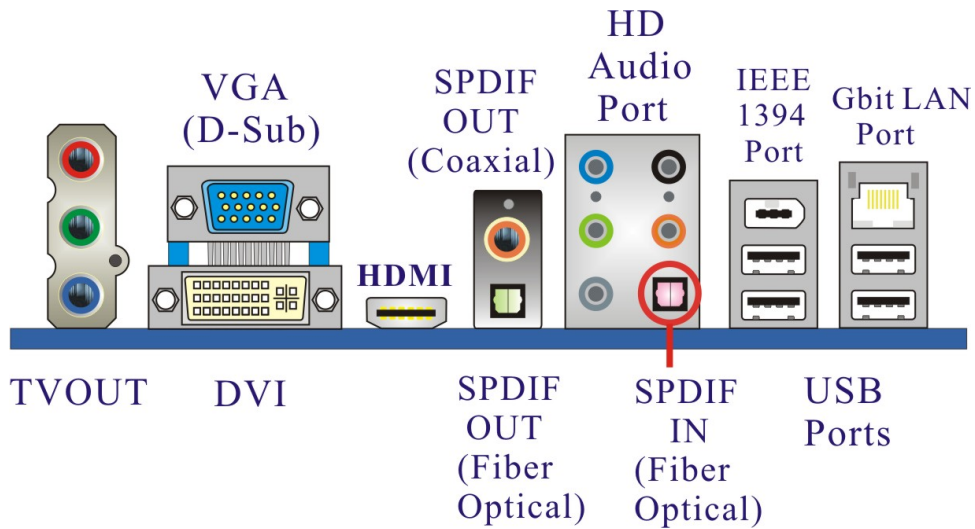
3. Press the DIMM module backward firmly using both thumbs until the module snaps into place. Do not use excessive force.



4. Repeat steps 1, 2 & 3 for the remaining DIMM modules.

* The pictures above are for reference only. Your actual installation may vary slightly from the pictures.

Back Panel Configuration



DVI & VGA Connectors: DVI, VGA

The mainboard provides one DVI connector and one VGA connector (= D-Sub connector) on the case back panel.

DVI connector delivers the digital signals, and is able to connect with LCD display, plasma display, or other display device which with the DVI interface compatible.

VGA connector (= D-Sub connector) delivers the analogy signals, and is able to connect with traditional CRT display, flat display, or other display device which with the D-Sub interface compatible.

IEEE1394 、 USB & LAN Ports: 1394/USB, USB/LAN

There are four USB 2.0/ 1.1 ports on the back panel. These USB ports are used to attach with USB devices, such as keyboard, mice and other USB supported devices. There is also one 10/100 /1000 Mbps Ethernet LAN port available for you to attach an Internet cable. Moreover, one IEEE1394 port on the back panel of your case that allows you to attach compatible device is also available.

TV OUT Connector: TV_OUT

The TV_OUT connector is used to connect to high quality video equipment and TVs that support the YPbPr standard. The three cables used in YPbPr connection provide higher quality than single-wire composite cable commonly used to hook up video equipment. TV_OUT is converted from the RGB video signal, which is split into three components, Y, Pb and Pr.

- Y carries luminance information.
- Pb carries the difference between blue and luminance (B - Y).
- Pr carries the difference between red and luminance (R - Y).

HDMI Connectors: HDMI

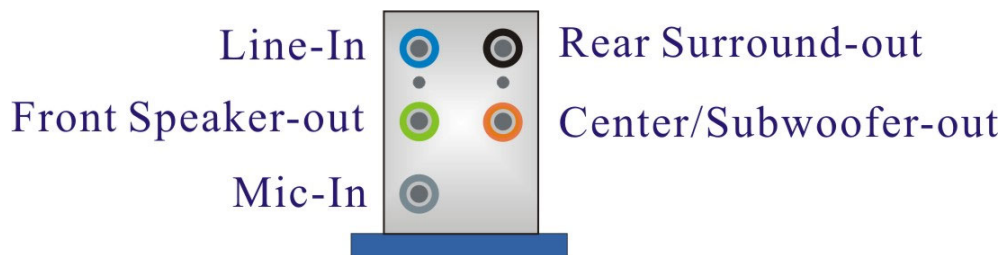
HDMI stands for "High Definition Multimedia Interface" which is capable of transmitting audio and video using digital signals over a single cable. In addition to superior audio and video quality, HDMI also provides higher transmission rates and is also expected to be compliant with many future standards.

S/PDIF IN/OUT Connectors: SPDIF IN/ SPDIF OUT

S/PDIF is a recent audio transfer file format, which provides high quality audio using optical fiber and digital signals. There are three connectors, one coaxial SPDIF IN, one coaxial SPDIF OUT, and one RCA SPDIF OUT. They are provided on the back panel of your case, enabling you to transmit audio output or receive input audio between your system and the SPDIF devices.

Audio Ports: Sound

This mainboard provides five HD Audio ports for 8/6/4/2 channel playback capability. With jack sensing, auto detecting and adjusting, the device will make it easier to Plug and Play for you.



Line-In (blue)

This port is for audio input and connects to external audio devices such as CD player, tape player or other audio devices when the 8/6/4/2 channel audio effects driver is enabled.

Line-Out (green)

This port is an output audio port used for connecting to speakers or a headset. A dual channel audio system is to provide basic audio functionality. When the 8/6/4/2 channel audio system is enabled, this port will output audio for the front speakers.

Mic-In (gray)

This port is for connecting to a microphone. When the 8/6/4/2 channel audio system is enabled, this port will be the input of your microphone.

Rear Surround-out (orange)

This port is only functional for the output of the surround sound rear speakers when the 8/6/4/2 channel audio driver is installed and enabled.

Center/ Subwoofer-out (black)

This port connects with the center/ subwoofer speakers. It will be functional when the 8/6 channel audio system is driven for center/ subwoofer output.



This mainboard supports multi-channel audio system which allows you to transform your 2 speaker audio system into 8/ 6/ 4 speaker audio system. See **Appendix I** for more information.

Connectors

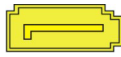
Hard Disk Drive Connector: IDE1

The mainboard provides one IDE connector that supports Ultra ATA 133/ 100/ 66/ 33 IDE devices. You can attach a maximum of two IDE devices, such as hard disk drive (HDD), CD-ROM, DVD-ROM, etc. using IDE ribbon cables.

In general, two IDE devices can be attached onto one IDE connector. If you attach two IDE HDDs, you must configure one drive as the master and the other one as the slave.

SATA II Connectors: SATA1/ SATA2/ SATA3/ SATA4

The four SATA II connectors support 3 Gbps transmission speeds and RAID 0/1/ 0+1/ JBOD mode. One SATA connector only can attach one SATA HDD of each time using SATA cables.

 SATA1~4	Pin	Assignment	Pin	Assignment
	1	Ground	2	TX+
	3	TX-	4	Ground
	5	RX-	6	RX+
	7	Ground		



This mainboard supports RAID 0/ 1/ 0+1/ JBOD mode; refer **Appendix II** for more information.



Attention

The IDE cable is designed and should be attached with a specific direction. One edge of the cable will usually in color such as red, to indicate that should line up with the header pin-1.

Front Panel Headers: FPSWLED1, FRONT AUDIO, SPK1

Pin	Assignment	Function	Pin	Assignment	Function
1	HDD LED (+)	Hard Drive LED (HD_LED)	2	Power LED (+)	Power LED (ACPI_LED)
3	HDD LED (-)		4	Power LED (-)	
5	Reset Control (+)	Reset Switch (RST_SW)	6	Power Switch (+)	Power-on Switch (PWR_SW)
7	Reset Control (-)		8	Power Switch (-)	
9	N/C		10	N/C	
11	Front output R		12	Mic in R	
13	Front output L		14	Mic in L	
15	Line-in Jack sense		16	Mic Jack sense	
17	Key		18	N/C	

Hard Drive LED Header (**Red**): **HD_LED**

If your case front panel has a hard drive LED cable, attach it to this header. The LED will flicker when there is hard disk drive activity.

Reset Switch Header (**Blue**): **RST_SW**

This header can be attached to a momentary SPST switch (reset button) cable on your case front panel. The switch is normally left open. When the switch closed, it will cause the mainboard to reset and run the POST (Power-On Self Test).

Power-on Switch Header (**Orange**): **PWR_SW**


This header can be attached to a power switch cable on your case front panel. You can turn your system on or off by pressing the button attached to this power switch cable.

Power LED Header (**Green**): **ACPI_LED**

The mainboard provides a 2-pin power LED header. If there is a 2-pin power LED cord on your case front panel, you can attach it to the 2-pin power LED header. Then the power LED will illuminate while the system is powered on.

Speaker Header (**Purple**): **SPK1**

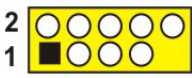
A speaker cable on your case front panel can be attached to this header. When you reboot the computer, this speaker will issue a short audible (beep). If there are problems during the Power On Self-Test, the system will issue an irregular pattern of audible beeps through this speaker.

 SPK1	Pin	Assignment	Pin	Assignment
	1	PC_BEEP	2	N/C
	3	Ground	4	+5V

Headers & Jumpers

Front USB Headers: USB1/2

This mainboard provides four onboard USB 1.1/2.0 ports on the back panel of your case that attach to USB devices. There are two additional USB headers that can be connected by cables to four more USB ports on your case front panel giving you eight USB ports possible.

 USB1/2	Pin	Assignment	Pin	Assignment
	1	+5V (fused)	2	+5V (fused)
	3	USB-	4	USB-
	5	USB+	6	USB+
	7	Ground	8	Ground
	9	Key	10	N/C

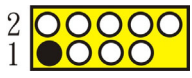


Attention

If you are using a USB 2.0 device with Windows XP, you need to install the USB 2.0 driver from the Microsoft® website. If you are using Windows® XP with Service pack 1 (or higher), you don't have to install the driver.


IEEE1394 Header: IEEE1394

This mainboard provides one onboard IEEE1394 port on the back panel of your case. One additional IEEE1394 header on the mainboard for one more port on the front panel is allowed. Please connect the header by a cable for use with compatible devices.

 IEEE1394	Pin	Assignment	Pin	Assignment
	1	A0+	2	A0-
	3	N/C	4	Ground
	5	B0+	6	B0-
	7	N/C	8	+12V
	9	N/C	10	Ground

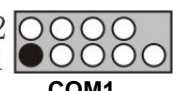
IrDA Header: IrDA

The infrared sensing device attached to this header can support to provide wireless infrared. You can transfer data connectionless to or from the portable device (i.e., laptop, PDA, etc.) which with this header attached.

 <p>IrDA</p>	Pin	Assignment	Pin	Assignment
	1	N/C	2	Key
	3	+5V	4	Ground
	5	IR_TX	6	IR_RX

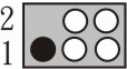
Serial Interface Header: COM1

This mainboard provides a COM1 header for you connecting an additional serial connector on your case back panel. Attach the cable of serial connector (Optional) onto this header, and then you can use the serial connector connecting with a mic, modem or other peripheral device.

