Flaming Blade Series

Motherboard

User's Manual

FOXCONN®

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Trademark:

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Version:

User's Manual V1.1 for Flaming Blade Series motherboard.

Symbol description:

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

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

WEEE:

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

More information:

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

Declaration of conformity

CE

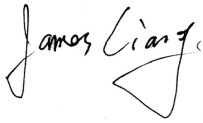
HON HAI PRECISION INDUSTRY COMPANY LTD
66 , CHUNG SHAN RD., TU-CHENG INDUSTRIAL DISTRICT,
TAIPEI HSIEN, TAIWAN, R.O.C.

declares that the product

Motherboard Flaming Blade/Flaming Blade GTI

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 : 

Place / Date : TAIPEI/2009

Printed Name : James Liang

Declaration of conformity

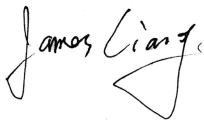
Trade Name:	FOXCONN
Model Name:	Flaming Blade/Flaming Blade GTI
Responsible Party:	PCE Industry Inc.
Address:	458 E. Lambert Rd. Fullerton, CA 92835
Telephone:	714-738-8868
Facsimile:	714-738-8838

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 :  Date : 2009

Installation Precautions

- 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.

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 Heatsink is not properly installed.
- We cannot guarantee that your system can operate normally when over-clocked. Stable operation at overclocked speeds depends on the overclocking capabilities of all devices
- When connecting USB, 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.

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Technical 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 Flaming Blade/Flaming Blade GTI, a Foxconn Quantum Force series motherboard. Quantum Force products are Foxconn's high end enthusiast products engineered to maximize computing power, providing all you need for break-through performance.

With advanced overclocking capabilities and a range of connectivity features for today's multi-media computing requirements, Flaming Blade/Flaming Blade GTI enables you to unleash more power from your computer.

This chapter includes the following information:

- Package List
- Product Specifications
- Layout
- Back Panel Connectors

Package List

Check your product package for the following items:

Motherboard	Foxconn Flaming Blade/Flaming Blade GTI motherboard
Cables	1 X Ultra DMA cable 3 X SATA Signal cables
Accessory	I/O Shield Quantum Force SLI Bridge(Only for Flaming Blade)
Application CD	Foxconn motherboard support CD
Documentation	User's Manual Quick Installation Guide Registration Card

Before your purchase, if any of the above items is damaged or missing, please contact your retailer. Accessories are not in the warranty, only the motherboard is.

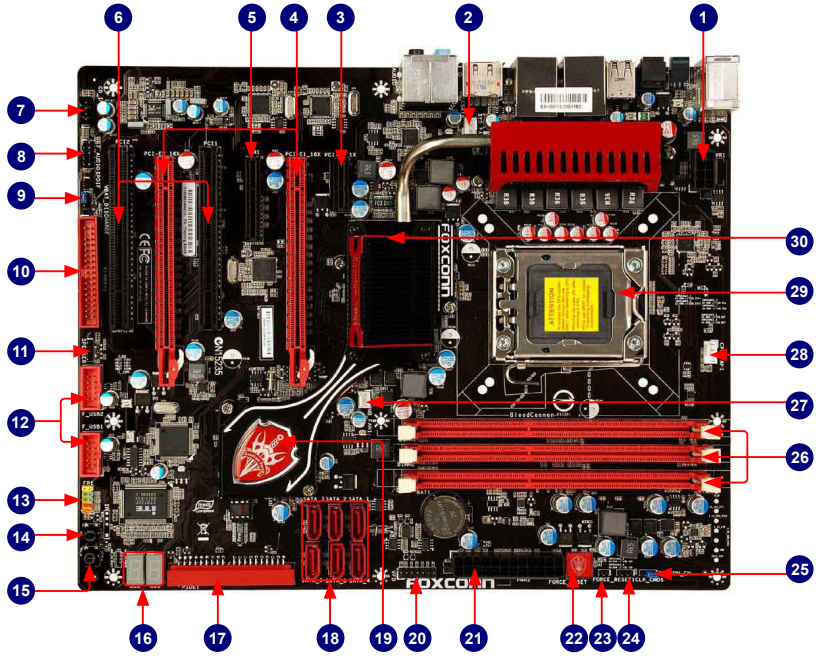
1-1 Product Specifications

CPU	Support LGA1366 Intel® CPU: Core™ i7 and Core™ i7 Extreme Series processors Supports Intel® Hyper-Threading Technology
QPI	Up to 6.4GT/s
Chipset	North Bridge: Intel® X58 chipset South Bridge: Intel® ICH10R(Flaming Blade) Intel® ICH10(Flaming Blade GTI)
Memory	3 x 240-pin DDR3 DIMM sockets Supports up to 12GB of system memory Triple channel DDR3 1800(oc)/1600(oc)/1333/1066/800MHz (oc*: Overclocking) * The memory controller is integrated into the Core™ i7 CPU, overclocking might vary from CPU to CPU. Intel officially only supports DDR3 1333
Audio	Realtek ALC888 chip High Definition Audio 2/4/5.1/7.1-channel Support for S/PDIF out Support Jack-Sensing function
LAN	2 x Realtek 8111C Gigabit LAN(Flaming Blade) 1 x Realtek 8111C Gigabit LAN(Flaming Blade GTI)
Expansion Slots	2 x PCI Express x16 slots 1 x PCI Express x1 slot(Only for Flaming Blade) 1 x PCI Express x4 slot 2 x PCI slots
Onboard Serial ATA	6 x SATA connectors 300MB/s data transfer rate Supports hot plug and NCQ (Native Command Queuing) Supports RAID 0, RAID 1, RAID 5, RAID 0+1(Only for Flaming Blade) Supports Intel® Matrix Storage Technology(Only for Flaming Blade)
USB	Supports 12 USB 2.0 ports (8 rear panel ports, 2 onboard USB connectors providing 4 extra ports) Supports USB 2.0 protocol up to 480Mb/s Supports hot plug
Internal Connectors	1 x 24-pin ATX main power connector 1 x 8-pin ATX 12V power connector 1 x Floppy disk drive connector 1 x Front panel connector 1 x Front Audio connector 1 x CD_IN connector 1 x Speaker connector 1 x VFD connector (Only for Flaming Blade) 1 x CPU fan header (4-pin) 1 x System fan header (3-pin)

	1 x Power fan header (3-pin)(NB_FAN1)
	1 x IDE connector (Controlled by JMicron JMB363, for Flaming Blade/ Controlled by JMicron JMB368, for Flaming Blade GTI)
	6 x SATA connectors
	2 x USB 2.0 connectors (Supporting 4 x USB devices)
Back Panel Connectors (Flaming Blade)	1 x PS/2 Keyboard port
	1 x Optical S/PDIF out connector
	1 x Clear CMOS button
	8 x USB 2.0 ports
	2 x RJ-45 LAN ports
	2 x External SATA ports (Controlled by JMicron JMB363)
	8-channel audio ports
Back Panel Connectors (Flaming Blade GTI)	1 x PS/2 Keyboard port
	1 x Optical S/PDIF out connector
	8 x USB 2.0 ports
	1 x RJ-45 LAN port
	8-channel audio ports
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 x16	Support 8GB/s (16GB/s concurrent) bandwidth
	Low power consumption and power management features
PCI Express x1 (Only for Flaming Blade)	Supports 500MB/s (1GB/s concurrent) bandwidth
	Low power consumption and power management features
Green Function	Supports ACPI (Advanced Configuration and Power Interface)
	Supports S0 (normal), S1 (power on suspend), S3 (suspend to RAM), S4 (suspend to disk), and S5 (soft - off)
Bundled Software	AEGIS PANEL
	FOX LiveUpdate
	FOX LOGO
	FOX DMI
Operating System	Supports for Microsoft® Windows® Vista/XP
Form Factor	ATX Form Factor, 12 inches x 9.6 inches (30.5cm x 24.4cm)

This motherboard does not support Windows® 2000.

1-2 Layout

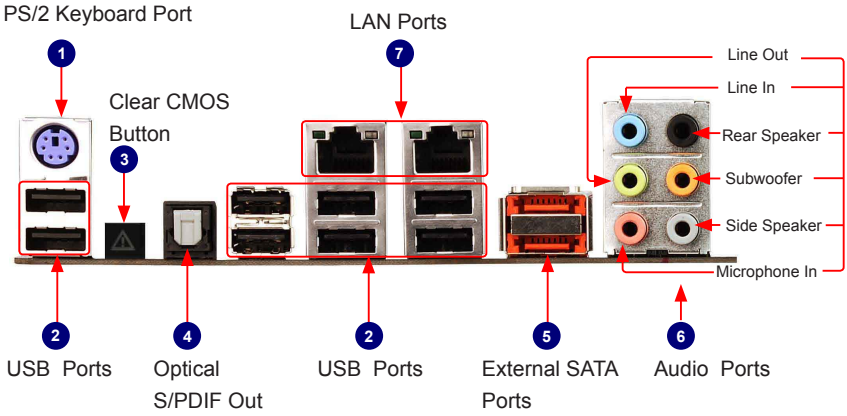


1. 8-pin ATX 12V Power Connector
2. System Fan Header
3. PCI Express x1 Slot(Only for Flaming Blade)
4. PCI Express x16 Slots
5. PCI Express x4 Slot
6. PCI Slots
7. CD_IN Connector
8. Front Audio Connector
9. VBAT_DISCHARGE Jumper
10. Floppy Connector
11. Speaker Connector
12. Front USB Connectors
13. Front Panel Connector
14. Reset Button(Only for Flaming Blade)
15. Power on Button(Only for Flaming Blade)
16. Debug LED
17. IDE Connector
18. SATA Connectors
19. South Bridge: Intel® ICH10R(Flaming Blade)/ Intel® ICH10(Flaming Blade GTI)
20. VFD Connector (Only for Flaming Blade)
21. 24-pin ATX Power Connector
22. Force Reset Button(Only for Flaming Blade)
23. Force_Reset1 Jumper (Only for Flaming Blade)
24. Clear CMOS Jumper
25. Button_En Jumper (Only for Flaming Blade)
26. DDR3 DIMM Slots
27. NB_FAN1 Header
28. CPU Fan Header
29. LGA1366 CPU Socket
30. North Bridge: Intel® X58 Chipset

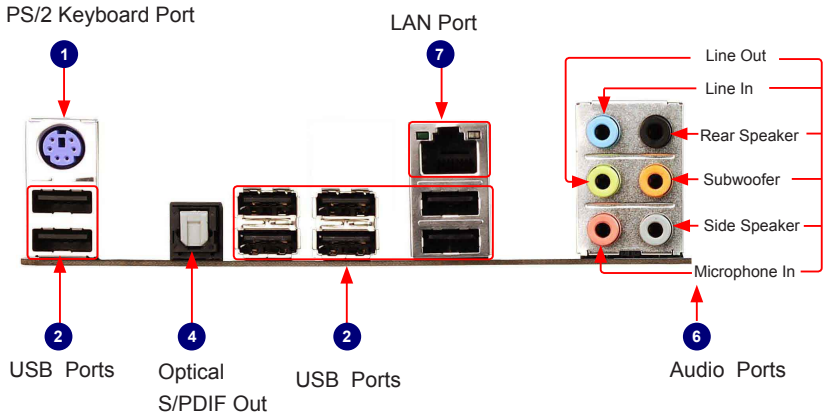
Note : The above motherboard layout is for reference only, please refer to the physical motherboard for detail.

