Renaissance

Motherboard

User's Manual

FOXCONN®

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Version:

User's Manual V1.0 for Renaissance motherboard.
P/N: 3A2216G00-000-G

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 other-
wise 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

$$C \, E$$

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 Renaissance

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/2008

Printed Name : James Liang

Declaration of conformity

FC

Trade Name: FOXCONN
Model Name: Renaissance
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 :   2008

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, 1394a, 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.foxconnchannel.com/support/online.aspx

CPU, Memory, VGA Compatibility Supporting Website :
http://www.foxconnchannel.com/product/Motherboards/compatibility.aspx

Thank you for buying Foxconn Renaissance 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, Renaissance 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 LGA1366 socket Intel® CPU: Intel® Core™ i7 processors
QPI	4.8 / 6.4 (GT/sec)
Chipset	North Bridge: Intel® X58
	South Bridge: Intel® ICH10R
Memory	6 x 240-pin DDR3 DIMM sockets
	Support up to 24GB of system memory
	Three channel DDR3 1600(oc*)/1333(oc*)/1066MHz architecture
	(oc*: Overclocking)
Audio	Realtek 8-channel audio chip
	High Definition Audio
	2/4/5.1/7.1-channel
	Support for S/PDIF out
	Support Jack-Sensing function
	Support DTS™ connect and Dolby Digital Live technology
LAN	Broadcom 10/100/1000Mb/s LAN chip
Expansion Slots	2 x PCI Express slots (x16, Orange)
	2 x PCI Express slots (x8, Black)
	1 x PCI Express x4 slot
	1 x PCI slot
Onboard Serial ATA	6 x SATA connectors (Controlled by ICH10R)
	300MB/s data transfer rate
	Support hot plug and NCQ (Native Command Queuing)
USB	Support hot plug
	Support up to 12 x USB 2.0 ports (8 rear panel ports, 2 onboard USB
	headers supporting 4 extra ports)
	Supports USB 2.0 protocol up to 480Mb/s
Internal Connectors	1 x 24-pin ATX main power connector
	1 x 8-pin ATX 12V power connector
	1 x IDE connector (Controlled by Jmicron363)
	1 x CPU fan header (4-pin)
	3 x System fan header (3-pin)
	2 x Serial-Attached SCSI Connectors (Controlled by Marvell 88SE6320B1)
	1 x HDA Header
	1 x 1394a connector
	2 x USB 2.0 connectors (supporting 4 x USB devices)
	6 x SATA connectors(Controlled by ICH10R)
	1 x Front Panel connector
	1 x IrDA connector
	1 x Chassis intrusion alarm header
	1 x Speaker connector

Back Panel	1 x PS/2 keyboard port
Connectors	2 x ESATA ports (Controlled by Jmicron363)
	1 x Optical S/PDIF out port
	1 x Coaxial S/PDIF out port
	8 x USB 2.0 ports
	1 x RJ-45 LAN port
Hardware Monitor	System voltage detection
	CPU/System temperature detection
	CPU/System fan speed detection
	CPU/System overheating shutdown
	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 Gen1.0	Support 4GB/s (8GB/s concurrent) bandwidth
	Low power consumption and power management features
PCI Express x16 Gen2.0	Support 8GB/s (16GB/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 LiveUpdate
	FOX LOGO
	FOX DMI
Operating System	Support for Microsoft® Windows® Vista/XP
Form Factor	ATX Form Factor, 12 inches x 9.6 inches (30.5cm x 24.4cm)

1-2 Layout
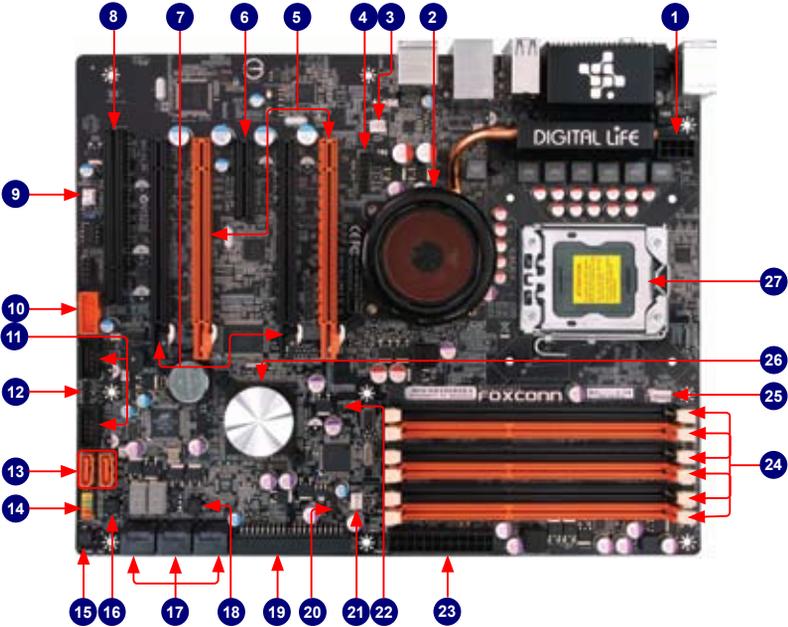
1. 8-pin ATX 12V Power Connector
2. North Bridge: Intel$^{®}$ X58
3. SYS_FAN2 Header
4. HDA-DH Header
5. PCI Express Slots (x16, Orange)
6. PCI Express x4 Slot
7. PCI Express Slots (x8, Black)
8. PCI Slot
9. SYS_FAN1 Header
10. 1394a connector
11. Front USB Connectors
12. Speaker Connector
13. Serial-Attached SCSI Connectors
14. Front Panel Connector

15. Power On Button
16. Reset Button
17. SATA Connectors
18. Clear COMS Button
19. IDE Connector
20. IrDA Connector
21. SYS_FAN3 Header
22. Chassis Intrusion Alarm Header
23. 24-pin ATX Power Connector
24. DDR3 DIMM Slots
25. CPU_FAN1 Header
26. South Bridge: Intel $^{®}$ ICH10R
27. LGA 1366 CPU Socket

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

1-3 Back Panel Connectors

PS/2 Keyboard Port

1

Optical S/PDIF Out Port

3

2 **4**

USB Ports   Coaxial S/PDIF Out Port

LAN Port   1394a Port

5 **7**

2

USB Ports

6

External
SATA Ports

Line In

Line Out

Microphone In

Subwoofer

Rear Speaker

Side Speaker

8

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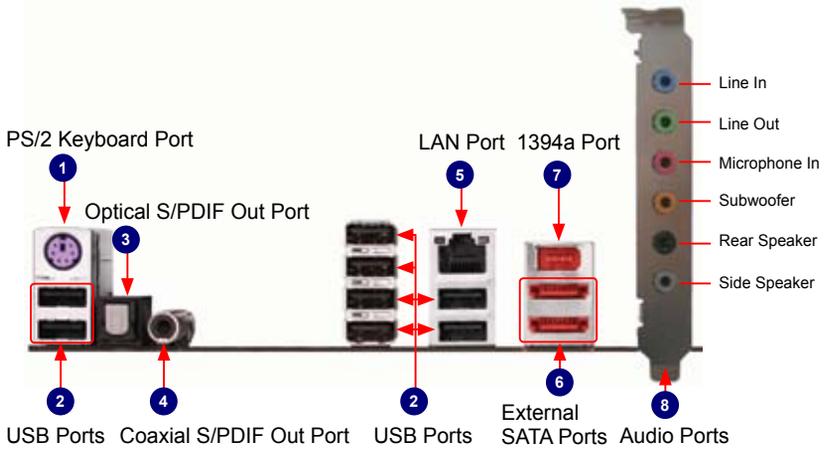
1. PS/2 Keyboard Port
Use the lower port (purple) to connect a PS/2 keyboard.

2. 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.

3. Optical S/PDIF Out Port
This port provides digital audio out to an external audio system that supports digital optical audio.

4. Coaxial S/PDIF Out Port
This port provides digital audio out to an external audio system that supports digital coaxial audio. Before using this feature, ensure that your audio system provides a coaxial digital audio in connector.

5. 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
1000M	Off	No Link	Off	No Link
	Green Blinking	Data Activity	Off	10Mb/s Connection
			Green	100Mb/s Connection
			Orange	1000Mb/s Connection

Active   Link
LED   LED
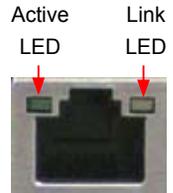
6. External SATA Ports
To connect external SATA device(s) to your system by expanding the internal SATA port(s) to the chassis back panel. External SATA device shall provide power by its own.

7. 1394a Port
This port is used to connect a 1394a device.

5

8. Audio Ports (HARP Card)

For the definition of each audio port, please refer to the table below :

Port	2-channel	4-channel	5.1-channel	7.1-channel
Blue	Line In	Line In	Line In	Line In
Green	Line Out	Front Speaker Out	Front Speaker Out	Front Speaker Out
Pink	Microphone In	Microphone In	Microphone In	Microphone In
Orange	-	-	Center/Subwoofer Out	Center/Subwoofer Out
Black	-	Rear Speaker Out	Rear Speaker Out	Rear Speaker Out
Grey	-	-	-	Side Speaker Out

* : The HARP card is in the package, you can connect it to the back panel.

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
- OnBoard Button
- OnBoard LED
- OnBoard Debug LED

Please visit this website for more supporting information about CPU, Memory and VGA for your motherboard :
http://www.foxconnchannel.com/product/Motherboards/compatibility.aspx

2-1 Install the CPU and CPU Cooler

CAUTION

! 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 one of the CPU. The CPU cannot be inserted if oriented incorrectly. (Or you may locate the notches on both sides of the CPU and alignment keys on the CPU socket.)

■ 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 wish 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.

Hyper-Threading Technology System Requirements:
(Go to Intel's website for more information about the Hyper-Threading Technology)

■ An Intel® CPU that supports HT Technology

■ A chipset that supports HT Technology

■ An operating system that is optimized for HT Technology

■ A BIOS that supports HT Technology and has it enabled

Install the CPU

Locate the alignment keys on the motherboard CPU socket and the notches on the CPU.

LGA1366 CPU Socket

Alignment Key

Pin-1 corner of the CPU Socket

LGA1366 CPU

Notch

Pin-1 triangle marking of CPU
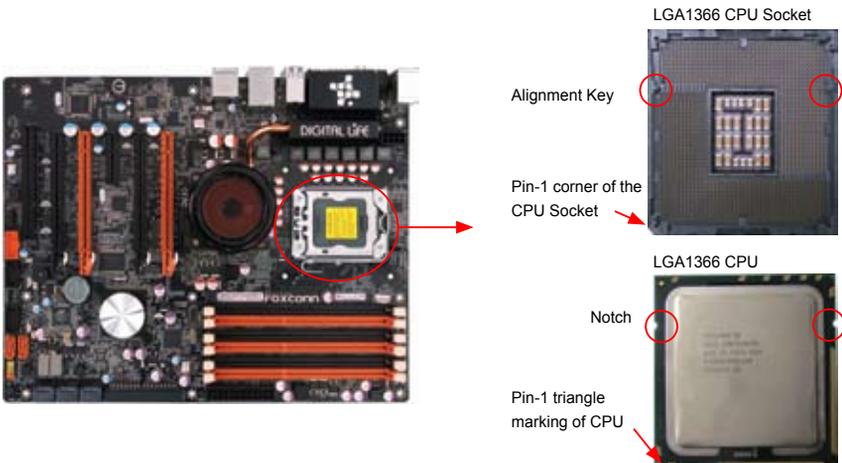
Follow the steps to install the CPU onto the CPU socket :

! Before installing the CPU, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the CPU.

1. Release the CPU socket lever.

2. Lift the metal cover on the CPU socket.
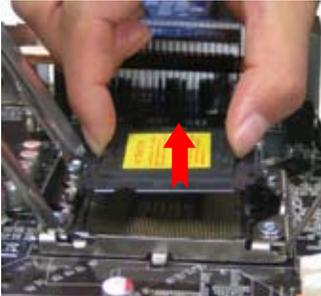
3. Remove protective socket cover.

4. Check pin one marking (triangle) with the pin one corner of the CPU socket, align the CPU notches with the socket alignment keys and gently put the CPU onto the socket.

5. When CPU is properly seated, replace the metal cover and push the CPU socket lever back to its locked position.

Install the CPU Cooler

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

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

2. Place the four bolts of the CPU cooler to the holes of the motherboard, push them straight down from the top, and the bolts will be fastened on the motherboard. That's it.

3. Check the solder side of the motherboard, the push pin should be fixed as depicted in the picture.

4. Attach the 4-wire CPU cooler connector to the CPU FAN header on the motherboard .
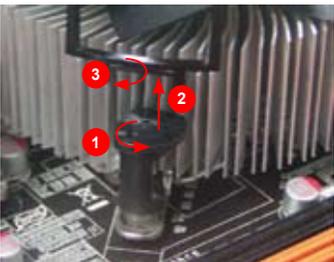
Release bolts of CPU cooler from motherboard :
1. Turning the push pin (bolt) along with the direction of arrow (counterclockwise).
2. Pull the push pin straight up.
3. Turning push pin clockwise to its default position.

⚠ 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

⚠ **CAUTION**

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.
- 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.

Triple Channel Memory Configuration

This motherboard provides six DDR3 memory sockets and supports Triple Channel Technology. When memory is installed, the BIOS will automatically check the memory in your system.

Six DDR3 memory sockets are divided into three channels and each channel has two memory sockets as following:

    Channel 0 : DIMM1, DIMM2   Channel 1 : DIMM3, DIMM4   Channel 2 : DIMM5, DIMM6

The combinations of DIMM modules are :

	DIMM1	DIMM2	DIMM3	DIMM4	DIMM5	DIMM6
Single Channel	DS/SS	-	-	-	-	-
Single Channel	DS/SS	DS/SS	-	-	-	-
Single Channel	-	-	DS/SS	-	-	-
Single Channel	-	-	DS/SS	DS/SS	-	-
Single Channel	-	-	-	-	DS/SS	-
Single Channel	-	-	-	-	DS/SS	DS/SS
Dual Channel	DS/SS	-	DS/SS	-	-	-
Dual Channel	DS/SS	DS/SS	DS/SS	DS/SS	-	-
Dual Channel	DS/SS	-	-	-	DS/SS	-
Dual Channel	DS/SS	DS/SS	-	-	DS/SS	DS/SS
Dual Channel	-	-	DS/SS	-	DS/SS	-
Dual Channel	-	-	DS/SS	DS/SS	DS/SS	DS/SS
Triple Channel	DS/SS	-	DS/SS	-	DS/SS	-
Triple Channel	DS/SS	DS/SS	DS/SS	DS/SS	DS/SS	DS/SS

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

⚠ **CAUTION**

- For this motherboard, DIMM(1,2), DIMM(3,4), DIMM(5,6) are three pairs of channels. In each pair of DIMM channel, you need to install orange DIMM first, then install black DIMM the second. Black DIMM can not function if no orange DIMM is installed.

Installing a Memory

DIMM2
DIMM1
DIMM4
DIMM3
DIMM6
DIMM5

144-Pin

96-Pin
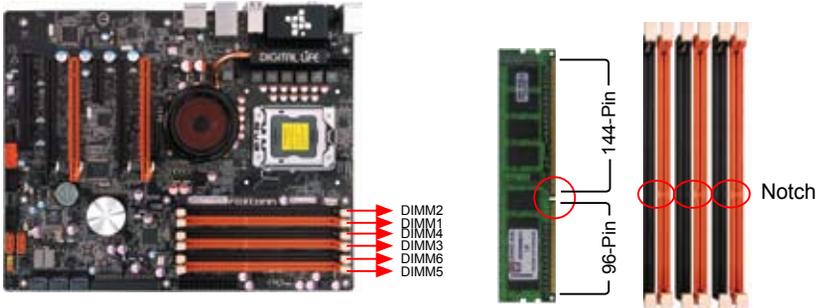
Notch

(*: The order of DIMM slot arrangement is based on Intel spec.)

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.
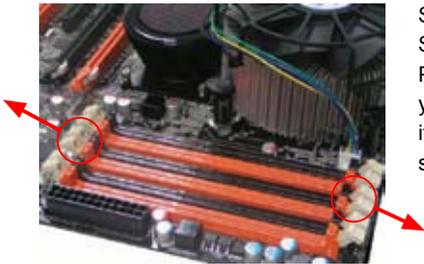
Step 1:
Spread the clips at both ends of the memory socket. Place the memory module onto the socket, then put your fingers on top edge of the module, and push it down firmly and seat it vertically into the memory socket.
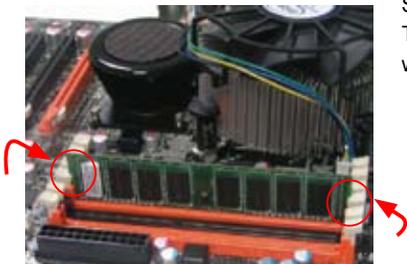
Step 2:
The clips at both ends of the socket will snap into place when the memory module is securely inserted.

2-3 Install an Expansion Card

■ Make sure the motherboard supports the expansion card. Carefully read the manual that came with your expansion card.

■ Always turn off the computer and unplug the power cord from the power outlet before installing an expansion card to prevent hardware damage.

PCI Express x4

PCI Express x16

PCI Express x8

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.

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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 : PWR2
PWR2 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.
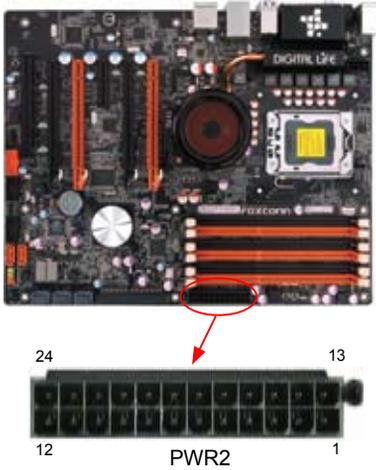
Pin #	Definition	Pin #	Definition
1	3.3V	13	3.3V
2	3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON(Soft On/Off)
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	Power Good	20	NC
9	+5V SB(Stand by +5V)	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	3.3V	24	GND

24   13

12   PWR2   1

! 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.

Pin No. 24
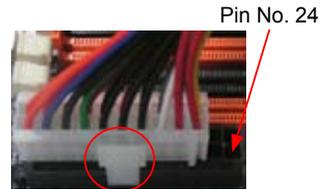
20-Pin Power

8-pin ATX 12 V Power Connector : PWR1
Connect the 8-pin ATX 12V power supply to PWR1 and provides power to the CPU.

5   1

+12V—— ——GND

8   4
PWR1
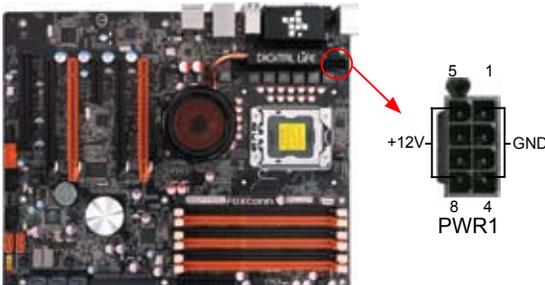
Pin #	Definition	Pin #	Definition
1	GND	5	+12V
2	GND	6	+12V
3	GND	7	+12V
4	GND	8	+12V

Connect a 4-pin power plug

CAUTION ! We recommend you using an 8-pin ATX 12V power supply. If you are using a 4-pin power supply, you need to align the ATX power connector according to the picture on the right.

USB Connectors : F_USB1/2

In addition to the eight 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.

```
        1   2
VCC ——      —— VCC
D-  ——      —— D-
D+  ——      —— D+
GND ——      —— GND
EMPTY ——    —— NC
        9  10
```
F_USB 1/2
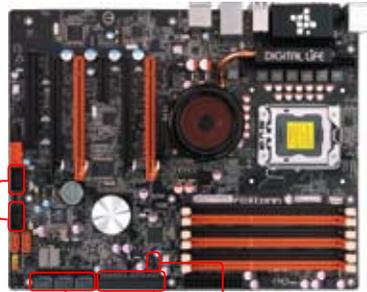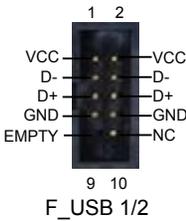
Serial ATA Connectors : SATA_1/2/3/4/5/6

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.

```
        1
        GND
        TX+
        TX-
        GND
        RX-
        RX+
        GND
```
SATA_1/2/3/4/5/6
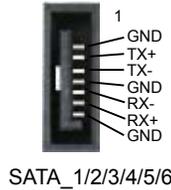
IDE Connector : PIDE

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

```
1    —— +5V
2    —— EMPTY
3    —— IRRX
4    —— GND
5    —— IRTX
```
IR

IrDA Connector : IR

This connector supports infrared wireless transmitting and receiving device.
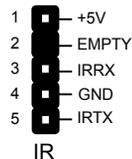
Front Panel Connector : FP1

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.

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.

Fan Connectors : CPU_FAN1, SYS_FAN1/2/3

There are four 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 3, S4 and S5 sleeping states.
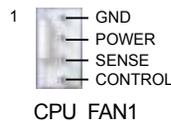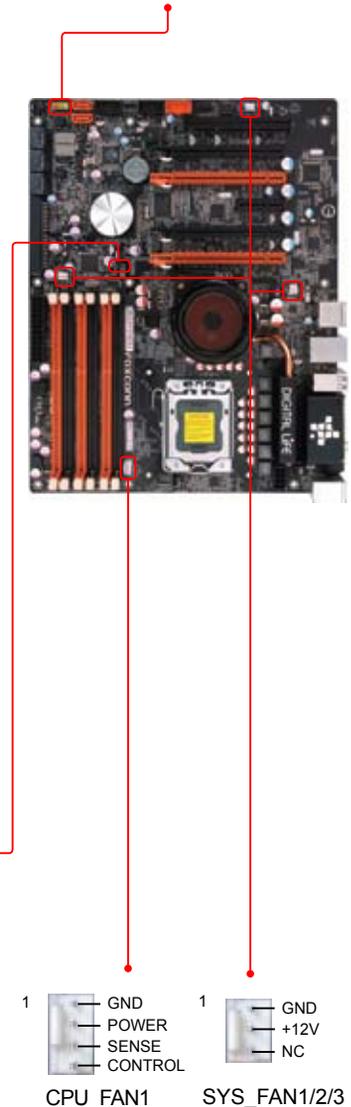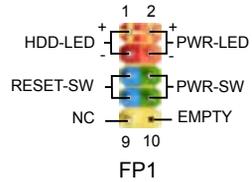
1394a Connector : F_1394

The 1394a expansion cable can be connected to either the front (provided that the front panel of your chassis is equipped with the appropriate interface) or real panel of the chassis.

1	2
TPA+	TPA-
GND	GND
TPB+	TPB-
+12V	+12V
EMPTY	GND
9	10

F_1394
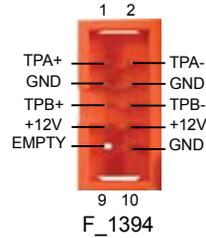
Speaker Connector : SPEAKER

The speaker connector is used to connect speaker of the chassis.