 <p>COM1</p>	Pin	Assignment	Pin	Assignment
	1	RIN1	2	RIN3
	3	DOUT2	4	DOUT3
	5	Ground	6	RIN2
	7	DOUT1	8	RIN4
	9	-XRI1	10	N/C

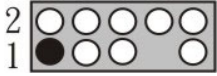
SCART Connector: SCART1 (Optional)

This mainboard provides a SCART header for use by attaching a cable.

 <p>SCART1</p>	Pin	Assignment	Pin	Assignment
	1	Y_OUT	2	Front Audio L
	3	C_OUT	4	Front Audio R
	5	PB_OUT		



XPC Connector: XPC (Optional)

There is one XPC header available on this mainboard for connecting compliant devices.

 <p style="text-align: center;">XPC</p>			
Pin	Assignment	Pin	Assignment
1	Ground	2	ACCLK
3	Ground	4	ACSINC
5	Ground	6	ACSDO
7	Key	8	ACSDI
9	Ground	10	ACRST-

USB Power Selection Header: JP2



USB devices attached to the back panel USB ports can awaken the system from sleep mode. In order to enable this functionality, you must adjust the jumper caps on JP2 header for +5V or +5VSB mode depending on which USB port that the USB device is attached to.

JP2	Assignment	Assignment
 <p>Pin 1-2 Close</p>	+5V	S1 sleep mode (CPU stopped, DRAM refreshed, system running in low power mode)
 <p>Pin 2-3 Close</p>	+5VSB	S3/S4/S5 sleep modes (no power to CPU, DRAM in slow refresh, power supply in reduced power mode)

Note: Close stands for putting a jumper cap onto two header pins.

Clear CMOS Jumper: JP1

The “Clear CMOS” function is used when you are unable boot your system and need to reset the BIOS settings (CMOS settings) back to the manufacturer’s original settings. This is also a way to reset the system password if you have forgotten it.

JP1	Assignment
 <p>Pin 1-2 Close</p>	Normal (Default)
 <p>Pin 2-3 Close</p>	Clear CMOS Data

Note: Close stands for putting a jumper cap onto two header pins.



The following steps explain how to reset your CMOS configurations when you forgot a system password.

1. Turn off your system and disconnect the AC power cable.
2. Set JP1 header to OFF (2-3 Closed).
3. Wait several seconds.
4. Set JP1 header to ON (1-2 closed).
5. Connect the AC power cable and turn on your system.
6. Reset your new password.

Slot

PCI Slot: PCI1

PCI stands for Peripheral Component Interconnect and is a bus standard for installing expansion cards such as network card, SCSI card, etc. to the PCI slot.

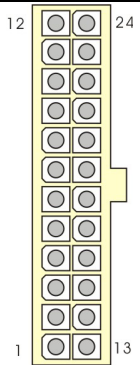
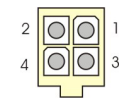


PCI

Power Supply Attachments

ATX Power Connector: ATX_PWR, ATX_12V

This mainboard provides two ATX power connectors, a 24-pin ATX_PWR connector and a 4-pin ATX_12V connector. You must use a power supply that has both of these connectors and both connectors must be attached before the system is powered on. These power connectors support several power management functions such as the instant power-on function. The connector pins are described below.

 <p>ATX_PWR</p>	Pin	Assignment	Pin	Assignment
	1	+3.3V	13	+3.3V
	2	+3.3V	14	-12V
	3	Ground	15	Ground
	4	+5V	16	PS_ON
	5	Ground	17	Ground
	6	+5V	18	Ground
	7	Ground	19	Ground
	8	PW_ON	20	-5V
	9	+5V standby voltage	21	+5V
	10	+12V	22	+5V
	11	+12V	23	+5V
	12	+3.3V	24	Ground
 <p>ATX_12V</p>	Pin	Assignment	Pin	Assignment
	1	+12V	3	Ground
	2	+12V	4	Ground



Attention

In general, power cords are designed and should be attached with a specific direction. The black wire of the power cord is Ground and should be attached onto the header location of Ground.

Chapter 2. BIOS Setup

Introduction

This section describes PHOENIX-AWARD™ BIOS Setup program which resides in the BIOS firmware. The Setup program allows users to modify the basic system configuration. The configuration information is then saved to CMOS RAM where the data is sustained by battery after power-down.

The BIOS provides critical low-level support for standard devices such as disk drives, serial ports and parallel ports. As well, the BIOS control the first stage of the boot process, loading and executing the operating system.

The PHOENIX-AWARD™ BIOS installed in your computer system's ROM is a custom version of an industry standard BIOS. This means that it supports the BIOS of AMD based processors.

This version of the PHOENIX-AWARD™ BIOS includes additional features such as virus and password protection as well as special configurations for fine-tuning the system chipset. The defaults for the BIOS values contained in this document may vary slightly with the version installed in your system.

Key Function

In general, you can use the arrow keys to highlight options, press <Enter> to select, use the <PgUp> and <PgDn> keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate within the BIOS Setup program.

Keystroke	Function
Up arrow	Move to previous option
Down arrow	Move to next option
Left arrow	Move to the option on the left (menu bar)
Right arrow	Move to the option on the right (menu bar)
Esc	Main Menu: Quit without saving changes Submenus: Exit Current page to the next higher level menu
Move Enter	Move to the option you desire
PgUp key	Increase the numeric value or enter changes
PgDn key	Decrease the numeric value or enter changes
+ Key	Increase the numeric value or enter changes
- Key	Decrease the numeric value or enter changes
Esc key	Main Menu – Quit and do not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu – Exit Current page and return to Main Menu
F1 key	General help on Setup navigation keys
F5 key	Load previous values from CMOS
F6 key	Load the defaults from BIOS default table

Main Menu

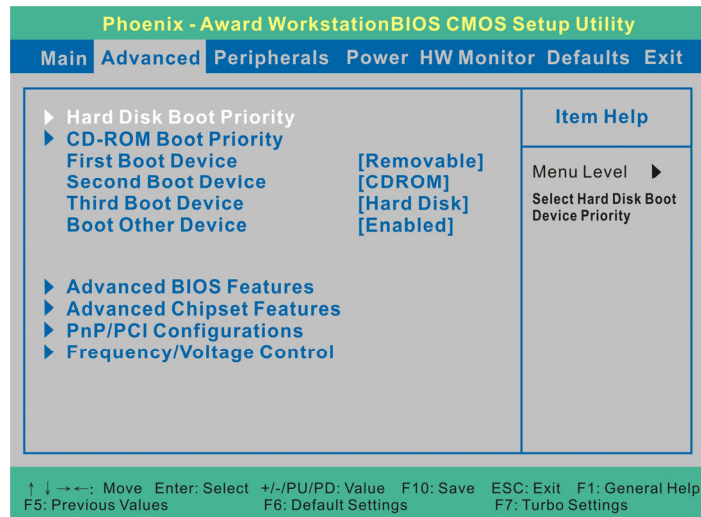
When you enter the PHOENIX-AWARD™ BIOS Utility, the Main Menu will appear on the screen. The Main menu allows you to select from several configuration options. Use the left/right arrow keys to select a particular configuration screen from the top menu bar or use the down arrow key to access and configure the information below.

Phoenix - Award Workstation BIOS CMOS Setup Utility						
Main	Advanced	Peripherals	Power	HW Monitor	Defaults	Exit
Date (mm:dd:yy)	Sat, Jan 7 2006		Item Help			
Time (hh:mm:ss)	23 : 59 : 33		Menu Level ▶			
▶ IDE Channel 0 Master	[Maxtor 6E040L0]		<Tab> :			
▶ IDE Channel 0 Slave	[WSM-52Z]		<Enter> :			
▶ IDE Channel 2 Master	[None]		to select field			
▶ IDE Channel 2 Slave	[None]		<-> :			
▶ IDE Channel 3 Master	[None]		<+> :			
▶ IDE Channel 3 Slave	[None]		<PgUp> :			
Halt On	[All , But Keyboard]		<PgDn> :			
▶ Security			<0-9> :			
Base Memory	640K		to set date			
Extended Memory	457728K					
Total Memory	458752K					
↑ ↓ → ← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Default Settings F7: Turbo Settings						

Main Menu Setup Configuration Options

Item	Options	Description
Date	mm dd yyyy	Set the system date. Note that the 'Day' automatically changes when you set the date.
Time	Hh: mm: ss	Set the current time of the system.
IDE Channel 0 Master	Options contained in sub menu.	Press <Enter> to enter the sub menu.
IDE Channel 0 Slave	Options contained in sub menu.	Press <Enter> to enter the sub menu.
IDE Channel 2 Master	Options contained in sub menu.	Press <Enter> to enter the sub menu.
IDE Channel 2 Slave	Options contained in sub menu.	Press <Enter> to enter the sub menu.
IDE Channel 3 Master	Options contained in sub menu.	Press <Enter> to enter the sub menu.
IDE Channel 3 Slave	Options contained in sub menu.	Press <Enter> to enter the sub menu.
Halt On	All Errors No Errors All, but Keyboard All, but Diskette All, but Disk/ Key	Select the situation in which you want the BIOS to stop the POST process and notify you.
Security	Options contained in sub menu.	Press <Enter> to enter the sub menu.
Base Memory	N/A	Displays the amount of conventional memory detected during boot up.
Extended Memory	N/A	Displays the amount of extended memory detected during boot up.
Total Memory	N/A	Displays the total memory available in the system.

Advanced BIOS Features



Hard Disk Boot Priority

Select hard disk drive boot priority.

CD-ROM Boot Priority

Select CD-ROM boot priority when you plug a CD-ROM drive onto your system.

First /Second/Third Boot Device

Select the order in which devices will be searched in order to find a boot device.

Options: Removable (Default for first boot device), CDROM (Default for second boot device), Hard Disk (Default for third boot device), Disabled.

Boot Other Device

This setting allows the system to try to boot from other devices if the system fails to boot from the 1st/ 2nd/ 3rd boot devices. Options: Enabled (Default), Disabled.

Advanced BIOS Features

Virus Warning

This option allows you to choose the Virus Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and a program attempts to write data into this area, BIOS will display a warning message on the screen and sound an audio alarm (beep).

Options: Disabled (Default), Enabled.

CPU Internal Cache

Make CPU internal cache active or inactive. System performance may degrade if you disable this item. Options: Enabled (Default), Disable.

External Cache

This option allows you to enable or disable "Level 2" secondary cache on the CPU to enhance performance. Options: Enabled (Default), Disabled.

Quick Power On Self Test

It allows the system to skip certain tests while booting. This will speed up the boot process. Options: Enabled (Default), Disabled.

Swap Floppy Drive

If the system has two floppy drives, choose "Enabled" to assign physical drive B to logical drive A and vice-versa. Options: Disabled (Default), Enabled.

Boot Up NumLock Status

It determines the initial power-on state for NumLock.