1-3 Back Panel Connectors

Back Panel of Flaming Blade



Back Panel of Flaming Blade GTI



1. PS/2 Keyboard Port

Use the uper 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. Clear CMOS Button(Only for Flaming Blade)

Onboard Clear CMOS button is located directly on the motherboard PCB, so you can easily clear CMOS after failed overclocking attempts.

CAUTION

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

4. Optical S/PDIF Out Connector

This connector provides digital audio out to an external audio system that supports digital optical audio.

5. External SATA Port (Only for Flaming Blade)

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.

6. Audio Ports

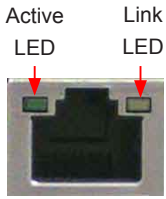
For the definition of each audio port, please refer to the table below :

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

7. RJ-45 LAN Port

Each Gigabit Ethernet LAN port provides Internet connection at up to 1Gb/s data rate.
Both Gigabit Ethernet LAN ports can be combined in teming mode to support connection speeds up to 2Gb/s!

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



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

This chapter includes the following information :

- Install the CPU and CPU Cooler
- Install the Memory
- Install an Expansion Card
- Install other Internal Connectors
- Jumpers
- Onboard Button
- Onboard LED
- Onboard Debug LED

Please visit the following website for further details on supported CPUs, Memory and VGAs for your motherboard :
http://www.foxconnchannel.com/product/Motherboards/compatibility.aspx

2-1 Install the CPU and CPU Cooler

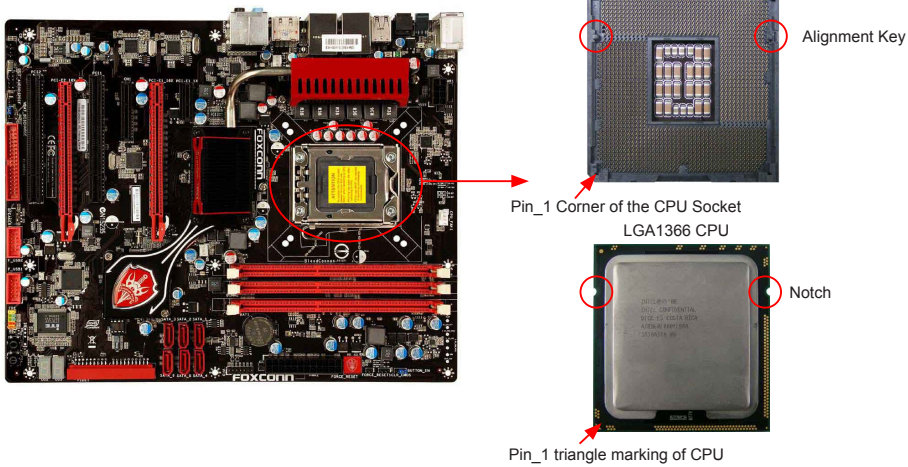
CAUTION

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.
- Unlock and open the CPU socket carefuly.
- Remove the socket protection cap.
- Locate the Pin_1 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.)
- Close and lock the CPU socket carefuly.
- Check if your heatsink has a thermal pad or thermal grease preapplied. If yes make sure to remove possible plastic protections from the bottom of the Heatsink before you install it. If no, 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.
- Install and fasten the CPU Heatsink.
- Connect the Heatsinks dan to the CPU fan connector.
- After the first boot up we recommend entering the BIOS by hitting the "DEL" key and loading the setup/optimized defaults.
- Apply an even and thin layer of thermal grease on the surface of the CPU.
- Remember to always check if your system works properly and stable with the default configuration before voiding your warranty by altering the system configuration.

Install the CPU

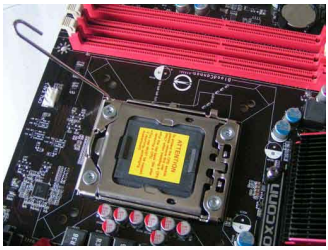
Locate the alignment keys on the motherboard CPU socket and the notches on the CPU.



Follow the steps to install the CPU onto the CPU socket :

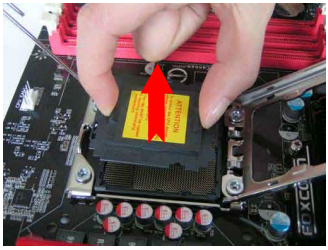
CAUTION

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.

CAUTION

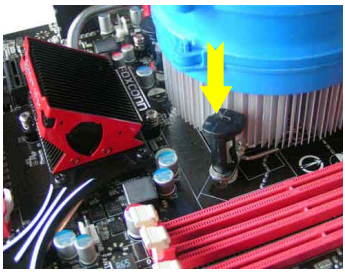
Lift up the socket cover with only vertical motion.

Install the CPU Cooler

Follow the steps below to correctly install the CPU cooler on the motherboard. The Foxconn QuantumForce Flaming Blade series come equipped with socket 1366 and socket 775 mounting holes to support current heatsinks.

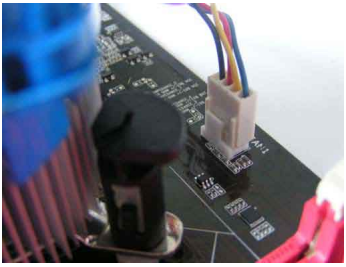
Socket 775 Push-Pin Heatsinks like the Intel 775 stock Heatsinks will NOT fit properly since the 1366 CPU socket is slightly higher than the 775 CPU socket!

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

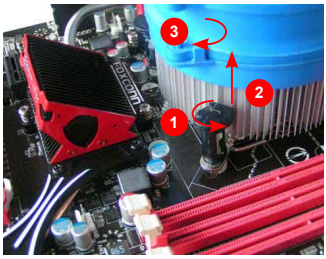


2. Place the four bolts of the CPU cooler to the holes of the motherboard, push them straight down from the top, and the bolts will be fastened on the motherboard. That's it.

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 socket 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.

- Use caution when removing the CPU cooler because the thermal grease may stick it to the CPU. If the Heatsink is stuck slightly twist it left and right until you can remove it. Be patient and do not use a lot of force.
- In the installation, we suggest you use the normal INTEL 1366 CPU FAN.

2-2 Install the Memory

Read the following guidelines before you begin to install the memory :

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

Triple Channel Memory Configuration

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

The combinations of DIMM modules are :

	DIMM1	DIMM2	DIMM3
Triple Channel	DS/SS	DS/SS	DS/SS
Dual Channel	DS/SS	DS/SS	-
Dual Channel	DS/SS	-	DS/SS
Dual Channel	-	DS/SS	DS/SS
Single Channel	DS/SS	-	-
Single Channel	-	DS/SS	-
Single Channel	-	-	DS/SS

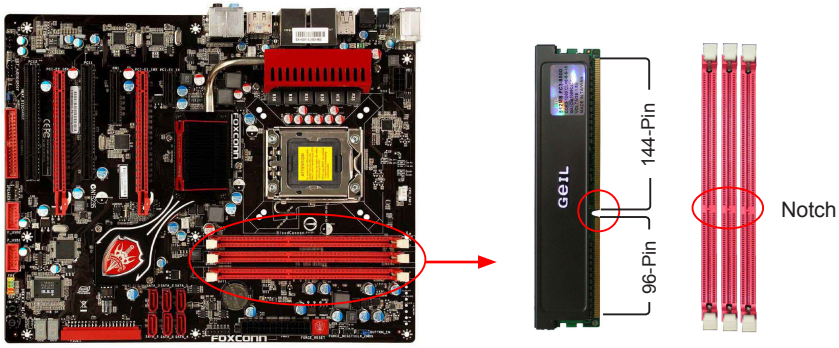
(DS : Double Side, SS : Single Side, - : No Memory)

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

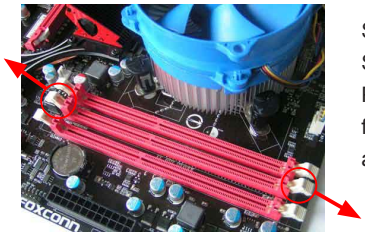
Installing a Memory

CAUTION

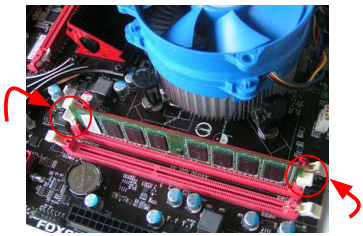
Before installing a memory module, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the memory module. Be sure to install DDR3 DIMMs on this motherboard.



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.

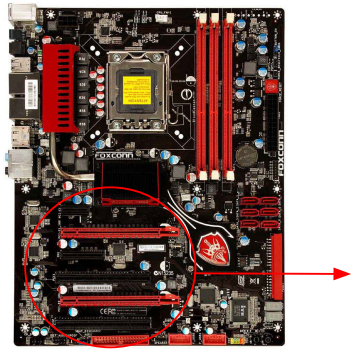


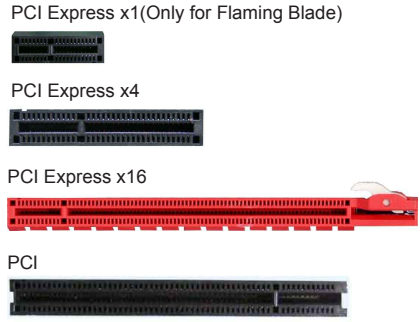
Step 2:
The clips at both ends of the socket will snap into place when the memory module is securely inserted.

2-3 Install an Expansion Card

CAUTION

- 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.





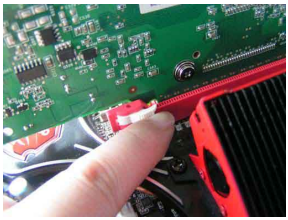
Follow the steps below to correctly install your expansion card in the expansion slot.

