M61PMV Series Motherboard

User's Manual

FOXCONN®

Statement:

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All trademarks are the property of their respective owners.

Version:

User's Manual V1.4 for M61PMV Series motherboard.

Symbol description:

Caution : refers to important information that can help you to use motherboard better, and tells you how to avoid problems.

Warning : indicating a potential risk of hardware damage or physical injury may exist.

WEEE:

The use of this symbol indicates that this product may not be treated as household waste. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased this product.

More information:

If you want more information about our products, please visit Foxconn's website: http://www.foxconnchannel.com

Declaration of conformity

$$\mathrm{C}\,\mathrm{E}$$

HON HAI PRECISION INDUSTRY COMPANY LTD
66 , CHUNG SHAN RD., TU-CHENG INDUSTRIAL DISTRICT,
TAIPEI HSIEN, TAIWAN, R.O.C.

declares that the product
Motherboard M61PMV/ M61PMV-E/ M61PMVK

is in conformity with
(reference to the specification under which conformity is declared in
accordance with 89/336 EEC-EMC Directive)

■ EN 55022:1998/A2: 2003 Limits and methods of measurements of radio
disturbance characteristics of information technology
equipment
■ EN 61000-3-2/:2000 Electromagnetic compatibility (EMC)
Part 3: Limits
Section 2: Limits for harmonic current emissions
(equipment input current <= 16A per phase)
■ EN 61000-3-3/A1:2001 Electromagnetic compatibility (EMC)
Part 3: Limits
Section 2: Limits of voltage fluctuations and flicker in low
voltage supply systems for equipment with rated current
<= 16A
■ EN 55024/A2:2003 Information technology equipment-Immunity
characteristics limits and methods of measurement

Signature : James Liang.   Place / Date : TAIPEI/2009

Printed Name : James Liang

Declaration of conformity

Trade Name:	FOXCONN
Model Name:	M61PMV/ M61PMV-E/ M61PMVK
Responsible Party:	PCE Industry Inc.
Address:	458 E. Lambert Rd.
	Fullerton, CA 92835
Telephone:	714-738-8868
Facsimile:	714-738-8838

Equipment Classification:	FCC Class B Subassembly
Type of Product:	Motherboard
Manufacturer:	HON HAI PRECISION INDUSTRY COMPANY LTD
Address:	66 , CHUNG SHAN RD., TU-CHENG INDUSTRIAL DISTRICT, TAIPEI HSIEN, TAIWAN, R.O.C.

Supplementary Information:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Tested to comply with FCC standards.

Signature :   James Liang   Date :   2009

Installation Precautions

WARNING!

- Electrostatic discharge (ESD) is the sudden and momentary electric current that flows between two objects at different electrical potentials. Normally it comes out as a spark which will quickly damage your electronic equipment. Please wear an electrostatic discharge (ESD) wrist strap when handling components such as a motherboard, CPU or memory.
- Ensure that the DC power supply is turned off before installing or removing CPU, memory, expansion cards or other peripherals. It is recommended to unplug the AC power cord from the power supply outlet. Failure to unplug the power supply cord may result in serious damage to your system.

CAUTION!

Please carefully read the following procedures to install your computer :

- It is suggested to select high-quality, certified fans in order to avoid damage to the motherboard and CPU due to high temperature. Never turn on the computer if the CPU fan is not properly installed.
- We cannot guarantee that your system can operate normally when your CPU is overclocked. Normal operation depends on the overclocking capacity of your device.
- If there is any, when connecting USB, audio, RS232 COM, IrDA or S/PDIF cables to the internal connectors on the motherboard, make sure their pinouts are matching with the connectors on the motherboard. Incorrect connections might damage the motherboard.
- When handling the motherboard, avoid touching any metal leads or connectors.
- If there is a PCI Express x16 graphics card installed in your system, we recommend using a 24-pin ATX power supply to get the best performance.
- Before turning on the power, please make sure the power supply AC input voltage setting has been configured to the local standard.
- To prevent damage to the motherboard, do not allow screws to come in contact with the motherboard circuit or its components. Also, make sure there are no leftover screws or metal components placed on the motherboard or within the computer casing.
- If you are uncertain about any installation steps or have a problem related to the use of the product, please consult a certified computer technician.

TABLE OF CONTENTS

Technical Support :

Support

Website :
http://www.foxconnchannel.com

Support Website :
http://www.foxconnsupport.com

Worldwide online contact Support :
http://www.foxconnsupport.com/inquiry.aspx

CPU Support List :
http://www.foxconnsupport.com/cpusupportlist.aspx

Memory, VGA Compatibility List :
http://www.foxconnsupport.com/complist.aspx

Thank you for buying Foxconn M61PMV Series motherboard. Foxconn products are engineered to maximize computing power, providing only what you need for break-through performance.

With advanced overclocking capability and a range of connectivity features for today multi-media computing requirements, M61PMV /M61PMV-E/M61PMVK enables you to unleash more power from your computer.

This chapter includes the following information:
- Product Specifications
- Layout
- Back Panel Connectors

1-1 Product Specifications

CPU	Support AMD socket AM3/ AM2+ Phenom™ series processors
	Support AMD socket AM2 series processors :
	Athlon™ 64 X2 Dual-Core/ Athlon™ 64/ Sempron™ series processors
HyperTransport	2000/1600MT/s
Chipset	NVIDIA GeForce 6100/ nForce 430
Memory	2 x 240-pin DDR2 DIMM sockets
	Support up to 4GB of system memory
	Dual channel DDR2 1066*/800/667/533MHz architecture
	*DDR2 1066 is only supported by some AM2+ CPUs
Audio	Realtek 6-channel audio chip (M61PMV-E)
	VIA 6-channel audio chip (M61PMV/ M61PMVK)
	High Definition Audio
	2/4/5.1/-channel
	Support Jack-Sensing function
LAN	Realtek 10/100Mb/s LAN chip (M61PMV-E)
	Broadcom 10/100Mb/s LAN PHY (M61PMV)
	Realtek 10/100/1000Mb/s LAN PHY (M61PMVK)
Expansion Slots	1 x PCI Express x16 slot
	1 x PCI Express x1 slot
	2 x PCI slots
Onboard Serial ATA	4 x SATA connectors
	300MB/s data transfer rate
	Support hot plug and NCQ (Native Command Queuing)
USB	Support hot plug
	Support up to 8 x USB 2.0 ports (4 rear panel ports, 2 onboard USB
	headers supporting 4 extra ports)
	Support USB 2.0 protocol up to 480Mb/s
Internal Connectors	1 x 24-pin ATX main power connector
	1 x 4-pin ATX 12V power connector
	1 x Floppy disk drive connector
	1 x IDE connector
	4 x SATA connectors
	2 x USB 2.0 connectors (supporting 4 x USB devices)
	1 x CPU fan header (4-pin)
	1 x System fan header (4-pin)
	1 x Front panel connector
	1 x CD_IN connector
	1 x Front Audio connector
	1 x Chassis intrusion alarm header (INTR)
	1 x S/PDIF_OUT connector
	1 x IrDA connector
Back Panel	1 x PS/2 keyboard port
Connectors	1 x PS/2 mouse port

	1 x VGA port
	1 x Parallel port
	1 x Serial port
	4 x USB 2.0 ports
	1 x RJ-45 LAN port
	6-channel Audio ports
Hardware Monitor	System voltage detection
	CPU/System temperature detection
	CPU/System fan speed detection
	CPU/System overheating warning
	CPU/System fan speed control
PCI Express x1	Support 250MB/s (500MB/s concurrent) bandwidth
	Low power consumption and power management features
PCI Express x16	Support 4GB/s (8GB/s concurrent) bandwidth
	Low power consumption and power management features
Green Function	Support ACPI (Advanced Configuration and Power Interface)
	Support S0 (normal), S1 (power on suspend), S3 (suspend to RAM), S4 (suspend to disk), and S5 (soft - off)
Bundled Software	FOX ONE
	FOX LiveUpdate
	FOX LOGO
	FOX DMI
Operating System	Support for Microsoft® Windows® Vista/XP only
Form Factor	Micro ATX Form Factor, 9.6 inches x 8.0 inches (24.4cm x 20.3cm)

> ⚠ CAUTION
>
> The chipset driver of this motherboard does not support Windows® 2000.

1-2 Layout
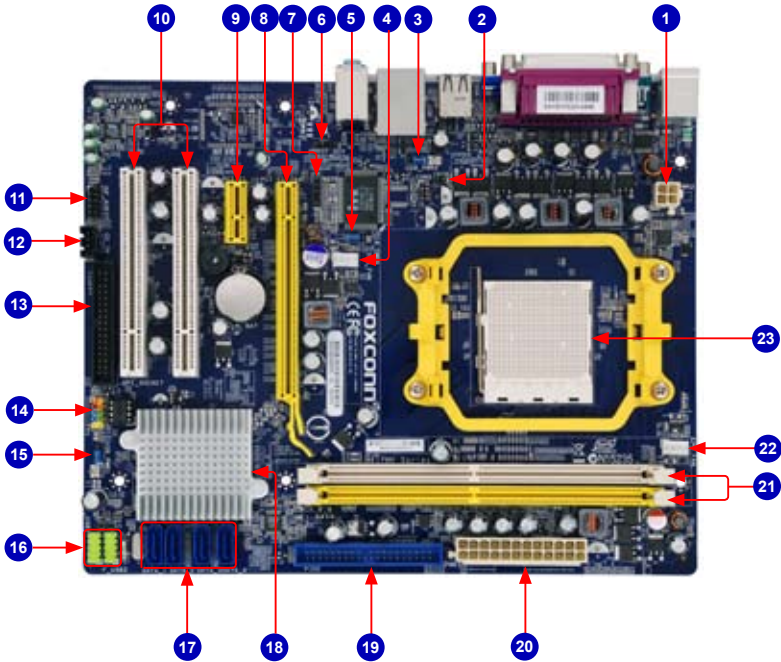
1. 4-pin ATX 12V Power Connector
2. Chassis Intrusion Alarm Header
3. USBPWR2 Jumper
4. System fan Header
5. Clear CMOS Jumper
6. S/PDIF Out Connector
7. IrDA Connector
8. PCI Express x16 Slot
9. PCI Express x1 Slot
10. PCI Slots
11. Front Audio Connector
12. CD_IN Connector

13. Floppy Connector
14. Front Panel Connector
15. USBPWR1 Jumper
16. Front USB Connectors
17. SATA Connectors
18. Chipset : NVIDIA Geforce 6100/
          nForce 430
19. IDE Connector
20. 24-pin ATX Power Connector
21. DDR2 DIMM Slots
22. CPU_FAN Header
23. CPU Socket

Note : The above motherboard layout is for reference only, please refer to the physical mother-
       board for detail.

1-3 Back Panel Connectors
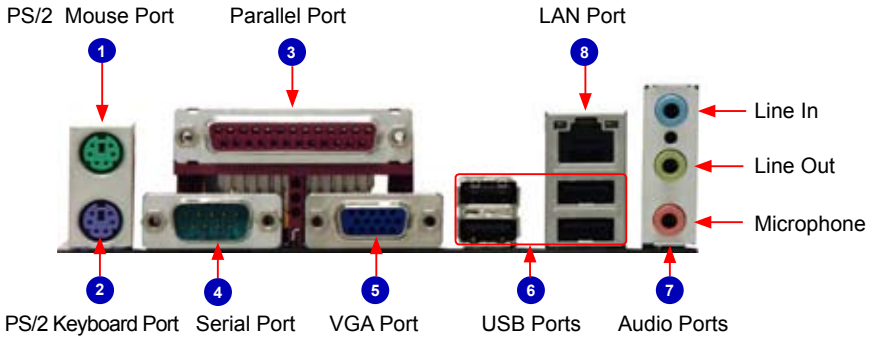
1. **PS/2 Mouse Port**
   Use the upper port (green) to connect a PS/2 mouse.

2. **PS/2 Keyboard Port**
   Use the lower port (purple) to connect a PS/2 keyboard.

3. **Parallel Port**
   This connector provides printer port interface.

4. **Serial Port**
   This is output of RS232 COM1 port.

5. **VGA Port**
   To connect with external display devices, such as monitor or LCD display.

6. **USB Ports**
   The USB port supports the USB 2.0/1.1 specification. Use this port for USB devices such as an USB keyboard/mouse, USB printer, USB flash drive and etc.

7. **Audio Ports**
   For the definition of each audio port, please refer to the table below :

Port	2-channel	4-channel	5.1-channel
Blue	Line In	Rear Speaker Out*	Rear Speaker Out*
Green	Line Out	Front Speaker Out	Front Speaker Out
Pink	Microphone In	Microphone In	Center/Subwoofer Out*

* : Please refer to Chapter 4, and install the Realtek audio driver (in CD) to assign the audio output ports for different applications of 2/4/5.1 channels. The fundamental audio outputs are depicted in the table above.

8. RJ-45 LAN Port

The Ethernet LAN port provides Internet connection at up to 10/100/1000Mb/s data rate.

LAN Type	Left: Active		Right: Link	
	Status	Description	Status	Description
100M	Off	No Link	Off	No Link
	Green Blinking	Data Activity	Orange	10/100Mb/s Connection
1000M	Off	No Link	Off	No Link
	Green Blinking	Data Activity	Off	10Mb/s Connection
			Green	100Mb/s Connection
			Orange	1000Mb/s Connection

Active LED   Link LED

CAUTION

! M61PMV and M61PMV-E support 10/100Mb/s Ethernet. M61PMVK supports 1Gb/s Ethernet.

2

This chapter introduces the hardware installation process, including the installation of the CPU, memory, power supply, slots, pin headers and the mounting of jumpers. Caution should be exercised during the installation of these modules. Please refer to the motherboard layout prior to any installation and read the contents in this chapter carefully.

This chapter includes the following information :

- ■ Install the CPU and CPU Cooler
- ■ Install the Memory
- ■ Install an Expansion Card
- ■ Install other Internal Connectors
- ■ Jumpers

This motherboard supports low power energy-saving CPUs (drawing less than 95W under normal operation).

This currently includes most Phenom™ Series, Athlon™ 64 X2 Dual-Core processors, and all Athlon™ 64 and Sempron™ models.

CPUs with a power rating higher than 95W are not supported, and will result in system working abnormally or damaging the hardware.

Please visit the following website for more supporting information about your motherboard.

CPU Support List:

http://www.foxconnsupport.com/cpusupportlist.aspx

Memory, VGA Compatibility List:

http://www.foxconnsupport.com/complist.aspx

2-1 Install the CPU and CPU Cooler

Read the following guidelines before you begin to install the CPU :
- ■ Make sure that the motherboard supports the CPU.
- ■ Always turn off the computer and unplug the power cord from the power supply before installing the CPU to prevent hardware damage.
- ■ Locate the Pin-1 of the CPU. The CPU cannot be inserted if oriented incorrectly.
- ■ Apply an even and thin layer of thermal grease on the surface of the CPU.
- ■ Do not turn on the computer if the CPU cooler is not installed, otherwise overheating and damage of the CPU may occur.
- ■ Set the CPU host frequency in accordance with the CPU specifications. It is not recommended that the system bus frequency be set beyond hardware specifications since it does not meet the standard requirements for the peripherals. If you want to set the frequency beyond the standard specifications, please do so according to your hardware specifications including the CPU, graphics card, memory, hard drive, etc.

Install the CPU
Locate the Pin-1 CPU triangle mark and the Pin-1 of the CPU socket.

Pin-1 corner of the CPU socket

Pin-1 triangle marking of CPU
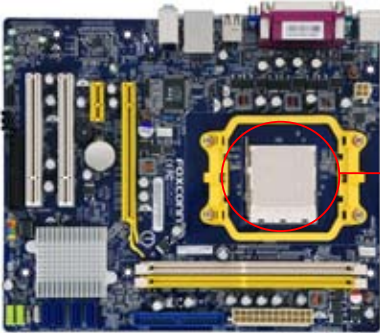
1. Release the CPU socket lever.

2. Align Pin-1 of the CPU with the CPU socket, and gently put the CPU onto the socket.

3. When CPU is properly seated, push the CPU socket lever back to its locked position.

Install the CPU Cooler

Follow the steps below to correctly install the CPU cooler. (The following procedures use Foxconn cooler as the example.)

1. Apply and spread an even thermal grease on the surface of CPU.

2. Buckle the heatsink firmly at one side of the stand.

3. Buckle the heatsink at another side, and press the fasten lever down to tightly seat the cooler.

4. Attach the 4-wire CPU cooler connector to the CPU fan header on the motherboard .

⚠ CAUTION

Use extreme care when removing the CPU cooler because the thermal grease may adhere to the CPU. Inadequately removing the CPU cooler may damage the CPU.

2-2 Install the Memory

!

Read the following guidelines before you begin to install the memory :
- ■ Make sure that the motherboard supports the memory. It is recommended that memory of the same capacity, brand, speed, and chips be used.
- ■ Always turn off the computer and unplug the power cord from the power outlet before installing the memory to prevent hardware damage.
- ■ Memory modules have a foolproof design. A memory module can be installed in only one direction. If you are unable to insert the memory, switch the direction.

Dual Channel Memory Configuration

This motherboard provides two DDR2 memory sockets and supports Dual Channel Technology. When memory is installed, the BIOS will automatically check the memory in your system.

Two DDR2 memory sockets are divided into two channels :

Channel 0 : DIMM1
Channel 1 : DIMM2

The combinations of DIMM modules are :

	DIMM1	DIMM2
Single Channel	DS/SS	-
Single Channel	-	DS/SS
Dual Channel	DS/SS	DS/SS

(DS : Double Side, SS : Single Side, - : No Memory)

!

It is recommended that memory of the same capacity, brand, speed, and chips be used and please select dual channel first to achieve optimum performance.

Installing a Memory

CAUTION

Before installing a memory module, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the memory module. Be sure to install DDR2 DIMMs on this motherboard.

112-Pin

128-Pin
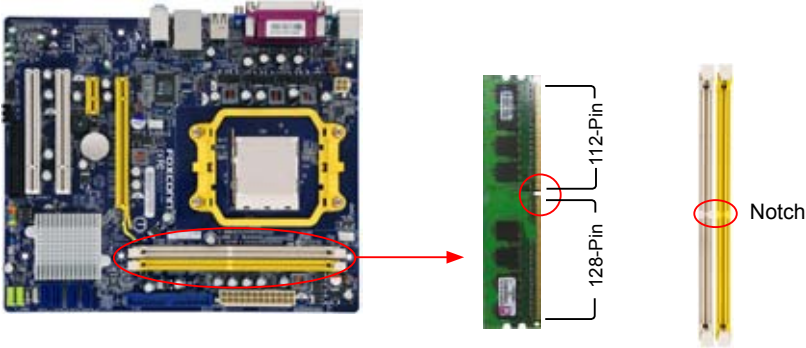
Notch

If you take a look at front side of memory module, it has asymmetric pin counts on both sides separated by a notch in the middle, so it can only fit in one direction. Follow the steps below to correctly install your memory modules into the sockets.
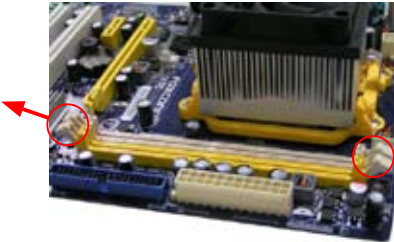
Step 1:
Spread the clips at both ends of the memory socket. Place the memory module onto the socket, then put your fingers on top edge of the module, and push it down firmly and seat it vertically into the memory socket.

Step 2:
The clips at both ends of the socket will snap into place when the memory module is securely inserted.

2-3 Install an Expansion Card
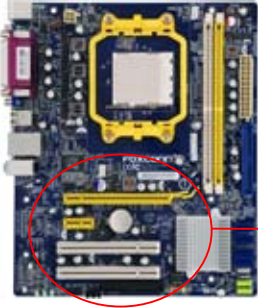
PCI Express x1

PCI Express x16

PCI

Follow the steps below to correctly install your expansion card in the expansion slot.

1. Locate an expansion slot that supports your card. Remove the metal slot cover from the chassis
   back panel.
2. Align the card with the slot, and press down on the card until it is fully seated in the slot.
3. Make sure the metal contacts on the card are completely inserted into the slot.
4. Secure the card's metal bracket to the chassis back panel with a screw.
5. After installing all expansion cards, replace the chassis cover.
6. Turn on your computer. If necessary, go to BIOS Setup to make any required BIOS changes for
   your expansion card(s).
7. Install the driver provided with the expansion card in your operating system.

Installing and Removing a PCI Express x16 Graphics Card :

• Installing a Graphics Card:
Gently insert the graphics card into the PCI Express x16 slot.
Make sure the graphics card is locked by the latch at the end of
the PCI Express x16 slot.

• Removing the Card:
Push the latch at the end of the PCI Express x16 slot to release
the card and then pull the card straight up from the slot.

2-4 Install other Internal Connectors

Power Connectors
This motherboard uses an ATX power supply. In order not to damage any device, make sure all the devices have been installed properly before applying the power supply.

24-pin ATX power connector : PWR1
PWR1 is the ATX power supply connector. Make sure that the power supply cable and pins are properly aligned with the connector on the motherboard. Firmly plug the power supply cable into the connector and make sure it is secure.

Pin #	Definition	Pin #	Definition
1	3.3V	13	3.3V
2	3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON(Soft On/Off)
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	Power Good	20	NC
9	+5V SB(Stand by +5V)	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	3.3V	24	GND

24   13

12   PWR1   1

Pin No. 24

!CAUTION

We recommend you using a 24-pin power supply. If you are using a 20-pin power supply, you need to align the ATX power connector according to the picture.
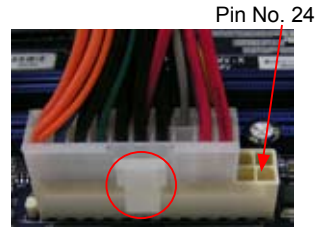
20-Pin Power

4-pin ATX 12V Power Connector : PWR2
Connect the 4-pin ATX 12V power supply to PWR2 and provides power to the CPU.

3   1

12V —   — GND

4   2
PWR2
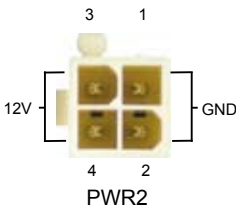
Pin #	Definition
1	GND
2	GND
3	+12V
4	+12V

Front Panel Connector : FP1

This motherboard includes one connector for connecting the front panel switch and LED Indicators.

Hard Disk LED Connector (HDD-LED)

Connect to the chassis front panel IDE indicator LED. It indicates the active status of the hard disks. This 2-pin connector is directional with +/- sign.

Reset Switch (RESET-SW)

Attach the connector to the Reset switch on the front panel of the case; the system will restart when the switch is pressed.

Power LED Connector (PWR-LED)

Connect to the power LED indicator on the front panel of the chassis. The Power LED indicates the system's status. When the system is in operation (S0 status), the LED is on. When the system gets into sleep mode (S1) , the LED is blinking; When the system is in S3/S4 sleep state or power off mode (S5), the LED is off. This 2-pin connector is directional with +/- sign.

Power Switch Connector (PWR-SW)

Connect to the power button on the front panel of the chassis. Push this switch allows the system to be turned on and off rather than using the power supply button.

USB Connectors : F_USB1/2

In addition to the two USB ports on the rear panel, this product also provides two 10-pin USB headers on its motherboard. By connecting through USB cables with them, user can quickly expand another four USB ports on the front panel.

Serial ATA Connectors : SATA_1/2/3/4

The Serial ATA connector is used to connect with SATA Hard Disk or CD devices which support this feature. The current Serial ATA II interface allows up to 300MB/s data transfer rate.

IDE Connector : PIDE

With the provided Ultra DMA IDE ribbon cable, you can connect to any IDE type of hard disk and CD/DVD ROM/RW drive.

14
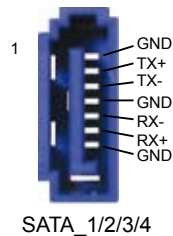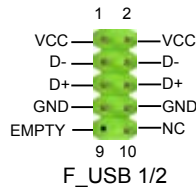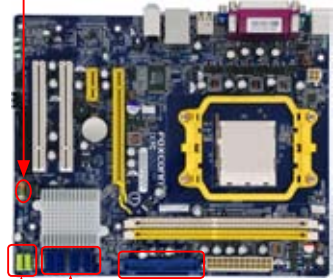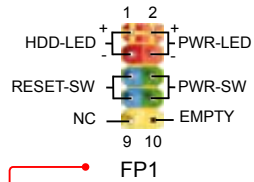
Audio Connector : F_AUDIO
The audio connector supports HD Audio standard.
It provides the Front Audio output choice.

```
            1  2
PORT1_L  ┌──────┐  AUD_GND
PORT1_R  │      │  PRESENCE_J
PORT2_R  │      │  SENSE1_RETURN
SENSE_SEND │    │  EMPTY
PORT2_L  └──────┘  SENSE2_RETURN
            9  10
```
F_AUDIO
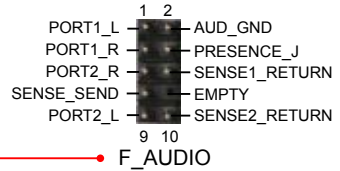
Audio Connector : CD_IN
CD_IN is a Sony standard audio connector, it can be connected to a CD/DVD-ROM drive through a CD/DVD audio cable.