Options: On (Default) Numpad keys are number keys.
 Off Numpad keys are arrow keys.

Typematic Rate Setting

When the options "Typematic Rate," and "Typematic Delay" are configured, the Typematic Rate determines the keystroke repeat rate used by the keyboard controller.

Options: Disabled (Default), Enabled

Typematic Rate (Chars/Sec)

This option determines how many characters per second are generated when a key is held down. Options: 6 (Default), 8, 10, 12, 15, 20, 24, 30.

Typematic Delay (Msec)

This option represents the delay value before keystrokes begin to repeat.

Options: 250 (Default), 500, 750, 1000.

APIC Mode

APIC stands for Advanced Programmable Interrupt Controller, and is used to extend the number of available IRQs available in order to avoid sharing conflicts.

Options: Disabled, Enabled (Default).

MPS Version Control For OS

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The 1.1 version is the older version that supports 8 more IRQs in the Windows NT environment. Choose the new 1.4 version for Windows 2000 and Windows XP. Options: 1.4 (Default), 1.1.

OS Select For DRAM > 64MB

Select "OS2" only if you are running the OS/2 operating system with greater than 64 MB of RAM. Options: Non-OS2 (Default), OS2.

HDD S.M.A.R.T. Capability

The SMART (Self Monitoring Analysis and Reporting Technology) technology enables a PC to attempt to predict the possible failure of storage drives. Options: Disabled (Default), Enabled.

Advanced Chipset Features

DRAM Configuration

Timing Mode

This option determines DRAM clock/timing using Auto, MaxMemClk, or Manual configuration. Options: Auto (Default), Manual.

Memory Clock value

This item allows you to select the memory clock. When the "Timing Mode" is set to "Auto", the system will automatically detect the memory clock. Options: 400 (Default), 533, 667, 800.

1T/2T Memory Timing

Use this option to select the memory timing. Options: Auto (Default), 1T, 2T.

HT Link Control

HT Link Width

This option determines HT Link Width. Options: Auto (Default), 8 bit, 16 bit.

HT Link Frequency

This item allows you to select the HT Link Frequency. Options: Auto (Default), 200MHz, 400MHz, 600MHz, 800MHz, 1GHz.

IGX Configuration

Internal Graphics Mode

Use this option to set the onboard GPU for use. Options: UMA (Default), Disabled.

UMA Frame Buffer Size

You can set the amount of value to share main memory. This item allows you to select the UMA Frame Buffer Size. Options: Auto (Default), 32MB, 64MB, 128MB, 256MB, 512MB, 1024MB.

Video Display Devices

This item allows you to select Video Display Devices.

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Options: Auto (Default), CRT Only, LCD Only, DFP Only, TV Only, CRT Force Other Auto, TV Force Other Auto, CRT Force TV Force.

TV Standard

This option allows you to set the TV mode regarding your country.

Options: NTSC (Default), PAL, PAL-M, PAL-60, NTSC-JAP, PAL-CN, PAL-N, SCART_RGB.

Memory Hole

When enabled, you can reserve an area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. Refer to the user documentation of the peripheral you are installing for more information. Options: Disabled (Default), Enabled

System BIOS Cacheable

When enabled, accesses to system BIOS ROM addressed at F0000H-FFFFFH are cached, provided that the cache controller is enabled. Options: Disabled (Default), Enabled.

PnP/PCI Configurations

PCI / VGA Palette Snoop

Some graphic controllers that are not VGA compatible take the output from a VGA controller and map it to their display as a way to provide boot information and VGA compatibility.

Options: Disabled (Default), Enabled.

PCI Latency Timer (CLK)

This option allows you to set up the PCI Latency Time (0-255). If you select "32" it will optimize PCI speeds. Options: 0-255, 64 (Default).

****PCI Express relative items****

Maximum Payload Size

This item allows you to set the PCI-Express maximum payload size per time.

Options: 128, 256, 512, 1024, 2048, 4096 (Default).

Frequency/Voltage Control

NPT Fid control

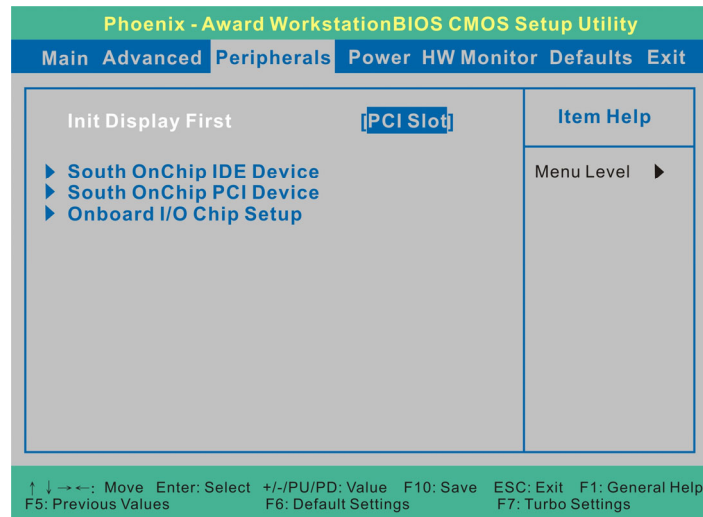
This option displays the CPU ratio information detected by the system. The options that will be available depend on the default value of the CPU installed. Options: Auto (Default).

Note: Before you try to make any adjustments to this option, make sure that your CPU Ratio is adjustable and has not been locked by the CPU manufacturer.

NPT Vid control

This item shows the CPU voltage information detected by the system. It will be available count on the default value of the CPU you install. Options: Auto (Default).

Integrated Peripherals



Init Display First

With systems that have multiple video cards, this option determines whether the primary display uses a PCI slot or a PCI-E slot. Options: PCI Slot (Default), Onboard.

South OnChip IDE Device

If you highlight the “South OnChip IDE Device” label and then press the enter key, it will take you to a submenu with the following options:

OnChip IDE Channel 0

The mainboard chipset contains a PCI IDE interface with support for two IDE channels. Select “Enabled” to activate the first and/or second IDE interface. Select “Disabled” to deactivate an interface if you are going to install a primary and/or secondary add-in IDE interface. Options: Enabled (Default), Disabled.

Primary Master/Slave PIO

The IDE PIO (Programmed Input / Output) fields let you set a PIO mode (0-4) for each of the IDE devices that the onboard IDE interface supports. Modes 0 to 4 will increase performance incrementally. In Auto mode, the system automatically determines the best mode for each device. Options: Auto (Default), Mode0, Mode1, Mode2, Mode3, Mode4.

Primary Master/Slave UDMA

Ultra DMA 100 functionality can be implemented if it is supported by the IDE hard drives in your system. As well, your operating environment requires a DMA driver (Windows 95 OSR2 or a

Mainboard KI690-AM2

third party IDE bus master driver). If your hard drive and your system software both support Ultra DMA 100, select "Auto" to enable BIOS support. Options: Auto (Default), Disabled.

ATI SATA Controller

This item allows you to enable or disable the SATA device.
Options: Enabled (Default), Disabled.

ATI SATA Type

This allows you to select the function for the SATA device.
Options: Native IDE (Default), RAID.

South OnChip PCI Device

If you highlight the "South OnChip PCI Device" label and then press the enter key, it will take you to a submenu with the following options.

ATI Azalia Audio

This option allows you to control the onboard ATI Azalia audio.
Options: Auto (Default), Disabled.

OnChip USB Controller

This option should be enabled if your system has a USB port installed on the system board. You will need to disable this feature if you add a higher performance controller.
Options: Enabled (Default), Disabled.

USB EHCI Controller

This option allows you to enable or disable USB 2.0 function.
Options: Enabled (Default), Disabled.

OnChip USB KBC Controller

Use this option to enable or disable the USB attached keyboards under DOS mode.
Options: Enabled (Default), Disabled.

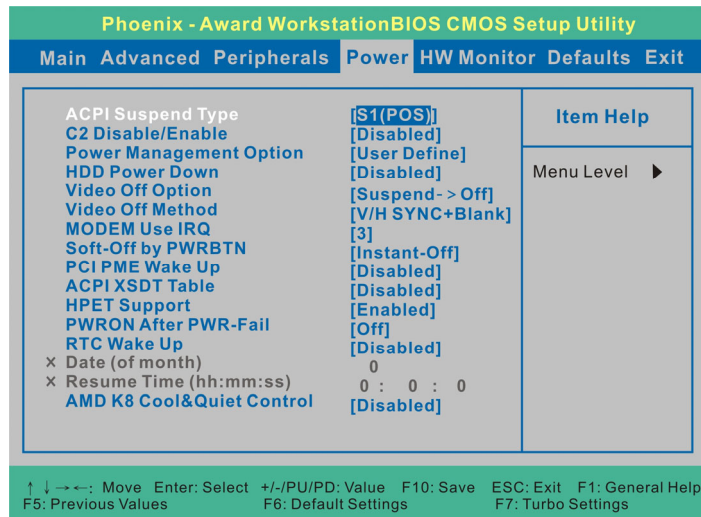
Onboard I/O Chip Setup

If you highlight the "Onboard I/O Chip Setup" label and then press the enter key, it will take you to a submenu with the following options.

Onboard Serial Port 1

Select an address and corresponding interrupt for the first/ second serial port.
Options: Disabled, 3F8/IRQ4 (Default), 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3.

Power Management



The Power Management Setup Menu allows you to configure your system to utilize energy conservation features as well as power-up/ power-down options.

ACPI Suspend Type

The item allows you to select the suspend type using the ACPI operating system.

Options: S1 (POS) (Default) Power on Suspend
S3 (STR) Suspend to RAM
S1 & S3 POS and STR

Power Management

There are three options of Power Management:

1. Min. Power Saving
Minimum power management
Suspend Mode = 1 hour
HDD Power Down = 15 minutes
2. Max. Power Saving
Maximum power management (only available for SI CPUs).
Suspend Mode = 1 minute
HDD Power Down = 1 minute

3. User Defined (Default)

This option allows you to set each mode individually.

When this option is enabled, each of the ranges is from 1 minute to 1 hour except for HDD Power Down, which ranges from 1 minute to 15 minute and includes a “disable” option.

Note: If you select Min. or Max. Power Saving modes, the “HDD Power Down” value will be fixed. User Define, Min Saving, Max Saving

HDD Power Down

When enabled, the hard disk drive will power down after a certain configurable period of system inactivity. All other devices remain active.

Options: Disabled (Default), 1 Min, 2 Min, 3 Min, 4 Min, 5 Min, 6 Min, 7 Min, 8 Min, 9 Min, 10 Min, 11 Min, 12 Min, 13 Min, 14 Min, 15Min.

Video Off Option

Select the option of video function if on or not.

Options: Suspend→Off (Default), Always On.

Video Off Method

This option determines the manner in which the monitor goes blank.

Options: V/H SYNC+Blank (Default)	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS Support	Initial display power management signaling.