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 lockedby the latch at the end of the PCI Express x16 slot.



• Removing the Card:

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

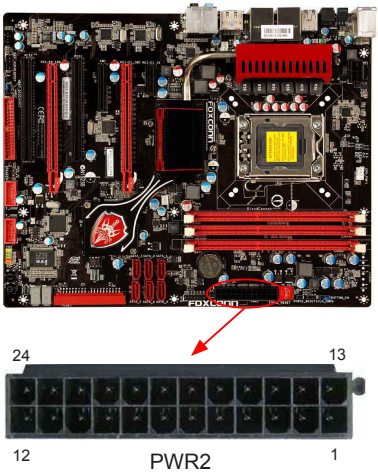
2-4 Install other Internal Connectors

Power Connectors

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

24-pin ATX power connector : PWR2

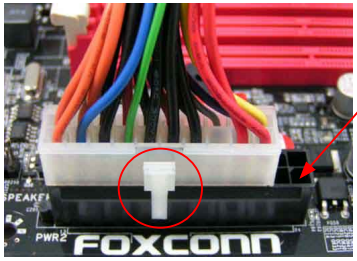
PWR2 is the ATX power supply connector. Make sure that the power supply cable and pins are properly aligned with the connector on the motherboard. Firmly plug the power supply cable into the connector and make sure it is secure.



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

CAUTION

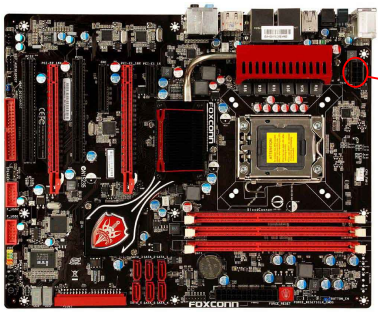
We recommend you using a 24-pin power supply. If you are using a 20-pin power supply, you need to align the ATX power connector according to the picture.

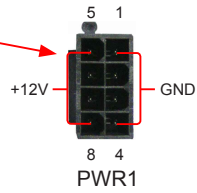


20-Pin Power

8-pin ATX 12 V Power Connector : PWR1

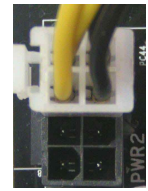
The 8-pin ATX 12V power supply connects to PWR1 and provides power to the CPU.





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

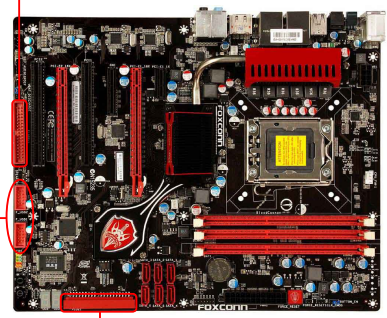
We recommend you using an 8-pin ATX 12V power supply. If you are using a 4-pin power supply, you need to align the ATX power connector according to the picture on the right.

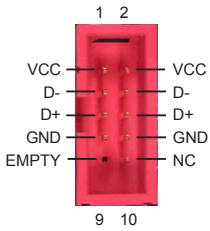
Floppy Disk Drive Connector : FLOPPY1

This motherboard includes a standard floppy disk drive(FDD) connector, supporting 360KB, 720KB, 1.2MB, 1.44MB, and 2.88MB FDDs.

USB Connectors : F_USB1/2

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





IDE Connector : PIDE1

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

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)

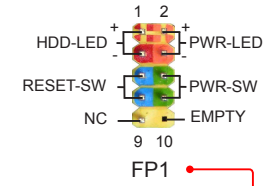
Attach the connector to the Reset switch on the front panel of the case; the system will restart when the switch is pressed.

Power LED Connector (PWR-LED)

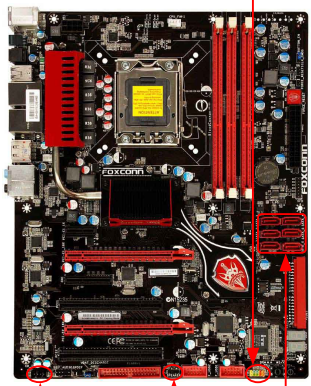
Connect to the power LED indicator on the front panel of the chassis. The Power LED indicates the system's status. When the system is in operation (S0 status), the LED is on. When the system gets into sleep mode (S1) , the LED is blinking; When the system is in S3/S4 sleep state or power off mode (S5),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

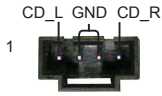


FP1



Audio Connector : CD_IN

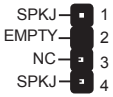
CD_IN is a Sony standard audio connector, it can be connected to a CD/DVD-ROM drive through a CD/DVD audio cable.



CD_IN

Speaker Connector : SPEAKER

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



SPEAKER

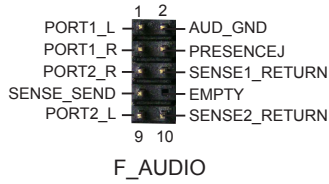
Serial ATA Connectors : SATA_1/2/3/4/5/6

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.

SATA_1/2/3/4/5/6

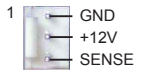
Audio Connector : F_AUDIO

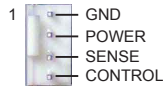
The audio connector supports HD Audio standard. It provides the Front Audio output choice.

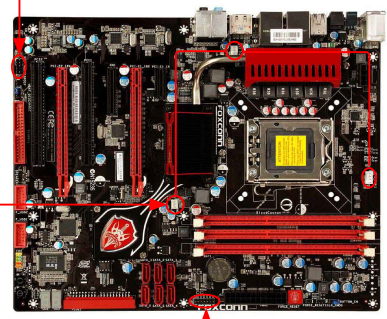


Fan Connectors : CPU_FAN1, SYS_FAN1, NB_FAN1

There are three fan headers on this motherboard. These fans can be automatically turned off after the system enters S3, S4 and S5 sleeping states.

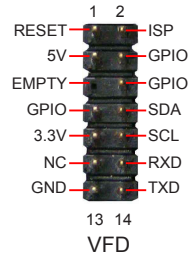






VFD Connector : VFD

The VFD Connector can be connected to the Foxconn Quantum Force OC Panel, which can be installed in any standard 5.25" optical drive bay. It can be used to display the Port80 Debug codes during Bootup, display the system Real Time Clock, display the system temperatures as well as monitor and adjust System voltages and clockspeeds on the fly. With several buttons located on the front panel, you can easily set the Front Side Bus speed, adjust CPU, DRAM and VTT NB voltage and change the fan speeds. It supports profiles which can be loaded within fractions of a second by pushing a single button. You can purchase it to overclock your system on the fly, switch from one oc profile to another during a benchmark, switch from gaming mode to cinema or silent mode.



2-5 Jumpers

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

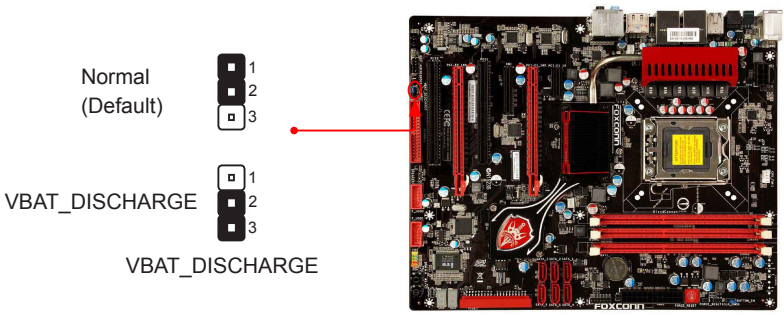
Description of Jumpers

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

Jumper	Diagram	Definition	Description
1	1	1-2	Set Pin 1 and Pin 2 closed
	1	2-3	Set Pin 2 and Pin 3 closed
1	1	Closed	Set two pins closed
	1	Opened	Set two pins opened

Discharge Battery Jumper: VBAT_DISCHARGE

Resetting the CMOS isn’t always good enough since in more recent chipset versions some configuration settings stored in the Southbridge will not be reset or deleted by a CMOS reset. Additionally the CMOS reset can take up to several minutes depending on the board design and capacitance. To facilitate a complete configuration reset this jumper can be used to discharge the battery. The effect is identical to removing the battery. The result is a faster and complete CMOS and Southbridge configuration reset.



CAUTION

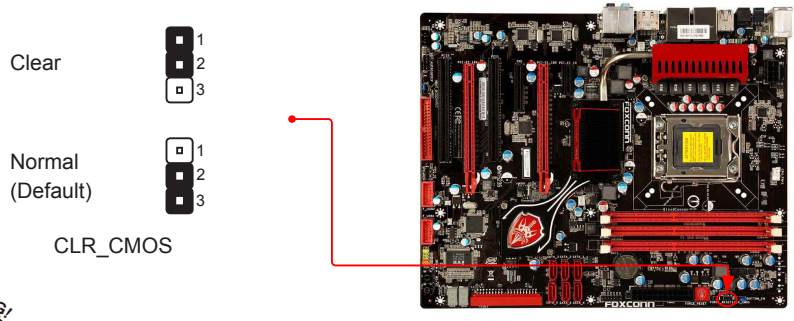
- Disconnect the power cable before adjusting the jumper settings.
- Do not discharge the battery while the system is turned on.
- Only suggest to use the jumper if a normal CMOS reset did not work.

Clear CMOS Jumper: CLR_CMOS

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

The steps to clear CMOS data are :

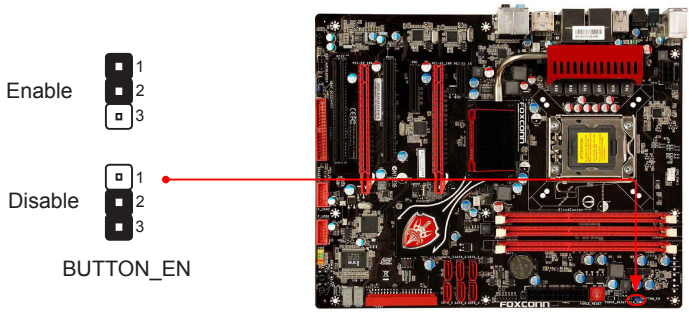
1. Turn off the computer, unplug the power cord from the power outlet.
2. Remove jumper cap from pins 2-3, put it onto pins 1-2 to short them. This will clear CMOS data.
3. Return the setting to its original with pins 2-3 closed.
4. Plug in the power cord to your computer and turn it on.
5. Go to BIOS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



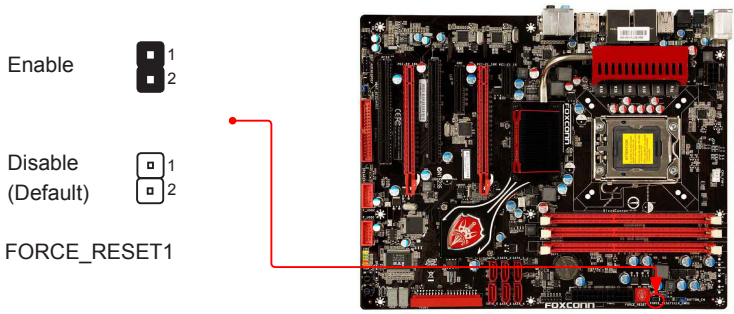
- Disconnect the power cable before adjusting the jumper settings.
- Do not clear the CMOS while the system is turned on.