SPKJ	1
EMPTY	2
NC	3
SPKJ	4

SPEAKER

Serial-Attached SCSI Connector : SAS_SATA_1/2

The Serial-Attached SCSI connector is used to connect with SATA Hard Disk and some SCSI devices. SAS connector is backward compatible with SATA connector.


```
1
  GND
  TX+
  TX-
  GND
  RX-
  RX+
  GND
```
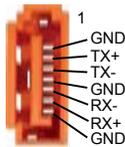
SAS_SATA_1/2

HD Audio Connector : HDA_DH

There is no onboard audio on the motherboard, so we outfit a HARP card (in the package). This header is used to connect the HARP card to the back panel.

CD_IN Connector
F_AUDIO Connector

HARP Card

1	2
BCLK	GND
RSTJ	3.3V
SYNC	GND
SDOUT	3.3V
SPKR	12V
SPDIF	NC
F_AUD_DET	5V_SB
SDIN	GND
15	16

HDA_DH
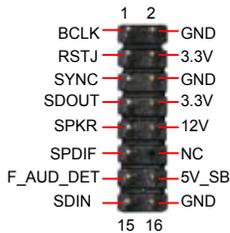
The right picture shows the HARP card installed on the motherboard.

2-5 OnBoard Button

Power on Button: PWR_ON
Push the power on button to power on the system.

Reset Button: RST
Push the reset button to reboot the system.

Clear CMOS Button: CLS_CMOS_SW
Turn off the AC power supply, push the CLS_CMOS
_SW button and hold there for a couple of seconds
to clear CMOS.

PWR_ON   RST   CLS_CMOS_SW

CAUTION

- Make sure the power supply is turned off before pressing the CLS_CMOS_SW button
  to clear CMOS.
- Push down the CLS_CMOS_SW button and hold it there for a couple of seconds to
  clear the CMOS completely, then release.

2-6 OnBoard LED

DRAM Power LED:
The LED lights up indicating the system is on or the
system is staying at S1 or S3 sleeping state.

+5V Standby LED:
It will light whenever the power supply that connected to
the motherboard is switched on.

Channel C DRAM Support LED:
The LED will light up when DIMM5 and DIMM6 support
the memory module plugged in it.

WARNING!
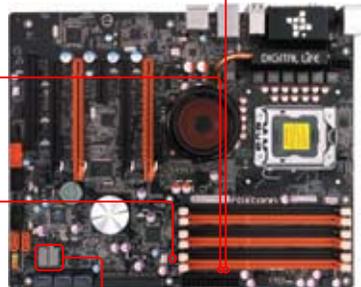
Do not remove or plug in any device when the
onboard LED is lighting on.

2-7 OnBoard Debug LED

2-digital LED readout displays hardware status and
enables quick error diagnosis.

3

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
- ■ Advanced BIOS Features
- ■ Advanced Chipset Features
- ■ Boot Configuration Features
- ■ Power Management Setup
- ■ PC Health Status
- ■ Fox Central Control Unit
- ■ BIOS Security Features
- ■ Load Optimal Defaults
- ■ 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 Tab to show POST screen, DEL to enter SETUP**" appears at the bottom of the screen, you can press <DEL> key to enter Setup.

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:

```
           CMOS Setup Utility - Copyright (C) 1985-2008, American Megatrends, Inc.

    ► System Information              ► Fox Central Control Unit

    ► Advanced BIOS Features          ► BIOS Security Features

    ► Advanced Chipset Features          Load Optimal Defaults

    ► Boot Configuration Features        Save & Exit Setup

    ► Power Management Setup              Exit Without Saving

    ► PC Health Status




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

         Configure Time and Date.  Display System Information...

         v02.63   (c) Copyright 1985-2008, American Megatrends, Inc.
```

► **System Information**

It displays the basic system configuration, such as BIOS ID, CPU Name, memory size and system date, time. They all can be viewed or set up through this menu.

► **Advanced BIOS Features**

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

► **Advanced Chipset Features**

It displays some setting values for the chipset. USB functions and PCIE ports configuration can be set up here.

► **Boot Configuration Features**

Boot features can be set up through this menu. You can set the boot device priority and enable "Quick Boot" and "Quiet Boot" feature here.

► **Power Management Setup**

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

► **PC Health Status**

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

► **Fox Central Control Unit**

Some special proprietary features (such as overclocking) can be set up through this menu, and there are CPU, memory configuration and Voltage control here.

► **BIOS Security Features**

The Supervisor/User password can be set up through this menu to prevent unauthorized use of your computer. If you set a password, the system will ask you to key in correct password before boot or access to Setup.

► **Load Optimal 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.

► **Save & Exit Setup**

Save setting values to CMOS and exit.

► **Exit Without Saving**

Do not change anything and exit the setup.

System Information

This sub-menu 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.

```
CMOS Setup Utility - Copyright (C) 1985-2008, American Megatrends, Inc.
                          System Information
┌──────────────────────────────────────────────────┬─────────────────────────┐
│ System Overview                                    │        Help Item        │
├──────────────────────────────────────────────────┼─────────────────────────┤
│ AMIBIOS                                            │ Use [ENTER], [TAB]      │
│ BIOS Version              :08.00.15                │ or [SHIFT-TAB] to       │
│ BIOS Bulid Date           :10/16/08               │ select a field.         │
│ BIOS ID                   :853F1P02               │                         │
│                                                    │ Use [+] or [-] to       │
│ Processor                                          │ configure system time.  │
│ Genuine Intel(R) CPU      000 @ 3.20GHz           │                         │
│ Speed                     :3200MHz                │                         │
│ Count                     :1                      │                         │
│                                                    │                         │
│ System Memory                                      │                         │
│ System Memory Size        :2048MB                 │                         │
│                                                    │                         │
│ System Time               [01:13:09]             │                         │
│ System Date               [Tue 01/01/2008]       │                         │
│ MAC Address               :00-1F-E2-0E-2B-BA     │                         │
└──────────────────────────────────────────────────┴─────────────────────────┘
  ↑↓←→:Move   Enter:Select   +/-/:Value   F10:Save   ESC:Exit   F1:General Help
                          F9:Optimized Defaults
```

AMIBIOS

► BIOS Version

It displays the current BIOS version. User can check this information and discuss with the field service people if a BIOS upgrade is needed.

► BIOS Build Date

This item shows the BIOS building date.

► BIOS ID

This item shows the BIOS ID.

Processor

► CPU Name

It displays the current CPU name.

► Speed

It displays the current CPU speed.

► Count

It shows the CPU numbers.

System Memory

► System Memory Size

This item displays the current memory size. The size is depending on how many memory modules were installed in your system before powering on.

► System Time

This item allows you to configure the desired time. Use [ENTER], [TAB] or [SHIFT-TAB] to select a field. Use [+] or [-] to input the value.

The three fields of the setting are <hour> : <minute> : <second> respectively.

► System Date

<weekday><month><date> <year> format.

Day—weekday from Sun. to Sat., this message is automatically displayed by BIOS (Read

Only).

Month—month from 1 to 12.

Date—date from 1 to 31.

Year—year, set up by users.

Use [ENTER], [TAB] or [SHIFT-TAB] to select a field. Use [+] or [-] to input the value.

▶ **MAC Address**

This item shows the onboard LAN MAC address.

Advanced BIOS Features

Advanced Settings	Help Item
WARNING: Setting wrong values in below sections may cause system to malfunction.	Configure the IDE device(s).
► IDE configuration [Press Enter]	
► SuperIO Configuration [Press Enter]	
► OnBoard Device Configuration [Press Enter]	

↑↓←→:Move   Enter:Select   +/-/:Value   F10:Save   ESC:Exit   F1:General Help
F9:Optimized Defaults
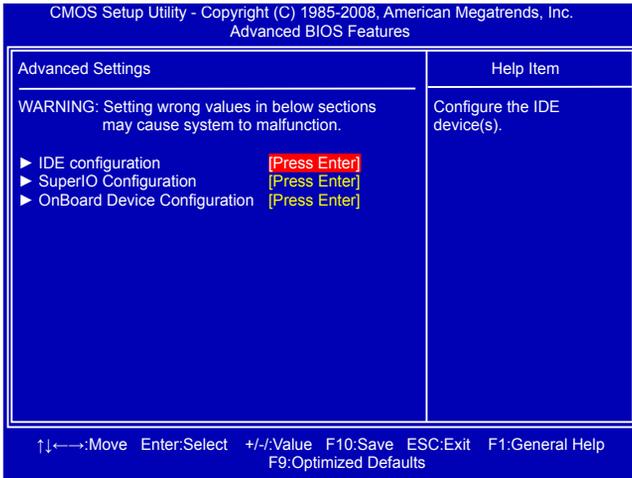
► **IDE Configuration/SuperIO Configuration/OnBoard Device Configuration**

Press <Enter> to go to relative submenu.

IDE Configuration

IDE Configuration	Help Item
SATA#1 Configuration [Compatible]	Options
Configure SATA#1 as [IDE]	
SATA#2 Configuration [Enhanced]	Disabled
	Compatible
► Primary IDE Master [Not Detected]	Enhanced
► Primary IDE Slave [Not Detected]	
► Secondary IDE Master [Not Detected]	
► Secondary IDE Slave [Not Detected]	
► Third IDE Master [Not Detected]	
► Fourth IDE Master [Not Detected]	
► Fifth IDE Master [Not Detected]	
► Fifth IDE Slave [Not Detected]	
► Sixth IDE Master [Not Detected]	
► Sixth IDE Slave [Not Detected]	
IDE Detect Time Out [35]	

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

► **SATA#1 Configuration**

SATA#1 are the SATA ports 1, 2, 3, 4 of the motherboard. This item allows you select the mode of the SATA ports. Setting values are: [Disabled], [Compatible], [Enhanced].

► **Configure SATA#1 as**

This item is used to set the operation mode of your SATA ports 1, 2, 3, 4. Setting values are: [IDE]; [RAID]; [AHCI].

[IDE] - This configures the SATA ports to support IDE mode.

[RAID] - When you enable RAID, it means all your SATA drives must also support AHCI.

[AHCI] - The Advanced Host Controller Interface (AHCI) specification describes the register

level interface for a Host Controller for Serial ATA. The specification includes a description of the hardware/software interface between system software and the host controller hardware. AHCI provides more advanced features including SATA features, but some SATA drives may not support AHCI, unless they are labeled with AHCI support in its specification.

If your motherboard supporting AHCI, and you have a SATA device, which also supports AHCI, then you can select IDE option to have fair performance (only PATA, SATA level), or you can select AHCI to get its best performance.

► **SATA#2 Configuration**

SATA#2 are the SATA ports 5,6 of the motherboard. This item allows you select the mode of the SATA ports. Setting values are: [Disabled], [Enhanced].

► **AHCI Configuration (Appears when "Configure SATA#1" is set to[AHCI])**

Press [Enter] to set AHCI settings. You can enable BIOS to support AHCI and select the waiting time for CD/DVD devices in AHCI mode. This sub-menu also displays the status of IDE devices.

► **Primary/Secondary/Fifth/Sixth IDE Master/Slave, Third/Fourth IDE Master**

While entering setup, BIOS automatically detects the presence of IDE devices. This item displays the drive information of IDE devices. Please refer to the mapping table in next page.

► **Hot Plug (Appears when "Configure SATA#1" is set to[RAID]/[AHCI])**

This item is used to enable or disable hot plug function for SATA hard disks when in RAID/AHCI mode.

► **IDE Detect Time Out**

This item is used to select the time out value for detecting ATA/ATAPI devices. If the checking time is over the set value, the system will skip it.

Mapping Tabe:

	With PATA IDE drives				Without PATA IDE drives				With PATA IDE drives	
	IDE Configuration				IDE Configuration				IDE Configuration	
	SATA#1 Configuration Compatible/Enhanced		SATA#1 Configuration Disabled		SATA#1 Configuration Compatible/Enhanced		SATA#1 Configuration Disabled		Configure SATA#1 as	
	SATA#2 Configuration		SATA#2 Configuration		SATA#2 Configuration		SATA#2 Configuration		RAID	AHCI
	Enhanced	Disabled	Enhanced	Disabled	Enhanced	Disabled	Enhanced	Disabled		
Primary IDE Master	SATA 1	SATA 1	SATA 5	ESATA1	SATA 1	SATA 1	SATA 5	ESATA1	ESATA1	ESATA1
Primary IDE Slave	SATA 3	SATA 3	-	ESATA2	SATA 3	SATA 3	-	ESATA2	ESATA2	ESATA2
Secondary IDE Master	SATA 2	SATA 2	SATA 6	IDE0	SATA 2	SATA 2	SATA 6	-	IDE0	IDE0
Secondary IDE Slave	SATA 4	SATA 4	-	IDE1	SATA 4	SATA 4	-	-	IDE1	IDE1
Third IDE Master	SATA 5	ESATA1	ESATA1	-	SATA 5	ESATA1	ESATA1	-	-	-
Third IDE Slave	-	ESATA2	ESATA2	-	-	ESATA2	ESATA2	-	-	-
Forth IDE Master	SATA 6	IDE0	IDE0	-	SATA 6	-	-	-	-	-
Forth IDE Slave	-	IDE1	IDE1	-	-	-	-	-	-	-
Fifth IDE Master	ESATA1	-	-	-	ESATA1	-	-	-	-	-
Fifth IDE Slave	ESATA2	-	-	-	ESATA2	-	-	-	-	-
Sixth IDE Master	IDE0	-	-	-	-	-	-	-	-	-
Sixth IDE Slave	IDE1	-	-	-	-	-	-	-	-	-

3

SuperIO Configuration

```
           CMOS Setup Utility - Copyright (C) 1985-2008, American Megatrends, Inc.
                              SuperIO Configuration
 ┌──────────────────────────────────────────────────────┬──────────────────────┐
 │ Configure F71883FG Super IO Chipset                   │      Help Item       │
 │ ─────────────────────────────────────────             │                      │
 │ IrDA Address                      [2F8/IRQ3]           │                      │
 │  IrDA Mode                        [IrDA (1.6us)]       │                      │
 │   IR Duplex Mode                  [Half Duplex]        │                      │
 │  IRTX Pin Select                  [Normal]             │                      │
 │  IRRX Pin Select                  [Normal]             │                      │
 │  IR Tx to Rx Delay Select         [No Delay]           │                      │
 │  IR Rx to Tx Delay Select         [No Delay]           │                      │
 │                                                        │                      │
 │                                                        │                      │
 │                                                        │                      │
 │                                                        │                      │
 │                                                        │                      │
 │                                                        │                      │
 ├──────────────────────────────────────────────────────┴──────────────────────┤
 │  ↑↓←→:Move   Enter:Select   +/-/:Value   F10:Save   ESC:Exit   F1:General Help│
 │                              F9:Optimized Defaults                            │
 └──────────────────────────────────────────────────────────────────────────────┘
```

► **IrDA Address**

This item is used to assign the I/O address and interrupt request (IRQ) for the onboard infra-red device.

► **IrDA Mode**

This item is used to select the IR mode. The available settings are:

[IrDA (1.6us)]: An IrDA device for maximum 115200 bit/s.

[IrDA (3/16 bit)]: A faster IrDA for 1152000 bit/s.

► **IR Duplex Mode**

This item enables you to determine the transfer mode of the onboard infrared chip. Setting values are: [Full Duplex], [Half Duplex].

► **IRTX Pin Select**

This item allows BIOS to Select Transmit pin is in normal condition or inverse the IRTX (IR Mode).

► **IRRX Pin Select**

This item allows BIOS to Select Receiver pin is in normal condition or inverse the IRRX (IR Mode).

► **IR Tx to Rx Delay Select**

This item allows BIOS to Select IR from Tx to Rx 4 charactersTime Delay. (IR Mode)

► **IR Rx to Tx Delay Select**

This item allows BIOS to Select IR from Rx to Tx 4 charactersTime Delay. (IR Mode)

OnBoard Device Configuration

```
CMOS Setup Utility - Copyright (C) 1985-2008, American Megatrends, Inc.
                    OnBoard Device Configuration

  OnBoard Device Configuration                          Help Item

  1394 Controller               [Enabled]                  Options
  Broadcom5786 Lan Controller   [Enabled]
  Broadcom5786 Lan BOOTROM      [Disabled]         Enabled
  SAS Controller                [Enabled]          Disabled
  JMicron 36x ATA Controller    [IDE Mode]
  HDA Controller                [Enabled]








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

► **1394 Controller**

This item is used to enable or disable the 1394 controller.

► **Broadcom5786 Lan Controller**

This item is used to enable or disable the onboard Broadcom5786 LAN controller.

► **Broadcom5786 Lan BOOTROM**

This item is used to enable or disable the onboard Broadcom5786 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.

► **SAS Controller**

This item is used to enable or disable the SAS(Serial Attached SCSI) controller.

► **JMicron 36x ATA Controller**

This item is used to select the operating mode for JMicron 36x ATA controller. Setting values
are: [Disabled], [IDE Mode], [RAID + IDE Mode] and [AHCI + IDE Mode]. This item is in charge
of the ESATA ports on the back panel and the IDE connector on board.

► **HDA Controller**

This item is used to enable or disable the HD Audio Controller.

Advanced Chipset Features

```
          CMOS Setup Utility - Copyright (C) 1985-2008, American Megatrends, Inc.
                            Advanced Chipset Features
┌──────────────────────────────────────────────────┬─────────────────────────┐
│ Advanced Chipset Settings                          │       Help Item         │
│ NB Revision              :B2                        │                         │
│ Current QPI Frequency    :4.800GT                   │        Options          │
│                                                     │                         │
│ WARNING:Setting wrong values in below sections      │ Disabled                │
│        may cause system to malfunction.             │ 2 USB Ports             │
│                                                     │ 4 USB Ports             │
│ USB Functions            [12 USB Ports]             │ 6 USB Ports             │
│ USB Port Configure       [6X6 USB Ports]            │ 8 USB Ports             │
│ USB 2.0 Controller       [Enabled]                  │ 10 USB Ports            │
│                                                     │ 12 USB Ports            │
│ PCIE Ports Configuration                            │                         │
│    PCIE Port 3           [Auto]                      │                         │
│    PCIE Port 4           [Auto]                      │                         │
│    PCIE High Priority Port [Disabled]               │                         │
│                                                     │                         │
│                                                     │                         │
├──────────────────────────────────────────────────┴─────────────────────────┤
│ ↑↓←→:Move  Enter:Select  +/-/:Value  F10:Save  ESC:Exit  F1:General Help      │
│                         F9:Optimized Defaults                                │
└──────────────────────────────────────────────────────────────────────────────┘
```

► NB Revision/Current QPI Frequency

It displays the NB Revision and current QPI frequency.

► USB Functions

This item is used to select how many USB ports are available.

► USB Port Configure

This item is used to configure USB Ports. Options are: [6x6 USB Ports] and [8x4 USB ports].

► USB 2.0 Controller

This item is used to enable or disable the Enhanced Host Controller Interface for USB.

PCIE Ports Configuration

► PCIE Port 3

This item is used to enable/disable the PCIE Port 3 function. Select [Auto], OS will automatically determine wether to enable PCIE Port 3 function.

► PCIE Port 4

This item is used to enable/disable the PCIE Port 4 function. Select [Auto], OS will automatically determine wether to enable PCIE Port 4 function.

► PCIE High Priority Port

This item is used to select which PCIE port will be used as the the high priority port.

Boot Configuration Features

```
CMOS Setup Utility - Copyright (C) 1985-2008, American Megatrends, Inc.
                    Boot Configuration Features
```

Boot Settings	Help Item
► Boot Settings Configuration [Press Enter]	Configure Settings during System Boot.
► Boot Device Priority [Press Enter]	
► Hard Disk Drives [Press Enter]	
► CD/DVD Drives [Press Enter]	

```
↑↓←→:Move   Enter:Select   +/-/:Value   F10:Save   ESC:Exit   F1:General Help
                          F9:Optimized Defaults
```
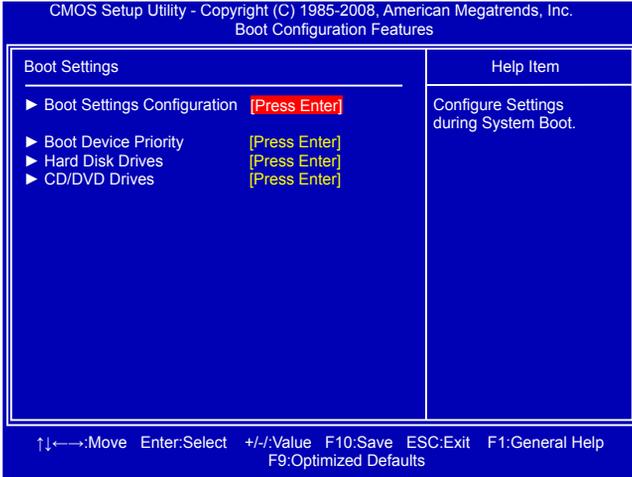
► Boot Settings Configuration

Press <Enter> to go to relative submenu.

► Boot Device Priority

This item is used to specify the boot device priority sequence.

► Hard Disk Drives

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].

► CD/DVD Drives

This option is used to select the priority for CD-ROM startup.

Boot Settings Configuration

```
CMOS Setup Utility - Copyright (C) 1985-2008, American Megatrends, Inc.
                    Boot Settings Configuration
```

Boot Settings Configuration	Help Item
Quick Boot [Enabled]	Allows BIOS to Skip certain tests while booting. This will decrease the time needed to boot the system.
Quiet Boot [Enabled]	

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

30
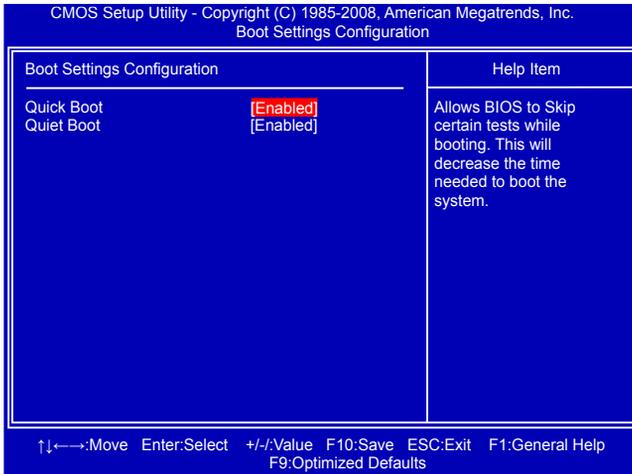
► Quick Boot

While Enabled, this option allows BIOS to skip certain tests while booting, this will shorten the time needed to boot the system.

► Quiet Boot

This item is used to enable/disable the quiet boot.

[Disabled] : Displays the normal POST messages.

[Enabled] : Displays OEM customer logo instead of POST messages.

Power Management Setup

Power Management Setup	Help Item
ACPI Suspend Type [S3 (STR)] Repost Video on S3 Resume [No] USB Device Wakeup From S3/S4 [Enabled] Resume On PME# [Disabled] Resume by RTC [Disabled] Power On after Power Fail [Power Off]	Select the ACPI state used for System Suspend.

↑↓→←:Move   Enter:Select   +/-/:Value   F10:Save   ESC:Exit   F1:General Help
F9:Optimized Defaults
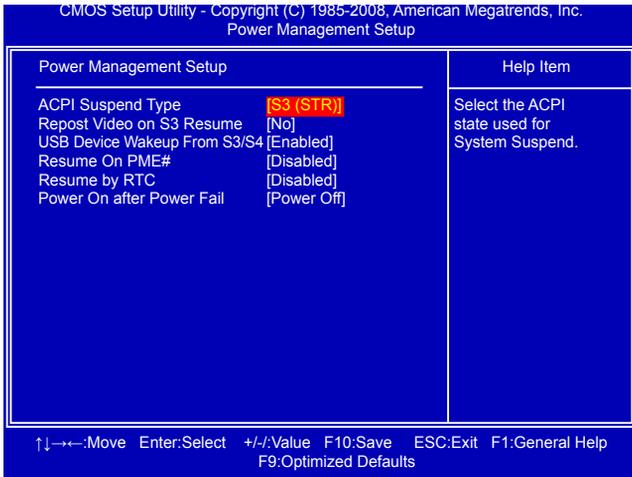
ACPI (Advanced Configuration and Power Interface) is an open industry standard interfaces enabling OS-directed configuration, power management, and thermal management of mobile, desktop, and server platforms. It defines five sleeping states, they are :

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 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.

When you select "Auto", it means OS will automatically take care and assign which mode is the most suitable now.

► Repost Video on S3 Resume

This item determines whether to invoke VGA BIOS post on S3/STR resume.

► USB Device Wakeup From S3/S4

This item is used to wake up the system by a USB device when it is staying at S3/S4 state.

► Resume On PME#

This item is used to enable/disable the PCI / PCIE devices to generate a wake up.

► Resume by RTC

This item is used to enable/disable RTC alarm event to generate a wake up.RTC is system real time clock.

► Power On after Power Fail

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

PC Health Status

```
CMOS Setup Utility - Copyright (C) 1985-2008, American Megatrends, Inc.
                        PC Health Status

PC Health Status                                      Help Item
H/W Health Function       [Enabled]
                                             Enables Hardware
CPU Temperature           :84°C/183°C        Health Monitoring
System Temperature        :42°C/107°C         Device.