MODEM Use IRQ

This determines the modem’s IRQ. Options: 3 (Default), 4, 5, 7, 9, 10, 11, NA

Soft-Off by PWRBTN

In situations where the system enters a “hung” state, you can configure the BIOS so that you are required to press the power button for more than 4 seconds before the system enters the Soft-Off state. Options: Delay 4 Sec, Instant-Off (Default).

PCI PME Wake Up

This option will also cause the system to wake up with any onboard LAN activity.

Options: Disabled (Default), Enabled.

ACPI XSDT Table

The item is for 64 Bits using. Please don't use it when the operating system is 32 Bits Mode such as Windows 2000 or Windows XP. Options: Disabled (Default), Enabled.

HPET Support

HPET is capable of improving system performance that meets the timing requirements of multimedia and time-sensitive applications. Options: Disabled (Default), Enabled.

PWRON After PWR-Fail

This option will determine whether your system will boot after restoring power after a power failure. If you select "On", the system will boot whether or not the system was on before power failure. If you select "Former-Sts", the system will be restored to the status before the power failure. Options: Off (Default), On, Former-Sts.

RTC Wake Up

When "Enabled", you can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode. Options: Enabled, Disabled (Default).

Day (of Month)

You can choose which date of the month the system will boot up. This option is configurable only when "RTC Wake Up" is set to "Enabled". (Min=0 Max=31)

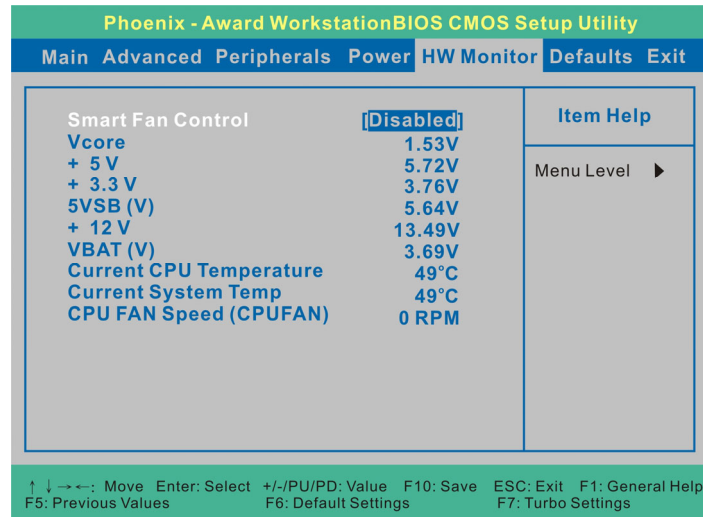
Resume Time (hh: mm: ss)

You can choose the hour, minute and second the system will boot up. This option is configurable only when "RTC Wake Up" is set to "Enabled".

AMD K8 Cool & Quiet Control

When this option is set to "Auto", the system will auto control the CPU voltage and frequency depends the loading of system. Options: Auto, Disabled (Default).

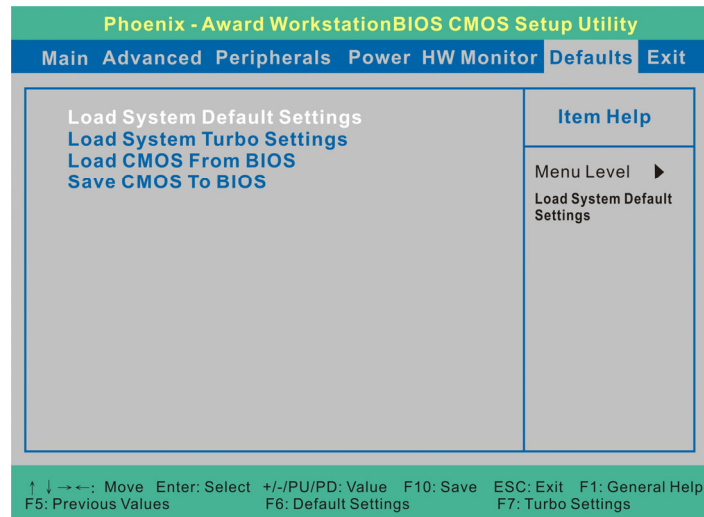
Hardware Monitor



Smart FAN Control

This item allows you to select the “Smart Fan Control” that monitors the CPU temperature and intelligently adjusts the CPUFAN speed to maintain safe temperature for your CPU. In addition, the Smart Fan Control can reduce noise levels by lowering fan speeds during low activity to provide you a most comfortable and quiet environment. Options: Disabled (default), Enabled

Load Defaults



Load Defaults

Load System Default Settings

Load System Default Settings.

Load System Turbo Settings

Load System Turbo Settings.

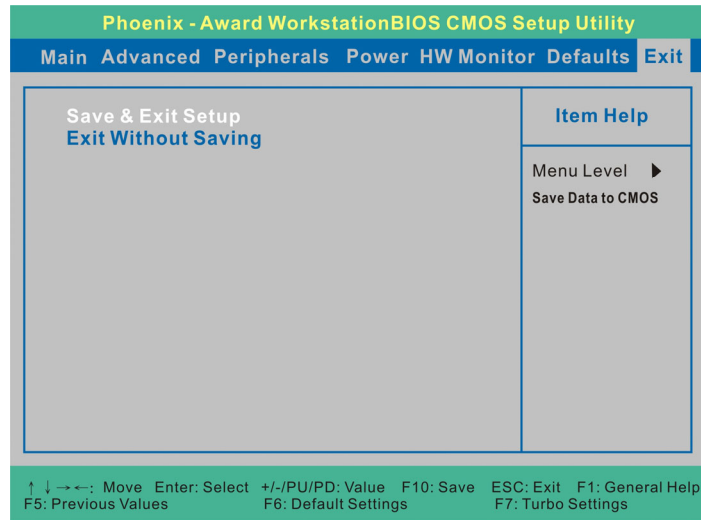
Load CMOS From BIOS

Load defaults from flash ROM for systems without batteries.

Save CMOS To BIOS

Save defaults to flash ROM for systems without batteries.

Exit Menu



Save & Exit Setup

Save all configuration changes to CMOS (memory) and exit setup. A confirmation message will be displayed before proceeding.

Exit Without Saving

Abandon all changes made during the current session and exit setup. A confirmation message will be displayed before proceeding.

Chapter 3: Software Setup

Software List

Category	Platform
AMD® Chipset Driver	Windows Vista /XP
Realtek® Audio Driver	Windows Vista /XP
RAID Utility	Windows Vista /XP
Marvell® Lan Driver	Windows XP
HDMI Audio Driver	Windows XP
Microsoft® DirectX 9.0c	Windows XP



Attention

Your system must be using Windows® XP with Service Pack 2 or higher (this is necessary when installing the AMD Chipset Driver).

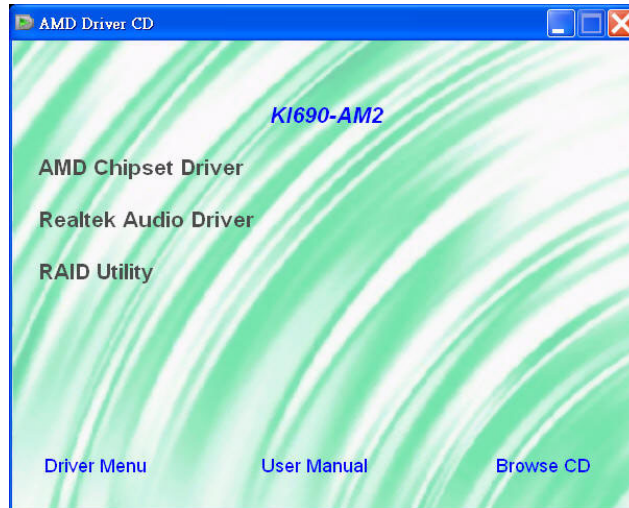
Software Installation

Place the Driver CD into the CD-ROM drive and the Installation Utility will auto-run. You can also launch the Driver CD Installation Utility manually by executing the Intel.exe program located on the Driver CD. (For more details, please refer to the Readme.txt files that in each folder of the Driver.)

© The pictures shown below are for your reference only. The version of the software you received and shown on the screen may vary depending on models.

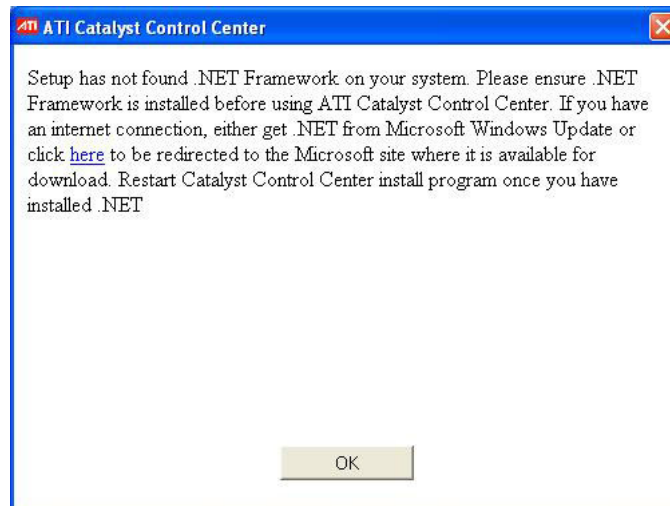
1. When you insert the driver CD into the CD ROM, you'll see the screen as the picture below. There are several buttons displayed in the main screen as shown below.

Windows® Vista Driver



- ◆ **AMD Chipset Driver** – provides all the drivers needed for the chipset.
- ◆ **Realtek Audio Driver** – provides the driver for being able to input/output audio.
- ◆ **RAID Utility** – provides the software of RAID installation under operating system.

Before installing the “AMD Chipset Driver” on Windows® XP...





Attention

Make sure that you have installed the “.NET Framework” on the Windows® XP operating system, or else you will see the alert box shown above. You will not be able to continue the AMD Chipset Driver installation without it. Please follow the directions in the alert box as shown above.

Windows® XP Driver



- ◆ **Microsoft DirectX 9.0c** – provides the software of Microsoft DirectX 9.0c.
- ◆ **AMD Chipset Driver** – provides all the drivers needed for the chipset.
- ◆ **Marvell Lan Driver** – provides the driver of Marvell network.
- ◆ **Realtek Audio Driver** – provides the driver for being able to input/output audio.
- ◆ **HDMI Audio Driver** – provides the driver to enable HDMI.
- ◆ **RAID Utility** – provides the software of RAID installation under operating system.