Button_En Jumper: BUTTON_EN(only for Flaming Blade)

The jumper is used to set whether to enable Clear_CMOS button on the back panel. The recommended setting is “Disable” to prevent CMOS resetting by touching the button on the IO panel accidentally.



Force Reset Jumper: FORCE_RESET1 (only for Flaming Blade)
When set the jumper to1-2 closed, the system will shutdown and auto power on after 4 seconds.

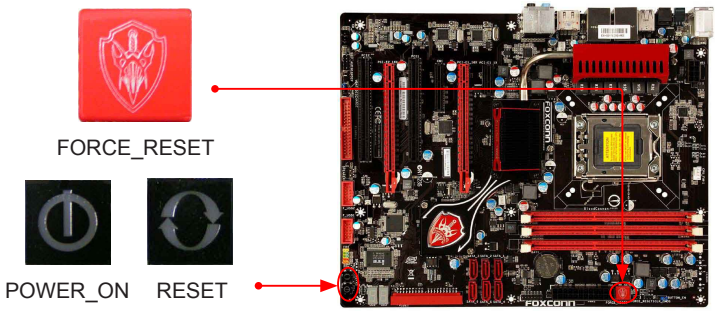


2-6 Onboard Button(Only for Flaming Blade)

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

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

Force Reset Button: FORCE_RESET
Simply rebooting after applying new OC settings can cause the system to fail because the hardware has not been reset properly. But with one press of the Force Reset button, your system will not only re-boot, but also re-tune itself! This button triggers the CPU, memory controller and chipset to re-initialize, running hardware checks and timing algorithms before reloading with your new overclocking settings. This reduces instances of failed re-boots after implementing OC settings.

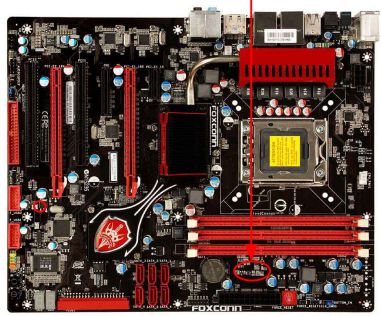


2-7 Onboard LED

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.

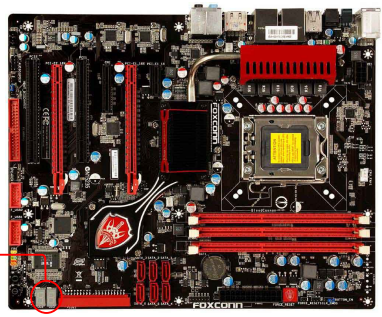
DIMM3 SPD Detect LED:
The Normal status is on. When the DDR in DIMM3 is not support SPD address in DIMM3, the LED will turn off.



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

2-8 Onboard Debug LED

2-digital LED displays show the current hardware status and display Port80 and Intel MRC codes during Bootup to enable quick and easy system debugging.



3

This chapter explains 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
- Standard CMOS Features
- Boot Setting Configuration
- Advanced Chipset Features
- Integrated Peripherals
- Power Management Setup
- PnP/PCI Configurations
- Hardware Monitor
- Quantum BIOS
- Board Information
- Load Optimized Defaults
- Set Supervisor Password
- Set User Password
- Save & Exit Setup
- Exit Without Saving

Since the BIOS will be updated in future, the BIOS information described in this manual is for reference only. We can not guarantee that the content of this manual to remain 100% consistent with the latest released BIOS at any given time in the future. Please visit our support website for updated manuals or contact our technical support if you have any questions.

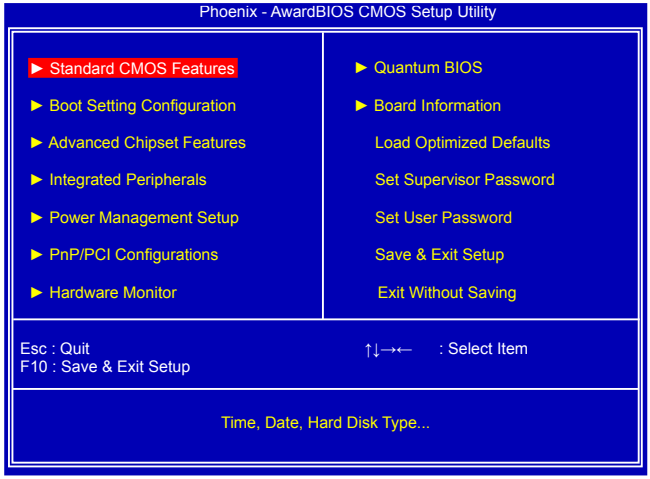
Enter BIOS Setup

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.

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

Main Menu

The main menu allows you to select from a list of setup functions together with two exit choices. Use the arrow keys to select a specific item and press <Enter> to go to the submenu.



Each item in the main menu is explained below:

► **Standard CMOS Features**

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

► **Boot Setting Configuration**

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

► **Advanced Chipset Features**

The values for the chipset can be changed through this menu, such as PCIe lane settings.

► **Integrated Peripherals**

All onboard peripherals can be set up through this menu.There are IDE devices, Audio, USB, Ethernet etc...

► **Power Management Setup**

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

► **PnP/PCI Configurations**

PCI/PnP features, such as O/S supporting, IRQ/DMA settings and bus master enabling/ disabling...etc. can be modified through this menu.

► **Hardware Monitor**

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

► **Quantum BIOS**

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

► **Board Information**

It displays the basic board information, such as BIOS ID, version, onboard LAN MAC address...etc.

► **Load Optimized Defaults**

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

► **Set Supervisor Password**

The supervisor password can be set up through this menu.

► **Set User Password**

The user password can be set up through this menu.

► **Save & Exit Setup**

Save setting values to CMOS and exit.

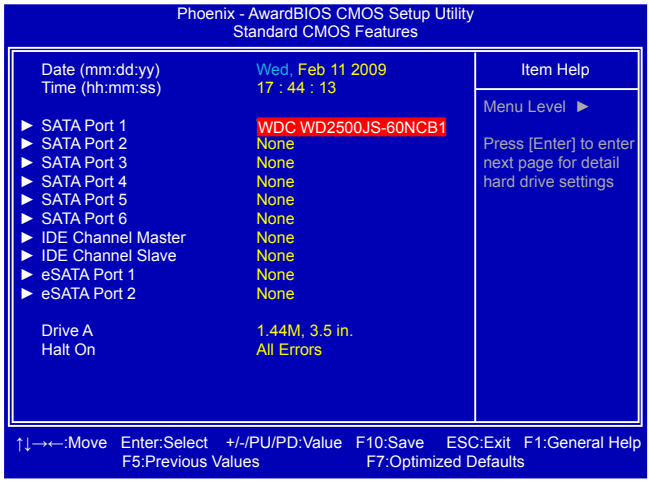
► **Exit Without Saving**

Do not change anything and exit the setup.

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

Standard CMOS Features

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



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

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

Month—month from 1 to 12.

Date—date from 1st to 31st.

Year—year, set up by users.

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

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

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

► **SATA Port 1/2/3/4/5/6, IDE Channel Master/Slave, eSATA Port 1/2(only for Flaming Blade)**

These categories identify the hard disks connected to the Intel® south bridge and JMicron controllers in the system. In each channel's display, you can press [Enter] to go to its sub-menu. You can further configure specific drive settings.

[None], [Auto], and [Manual]. "None" means no HDD is installed or set; "Auto" means the system can auto-detect the hard disk when booting up; by choosing "Manual" and changing Access Mode to "CHS", the related information should be entered manually.

In Access Mode setting, selections of [CHS], [LBA], [Large] and [Auto] can help you to select hard drive for legacy compatibility.

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

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

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

The SATA Port information will not be displayed if "SATA Mode" is set to [AHCI] or [RAID]. In these two modes, the hard disk information can be found by getting into Intel® Matrix Storage Manager option ROM utility (or RAID BIOS). We will discuss RAID BIOS later.

► **Drive A**

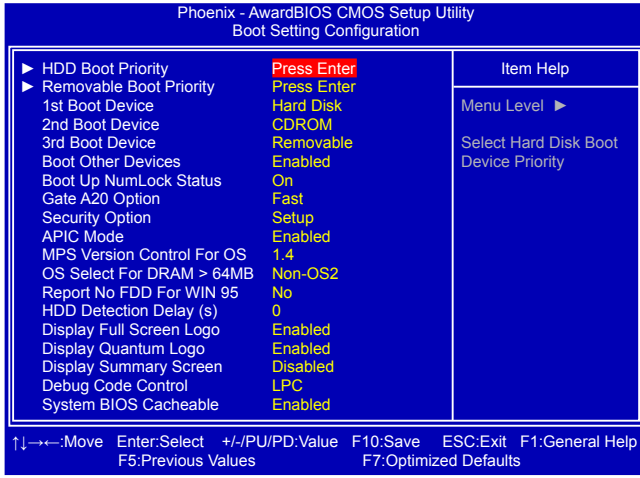
This option allows you to select which kind of the Floppy Disk Drive is installed in your system. It can be [360KB, 5.25in], [1.2MB, 5.25in], [720KB, 3.5in], [1.44MB, 3.5in] and [2.88 MB, 3.5in].

► **Halt On**

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

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

Boot Setting Configuration



► HDD Boot Priority

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

► Removable Boot Priority

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

► 1st/2nd/3rd Boot Device

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

► Boot Other Devices

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

► Boot Up NumLock Status

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

► Gate A20 Option

This feature determines how Gate A20 is used to address memory above 1MB. When this option is set to Fast, the motherboard chipset controls the operation of Gate A20. But when set to Normal, a pin in the keyboard controller controls Gate A20. Setting Gate A20 to Fast improves memory access speed and thus, overall system speed, especially with OS/2 and Windows. This is because OS/2 and Windows enter and leave protected mode via the BIOS a lot so Gate A20 needs to switch often from enabled to disabled and back again. Setting this feature to Fast improves memory access performance above 1MB because the chipset is much faster in switching Gate A20 than the keyboard controller. It is recommended that you set it to Fast for faster memory accesses.