CD_L GND CD_R

1

CD_IN
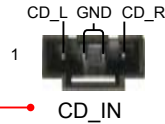
Chassis Intruder Connector : INTR
The connector can be connected to a security switch on the chassis. The system can detect the chassis intrusion through the function of this connector. If eventually the chassis is closed, the system will send a message out.

```
            1
INTRUDERJ ──■ ■── GND
```
INTR
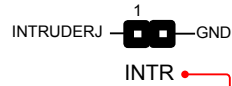
S/PDIF Connector : SPDIF_OUT
The connector is used for S/PDIF output.

```
+5V      ── 1
EMPTY    ── 2
SPDIF_OUT── 3
GND      ── 4
```
SPDIF_OUT
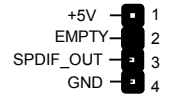
Floppy Disk Drive Connector : FLOPPY
This motherboard includes a standard floppy disk drive (FDD) connector, supporting 360KB, 720KB, 1.2MB, 1.44MB, and 2.88MB FDDs.

Fan Connectors : CPU_FAN, SYS_FAN
There are two main fan headers on this motherboard. The fan speed can be controlled and monitored in "PC Health Status" section of the BIOS Setup. These fans can be automatically turned off after the system enters S3, S4 and S5 sleeping states.

```
1 ──  GND
      POWER
      SENSE
      CONTROL
```
CPU_FAN/SYS_FAN

IrDA Connector : IR
This connector supports infrared wireless transmitting and receiving device.

```
1 ──  +5V
2 ──  EMPTY
3 ──  IRRX
4 ──  GND
5 ──  IRTX
```
IR
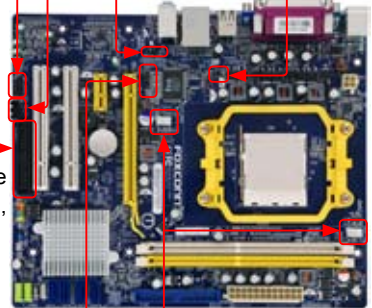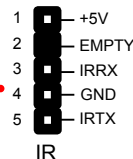
2-5 Jumpers

For some features needed, users can change the jumper settings on this motherboard to modify them. This section explains how to use the various functions of this motherboard by changing the jumper settings. Users should read the following content carefully prior to modifying any jumper setting.

Description of Jumpers

1. For any jumper on this motherboard, pin 1 can be identified by the bold silkscreen next to it. However, in this manual, pin 1 is simply labeled as "1".
2. The following table explains different types of the jumper settings. "Closed" means placing a jumper cap on the two pins to temporarily short them. The shorting can also be done by touching two pins by a screwdriver for a few seconds, but using jumper cap is recommended. It can prevent hazardous ESD (Electrical Static Discharge) problem.

Jumper	Diagram	Definition	Description
1 ▢▢▢	1 ■■ □	1-2	Set Pin 1 and Pin 2 closed
	1 □ ■■	2-3	Set Pin 2 and Pin 3 closed

Clear CMOS Jumper: CLR_CMOS

The motherboard uses CMOS RAM to store the basic hardware information (such as BIOS data, date, time information, hardware password...etc.). Clear CMOS data is the fast way to go back to factory default when the BIOS settings were mistakenly modified.

The steps to clear CMOS data are :
1. Turn off the computer, unplug the power cord from the power outlet.
2. Remove jumper cap from pins 2-3, put it onto pins 1-2 to short them. This will clear CMOS data.
3. Return the setting to its original with pins 2-3 closed.
4. Plug in the power cord to your computer and turn it on.
5. Go to BIOS Setup to configure new system as described in next chapter.

Clear
```
■ 1
■ 2
□ 3
```

Normal
(Default)
```
□ 1
■ 2
■ 3
```

CLR_CMOS

WARNING!
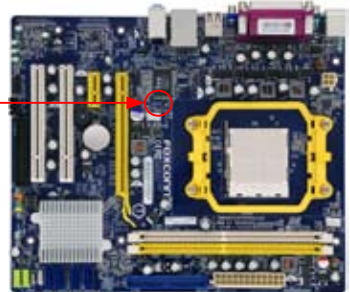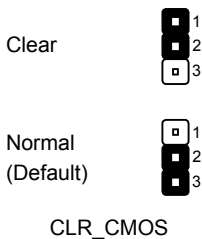
- Disconnect the power cable before adjusting the jumper settings.
- Do not clear the CMOS while the system is turned on.

USB device wake-up Jumpers: USB_PWR1 / USB_PWR2

1. Set the jumper to pins 1-2 (+5V) to wake up the computer from S1 sleep mode using the connected USB devices.

2. Set the jumper to pins 2-3 (+5VSB) to wake up the computer from S3 and S4 sleep modes using the connected USB devices. At the same time, a corresponding setting must be set in BIOS as below:

Set "Power Management Setup" -> "USB Resume from S3" to "Enabled".

+5V
(Default)

+5VSB

USB_PWR1/2

CAUTION !
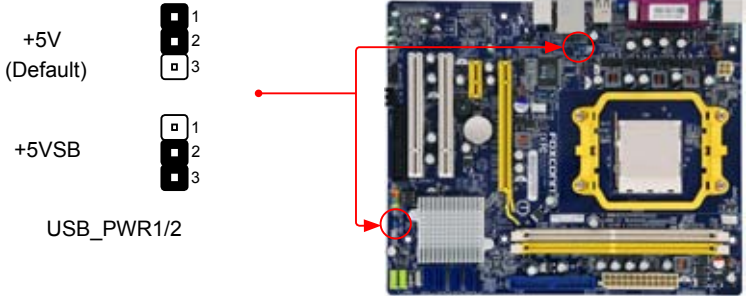
- USB_PWR2 is for the internal USB connectors, USB_PWR1 is for the rear USB ports.
- The USB device wake-up feature requires a power supply that can provide 500mA on +5VSB lead for each USB port; otherwise, the system will not power up.
- The total current consumed must not exceed the power supply capability (+5VSB) whether under normal condition or in sleep mode.

This chapter tells how to change system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

You have to run the Setup Program when the following cases occur :

1. An error message appears on the screen during the system Power On Self Test (POST) process.
2. You want to change the default CMOS settings.

This chapter includes the following information :

- ■ Enter BIOS Setup
- ■ Main Menu
- ■ System Information
- ■ Fox Central Control Unit
- ■ Advanced BIOS Features
- ■ Advanced Chipset Features
- ■ Integrated Peripherals
- ■ Power Management Setup
- ■ PC Health Status
- ■ Load Optimized Defaults
- ■ Set Supervisor Password
- ■ Set User Password
- ■ Save & Exit Setup
- ■ Exit Without Saving

Since BIOS could be updated some other times, the BIOS information described in this manual is for reference only. We do not guarantee the content of this manual will remain consistent with the newly released BIOS at any given time in the future. Please visit our website for updated manual if it is available.

Enter BIOS Setup

The BIOS is the communication bridge between hardware and software, correctly setting up the BIOS parameters is critical to maintain optimal system performance. Power on the computer, when the message "**Press [DEL] to enter Setup, [ESC] to boot menu**" appears at the bottom of the screen, you can press [Del] key to enter Setup.

⚠ CAUTION

We do not suggest that you change the default values in the BIOS Setup, and we shall not be responsible for any damage which resulted from the change you made.

Main Menu

The main menu allows you to select from a list of setup functions together with two exit choices. Use the arrow keys to select a specific item and press [Enter] to go to the sub-menu. Each item in the main menu is explained below:

```
          Phoenix - AwardBIOS CMOS Setup Utility

   ► System Information              ► PC Health Status

   ► Fox Central Control Unit          Load Optimized Defaults

   ► Advanced BIOS Features            Set Supervisor Password

   ► Advanced Chipset Features         Set User Password

   ► Integrated Peripherals            Save & Exit Setup

   ► Power Management Setup            Exit Without Saving


   Esc : Quit                     ↑↓←→     : Select Item
   F10 : Save & Exit Setup

               Time, Date, Hard Disk Type...
```

► **System Information**

It displays the basic system configuration, such as system date, time and floppy drive. They all can be set up through this menu.

► **Fox Central Control Unit**

Some special proprietary features (such as overclocking) can be set up through this menu.

► **Advanced BIOS Features**

The advanced system features can be set up through this menu.

► **Advanced Chipset Features**

The values for the chipset can be changed through this menu, and the system performance can be optimized.

► **Integrated Peripherals**

All onboard peripherals can be set up through this menu. There are IDE devices, Super I/O devices such as Serial I/O, Parallel port and other USB ports...etc.

► **Power Management Setup**

All the items related with Green function features can be set up through this menu.

► **PC Health Status**

This setup enables you to read/change Fan speeds, and displays temperatures and voltages of your CPU/System.

► **Load Optimized Defaults**

The optimal performance settings can be loaded through this menu. However, it may offer better performance in some ways (such as less I/O cards, less memory ...etc.), still, it may cause problem if you have more memory or I/O cards installed. It means, if your system loading is heavy, set to optimal default may sometimes come out an unstable system. What you need now is to adjust BIOS setting one by one, trial and error, to find out the best setting for your current system.

► **Set Supervisor Password**

The supervisor password can be set up through this menu.

► **Set User Password**

The user password can be set up through this menu.

► **Save & Exit Setup**

Save setting values to CMOS and exit.

► **Exit Without Saving**

Do not change anything and exit the setup.

CAUTION

! When we talk about [+] and [-] keys in this manual, they are the single-keypad keys of the numeric keypad which is located at the right hand side of your desktop keyboard. They are not the combination keys made by pressing and holding down [Shift] key first, then press [+ =] or [_-] key the next.

System Information

```
            Phoenix - AwardBIOS CMOS Setup Utility
                      System Information

   Date (mm:dd:yy)        Fri, Feb 29 2008          Item Help
   Time (hh:mm:ss)        17 : 44 : 13
                                              Menu Level  ►
   ► IDE Channel Master        [ None ]
   ► IDE Channel Slave         [ None ]      Change the day, month,
   ► SATA Channel 1 Master     [ None ]      year and century
   ► SATA Channel 2 Master     [ None ]
   ► SATA Channel 3 Master     [ None ]
   ► SATA Channel 4 Master     [ None ]

   Drive A                     [1.44M, 3.5 in.]
   Halt On                     [All , But Keyboard]
   Model Name                  M61PMV
   BIOS Version                B10
   Memory                      1024M
   MAC Address                 04 4B 80 80 80 03
   AMD Athlon(tm) 64 X2 Dual Core Processor 5200+


 ↑↓→←:Move   Enter:Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:General Help
            F5: Previous Values          F7: Optimized Defaults
```

This submenu is used to set up the standard BIOS features, such as the date, time, floppy drive and so on. Use the arrow up/down keys to select an item, then use the [+] or [-] keys to change the setting.

► **Date -** <weekday><month><date><year> format

Day—weekday from Sun. to Sat., automatically displayed by BIOS (Read Only).

Month—month from 1 to 12.

Date—date from 1st to 31st.

Year—year, set up by users.

Use [Enter], [Tab] keys to select a field. Use [+], [-], [PageUp] or [PageDown] to select a value.

► **Time -** <hour> : <minute> : <second> format

This item allows you to configure the desired time. Use [Enter], [Tab] to move forward and select a field. Directly input a value or use [PageUp], [PageDown], [+] or [-] to select a value.

► **IDE Channel Master / Slave**

These categories identify the hard disks connected to the PATA port in the system.

In each channel's display, you can press [Enter] to go to its submenu. You can further configure specific drive settings. [None] and [Auto] settings allow you to enable or disable this drive. [None] means no HDD is installed or set, and [Auto] means the system can auto-detect the hard disk when booting up. In Access Mode setting, selections of [CHS], [LBA], [Large] and [Auto] can help you to select hard drive for legacy compatibility.

Award (Phoenix) BIOS can support 3 HDD modes: CHS, LBA and Large.

CHS	For HDD <528MB
LBA	For HDD >528MB & Supporting LBA (Logical Block Addressing)
Large	For HDD >528MB but not supporting LBA

Note: Set to [Auto] , the system can detect the hard disk and select the HDD mode automatically. Suggest you select this option.

► **SATA Channel 1/2/3/4 Master**

When SATA Operation Mode is set to [IDE], These items will appear. The relationships between SATA channels and SATA ports on the motherboard are :

SATA Channel 1 Master is the SATA port 1 of the motherboard.

SATA Channel 2 Master is the SATA port 2.

SATA Channel 3 Master is the SATA port 3.

SATA Channel 4 Master is the SATA port 4.

► **Drive A**

This option allows you to select which kind of the Floppy Disk Drive is installed in your system. It can be [None], [360KB, 5.25 in], [1.2MB, 5.25 in], [720KB, 3.5 in], [1.44MB, 3.5 in] and [2.88 MB, 3.5in].

► **Halt On**

This category determines whether or not the computer will stop if an error is detected during powering up.

All Errors	Whenever the BIOS detects a nonfatal error, the system will stop and you will be prompted.
No Errors	The system boot will not stop for any errors that may be detected.
All, But Keyboard	The system boot will not stop for a keyboard error; but it will stop for all other errors.
All, But Diskette	The system boot will not stop for a diskette error; but it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error, but it will stop for all other errors.

► **Model Name**

This item shows the model name.

► **BIOS Version**

This item shows the BIOS version.

► **Memory**

These are Display-Only information of the system memory, determined by POST(Power On Self Test) of the BIOS.

► **MAC Address**

This item shows the MAC address.

► **CPU Name**

This item shows the CPU name installed in your system.

Fox Central Control Unit

```
              Phoenix - AwardBIOS CMOS Setup Utility
                        Fox Central Control Unit

   ► Smart BIOS                   [Press Enter]              Item Help
   ► Fox Intelligent Overclock    [Press Enter]
   ► Memory Timing Setting        [Press Enter]       Menu Level    ►
     Memory Voltage               [Default]
     K8<->NB HT Speed             [Auto]
     K8<->NB HT Width             [Auto]
     PCIE Spread Spectrum         [Disabled]
     CPU Spread Spectrum          [Disabled]
     AMD K8 Cool&Quiet Control     [Auto]
     Super BIOS Protect           [Disabled]
     Auto Detect PCI CIK          [Disabled]




   ↑↓→←:Move   Enter:Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:General Help
           F5: Previous Values                 F7: Optimized Defaults
```

► **Smart BIOS / Fox Intelligent Overclock / Memory Timing Setting**

Press [Enter] to get into each submenu.

► **Memory Voltage**

This item is used to change the voltage of memory group(1.8V). The default option is: [Default].

► **K8<->NB HT Speed**

HT stands for HyperTransport bus. The CPU<->NB HT Speed option controls the physical speed of the CPU to Northbridge HT link. The settings are [Auto], [200 MHz], [400 MHz], [800 MHz] and [1 GHz].

► **K8<->NB HT Width**

The CPU<->NB HT Width controls the CPU to Northbridge link bandwidth, it is highly recommended to set to [Auto] for overall performance.

► **PCIE Spread Spectrum**

This option is used to enable or disable the PCIE spread spectrum function. If you enabled this function, it can significantly reduce the EMI (Electromagnetic Interference) generated by the system, so to comply with FCC regulation.

► **CPU Spread Spectrum**

This option is used to enable or disable clock generator spread spectrum. If you enabled this function, it can significantly reduce the EMI (Electromagnetic Interference) generated by the system, so to comply with FCC regulation. But if overclocking is activated, you had better disable it.

► **AMD K8 Cool&Quiet Control (Appears only when CPU support)**

This option helps lowering down the CPU frequency and voltage when system is idling. When the CPU speed is slowing down, the temperature will drop as well. This option will be displayed only if your CPU is supporting this feature.

► **AMD Family 10th Down Core (Appears only when CPU support)**

At this moment, AMD family 10 series is equivalent to AM2+, and most CPU in this series are Quad Cores. This option enables shutting down portions of the circuits in core when not in load, it is a new feature of AM2+ CPU. This option will be displayed only if your CPU is supporting this feature.

[Auto] : Enable entire cores,

[Single Core] : Enable 1 core,

[Dual Core] : Enable 2 cores,

[Tri Core] : Enable 3 cores,

[Quad Core] : Enable 4 cores.

► **Super BIOS Protect**

To protect the system BIOS from virus attack, there is a BIOS write-protection mechanism provided. Super BIOS Protect function protects your BIOS from being affected by viruses, e.g. CIH.

► **Auto Detect PCI Clk**

This option is used to auto detect PCI slots. When enabled, the system will turn off clock of the empty PCI slot to reduce EMI (Electromagnetic Interference).

Smart BIOS

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                              Smart BIOS

   Smart Boot Menu            [Disabled]          Item Help
   Smart Power LED            [Enabled]
                                              Menu Level   ►

                                              Smart Boot Menu with a
                                              timer to let user to
                                              control boot device
                                              easily.




   ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
            F5: Previous Values                  F7: Optimized Defaults
```
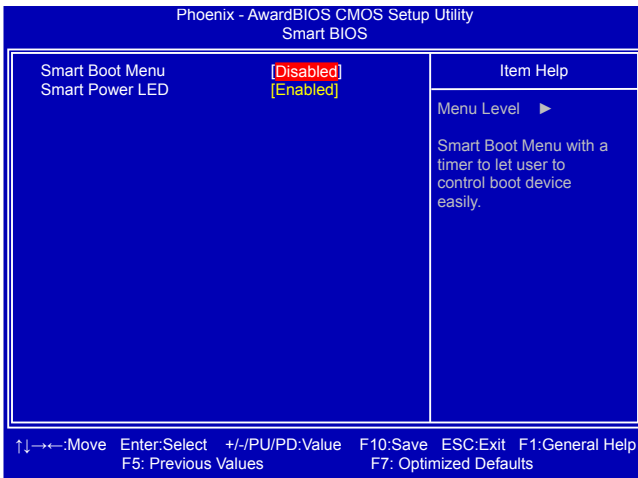
► **Smart Boot Menu**

When PC starts, if [Enabled] is selected, a Boot Menu will be automatically displayed to inform you to select a boot device. If no device is selected, the first device will be used. If [Disabled] is selected, then PC will ask you to press [Esc] key to get into Boot Menu. This setting simplifies multiple boot devices user from pressing [Esc] key to enter boot menu.

► **Smart Power LED**

Smart Power LED is a feature built on your motherboard to indicate different states during Power On System Test (POST). The LED is located at the front panel, and it displays POST state by different long-short blinking intervals. You can always leave this state enabled.

System Status	Power LED Status	Stop Blinking Condition
Normal	Always On	Always On
No Memory	Continue blinking On (1sec.), Off (1sec.)	Reboot & Memory OK
No Display	Continue blinking On (2sec.), Off (2sec.)	Reboot & Display OK
Post Error Message	Quick blinking twice (1/3sec. On, 1/3sec. Off), one long On (1sec.), continuously.	Enter Setup or Skip
No CPU Fan	Continue blinking On (1/2sec.), Off (1/2sec.)	Reboot & Fan OK

Fox Intelligent Overclock

```
           Phoenix - AwardBIOS CMOS Setup Utility
                  Fox Intelligent Overclock

  CPU Clock                    [200]              Item Help
  PCIE Clock                   [100]
  NPT FID Control              [Auto]       Menu Level   ►




 ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
            F5: Previous Values            F7: Optimized Defaults
```
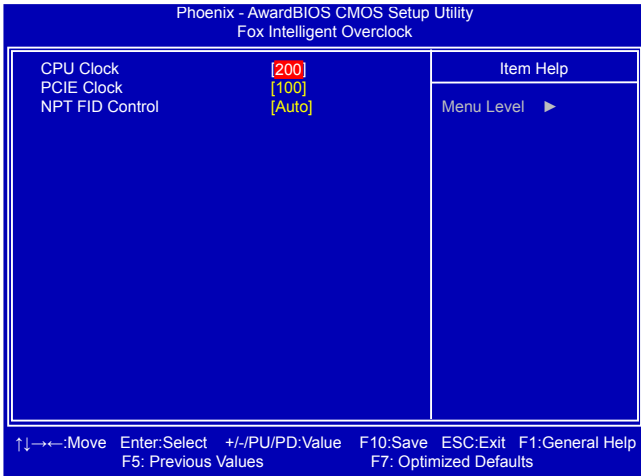
► **CPU Clock / PCIE Clock**

These items allow you to select different CPU clock and PCIE clock.

► **NPT FID Control (Appears only when CPU support)**

This is CPU multiplier. It allows you to configure CPU's speed much easier. This option will be displayed only if your CPU is supporting this feature.

Memory Timing Setting

```
           Phoenix - AwardBIOS CMOS Setup Utility
                   DRAM Configuration

  Timing Mode                  [Auto]              Item Help
x Memory Clock Value Limit      DDR 400
  DCTs Mode                    [Unganged]     Menu Level   ►
  CKE Base Power Down Mode     [Enabled]
  CKE Base Power Down          [Per Channel]   Auto, no user limit
  Memclock Tri-stating         [Disabled]      MaxMemCLK, limit by
  Memory Hole Remapping        [Enabled]       memory clock value.
  Auto Optimize Bottom IO      [Enabled]
x Bottom of [31:24] IO Space    C0
  Bottom of UMA DRAM [31:24]   [FC]




 ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
            F5: Previous Values            F7: Optimized Defaults
```

► **Timing Mode**

This item allows you to set the memory timing mode. The available options are:

[Auto]: System will detect the timing automatically;

[MaxMemCLK]: The memory timing is limited by the memory clock value set in the next item.

► **Memory Clock Value Limit**

This item allows you to set the system memory's clock value.

► DCTs Mode (Appears only when CPU support)

DCT stands for DRAM Controller.

Ganged refers to the use of both DRAM controllers within a memory controller acting in con-
cert to access memory. For a description of ganged (128-bit DRAM data width) and unganged
(64-bit DRAM data width) DRAM modes :

Ganged channels (DDR2) :

■ DCT channels A and B can be ganged as a single logical 128-bit DIMM.

■ Offers highest DDR2 bandwidth.

■ Requires both DIMMs in a logical pair to have identical size and timing parameters, both
DCTs programmed identically.

Unganged channels

■ DCT channels A and B operate as two completely independent 64-bit channels (both chan-
nels operate at the same frequency).

■ Reduce DRAM page conflicts – more concurrent open dram pages .

■ Better bus efficiency.

Burst lengths supported

When both DCTs are enabled in unganged mode, BIOS must initialize the frequency of each
DCT in order.

► CKE Base Power Down Mode

This item allows you to enable or disable the CKE base power down mode.

► CKE Base Power Down

CKE power down mode selection.

► Memclock Tri-stating

Enables the DDR memory clocks to be tristated when alternate VID mode is enabled.

► Memory Hole Remapping

This item is used to enable/disable memory remapping around memory hole. PCI doesn't actu-
ally care much which addresses are used, but by convention the PC platform puts them at the
top of the 32-bit address space. For many years it wasn't possible or practical to put that much
RAM into a PC. But now it is, so it's up to the memory controller and host bridge to figure out
what to do. Many systems cause that high RAM to simply be ignored, resulting in the loss of
effective RAM. More complex systems will take the RAM that would occupy that 3.5-4GB
address space and re-map it into the 4.0-4.5 address space. The RAM doesn't care because
 it's just an array of storage cells, it's up to the memory controller to associate addresses
with those storage cells. Of course, that only works if you're using a 64-bit (or 32-bit physical
address extension (PAE) enabled) OS that can deal with physical addresses larger than 32
bits.Once this option is enabled, the BIOS can see 4096MB of memory.

► Auto Optimize Bottom IO

Auto optimize maximum DRAM size when kernel assigns PCI resources done.

► Bottom of [31:24] IO Space

Select bottom of [31:24] IO space manually when "Auto Optimize Bottom IO" option is
disabled.

► Bottom of UMA DRAM [31:24]

This is a memory allocation method addition to the Unified Memory Architecture (UMA)
concept. Normally, select the default value.

Advanced BIOS Features

```
                Phoenix - AwardBIOS CMOS Setup Utility
                        Advanced BIOS Features

 ► Removable Device Priority   [Press Enter]          Item Help
 ► Hard Disk Boot Priority     [Press Enter]
   First Boot Device           [Hard Disk]       Menu Level  ►
   Second Boot Device          [CDROM]           Select removable boot
   Third Boot Device           [Removable]       device priority
   Boot Other Device           [Enabled]
   Boot Up Floppy Seek         [Disabled]
   Boot Up NumLock Status      [On]
   Security Option             [Setup]
   Full Screen Logo Show       [Enabled]




 ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
            F5: Previous Values          F7: Optimized Defaults
```

► **Removable Device Priority**

This option is used to select the priority for removable device.

► **Hard Disk Boot Priority**

This option is used to select the priority for HDD startup. After pressing [Enter], you can select the HDD using the Up/Down arrow keys, and change the HDD priority using [PageUp]/[PageDown]; you can exit this menu by pressing [Esc].

► **First / Second / Third Boot Device**

These three options allow you to select the priority of boot sequence from different devices.

► **Boot Other Device**

With this function set to enable, the system will boot from some other devices provided that the first/second/third boot devices failed.

► **Boot Up Floppy Seek**

This item controls whether the BIOS will check for a floppy drive while booting up. If it cannot detect one (either due to improper configuration or physical unavailability), it will appear an error message. Disabling this function, then POST will not detect the floppy.

► **Boot Up NumLock Status**

This item defines if the keyboard Num Lock key is active when your system is started. The available settings are: On (default) and Off.

► **Security Option**

When it is set to "Setup", a password is required to enter the CMOS Setup screen. When it is set to "System", a password is required not only to enter CMOS Setup, but also to start up your PC.

► **Full Screen Logo Show**

This item allows you to enable or disable full screen customer's logo.

Advanced Chipset Features

```
        Phoenix - AwardBIOS CMOS Setup Utility
             Advanced Chipset Features

  Frame Buffer Size          [128M]              Item Help

                                              Menu Level  ►




  ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
          F5: Previous Values              F7: Optimized Defaults
```
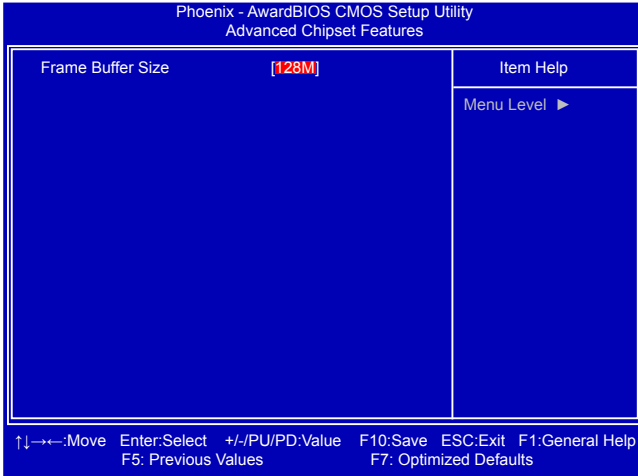
► **Frame Buffer Size**

Allocates system memory for use as video memory to ensure the most efficient use of available resources for maximum 2D/3D graphics performance.

This is a memory allocation method addition to the Unified Memory Architecture (UMA) concept, wherein a static amount of page-locked graphics memory is allocated during driver initialization. This fixed amount of memory will provide the user with a guaranteed graphics memory at all times, and will no longer be available to the OS.

Integrated Peripherals

```
          Phoenix - AwardBIOS CMOS Setup Utility
                  Integrated Peripherals
┌──────────────────────────────────────────┬──────────────────┐
│  ► OnChip IDE Devices     [Press Enter]   │    Item Help     │
│  ► RAID Config            [Press Enter]   │                  │
│  ► OnBoard Devices        [Press Enter]   │  Menu Level  ►   │
│  ► SuperIO Devices        [Press Enter]   │                  │
│  ► USB Devices            [Press Enter]   │                  │
│                                           │                  │
│                                           │                  │
│                                           │                  │
│                                           │                  │
│                                           │                  │
│                                           │                  │
│                                           │                  │
│                                           │                  │
│                                           │                  │
├──────────────────────────────────────────┴──────────────────┤
│ ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
│           F5: Previous Values              F7: Optimized Defaults             │
└──────────────────────────────────────────────────────────────┘
```
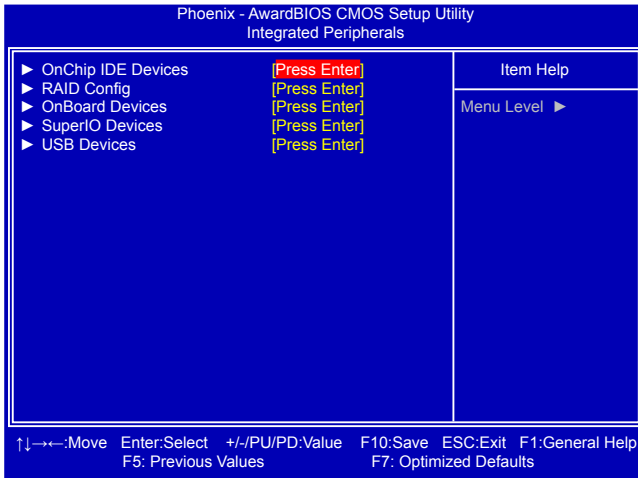
► **OnChip IDE Devices / RAID Config / OnBoard Devices / SuperIO Devices / USB Devices**
  Press [Enter] to go to each submenu.

OnChip IDE Devices

```
          Phoenix - AwardBIOS CMOS Setup Utility
                  OnChip IDE Devices
┌──────────────────────────────────────────┬──────────────────┐
│  OnChip IDE Channel        [Enabled]      │    Item Help     │
│  IDE DMA Transfer Access   [Enabled]      │                  │
│  SATA Controller           [Enabled]      │  Menu Level  ►   │
│                                           │                  │
│                                           │                  │
│                                           │                  │
│                                           │                  │
│                                           │                  │
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│                                           │                  │
│                                           │                  │
│                                           │                  │
│                                           │                  │
├──────────────────────────────────────────┴──────────────────┤
│ ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
│           F5: Previous Values              F7: Optimized Defaults             │
└──────────────────────────────────────────────────────────────┘
```
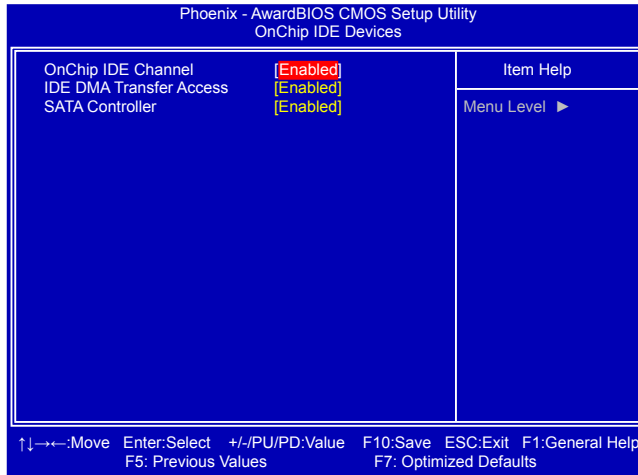
► **OnChip IDE Channel**
  This option is used to enable/disable function of IDE drives connected to the PATA interface.

► **IDE DMA Transfer Access**
  [Disabled] : to disable DMA transfers for all IDE drives. They will revert to PIO mode transfers.
  [Enabled] : to enable DMA transfers for all IDE drives. The proper DMA mode will be detected
  at boot-up. If the drive does not support DMA transfers, then it will use PIO mode instead.

► **SATA Controller**
  This option is used to enable/disable function of SATA drives connected to the SATA ports.

29

RAID Config

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                                  RAID Config
┌──────────────────────────────────────────────┬────────────────────┐
│   RAID Enable                    [Disabled]   │     Item Help      │
│ x SATA Pri-Master RAID            Disabled    │                    │
│ x SATA Pri-Slave RAID             Disabled    │  Menu Level  ►     │
│ x SATA Sec-Master RAID            Disabled    │                    │
│ x SATA Sec-Slave RAID             Disabled    │                    │
│                                               │                    │
│                                               │                    │
│                                               │                    │
│                                               │                    │
│                                               │                    │
│                                               │                    │
│                                               │                    │
│                                               │                    │
│                                               │                    │
├──────────────────────────────────────────────┴────────────────────┤
│ ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
│          F5: Previous Values              F7: Optimized Defaults    │
└────────────────────────────────────────────────────────────────────┘
```
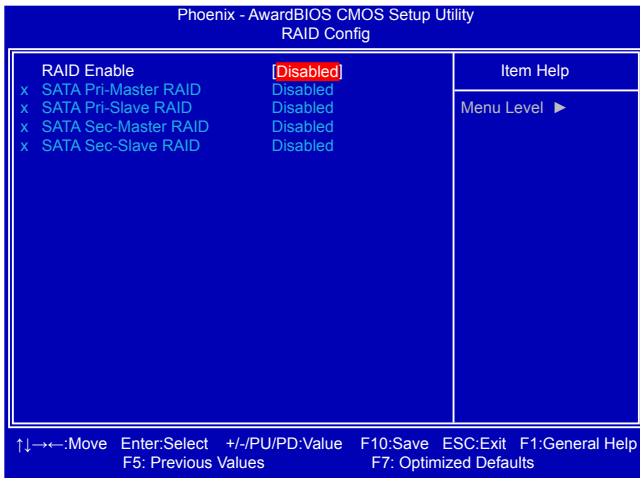
► **RAID Enable**

This item is used to enable or disable the RAID mode of your SATA ports.

► **SATA Pri-Master RAID / SATA Pri-Slave RAID / SATA Sec-Master RAID / SATA Sec-Slave RAID**

These items are valid only when "RAID Enable" is set to [Enabled]. They are used to enable or disable the RAID function of each SATA port on the motherboard.

The relationships between RAID settings and SATA ports on the motherboard are :

SATA Pri-Master RAID is the SATA port 1 of the motherboard.

SATA Pri-Slave RAID is the SATA port 2.

SATA Sec-Master RAID is the SATA port 3.

SATA Sec-Slave RAID is the SATA port 4.

OnBoard Devices

```
            Phoenix - AwardBIOS CMOS Setup Utility
                        OnBoard Devices

  OnBoard Audio Controller      [Auto]              Item Help
  OnBoard LAN Controller        [Auto]
  OnBoard LAN Boot ROM          [Disabled]       Menu Level  ►




  ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
           F5: Previous Values              F7: Optimized Defaults
```
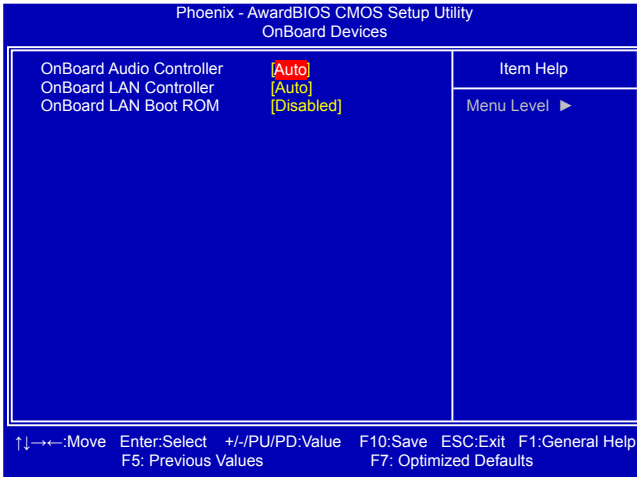
► **OnBoard Audio Controller**

This item is used to select the operation of your audio controller. Select [Auto], system will turn on the audio controller. Select [Disabled] will turn off audio function.

► **OnBoard LAN Controller**

This item is used to enable or disable the onboard LAN controller.

► **OnBoard LAN Boot ROM**

This item is used to enable or disable the onboard LAN boot optional ROM. A LAN boot ROM lets you set up a diskless workstation on the network. By installing a boot ROM in the network board, you can enable a client PC system on the network to be booted remotely.

SuperIO Devices

```
                 Phoenix - AwardBIOS CMOS Setup Utility
                            SuperIO Devices

   OnBoard FDC Controller        [Enabled]              Item Help
   OnBoard Serial Port  1        [3F8/IRQ4]
   OnBoard Serial Port  2        [2F8/IRQ3]         Menu Level  ►
   Serial Port  2 Mode Select    [Normal]
 x IrDA Duplex Mode               Half
   OnBoard Parallel Port         [378/IRQ7]
   Parallel Port Mode            [SPP]
 x ECP Mode Use DMA               3




   ↑↓→←:Move   Enter:Select  +/-/PU/PD:Value   F10:Save   ESC:Exit  F1:General Help
            F5: Previous Values            F7: Optimized Defaults
```

► **OnBoard FDC Controller**

   This item is used to enable or disable the onboard FDC controller.
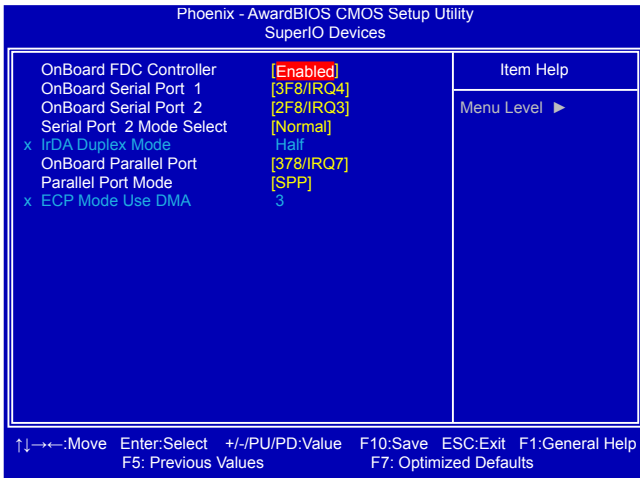
► **OnBoard Serial Port 1**

   This item is used to assign the I/O address and interrupt request (IRQ) for the onboard serial port COM1.

► **OnBoard Serial Port 2**

   This item is used to assign the I/O address and interrupt request (IRQ) for the onboard serial port COM2.

> ⚠ CAUTION
>
> "OnBoard Serial Port1" and "OnBoard Serial Port2 " must be configured to different port and IRQ, you can set them to default values to follow PC standard.

► **Serial Port 2 Mode Select**

   This item is used to configure COM2 PORT as :

   [Normal] : A RS232 device.

   [IrDA] : An IrDA device for maximum 115200 bit/s.

   [ASKIR] : A faster IrDA for 1152000 bit/s.

► **IrDA Duplex Mode**

   This item enables you to determine the transfer mode of the onboard infrared chip.

► **OnBoard Parallel Port**

   This item is used to assign the I/O address and interrupt request (IRQ) for the onboard parallel port .

► **Parallel Port Mode**

   This item is used to set parallel port mode.

► **ECP Mode Use DMA**

   When "Parallel Port Mode" set to "ECP" or "ECP+EPP", this item is used to select the the channel of ECP mode.

USB Devices

```
            Phoenix - AwardBIOS CMOS Setup Utility
                        USB Devices

  OnChip USB                  [V1.1+V2.0]          Item Help
  USB Keyboard Support        [Enabled]
  USB Mouse Support           [Disabled]       Menu Level  ►
  USB Storage Support         [Enabled]




 ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
          F5: Previous Values              F7: Optimized Defaults
```
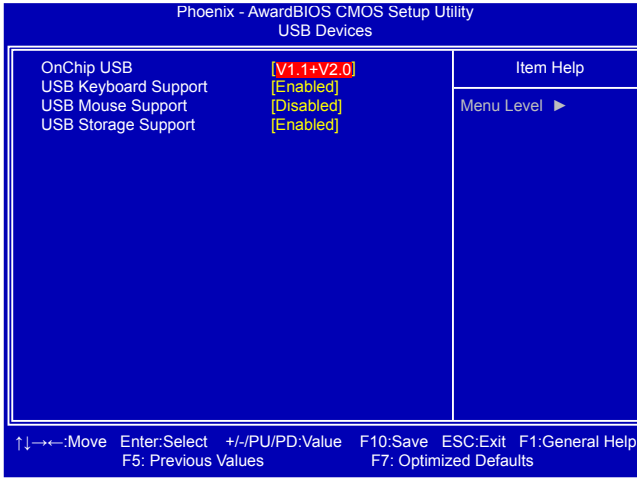
► **OnChip USB**

Select [V1.1], the Universal Host Controller Interface for USB will be enabled;

Select [V1.1+V2.0], the Enhanced Host Controller Interface for USB will be enabled;

Select [Disabled], BIOS will turn off USB function.

► **USB Keyboard Support**

This item is used to enable the support for USB keyboard on legacy OS. If you have a USB keyboard, set to enabled.

► **USB Mouse Support**

This item is used to enable the support for USB mouse on legacy OS. If you have a USB mouse, set to enabled.

► **USB Storage Support**

This option is used to set whether the USB Mass Storage controller is enabled in a legacy operating system (such as DOS).

Power Management Setup

```
                 Phoenix - AwardBIOS CMOS Setup Utility
                         Power Management Setup
┌──────────────────────────────────────────────┬──────────────────┐
│ ACPI Function            [Enabled]            │    Item Help     │
│ ACPI Suspend Type        [S3(STR)]            ├──────────────────┤
│ Power Button             [Instant-Off]        │ Menu Level  ►    │
│                                               │                  │
│ ** Power Management Events **                 │                  │
│ Wake Up by PCI/PCIE PME     [Disabled]        │                  │
│ USB Resume from S3          [Disabled]        │                  │
│ Resume by Alarm             [Disabled]        │                  │
│ x Date of Month Alarm        0                │                  │
│ x Time (hh:mm:ss) Alarm      0 : 0 : 0        │                  │
│ HPET Support                [Enabled]         │                  │
│ PWRON After PWR-Fail        [Off]             │                  │
│ x Power On by Button         Enabled          │                  │
│ PS/2 Mouse Resume from S3   [Disabled]        │                  │
│ PS/2 KB Resume from S3      [Disabled]        │                  │
│ x Hot Key Resume             Ctrl-F1          │                  │
│                                               │                  │
├──────────────────────────────────────────────┴──────────────────┤
│ ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
│       F5: Previous Values              F7: Optimized Defaults     │
└──────────────────────────────────────────────────────────────────┘
```
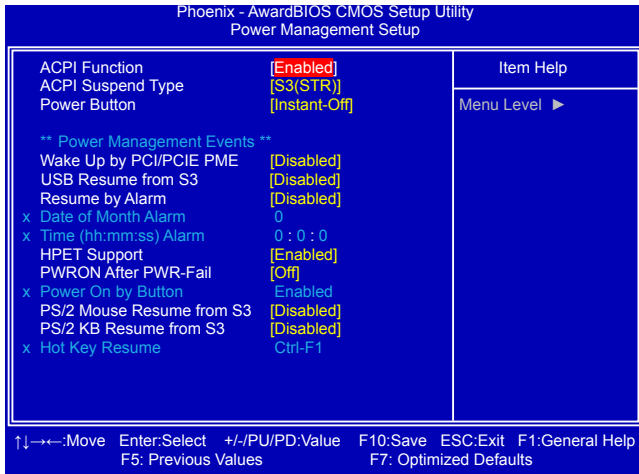
ACPI (Advanced Configuration and Power Interface) is an open industry standard that defines power and configuration management interfaces between an operating system and the BIOS. In other words, it is a standard that describes how computer components work together to manage system hardware. In order to use this function the ACPI specification must be supported by the OS (for example, Windows2000 or WindowsXP).

ACPI defines five sleeping states, they are :

S1 - The S1 sleeping state is a low wake latency sleeping state. In this state, no system context is lost (CPU or chip set) and hardware maintains all system context. (also called **Power On Suspend**)

S2 - The S2 sleeping state is a low wake latency sleeping state. This state is similar to the S1 sleeping state except that the CPU and system cache context is lost (the OS is responsible for maintaining the caches and CPU context). Control starts from the processor's reset vector after the wake event.

S3 - The S3 sleeping state is a low wake latency sleeping state where all system context is lost except system memory. CPU, cache, and chip set context are lost in this state. Hardware maintains memory context and restores some CPU and L2 configuration context. Control starts from the processor's reset vector after the wake event. (also called **Suspend to RAM**)

S4 - The S4 sleeping state is the lowest power, longest wake latency sleeping state supported by ACPI. In order to reduce power to a minimum, it is assumed that the hardware platform has powered off all devices. Platform context is maintained. (also called **Suspend to Disk**)

S5 - The S5 state is similar to the S4 state except that the OS does not save any context. The system is in the "soft" off state and requires a complete boot when it wakes. Software uses a different state value to distinguish between the S5 state and the S4 state to allow for initial boot operations within the BIOS to distinguish whether or not the boot is going to wake from a saved memory image.

► **ACPI Function**

This item is used to enable or disable the ACPI function.

► **ACPI Suspend Type**

This item is used to set the energy saving mode of the ACPI function. When you select "S1 (POS)" mode, the power is always on and computer can be resumed at any time. When you select "S3 (STR)" mode, the power will be down after a period of time. The status of the computer before it entering STR will be saved in memory, and the computer can quickly return to previous state when the STR function wakes.

► **Power Button**

This item is used to set the power down method. This function is only valid for systems using an ATX power supply. When set to [Delay 4 Sec.], the power button will put the system in Suspend mode if you push the power button in less than 4 Second then release. If set to [Instant-Off], the PC powers off immediately when the power button is pressed.

** Power Management Events **

► **Wake Up by PCI/PCIE PME**

This item is used to set the system to be waken up by PCI/PCIE card.

► **USB Resume from S3**

This item is used to set the system to be waken up by USB device when it is staying at S3 (Suspend to RAM) state.

► **Resume by Alarm**

This item is used to set the timing of the start-up function. In order to use this function, the start-up password function must be disabled. Also, the PC power source must not be turned off.

► **Date of Month Alarm**

When "Resume by Alarm" is set to "Enabled", this item can be modified. It is used to set the timing for the start-up date.

► **Time (hh:mm:ss) Alarm**

When "Resume by Alarm" is set to "Enabled", this item can be modified. It is used to set the timing for the start-up time.

► **HPET Support**

HPET stands for High Precision Even Timer. If you have the HPET disabled, then windows does not have access to it and therefore falls back to less accurate timing methods. This item is used to enable or disable the HPET Support.

► **PWRON After PWR-Fail**

This item is used to set which state the PC will take with when it resumes after an AC power loss.

► **Power On by Button**

This feature is valid only when "PS/2 KB Resume from S3" is set to Hot key or Keyboard 98. Enabling this feature allows normal powering on by pressing power button, while disabling it then pressing power button has no function.

► **PS/2 Mouse Resume from S3**

When enabled, it allows you to use the PS/2 mouse to wake up the system from S3 mode. This feature requires an ATX power supply.
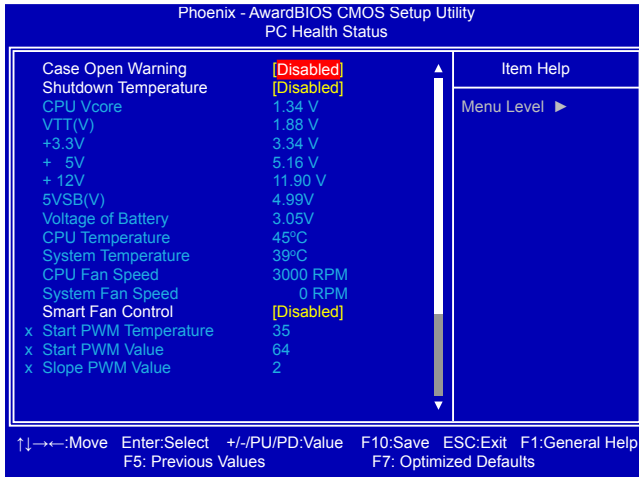
► **PS/2 KB Resume from S3**

This item allows you to use the PS/2 keyboard to wake up the system from S3 mode. This feature requires an ATX power supply. The setting values: [Disabled]; [Hot KEY]; [Any KEY],

and [Keyboard 98].

► Hot Key Resume

Wen "PS/2 KB Resume from S3" is set to [Hot KEY], this item allows you to press a [Ctrl] + Function key to wake up the system from S3 mode.

PC Health Status

Case Open Warning	[Disabled]	Item Help
Shutdown Temperature	[Disabled]	
CPU Vcore	1.34 V	Menu Level ►
VTT(V)	1.88 V	
+3.3V	3.34 V	
+ 5V	5.16 V	
+ 12V	11.90 V	
5VSB(V)	4.99V	
Voltage of Battery	3.05V	
CPU Temperature	45°C	
System Temperature	39°C	
CPU Fan Speed	3000 RPM	
System Fan Speed	0 RPM	
Smart Fan Control	[Disabled]	
x Start PWM Temperature	35	
x Start PWM Value	64	
x Slope PWM Value	2	

↑↓→←:Move   Enter:Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:General Help
F5: Previous Values   F7: Optimized Defaults

► **Case Open Warning**

This item is used to enable or disable case open warning function.

► **Shutdown Temperature**

This item is used to set the system temperature upper limit. When the temperature exceeds the set value, the system will shut down automatically.