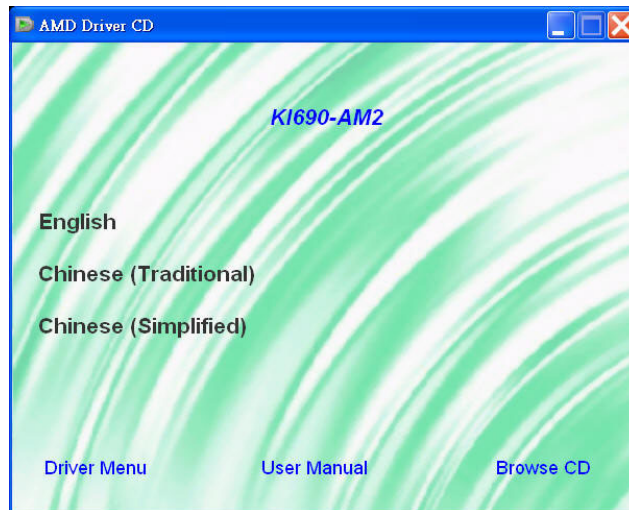


Attention

Before installing the HDMI Audio Driver, please install Realtek Audio Driver first.

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- Click on the “User Manual” button, you can choose the manual to read.



Attention

Before you read manuals, you must install the driver of Adobe Acrobat Reader 6 to browse PDF files.

- If you click the “Browse CD” button from the screen in step 1, you can browse all the files in the Driver CD.

Chapter 4: Troubleshooting

Problem 1:

No power to the system. Power light does not illuminate. Fan inside power supply does not turn on. Indicator lights on keyboard are not lit.

Causes:

1. Power cable is unplugged.
2. Defective power cable.
3. Power supply failure.
4. Faulty wall outlet; circuit breaker or fuse blown.

Solutions:

1. Make sure power cable is securely plugged in.
2. Replace cable.
3. Contact technical support.
4. Use different socket, repair outlet, reset circuit breaker or replace fuse.

Problem 2:

System inoperative. Keyboard lights are on, power indicator lights are lit, hard drive is active but system seems "hung"

Causes: Memory DIMM is partially dislodged from the slot on the mainboard.

Solutions:

1. Power Down
2. Using even pressure on both ends of the DIMM, press down firmly until the module snaps into place.

Problem 3:

System does not boot from the hard disk drive but can be booted from the CD-ROM drive.

Causes:

1. Connector between hard drive and system board unplugged.
2. Damaged hard disk or disk controller.
3. Hard disk directory or FAT is corrupted.

Solutions:

1. Check the cable running from the disk to the disk controller board. Make sure both ends are securely attached. Check the drive type in the standard CMOS setup.
2. Contact technical support.
3. Backing up the hard drive is extremely important. Make sure you periodically perform backups to avoid untimely disk crashes.



Mainboard KI690-AM2

Problem 4:

System only boots from the CD-ROM. The hard disk can be read and applications can be used but booting from the hard disk is impossible.

Causes: Hard Disk boot sector has been corrupted.

Solutions: Back up data and applications files. Reformat the hard drive. Re-install applications and data using backup disks.

Problem 5:

Error message reading "SECTOR NOT FOUND" displays and the system does not allow certain data to be accessed.

Causes: There are many reasons for this such as virus intrusion or disk failure.

Solutions: Back up any salvageable data. Then performs low level format, partition, and then a high level format the hard drive. Re-install all saved data when completed.

Problem 6:

Screen message says "Invalid Configuration" or "CMOS Failure."

Causes: Incorrect information entered into the BIOS setup program.

Solutions: Review system's equipment. Reconfigure the system.

Problem 7:

The Screen is blank.

Causes: No power to monitor.

Solutions: Check the power connectors to the monitor and to the system.

Problem 8:

Blank screen.

Causes:

1. Memory problem.
2. Computer virus.

Solutions:

1. Reboot computer. Reinstall memory. Make sure that all memory modules are securely installed.
2. Use anti-virus programs to detect and clean viruses.

Problem 9:

Screen goes blank periodically.

Causes: Screen saver is enabled.

Solutions: Disable screen saver.



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Problem 10:

Keyboard failure.

Causes: Keyboard is disconnected.

Solutions: Reconnect keyboard. Replace keyboard if you continue to experience problems.

Problem 11:

No color on screen.

Causes:

1. Faulty Monitor.
2. CMOS incorrectly set up.

Solutions:

1. If possible, connect monitor to another system. If no color appears, replace monitor.
2. Call technical support.

Problem 12:

The screen displays "C: drive failure."

Causes: Hard drive cable not connected properly.

Solutions: Check hard drive cable.

Problem 13:

Cannot boot the system after installing a second hard drive.

Causes:

1. Master/slave jumpers not set correctly.
2. Hard drives are not compatible / different manufacturers.

Solutions:

1. Set master/slave jumpers correctly.
2. Run SETUP program and select the correct drive types. Call drive manufacturers for possible compatibility problems with other drives.

Problem 14:

Missing operating system on hard drive.

Causes: CMOS setup has been changed.

Solutions: Run setup and select the correct drive type.

Problem 15:

Certain keys do not function.



Causes: Keys jammed or defective.

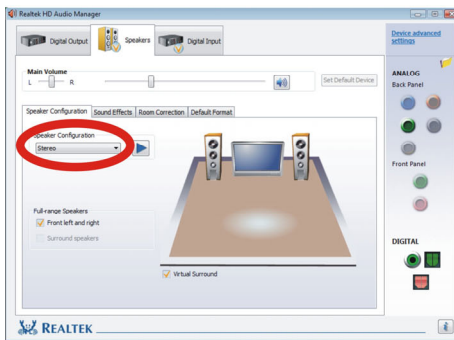
Solutions: Replace keyboard.



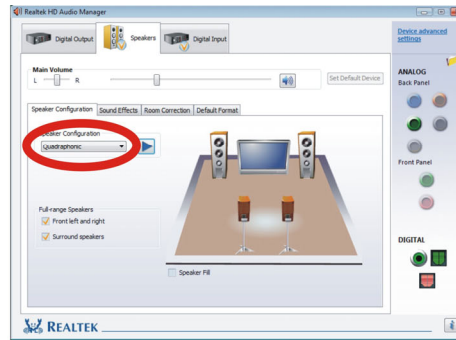
Appendix I: 8/6/4/2 Channel Audio Effect Setup

Channels Setup for Windows Vista

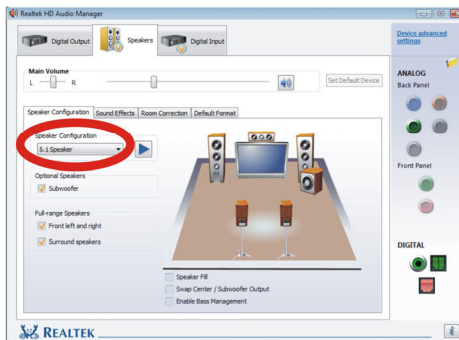
1. After entering the system, click the audio icon  from the Windows Vista screen.
2. When your audio device is plugged, the system will detect it and show the “Speakers” tab automatically. You can see the screen like the picture below.
3. You can choose “Stereo”, “Quadraphonic”, “5.1 Speaker” or “7.1 Speaker” by your speakers in the “Speaker Configuration” item.
4. You can click the “Auto test” button  to test your audio devices.



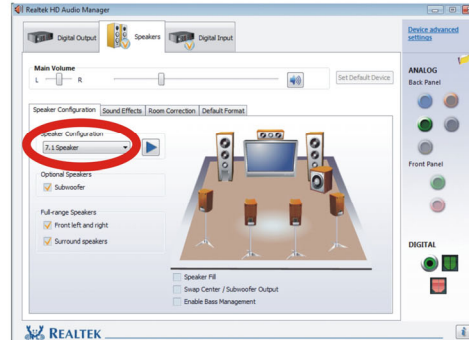
2 Channel



4 Channel





6 Channel



8 Channel

Channels Setup for Windows XP

1. After into the system, click the audio icon  from the Windows XP screen.
2. Click "Audio I/O" button, you can see the screen like the picture below.
3. You can choose 2, 4, 6 or 8 channels by your speakers.
4. You can click the "Auto test" button  to test your audio devices.



2 Channel



4 Channel



6 Channel



8 Channel



To take advantage of 7.1 Channel Audio Effects, you must use audio software that supports this functionality. You must also make sure your software is specifically configured for 7.1 Channel Audio Effect support.

Appendix II: RAID Setup

Introduction to RAID

RAID (Redundant Array of Independent Disks) technology is a sophisticated disk management system that manages multiple disk drives. It enhances I/O performance and provides redundancy in order to prevent the loss of data in case of individual disk failure. The RAID facility on this board provides RAID 0, RAID 1, RAID 0+1, and RAID JBOD.

Disk Striping (RAID 0)

Striping is a performance-oriented, non-redundant disk storage technology. With RAID striping, multiple disks are used to form a larger virtual disk. Data is then striped or mapped across all the physical disks. In this way, multiple I/O operations can be executed in parallel, enhancing performance. Striping does not provide fault tolerance. The minimum number of hard drives for RAID 0 is 2.

Disk Mirroring (RAID 1)

With Disk Mirroring there are redundant disks that mirror the primary disks. Data that is written to the primary disks are also written to the redundant disks. This redundancy provides fault tolerant protection from a single disk failure. If a read/write failure occurs on one drive, the system can still read and write data using the other drive. The minimum number of drives for a RAID 1 configuration is 2. You are required to use an even number of drives.

Disk Striped Mirroring (RAID 0+1)

This mode combines both the performance benefits of RAID 0 with the fault tolerance of RAID 1. The minimum number of drives for RAID 0+1 configuration is 4 drives. This configuration also requires an even number of drives.

Note: All mirrored configurations or striped/mirrored configurations should use drives of the same size.

RAID SPAN (RAID JBOD)

RAID SPAN allows JBOD (Just a Bunch Of Disks) configurations which simply uses multiple disks to form a larger virtual disk without any other specialized disk management functionality. RAID SPAN is not considered a standard RAID implementation.

Before you create a RAID Array

Before you configure your RAID Array, you have to enable the "RAID" option in the BIOS Setup Utility.