► Security Option

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

► **APIC Mode (**Advanced Programmable Interrupt Controller)

This item is used to enable or disable APIC function.

APIC interrupt subsystems can have as many IRQs as are required in a specific machine.

APICs are beneficial for the following reasons :

• APICs can contribute to resolving resource conflicts in the PC platform.

• Windows operating systems have been designed with APICs in mind.

• APICs are necessary for enabling new features in the PCI specification.

► **MPS Version Control For OS** (Multi-Processor Specification)

This feature is only applicable to multiprocessor motherboards as it specifies the version of the MPS that the motherboard will use. The MPS is a specification by which PC manufacturers design and build Intel architecture systems with two or more processors. MPS 1.1 was the original specification. MPS version 1.4 adds extended configuration tables for improved support of multiple PCI bus configurations and greater expandability in the future. In addition, MPS 1.4 introduces support for a secondary PCI bus without requiring a PCI bridge.

If your operating system comes with support for MPS 1.4, you should keep the setting as the default 1.4. You also need to enable MPS 1.4 support if you need to make use of the secondary PCI bus on a motherboard that doesn't come with a PCI bridge.

You should only leave it as 1.1 only if you are running an older operating system that only supports MPS 1.1.

► **OS Select For DRAM>64MB**

This item is only required if you have installed more that 64MB of memory and you are running the OS/2 operating system.

► **Report No FDD For Win 95**

If you are using the Windows 95 and running a system with no floppy drive, select “Yes“ for this item to ensure compatibility with Windows 95 logo certification.

► **HDD Detection Delay (s)**

This item allows you to select the delay for detecting ATA/ATAPI devices while booting. Time out value: 0~15s.

► **Display Full Screen Logo**

This item allows you to enable or disable to show full screen logo.

► **Display Quantum Logo**

This item allows you to enable or disable to show the Quantum logo.

► **Display Summary Screen**

This item allows you to enable or disable to show the summary screen.

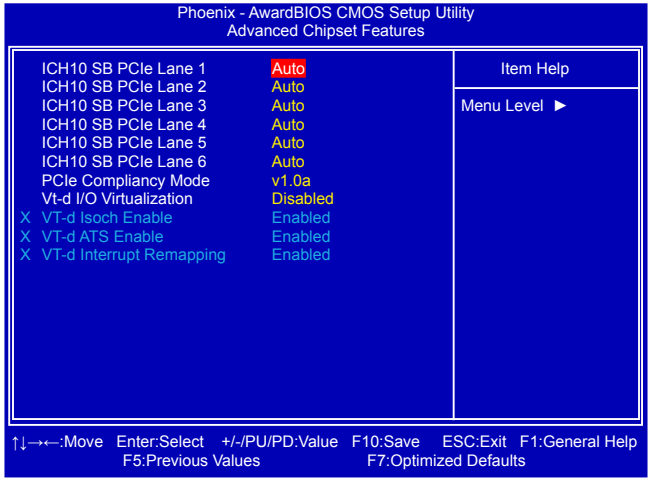
► **Debug Code Control**

This item allows you to select debug code control mode. Select "LPC", you can use onboard 80 LED; Select "PCI", you must insert debug card into PCI slot.

► **System BIOS Cacheable**

Select “Enabled” to allow caching of the system BIOS which may improve performance. If any other program writes to this memory area, a system error may result.

Advanced Chipset Features



► **ICH10 SB PCIe Lane 1/2/3/4/5/6**

This option is used to enable or disable the PCIe lane. Setting to [Auto] allows the system to detect the PCIe devices automatically. If detected, the PCIe lane is enabled, or the PCIe lane is disabled.

► **PCIe Compliancy Mode**

This item is used to set the PCI-E compliancy mode. Setting options: [v1.0a]; [v1.0].

► **VT-d I/O Virtualization**

VT-d stands for Intel® Virtualization Technology for Directed I/O. The virtualization of I/O resources is an important step toward enabling a significant set of emerging usage models in the data center, the enterprise, and the home. VT-d support on Intel platforms provides the capability to ensure improved isolation of I/O resources for greater reliability, security, and availability.

► **VT-d Isoch Enable**

When “VT-d I/O Virtualization” is set to “Enabled”, this item is valid and used to enable VT_d Isoch.

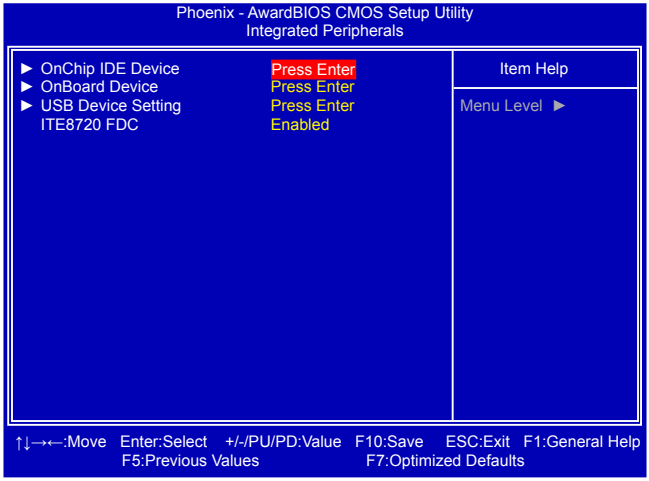
► **VT-d ATS Enable**

When “VT-d I/O Virtualization” is set to “Enabled”, this item is valid and used to enable VT_d ATS.

► **VT-d Interrupt Remapping**

When “VT-d I/O Virtualization” is set to “Enabled”, this item is valid and used to set VT-d interrupt remapping.

Integrated Peripherals



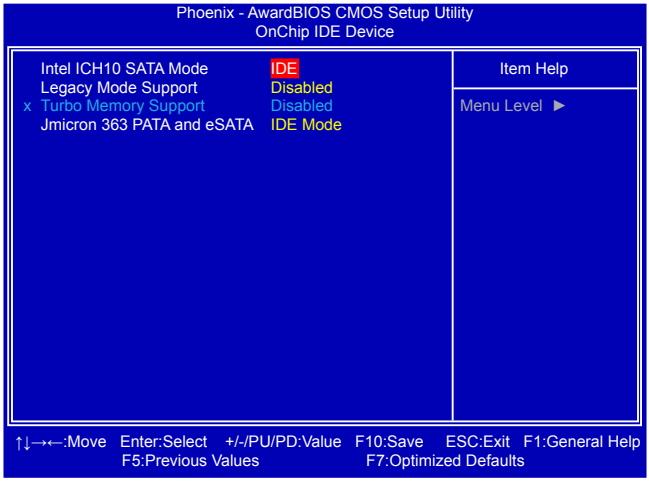
► OnChip IDE Device / OnBoard Device / USB Device Setting

Press <Enter> to go to relative submenu, please refer to the next sections.

► ITE8720 FDC

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

OnChip IDE Device



► **Intel ICH10 SATA Mode**

This item is used to set the Serial ATA Mode. Setting options: [IDE]; [RAID]; [AHCI].
The SATA interface is controlled by Intel® south bridge chip.

► **Legacy Mode Support**

There are Native IDE and Legacy (or compatible) IDE modes. Legacy mode supports OS through legacy IDE driver. Most SATA functions are not supported in Legacy mode, like SATA II 3G, NCQ, Hot Plug and etc, and Native mode supports SATA II 3G, NCQ, and Hot plug. This item is used to enable/disable the Legacy IDE mode support for the SATA ports. Certain OS is not supported under Native mode, and must choose Legacy mode.

► **Turbo Memory Support**

Turbo Memory (Robson Technology) features an integrated disk cache using flash memory in order to speed up disk access and also save energy. It uses non-volatile memory (Flash memory) to increase system responsiveness, make multi-tasking faster, and extend battery life.

This item is used for supporting the Turbo Memory.

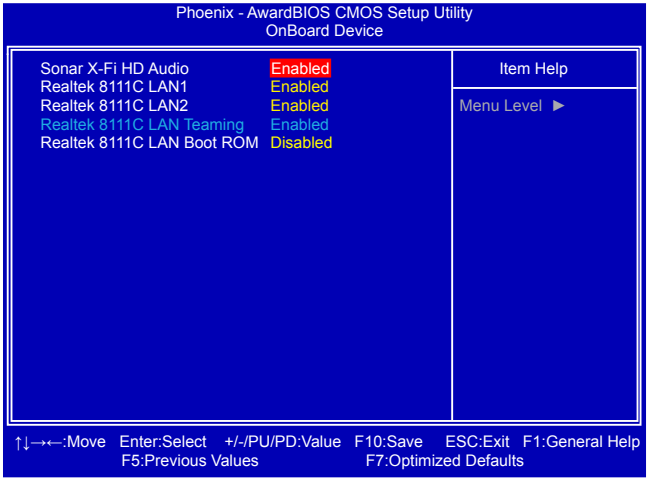
► **Jmicron 363 PATA and eSATA(for Flaming Blade)**

You may set your PATA and eSATA to IDE mode or RAID+IDE Mode or AHCI+IDE mode(AHCI for eSATA, IDE for PATA). We are using JMicron chip to control PATA and eSATA devices.

► **Jmicron 368 PATA(for Flaming Blade GTI)**

You may enable/disable your PATA device. We are using JMicron chip to control PATA device.

OnBoard Device



► **Sonar X-Fi HD Audio**

This item is used to set whether the HD Audio controller is enabled.

► **Realtek 8111C LAN1/LAN2(for Flaming Blade)**

This item is used to set whether the onboard LAN 1/LAN2 controller is enabled.

► **Realtek 8111C LAN (for Flaming Blade GTI)**

This item is used to set whether the onboard LAN controller is enabled.

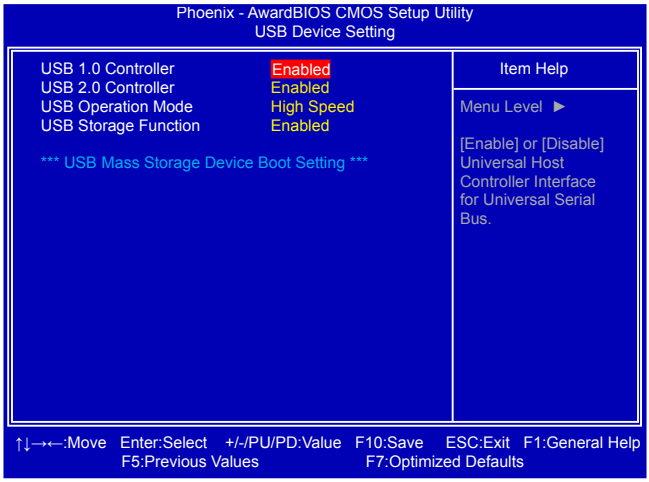
► **Realtek 8111C LAN Teaming**

This item is used to set whether the onboard LAN teaming function is enabled.