CPU Fan Speed             :2127 RPM
System Fan1 Speed         :N/A
System Fan2 Speed         :N/A
System Fan3 Speed         :N/A

VCore                     :1.192 V (+0.00V)
VDIMM                     :1.481 V
VNB                       :1.088 V
+5V                       :5.183 V
+12V                      :11.792 V
VTT                       :1.691 V (+0.00V)
VCC                       :3.360 V
VSB                       :3.360 V

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

PC Health Status

► **H/W Health Function**

This item is used to enable hardware health monitoring device.

► **CPU/System Temperature**

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

► **CPU Fan/System Fan1/System Fan2/System Fan3 Speed**

The CPU fan/System fan1/System fan2/ System fan3 speed are automatically detected and displayed by the system.

► **VCore/VDIMM//VNB/+ 5V/+12V/VTT/VCC/VSB**

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

► **CPU FAN Mode Setting**

This item is used to select CPU fan configuration mode. You can select "Manual Mode by RPM/DutyCycle" to set the CPU fan speed manually. Default value is "Auto Fan by RPM".

► **Temperature Limit of Highest/Second/Third/Lowest**

This option is used to set CPU temperature grade from 0°C to 127°C. When CPU temperature reaches a higher grade, CPU fan will go faster. When reaches a lower grade, CPU fan will go slower. You can modify the grade value by pressing <+>/<-> key, or input it directly.

► **Fan Highest/Second/Third/Fourth/Lowest Setting**

This option is used to set the CPU fan speed according to different CPU temperature grade. You can modify the setting by pressing <+>/<-> key, or input a value directly. The illustration in next page can help you to know about the relationship between temperature and fan speed.

► **System FAN Mode Setting**

This item is used to select system fan configuration mode.

► **Temperature Limit of Highest/Second/Third/Lowest**

This option is used to set system temperature grade from 0°C to 127°C. When system temperature reaches a higher grade, system fan will go faster. When reaches a lower grade, system fan will go slower. You can modify the grade value by pressing <+>/<-> key, or input it directly.

► Fan Highest/Second/Third/Fourth/Lowest Setting

This option is used to set system fan speed. You can modify the setting by pressing <+>/<-> key, or input a value directly. The illustration below can help you to know about the relationship between temperature and fan speed.

► Chassis Intrusion

This item is used to enable or disable chassis intrusion function.

The relationship between temperature and fan speed:

Fox Central Control Unit

Fox Central Control Unit	Help Item
WARNING: Setting wrong values in below sections may cause system to malfunction.	Configure CPU.
► CPU Configuration [Press Enter]	
► Memory Timing Config. [Press Enter]	
► All Voltage Control [Press Enter]	
Super BIOS protect [Disabled]	
******* Ratio and Clock Seeting*******	
QPI Frequency [4.800GT]	
Clock Mode Select [Auto]	
Spread Spectrum Mode [Disabled]	

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

► **CPU Configuration/Memory Timing Config./All Voltage Control**

   Press <Enter> to go to relative submenu.

******* Ratio and Clock Setting *******

► **QPI Frequency**

   QPI (Quick Path Interconnect) frequency. This new interconnect features faster transmission speed, it allows you to select the transmission speed manually.

► **Clock Mode Select**

   This Item allows BIOS to select clock generator Mode in Linear or Table.

   [Auto]: BIOS will automatically decide CPU and PCI-EX frequency.

   [Manual]: You can select CPU frequency and PCI-EX frequency maually.

   When you set "Clock Mode Select" to [Manual], the following three items will appear:

► **CPU Frequency Setting**

   This item allows BIOS to select CPU over clock frequency. You can modify the frequency from 260 to 133 by pressing <+>/<-> keys.

► **PCI-EX Clock Select**

   This item allows BIOS to decide PCI-EX clock is adjusted by users or follows CPU frequency.

   If you select [From CPU], the following item " PCI-EX Frequency Setting" will be hiden.

► **PCI-EX Frequency Setting**

   This item allows BIOS to select PCI-EX over clock frequency. You can modify the frequency from 100 to 163 by pressing <+>/<-> keys.

► **Spread Spectrum**

   If you enabled this function, it can significantly reduce the EMI (Electro Magnetic Interference) generated by the system, so to comply with FCC regulation. But if overclocking is activated, you better disable it.

CPU Configuration

CPU Configuration

Configure advanced CPU settings		Help Item
Module Version: 3F.12		
		Sets the ratio
Manufacturer:Intel		between CPU Core
Genuine Intel(R) CPU 000 @ 3.20GHz		Clock and the FSB
Frequency :3.20GHz		Frequency.
BCLK Speed:133MHz		
Cache L1 : 128 KB		
Cache L2 : 1024 KB		
Cache L3 : 8192 KB		
Ratio Status : Unlocked (Min:12, Max:Unlimited)		
Ratio Actual Value : 24		
CPU Ratio Setting	[24]	
Hardware Prefetcher	[Enabled]	
Adjacent Cache Line Prefetcher	[Enabled]	
Limit CPUID MaxVal	[Disabled]	
Virtualization Technology	[Enabled]	
Execute Disable Bit	[Enabled]	

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

► **CPU Ratio Setting**

This item is used to set the ratio between CPU Core Clock and the FSB Frequency. You can modify the value by pressing <+>/<-> key. The default value is 24.

► **Hardware Prefetcher**

The processor has a hardware prefetcher that automatically analyzes its requirements and prefetches data and instructions from the memory into the Level 2 cache that are likely to be required in the near future. This reduces the latency associated with memory reads.

When enabled, the processor's hardware prefetcher will be enabled and allowed to automatically prefetch data and code for the processor.

When disabled, the processor's hardware prefetcher will be disabled.

► **Adjacent Cache Line Prefetcher (Appears only when CPU supports)**

The processor has a hardware adjacent cache line prefetch mechanism that automatically fetches an extra 64-byte cache line whenever the processor requests for a 64-byte cache line. This reduces cache latency by making the next cache line immediately available if the processor requires it as well.

When enabled, the processor will retrieve the currently requested cache line, as well as the subsequent cache line.

When disabled, the processor will only retrieve the currently requested cache line.

► **Limit CPUID MaxVal**

This item is used to enable or disable CPUID maximum value limit configuration. It should be [Disabled] for WinXP.

► **Virtualization Technology (Appears only when CPU supports)**

Virtualization (i.e. Intel® Vanderpool Technology) allows a platform to run multiple operating systems and applications in independent partitions or "containers." One physical compute system can function as multiple "virtual" systems. Vanderpool Technology can help improve future virtualization solutions. This item will be displayed only when the CPU is supporting this feature and the setting is used to enable/disable it.

► **Execute Disable Bit**

This item is used to enable/disable the Execute Disable Bit feature.

Intel's Execute Disable Bit functionality can help prevent certain classes of malicious buffer overflow attacks when combined with a supporting operating system.

Execute Disable Bit allows the processor to classify areas in memory by where application code can execute and where it cannot. When a malicious worm attempts to insert code in the buffer, the processor disables code execution, preventing damage and worm propagation. Replacing older computers with Execute Disable Bit-enabled systems can halt worm attacks, reducing the need for virus-related repairs. By combining Execute Disable Bit with anti-virus, firewall, spyware removal, e-mail filtering software, and other network security measures, IT managers can free IT resources for other initiatives.

► **Intel(R) HT Technology**

Hyper-Threading Technology allows one physical processor package to be perceived as two separate logical processors within the operating system. This option is used to enable or disable the feature. It will be displayed only if your CPU is supporting this feature.

► **Active Processor Cores**

This item is used to select the number of cores to enable in each processor package.

► **Intel PPM Configuration**

Press <Enter> to go to relative submenu.

Intel PPM Configuration


```
CMOS Setup Utility - Copyright (C) 1985-2008, American Megatrends, Inc.
                        Intel PPM Configuration

 Intel PPM Configuration                              Help Item

 EIST Function                    [Disabled]          Disabled: Disable GV3
 Intel(R) C-STATE Tech            [Enabled]           Enabled: Enable GV3
 C State Package Limit Setting    [Auto]
 C1 Auto Demotion                 [Enabled]
 C3 Auto Demotion                 [Enabled]




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

► **EIST Function (Appears only when CPU supports)**

You can select the EIST (Processor Power Management, PPM) through this item.

Enhanced Intel SpeedStep® technology (EIST) allows the system to dynamically adjust processor voltage and core frequency, which can result in decreased average power consumption and decreased average heat production. There are some system requirements must be met, including CPU, chipset, motherboard, BIOS and operation system. Please refer to Intel Website for more information.

► **Intel(R) C-STATE Tech**

This item is used to enable or disable C-State. C-State means CPU idle is set to C2/C3/C4.

► **C State Package limit Setting**

The selected option will be entered into C State package limit register.

► **C1 Auto Demotion**

When enable, CPU will conditionally demote C3/C6/C7 request to C1 based on uncore auto-demote information.

► **C3 Auto Demotion**

When enable, CPU will conditionally demote C6/C7 request to C3 based on uncore auto-demote information.

Memory Timing Config.

CMOS Setup Utility - Copyright (C) 1985-2008, American Megatrends, Inc.
Memory Timing Config.

Memory Timing Config.		Help Item
Performance Tuning Mode	[Auto]	The selection
Uncore Frequency	[3733 Mhz]	of performance Tuning Mode which impacts memory sizing behavior.

↑↓→←:Move Enter:Select +/-/:Value F10:Save ESC:Exit F1:General Help
F9:Optimized Defaults
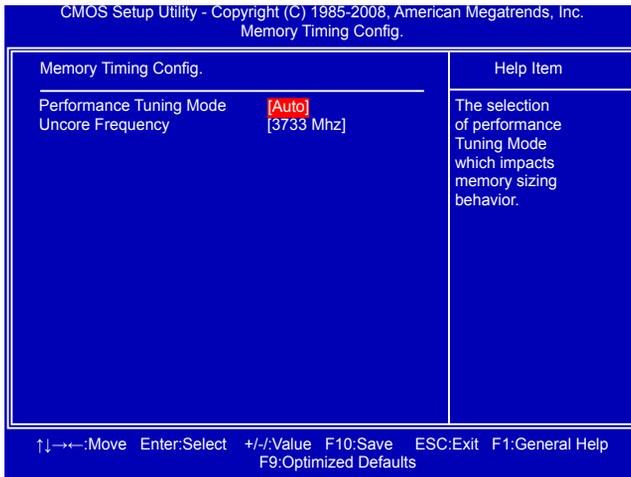
► **Performance Tunig Mode**

The selection of this item will impact the memory sizing behavior.

[Auto]: BIOS will automatically determine the memory frequency.

[Manual]: You can set the memory frequency manually .

[XMP]: "XPM" means Intel Extreme Memory Profile. Intel Extreme Memory Profile specification is part of a complete eco-system architecture designed for the enthusiast PC user. The new XMP specification allows both the novice and the advanced user to easily configure their Intel future systems for over-clocking performance.Select [XPM], when the memory module pluged in system supports XPM mode, system will enter XPM status.

► **Uncore Frequency**

This item is used to select the uncore frequency. Select [Auto], BIOS will select the frequency automatically. You may manually select a frequency from the following options:[1333 Mhz], [1600 Mhz], [1866 Mhz], [2133 Mhz], [2400 Mhz], [2666 Mhz], [2933 Mhz], [3200 Mhz], [3466 Mhz], [3733 Mhz] and [4000 Mhz].

When you set "Performance Tuning Mode" to [Manual], the following items will appear:

► **DRAM Frequency**

This item is used to select memory frequency. Options are: [800 Mhz], [1066 Mhz], [1333

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Mhz], [1600 Mhz], [1866 Mhz] and [2133 Mhz].

► **DRAM tCL**

This item controls the CAS latency, which determines the timing delay (in clock cycles) before SDRAM starts a read command after receiving it.

► **DRAM tRCD**

This item allows you to select a delay time (in clock cycles) between the CAS and RAS strobe signals.

► **DRAM tRP**

This item allows you to select the DRAM RAS precharge time (in clock cycles).

► **DRAM tRAS**

This item allows you to set the precharge delay time (in clock cycles).

► **DRAM tRRD**

This item allows you to set RAS to RAS Delay (in clock cycles).

► **DRAM tWR**

This item allows you to set Write to Precharge delay (in clock cycles).

► **DRAM tWTR**

This item allows you to set minimum Write-to-read delay (in clock cycles).

► **DRAM tRTP**

This item allows you to set the read CAS to precharge time (in clock cycles).

► **DRAM tRFC**

This item allows you to set Row Refresh Cycle (in clock cycles).

All Voltage Control

```
         CMOS Setup Utility - Copyright (C) 1985-2008, American Megatrends, Inc.
                                 ALL Voltage Control

  All Voltage Control                                      Help Item

  CPU VCore Voltage Control      [+0V]        The Maximum Voltage of
  CPU VTT Voltage Control        [+0V]        available adjustment
  Memory Voltage Control         [1.500V]     is "+0.63V"
  NB Voltage Control             [1.10V]          Warning!!
                                              Adjusting the Voltage
  VCore               :1.216 V (+0.00V)       beyond the CPU VCore
  Target VCore Voltage :1.200 V (+0.00V)      default Voltage could
  VTT                 :1.674 V (+0.00V)       result in damage to
  Target VTT Voltage  :1.674 V (+0.00V)       CPU.
                                              the CPU VCore default
                                              Voltage is "1.1V".




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

► **CPU VCore Voltage Control**

This item is used to adjust CPU Vcore voltage. The maximum voltage of available adjustment is "+0.63V". Adjusting the voltage beyond the CPU VCore default voltage could result in damage to CPU. The CPU Vcore default volatge is "1.1V".

► **CPU VTT Voltage Control**

This item is used to adjust CPU VTT voltage. The maximum voltage of available adjustment is "+0.5V". Adjusting the voltage beyond the CPU VTT default voltage could result in damage to CPU. The CPU VTT default volatge is "1.1V".

► Memory Voltage Control

This item is used to adjust memory voltage. The maximum voltage of available adjustment is "2.794V". Adjusting the voltage beyond the memory default voltage could result in damage to memory. The DDR3 default volatge is "1.5V".

► NB Voltage Control

This item is used to adjust North Bridge(NB) voltage. The maximum voltage of available adjustment is "1.936V". Adjusting the voltage beyond the NB default voltage could result in damage to NB. The NB default volatge is "1.10V".

► VCore/Target VCore Voltage/VTT/Target VTT Voltage

These items show the current voltage values of VCore/Target VCoreVoltage/VTT/Target VTT Voltage.