► **CPU Vcore/VTT(V)/+ 3.3V/+5V/+12V/5VSB(V)/Voltage of Battery**

The current voltages are automatically detected and displayed by the system.

► **CPU/System Temperature**

The CPU/System temperature are automatically detected and displayed by the system.

► **CPU Fan/System Fan Speed**

The CPU fan/System fan speed are automatically detected and displayed by the system.

► **Smart Fan Control**

This option is used to enable or disable smart fan function. Only when this option is enabled, you can set some correlative parameters.

► **Start PWM Temperature**

It allows you set a temperature value from which smart fan starts its operation.

► **Start PWM Value**

It allows you to set an initial PWM value to drive the fan when the temperature reaches Start PWM value and smart fan begins its operation. The higher PWM value can achieve the faster fan speed.

► **Slope PWM Value**

When temperature changes one degree celsius, the PWM will be increased or decreased by a step value accordingly.

► **Delta Temp(°C)**

 It is used to set the delta value for temperature. When change of the temperature reaches plus/minus delta value, then the PWM will be increased or decreased by a step value based on the slope formula.

Load Optimized Defaults

Select this option and press [Enter]. A dialogue pops out, input [Y] then press [Enter] to load the defaults; press [N] to skip.
By this default, BIOS have set the optimized performance parameters of system to improve the performances of system

Load Optimized Defaults (Y/N)? N

components. But if the optimized performance parameters to be set cannot be supported by your hardware devices, the system may fail to work. It may happen on when you installed too many add-on cards on your system, or overloaded the hardware until it can not afford.

Set Supervisor Password

The access rights and permissions associated with the Supervisor password are higher than those of a regular User password. The Supervisor password can be used to start the system or modify the CMOS settings, while User password can only be used to start the system, view the CMOS settings, but modify CMOS settings is not allowable.

When you select the Set Supervisor/User Password option, the Enter Password message will appear :

Enter Password:

The supervisor password can be set up through this menu. Key in a password, not exceeding 8 characters, save the change and exit. The next time, when you enter the BIOS,

PASSWORD DISABLED !!!
Press any key to continue...

it will ask you to input this password to confirm your access right. After you get the right to access the BIOS, you then can select this setting again, and press [Enter] to disable this function or input a new password to replace the original one.

If you select "System" for the Security Option in "Advanced BIOS Features" menu, then you will be asked to enter a password when the system is started or when you try to enter the CMOS setting program. If an incorrect password is entered, it will hold there.
If you select "Setup" for the Security Option in "Advanced BIOS Features" menu, you will be asked to enter a password only when you enter the CMOS setting program.

Set User Password

The user password can be set up through this menu. Only when there exists a Supervisor password, then this setting can be activated.

Save & Exit Setup

When you select this option and press [Enter],
Press [Y] to save your changes to CMOS and exit the program;
Press [N] or [ESC] to return to the main menu.

SAVE to CMOS and EXIT (Y/N)? Y

Exit Without Saving

If you select this option and press [Enter],
Press [Y] to exit CMOS without saving your modifications;
Press [N] or [ESC] to return to the main menu.

Quit Without Saving (Y/N)? N

4

The utility CD that came with the motherboard contains useful software and several utility drivers that enhance the motherboard features.

This chapter includes the following information:
- Utility CD content
- Install driver and utility
- FOX ONE
- FOX LiveUpdate
- FOX LOGO
- FOX DMI

Note : Because each module is independent, so the section number will be reorganized and unique to each module, please understand.

Utility CD content

This motherboard comes with one DVD. You can simply put it into your DVD-ROM drive, and the main menu will be displayed on your PC screen to guide you how to install.

1. Install Driver

Use these options to install all the drivers for your system. You should install the drivers in order, and you need to restart your computer after all the drivers have been installed.

M61PMV-E:
A. NVIDIA MCP61 Chipset Driver
B. Realtek HDA Audio Driver
C. Realtek LAN Driver

M61PMV/ M61PMVK:
A. NVIDIA MCP61 Chipset Driver
B. VIA HDA Audio Driver

2. Software Utilities

Use these options to install additional software programs. FOX ONE is a very powerful user interface program which allows you to change your system setting without going to BIOS. Some auto features help user to improve (or overclock) your system without being a computer literate.
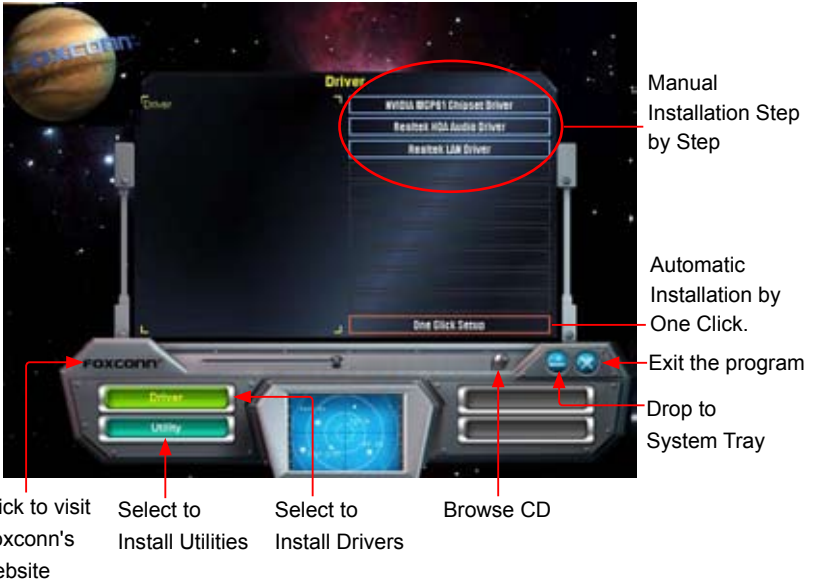
A. FOX ONE
B. FOX LiveUpdate
C. FOX LOGO
D. FOX DMI
E. Microsoft DirectX 9.0
F. Adobe Acrobat Reader
G. Norton Internet Security

Install driver and utility

1. Install Driver

M61PMV-E:
You must click "NVIDIA MCP61 Chipset Driver" to install it first. After that, you can click "One Click Setup" to install all the other drivers left, or you can click on each individual driver to install it manually.

Manual Installation Step by Step

Automatic Installation by One Click.

Exit the program

Drop to System Tray

Click to visit Foxconn's website

Select to Install Utilities

Select to Install Drivers

Browse CD

M61PMV/M61PMVK:
After install "NVIDIA MCP61 Chipset Driver" first, you can click on each individual driver to install it manually.

2. Install Utility

You can select the specific utility to install.

FOX ONE

FOX ONE is a powerful utility for easily modifying system settings. It also allows users to monitor various temperature values, voltage values, frequencies and fan speeds at any time.

With FOX ONE, you can :
- ■ Modify system performance settings, such as the CPU and memory bus speeds, CPU voltages, fan speeds, and other system performance options.
- ■ Monitor hardware temperatures, voltages, frequencies and fan speeds.

CAUTION

! Depending on hardware support, voltage monitoring and Fox Intelligent Stepping features are optional and only supported in some models. If the option is selectable, it also means the feature is supported.
- ■ Voltage Monitoring is supported only in FOX ONE Premium & Deluxe products.
- ■ Fox Intelligent Stepping is supported only in FOX ONE Deluxe products.

4

Supporting Operating Systems :
- ■ Windows 2000
- ■ Windows 2003 (32-bit and 64-bit)
- ■ Windows XP (32-bit and 64-bit)
- ■ Windows Vista (32-bit and 64-bit)

Using FOX ONE :

The very first time you run FOX ONE, F.I.S. Calibration function (FOX Intelligent Stepping) will require you to calibrate the CPU's loading. Click "OK" to proceed and start the Utility. F.I.S. is a feature of FOX ONE, which can automatically adjust your CPU clock based on your current system loading.

CAUTION

! Before you running the FOX ONE program, the system parameters (such as CPU clock, voltage...etc.) are controlled by BIOS settings. After you run FOX ONE, it will take over, and the controlling right will be transferred to FOX ONE. Later, if you exit FOX ONE, then BIOS control will be back again.

1. Main Page

Show CPU
Information   Toolbar   Alert Lamp

Switch Button

Skin Button

Exit

Minimum

Configuration

Homepage

Monitor Frequency/Voltage/Fan
speed/Temperature value
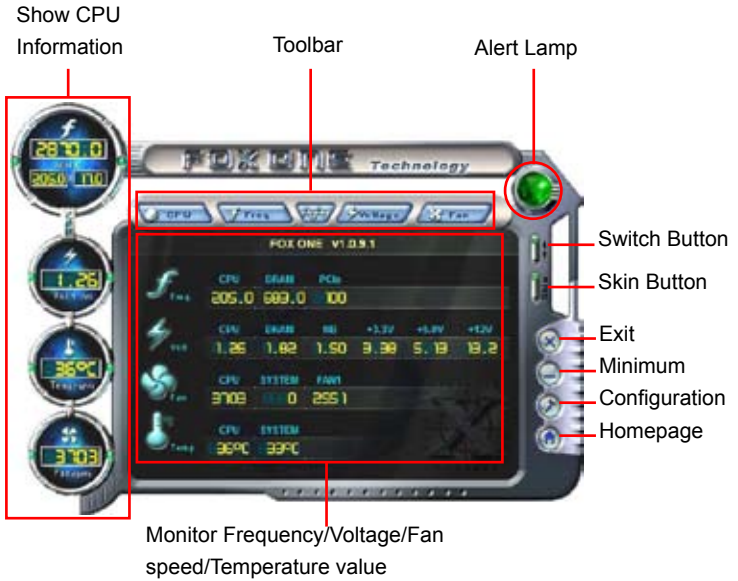
Toolbar
Use the toolbar to navigate to other pages.

Alert Lamp
When the system is in healthy state, the color of alert lamp is green. When the system is in abnormal state, the alert lamp color is red.

Switch Button
Click this button, it will simplify the whole FOX ONE control panel to a smaller information bar (i.e. Simple Mode) as depicted below, you can drag this bar to any place on your screen to help you monitoring system status.

Exit FOX ONE

Click here to go back to
FOX ONE full screen

Click here will drop the FOX ONE to Windows system tray
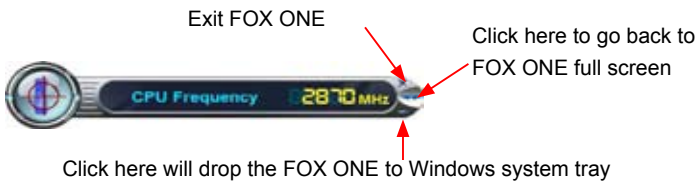
Skin Button

There are more choices of FOX ONE screen panels. Click this button, you can select your favorite skin (FOX ONE Panel).

Click the new skin picture to select the new skin

Apply the changes   Cancel the changes
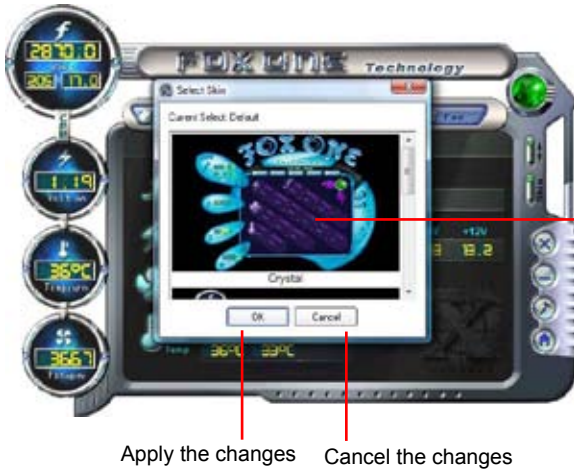
Exit

Click this button to exit the program.

Minimum

Click this button to drop the FOX ONE to Windows system tray located at the lower right corner of your screen.

Homepage

Click this button to visit Foxconn motherboard website :
http://www.foxconnchannel.com

Configuration

This menu allows you to configure :

1). Monitor interval (ms) :

This is to define the interval of different messages of system settings which are to be displayed on Simple Mode screen. Minimum value is 1 second.

2). Simple Mode :

To select which message of system settings are to be displayed in the Simple Mode. Messages such as CPU frequency, voltage...etc., they can be displayed one by one in Simple Mode.

3). F.I.S. Calibration (FOX Intelligent Stepping, Optional)

This function will re-calibrate the CPU's loading, and it may take several minutes to proceed. The FOX ONE calibration process will apply different loadings to your CPU, record PWM IC voltage together with the CPU clock running at these loadings, so it can define and estimate within a particular range of system loading, what the CPU clock should be.

Step 1 : Click Calibration icon, a message pops out to ask for continue. Select Yes.

Step 2 : After data is collected, it will ask you to restart your computer now.

Later on, when the FOX ONE program is activated, and F.I.S. feature (in CPU Page) is also enabled, FOX ONE will automatically adjust your CPU clock according to your system loadings. (Loadings are like Power Gaming, Data Mining...etc.)

2. CPU Page - CPU Control

This page lets you select (or overclock) CPU clock to meet the current performance level of the system. The fastest and suitable CPU clock running for current system can be calculated by FOX ONE automatically or manually input by yourselves.

Manual :
You can press the up/down button to adjust your CPU clock.

Auto :
Click this button to let FOX ONE check the highest CPU clock you can use. System will raise the CPU clock step by step until it hangs, you can then push the RESET button on your PC panel to restart the system. When system restarts, run FOX ONE again, it will display a recommended highest CPU clock for you, click <Yes> to apply it.

Go to CPU page   Adjust by manual
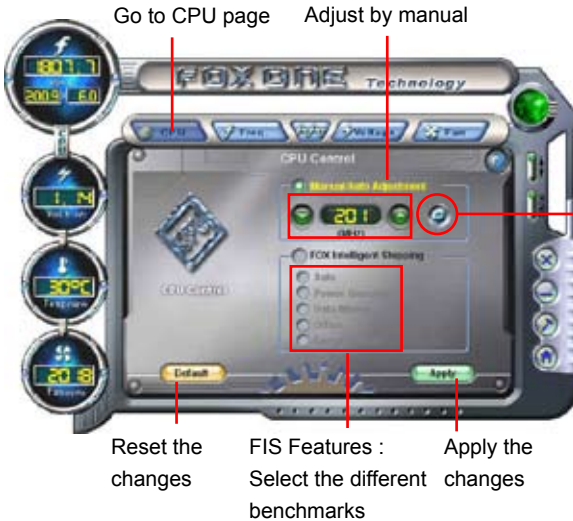
Press Auto button to let FOX ONE check the highest CPU clock you can use.

Reset the   FIS Features :   Apply the
changes   Select the different   changes
                   benchmarks

A message informs you to push RESET button later if the system hangs finally.
Click Yes to continue.

48

You can see the system is raising CPU clock until the system hangs.
Push RESET button on the front panel of your system to restart the computer.

Run FOX ONE program again, it will inform you the previous test found that 255MHz is the recommended CPU clock for your system.
Click Yes to apply it to your system.

Now, your system is running at a CPU clock of 255MHz.

FOX Intelligent Stepping (F.I.S., Optional)

Select FOX Intelligent Stepping will allow your system to automatically adjust your CPU clock rate based on different system loadings. For example, if you select Power Gaming, CPU clock will be driven to run at its maximum speed. While in Energy Saving, CPU will lower down its speed to a minimum. The four benchmarks - Power Gaming, Data Mining, Office and Energy Saving, the references of their system loading were calculated and defined in the FIS Calibration option of Configuration menu. Select Auto, CPU will automatically adjust its clock according to current system loading.

3. Frequency Page - Frequency Control

This page lets you set memory and PCI Express frequencies by manual.

Go to Freq. page

Close this page

Select the option you want to set

Adjust by manual

Reset the changes

Apply the changes
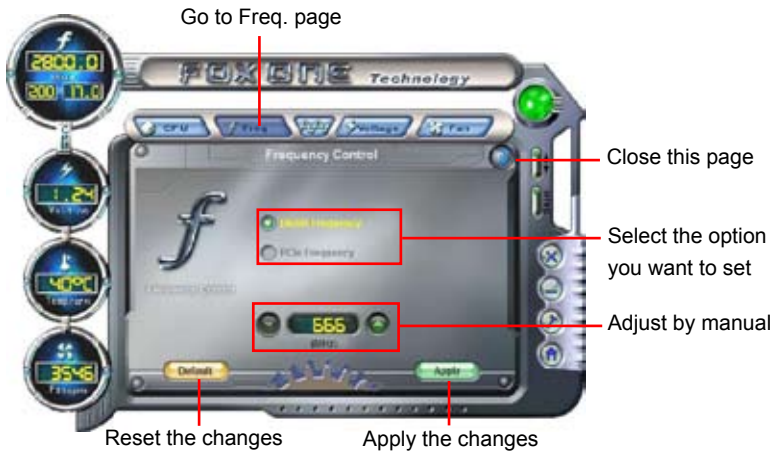
4. Limit Setting

4.1 Limit Setting - CPU Temperature
This page lets you to set CPU high limit temperature and enable the alert function.

Go to Limit Setting page

Show current CPU temperature value

Enable alert function when the CPU temperature is higher than high limit value

Show current high limit value of the CPU temperature

Set high limit by dragging the lever
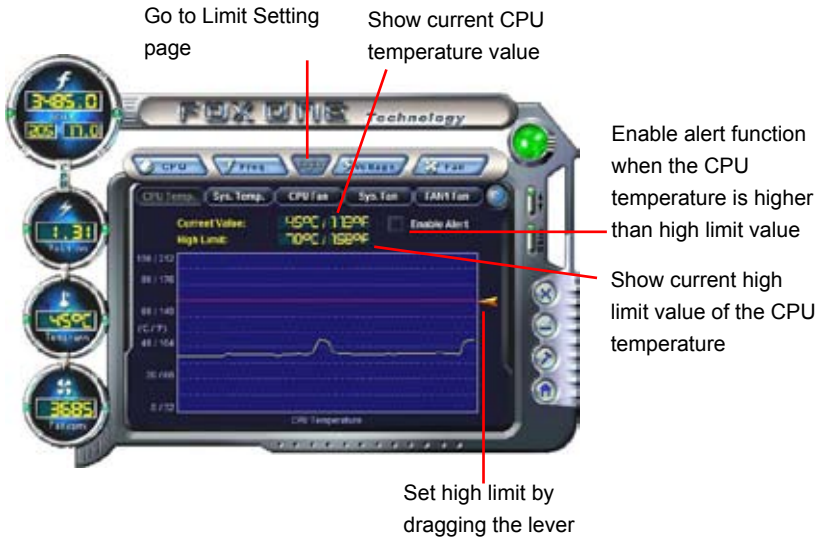
4.2 Limit Setting - System Temperature
This page lets you to set system high limit temperature and enable the alert function.

Show current system temperature value

Enable alert function when the system temperature is higher than high limit value

Show current high limit value of system temperature

Set high limit by dragging the lever
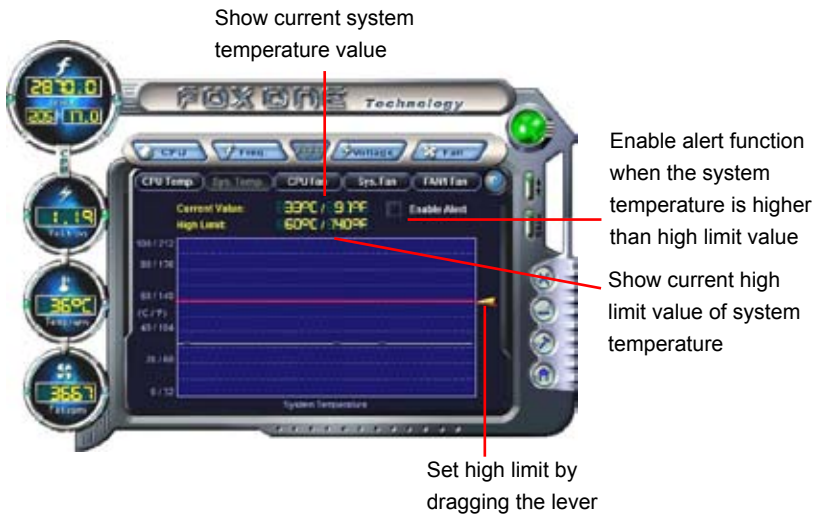
4.3 Limit Setting - CPU Fan

This page lets you to set CPU fan low limit rpm and enable the alert function.

Show current CPU
fan rpm value

Enable alert function
when the CPU fan runs
slower than the low
limit rpm value

Show current low limit
rpm value of CPU fan

Set low limit rpm by
dragging the lever
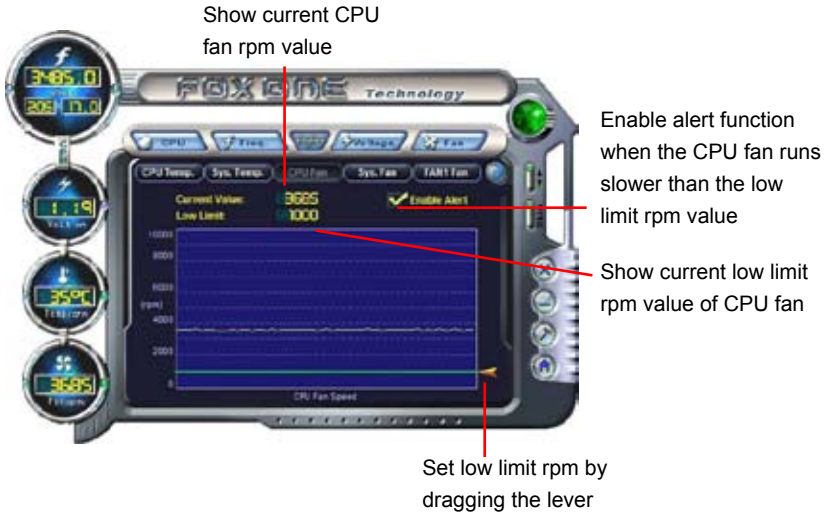
4.4 Limit Setting - System Fan

This page lets you to set system fan low limit rpm and enable the alert function.

Show current system
fan rpm value

Enable alert function
when the system fan
runs slower than low
limit rpm value

Show current low limit
rpm value of system
fan

Set low limit rpm by
dragging the lever
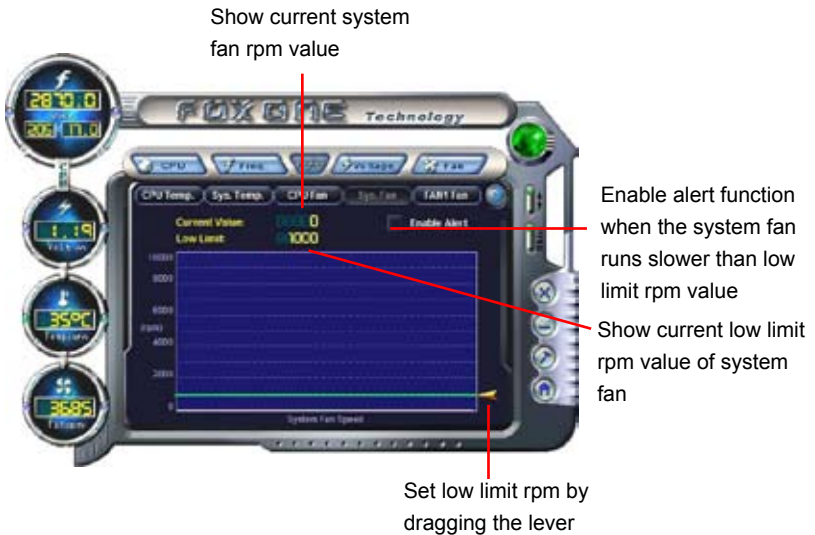
4.5 Limit Setting - FAN1 Fan

This page lets you to set FAN1 fan low limit rpm and enable the alert function.

Show current FAN1
fan rpm value

Enable alert function
when the FAN1 fan
runs slower than low
limit rpm value

Show current low limit
rpm value of FAN1 fan

Set low limit rpm by
dragging the lever
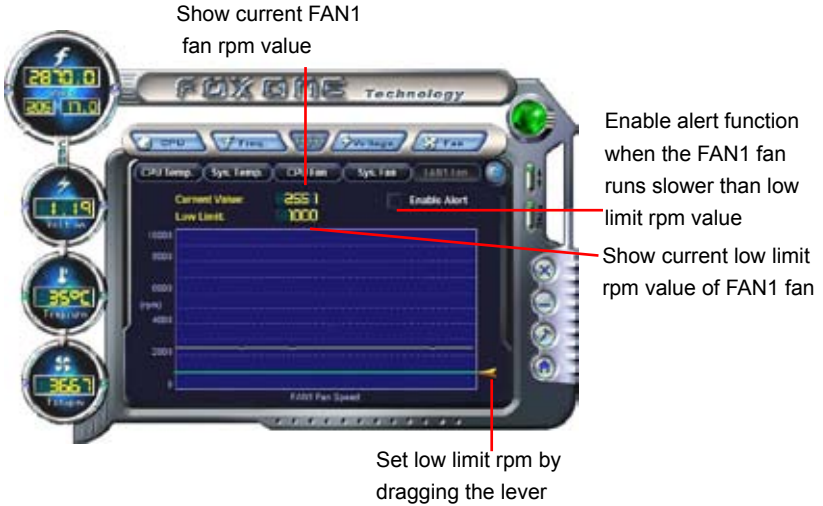
5. Voltage Page - Voltage Control (Optional)

This page lets you set CPU voltage, memory voltage and North Bridge voltage manually. CPU voltage can be stepped up/down by a unit of 12.5mV, while memory is 0.05V/step, and North Bridge is 0.04V/step.