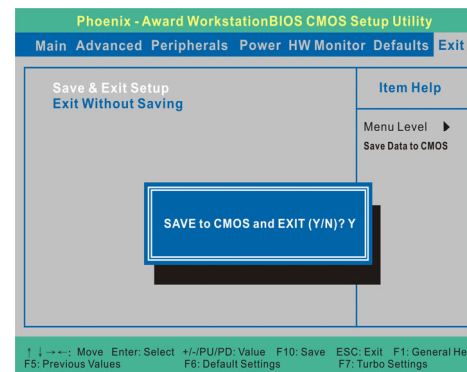
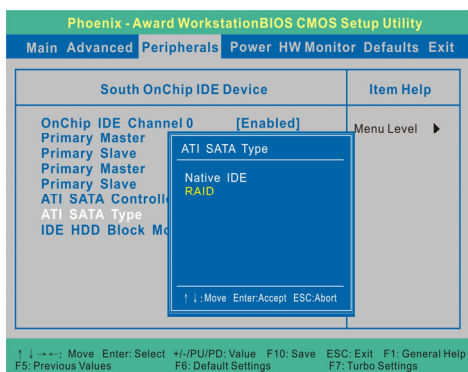
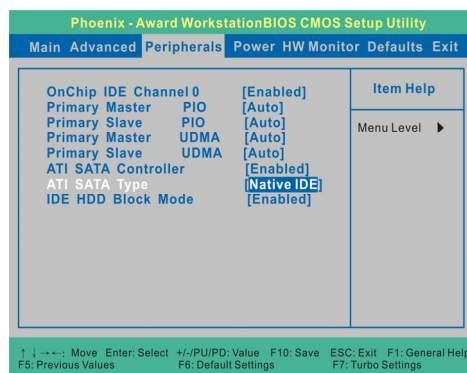
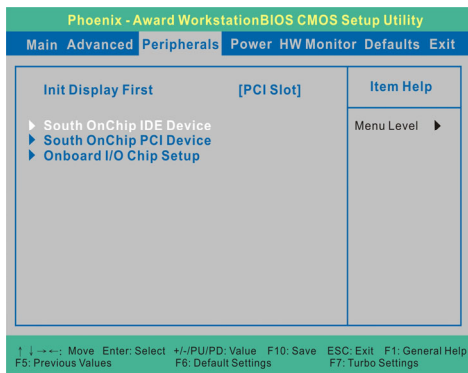
1. After you boot your system, press the key when prompted to enter the BIOS Setup Utility.

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- The option for enabling RAID will be found on the "Peripherals" screen. On this screen, arrow down to the "South OnChip IDE Device" as shown below. Press <Enter> which will take you to a submenu. Arrow down to the "ATI SATA Type" item. Then press <Enter> again to access the next submenu. Arrow down to the "RAID" item and press <Enter>.

Peripherals >> South OnChip IDE Device >> ATI SATA Type >> RAID

After you complete the instructions above, save the settings and exit the BIOS Setup Utility (SAVE to CMOS and EXIT).



ATI RAID Utility Configuration

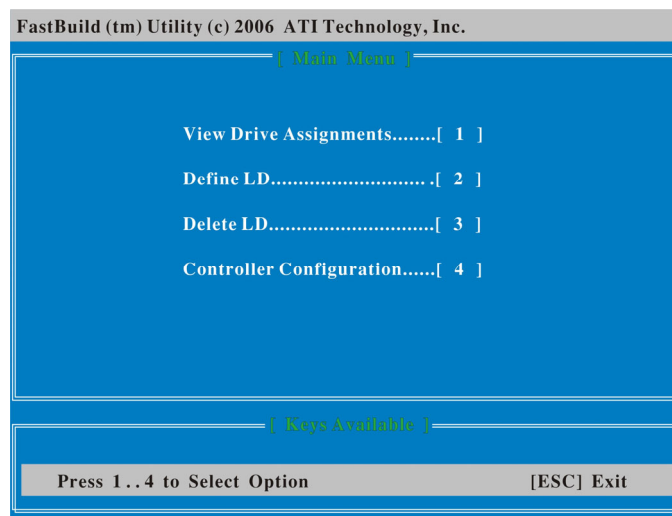
The ATI RAID Utility is used to configure RAID disk management into your hard disks. This section will explain how to setup and maintain your RAID disk drives.

Starting up the ATI RAID Utility:

1. When the system boots up during the POST (Power-On Self Test), you will be given an opportunity to enter the ATI RAID Utility when the screen prompts you with the following message.

“Press <Ctrl-F> to enter FastBuild (tm) Utility...”

2. Press the <Ctrl-F> key to enter the ATI RAID Utility (note that you will only have a short window of time to press <Ctrl-F> before the system continues with the next step of the boot process). The ATI Raid Utility “Main Menu” screen will display as shown below.



Four options are available in the “Main Menu.”

There are four options (*View Drive Assignments*, *Define LD*, *Delete LD*, and *Controller Configuration*) that are described below. If you need to exit the menu, press [ESC] to leave the screen.

- **Press [1]** to view all the disk drive assignments
- **Press [2]** to create a new logical drive or view information about one existing logical drive
- **Press [3]** to delete a logical drive
- **Press [4]** to view and change controller configurations
- **Press [ESC]** to exit the menu

View Drive Assignments

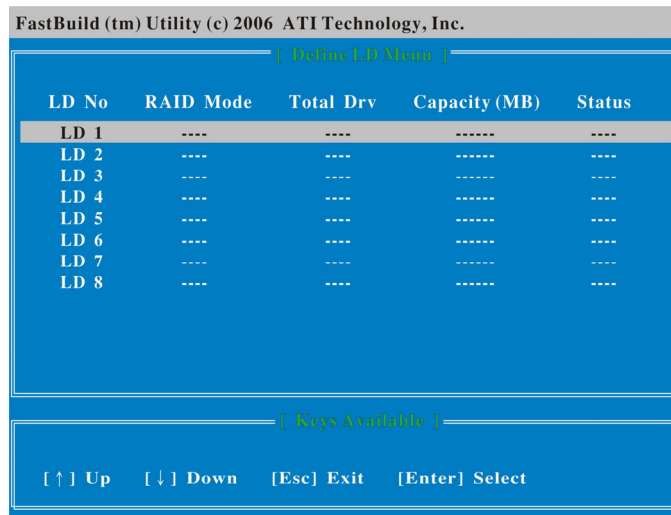
This item displays physical information about the disk drives attached to the computer.

Channel :ID	Drive Model	Capacity (MB)	Assignment
1:Mas	ST3160812AS	160042	
	Extent 1	159975	free
2:Mas	ST3160812AS	160042	
	Extent 1	159975	free

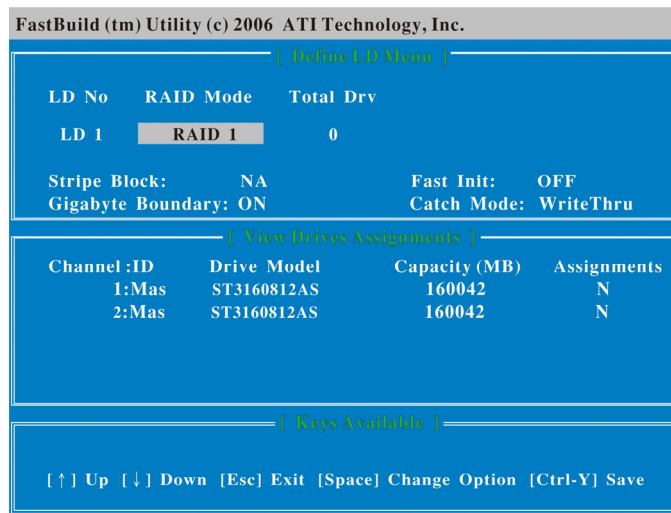
- **Channel: ID** This represents the motherboard channel ID to which a particular disk drive is attached.
- **Drive Model** This identifies the manufacturer, model, and model number (if applicable) of each disk drive.
- **Capacity (MB)** This displays the capacity in MB (Megabytes) of the disk drive.
- **Assignment** This identifies the logical drive to which the disk drive belongs.
- **Extent** An extent is a portion of the disk drive. The FastBuild Utility allows you to split the capacity of a disk drive into two logical drives. The portion of a disk drive available to be used as a logical drive is called an extent. The extent or sum of two extents will be slightly smaller than the total capacity of the disk drive.

Creating a Logical Drive

1. In the Main Menu, press 2 to access the “Define LD Menu” screen. Please use the up/down arrow keys to select an “LD No” (Logical Drive Number) to define a logical drive. Hit Enter.



2. On the next screen, you will see the “Define LD Menu” for the logical drive number selected in step 1. The items that you can configure are described below. Use the up/down arrow keys to go to an item and then use the space key to switch between options.



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■ **RAID Mode**

Choose the RAID Level you wish to configure. Your choice will depend on the RAID Level that best fits your needs for either performance, redundancy or both.

- *RAID 0 (Striping)*
- *RAID 1 (Mirroring)*
- *RAID 0+1 (Striped Mirroring)*
- *JBOD (Spanning)*

■ **Stripe Block**

Stripe Block size will directly affect performance. There are two issues to consider when selecting the stripe block size.

- Choose a stripe block size equal to or smaller than the smallest cache buffers found on any disk drive in your logical drive. A larger value slows the logical drive down because disk drives with smaller cache buffer need more time for multiple accesses to fill their buffers.
- If your data retrieval consists of fixed-size data blocks, such as some database and video applications, choose that data block size as your stripe block size.

Generally speaking, email, POS and web servers prefer smaller stripe block sizes. Video and database applications prefer larger stripe block size.

- *64 KB*
- *128 KB*

■ **Gigabyte Boundary**

This feature is designed for logical drives in which a drive has failed and the user cannot replace the drive with the same capacity or larger drive. Gigabyte Boundary allows you to install a replacement disk drive whose capacity is smaller (within one gigabyte) than the one you are replacing. This can be helpful in the event that a drive fails and an exact replacement model is not available.

- *ON*
- *OFF*

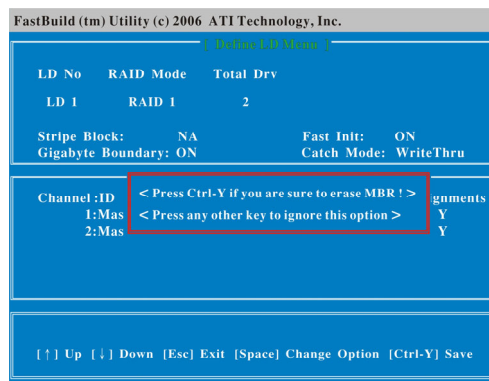
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■ Fast Init

Fast Init is an almost instantaneous way of initiating a disk (clearing all data from the disk). When Fast Init is turned off, initialization takes a long time because it changes every bit on the disk to zero. When Fast Init is turned on, only the data bits in the drive's MBR (Master Boot Record) is set to zero having the same affect of initializing the disk but not going through the monotonous process of changing every bit on the disk to zero.

Initialization applies to RAID 0, RAID 1 and RAID 0+1. When you create one of these logical drives with the FastBuild utility, you can specify Fast Initialization.

- *ON*
- *OFF*



■ Cache Mode

Cache Mode. (this option is not configurable)

- *Write Thru*

■ Assignment

Choose the disk drive to be assigned to the logical drive.

- *Y*
- *N*

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- After all of the options are properly configured, press <Ctrl-Y>. An alert box will appear as shown below. Follow the directions as shown on the instructions below to configure the size of your new array.

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

[Define LD Menu]

LD No	RAID Mode	Total Drv
LD 1	RAID 1	2

Stripe Block: NA Fast Init: OFF
Gigabyte Boundary: ON Catch Mode: WriteThru

[View Drives Assignments]

Channel :ID	Drive Model	Capacity (MB)	Assignments
1:Mas	ST3160812AS	160042	Y
2:Mas	ST3160812AS	160042	Y

[↑] Up [↓] Press Ctrl-Y to Modify Array Capacity or press any other key to use maximum capacity... Save

- If you want to configure a specific array capacity, press <Ctrl-Y> and enter the desired capacity in MBs.