BIOS Security Features

```
         CMOS Setup Utility - Copyright (C) 1985-2008, American Megatrends, Inc.
                              BIOS Security Features

  Security Settings                                       Help Item

  Supervisor Password  :Not Installed          Install or Change the
  User Password        :Not Installed          password.

  ► Change Supervisor Password  [Press Enter]
  ► Change User Password        [Press Enter]

  Boot Sector Virus Protection    [Disabled]




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

► **Change Supervisor Password**

This item is used to install or change supervisor password.

After you input Supervisor password, it then will ask you to input

user password optionally.

Enter New Password : ▇▇▇

► **Change User Password**

This item is used to install or change user password.

Enter New Password : ▇▇▇

► **Boot Sector Virus Protection**

This item is used to enable/disable boot sector virus protection.

Load Optimal Defaults

Optimal defaults are the best settings of this motherboard. Always load the Optimal defaults after updating the BIOS or after clearing the CMOS values.

Select this option and press Enter, it will pop out a dialogue box to let you load the defaults. Select <OK> and then press <Enter> to load the defaults. Select <Cancel> and press <Enter>, it will not load.

By this default, BIOS have set the optimal performance parameters of system to improve the performances of system components. But if the optimal performance parameters to be set cannot be supported by your hardware devices (for example, too many expansion cards were installed), the system might fail to work.

Load Optimal Defaults?
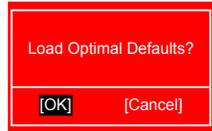
[OK]   [Cancel]

Save & Exit Setup

When you select this option and press <Enter>, a message will be displayed in the center of the screen:

Select [OK] to save your changes to CMOS and exit the program, select [Cancel] or <ESC> to return to the main menu.

Save configuration changes and exit setup?

[OK]   [Cancel]

Exit Without Saving

If you select this option and press <Enter>, the following message will be displayed in the center of the screen:

Select [OK] to exit CMOS without saving your modifications, select [Cancel] or <ESC> to return to the main menu.

Discard changes and exit setup?

[OK]   [Cancel]
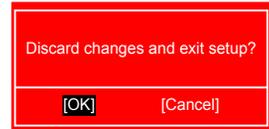
4

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 Introduction
- 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 introduction

This motherboard comes with one Utility CD. To begin with, simply insert the CD into your CD drive. The CD will automatically run and display the main menu on the screen.

1. Driver

Select "**Driver**", then use these options to install all the necessary drivers for your motherboard. You must click "Intel Chipset Driver" to install it first, then to install the others left. You need to restart your computer after finishing all the installations of drivers.

After installing "Intel Chipset Driver", you can click "One Click Setup" to install all the other drivers except "Intel RAID Driver". You have to click "Intel RAID Driver" item to install it manually.

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Intel chipset Driver
Use it to install Intel chipset driver.

Realtek HDA Audio Driver
Use it to install Realtek Audio driver.

Broadcom LAN Driver
Use it to install Broadcom LAN driver.
Intel Raid Driver
Use it to install Intel RAID driver.

JMicron Raid Driver
Use it to install JMicron RAID driver. JMircon provides two external SATA ports together with two IDE PATA ports (Master/Slave). Due to limitation of RAID interface on JMircon, we recommend you building RAID system by using onboard SATA ports (controlled by Intel ICH10R) instead of JMicron.

Marvell SAS Driver
Use it to install Marvell SAS driver. Marvell SAS provides two SAS SATA Connectors on the motherboard.

2. Utility
Use these options to install additional software programs.

FOX LiveUpdate
The Fox LiveUpdate allows you to backup or update the system BIOS, drivers and utilities in Windows® environment. See "Fox LiveUpdate" for details.

FOX LOGO
The FOX LOGO is a simple and useful utility to backup, change and delete the boot time Logo. See "FOX LOGO" for details.

FOX DMI

The FOX DMI is a full Desktop Management Interface viewer, and it provides three DMI data formats. See "FOX DMI" for details.

Microsoft DirectX 9.0

Use it to install Microsoft DirectX 9.0.

Adobe Acrobat Reader

Installs Adobe® Acrobat® Reader that is used for viewing and printing the PDF document.

Norton Internet Security

Installs Norton® Internet Security to protect your PC from being affected by viruses.

Intel RAID Utility

Use it to install Intel RAID uitlity.

Marvell SAS Utility

Use it to install Marvell SAS utility.

3. Foxconn WebSite

Click it to visit Foxconn's website.

4. Browse CD

Click it to browse the CD content.

Foxconn provides another very usefull utility--FOX ONE. You can download it from Foxconn's offical website. We will introduce it to you in the next section.

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.

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.

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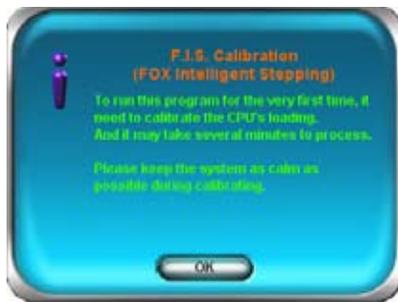
Before you running the FOX ONE program, the system parameters (such as CPU clock, voltage...etc.) are controlled by BIOS settings. After you run FOX ONE, it will take over, and the controlling right will be transferred to FOX ONE. Later, if you exit FOX ONE, then BIOS control will be back again.

1. Main Page

Show CPU
Information   Toolbar   Alert Lamp

Switch Button

Skin Button

Exit

Minimum

Configuration

Homepage

Monitor Frequency/Voltage/Fan
speed/Temperature value
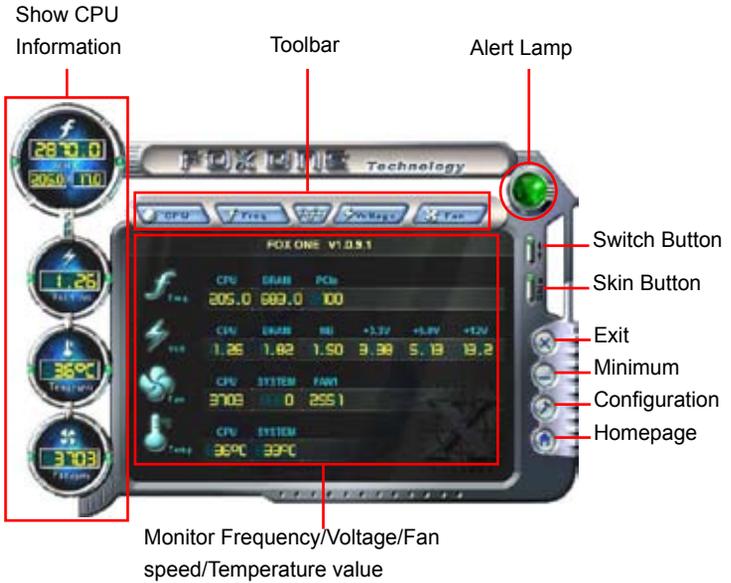
Toolbar

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
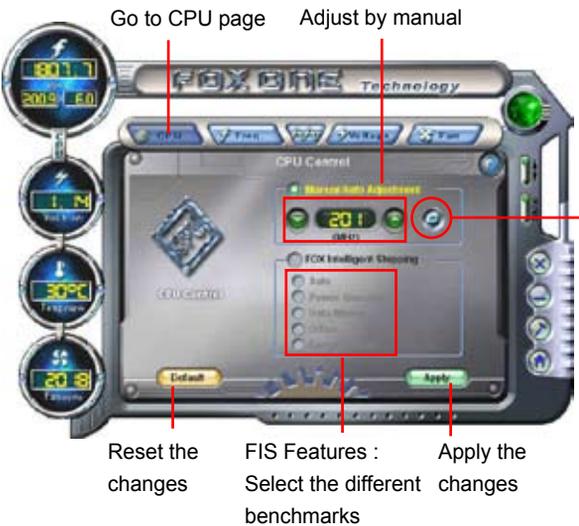
Press Auto button to let FOX ONE check the highest CPU clock you can use.

Reset the changes

FIS Features : Select the different benchmarks

Apply the changes

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

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
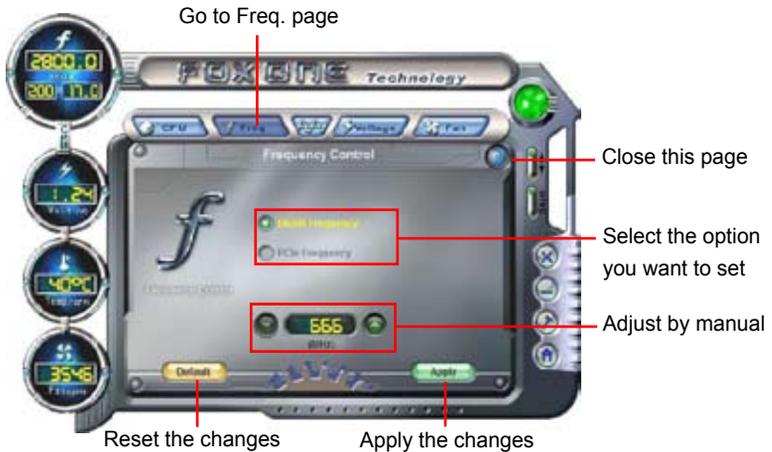
4. Limit Setting

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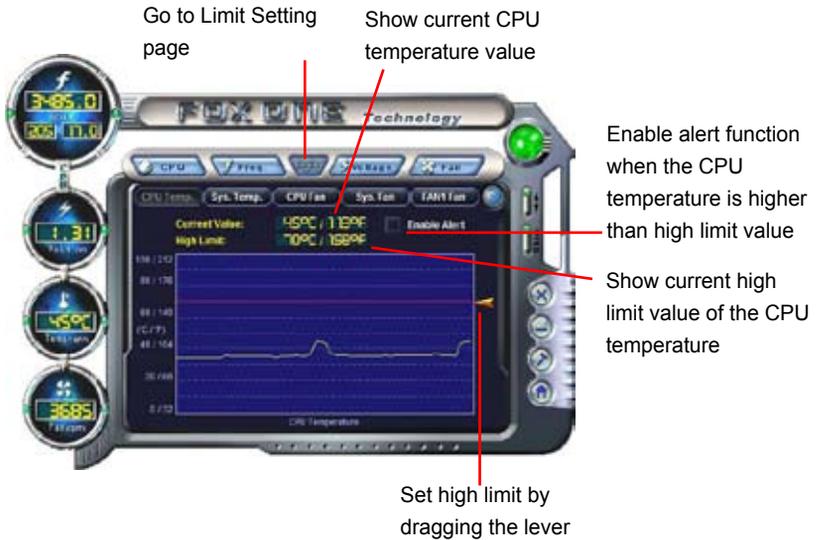
4.2 Limit Setting - System Temperature
This page lets you to set system high limit temperature and enable the alert function.

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
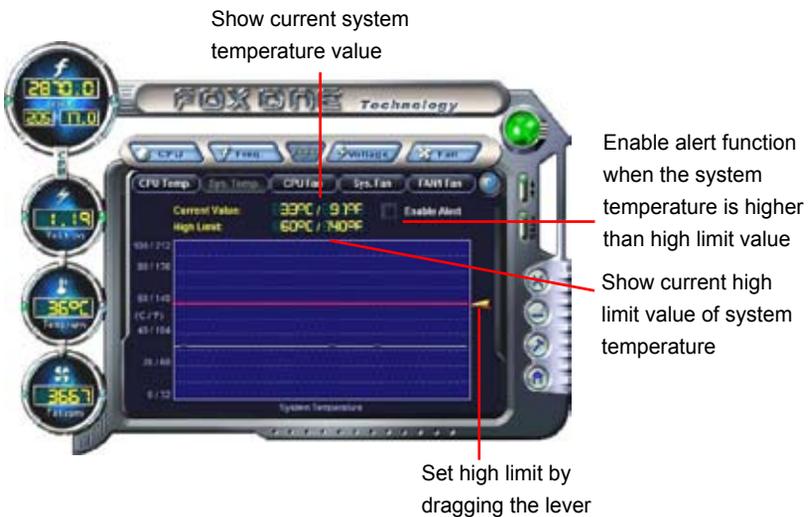
4.3 Limit Setting - CPU Fan

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
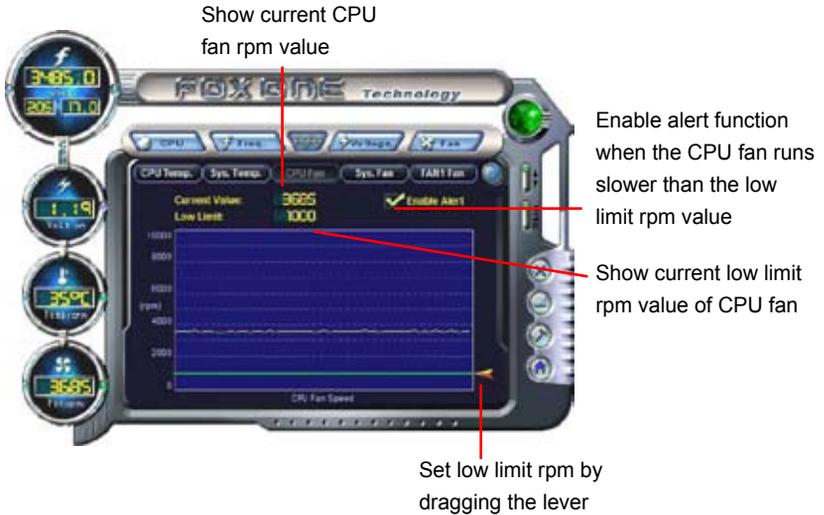
4.4 Limit Setting - System Fan

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
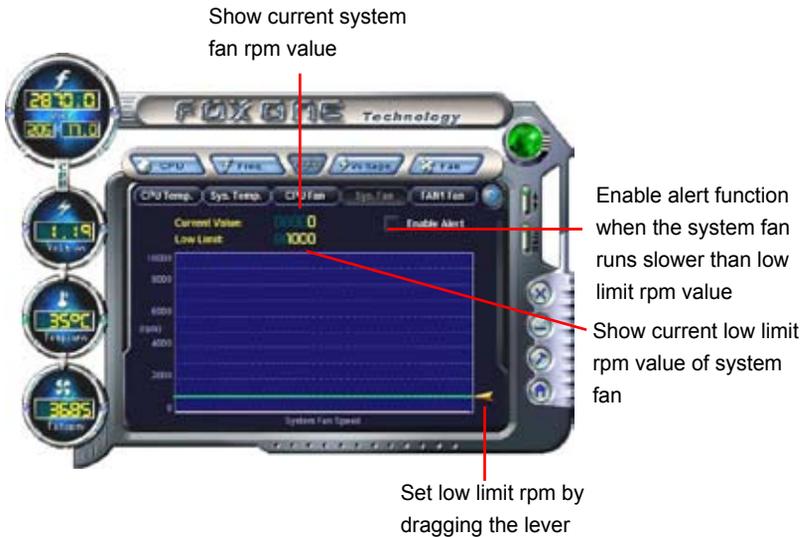
4.5 Limit Setting - FAN1 Fan

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
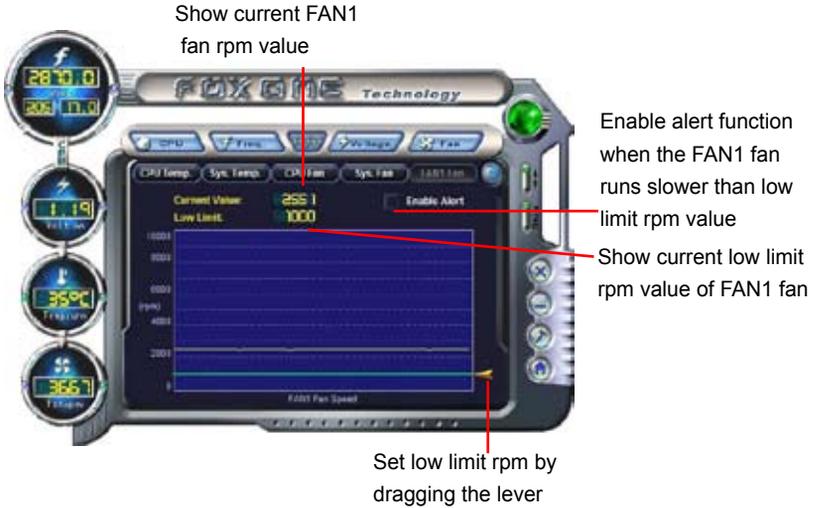
5. Voltage Page - Voltage Control (Optional)

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
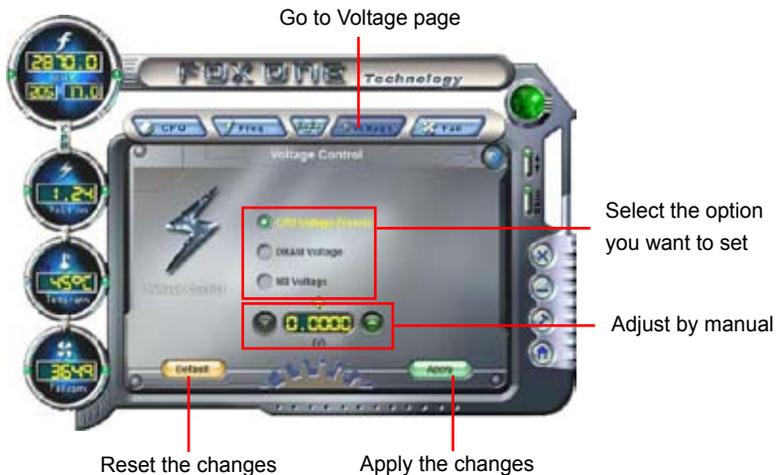
6. Fan Page - Fan Control

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
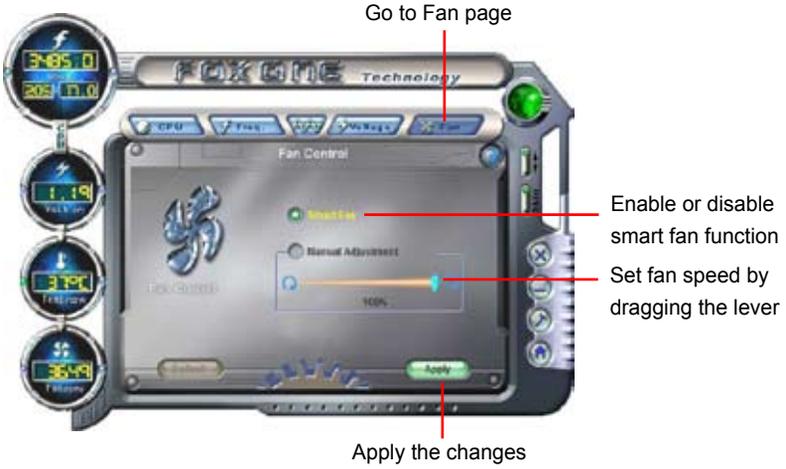
FOX LiveUpdate

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
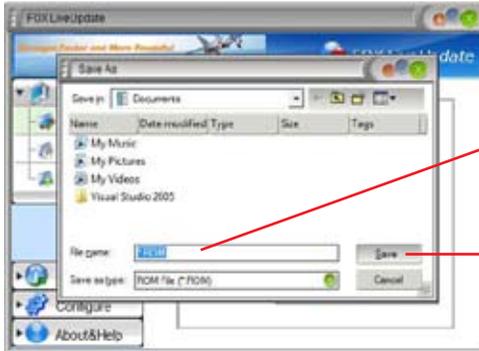
1-3 Local Update - Update

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.

⚠ CAUTION

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
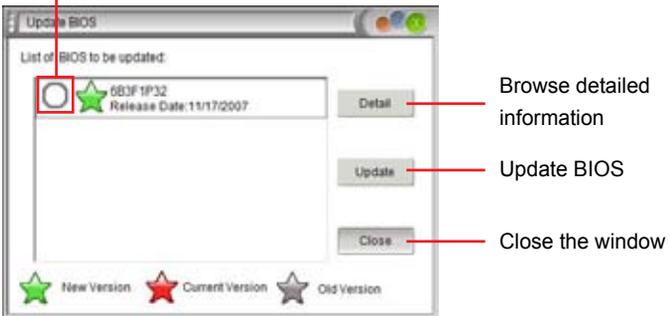
2-2 Online Update - Update Driver

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
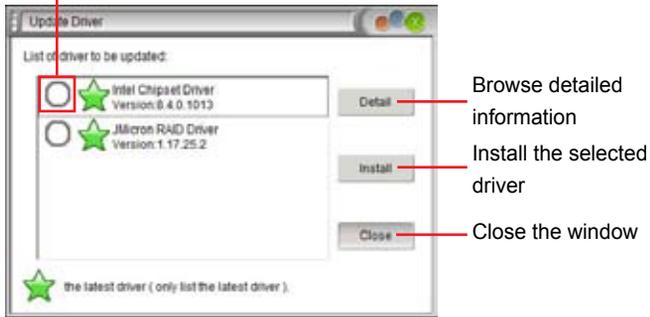
2-3 Online Update - Update Utility

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
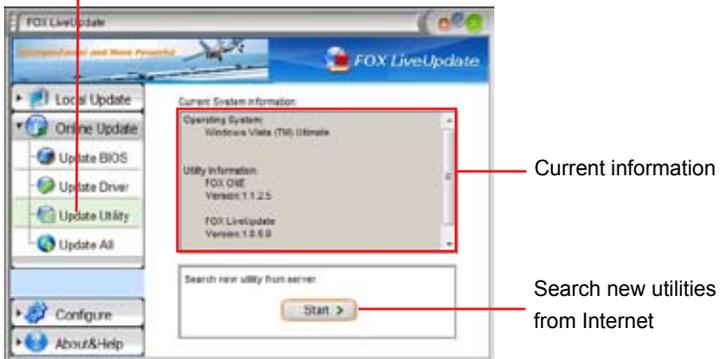
Select the utility to update

Browse detailed
information

Install the selected
utility

Close the window
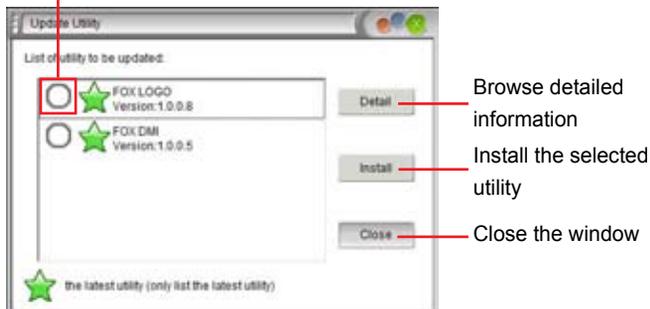
2-4 Online Update - Update All

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
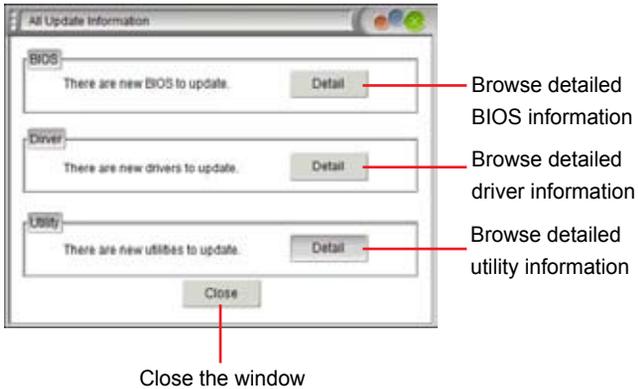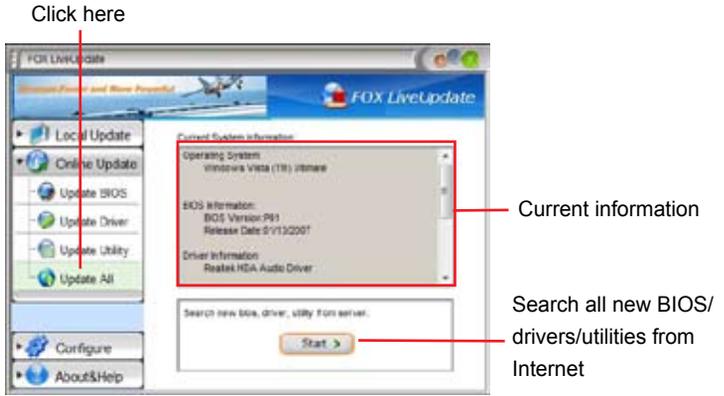
3. Configure

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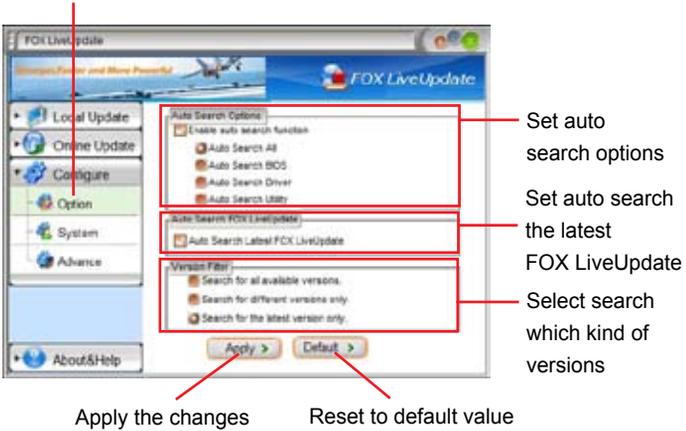
Double click on the icon as show below, you can see the detailed information.

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.
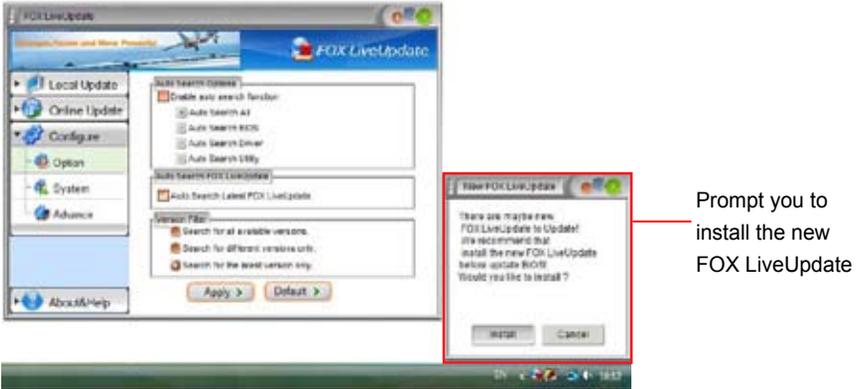
Prompt you to install the new FOX LiveUpdate

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
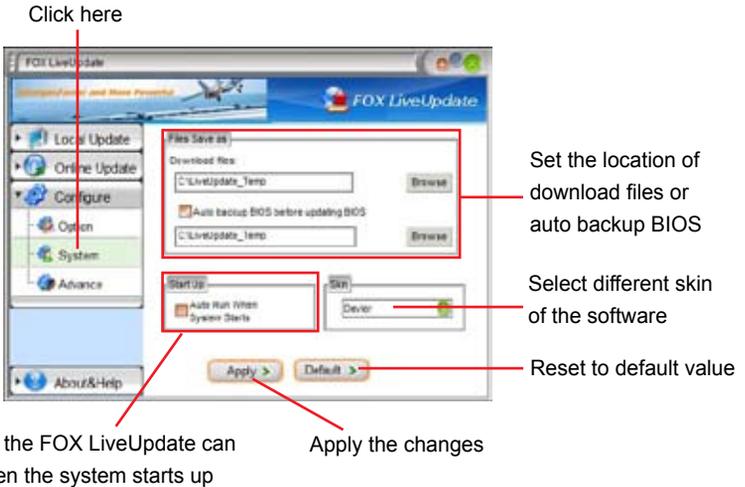
3-3 Configure - Advance

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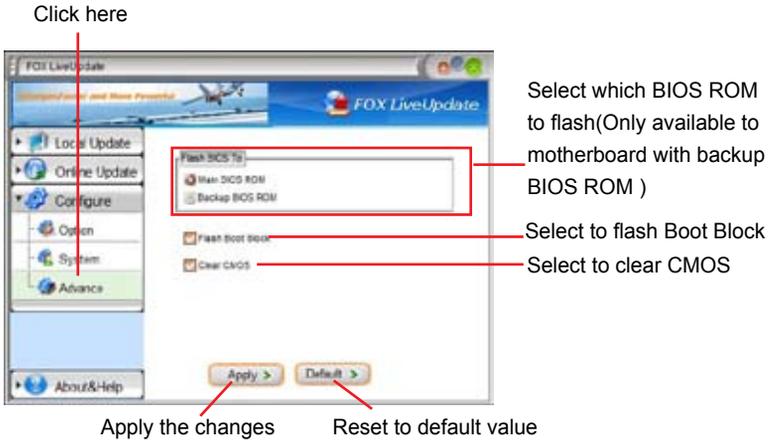
⚠️ We recommend that you had better keep the default setting unchanged to avoid any damage.

4. About & Help

This page shows some information about FOX LiveUpdate.

Click here

Show information about FOX LiveUpdate
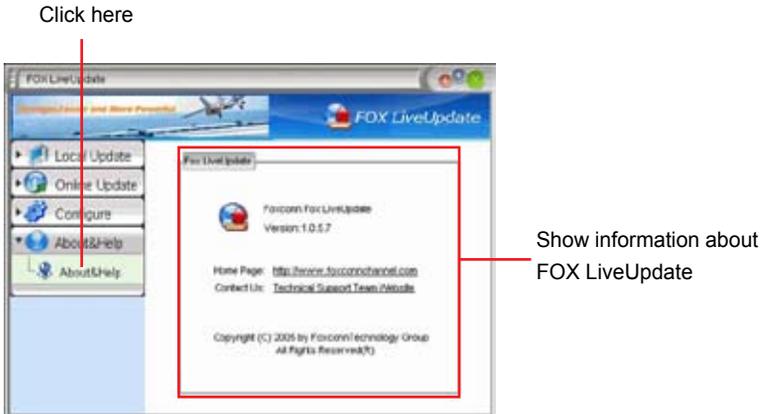
FOX LOGO

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 bitmap image (640x480) 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 "Quiet Boot" 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

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 :

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

It includes the following information :

- RAID Configuration Introduction
- Intel® Matrix Storage Manager
- Create a RAID Driver Diskette
- BIOS Configuration
- Create RAID in BIOS
- Install a New Windows XP
- Existing Windows XP with RAID built as data storage

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

Installing a new Windows XP (Vista) in a brand new RAID system.

1. Follow 5-1 to create a RAID driver diskette.
   (Windows Vista has in-box driver by its own and can skip this step).
2. Follow 5-2 to set BIOS setting SATA mode to RAID or AHCI.
3. Follow 5-3 to create RAID in BIOS.
4. Follow 5-4 to Install Windows Operating System.

What kinds of hardware and software you need here :
1. A floppy drive.
2. A CD-ROM drive.
3. Several SATA hard disks.
4. A RAID driver diskette.
5. A motherboard driver CD. (To create RAID driver diskette if it is not bundled.)
6. Windows XP or Vista Install CD.

Existing Windows XP (Vista) system with new RAID built as data storage.

Follow 5-5 to go through the processes to build a new RAID data storage in your existing Windows XP system, it includes :
1. Copy RAID driver setup program to your hard disk. (Vista can skip)
2. Follow 5-2 to set BIOS setting SATA mode to RAID or AHCI.
3. Follow 5-3 to create RAID in BIOS.
4. Run setup program to install Intel® Matrix Storage Manager driver into your current Windows XP system. (Vista can skip this step)
5. Format new RAID partitions.

What kinds of hardware and software you need here :
1. A CD-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 motherboard comes with the Intel ICH10R. 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 (Stripe)

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. The striping block size can be set from 4KB to 128KB. RAID 0 does not support fault tolerance.

RAID 1 (Mirror)

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. Under a RAID 1 setup, an extra drive called the "spare drive" can be attached. Such a drive will be activated to replace a failed drive that is part of a mirrored array. Due to the fault tolerance, if any RAID 1 drive fails, data access will not be affected as long as there are other working drives in the array.

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 10 (0+1)

RAID 10 is a combination of striping and mirroring. This configuration provides optimal speed and reliability, but you need four SATA 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
RAID10	>=4 (Even number)	Smallest *2	High	Excellent	Unlimited budget

Intel® Matrix Storage Manager

The Intel® Matrix Storage technology supports RAID 0 ,RAID 1, RAID 5, and RAID 10 (0+1) functions. It allows you to get high performance with fault tolerance, big capacity, or data safety provided by different RAID functions.

In this section, we will use four SATA hard disks as an example to guide you how to configure your RAID system. There are two 232.9GBs, one 298.1GB, and one 279.5GB. A creation of second volume will also be well described.

In each screen, there is also a message bar about each key's function, such as <Tab>, <Enter>, <Del>...etc. it is to help making your selection easier.

Two topics will be introduced :
1). Installing a new Windows XP in a brand new RAID system.
2). Existing Windows XP system with new RAID built as data storage.

CAUTION

! Before installing the SATA hard disks, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the hardware.

Steps to Install Serial ATA Hard Disks :

1. Install SATA hard disks into the drive bays.
2. Connect one end of the SATA cable to motherboard's SATA connector, and the other end to SATA hard disk.
3. Connect SATA power cable to the power connector of SATA hard disk.

WARNING!

■ Both AHCI and RAID modes need to install **Intel® Matrix Storage driver.**
■ Set SATA mode in BIOS to AHCI, you can skip RAID BIOS creation steps, but the software driver installation of **Intel® Matrix Storage Manager** shall follow the same rule as described for RAID.

5-1 Create a RAID driver diskette

If you want to install a brand new Windows XP on a AHCI or RAID system, you need to configure the SATA Mode in BIOS to either AHCI or RAID first. You also need to create a RAID driver diskette for use in installing your Windows XP system.
Windows Vista has native RAID driver in itself, you can skip these steps.

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

2. Depending on which platform your system
   is, normally, it is a 32-bit XP system. Use
   Windows explorer, and go to **CD:\Driver\
   Intel\RAID\Floppy\32bit**, click on **Raid-
   Tool** 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.

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" to continue copying of RAID driver into this diskette.

9. Check if the diskette contains the driver files.
   Later, when in the process of installing Windows XP in your RAID system, it will ask you to use this floppy diskette to provide driver for additional specific devices, for example, a RAID device.

10. Install Serial ATA Hard Disks :

   10-1. Shut down your computer.

   10-2. Install SATA hard disks into the drive bays, connect all power and SATA cables.

5-2 BIOS Configuration

1. Enter the BIOS setup by pressing <DEL> key during the POST(Power On Self Test).
2. Select the "Advanced BIOS Features" from the "Main menu", then select the "IDE Configuration" item and press <Enter> to go to the configuration items.
3. Select and Set the "Configure SATA#1 as" option to [RAID].
4. Press <F10> to save the setting then PC will reboot itself.