► **Realtek 8111C LAN Boot ROM**

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

USB Device Setting



► **USB 1.0 Controller**

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

► **USB 2.0 Controller**

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

► **USB Operation Mode**

This item is used to set the USB operation mode. If you select the [High Speed], then the USB operation mode is determined by the USB device; select [Full/Low Speed], the USB device operates on full/low speed.

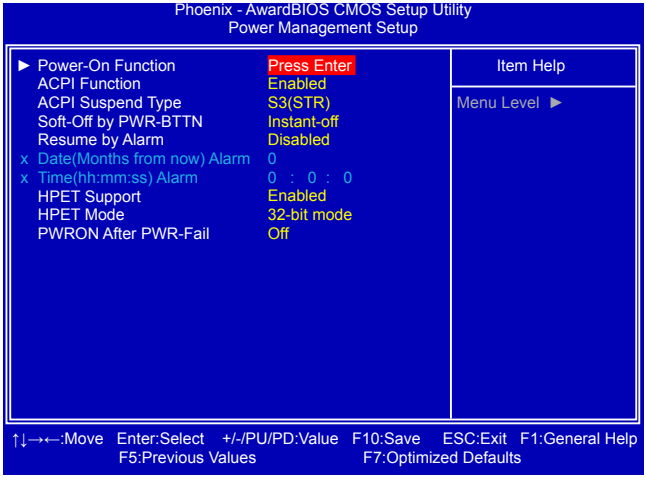
► **USB Storage Function**

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

► *****USB Mass Storage Device Boot Setting*****

BIOS auto detects the presence of USB Mass Storage Devices, you can configure the Boot setting mode for the detected USB MSD.

Power Management Setup



ACPI (Advanced Configuration and Power Interface) is an open industry standard that defines power and configuration management interfaces between an operating system and the BIOS. In other words, it is a standard that describes how computer components work together to manage system hardware. In order to use this function the ACPI specification must be supported by the OS (for example, Windows XP or Windows Vista).

ACPI defines four sleeping states below, 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**)

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. (also called **Soft Off**)

► Power-On Function

Press <Enter> to its submenu.

► ACPI Function

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

► **ACPI Suspend Type**

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

When you select "S1&S3", it means OS will automatically take care and assign which mode is the most suitable now.

► **Soft-Off by PWR-BTTN**

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

► **Resume by Alarm**

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

► **Date (Months from now) Alarm**

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

► **Time (hh:mm:ss) Alarm**

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

► **HPET Support**

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

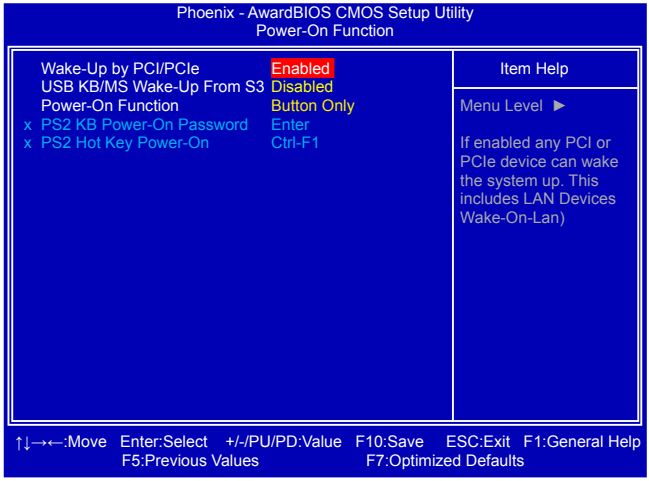
► **HPET Mode**

This item is used to set the HPET Mode. Configuration options: [32-bit mode]; [64-bit mode]. It can be available only when the HPET Support is enabled.

► **PWRON After PWR-Fail**

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

Power-On Function



► **Wake-Up by PCI/PCIe**

This item is used to set the system to wake up by PCI/PCIe card.

► **USB KB/MS Wake-Up From S3**

This item is used to set the system to wake up by USB KB/MS when it is in S3(Suspend to RAM) mode.

► **Power-On Function**

This item allows you to use the keyboard or mouse to wake up the system from S3 mode. This feature requires an ATX power supply. The setting values: [Password]; [Hot Key]; [Any Key]; [Button Only] and [Keyboard 98].

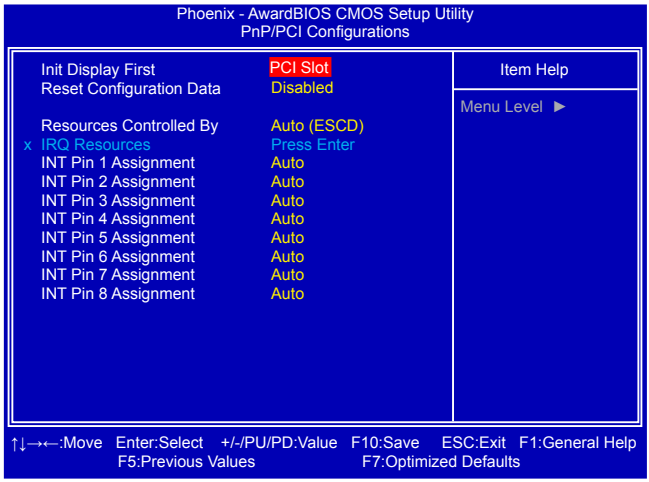
► **PS2 KB Power-On Password**

When "Power-On Function" is set to [Password], this item allows you to input a password to wake up the system from S3 mode.

► **PS2 Hot Key Power-On**

When "Power-On Function" is set to [Hot Key], this item allows you to press a [Ctrl] + Function key to wake up the system from S3 mode.

PnP/PCI Configurations



► **Init Display First**

This item is used to choose the initial display device which will be used first when your PC starts up. Options are : [PCI Slot] and [PCIEx].

► **Reset Configuration Data**

This item is used to enable or disable the reset configuration data function.

► **Resources Controlled By**

This item is used to define the system resource control scheme. If all cards you use support PnP, then select [Auto] and the BIOS will automatically distribute interruption resources. If the PCI cards you installed need special IRQ resources, you will need to select [Manual] and manually adjust interruption resources in the event of hardware conflicts.

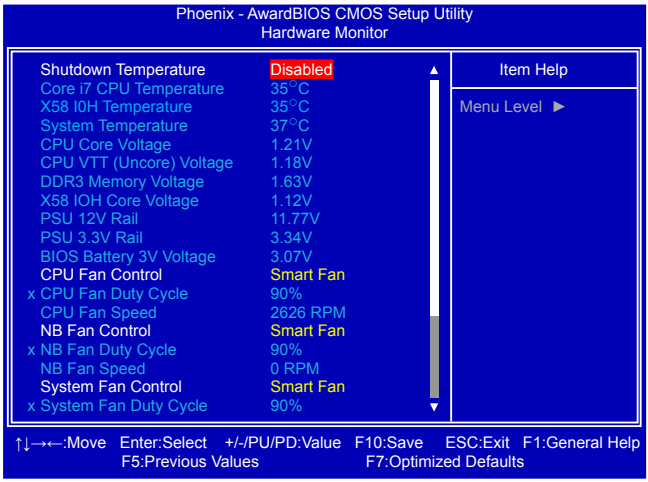
► **IRQ Resources**

When "Resources Controlled By" is set to "Manual", this item is available. You can press the <Enter> key, then manually set IRQ resources.

► **INT Pin 1/2/3/4/5/6/7/8 Assignment**

This item is used to assign IRQ resources for INT Pin 1/2/3/4/5/6/7/8. Default INT Pin assignments can be found from the help menu.

Hardware Monitor



► **Shutdown Temperature**

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

► **Core i7 CPU / X58 IOH / System Temperature**

These items show the Core i7 CPU / X58 IOH / System temperature detected automatically by the system.

► **CPU Core / CPU VTT(Uncore) / DDR3 Memory / X58 IOH Core / BIOS Battery 3V Voltage & PSU 12V / 3.3V Rail**

These items show the current system voltages detected automatically by the system.

► **CPU Fan Control**

This item is used to control the CPU fan. Configuration options are:
[Full Speed], [By Duty-Cycle] and [Smart Fan].

► **CPU Fan Duty Cycle**

It allows you to control the CPU fan by using Duty-Cycle. You can input a value ranging from 0 to 99.

► **CPU Fan Speed**

This item shows the CPU fan speed detected by the system.

► **NB Fan Control**

This item is used to control the NB fan. Configuration options are:
[Full Speed, [By Duty-Cycle] and [Smart FAN].

► **NB Fan Duty Cycle**

It allows you to control the NB fan by using Duty-Cycle. You can input a value ranging from 0 to 99.

► **NB Fan Speed**

This item shows the NB fan speed detected by the system.

► **System Fan Control**

It allows you to control the system fan. Configuration options are:
[Full Speed], [By Duty-Cycle] and [Smart Fan].

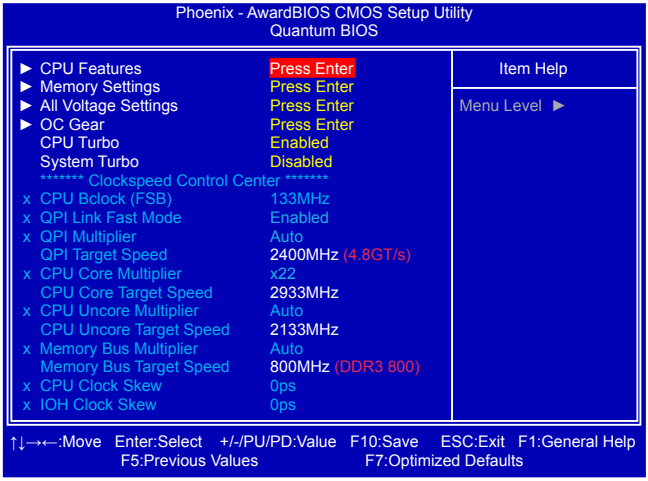
► **System Fan Duty Cycle**

It allows you to control the system fan by using Duty-Cycle. You can input a value ranging from 0 to 99.