Go to Voltage page

Select the option
you want to set

Adjust by manual

Reset the changes   Apply the changes
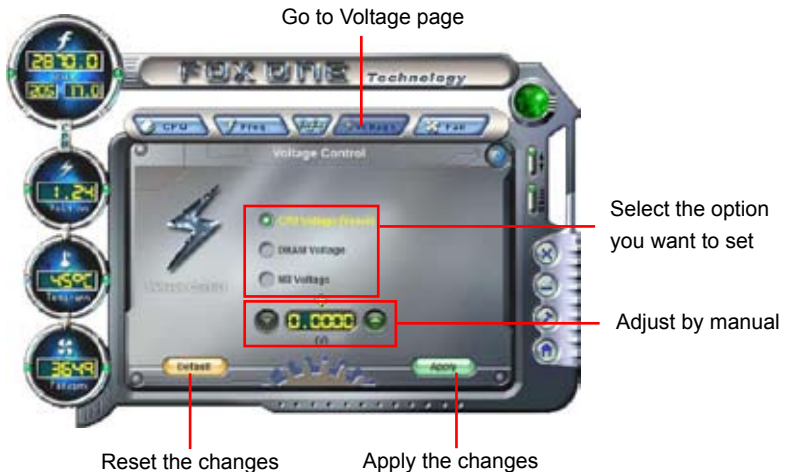
6. Fan Page - Fan Control

This page lets you enable Smart Fan function or set the fan speed by manual.

When Smart Fan is selected, you must use a 4-pin CPU cooler in your system.

Go to Fan page

Enable or disable smart fan function

Set fan speed by dragging the lever

Apply the changes
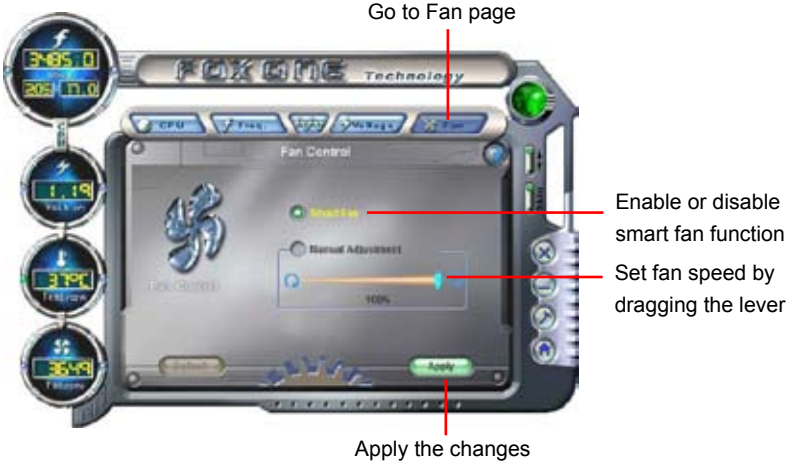
FOX LiveUpdate

FOX LiveUpdate is a useful utility to backup and update your system BIOS, drivers and utilities by local or online.

Supporting Operating Systems :
- ■ Windows 2000
- ■ Windows XP (32-bit and 64-bit)
- ■ Windows 2003 (32-bit and 64-bit)
- ■ Windows Vista (32-bit and 64-bit)

Using FOX LiveUpdate :

1. Local Update

1-1 Local Update - BIOS Information
This page lets you know your system BIOS information.

Link to website

Minimum

Exit

Toolbar

Show current BIOS information
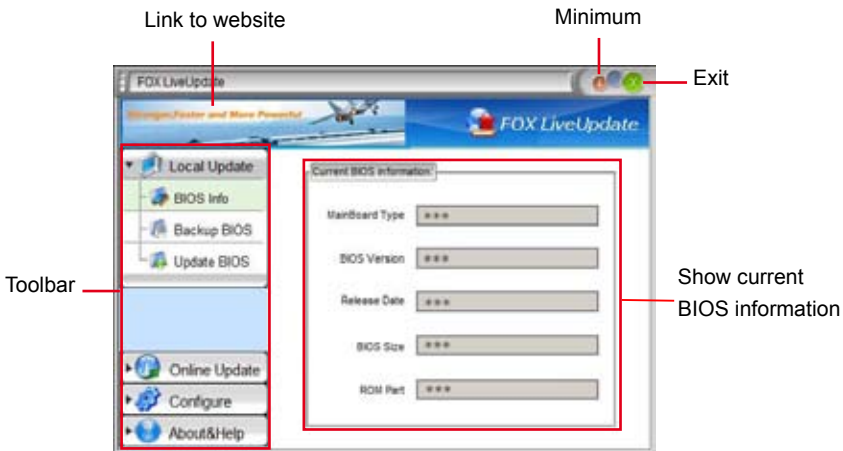
*** : please refer to the physical motherboard for detail.

1-2 Local Update - Backup

This page can backup your system BIOS. You can click "Backup", and key in a file name, then click "Save" to finish the backup operation. The extension of this backup file is ".BIN" for Award BIOS and ".ROM" for AMI BIOS. Default directory is "C:\Desktop\My Documents" in Windows XP and "Documents" in Vista. Make sure you can remember the file name together with the directory which it is stored, prevented that you may need them to recover your BIOS later.

Key in a BIOS name

Click here
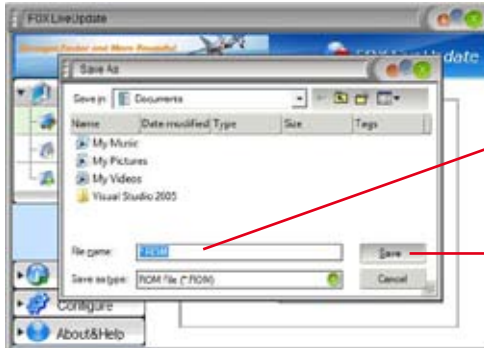
1-3 Local Update - Update

This page helps you to update your BIOS from a local file. After click "Update", An alert message will be displayed to ensure if you really want to continue, click "Yes" to confirm. A setup wizard will guide you to load a local BIOS file to finish the operation. You must remember from which directory to load your new BIOS file (with an extension of ".BIN" for Award BIOS, ".ROM" for AMI BIOS) before the setup wizard starts.

FOX LiveUpdate can automatically backup old BIOS before update. This feature can be enabled in the "Configure-System" setup. Please refer to "Configure-System" section for more detail. The default backup directory is C:\LiveUpdate_Temp, but the backup file name will be automatically generated. It is hard to find it out from a backup directory, and we recommend you using Explorer to check date/time message of this backup file to find it out and write its name down to remember it.

2. Online Update

2-1 Online Update - Update BIOS

This page lets you update your system BIOS from Internet. Click "start", it will search the new BIOS from Internet. Then follow the wizard to finish the update operation.

Click here

Current information

Search new BIOS from Internet

Select BIOS to update

Browse detailed information

Update BIOS

Close the window
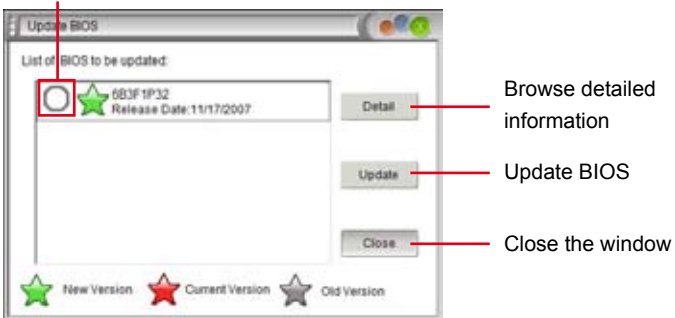
2-2 Online Update - Update Driver

This page lets you update your system drivers from Internet. Click "start", it will search the new drivers from Internet. Then follow the wizard to finish the update operation.

Click here

Current information

Search new drivers from Internet
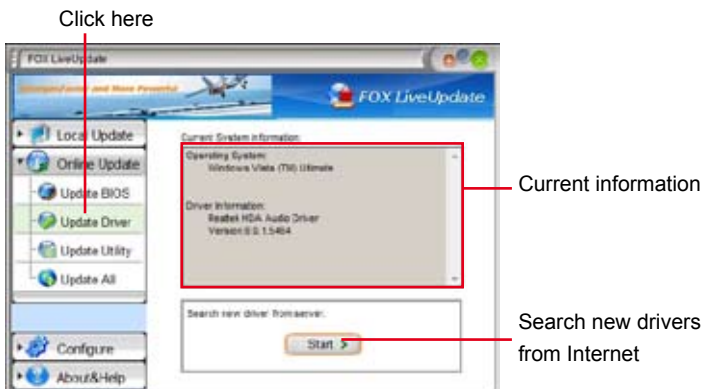
Select the driver to update

Browse detailed information

Install the selected driver

Close the window
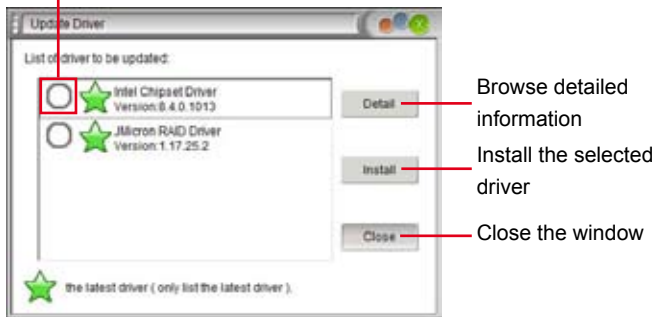
2-3 Online Update - Update Utility

This page lets you update utilities from Internet. Click "start", it will search the new utilities from Internet. Then follow the wizard to finish the update operation.

Click here

Current information

Search new utilities from Internet
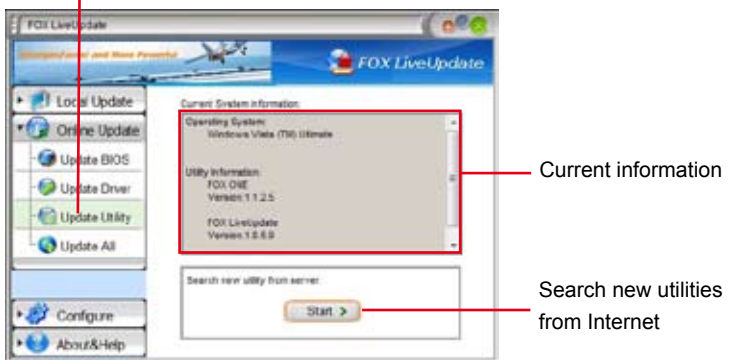
Select the utility to update

Browse detailed information

Install the selected utility

Close the window
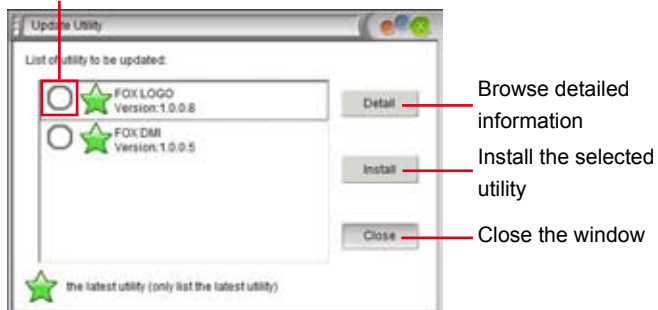
2-4 Online Update - Update All

This page lets you update your system drivers from Internet. Click "start", it will search all new BIOS/drivers/utilities from Internet. Then follow the wizard to finish the update operation.

Click here

Current information

Search all new BIOS/ drivers/utilities from Internet

Browse detailed BIOS information

Browse detailed driver information

Browse detailed utility information

Close the window
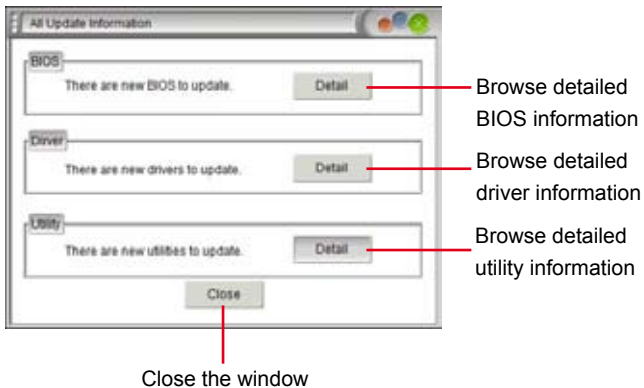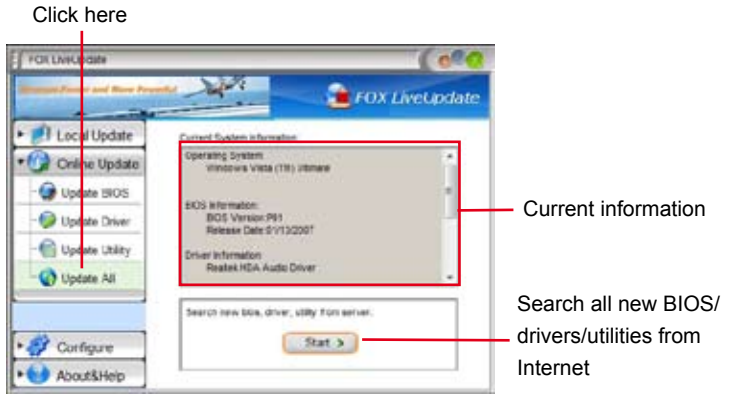
3. Configure

3-1 Configure - option

This page lets you set auto search options. After you enable the auto search function, FOX LiveUpdate will start its searching from Internet and if any qualified item found, it will pop out a message on the task bar to inform you to do the next step.

Click here
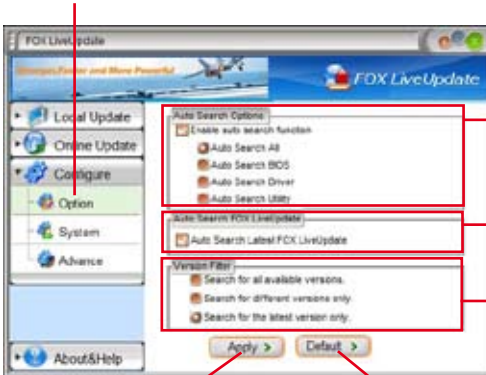
Set auto search options

Set auto search the latest FOX LiveUpdate

Select search which kind of versions

Apply the changes　　Reset to default value

Double click on the icon as show below, you can see the detailed information.

Double click here

When you enable "Auto Search FOX LiveUpdate", if your FOX LiveUpdate version is older, it will auto search from internet and prompt you to install the new version.

Prompt you to install the new FOX LiveUpdate
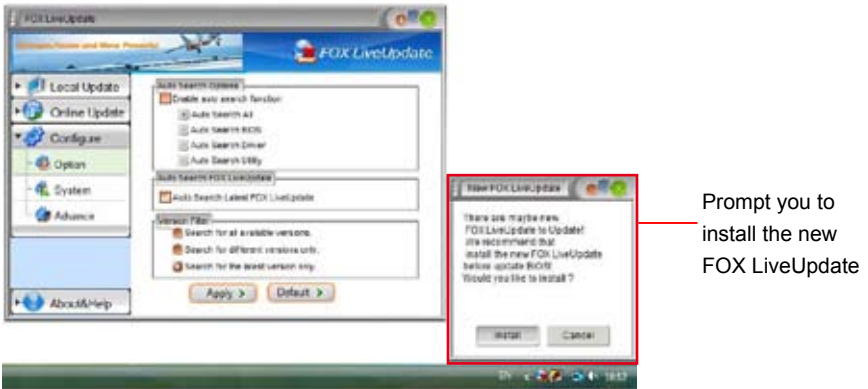
3-2 Configure - System

This page lets you set the backup BIOS location and change different skin of the FOX LiveUpdate utility.

Click here

Set the location of download files or auto backup BIOS

Select different skin of the software

Reset to default value

Determine if the FOX LiveUpdate can auto run when the system starts up

Apply the changes
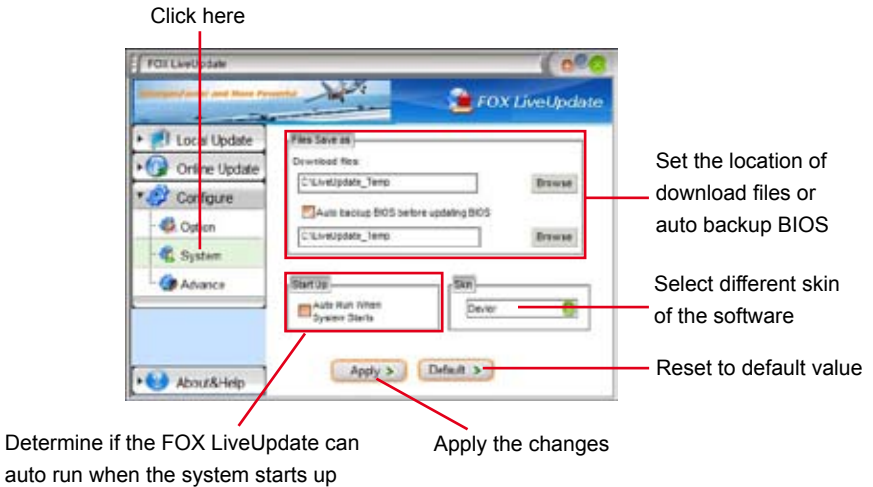
3-3 Configure - Advance

This page lets you select to flash BIOS / Boot Block and clear CMOS. If you choose Flash Boot Block, it means BIOS is not protective, and you must make sure the flash process is continuous and without any interruption.

Click here

Select which BIOS ROM to flash(Only available to motherboard with backup BIOS ROM)

Select to flash Boot Block
Select to clear CMOS

Apply the changes   Reset to default value

CAUTION
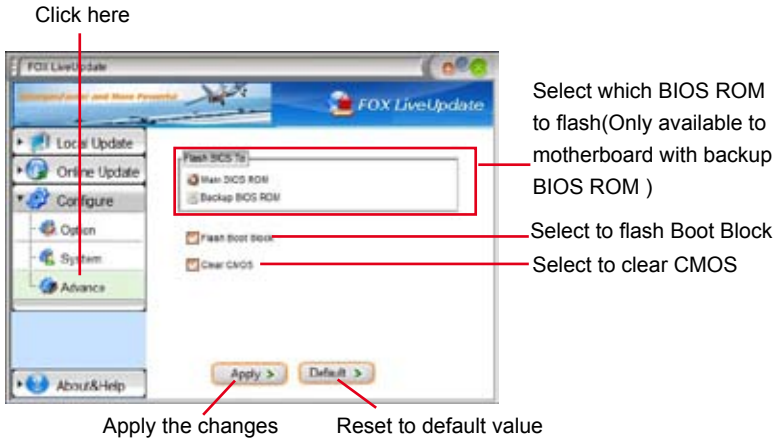
! We recommend that you had better keep the default setting unchanged to avoid any damage.

4. About & Help

This page shows some information about FOX LiveUpdate.

Click here

Show information about FOX LiveUpdate
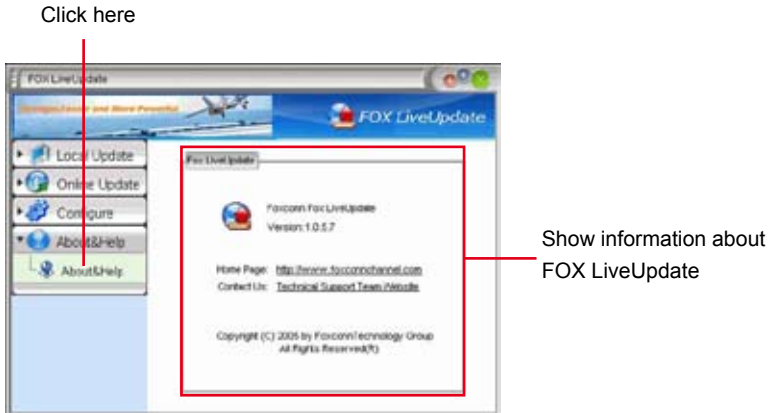
FOX LOGO

FOX LOGO is a simple and useful utility to backup, change and delete the boot time Logo. The boot Logo is the image that appears on screen during POST (Power-On Self-Test).

You can prepare a JPG image (1024x768) file, then use FOX LOGO to open it and change the boot time Logo. Boot time Logo will be displayed if you enable the BIOS "Full Screen Logo Show" setting in "Advanced BIOS Features" menu.

Supporting Operating Systems :
- Windows 2000
- Windows XP (32-bit and 64-bit)
- Windows 2003 (32-bit and 64-bit)
- Windows Vista (32-bit and 64-bit)

Using FOX LOGO:

Main Page

Main screen	Exit
Backup	Minimize
Change	Website
Delete	About

> **WARNING!**
> When you change Logo or delete current Logo, the system will flash BIOS file automatically. During this time, please DO NOT shut down the application and the system, or the motherboard will be damaged seriously.

FOX DMI

FOX DMI is a full Desktop Management Interface viewer, and it provides three DMI data formats : Report, Data Fields and Memory Dump.

With DMI information, system maker can easily analyze and troubleshoot your motherboard if there is any problem occurred.

Supporting Operating Systems :
■   Windows 2000
■   Windows XP (32-bit and 64-bit)
■   Windows 2003 (32-bit and 64-bit)
■   Windows Vista (32-bit and 64-bit)

Using FOX DMI:

Please operate this utility as the comments shows.

Click here to select the type you want to view.

Click here to select the DMI Data format you need
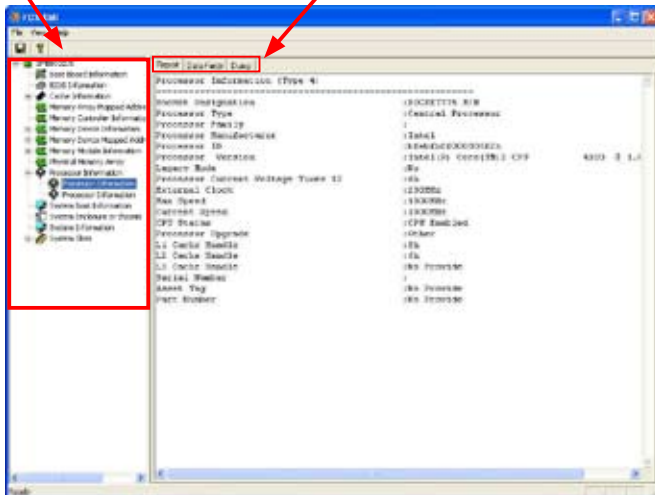
5

This chapter will cover two topics :

■ Creating a Bootable Array - Installing a new Windows XP (Vista) in a brand new RAID system.
■ Creating a Non-Bootable Array - Existing Windows XP (Vista) system with new RAID built as data storage.

It includes the following information :

■ RAID Configuration Introduction
■ NVIDIA® MediaShield Driver
■ Create two RAID Driver Diskettes
■ RAID Enable in BIOS
■ Select a RAID Array for Use
■ Install a New Windows XP
■ Setting Up a Non-Bootable RAID Array

The RAID BIOS Setup pictures shown in this chapter are for reference only, please refer to the practical screen.

Creating a Bootable Array - Installing a new Windows XP (or Vista) in a brand new RAID system.

1. Follow 5-1 to create two RAID driver diskettes.
2. Follow 5-2 to set RAID enabled in BIOS.
3. Follow 5-3 to select a RAID array for use.
4. Follow 5-4 to Install a new Windows Operating System.

What kinds of hardware and software you need here :
1. A floppy drive.
2. A DVD-ROM drive.
3. Several SATA hard disks.
4. Two RAID driver diskettes. (Can be created by using motherboard driver CD)
5. A motherboard driver CD.
6. Windows XP or Vista Install CD.

Creating a Non-Bootable Array - Existing Windows XP (or Vista) system with new RAID built as data storage.

Follow 5-5 to go through the processes to build a new RAID array in your existing Windows XP system, it includes :
1. Set RAID enabled in BIOS.
2. Follow 5-3 to select a RAID array for use.
3. Run setup program to install NVIDIA RAID driver into your current Windows XP system.
4. Use Administrative Tools in Control Panel to format new RAID array.