```
CMOS Setup Utility - Copyright (C) 1985-2008, American Megatrends, Inc.
                         IDE Configuration

 IDE Configuration                                    Help Item

 Configure SATA#1 as           [RAID]                     Options

 ► Primary IDE Master          [Not Detected]         IDE
 ► Primary IDE Slave           [Not Detected]         RAID
 ► Secondary IDE Master        [Not Detected]         AHCI
 ► Secondary IDE Slave         [Not Detected]

 Hot Plug                      [Disabled]

 Hard Disk Write Protect       [Disabled]
 IDE Detect Out                [35]


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

5-3 Create RAID in BIOS

Enter RAID BIOS Setup

When BIOS is restarted, it will display a message asking you to press <Ctrl>+<I> keys simultaneously to enter the main menu of Intel® Matrix Storage Manager Option ROM Utility. Press the <Ctrl>+<I> to enter Configuration Utility.

```
Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
        Copyright(C) 2003-08 Intel Corporation.  All Rights Reserved.
=========================[ MAIN MENU ]=========================
   1. Create RAID Volume              3. Reset Disks to Non-RAID
   2. Delete RAID Volume              4. Exit

===================[ DISK/VOLUME INFORMATION ]===================
 RAID Volume :                                  * = Data is Encrypted
 None Defined.

 Physical Disks:
 Port  Drive Model        Serial #          Size      Type/Status(Vol ID)
 0     WDC WD2500JS-60N  WD-WCANKC865380   232.9GB    Non-RAID Disk
 2     Maxtor 6L250S0    L50SKP4G          232.9GB    Non-RAID Disk
 4     ST3320620SV       9QF4YJGQ          298.1GB    Non-RAID Disk
 5     ST3300831AS       3NF02XH2          279.5GB    Non-RAID Disk


      [↑↓]-Select          [ESC]-Exit          [ENTER]-Select Menu
```

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Create RAID Volume
Create RAID 0 (1st Volume)

1. Select "**1. Create RAID Volume**" from the menu and press <Enter>.
The menu appears :


```
Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
        Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
================[ CREATE VOLUME MENU ]================

              Name:  Volume0
         RAID Level:  RAID0(Stripe)
              Disks:  Select Disks
         Strip Size:  128KB
           Capacity:  0.0   GB

                      Create Volume

========================[ HELP ]========================

        Enter a unique volume name that has no special characters and is
                          16 characters or less.

    [↑↓]-Change     [TAB]-Next     [ESC]-Previous Menu     [ENTER]-Select
```
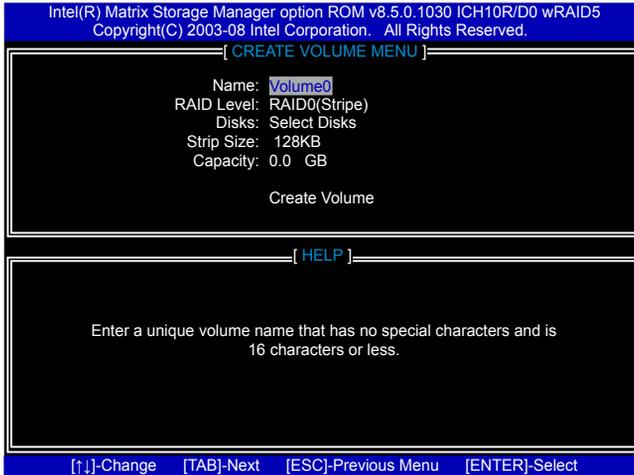
2. In "**Name**" item, you can input a device name for the RAID0 system and press <Enter> to apply it. Here, we name it as TryRAID0 to replace the default Volume0.

3. In "**RAID Level**" item, you can use Up or Down arrow key to make a selection from one of RAID0, 1, 5, 10 items. Select RAID0 (Stripe) and press <Enter>.


```
Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
        Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
================[ CREATE VOLUME MENU ]================

              Name:  TryRAID0
         RAID Level:  RAID0(Stripe)
              Disks:  Select Disks
         Strip Size:  128KB
           Capacity:  0.0   GB

                      Create Volume

========================[ HELP ]========================

                      Choose the RAID level:

                RAID 0: Stripes data (performance).
                RAID1: Mirrors data (redundancy).
            RAID 10: Mirrors data and stripes the mirror.
                RAID 5: Stripes data and parity.

    [↑↓]-Change     [TAB]-Next     [ESC]-Previous Menu     [ENTER]-Select
```

4. It then goes to "**Disks**" item. Press <Enter> to choose the hard disks for this RAID0 system.
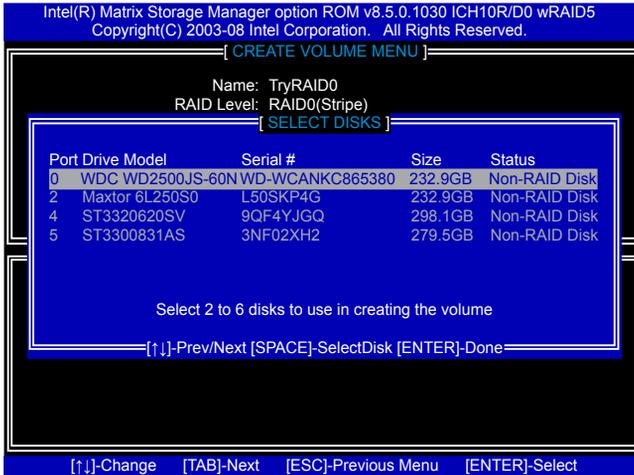
5. From the hard drive list, use Up or Down arrow key to reach the hard disks you want to combine them as RAID0, then press <Space> key to select them. A triangle sign will appear to indicate the drive selected. Here, we select two 232.9GB hard disks as an example. Press <Enter> key to finish the selection.
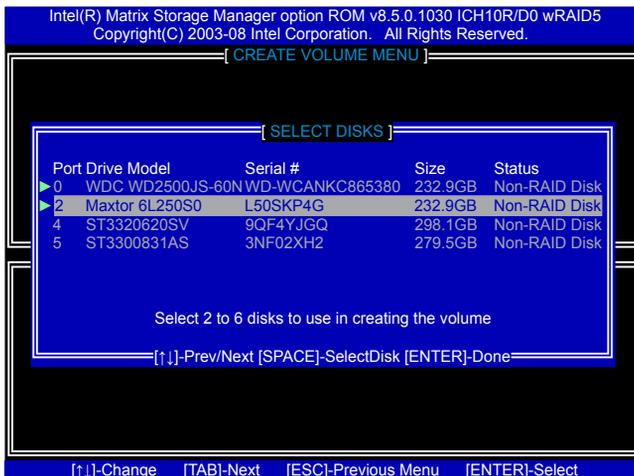
6. It is now entering "**Strip Size**" menu. Use Up or Down arrow key to select the desired strip size. The available values range from 4KB to 128KB. The strip value should be selected based on different applications. Some suggested choices are :

   16K - Best for sequential transfer.

   64K - Good general purpose strip size.

   128K - Best performance for most desktops and workstations .

   The default value is 128K for RAID0. Press <Enter>.

```
=[ CREATE VOLUME MENU ]=

              Name: TryRAID0
        RAID Level: RAID0(Stripe)
             Disks: Select Disks
        Strip Size: 128KB
          Capacity: 465.8  GB

                 Create Volume

===========[ HELP ]===========

         The following are typical values:

              RAID0  - 128KB
              RAID10 -  64KB
              RAID5  -  64KB

 [↑↓]-Change    [TAB]-Next    [ESC]-Previous Menu    [ENTER]-Select
```
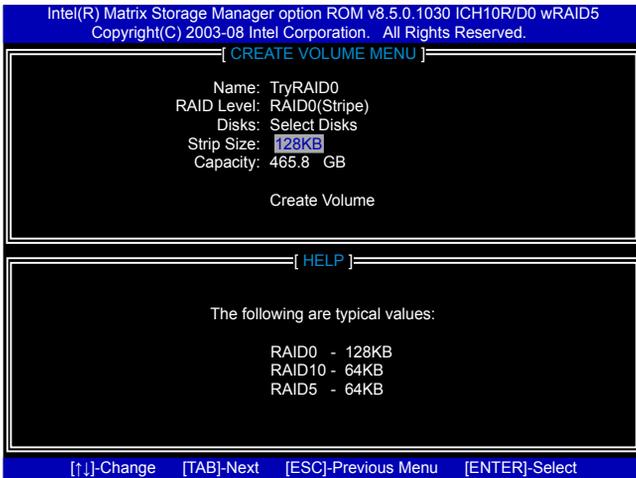
7. In "**Capacity**" line, it displays there are maximum 232.9GB * 2 = 465.8GB available. As we want to introduce how to create two disk volumes (like logical devices C: and D:) in a RAID0 system, so we only key in 200GB here to build the first volume. Later, we will also describe how the second volume is generated. Input 200GB, and press <Enter>.

```
=[ CREATE VOLUME MENU ]=

              Name: TryRAID0
        RAID Level: RAID0(Stripe)
             Disks: Select Disks
        Strip Size: 128KB
          Capacity: 465.8  GB

                 Create Volume

===========[ HELP ]===========

  The default value indicates the maximum capacity using the selected
   disks. Entering a lower capacity allows you to create a second
                      volume on these disks

 [↑↓]-Change    [TAB]-Next    [ESC]-Previous Menu    [ENTER]-Select
```
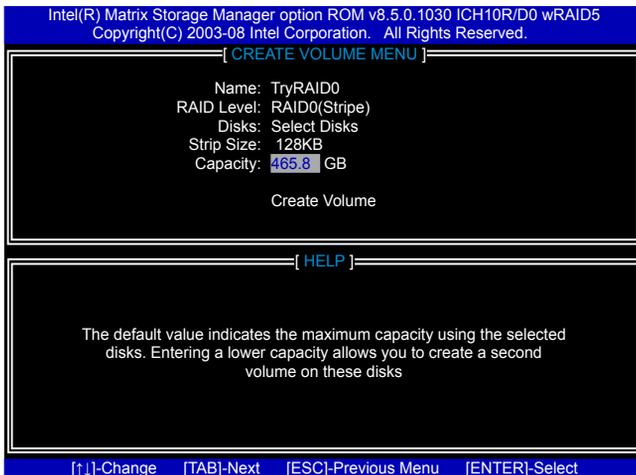
8. In "**Create Volume**" item, press <Enter>.

```
Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
             Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
═══════════════════════[ CREATE VOLUME MENU ]═══════════════════════

                     Name:  TryRAID0
               RAID Level:  RAID0(Stripe)
                    Disks:  Select Disks
               Strip Size:  128KB
                 Capacity:  200   GB

                          Create Volume


════════════════════════════[ HELP ]════════════════════════════




              Press ENTER to create the specified volume.




═══════════════════════════════════════════════════════════════════
   [↑↓]-Change    [TAB]-Next    [ESC]-Previous Menu    [ENTER]-Select
```

A warning message will appear :

```
WARNING: ALL DATA ON SELECTED DISKS WILL BE LOST.

Are you sure you want to create this volume ? (Y/N) :
```

9. Press <Y> to create the volume and return to the main menu, a 200GB RAID0 system
   is normally configured.

```
Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
             Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
═══════════════════════════[ MAIN MENU ]═══════════════════════════
    1. Create RAID Volume                3. Reset Disks to Non-RAID
    2. Delete RAID Volume                4. Exit



═════════════════════[ DISK/VOLUME INFORMATION ]═════════════════════
RAID Volume :                                    * = Data is Encrypted
ID    Name              Level         Stripe Size       Status      Bootable
0     TryRAID0          RAID0(Stripe) 128KB 200.0GB     Normal         Yes

Physical Disks:
Port  Drive Model        Serial #            Size      Type/Status(Vol ID)
0     WDC WD2500JS-60N WD-WCANKC865380      232.9GB   Member Disk(0)
2     Maxtor 6L250S0     L50SKP4G            232.9GB   Member Disk(0)
4     ST3320620SV        9QF4YJGQ            298.1GB   Non-RAID Disk
5     ST3300831AS        3NF02XH2            279.5GB   Non-RAID Disk




═══════════════════════════════════════════════════════════════════
      [↑↓]-Select            [ESC]-Exit            [ENTER]-Select Menu
```

Create RAID0 (2nd Volume)

1. Select "**1. Create RAID Volume**" from the menu and press <Enter>.
   The menu appears :

```
Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
       Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
===================[ CREATE VOLUME MENU ]===================

                      Name:  Volume0
                RAID Level:  RAID0(Stripe)
                     Disks:  Select Disks
                Strip Size:  128KB
                  Capacity:  0.0   GB

                          Create Volume

==========================[ HELP ]==========================



        Enter a unique volume name that has no special characters and is
                        16 characters or less.




  [↑↓]-Change     [TAB]-Next     [ESC]-Previous Menu     [ENTER]-Select
```
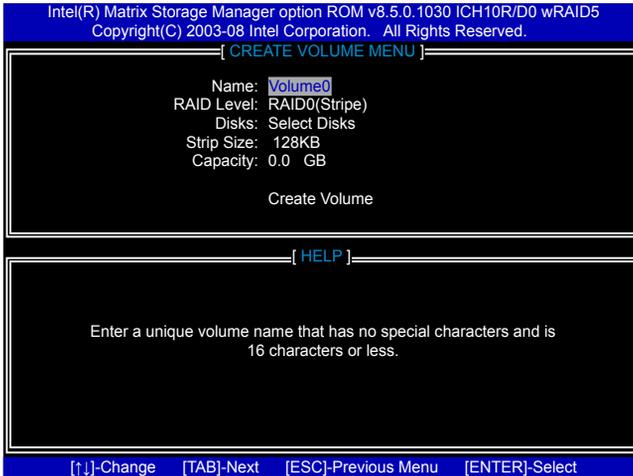
2. In "**Name**" item, we name it as TryRAID0-1 for second volume.
3. In "**RAID Level**" item, you can use Up or Down arrow key to make a selection, only
   RAID0, 1 can be selected. Select RAID0 (Stripe) and press <Enter>.
(Note : You also can try to select RAID1 for the second volume as an experiment here)

```
Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
       Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
===================[ CREATE VOLUME MENU ]===================

                      Name:  TryRAID0-1
                RAID Level:  RAID0(Stripe)
                     Disks:  Select Disks
                Strip Size:  128KB
                  Capacity:  0.0   GB

                          Create Volume

==========================[ HELP ]==========================

                      Choose the RAID level:

                   RAID 0: Stripes data (performance).
                   RAID1: Mirrors data (redundancy).
              RAID 10: Mirrors data and stripes the mirror.
                   RAID 5: Stripes data and parity.



  [↑↓]-Change     [TAB]-Next     [ESC]-Previous Menu     [ENTER]-Select
```

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4. It then goes to "**Disks**" item. Press <Enter> to choose the hard disks for this RAID0 second volume system.
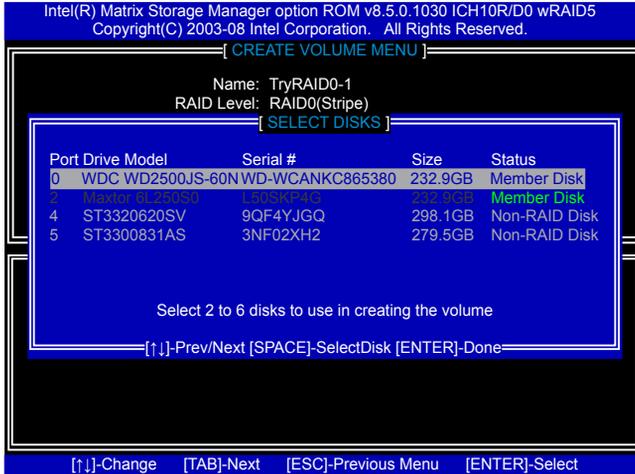
5. From the hard disk list, select the previously configured RAID0 hard disks, and press <Space> key to select them. Two triangle signs will appear to indicate the selections. Press <Enter> to continue.
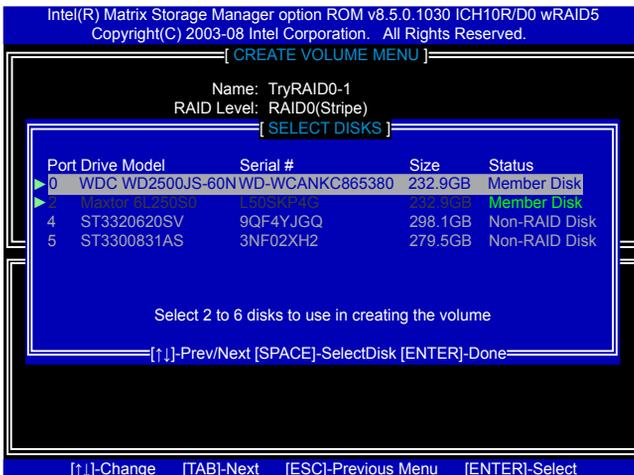
6. It goes to "**Strip Size**" menu directly. Capacity automatically displays 265.8GB, and
   at this time, you can not input any value in capacity as there is no additional volume
   available.

The available values of Strip Size range from 4KB to 128KB. The strip value should be
selected based on different applications. Some suggested choices are :

   16K - Best for sequential transfer.

   64K - Good general purpose strip size.

   128K - Best performance for most desktops and workstations .

The default value is 128K. Press <Enter>.
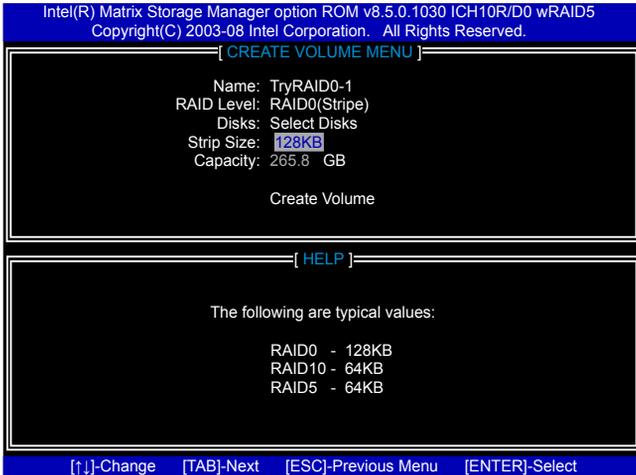
7. Select "**Create Volume**" and press <Enter>.

A message will appear :

Are you sure you want to create this volume ? (Y/N) :
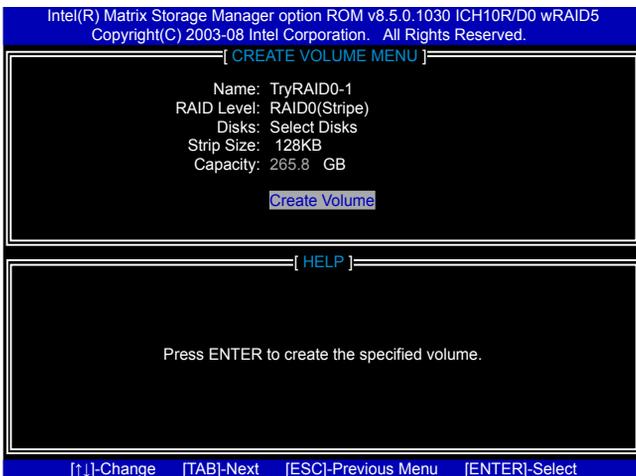
Press <Y> to create the volume and return to the main menu. Two RAID0 volumes were configured.

Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
Copyright(C) 2003-08 Intel Corporation. All Rights Reserved.
[MAIN MENU]

1. Create RAID Volume   3. Reset Disks to Non-RAID
2. Delete RAID Volume   4. Exit

[DISK/VOLUME INFORMATION]

RAID Volume :   * = Data is Encrypted
ID   Name   Level   Stripe Size   Status   Bootable
0   TryRAID0   RAID0(Stripe)   128KB 200.0GB   Normal   Yes
1   TryRAID0-1   RAID0(Stripe)   128KB 265.8GB   Normal   Yes

Physical Disks:
Port Drive Model   Serial #   Size   Type/Status(Vol ID)
0   WDC WD2500JS-60N WD-WCANKC865380   232.9GB   Member Disk(0,1)
2   Maxtor 6L250S0   L50SKP4G   232.9GB   Member Disk(0,1)
4   ST3320620SV   9QF4YJGQ   298.1GB   Non-RAID Disk
5   ST3300831AS   3NF02XH2   279.5GB   Non-RAID Disk

[↑↓]-Select   [ESC]-Exit   [ENTER]-Select Menu

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Create RAID 1

1. Select "**1.Create RAID Volume**" from the main menu and press <Enter>.
2. In "**Name**" item, you can input a device name for the RAID1 system and press <Enter> to apply it. Here, we name it as TryRAID1 to replace the default Volume0.
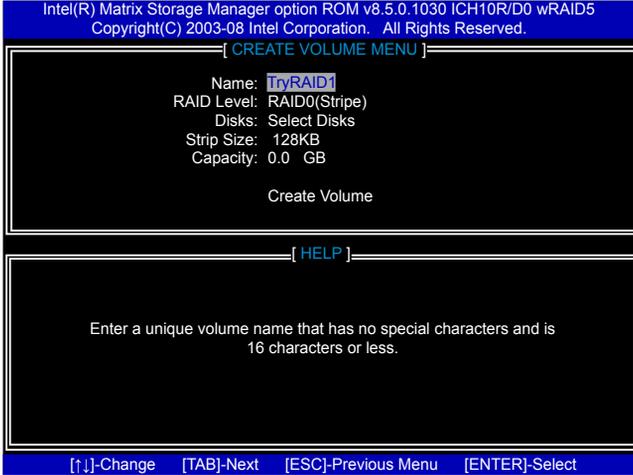
[CREATE VOLUME MENU]

Name: TryRAID1
RAID Level: RAID0(Stripe)
Disks: Select Disks
Strip Size: 128KB
Capacity: 0.0   GB

Create Volume

[HELP]

Enter a unique volume name that has no special characters and is
16 characters or less.

[↑↓]-Change   [TAB]-Next   [ESC]-Previous Menu   [ENTER]-Select

3. In "**RAID Level**" item, you can use Up or Down arrow key to make a selection from one of RAID0, 1, 5, 10 items. Select RAID1 (Mirror) and press <Enter>.

[CREATE VOLUME MENU]

Name: TryRAID1
RAID Level: RAID1(Mirror)
Disks: Select Disks
Strip Size: N/A
Capacity: 0.0   GB

Create Volume

[HELP]

Choose the RAID level:

RAID 0: Stripes data (performance).
RAID1: Mirrors data (redundancy).
RAID 10: Mirrors data and stripes the mirror.
RAID 5: Stripes data and parity.

[↑↓]-Change   [TAB]-Next   [ESC]-Previous Menu   [ENTER]-Select

4. It then goes to "**Disks**" item. Press <Enter> to choose the hard disks for this RAID1 system.

Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
======================[CREATE VOLUME MENU]======================

Name: TryRAID1
RAID Level: RAID1(Mirror)
===========================[SELECT DISKS]===========================

Port	Drive Model	Serial #	Size	Status
0	WDC WD2500JS-60N	WD-WCANKC865380	232.9GB	Non-RAID Disk
2	Maxtor 6L250S0	L50SKP4G	232.9GB	Non-RAID Disk
4	ST3320620SV	9QF4YJGQ	298.1GB	Non-RAID Disk
5	ST3300831AS	3NF02XH2	279.5GB	Non-RAID Disk

Select 2 disks to use in creating the volume.

====[↑↓]-Prev/Next [SPACE]-SelectDisk [ENTER]-Done====

[↑↓]-Change   [TAB]-Next   [ESC]-Previous Menu   [ENTER]-Select

5. From the hard drive list, use Up or Down arrow key to reach the hard disks you want to combine them as RAID1, then press <Space> key to select them. A triangle sign will appear to indicate the drive selection. Here, we select one 232.9GB and one 298.1GB hard disks. Press <Enter> key to finish the selection.

Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
======================[CREATE VOLUME MENU]======================

===========================[SELECT DISKS]===========================

Port	Drive Model	Serial #	Size	Status
0	WDC WD2500JS-60N	WD-WCANKC865380	232.9GB	Non-RAID Disk
►2	Maxtor 6L250S0	L50SKP4G	232.9GB	Non-RAID Disk
►4	ST3320620SV	9QF4YJGQ	298.1GB	Non-RAID Disk
5	ST3300831AS	3NF02XH2	279.5GB	Non-RAID Disk

Select 2 disks to use in creating the volume

====[↑↓]-Prev/Next [SPACE]-SelectDisk [ENTER]-Done====

[↑↓]-Change   [TAB]-Next   [ESC]-Previous Menu   [ENTER]-Select

6. It will skip "**Strip Size**" menu for RAID1.

Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
══════════════════[CREATE VOLUME MENU]══════════════════

                    Name: TryRAID0
              RAID Level: RAID0(Stripe)
                   Disks: Select Disks
              Strip Size: N/A
                Capacity: 232.9 GB

                        Create Volume

══════════════════════[HELP]══════════════════════

            The default value indicates the maximum capacity using the selected
                disks. Entering a lower capacity allows you to create a second
                                volume on these disks

    [↑↓]-Change   [TAB]-Next   [ESC]-Previous Menu   [ENTER]-Select

7. In "**Capacity**" item, use the default value, and press <Enter>. The size of the smaller hard disk 232.9GB is becoming the default value, and it indicates the maximum capacity.

8. Select "**Create Volume**" and press <Enter>. A warning message will appear :

WARNING: ALL DATA ON SELECTED DISKS WILL BE LOST.

Are you sure you want to create this volume ? (Y/N) :

Press <Y> to create the volume and return to the main menu.

Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
═══════════════════════[MAIN MENU]═══════════════════════
    1. Create RAID Volume   3. Reset Disks to Non-RAID
    2. Delete RAID Volume   4. Exit

═══════════════[DISK/VOLUME INFORMATION]═══════════════
RAID Volume :   * = Data is Encrypted
ID   Name   Level   Stripe Size   Status   Bootable
0   TryRAID1   RAID1(Mirror) N/A   232.9GB   Normal   Yes

Physical Disks:
Port Drive Model   Serial #   Size   Type/Status(Vol ID)
0   WDC WD2500JS-60N   WD-WCANKC865380   232.9GB   Non-RAID Disk
2   Maxtor 6L250S0   L50SKP4G   232.9GB   Member Disk(0)
4   ST3320620SV   9QF4YJGQ   298.1GB   Member Disk(0)
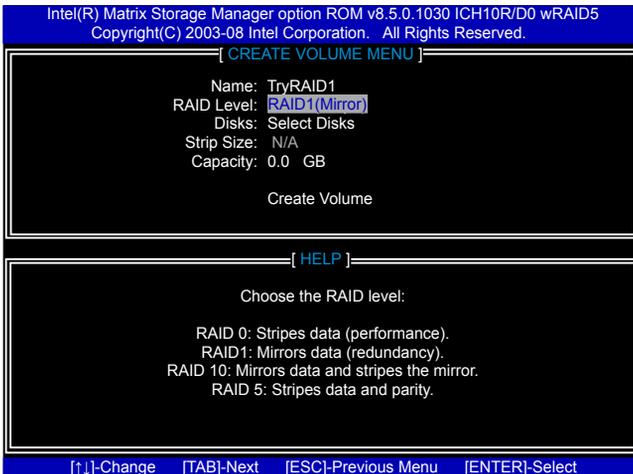5   ST3300831AS   3NF02XH2   279.5GB   Non-RAID Disk

      [↑↓]-Select   [ESC]-Exit   [ENTER]-Select Menu
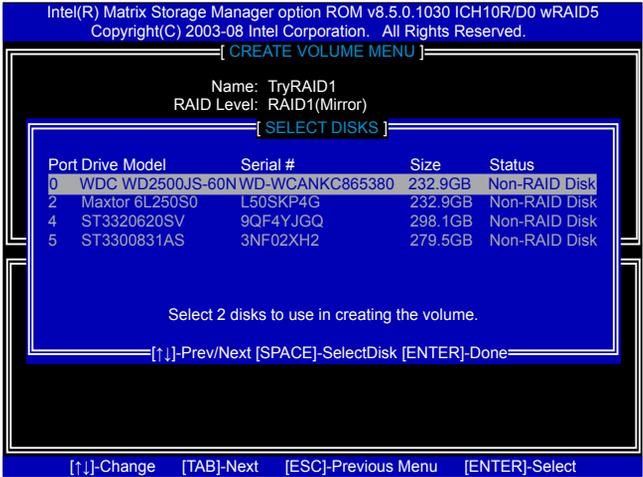
Create RAID 10 (0+1)

1. Select "**1.Create RAID Volume**" from the main menu and press <Enter>.
2. In "**Name**" item, you can input a device name for the RAID10 system and press
   <Enter> to apply it. Here, we name it as TryRAID10 to replace the default Volume0.
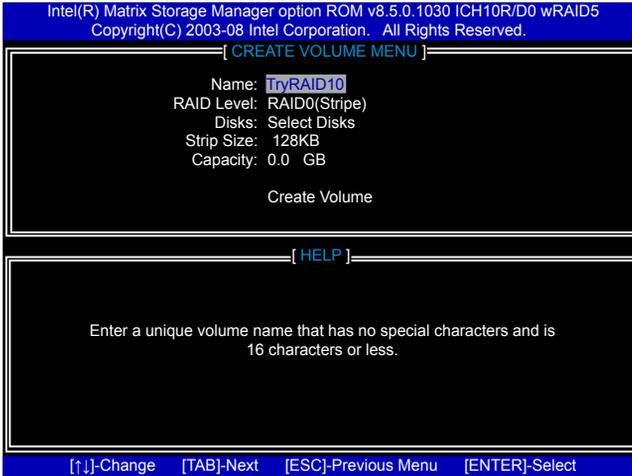
================[CREATE VOLUME MENU]================

```
            Name:  TryRAID10
      RAID Level:  RAID0(Stripe)
           Disks:  Select Disks
      Strip Size:  128KB
        Capacity:  0.0  GB

                Create Volume
```

================[HELP]================

```
Enter a unique volume name that has no special characters and is
                   16 characters or less.
```

5

[↑↓]-Change   [TAB]-Next   [ESC]-Previous Menu   [ENTER]-Select

3. In "**RAID Level**" item, you can use Up or Down arrow key to make a selection from
   one of RAID0, 1, 5, 10 items. Select RAID10(RAID0+1) and press <Enter>.

================[CREATE VOLUME MENU]================

```
            Name:  TryRAID10
      RAID Level:  RAID10(RAID0+1)
           Disks:  Select Disks
      Strip Size:  64KB
        Capacity:  465.8  GB

                Create Volume
```

================[HELP]================

```
                Choose the RAID level:

        RAID 0: Stripes data (performance).
        RAID1: Mirrors data (redundancy).
   RAID 10: Mirrors data and stripes the mirror.
        RAID 5: Stripes data and parity.
```

[↑↓]-Change   [TAB]-Next   [ESC]-Previous Menu   [ENTER]-Select

4. After exiting from "**RAID Level**", it goes directly to "**Stripe Size**" item. Because all four disks are selected for RAID10, so there is no need to go to **Disks** option.

5. Use Up or Down arrow key to select the desired strip size when entering "**Strip Size**" menu. The default value is 64K.

```
Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
         Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
════════════════════[ CREATE VOLUME MENU ]════════════════════

                      Name:  TryRAID10
                RAID Level:  RAID10(RAID0+1)
                     Disks:  Select Disks
                Strip Size:  64KB
                  Capacity:  465.8  GB

                            Create Volume


══════════════════════════[ HELP ]══════════════════════════


                  The following are typical values:

                        RAID0  -  128KB
                        RAID10 -  64KB
                        RAID5  -  64KB



    [↑↓]-Change     [TAB]-Next     [ESC]-Previous Menu     [ENTER]-Select
```

6. In "**Capacity**" item, use the default value, and press <Enter>. The default value is twice the smallest hard disk size, that is, 232.9GB * 2 = 465.8GB.

7. Select "**Create Volume**" and press <Enter>. A warning message will appear :

```
WARNING: ALL DATA ON SELECTED DISKS WILL BE LOST.

Are you sure you want to create this volume ? (Y/N) :
```

Press <Y> to create the volume and return to the main menu.

```
Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
         Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
═══════════════════════[ MAIN MENU ]═══════════════════════
      1. Create RAID Volume          3. Reset Disks to Non-RAID
      2. Delete RAID Volume          4. Exit


════════════════[ DISK/VOLUME INFORMATION ]════════════════
 RAID Volume :                                  * = Data is Encrypted
 ID   Name            Level          Stripe Size     Status      Bootable
 0    TryRAID10       RAID10(RAID0+1) N/A 465.8GB    Normal       Yes

 Physical Disks:
 Port Drive Model       Serial #          Size     Type/Status(Vol ID)
 0    WDC WD2500JS-60N WD-WCANKC865380   232.9GB   Member Disk(0)
 2    Maxtor 6L250S0    L50SKP4G         232.9GB   Member Disk(0)
 4    ST3320620SV       9QF4YJGQ         298.1GB   Member Disk(0)
 5    ST3300831AS       3NF02XH2         279.5GB   Member Disk(0)



       [↑↓]-Select          [ESC]-Exit          [ENTER]-Select Menu
```

Create RAID5 (Parity)

1. Select "**1.Create RAID Volume**" from the main menu and press <Enter>.
2. In "**Name**" item, you can input a device name for the RAID5 system and press
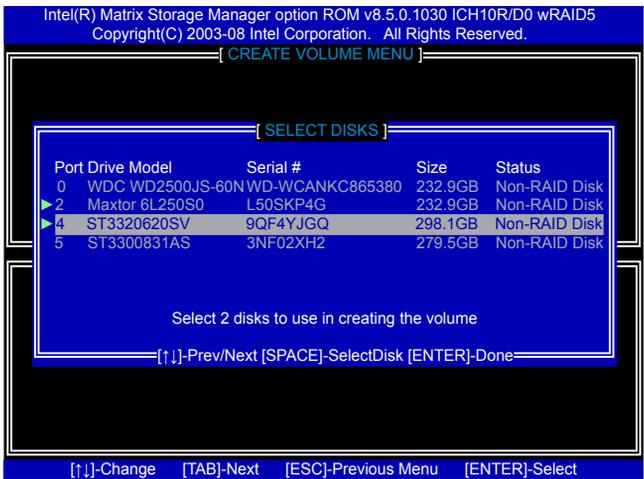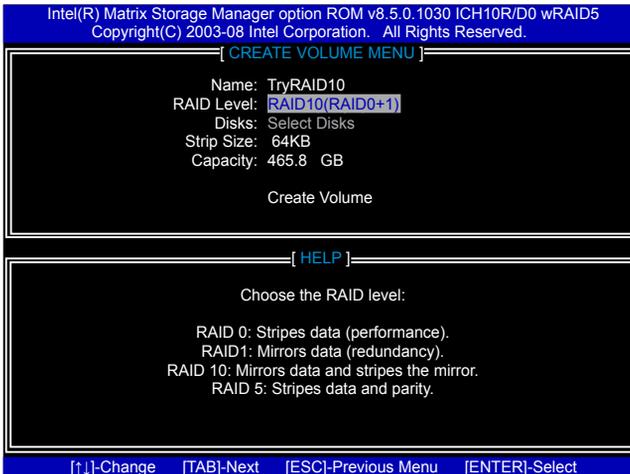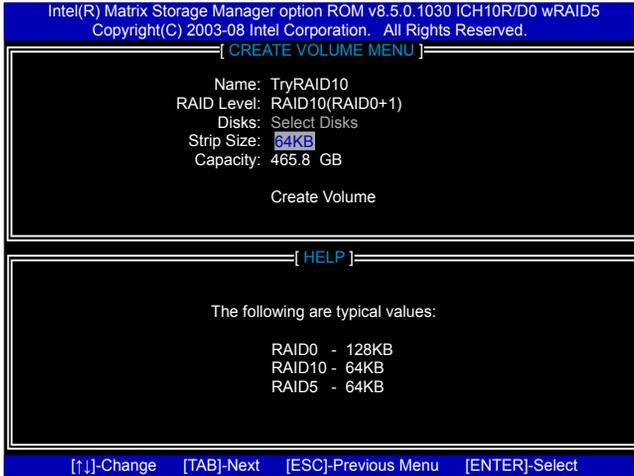   <Enter> to apply it. Here, we name it as TryRAID5 to replace the default Volume0.
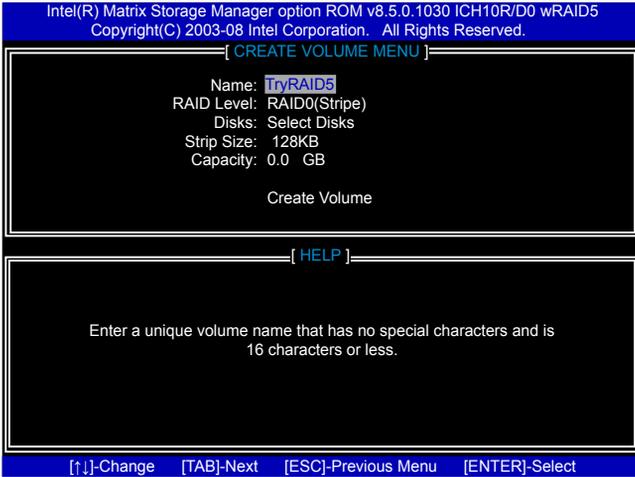
```
Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
        Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
===================[ CREATE VOLUME MENU ]===================

                    Name: TryRAID5
              RAID Level: RAID0(Stripe)
                   Disks: Select Disks
              Strip Size: 128KB
                Capacity: 0.0   GB

                        Create Volume

============================[ HELP ]============================



        Enter a unique volume name that has no special characters and is
                         16 characters or less.



    [↑↓]-Change     [TAB]-Next     [ESC]-Previous Menu     [ENTER]-Select
```

3. In "**RAID Level**" item, you can use Up or Down arrow key to make a selection from
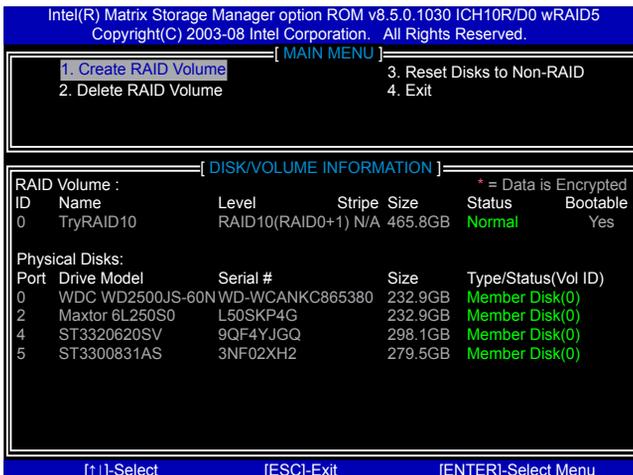   one of RAID0, 1, 5, 10 items. Select RAID5(Parity) and press <Enter>.

```
Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
        Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
===================[ CREATE VOLUME MENU ]===================

                    Name: TryRAID5
              RAID Level: RAID5(Parity)
                   Disks: Select Disks
              Strip Size: 64KB
                Capacity: 0.0   GB

                        Create Volume

============================[ HELP ]============================

                     Choose the RAID level:

                 RAID 0: Stripes data (performance).
                 RAID1: Mirrors data (redundancy).
           RAID 10: Mirrors data and stripes the mirror.
                  RAID 5: Stripes data and parity.


    [↑↓]-Change     [TAB]-Next     [ESC]-Previous Menu     [ENTER]-Select
```