► **System Fan Speed**

This item shows the system fan speed detected by the system.

Quantum BIOS



► **CPU Features / Memory Settings / All Voltage Settings / OC Gear**

Press <Enter> to go to each submenu.

► **CPU Turbo**

Intel Turbo mode support, this item will take active after PPM item is enabled.

► **System Turbo**

Choose over clock disable or over clock by manually.

Note: Only supports unlocked CPU; Some stepping of Core i7 engineering samples do not support QPI Multiplier, Uncore Multiplier and Memory Bus Multiplier adjusting function.

******** Clockspeed Control Center ********

► **CPU Bclock (FSB)**

When "System Turbo" is set to "Enabled", this item allows you to adjust CPU FSB clock by 1MHz by step by step.

► **QPI Link Fast Mode**

When "System Turbo" is set to "Enabled", this item allows you to enable or disable QPI link fast mode.

► **QPI Multiplier**

When "System Turbo" is set to "Enabled", this item allows you to adjust QPI multiplier. Configuration options are: Auto, x18, x22, x24.

► **QPI Target Speed**

This item shows QPI target speed.

► **CPU Core Multiplier**

When "System Turbo" is set to "Enabled", this item allows you to adjust CPU core multiplier. Configuration options are: the Min is 12, the Max is 22.

► **CPU Core Target Speed**

This item shows CPU core target speed.

► **CPU Uncore Multiplier**

When "System Turbo" is set to "Enabled", this item allows you to adjust CPU uncore multiplier. Configuration options are: Auto, from 12 to 32 by 2 step.

► **CPU Uncore Target Speed**

This item shows CPU uncore target speed.

► **Memory Bus Multiplier**

When "System Turbo" is set to "Enabled", this item allows you to adjust memory bus multiplier. Configuration options are: Auto, from 6 to 16 by 2 step.

► **Memory Bus Target Speed**

This item shows memory bus target speed.

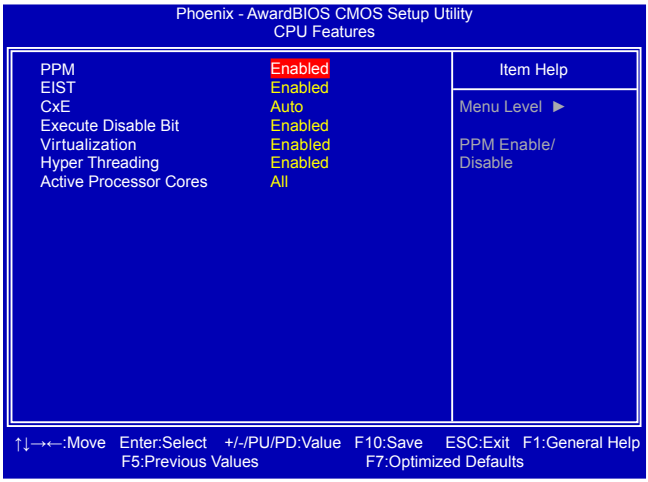
► **CPU Clock Skew**

When "System Turbo" is set to "Enabled", this item allows you to adjust CPU clock Skew. Configuration options are: 0ps, from 100 to 1500 by 100 step.

► **IOH Clock Skew**

When "System Turbo" is set to "Enabled", this item allows you to adjust IOH clock Skew. Configuration options are: 0ps, from 100 to 1500 by 100 step.

CPU Features



► **PPM**

You can enable PPM (Processor Power Management) through this item.

► **EIST**

You can select the EIST through this item. Setting values: [Native Mode] (For fully support ACPI OS, e.g. Windows XP, Vista); [SMM Mode] (For legacy OS).

CAUTION

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.

► **CxE**

CxE represents Enhanced HALT State. It is a feature which Intel CPU uses to reduce power consumption when in halt state. User can select the lowest C state supported according to CPU and MB. Options are: Auto, Disable, C1, C1E, C3 and C6.

► **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.

► **Virtualization**

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.

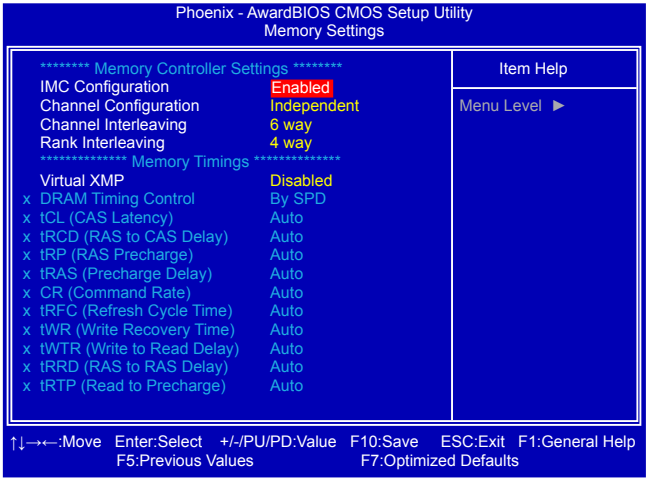
► **Hyper Threading**

Intel® Hyper-Treading technology can make one CPU core simulated as two cores. In this way more programes can work at the same time and PC performance is highly improved. The default value is: [Enabled]. When “Disabled”, only one thread per enabled core is enabled.

► **Active Processor Cores**

This item is used to select the number of cores to enable in each processor package. Options are : All, 1, 2 and 3.

Memory Settings



► **IMC Configuration**

This item is used to enable or disable memory parameter settings.

► **Channel Configuration**

Options are: Independent, Mirror, Lock, Spare.

► **Channel Interleaving**

This item is used to set Max. DRAM channel interleave. Options are: from 1 way to 6 way.

► **Rank Interleaving**

Interleaving allows banks of SDRAM to alternate their refresh and access cycles. One bank will undergo its refresh cycle while another is being accessed. This improves memory performance by masking the refresh cycles of each memory bank.

However, bank interleaving only works if the addresses requested consecutively are not in the same bank. Option are: 1 way, 2 way and 4 way.

► **Virtual XMP**

Intel XMP is a performance-packed expansion of the standard DDR3 memory specification, enabling a robust, overclocking solution designed to take advantage of the mega-gaming features built into Intel® technology-based PCs. If you like to overclock and squeeze every possible ounce of performance from your PC, then memory based on Intel XMP is the solution you need to destroy your enemies and save the universe without breaking a sweat.

This item is used to enable or disable Intel XMP.

► **tCL (CAS Latency)**

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

► **tRCD (RAS to CAS Delay)**

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

► **tRP (RAS Precharge)**

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

► **tRAS (Precharge Delay)**

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

► **CR (Command Delay)**

This item allows you to select a delay time (in clock cycles) between sending the last data from a write operation to the memory and issuing a read command.

► **tRFC (Refresh Cycle Time)**

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

► **tWR (Write Recovery Time)**

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

► **tWTR (Write to Read Delay)**

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

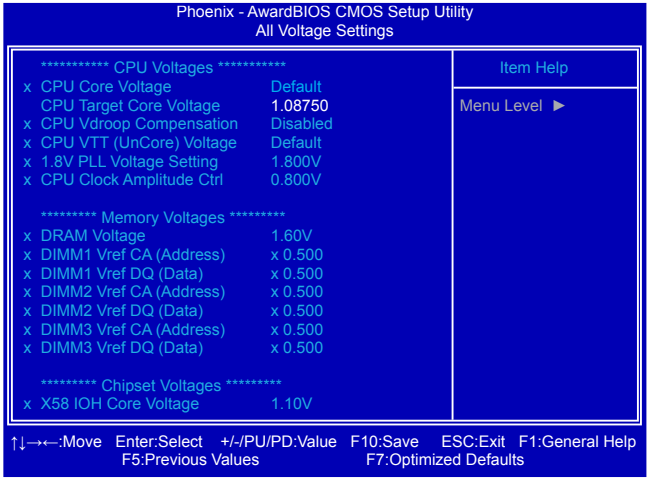
► **tRRD (RAS to RAS Delay)**

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

► **tRTP (Read to Precharge)**

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

All Voltage Settings



Note: When “System Turbo“ in “Quantum BIOS“ is set to “Enabled“, the following items are valid.

********** **CPU Voltages** **********

► **CPU Core Voltage**

This item is used to set CPU Core Voltage. The maximum voltage available for adjustment is 1260mV, one step is 10mV.

Warning: Adjusting the "Target CPU Voltage" beyond the default CPU voltage could result in damage to the CPU.

► **CPU Target Core Voltage**

This item shows the CPU target core voltage.

► **CPU Vdroop Compensation**

Warning: Adjusting this item to Enabled could result in damage to the board.

► **CPU VTT (UnCore) Voltage**

This item is used to set CPU VTT Voltage. The maximum voltage available for adjustment is 1260mV, one step is 20mV.

Warning: Adjusting the voltage beyond the CPU VTT default voltage could result in damage to the CPU.

► **1.8V PLL Voltage Setting**

This item is used to set CPU PLL Voltage. Isolated power for QPI PLL, default voltage is 1.8V. Warning: Adjusting the voltage beyond the QPI default voltage could result in damage to the board.

► **CPU Clock Amplitude Ctrl**

CPU differential output amplitude control, default value is 800mV, may help FSB O.C.

********* **Memory Voltages** *********

► **DRAM Voltage**

The maximum voltage available for adjustment is 2.86V.

Warning: Adjusting the voltage beyond the memories default voltage could result in damage to the memory controller, the default voltage is 1.60V

► **DIMM1/2/3 Vref CA (Address) & DIMM1/2/3 Vref DQ (Data)**

CA (Command-address) and DQ (Data line) reference voltage is reference DRAM voltage, the actual reference voltage will be DRAM voltage multiply this item value.

********** Chipset Voltages **********

► **X58 IOH Core Voltage**

Isolated power for X58 IOH Core, default voltage is 1.1V.

Warning: Adjusting the voltage beyond the IOH default core voltage could result in damage to the IOH.

► **X58 IOH VCCA 1.1V**

Isolated power for IOH 1.1V VCCA, default voltage is 1.108V.

Warning: Adjusting the voltage beyond the IOH default 1.108 VCCA voltage could result in damage to the IOH.

► **X58 IOH VCCA 1.5V**

Isolated power for IOH 1.5V VCCA, default voltage is 1.506V.