What kinds of hardware and software you need here :
1. A DVD-ROM drive.
2. Several SATA hard disks.
3. A motherboard driver CD.

RAID Configuration Introduction

RAID (Redundant Array of Independent Disks) is a method for computer data storage schemes that divide and/or replicate data among multiple hard drives. RAID can be designed to provide increased data reliability (fault tolerance) or increased I/O (input/output) performance, or both. The following RAID configurations are provided for users.

There are three major key concepts in RAID:
1. Mirroring : The copying of data to more than one disk;
2. Striping : The splitting of data across more than one disk;
3. Error correction : Where redundant data is stored to allow problems to be detected and possibly fixed (known as fault tolerance).

Different RAID levels use one or more of these techniques, depending on the system requirements. The main aims of using RAID are to improve reliability, important for protecting information that is critical to a business, for example a database of customer orders; or where speed is important, for example a system that delivers video on demand TV programs to many viewers.

The configuration affects reliability and performance in different ways. The problem with using more disks is that it is more likely that one will go wrong, but by using error checking the total system can be made more reliable by being able to survive and repair the failure. Basic mirroring can speed up reading data as a system can read different data from both the disks, but it may be slow for writing if it insists that both disks must confirm that the data is correctly written. Striping is often used for performance, where it allows sequences of data to be read off multiple disks at the same time. Error checking typically will slow the system down as data needs to be read from several places and compared. The design of RAID systems is therefore a compromise and understanding the requirements of a system is important. Modern disk arrays typically provide the facility to select the appropriate RAID configuration.

RAID is often used in high availability systems, where it is important that the system keeps running as much of the time as possible.

RAID 0 (Striping)

RAID 0 reads and writes sectors of data interleaved among multiple drives. If any disk member fails, it affects the entire array. The disk array data capacity is equal to the number of drive members times the capacity of the smallest member. RAID 0 does not support fault tolerance.

RAID 1 (Mirroring)

RAID 1 writes duplicate data onto a pair of drives and reads both sets of data in parallel. If one of the mirrored drives suffers a mechanical failure or does not respond, the remaining drive will continue to function. Due to redundancy, the drive capacity of the array is the capacity of the smallest drive.

RAID 5 (Parity)

RAID 5 provides data striping at the byte level and also stripes error correction information. This results in excellent performance and good fault tolerance. Level 5 is one of the most popular implementations of RAID.

RAID 0+1 (Stripe Mirroring)

RAID 10 is a combination of striping and mirroring. This configuration provides optimal speed and reliability, but you need four SATA hard disks.

Spanning (JBOD)

JBOD stands for "Just a Bunch of Disks". Each drive is accessed as if it was on a standard SCSI host bus adapter. This is useful when a single drive configuration is needed, but it offers no speed improvement or fault tolerance. A spanned volume is a formatted partition which data is stored on more than one hard disk, yet appears as one volume. Unlike RAID, spanned volumes have no fault-tolerance, so if any disk fails, the data on the whole volume could be lost. Additionally, the system or boot partitions cannot be included in a spanned volume. FAT16/32 and NTFS file systems may be used, and the volume can span up to 32 hard disks.

Comparison Table :

Solution	Hard Disks No.	Capacity	Performance	Reliability	Application
RAID0	>=2	All	Highest	Dangerous	Look for speed
RAID1	2	50%	Read faster	Excellent	100% Data backup
RAID5	>=3	N-1	Read faster Write slower	Good	Limited budget
RAID0+1	>=4 (Even number)	Smallest *2	High	Excellent	Unlimited budget
Span	>=1	All	none	Dangerous	Big disk space

NVIDIA® MediaShield Driver

The NVIDIA® MediaShield driver supports RAID 0, RAID 1, RAID 5, and RAID 0+1
functions. It allows you to get high performance with fault tolerance, big capacity, or
data safety provided by different RAID functions.

Here, we will use four SATA hard disks as an example to guide you how to select your
RAID system. Assume four hard disks are connected to the motherboard :

SATA port 1 - WDC WD1200JD-98HBBO, 111.79GB

SATA port 2 - Hitachi HDT725025VLA, 232.88GB

SATA port 3 - HDS728080PLA380, 76.69GB

SATA port 4 - ST3320620AS, 298.09GB

The relationships between RAID settings and SATA ports on the motherboard are :

SATA Pri-Master RAID is the SATA port 1 of the motherboard.

SATA Pri-Slave RAID is the SATA port 2.

SATA Sec-Master RAID is the SATA port 3.

SATA Sec-Slave RAID is the SATA port 4.

```
        Phoenix - AwardBIOS CMOS Setup Utility
                      RAID Config
┌──────────────────────────────────────┬──────────────────┐
│  RAID Enable              [Enabled]   │     Item Help    │
│  SATA Pri-Master RAID     [Enabled]   │                  │
│  SATA Pri-Slave RAID      [Enabled]   │  Menu Level  ►   │
│  SATA Sec-Master RAID     [Enabled]   │                  │
│  SATA Sec-Slave RAID      [Enabled]   │                  │
│                                       │                  │
│                                       │                  │
│                                       │                  │
│                                       │                  │
│                                       │                  │
│                                       │                  │
│                                       │                  │
│                                       │                  │
│                                       │                  │
└──────────────────────────────────────┴──────────────────┘
 ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
          F5: Previous Values              F7: Optimized Defaults
```
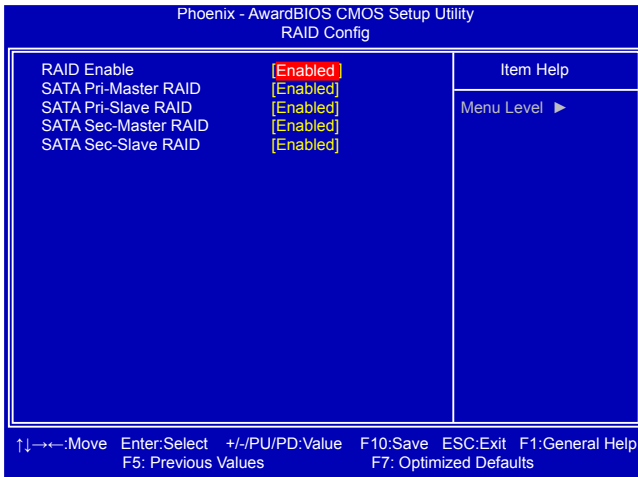
In section 5-3 later, you will know the relationships between port numbers in the
MediaShield BIOS and SATA ports on the motherboard. We put their descriptions here
for better arrangement. They are :

Port 1.1 is the SATA port 2 of the motherboard.

Port 1.0 is the SATA port 1.

Port 2.1 is the SATA port 4.

Port 2.0 is the SATA port 3.

```
                    MediaShield Utillity  Apr 26 2007
                         - Define a New Array -

 RAID Mode: Striping                      Stripe Block:    Optimal

 Free Disks                               Array Disks
 Port   Disk Model          Capacity      Port   Disk Model          Capacity

 1.0   WDC WD1200JD-9  111.79GB
 1.1   Hitachi HDT725    232.88GB
 2.0   HDS728080PLA38  76.69GB   [→] Add
 2.1   ST3320620AS       298.09GB




                                 [←] Del


 [ESC] Quit    [F6] Back    [F7] Finish   [TAB] Navigate   [↑↓] Select   [ENTER] Popup
```
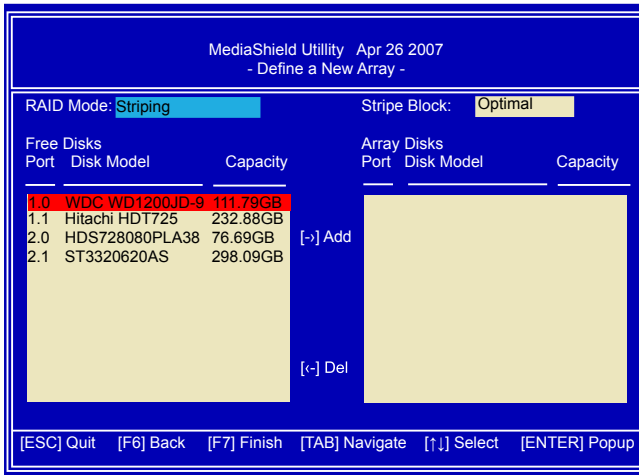
Two topics will be covered in the following sections :

1). Creating a Bootable Array - Installing a new Windows XP in a brand new RAID system.

2). Creating a Non-Bootable Array - Existing Windows XP system with new RAID built as data storage.

Install SATA Hard Disks before we continue :

■ Shut down your computer.

■ Install SATA hard disks into the drive bays, connect all power and SATA cables.

WARNING!

> To achieve the best performance and reliability, we highly recommend you using the hard disks with the same brand, size and model number. Though we are using four different hard disks as an example to describe RAID function in this chapter, it is only helpful in explaining what the final disk volume of the RAID array will be. In the real world, using the same model to build a disk array is strongly recommended.

5-1 Create two RAID Driver Diskettes

If you want to install a brand new Windows XP on a RAID system, you need to create two RAID driver floppy diskettes which will be used during Windows XP installation later.

1. Find a PC, put a diskette into its floppy drive A:, this diskette will be formatted later. Put the driver CD into its DVD-ROM drive.

2. Depending on which platform your XP system is, normally, it is a 32-bit system. Use Windows explorer, and go to **CD:\ Driver\NVIDIA\MCP61\Chipset\WinXP\ 32bit\IDE\WinXP\sataraid\Floppy\ Disk1**, click on **RaidTool** icon to start the creation.

3. Click "GO" to start.

4. Select the desired destination FDD drive. It can be the default drive A: or any USB FDD. Click "OK" to continue.

5. Insert a diskette, click "OK" to continue.

71
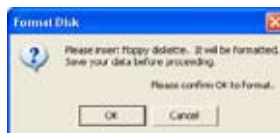
6. You can input a volume label for this diskette, click on "Start" to format.

7. Click on "OK" to go through this warning message.
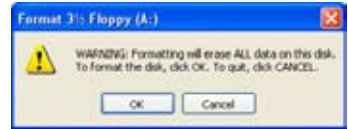
8. Format finished. Click "OK", then click "Close" to continue copying of RAID driver into this diskette.

9. Check if the first diskette contains the driver files.

10. Go to **CD:\Driver\NVIDIA\MCP61\ Chipset\WinXP\32bit\IDE\WinXP\ sataraid\Floppy\Disk2**, click on **RaidTool** icon to start the second RAID driver diskette creation. Repeat the steps from step 4 to step 9.
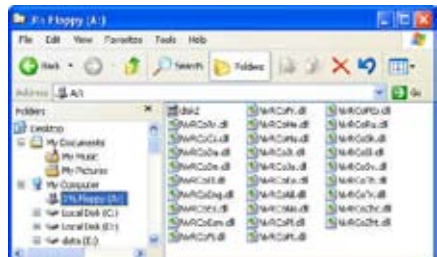
5-2 RAID Enable in BIOS

1. Enter the BIOS setup by pressing [DEL] key when boot up.
2. Select the "Integrated Peripherals" from the "Main menu", then select the "RAID Config" menu and press [Enter] to go to the configuration items.
3. Enable RAID function and individual SATA port for hard drive or DVD connection.
4. Press [F10] to save the setting then PC will reboot itself.

```
          Phoenix - AwardBIOS CMOS Setup Utility
                      RAID Config

  RAID Enable              [Enabled ]        Item Help
  SATA Pri-Master RAID     [Enabled]
  SATA Pri-Slave RAID      [Enabled]      Menu Level  ►
  SATA Sec-Master RAID     [Enabled]
  SATA Sec-Slave RAID      [Enabled]


↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
           F5: Previous Values            F7: Optimized Defaults
```
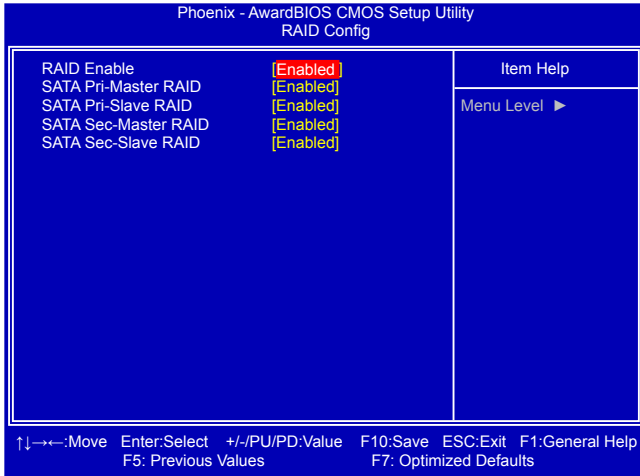
5-3 Select a RAID Array for Use

When BIOS is restarted, it will display a message asking you to press [F10] key to enter the main menu of MediaShield BIOS. Press [F10], the screen appears.
At the bottom of each screen displayed, there is one line listing each key's function, such as [Tab], [Enter], [ESC]...etc. It is helpful to make your choice easier.

```
             MediaShield BIOS   Apr 26 2007
                   - Define a New Array -

  RAID Mode: Mirroring               Stripe Block:   Optimal

  Free Disks                         Array Disks
  Port   Disk Model      Capacity    Port   Disk Model      Capacity

  1.0  WDC WD1200JD-9  111.79GB
  1.1  Hitachi HDT725   232.88GB
  2.0  HDS728080PLA38  76.69GB  [→] Add
  2.1  ST3320620AS      298.09GB



                                 [←] Del


  [ESC] Quit   [F6] Back   [F7] Finish   [TAB] Navigate   [↑↓] Select   [Enter] Popup
```
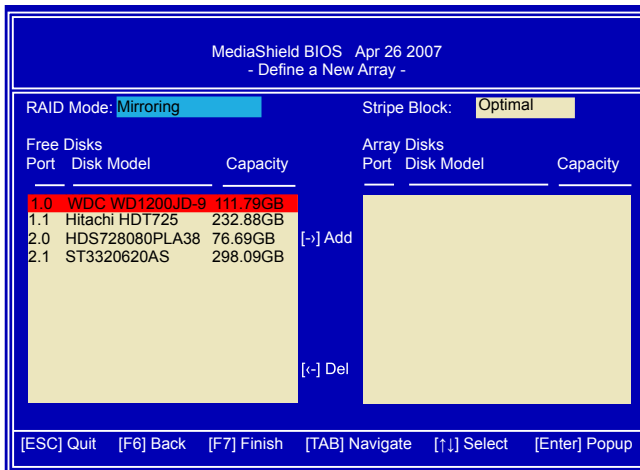
Create RAID 0 (Striping)

1. Select "**Striping"** from the RAID Mode. The menu appears :
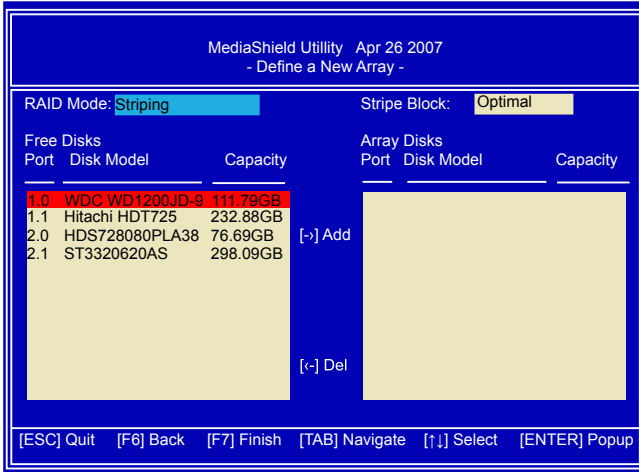
2. Select two hard disks to build our RAID0 system.
3. Press [TAB] to navigate to left drive panel, then use [→] and [↓] keys to add the hard disks to the right drive panel.

4. The stripe value should be selected based on different applications. It ranges from 4KB to 128KB. Some suggested choices are :

16K - Best for sequential transfer.

64K - Good general purpose strip size.

128K - Best performance for most desktops and workstations.

Keep it at Optimal default value. Press [F7] to finish the setting. Press [Y] to clear disk data.
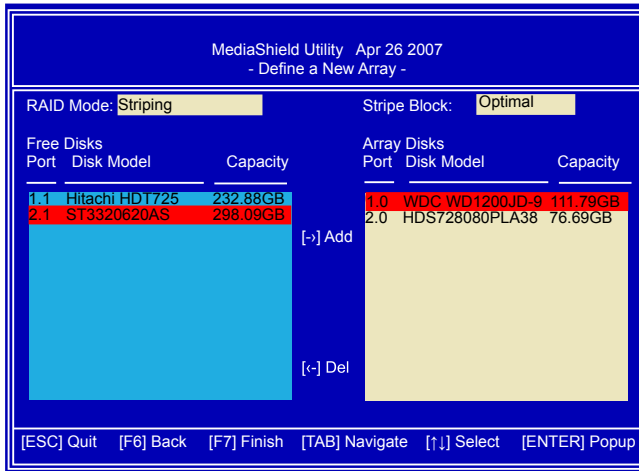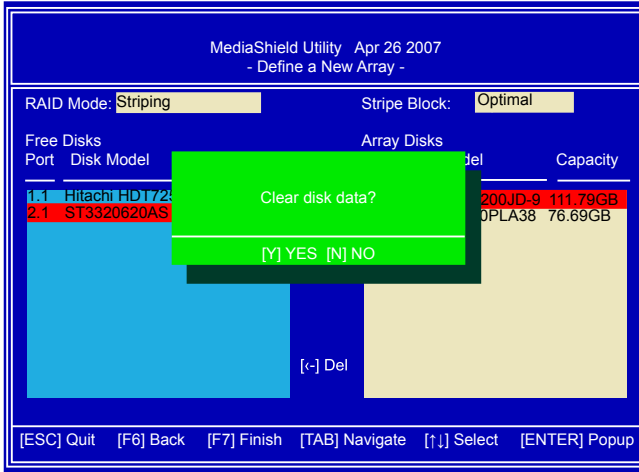
5. The screen displays a STRIPE array of 153.38GB, which is twice the size of the smallest hard disk. That is, 2*76.69GB = 153.38GB.

If you want to build a new Operating System (such as Windows XP) in this RAID system, please press [B] to select it as bootable.

You can then press [Ctrl]+[X] keys to exit the setup program, and restart your PC.
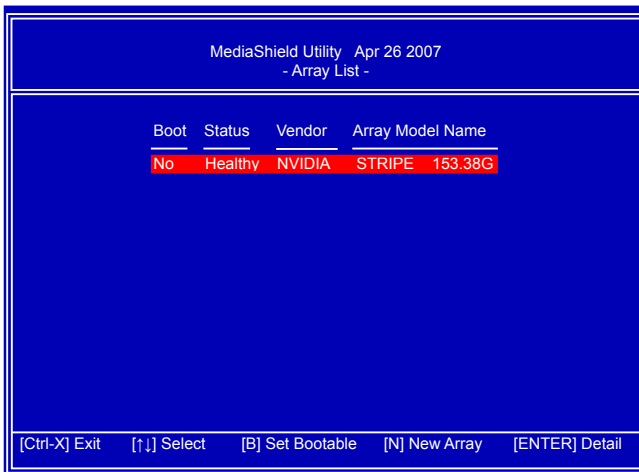
6. In above screen, you also can press [Enter] to know the detailed drive information of this RAID system. Press [D] here allow you to delete previous settings, and go back to the first time when MediaShield was started.

```
                    Array 4 : NVIDIA   STRIPE   153.38G
                               - Array Detail -

RAID Mode: Striping
Striping Width :    2                          Striping Block:    64K

          Port   Index   Disk Model                Capacity

          1.0    0       WDC WD1200JD-98HBB0       111.79G
          2.0    1       HDS728080PLA380            76.69GB




          [R] Rebuild      [D] Delete    [C] Clear Disk    [ENTER] Return
```

Create RAID 1 (Mirroring)

1. Select "**Mirroring**" from the RAID Mode.

```
┌─────────────────────────────────────────────────────────────┐
│              MediaShield Utility   Apr 26 2007                │
│                  - Define a New Array -                       │
├─────────────────────────────────────────────────────────────┤
│  RAID Mode: Mirroring              Stripe Block:   Optimal    │
│                                                               │
│  Free Disks                        Array Disks                │
│  Port  Disk Model     Capacity     Port  Disk Model  Capacity │
│  1.0  WDC WD1200JD-9  111.79GB                                │
│  1.1  Hitachi HDT725   232.88GB                               │
│  2.0  HDS728080PLA38  76.69GB   [-›] Add                      │
│  2.1  ST3320620AS      298.09GB                               │
│                                                               │
│                                 [‹-] Del                      │
│                                                               │
│ [ESC] Quit   [F6] Back   [F7] Finish   [TAB] Navigate   [↑↓] Select   [ENTER] Popup │
└─────────────────────────────────────────────────────────────┘
```

2. Select two hard disks to build our RAID1 system.
3. Press [TAB] to navigate to left drive panel, then use [→] and [↓] keys to add the hard disks to the right drive panel.

```
┌─────────────────────────────────────────────────────────────┐
│              MediaShield Utility   Apr 26 2007                │
│                  - Define a New Array -                       │
├─────────────────────────────────────────────────────────────┤
│  RAID Mode: Mirroring              Stripe Block:   Optimal    │
│                                                               │
│  Free Disks                        Array Disks                │
│  Port  Disk Model     Capacity     Port  Disk Model  Capacity │
│  1.0  WDC WD1200JD-9  111.79GB     1.1  Hitachi HDT725  232.88GB │
│  2.0  HDS728080PLA38  76.69GB      2.1  ST3320620AS     298.09GB │
│                                 [-›] Add                      │
│                                                               │
│                                 [‹-] Del                      │
│                                                               │
│ [ESC] Quit   [F6] Back   [F7] Finish   [TAB] Navigate   [↑↓] Select   [ENTER] Popup │
└─────────────────────────────────────────────────────────────┘
```

4. The stripe block value is fixed and not changeable.
   Press [F7] to finish the setting.Press [Y] to clear disk data.
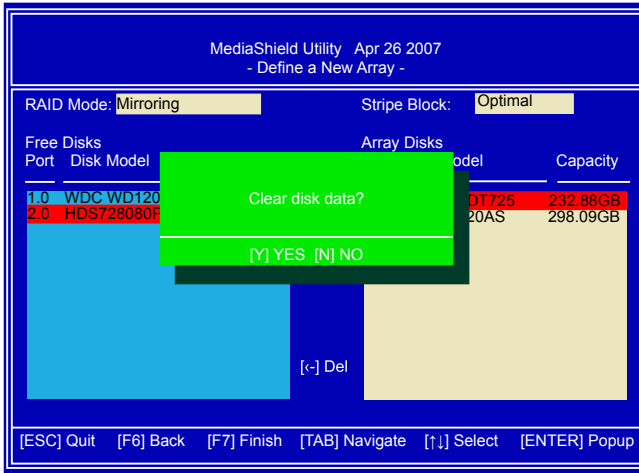
5. The screen displays a MIRROR array of 232.88GB, which is the size of the smallest
   hard disk. That is, 232.88GB.
   If you want to build a new Operating System (such as Windows XP) in this RAID
   system, please press [B] to select it as bootable.
   You can then press [Ctrl]+[X] keys to exit the setup program, and restart your PC.
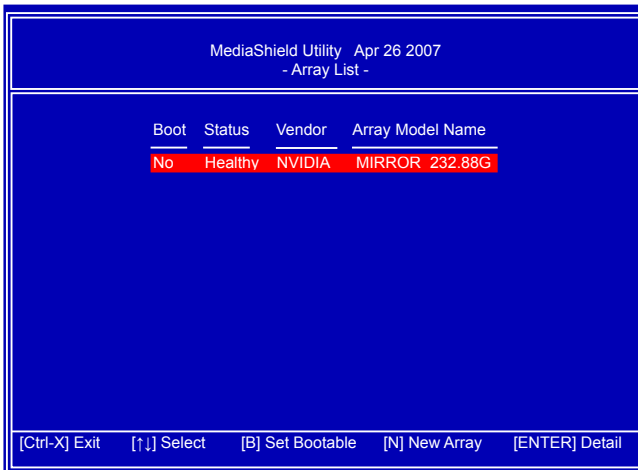
6. In above screen, you also can press [Enter] to know the detailed drive information of this RAID system. Press [D] here allow you to delete previous settings, and go back to the first time when MediaShield was started.

```
                    Array 4 : NVIDIA   MIRROR   232.88G
                              - Array Detail -

RAID Mode: Mirroring
Stripe Width :   1                          Stripe Block:    64K

          Port    Index   Disk Model                  Capacity

          1.1     0       Hitachi HDT725025VLA380     232.88G
          2.1     1       ST3320620AS                 298.09G




      [R] Rebuild     [D] Delete     [C] Clear MBR    [ENTER] Return
```

Create RAID 0+1 (Stripe Mirroring)

1. Select "**Stripe Mirroring**" from the RAID Mode. The menu appears :
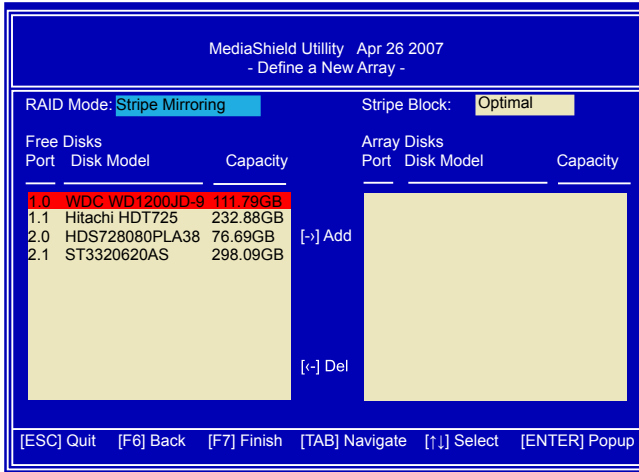
2. Select four hard disks to build our RAID0+1 system.
3. Press [TAB] to navigate to left drive panel, then use [→] and [↓] keys to add the hard disks to the right drive panel.