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4. It then goes to "**Disks**" item. Press <Enter> to choose the hard disks for this RAID5
   system.
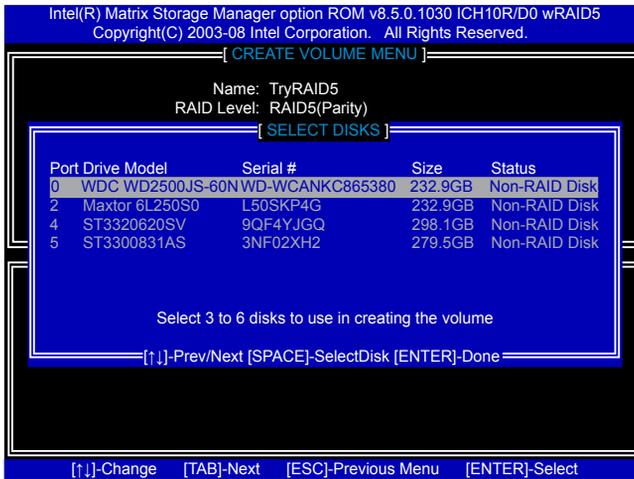
5. From the hard drive list, use Up or Down arrow key to reach the hard disks you want
   to combine them as RAID5, then press <Space> key to select them. A triangle sign
   will appear to indicate the drive selection. Here, we select 232.9GB, 298.1GB and
   279.5GB hard disks for an example. Press <Enter> key to finish the selection.
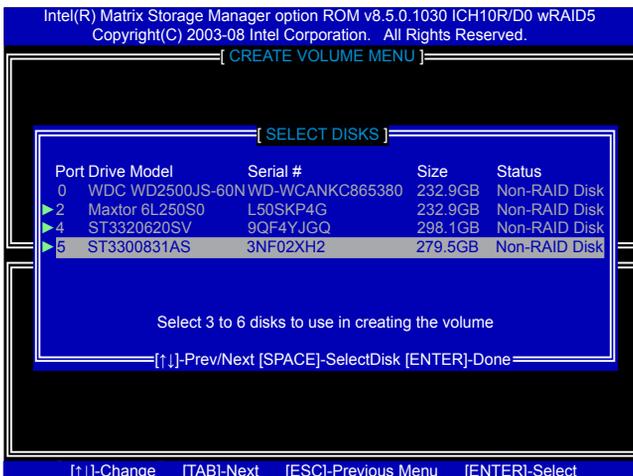
6. Use Up or Down arrow key to select the desired strip size when entering "**Strip Size**" menu. The default value is 64K. Press <Enter>.

```
Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
         Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
===================[ CREATE VOLUME MENU ]===================

                    Name: TryRAID5
              RAID Level: RAID5(Parity)
                   Disks: Select Disks
              Strip Size: 64KB
                Capacity: 465.8  GB

                          Create Volume

=========================[ HELP ]=========================

                The following are typical values:

                        RAID0  -  128KB
                        RAID10 -  64KB
                        RAID5  -  64KB

     [↑↓]-Change     [TAB]-Next     [ESC]-Previous Menu     [ENTER]-Select
```
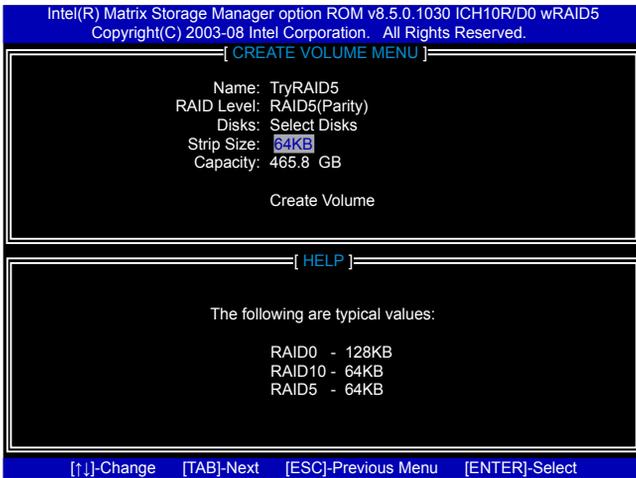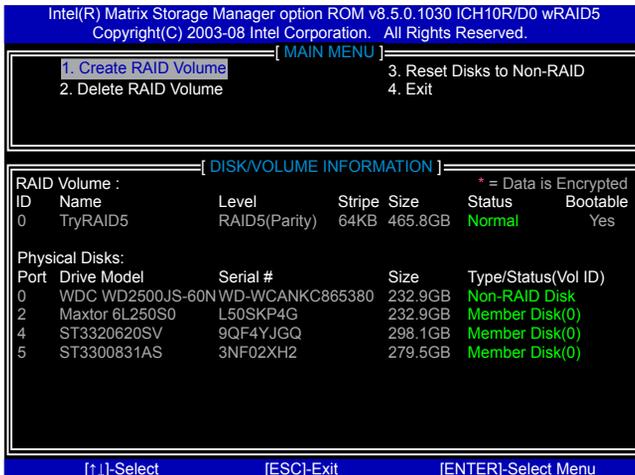
7. In "**Capacity**" item, use the default value, and press <Enter>. The default value is twice that of the smallest hard disk size, that is, 232.9GB * 2 = 465.8GB.
8. Select "**Create Volume**" and press <Enter>. A warning message will appear :

```
WARNING: ALL DATA ON SELECTED DISKS WILL BE LOST.

Are you sure you want to create this volume ? (Y/N) :
```

Press <Y> to create the volume and return to the main menu.

```
Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
         Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
=========================[ MAIN MENU ]=========================
   1. Create RAID Volume              3. Reset Disks to Non-RAID
   2. Delete RAID Volume              4. Exit

================[ DISK/VOLUME INFORMATION ]================
 RAID Volume :                                     * = Data is Encrypted
 ID   Name          Level         Stripe  Size     Status       Bootable
 0    TryRAID5      RAID5(Parity)  64KB   465.8GB   Normal        Yes

 Physical Disks:
 Port  Drive Model        Serial #          Size     Type/Status(Vol ID)
 0     WDC WD2500JS-60N WD-WCANKC865380    232.9GB   Non-RAID Disk
 2     Maxtor 6L250S0    L50SKP4G           232.9GB   Member Disk(0)
 4     ST3320620SV       9QF4YJGQ           298.1GB   Member Disk(0)
 5     ST3300831AS       3NF02XH2           279.5GB   Member Disk(0)

     [↑↓]-Select              [ESC]-Exit           [ENTER]-Select Menu
```

Delete RAID Volume

1. Take TryRAID5 for example. Select "**2. Delete RAID Volume**" in main menu and press <Enter>.

```
Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
       Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
========================[ MAIN MENU ]========================
    1. Create RAID Volume                    3. Reset Disks to Non-RAID
    2. Delete RAID Volume                    4. Exit


==================[ DISK/VOLUME INFORMATION ]==================
 RAID Volume :                                    * = Data is Encrypted
 ID   Name          Level          Stripe Size    Status      Bootable
 0    TryRAID5      RAID5(Parity)  64KB  465.8GB  Normal         Yes


 Physical Disks:
 Port Drive Model       Serial #            Size      Type/Status(Vol ID)
 0    WDC WD2500JS-60N WD-WCANKC865380   232.9GB   Non-RAID Disk
 2    Maxtor 6L250S0    L50SKP4G          232.9GB   Member Disk(0)
 4    ST3320620SV       9QF4YJGQ          298.1GB   Member Disk(0)
 5    ST3300831AS       3NF02XH2          279.5GB   Member Disk(0)



        [↑↓]-Select          [ESC]-Exit          [ENTER]-Select Menu
```

2. Use Up or Down arrow key to select the RAID set you want to delete. Here only one RAID5 is seen, so press <DEL> key to continue.

```
Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
       Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
=====================[ DELETE VOLUME MENU ]=====================
 Name          Level          Drives    Capacity  Status    Bootable
 TryRAID5      RAID5(Parity)    3        465.8GB   Normal      Yes




=============================[ HELP ]=============================




          Deleting a volume will reset the disks to non-RAID.

          WARNING: ALL DISK DATA WILL BE DELETED.




        [↑↓]-Select       [ESC]-Previous Menu      [DEL]-Delete Volume
```
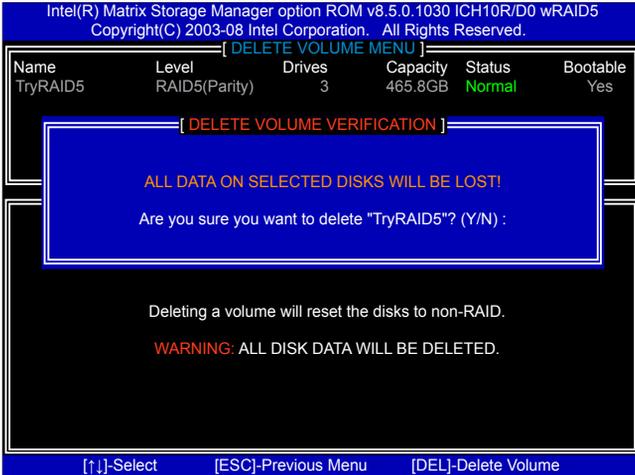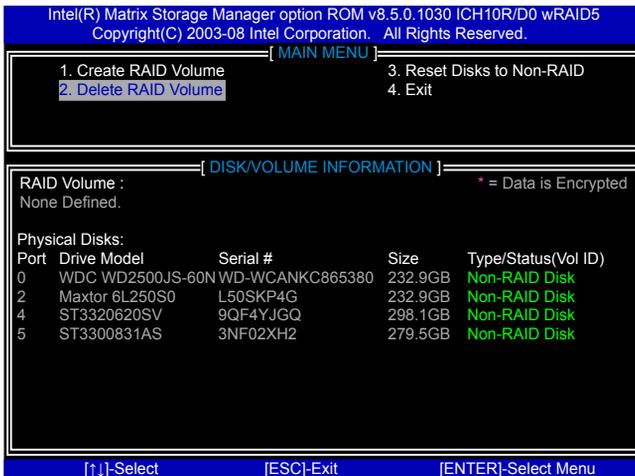
94

3. After <DEL> key is pressed, the screen appears as below:

Press <Y> key to confirm the volume deletion.

```
Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
          Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
=============================[ DELETE VOLUME MENU ]=============================
Name            Level           Drives      Capacity    Status      Bootable
TryRAID5        RAID5(Parity)   3           465.8GB     Normal      Yes

              =========[ DELETE VOLUME VERIFICATION ]=========

                ALL DATA ON SELECTED DISKS WILL BE LOST!

               Are you sure you want to delete "TryRAID5"? (Y/N) :



                Deleting a volume will reset the disks to non-RAID.

                WARNING: ALL DISK DATA WILL BE DELETED.



        [↑↓]-Select         [ESC]-Previous Menu        [DEL]-Delete Volume
```

4. Return to Main Menu.

```
Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
          Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
=============================[ MAIN MENU ]=============================
       1. Create RAID Volume              3. Reset Disks to Non-RAID
       2. Delete RAID Volume              4. Exit


=====================[ DISK/VOLUME INFORMATION ]=====================
 RAID Volume :                                   * = Data is Encrypted
 None Defined.

 Physical Disks:
 Port  Drive Model          Serial #          Size      Type/Status(Vol ID)
 0     WDC WD2500JS-60N  WD-WCANKC865380   232.9GB   Non-RAID Disk
 2     Maxtor 6L250S0       L50SKP4G          232.9GB   Non-RAID Disk
 4     ST3320620SV          9QF4YJGQ          298.1GB   Non-RAID Disk
 5     ST3300831AS          3NF02XH2          279.5GB   Non-RAID Disk



        [↑↓]-Select          [ESC]-Exit            [ENTER]-Select Menu
```

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Reset Disks to Non-RAID

Reset RAID volume allows you to replace a failed disk with a new one, and the operating system will rebuild the data later. For RAID0, reset a hard disk would totally crash the system, but for RAID1, RAID10 and RAID5, they all can be rebuilt.
When rebuild is needed, you must first install a new hard disk in your system before getting into Intel® Matrix Storage Manager utility, because the utility will ask you which hard disk the new rebuild will be performed.

Example 1. Reset a RAID0 system.

1. A TryRAID0 volume was built with two 232.9GB hard disks, we want to reset one of them. Select "**3. Reset Disks to Non-RAID**" in main menu and press <Enter>.

2. A warning message is displayed.

3. Select WDC hard disk as the one to be reset. Press <Enter>. A double confirmation message pops out, press <Y> to confirm.

Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
======================[MAIN MENU]======================
1. Create RAID Volume   3. Reset Disks to Non-RAID
==================[RESET RAID DATA]==================
Resetting RAID disk will remove its RAID structures
and revert it to a non-RAID disk.

WARNING: Resetting a disk causes all data on the disk to be lost.

Port	Drive Model	Serial #	Size	Status
▶ 0	WDC WD2500JS-60N	WD-WCANKC865380	232.9GB	Member Disk
2	Maxtor 6L250S0	L50SKP4G	232.9GB	Member Disk

Are you sure you want to reset RAID data on selected disks? (Y/N):_
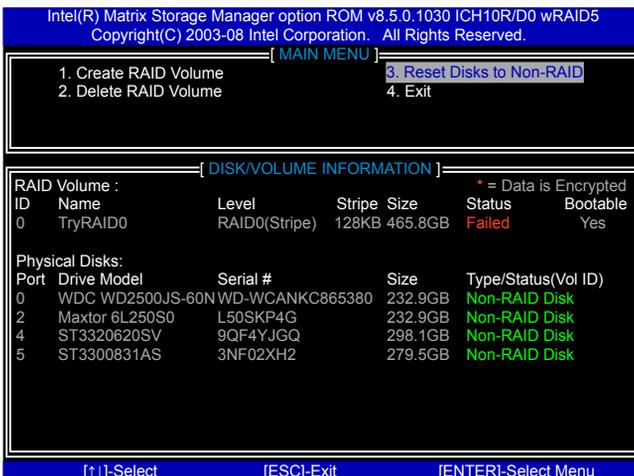
[↑↓]-Previous/Next   [SPACE]-Selects   [ENTER]-Selection Complete

[↑↓]-Select   [ESC]-Exit   [ENTER]-Select Menu

4. It goes back to Main menu with a "Failed" status of RAID0 volume.

Intel(R) Matrix Storage Manager option ROM v8.5.0.1030 ICH10R/D0 wRAID5
Copyright(C) 2003-08 Intel Corporation.   All Rights Reserved.
======================[MAIN MENU]======================
1. Create RAID Volume   3. Reset Disks to Non-RAID
2. Delete RAID Volume   4. Exit

===============[DISK/VOLUME INFORMATION]===============
RAID Volume :   * = Data is Encrypted

ID	Name	Level	Stripe	Size	Status	Bootable
0	TryRAID0	RAID0(Stripe)	128KB	465.8GB	Failed	Yes

Physical Disks:

Port	Drive Model	Serial #	Size	Type/Status(Vol ID)
0	WDC WD2500JS-60N	WD-WCANKC865380	232.9GB	Non-RAID Disk
2	Maxtor 6L250S0	L50SKP4G	232.9GB	Non-RAID Disk
4	ST3320620SV	9QF4YJGQ	298.1GB	Non-RAID Disk
5	ST3300831AS	3NF02XH2	279.5GB	Non-RAID Disk

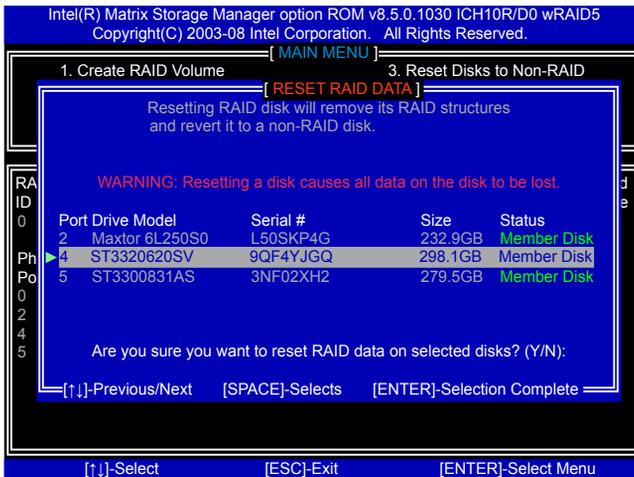[↑↓]-Select   [ESC]-Exit   [ENTER]-Select Menu

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Example 2. Reset a RAID5 system

1. A TryRAID5 volume was built with three hard disks, we want to reset one of them.
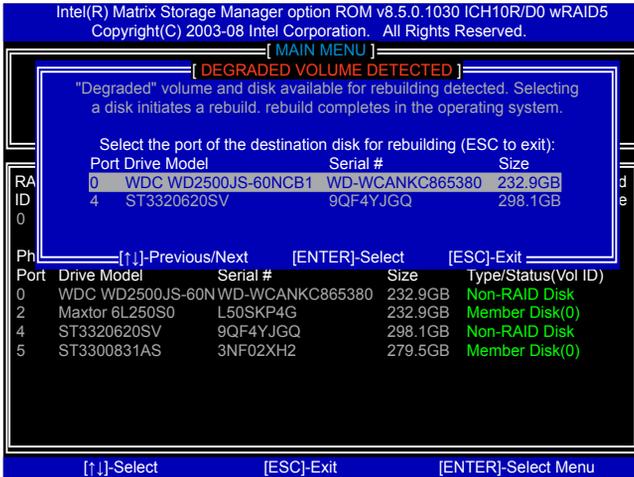   Select "**3. Reset Disks to Non-RAID**" in main menu and press <Enter>.
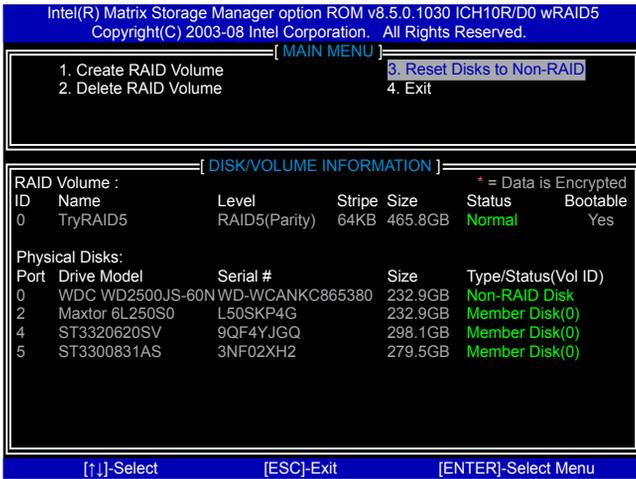
2. A warning message is displayed.
3. Select "**Port 4 - ST3320620SV**" hard disk as the one to be reset. Press <Enter>.
   A double confirmation message pops out, press <Y> to confirm.

4. A "**DEGRADED VOLUME DETECTED**" screen pops out asking you to select a new hard disk for rebuilding. Here, we select WDC 232.9GB. Press <Enter> to select it.
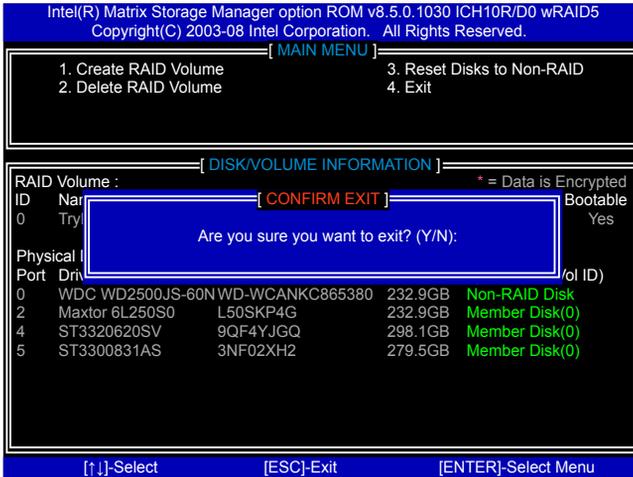

5. It goes back to Main menu with a "Rebuild" status of RAID5 volume. Eventually, a replacement hard disk has to join in and it always keeps three hard disks in the RAID5 system.
6. Operating System will perform the rebuilding later.
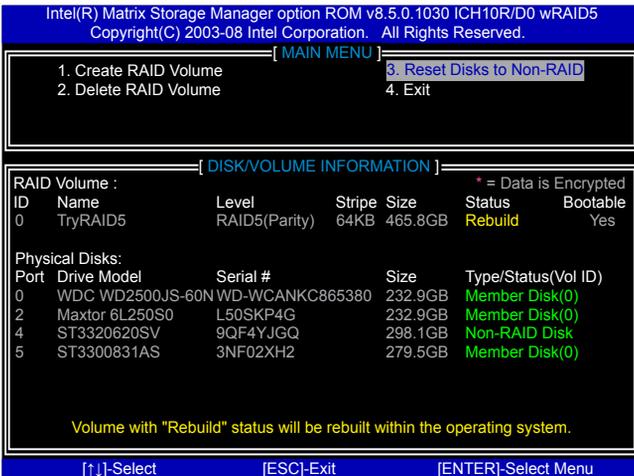
Exit RAID BIOS

1. Take TryRAID5 as an example, select "**4. Exit**" in main menu and press <Enter>. The screen displays :
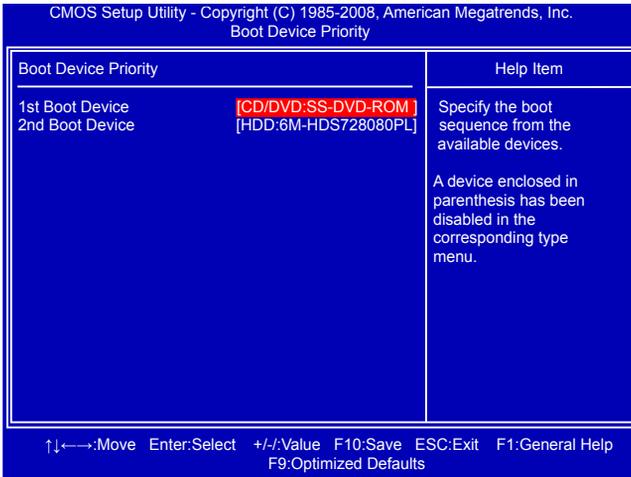

2. Press <Y> to exit Intel® Matrix Storage Manager program. The system will reboot.
3. Shut down the computer, remove WD hard disk, and we will continue for Windows OS installation. If you do not remove irrelevant WD hard disk, Windows may detect it during the installation, and you could be confused.
4. Remove any diskette from floppy drive.
5. Restart computer to start Windows installation.