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

[Define LD Menu]

LD No	RAID Mode	Total Drv	Capacity(MB)
LD 1	RAID 1	2	159975

Stripe Block: NA Fast Init: OFF
Gigabyte Boundary: ON Catch Mode: WriteThru

[View Drives Assignments]

Channel :ID	Drive Model	Capacity (MB)	Assignments
1:Mas	ST3160812AS	160042	Y
2:Ma			Y

Enter array capacity (in MB) here: _

[Keys Available]

[0-9] Input Capacity [Enter] Save [BackSpace] Delete [ESC] Exit

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

[Define LD Menu]

LD No	RAID Mode	Total Drv	Capacity (MB)	Status
LD 1	RAID 1	2	50000	Functional
LD 2	RAID 1	2	109900	Functional
LD 3	----	----	-----	----
LD 4	----	----	-----	----
LD 5	----	----	-----	----
LD 6	----	----	-----	----
LD 7	----	----	-----	----
LD 8	----	----	-----	----

[Keys Available]

[↑] Up [↓] Down [Esc] Exit [Enter] Select

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

[View Drive Assignments]

Channel :ID	Drive Model	Capacity (MB)	Assignment
1:Mas	ST3160812AS	160042	
	Extent 1	50000	LD 1-1
	Extent 2	109975	LD 2-1
2:Mas	ST3160812AS	160042	
	Extent 1	50000	LD 1-2
	Extent 2	109975	LD 2-2

[Keys Available]

[↑] Up [↓] Down [Esc] Exit

- If you don't want to configure a specific array capacity, press any other key to default to the maximum capacity available on the drive. Then you will see...

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

[Define LD Menu]

LD No	RAID Mode	Total Drv	Capacity (MB)	Status
LD 1	RAID 1	2	159000	Functional
LD 2	----	----	-----	----
LD 3	----	----	-----	----
LD 4	----	----	-----	----
LD 5	----	----	-----	----
LD 6	----	----	-----	----
LD 7	----	----	-----	----
LD 8	----	----	-----	----

[Keys Available]

[↑] Up [↓] Down [Esc] Exit [Enter] Select

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

[View LD Definition Menu]

LD No	RAID Mode	Total Drv	Capacity (MB)	Status
LD 1	RAID 1	2	159000	Functional

Stripe Block: NA Catch Mode: WriteThru

[View Drive Assignments]

Channel :ID	Drive Model	Capacity (MB)
1:Mas	ST3160812AS	160042
2:Mas	ST3160812AS	160042

Any Key to Continue.....

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

[View Drive Assignments]

Channel :ID	Drive Model	Capacity (MB)	Assignment
1:Mas	ST3160812AS	160042	
	Extent 1	159975	LD 1-1
2:Mas	ST3160812AS	160042	
	Extent 1	159975	LD 1-2

[Keys Available]

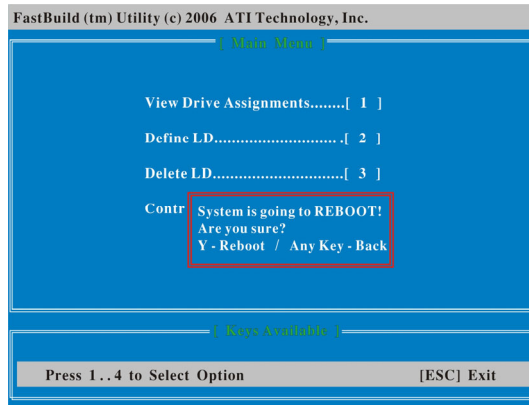
[↑] Up [↓] Down [Esc] Exit



Attention

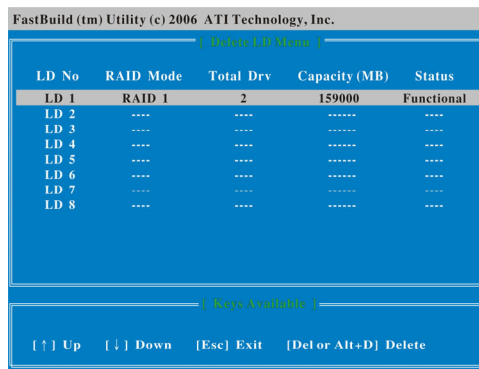
The “LD No” and “Drive Model”, shown on these screens represent the disk drives installed on the PATA or SATA connectors and are sample data only. The actual data that displays on your screen will likely vary.

4. You have successfully created a new logical RAID drive. Press <ESC> to exit and go to the “Main Menu”. When you finish configuring the remaining RAID drives, press <ESC> again. There will be an alert box displayed on the screen - press <Y> to restart your computer.



Delete Logical Drive

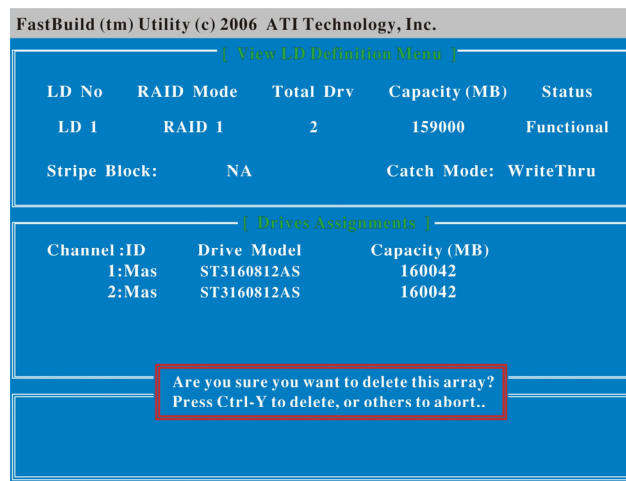
1. First, make sure that you are in the Main Menu. Press 3 and then go into the “Delete LD Menu” shown below.



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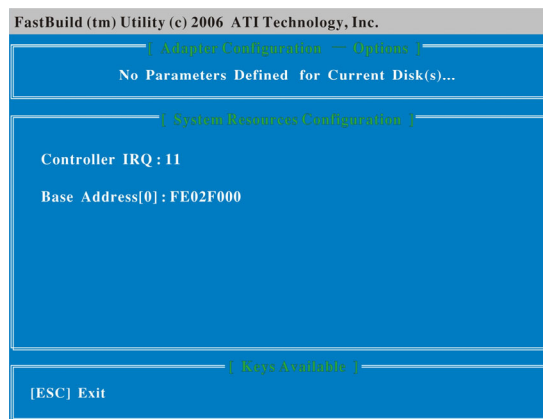
Select the logical drive with the up/down arrow keys (the selected drive will be highlighted). Then press or <Alt+D> to go to the next page.

2. The screen below will appear and a flashing alert box will prompt you for your confirmation to delete the array - press <Ctrl-Y> to delete the logical drive.



Controller Configuration

On the "Main Menu" screen, press 4 to access the Controller Configuration screen which provides diagnostic information. The options in the "System Resources Configuration" section can assist you in troubleshooting problems associated with "The System IRQ used by the RAID controller" and "Base Address."



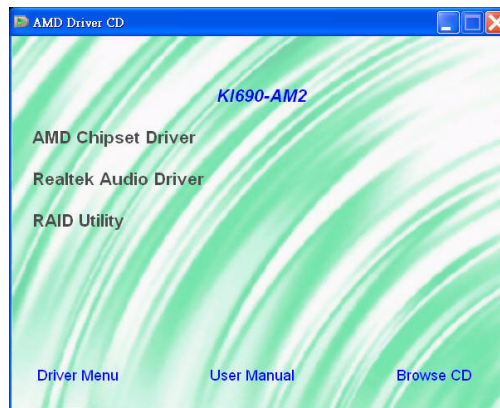
Rebuilding a Logical Drive on a Mirrored Array

This section explains the process of replacing a failed drive that was part of a Mirrored array. The replacement drive will be rebuilt by reconstructing the data from an existing Mirrored drive. This function only applies to the disk drives with redundancy, namely RAID 1 and RAID 0+1.

Before Rebuilding the Logical Drive:

1. Before you begin rebuilding a logical drive, you must install the “RAID Utility” from the bundled CD. Please insert the bundled CD and click on the “RAID Utility” to install it.

Windows Vista



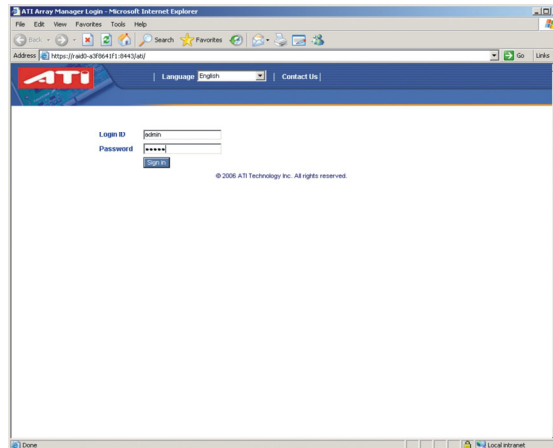
Windows XP



2. When the installation is done, there will be a shortcut titled “WebPAM” on the desktop. Double click on it to start the program.

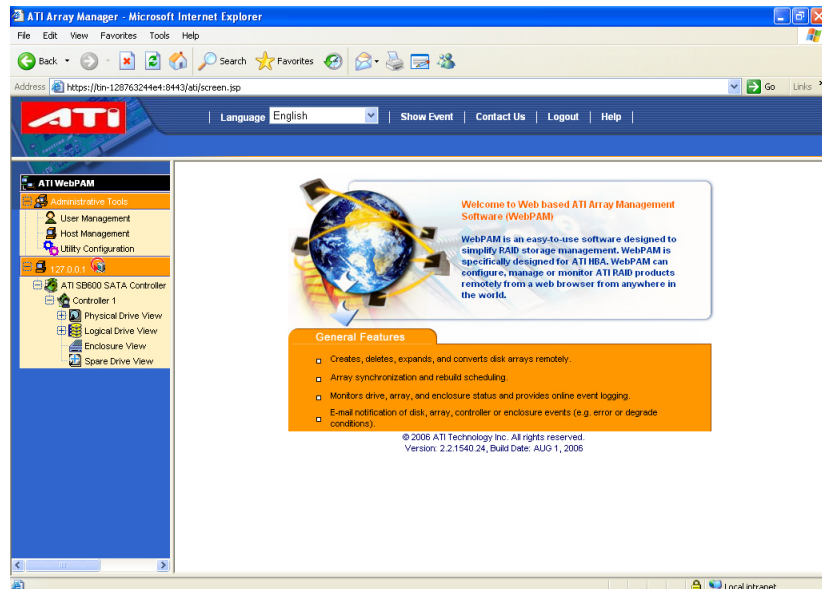
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- Complete all of the setup questions asked during the startup according to your preferences and environment. When the screen shows as below, please enter the “Login ID” and “Password” to sign in.