4. The stripe value should be selected based on different applications. It ranges from 4KB to 128KB. Some suggested choices are :

16K - Best for sequential transfer.

64K - Good general purpose strip size.

128K - Best performance for most desktops and workstations.

Keep it at Optimal default value. Press [F7] to finish the setting. Press [Y] to clear disk data.
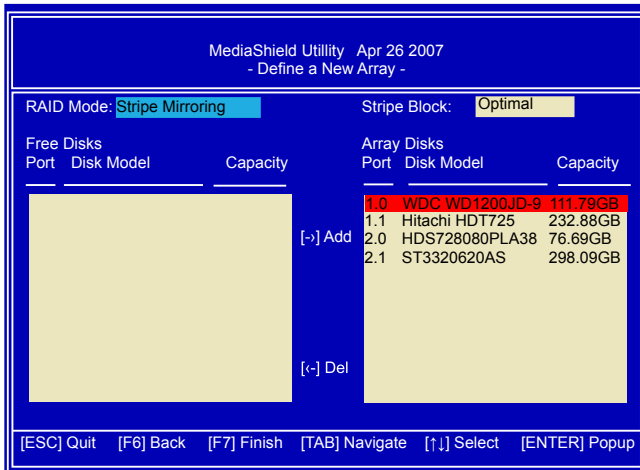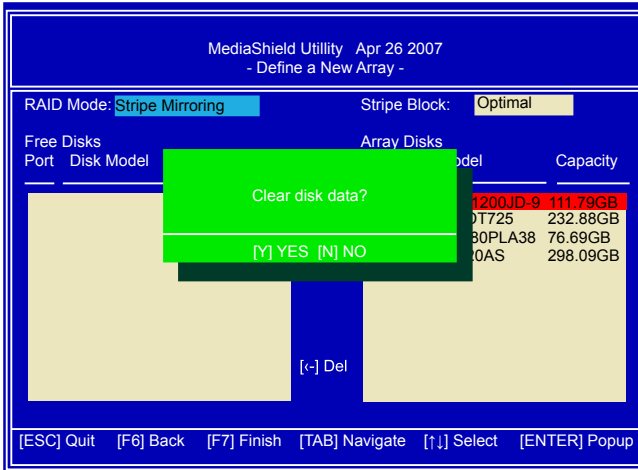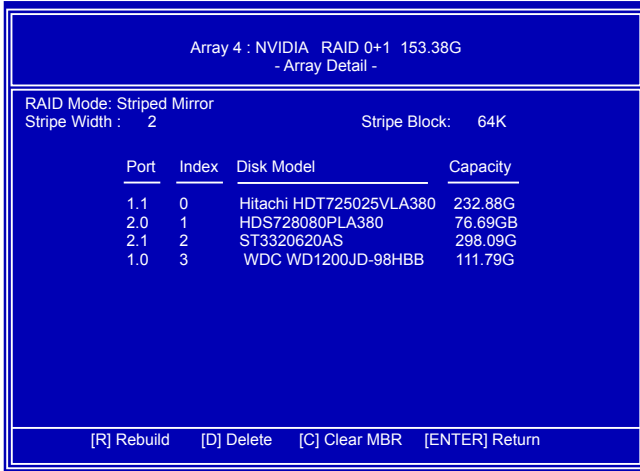
5. The screen displays a RAID 0+1 array of 153.38GB, which is twice the size of the smallest hard disk. That is, 2*76.69= 153.38GB.

If you want to build a new Operating System (such as Windows XP) in this RAID system, please press [B] to select it as bootable.

You can then press [Ctrl]+[X] keys to exit the setup program, and restart your PC.
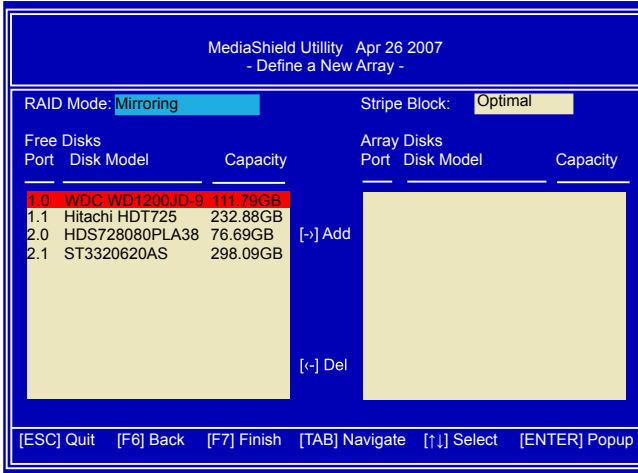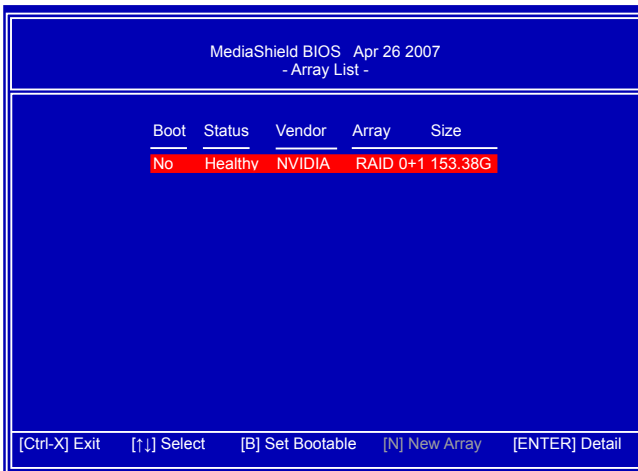
6. In above screen, you also can press [Enter] to know the detailed drive information of this RAID system. Press [D] here allow you to delete previous settings, and go back to the first time when MediaShield was started.
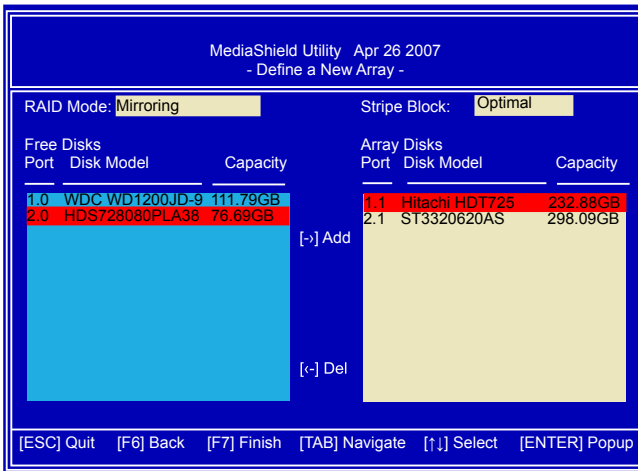
Array 4 : NVIDIA   RAID 0+1 153.38G
- Array Detail -

RAID Mode: Striped Mirror
Stripe Width :   2   Stripe Block: 64K

Port	Index	Disk Model	Capacity
1.1	0	Hitachi HDT725025VLA380	232.88G
2.0	1	HDS728080PLA380	76.69GB
2.1	2	ST3320620AS	298.09G
1.0	3	WDC WD1200JD-98HBB	111.79G

[R] Rebuild   [D] Delete   [C] Clear MBR   [ENTER] Return

Create RAID 5

1. Select "**RAID5**" from the RAID Mode.
   The menu appears :
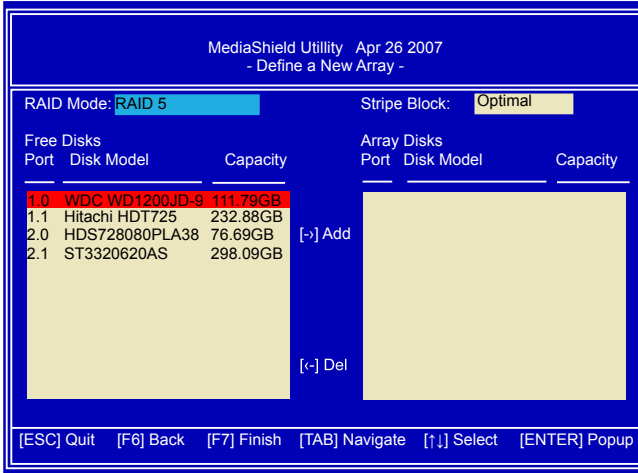
2. Select three SATA hard disks to build our RAID5 system.
3. Press [TAB] to navigate to left drive panel, then use [→] and [↓] keys to add the hard disks to the right drive panel.

4. The stripe value should be selected based on different applications. It ranges from 4KB to 128KB. Some suggested choices are :

   16K - Best for sequential transfer.

   64K - Good general purpose strip size.

   128K - Best performance for most desktops and workstations.

   Keep it at Optimal default value. Press [F7] to finish the setting. Press [Y] to clear disk data.

```
                    MediaShield BIOS   Apr 26 2007
                          - Define a New Array -

    RAID Mode: RAID5                  Stripe Block:   Optimal

    Free Disks                        Array Disks
    Port  Disk Model          del              Capacity

    2.1  ST3320620AS    Clear disk data?        200JD-9  111.79GB
                                                0PLA38   76.69GB
                        [Y] YES  [N] NO         T725     232.88GB



                            [←] Del


    [ESC] Quit    [F6] Back    [F7] Finish    [TAB] Navigate    [↑↓] Select    [ENTER] Popup
```
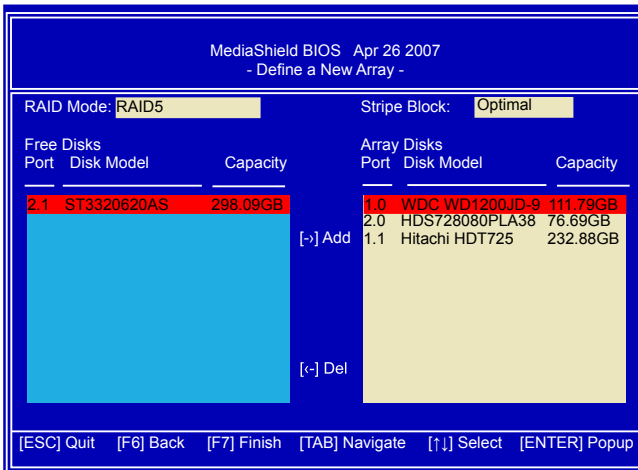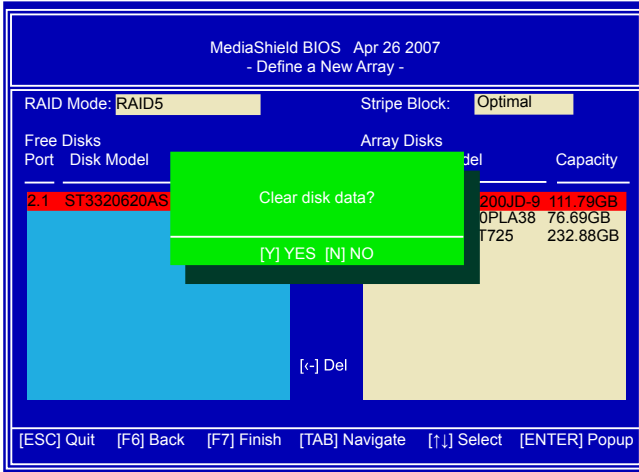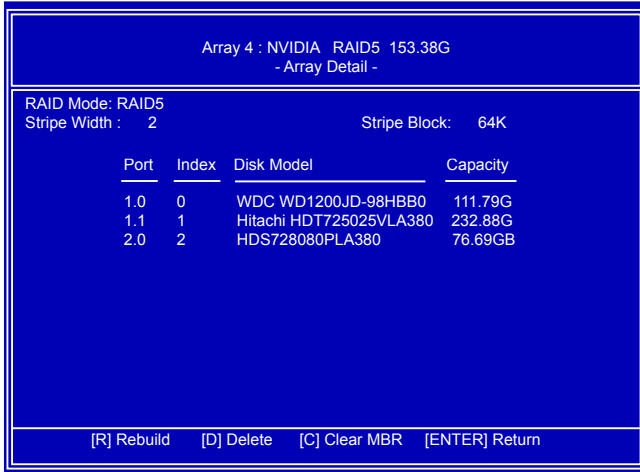
5. The screen displays a RAID5 array of 153.38GB, which is twice the size of the smallest hard disk. That is, 2*76.69= 153.38GB. Another hard disk is used for parity check.

   If you want to build a new Operating System (such as Windows XP) in this RAID system, please press [B] to select it as bootable.

   You can then press [Ctrl]+[X] keys to exit the setup program, and restart your PC.

```
                    MediaShield BIOS   Apr 26 2007
                          - Array List -

          Boot   Status   Vendor   Array     Size

          No     Healthy  NVIDIA   RAID5     153.38G









    [Ctrl-X] Exit    [↑↓] Select    [B] Set Bootable    [N] New Array    [ENTER] Detail
```

84
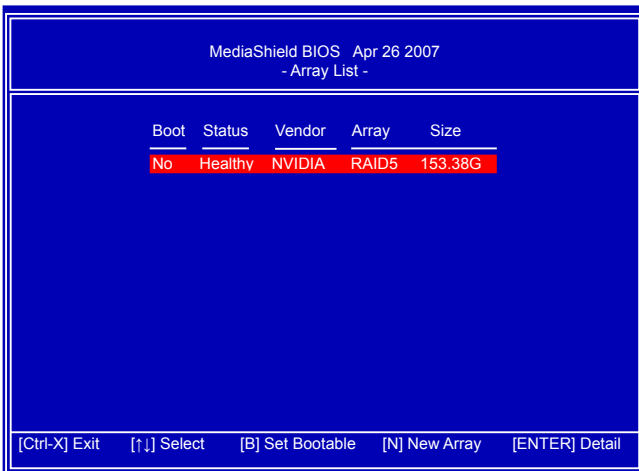
6. In above screen, you also can press [Enter] to know the detailed drive information of
    this RAID system. Press [D] here allow you to delete previous settings, and go back
    to the first time when MediaShield was started.

```
┌──────────────────────────────────────────────────────────────┐
│                                                                │
│              Array 4 : NVIDIA   RAID5  153.38G                  │
│                     - Array Detail -                           │
├──────────────────────────────────────────────────────────────┤
│  RAID Mode: RAID5                                              │
│  Stripe Width :   2                    Stripe Block:    64K    │
│                                                                │
│           Port    Index   Disk Model              Capacity    │
│                                                                │
│           1.0      0       WDC WD1200JD-98HBB0     111.79G     │
│           1.1      1       Hitachi HDT725025VLA380 232.88G     │
│           2.0      2       HDS728080PLA380          76.69GB    │
│                                                                │
│                                                                │
│                                                                │
│                                                                │
│                                                                │
│                                                                │
├──────────────────────────────────────────────────────────────┤
│      [R] Rebuild    [D] Delete    [C] Clear MBR   [ENTER] Return│
└──────────────────────────────────────────────────────────────┘
```

5

Create Spanning RAID

1. Select "**Spanning**" from the RAID Mode. The menu appears :

```
            MediaShield Utillity   Apr 26 2007
                  - Define a New Array -

RAID Mode: Spanning              Stripe Block:    Optimal

Free Disks                       Array Disks
Port   Disk Model      Capacity  Port   Disk Model      Capacity
1.0    WDC WD1200JD-9  111.79GB
1.1    Hitachi HDT725  232.88GB
2.0    HDS728080PLA38  76.69GB   [→] Add
2.1    ST3320620AS     298.09GB


                                 [←] Del


[ESC] Quit   [F6] Back   [F7] Finish   [TAB] Navigate   [↑↓] Select   [ENTER] Popup
```

2. Select three SATA hard disks to build our Spanned RAID system.
3. Press [TAB] to navigate to left drive panel, then use [→] and [↓] keys to add the hard
   disks to the right drive panel.

```
            MediaShield Utillity   Apr 26 2007
                  - Define a New Array -

RAID Mode: Spanning              Stripe Block:    Optimal

Free Disks                       Array Disks
Port   Disk Model      Capacity  Port   Disk Model      Capacity
2.1    ST3320620AS     298.09GB  1.0    WDC WD1200JD-9  111.79GB
                                 1.1    Hitachi HDT725  232.88GB
                          [→] Add 2.0    HDS728080PLA38  76.69GB



                          [←] Del


[ESC] Quit   [F6] Back   [F7] Finish   [TAB] Navigate   [↑↓] Select   [ENTER] Popup
```

4. The stripe block value is fixed and not changeable.
   Press [F7] to finish the setting. Press [Y] to clear disk data.

```
                    MediaShield Utillity  Apr 26 2007
                        - Define a New Array -

  RAID Mode: Spanning                Stripe Block:   Optimal

  Free Disks                         Array Disks
  Port   Disk Model                          del        Capacity

  2.1   ST3320620AS        Clear disk data?          200JD-9  111.79GB
                                                     T725     232.88GB
                                                     0PLA38   76.69GB
                           [Y] YES  [N] NO




                              [‹-] Del



  [ESC] Quit    [F6] Back    [F7] Finish   [TAB] Navigate   [↑↓] Select   [ENTER] Popup
```

5. The screen displays a Spanned RAID array of 421.36GB, which is the total sizes of
   these three hard disks. That is, 111.79+76.69+232.88= 421.36GB. We recommend
   not setting it to bootable as it will be impossible to recover if crashed. You can then
   press [Ctrl]+[X] keys to exit the setup program, and restart your PC.
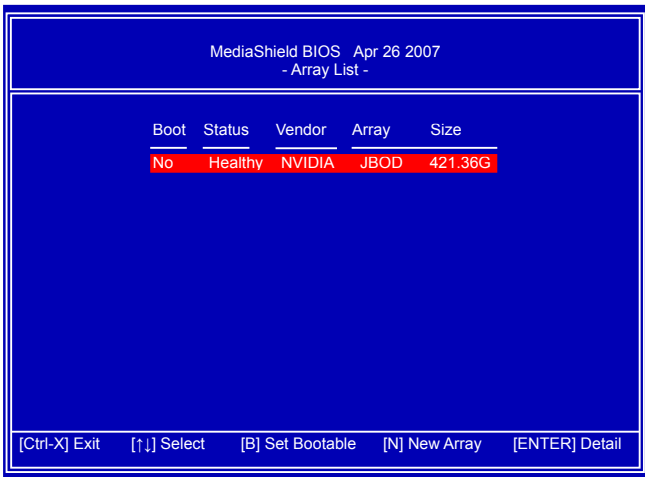
```
                    MediaShield BIOS   Apr 26 2007
                        - Array List -


              Boot   Status   Vendor   Array    Size

              No     Healthy  NVIDIA   JBOD     421.36G








  [Ctrl-X] Exit    [↑↓] Select    [B] Set Bootable    [N] New Array    [ENTER] Detail
```

6. In above screen, you also can press [Enter] to know the detailed drive information of this RAID system. Press [D] here allow you to delete previous settings, and go back to the first time when MediaShield was started.

```
                    Array 4 : NVIDIA   JBOD   421.36G
                             - Array Detail -

 RAID Mode: Spanning
 Stripe Width :    3                      Stripe Block:     64K

        Port    Index   Disk Model                  Capacity

        1.0     0       WDC WD1200JD-98HBB0          111.79G
        1.1     1       Hitachi HDT725025VLA380      232.88G
        2.0     2       HDS728080PLA380               76.69GB




        [R] Rebuild    [D] Delete    [C] Clear MBR    [ENTER] Return
```
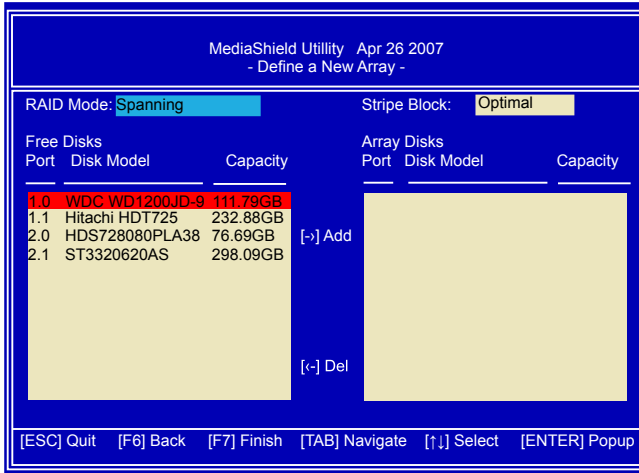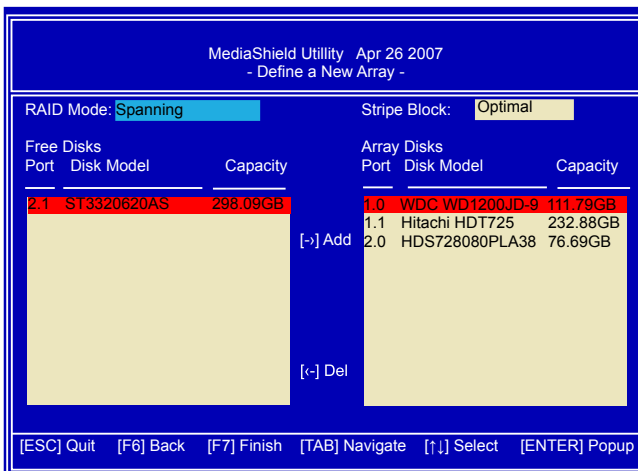
5-4 Creating a Bootable Array- Install a New Windows XP

Assume a Mirrored array (232.88GB) was created as introduced in section 5-3, after the system restarts :

1. Press [DEL] to enter BIOS Setup during POST.
2. Insert the Windows installation CD into the optical drive.
3. Set the "First Boot Device" to "CDROM", save changes and exit BIOS.

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                          Advanced BIOS Features

 ► Removable Device Priority      [Press Enter]          Item Help
 ► Hard Disk Boot Priority        [Press Enter]
   First Boot Device              [CDROM ]         Menu Level  ►
   Second Boot Device             [Hard Disk]      Select Your Boot
   Third Boot Device              [Removable]      Device Priority
   Boot Other Device              [Enabled]
   Boot Up Floppy Seek            [Disabled]
   Boot Up NumLock Status         [On]
   Security Option                [Setup]
   Full Screen Logo Show          [Enabled]




 ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
            F5: Previous Values               F7: Optimized Defaults
```

4. The computer will reboot, and it will start installing Windows Operating System. Watch the screen carefully, when the following picture appears, press [F6] key immediately. If you forgot to do this, PC will go to an fatal blue screen, and you may need to reboot the system again. PC may not respond to your [F6] input immediately, and it keeps loading files until the next screen displays.

```
 Windows Setup
 _____











 Press F6 if you need to install a 3rd party SCSI or RAID driver.
```

5. After some files are copied to your system, the following picture appears, press [S] to continue the specific driver installation.
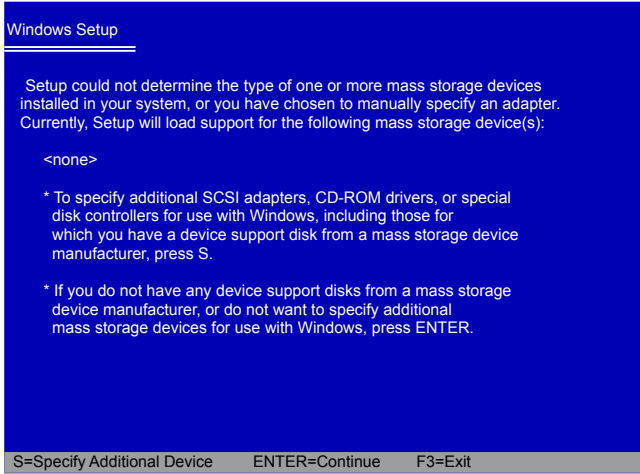
6. It will ask you to insert the RAID driver diskette 1 into your floppy drive. Press [Enter] after it is done.
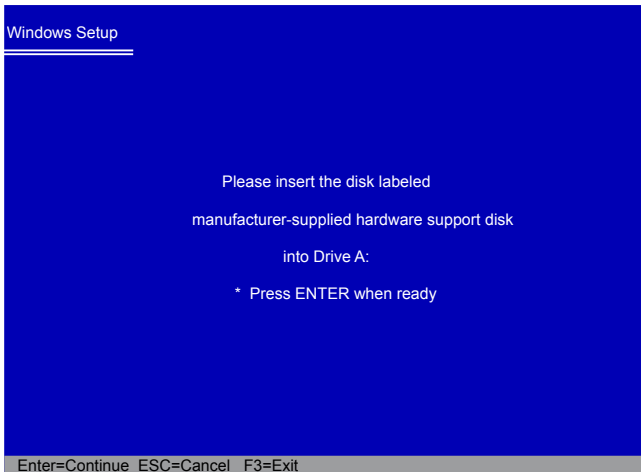
7. There are two drivers, all these two drivers must be installed. Press [Enter] to select the first driver - "NVIDIA RAID Driver (required)".