5-4 Install a New Windows XP

⚠️ **CAUTION**

when you set the SATA Mode in BIOS to either AHCI or RAID, you need to follow these steps to install your Windows XP system.
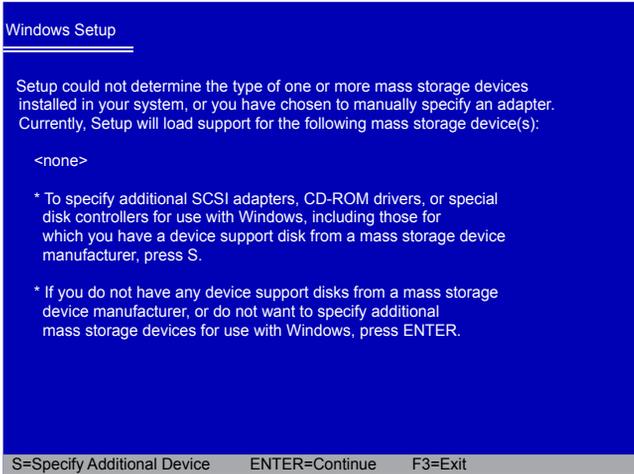
1. Press <DEL> to enter BIOS Setup during POST.
2. Insert the Windows installation CD into the optical drive.
3. Set the "1st Boot Device" to "CD/DVD ROM", save changes and exit the BIOS setup.

```
CMOS Setup Utility - Copyright (C) 1985-2008, American Megatrends, Inc.
                         Boot Device Priority
┌─────────────────────────────────────────────┬───────────────────────────┐
│ Boot Device Priority                         │       Help Item           │
├─────────────────────────────────────────────┼───────────────────────────┤
│ 1st Boot Device          [CD/DVD:SS-DVD-ROM ]│ Specify the boot          │
│ 2nd Boot Device          [HDD:6M-HDS728080PL]│  sequence from the        │
│                                              │  available devices.       │
│                                              │                           │
│                                              │ A device enclosed in      │
│                                              │ parenthesis has been      │
│                                              │ disabled in the           │
│                                              │ corresponding type        │
│                                              │ menu.                     │
│                                              │                           │
├─────────────────────────────────────────────┴───────────────────────────┤
│ ↑↓←→:Move  Enter:Select  +/-/:Value  F10:Save  ESC:Exit  F1:General Help  │
│                         F9:Optimized Defaults                            │
└──────────────────────────────────────────────────────────────────────────┘
```
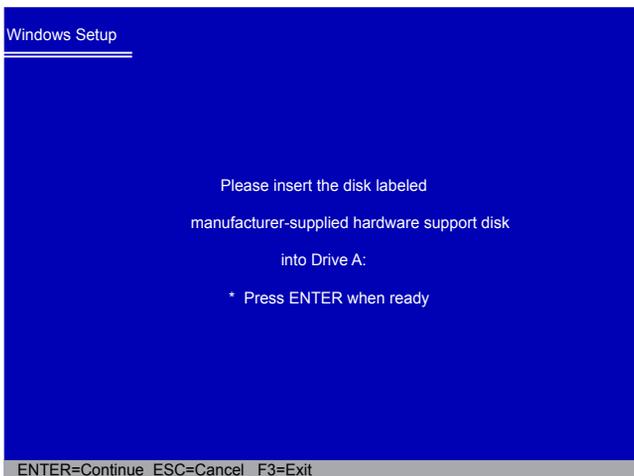
4. The computer will reboot, and it will start installing Windows Operating System. Watch the screen carefully, when the following picture appears, press <F6> key immediately. If you forgot to do this, PC will go to an fatal blue screen, and you may need to reboot the system again. PC may not respond to your <F6> input immediately, and it keeps loading files until the next screen displays.
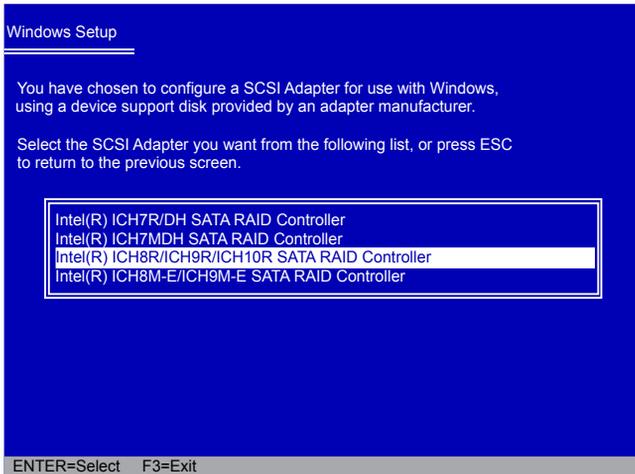
```
Windows Setup
──────────────




Press F6 if you need to install a 3rd party SCSI or RAID driver.
```
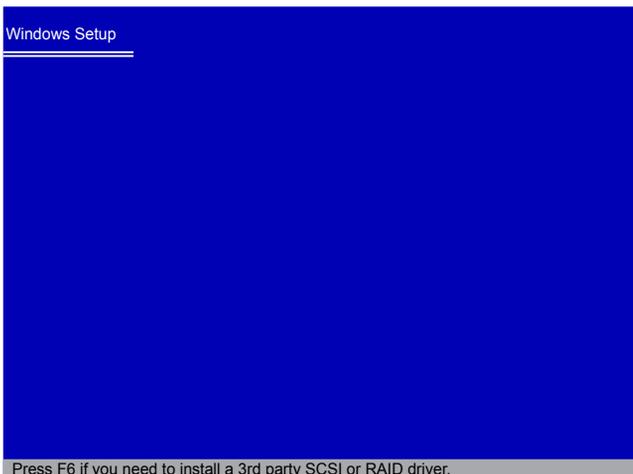
5. After some files are copied to your system, the following picture appears, press <S> to continue the specific driver installation.


```
Windows Setup

 Setup could not determine the type of one or more mass storage devices
 installed in your system, or you have chosen to manually specify an adapter.
 Currently, Setup will load support for the following mass storage device(s):

   <none>

  * 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
```
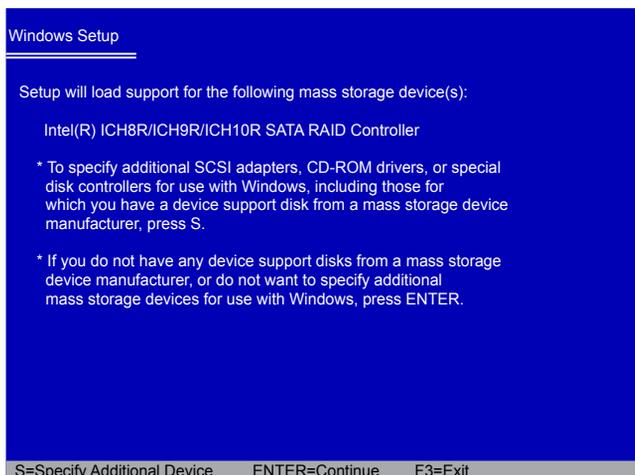
6. It will ask you to insert the RAID driver diskette into you floppy drive. Press <Enter> after it is done.


```
Windows Setup




                    Please insert the disk labeled

             manufacturer-supplied hardware support disk

                           into Drive A:

                     *  Press ENTER when ready




 ENTER=Continue  ESC=Cancel  F3=Exit
```
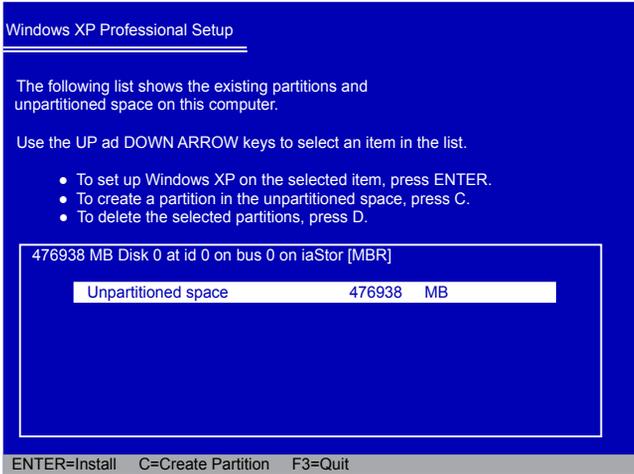
7. Depending on South Bridge chip of your system, select appropriate driver for it. Here, we choose Intel® ICH8R/ICH9R/ICH10R SATA RAID Controller. Press <Enter> to select it.

```
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.

     ┌──────────────────────────────────────────────────────────┐
     │ Intel(R) ICH7R/DH SATA RAID Controller                   │
     │ Intel(R) ICH7MDH SATA RAID Controller                    │
     │ Intel(R) ICH8R/ICH9R/ICH10R SATA RAID Controller         │
     │ Intel(R) ICH8M-E/ICH9M-E SATA RAID Controller            │
     └──────────────────────────────────────────────────────────┘




  ENTER=Select    F3=Exit
```

8. A confirmation message pops out to double check if the driver is really what we wanted. Press <Enter> to continue.

```
Windows Setup

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

     Intel(R) ICH8R/ICH9R/ICH10R SATA RAID Controller

    * 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. Windows will display the partition of your system, you have to create partitions as many as you wish, assign them C:, D: or E: drive names. After partitions were done, you can press <Enter> to continue. It will ask you to format your hard disk, then copy files...etc., until the whole Windows is setup.

```
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.

  ┌─────────────────────────────────────────────────────────────┐
  │ 476938 MB Disk 0 at id 0 on bus 0 on iaStor [MBR]             │
  │                                                               │
  │    Unpartitioned space              476938    MB             │
  │                                                               │
  │                                                               │
  │                                                               │
  │                                                               │
  └─────────────────────────────────────────────────────────────┘

  ENTER=Install    C=Create Partition    F3=Quit
```

10. You must always keep RAID diskette in the floppy drive during Windows XP installation, otherwise, Windows may ask you to put it inside again by below message. There are many times Windows XP may copy files from the floppy drive, please remember.
11. Follow the Windows XP install processes to finish the set up.

```
Windows XP Professional Setup
─────────────────────────────




                      Insert the disk labeled:

                 Intel Matrix Storage Manager driver

                          into drive A:

                    *  Press ENTER when ready





  F3=Quit   ENTER=Continue
```
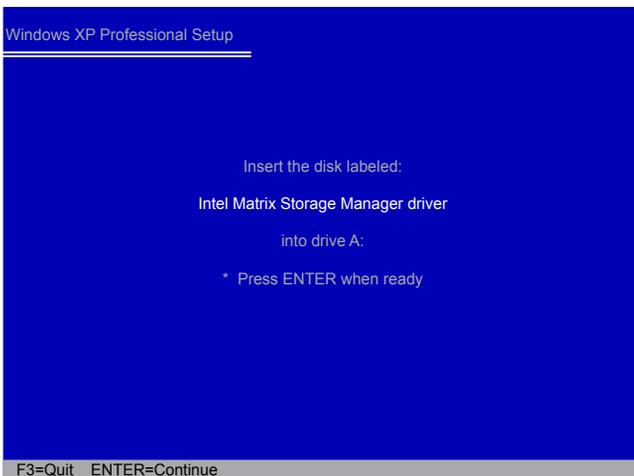
5-5 Existing Windows XP with RAID built as data storage

When you already have a Windows XP system running at a traditional IDE hard disk, and you want to keep it unchanged, but you also want to expand the system with some SATA hard disks, to come out a new RAID system for data storage. In this case, you need to install the Intel**®** Matrix Storage Manager into your Windows XP system first.

The conditions to install Intel**®** driver successfully, you need :
1. BIOS SATA mode must be set to [AHCI] or [RAID].
2. You'd better have an IDE CD drive.

If you have a SATA CD drive and the BIOS SATA mode was set to [AHCI] or [RAID], in Windows XP platform, this CD drive can not be recognized if Intel**®** Matrix Storage Manager has not been installed. If the system can not recognize it, how can the driver be installed ? This is the reason why we need to come out a standard procedure for SATA CD drive users.

The correct steps are :
1. In current Windows XP system (no matter what SATA or IDE CD drive you have), browse the CD, copy the whole directory of Intel**®** Matrix Storage Manager setup program to your desktop. For example, drag and copy directory "**\Driver\Intel\RAID\ Utility**" to your desktop.
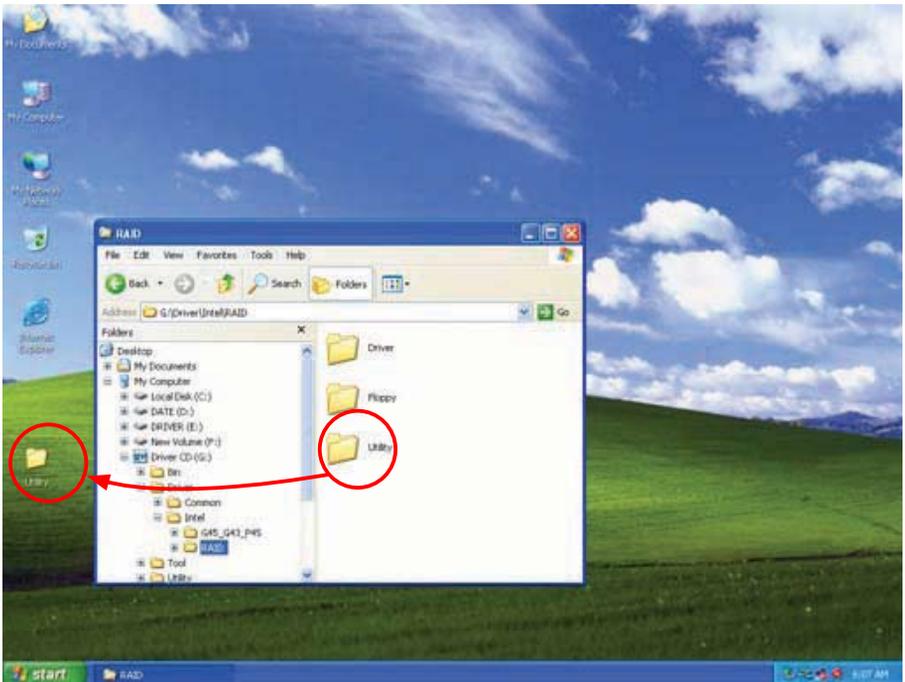
2. Copy section 5-2, BIOS Configuration.

Shut down the computer, connect SATA hard disks to SATA ports, power on computer again.

Press <Del> key, get into BIOS, set SATA mode to [RAID], press <F10> to save and exit BIOS. PC will reboot.
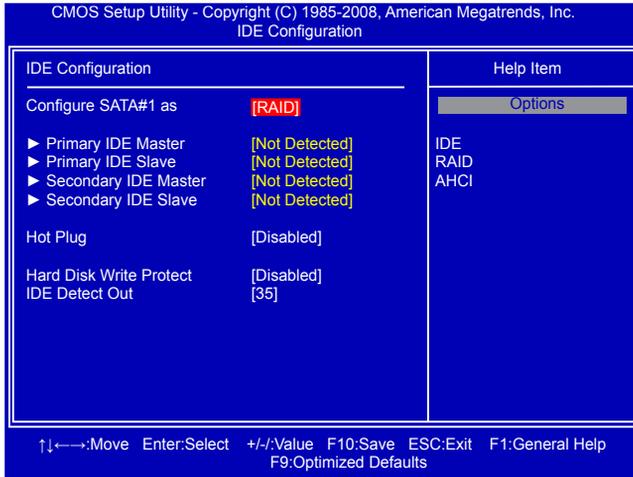
3. Copy section 5-3, Create RAID in BIOS.

Press <CTRL><I> simultaneously to get into RAID BIOS set up (Intel® Matrix Storage Manager option ROM utility).

Configure your new hard disks to RAID0, 1, 5 or 10. Exit RAID BIOS. PC will reboot.

4. The Windows XP is running again and a new hardware of RAID disk was found.

Click [Cancel] to skip this Wizard.

Click to exit.

5. Use Explorer to get into the Intel® driver directory which was previously copied to the desktop.

6. Click on Setup.exe to install Intel® Matrix Storage Manager driver.

7. Install complete.

8. In Windows Explorer, right click on My Computer, click on Manage, then click on
   Disk Management to format these new RAID disks. Follow the Wizard to finish the
   job.
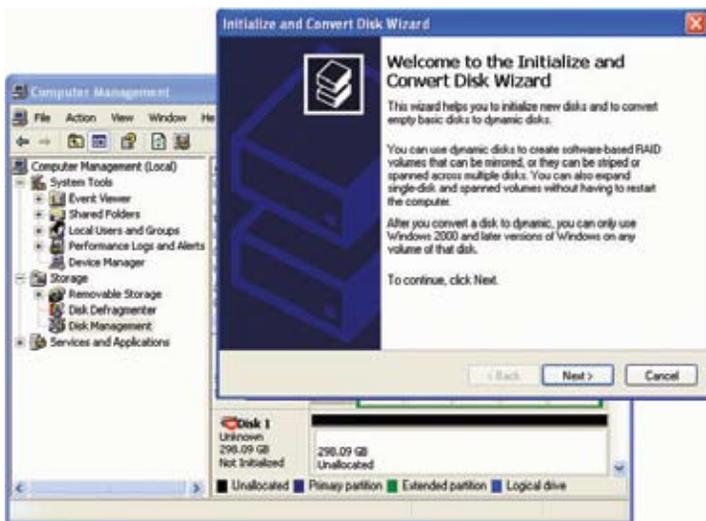
Appendix - CrossFire™ Technology

Introduction

CrossFire™ technology is a newly introduced product from ATI Technologies. It is designed to dramatically improve the graphics performance for applications which is used by players and other high-end users.

The CrossFire™ aspect requires the following components to be available in order to appear as an option within Catalyst™ Control Center :

■ CrossFire™ Ready motherboard, such as Foxconn's Renaissance.

■ CrossFire™ Edition graphics card that works as the master graphics card.

■ CrossFire™ Ready graphics card from the same brand-family that works as the slave graphics card.

For the detailed CrossFire Graphic Card support list on this motherboard, please visit the website: http://www.foxconnchannel.com

Using CrossFire™ Technology

1. Please uninstall any existing graphics card drivers which would possibly create a conflict before attempting to install this display card.

2. Install the Radeon CrossFire™ Edition graphics card (master) to PCI-E1_X16 slot.

3. Install the Radeon CrossFire™ Ready graphics card (slave) to PCI-E2_X16 slot.

CrossFire™ Edition graphics card(Master)
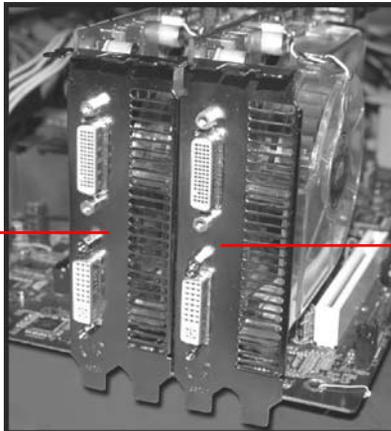
CrossFire™ Ready graphics card(slave)

4. Connect an auxiliary power source from the power supply to the graphics card.
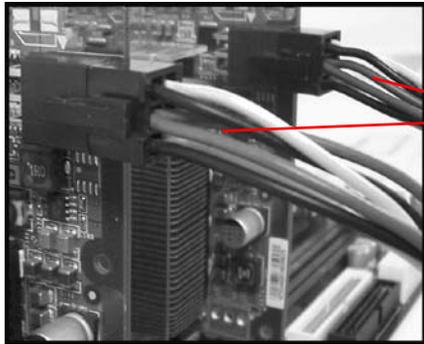
Power Extension Cable

5. Connect the DMS-59 cable to the DVI monitor connector and two graphics cards that you install as shown.
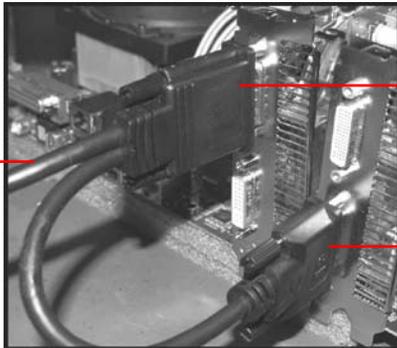
Connect to monitor

Connect to master graphics card DMS connector

Connect to slave graphics card DVI connector

6. Power on your computer and get into OS (Windows® XP 32-bit with SP2 or Windows® XP Professional 64-bit Edition).

7. Install Microsoft's .NET Framework Version 1.1. Without it, The ATI Catalyst™ Control Center can not launch properly.

8. Install the ATI graphics card drivers and restart your computer. Then you will find "ATI Catalyst Control Center" on your desktop.

9. Double-click on the ATI Catalyst Control Center icon [ATI] to launch it. Click "View"-->Select "Advanced View" -->Click "CrossFire" ATI Catalyst Control Center "Enable CrossFire™" to Yes.
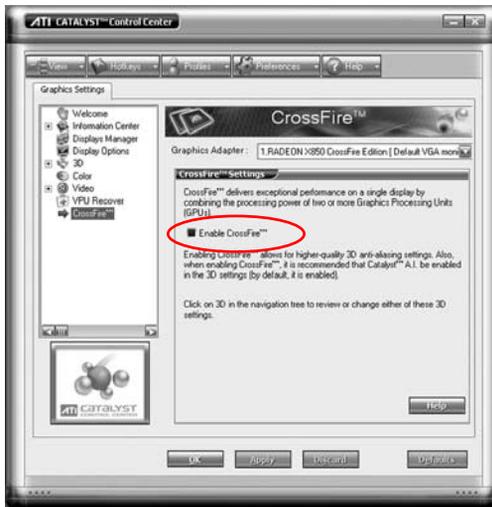
Now you can enjoy the advanced CrossFire™ technology.

⚠ CAUTION

- It is recommended using 400-450 Watt power supply or above to enjoy the benefit of CrossFire™ technology.

- PCI-E1_x16 slot and PCI-E2_x16 slot work at x16 mode. PCI-E1_x8 slot and PCI-E2_x8 slot work at x8 mode. Only when construct CrossFire™ at PCI-E1_x16 and PCI-E2_x16 slots, you can get x16 mode, otherwise all the slots will work at x8 mode.

- The all new Radeon X1300 and X1600 graphics cards do not need a CrossFire™ Edition co-processor or external cable.

- For double size VGA card, only two way CrossFireX™ is supported due to space limitation.

Appendix - NVIDIA® SLI™ Technology

1. Introduction

NVIDIA® SLI™ (Scalable Link Interface) technology takes advantage of the increased bandwidth of the PCI Express™ bus architecture, and features intelligent hardware and software solutions to deliver earth-shattering PC performance in a multi NVIDIA® GPU solution.

> ⚠ CAUTION
>
> - In Dual SLI mode, it needs two identical SLI-ready graphics cards.
> - In 3-way SLI mode, it needs three identical SLI-ready graphics cards.
> - Make sure that all the graphics cards are certified by NVIDIA, different type of graphics cards will not work together properly.
> - Please visit the NVIDIA website (www.nvidia.com) for the NVIDIA graphics card drivers.
> - Make sure that your power supply unit can provide at least the minimum power required by your system. If you want to use 3-way SLI™ configuration, please visit the NVIDIA website (www.nvidia.com) for the qualified Power Supply Unit vendor list.
> - The NVIDIA 3-way SLI technology supports Windows® Vista operating system only.
> - For the detailed Graphics Card support list on this motherboard, please visit the website: http://www.foxconnchannel.com

2. Graphics card configuration

2-1 Installing two SLI-ready graphics cards

1. Install the first graphics card into the PCI-E1_16X slot and the other into the PCI-E2_16X slot.

2. Align and firmly insert the 2-way SLI bridge onto the edge connector of each graphics card. Make sure that the bridge is firmly in place.
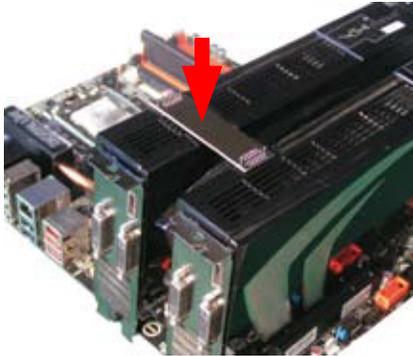
3. Connect power extension cable from the power supply to the graphics card power connector separately.

4. Connect a monitor DVI-I cable to the graphics card.

2-2 Installing three SLI-ready graphics cards

1. Install the first graphics card into the PCI-E1_16X slot, the second into the PCI-E2_16X slot, and the third into the PCI-E2_8X slot. (You can refer to the 3-way and 2-way graphics card Speed Table for different combinations**.**)
2. Align and firmly insert the 3-way SLI bridge onto the edge connector of each graphics card. Make sure that the bridge is firmly in place.
3. Connect power extension cable from the power supply to the graphics card power connector separately.
4. Connect a monitor DVI-I cable to the graphics card.

⚠ CAUTION Three way SLI is supported for single size VGA card only. For double size VGA card, only two way SLI is supported due to space limitation.

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2-3 Installing the graphics cards drivers

1. Power on your computer and boot into Operating System.
2. Install the NVIDIA graphics card drivers and restart your computer.

2-4 Enabling the NVIDIA® SLI™ technology

1. Right click on the empty space of Windows® and select "NVIDIA Control Panel" to open it.

If you cannot see the NVIDIA Control Panel item, select "Personalize", then follow the procedure below:

From the "Personalization" window, select "Display Settings".

Click "Advanced Settings..." from the dialog box.

Select the NVIDIA GeForce tab, then click "Start the NVIDIA Control Panel".

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2. When using two graphics cards:

    Select "Set SLI and Physix Configuration",
    then click "Enable SLI", when done,
    click Apply to enable it.

    Select the "3D Setting" tab and enable
    the "Show SLI Visual Indicators" item.

When using three graphics cards:

    The display is similar to the two graphics' one. Just select "Set SLI and Physix Configuration",
    then click "Enable 3-way NVIDIA SLI" and set the display, when done, click Apply.

3-way and 2-way graphics card Speed Table:

Card Numbers	Slot	Speed Mode
3-way	PCI-E1_16X	x16
	PCI-E2_16X	x8
	PCI-E2_8X	x8
3-way	PCI-E1_16X	x8
	PCI-E1_8X	x8
	PCI-E2_16X	x16
3-way	PCI-E1_8X	x8
	PCI-E2_16X	x8
	PCI-E2_8X	x8
2-way	PCI-E1_16X	x16
	PCI-E2_16X	x16
2-way	PCI-E1_8X	x8
	PCI-E2_8X	x8

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