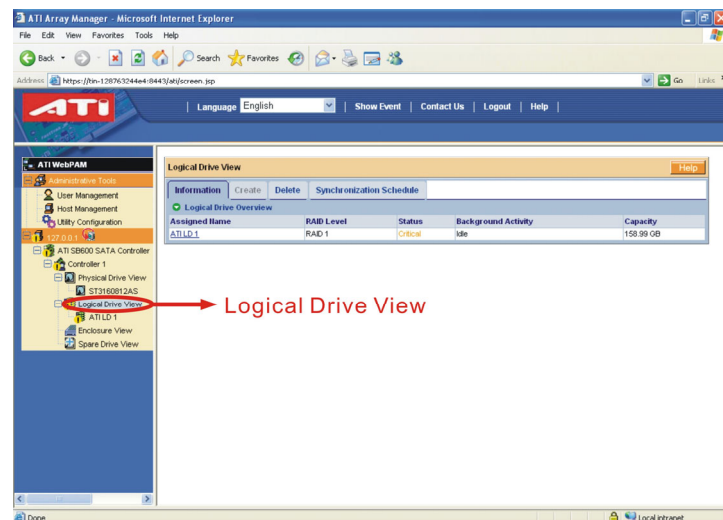
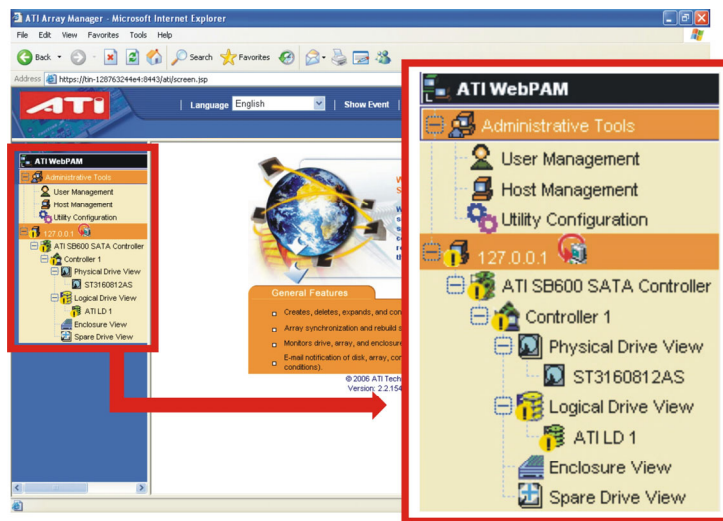
Login ID : admin
Password : admin

- When you enter into the “ATI Array manager”, the main screen displays as below.



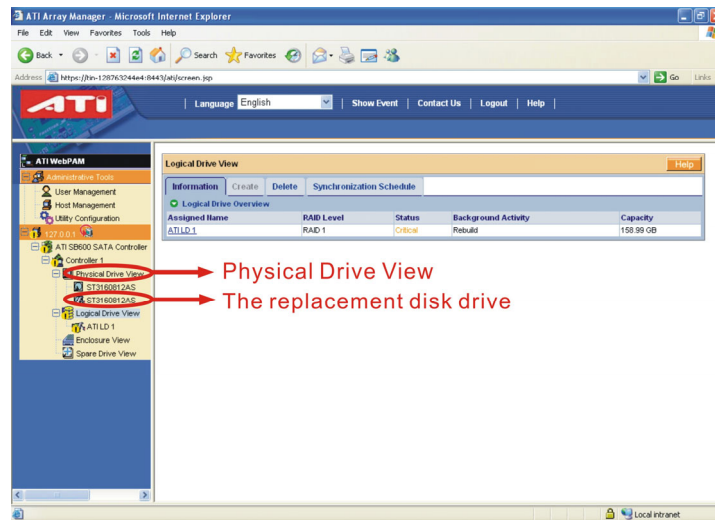
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- When a disk drive fails, a yellow warning icon with an exclamation point will appear to alert you of a problem (as shown below on the left panel). Click on the “Logical Drive View” (located on the left panel below) and you will see all the information pertaining to the disk drives attached onto the computer, such as Assigned Name, RAID Level, Status, Background Activity and Capacity.

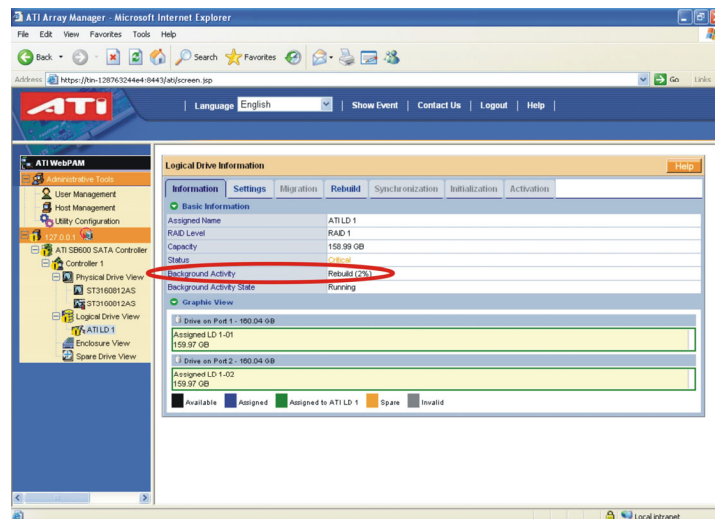


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- After installing the replacement disk drive, the drive will be detected and appear under the “Physical Drive View” in the left panel as shown below.

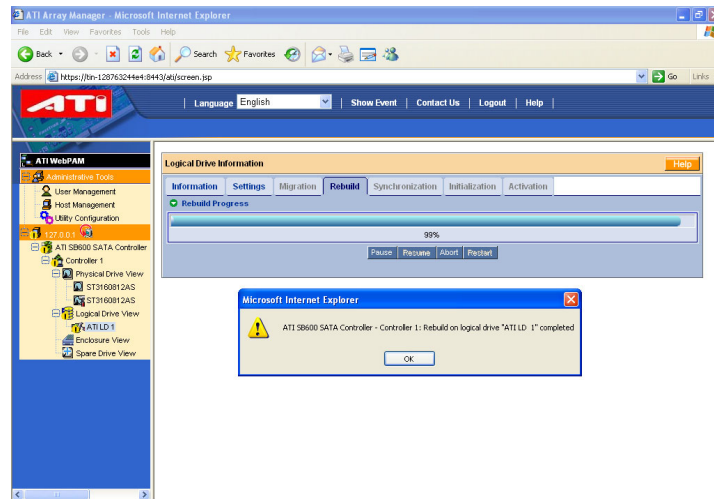
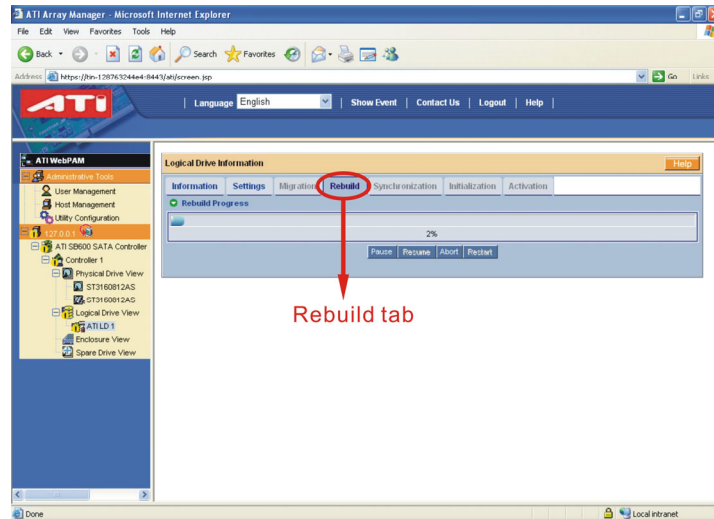


- The rebuilding process will begin on the new drive. You can see the progress of the rebuild percentage displayed for the item “Background Activity” located under the “Information” tab as shown below.



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8. You can also monitor the rebuild progress from the “Rebuild” tab as shown below. When the process is finished, an alert box will notify you.



Install Windows® Vista/ Windows® XP OS onto your RAID HDDs

This section will explain how to install Windows® Vista/ Windows® XP operating system onto your RAID drives. The installation steps below will assume that your HDDs have already been attached to the SATA connectors, and your RAID arrays have already been configured using the ATI RAID Utility (ATI RAID Utility Configuration section).

Preparation for Windows® Vista: Before installing the OS, copy the “RAID Driver” files from the bundled CD onto media that you can use on an existing storage device on your computer (floppy disk drive, USB ThumbDisk, CD, or DVD).

The files are located on the CD-ROM as follows:

Windows® Vista 32 bit : CD-ROM => \ Driver \ RAID \ VISTA \ LH \ *.*

Windows® Vista 64 bit : CD-ROM => \ Driver \ RAID \ VISTA \ LH64A \ *.*

Preparation for Windows® XP: Before installing the OS, copy the “RAID Driver” files from the bundled CD onto media that you can use on an existing storage device on your computer (e.g. floppy disk drive).

The files are located on the CD-ROM as follows:

Windows® XP 32 bit : CD-ROM => \ Driver \ RAID \ XP \ x86 \ *.*

Windows® XP 64 bit : CD-ROM => \ Driver \ RAID \ XP \ x64 \ *.*

✗ This will have to be done on another system if you are installing the system from scratch.

Install Windows® Vista:

1. During a Windows® Vista installation, there will be an item “Load Driver”. Click on it and then insert the media containing the RAID Driver files into your computer.
2. Click on “Browse” to browse into the folders of the media to locate the folder with the files..
3. Once you have located the folder, click on “OK” to load the RAID Drivers. The system will scan for the driver automatically. When you see the file “ATI AHCI Compatible RAID Controller” display on the screen. Press “Next” to continue.
4. You will return to the “Install Windows” screen to continue with the installation. Follow the setup instructions and select the partition where you want to install operating system files.
5. After setup examines your disks, it will copy files to the Windows® Vista installation folders and restart the system. After the system is rebooted, the setup program will continue with the installation all the way to completion.
6. Wait until Windows® Vista finishes installing devices, regional settings, networking settings, components, and any other remaining tasks. Reboot the system if you are asked to do so.

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Install Windows® XP:

1. During Windows® XP installation, the “Windows Setup” screen will prompt you with “Press F6 if you need to install third party SCSI or RAID driver”. Press <F6>.
2. Press “s” when setup asks if you want to specify an additional device. Insert the media which includes the “RAID Driver” into your computer. Press <Enter> and locate the appropriate OS device driver.
3. Press <Enter> again to continue the setup process.
4. Follow the setup instructions and select the partition and file system where you want to install operating system files.
5. After setup examines your disks, it will copy files to the Windows® XP installation folders and restart the system. After the system reboots, the setup program will continue with the installation all the way to completion.
6. Wait until Windows® XP finishes installing devices, regional settings, networking settings, components, and any other remaining tasks. Reboot the system if you are asked to do so.