```
Windows Setup

    You have chosen to configure a SCSI Adapter for use with Windows,
    using a device support disk provided by an adapter manufacturer.

    Select the SCSI Adapter you want from the following list, or press ESC
    to return to the previous screen.


            NVIDIA RAID Driver (required)
            NVIDIA nForce Storage Controller (required)




 ENTER=Select    F3=Exit
```
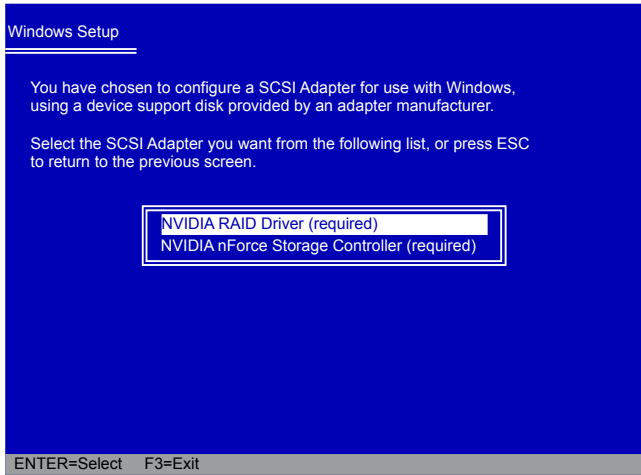
8. A confirmation message appears to double check if the driver is really what we wanted. As we need to install both two drivers, so we will press [S] again to select the second driver. It will ask you to insert the RAID driver diskette into your floppy drive again, press [Enter] to continue.

```
Windows Setup

  Setup will load support for the following mass storage device(s):

    NVIDIA RAID Driver (required)

    * To specify additional SCSI adapters, CD-ROM drivers, or special
      disk controllers for use with Windows, including those for
      which you have a device support disk from a mass storage device
      manufacturer, press S.

    * If you do not have any device support disks from a mass storage
      device manufacturer, or do not want to specify additional
      mass storage devices for use with Windows, press ENTER.




 S=Specify Additional Device       ENTER=Continue       F3=Exit
```

9. Use [↓] key to select "NVIDIA nForce Storage Controller (required)", then press [Enter]. Still, The RAID floppy diskette 1 is inside the floppy drive.

```
Windows Setup

   You have chosen to configure a SCSI Adapter for use with Windows,
   using a device support disk provided by an adapter manufacturer.

   Select the SCSI Adapter you want from the following list, or press ESC
   to return to the previous screen.

                  NVIDIA RAID Driver (required)
                  NVIDIA nForce Storage Controller (required)













 ENTER=Select     F3=Exit
```
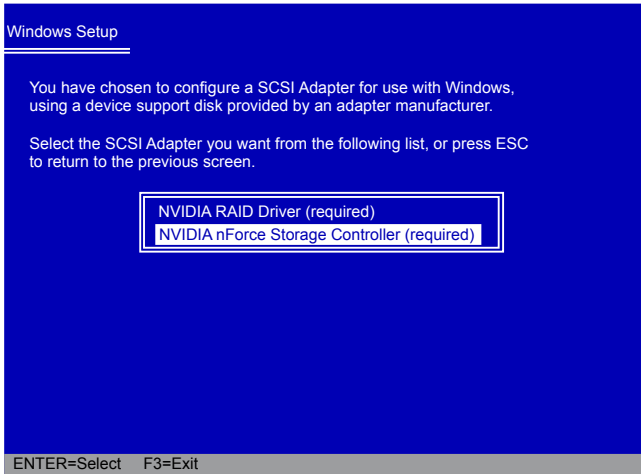
10. Two drivers are displayed. Press [Enter] to continue.

```
Windows Setup

  Setup will load support for the following mass storage device(s):

    NVIDIA RAID Driver (required)
    NVIDIA nForce Storage Controller (required)

    * To specify additional SCSI adapters, CD-ROM drivers, or special
      disk controllers for use with Windows, including those for
      which you have a device support disk from a mass storage device
      manufacturer, press S.

    * If you do not have any device support disks from a mass storage
      device manufacturer, or do not want to specify additional
      mass storage devices for use with Windows, press ENTER.






 S=Specify Additional Device      ENTER=Continue      F3=Exit
```

11. Windows will display the partition of your system. As we are using a Mirrored RAID array as an example, its size 232.88GB is now displayed as 238473MB. You can press [C] to create partitions as many as you wish, assign them C:, D: or E: logical drive names.

(Note : 238473MB/1024 = 232.88GB)

```
Windows XP Professional Setup
━━━━━━━━━━━━━━━━━━━━━━━

   The following list shows the existing partitions and
   unpartitioned space on this computer.

   Use the UP ad DOWN ARROW keys to select an item in the list.

      ● To set up Windows XP on the selected item, press ENTER.
      ● To create a partition in the unpartitioned space, press C.
      ● To delete the selected partitions, press D.

   ┌─ 238473 MB Disk 0 at id 1 on bus 0 on nvrd32 [MBR] ──────┐
   │                                                           │
   │   Unpartitioned space              238473    MB          │
   │                                                           │
   │                                                           │
   │                                                           │
   │                                                           │
   │                                                           │
   └───────────────────────────────────────────────────────────┘

 ENTER=Install    C=Create Partition    F3=Quit
```
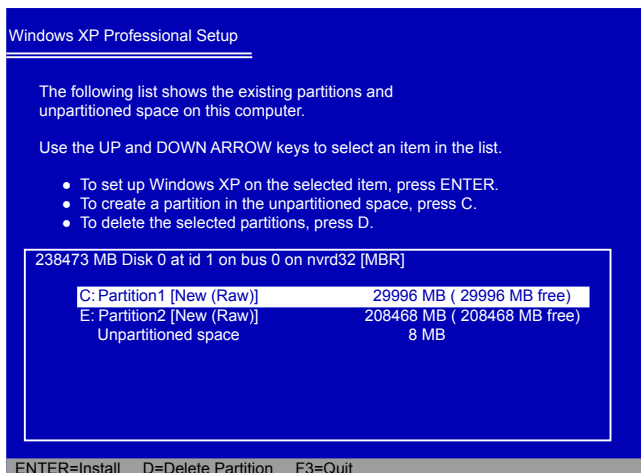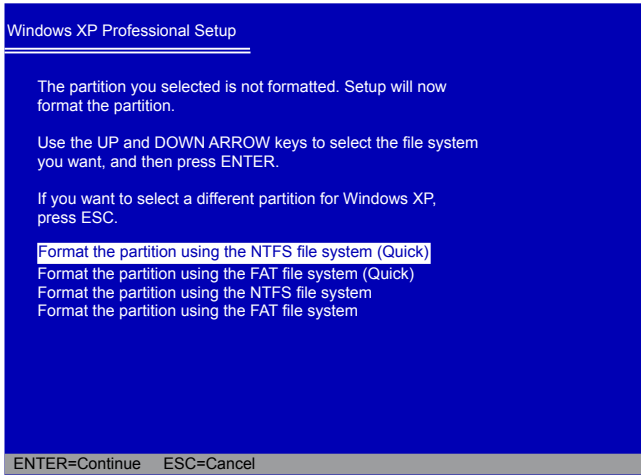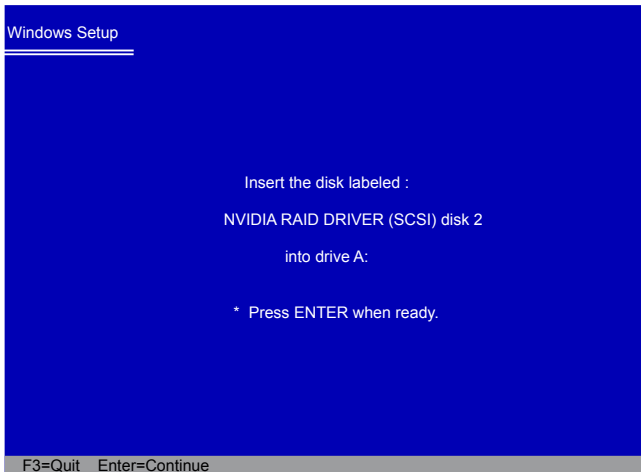
12. In this example, we will create a 30GB partition C: and leave the remaining space as a partition E:. Drive D: is DVD drive. Press [Enter] to install Windows.

```
Windows XP Professional Setup
━━━━━━━━━━━━━━━━━━━━━━━

   The following list shows the existing partitions and
   unpartitioned space on this computer.

   Use the UP and DOWN ARROW keys to select an item in the list.

      ● To set up Windows XP on the selected item, press ENTER.
      ● To create a partition in the unpartitioned space, press C.
      ● To delete the selected partitions, press D.

   ┌─ 238473 MB Disk 0 at id 1 on bus 0 on nvrd32 [MBR] ──────┐
   │                                                           │
   │   C: Partition1 [New (Raw)]        29996 MB ( 29996 MB free) │
   │   E: Partition2 [New (Raw)]        208468 MB ( 208468 MB free) │
   │   Unpartitioned space              8 MB                   │
   │                                                           │
   │                                                           │
   │                                                           │
   └───────────────────────────────────────────────────────────┘

 ENTER=Install    D=Delete Partition    F3=Quit
```
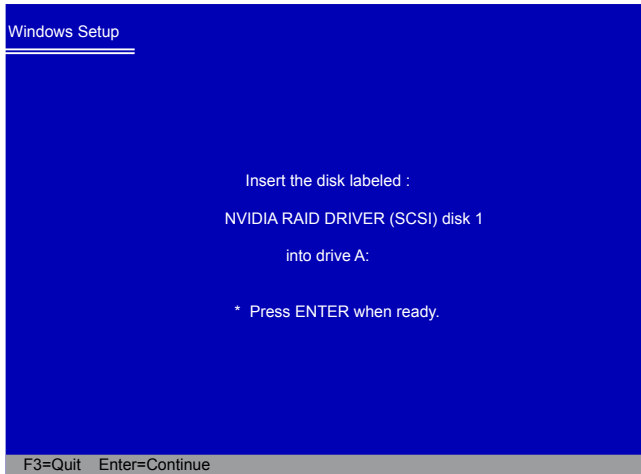
13. The Windows XP install processes will ask you to format your hard disk, select quick formatting using NTFS file system, press [ENTER].

```
Windows XP Professional Setup

      The partition you selected is not formatted. Setup will now
      format the partition.

      Use the UP and DOWN ARROW keys to select the file system
      you want, and then press ENTER.

      If you want to select a different partition for Windows XP,
      press ESC.

      Format the partition using the NTFS file system (Quick)
      Format the partition using the FAT file system (Quick)
      Format the partition using the NTFS file system
      Format the partition using the FAT file system




 ENTER=Continue     ESC=Cancel
```
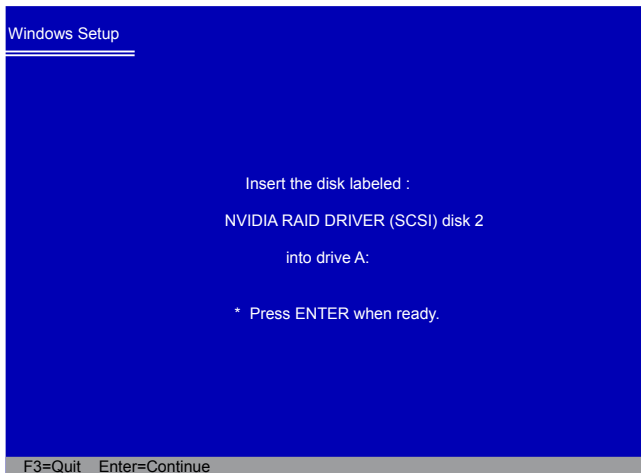
14. After drive C: is formatted, Setup will copy files from RAID floppy diskette 1 to the Windows installation folders, then ask you to insert the second RAID diskette. Press [Enter] to continue when it is done.

```
Windows Setup




                       Insert the disk labeled :

                  NVIDIA RAID DRIVER (SCSI) disk 2

                           into drive A:


                    *  Press ENTER when ready.




 F3=Quit   Enter=Continue
```

15. After Setup copies files from RAID floppy diskette 2 to the Windows installation folders, it then will ask you to insert the first RAID diskette into floppy drive again. Press [Enter] to continue when it is done.

```
Windows Setup



                    Insert the disk labeled :

                  NVIDIA RAID DRIVER (SCSI) disk 1

                         into drive A:


                    *  Press ENTER when ready.





  F3=Quit   Enter=Continue
```

16. Again, after Setup copies files from RAID floppy diskette 1 to the Windows installation folders, it then will ask you to insert the second RAID diskette into floppy drive. Press [Enter] to continue when it is done.

```
Windows Setup



                    Insert the disk labeled :

                  NVIDIA RAID DRIVER (SCSI) disk 2

                         into drive A:


                    *  Press ENTER when ready.





  F3=Quit   Enter=Continue
```

17. Setup will be coping files to the RAID disk array to create your new Windows XP system. You can follow the normal procedures to complete the installations.

5-5 Setting Up a Non-Bootable RAID Array
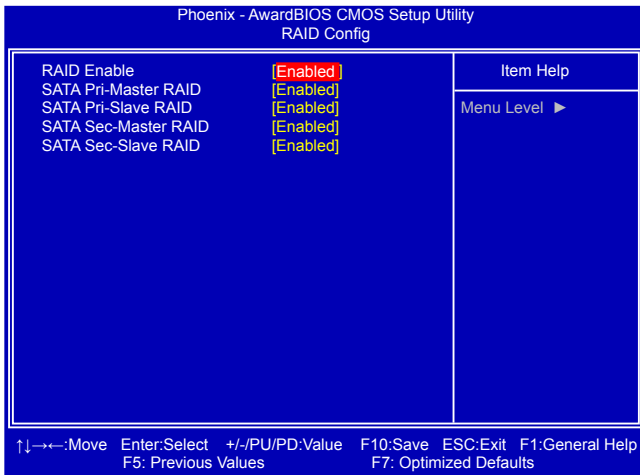
This section assumes the following setup :

■ Boot Disk with Windows XP installed :

One hard disk HDS728080PLAT20 (80GB) is connected to the IDE channel, and set to Master.

■ A Mirrored RAID Array Disk :

Two SATA hard disks are configured as a mirrored RAID1 array, they are :

Hitachi HDT725025VLA, (232.88GB) connected to SATA port2 of the motherboard.

Segate ST3320620AS, (298.09GB) connected to SATA port4.

■ A SATA DVD Drive :

A DVD drive connected to SATA port1.

WARNING!

To achieve the best performance and reliability, we highly recommend you using the hard disks with the same brand, size and model number. Though we are using different brand of hard disks as an example here, the purpose is only for easy understanding.

1. Reboot your system, and go to "RAID Enable" menu.

Enable the RAID function together with the SATA ports which have the hard disks and DVD drive connected. Press [F10] to save the settings and reboot.

```
          Phoenix - AwardBIOS CMOS Setup Utility
                      RAID Config
┌─────────────────────────────────────┬──────────────────┐
│ RAID Enable            [Enabled ]    │    Item Help     │
│ SATA Pri-Master RAID   [Enabled]     │                  │
│ SATA Pri-Slave RAID    [Enabled]     │ Menu Level  ►    │
│ SATA Sec-Master RAID   [Enabled]     │                  │
│ SATA Sec-Slave RAID    [Enabled]     │                  │
│                                      │                  │
│                                      │                  │
│                                      │                  │
│                                      │                  │
│                                      │                  │
│                                      │                  │
│                                      │                  │
│                                      │                  │
├─────────────────────────────────────┴──────────────────┤
│ ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
│          F5: Previous Values          F7: Optimized Defaults │
└─────────────────────────────────────────────────────────┘
```

2. Select a RAID array for use (also can refer to section 5-3)

    After rebooting your computer, you will see the RAID software prompting you to press [F10].

    Press [F10] to enter the NVIDIA MediaShield BIOS setup and configure the mirrored RAID array as described in the 5-3 section. Finally, you can reach this step as depicted.
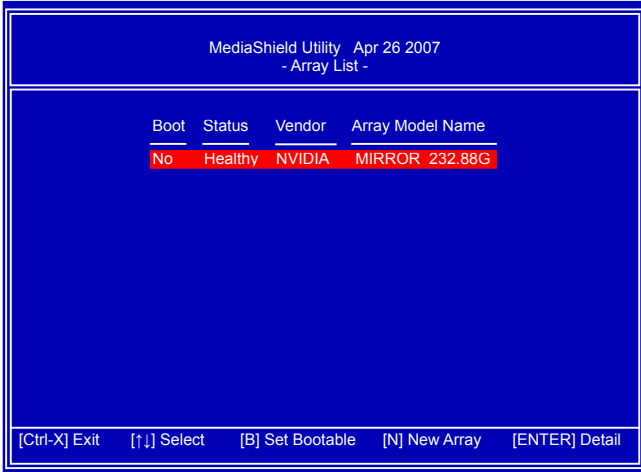

3. Press [Ctrl]+[X] keys to exit and go to Windows.
4. In Windows, click "Cancel" to skip any "Found New Hardware Wizard".

    Use driver CD and click on "NVIDIA MCP61 Chipset Driver" to install the NVIDIA RAID driver. The RAID driver can be installed only when you select [Enable] in BIOS "RAID Enable" setting. If you do not select [Enabled], then RAID driver can not be installed.

5. The installation of driver may take a while, after the NVIDIA driver is installed, it will ask you to click "Finish" to restart your computer.
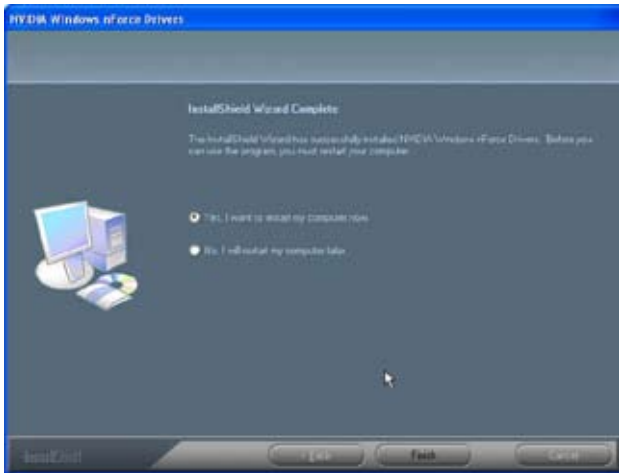
6. When Windows starts, a "Found New Hardware Wizard" appears. Click on "Cancel" to ignore it.

7. After PC starts, the RAID array is now ready to be initialized under Windows.
   Launch Computer Management by clicking Start -> Settings -> Control Panel then
   open the Administrative Tools folder and double click on Computer Management.
   Click Disk Management (under the Storage section).
   The Initialize and Convert Disk Wizards appears. Click "Next" to continue.
   The RAID array is named as Disk1 and its status is unknown and not Initialized.

8. A "Select Disks to Initialize" window will appear. The disks listed depend on how
   many arrays you have configured. Select "Disk1" and click "Next" to continue.
9. When "Select Disks to Convert" window appears, do not select anything and click
   "Next" to continue.
10. When the "Completing the Initialize and Convert Disk Wizard" window appears,
   click "Finish" to complete the wizard.
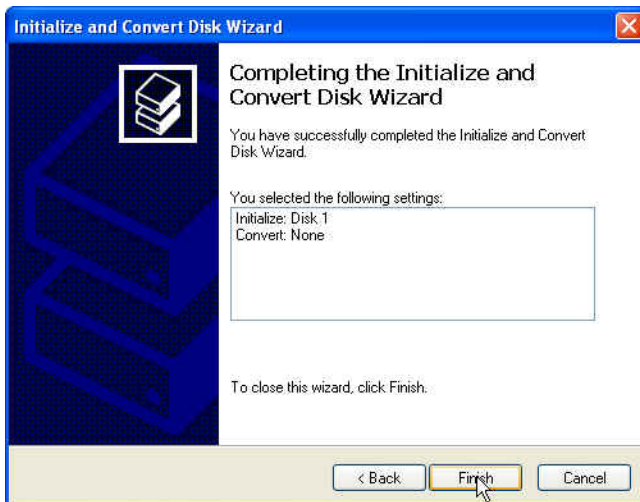
11. The Computer Management window appears. The actual disks listed will depend on your system. In below figure, you can see there is a 232.88 GB unallocated partition. You must format the unallocated disk space before using it.
Right click "Unallocated space", select "New Partition…" and follow the Wizard instructions.
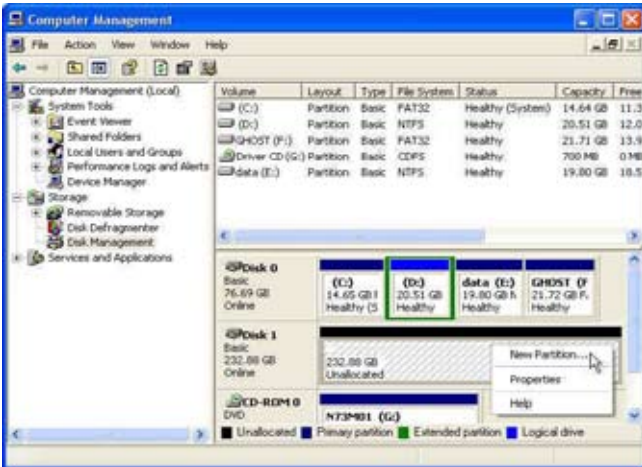
12. When "New Partition Wizard" appears, click "Next" to continue.
13. When "Primary partition" screen appears, click "Next" to continue.
14. When "Specify Partition Size" screen appears, click "Next" to continue.
15. When "Assign Drive Letter or Path" screen appears, click "Next" to continue.
16. Click "Finish" to end the "New Partition Wizard".
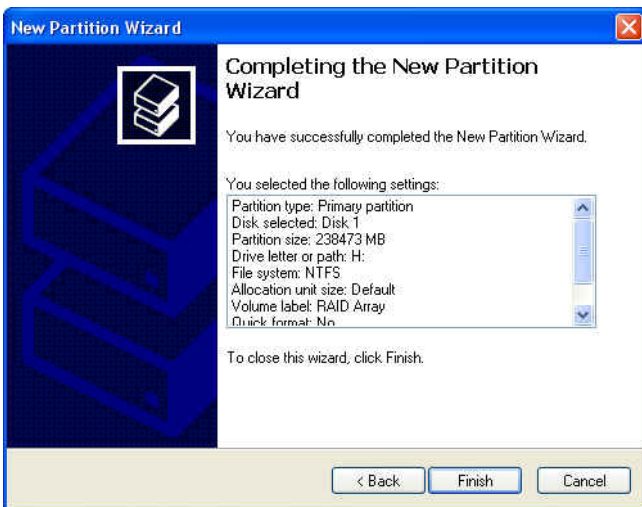
17. The format of disk array (Disk1) is in processing.
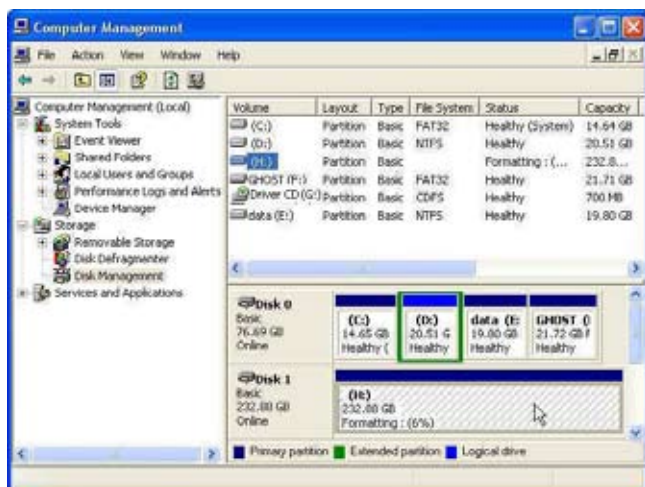
18. Format completed, now you can start using your RAID array.