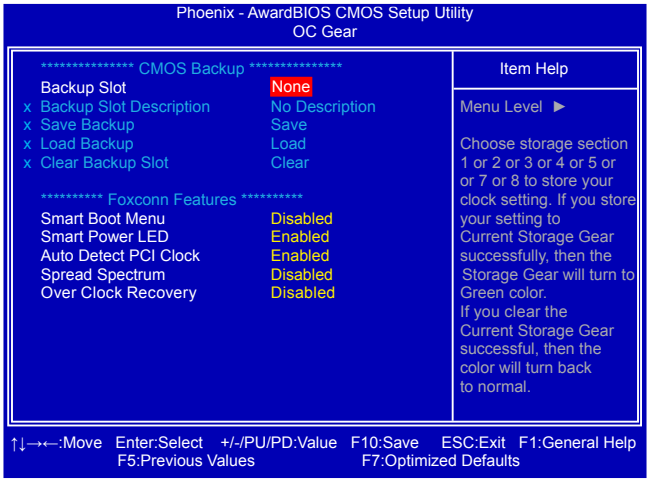
Warning: Adjusting the voltage beyond the IOH default 1.506 VCCA voltage could result in damage to the IOH.

► **ICH10 SB Voltage**

Isolated power for ICH core voltage, default voltage is 1.506V.

Warning: Adjusting the voltage beyond the ICH default voltage could result in damage to the ICH.

OC Gear



**********OC Gear**********

► **Backup Slot**

We have more spaces in CMOS to allow you to store up to 8 sets of BIOS configuration data. You can change any setting of BIOS, including the overclocking information, and save the whole BIOS settings to one of eight storage slot area. Later, you can retrieve BIOS settings by restore it. This item is used to choose storage section to store your BIOS settings. Setting values: [None]; [Slot 1 - 8].

Note: You should reset the data in slot after flashing BIOS, or there will be some unexpected problems.

► **Backup Slot Description**

This item will be avaliable when “Backup Slot“ is set to [Slot 1 - 8], then you can select the overclock setting for the current slot. Setting values are: [No Description]; [Still Tweaking]; [Max Memory]; [Max CPU]; [Max FSB]; [2d Benching]; [3d Benching]; [24/7 OverClock]; [Tweaked Stock Speed].

► **Save Backup**

This item allows you to save the BIOS settings. See the help string in “Item Help” table for detail.

► **Load Backup**

This item allows you to restore the BIOS settings. See the help string in “Item Help” table for detail.

► **Clear Backup Slot**

This item allows you to clear the BIOS settings. See the help string in “Item Help” table for detail.

********Foxconn Function********

► **Smart Boot Menu**

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

multiple boot devices user from pressing [Esc] key to enter boot menu.

► **Smart Power LED**

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

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

► **Auto Detect PCI Clock**

This item is used to allow the system to supply the PCI slot bus clock if system detect a PCI card on the slot.

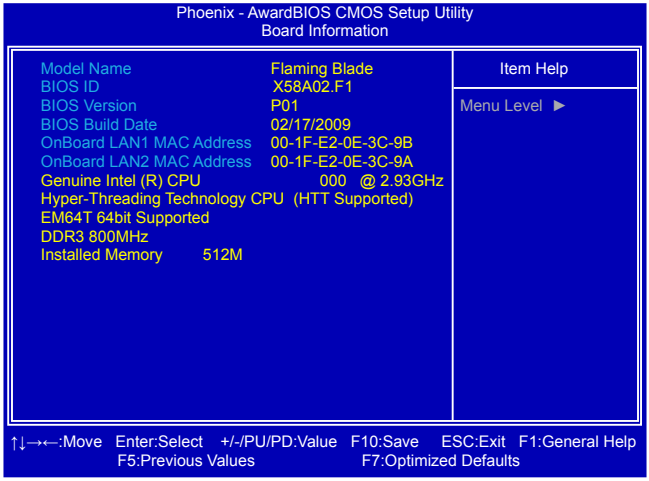
► **Spread Spectrum**

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

► **Over Clock Recovery**

When this feature is enabled, once system failed after overclocking, it will load the previous CMOS settings (before overclocking) back, so the system can always work.

Board Information



► **Model Name**

This item shows the model name.

► **BIOS ID/Version**

This item shows the BIOS ID/version.

► **BIOS Build Date**

This item shows the BIOS building date.

► **OnBoard LAN1/2 MAC Address(for Flaming Blade)**

This item shows the onboard LAN1/2 MAC address.

► **OnBoard LAN MAC Address(for Flaming Blade GTI)**

This item shows the onboard LAN MAC address.

► **Installed Memory**

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

Load Optimized Defaults

Select this option and press <Enter>. A dialogue pops out, select <Y> then press <Enter> to load the defaults; press <N> to skip.

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

Set Supervisor Password

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

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

The supervisor password can be set up through this menu.
Key in a password, not exceeding 8 characters, save the change and exit. The next time, when you enter the BIOS, it will ask you to input this password to confirm your access right. After you get the right to access the BIOS, you then can select this setting again, and press <Enter> to disable this function or input a new password to replace the original one.

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

Set User Password

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

Save & Exit Setup

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

Exit Without Saving

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

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
- AEGIS PANEL
- 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

Click on "**Driver**", then use these options to install all the necessary drivers for your motherboard. You need to restart your computer after finishing all the installations of drivers.

Intel Chipset Driver

Use it to install Intel chipset driver.

Realtek HDA Audio Driver

Use it to install Realtek HDA audio driver.

Realtek 811X LAN Driver

Use it to install Realtek LAN driver.

Intel RAID Driver

Installing this driver needs "SATA Mode" in BIOS to be set to [AHCI] or [RAID]. This restriction forces us to find out another way to install this driver. Please go to "**5-5 Existing Windows XP with RAID built as data storage.**" for more detail.

JMicron RAID/AHCI Driver

Use it to install JMicron RAID/AHCI driver. JMircon provides one external SATA port 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 south bridge) instead of JMicron.

2. Utility

Use these options to install additional application programs.

Realtek Teaming Utility

Teaming is an dvanced feature for server environment. With teaming, many physical adapters that have features of load balance and fail over.

AEGIS PANEL

Foxconn new utility software for monitoring system information. See “AEGIS PANEL” for details.

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.

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 utility.

3. Foxconn WebSite
Click it to visit Foxconn's Website.

4. Browse CD
Click it to browse the CD content.

AEGIS PANEL

Aegis Panel, is a Windows innovation tool which provides settings of OC gear, overclocking, fan control and alarm function. It also displays system monitoring information such as fan spped, temperature, voltage and CPU clock etc..

The powerful features are:

HW Monitor(Hardware Monitor Information)
Overclocking
OC Gear

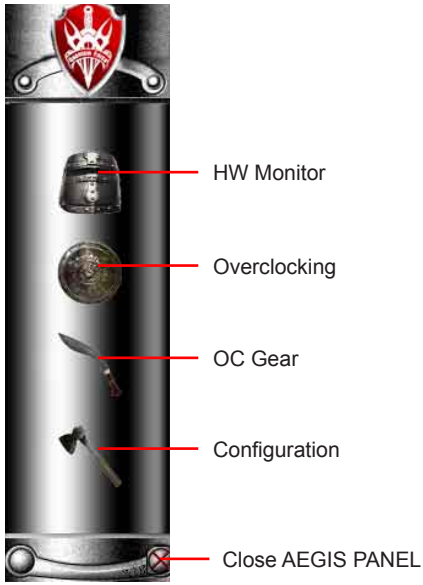
Supported Operating Systems :

-Windows XP (32-bit and 64-bit)
-Windows Vista (32-bit and 64-bit)

Using AEGIS PANEL:

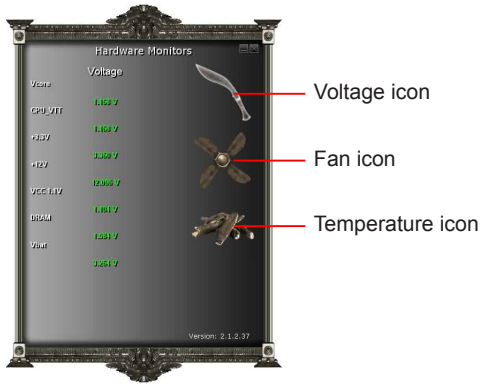
1. Main Panel

When AEGIS Panel is running, a main menu appears at the right hand side of the screen. This menu will disappear if you remove the mouse from it a few seconds later. If you move the mouse to touch the screen right where the menu stayed before, it will appear again.



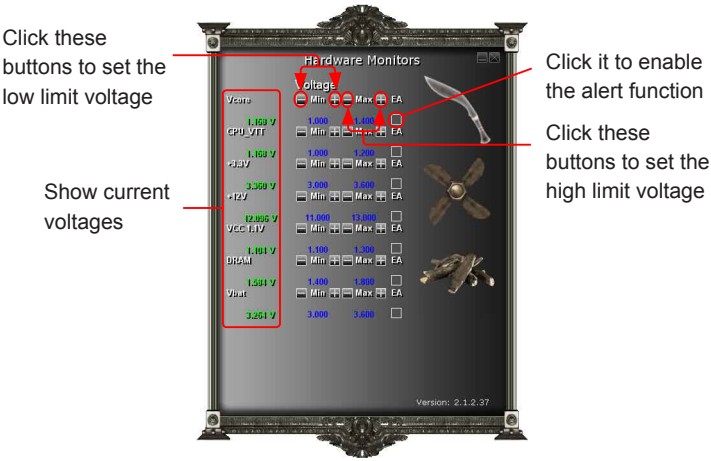
2. HW Monitor

Click on "HW Monitor" icon  , its panel appears. By moving the mouse on the voltage icon, it will display voltage information. Move the mouse on fan or temperature icon will show relative information accordingly.



2.1 HW Monitor - Voltage

Click on voltage icon  to get into the voltage setting menu. It allows you to set the low/high limits of Vcore, CPU_VTT, +3.3V, +12V, VCC 1.1V, DRAM and Vbat voltages, and to enable the alert function. If the current voltage value is lower than the low limit or higher than the high limit, then a buzzer sounds.

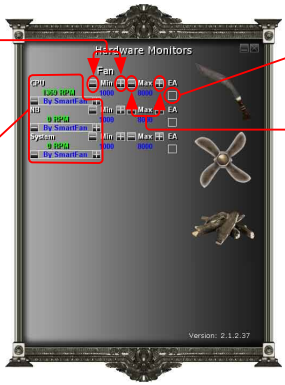


2.2 HW Monitor - Fan

Move the mouse on the fan icon  , its menu appears. Click on the fan icon to get into the fan setting menu. It allows you to set the low/high limits of the CPU, NB and System fan speeds, and to enable the alert function. If the current fan value is lower than the low limit or higher than the high limit, then a buzzer sounds.

Click these buttons to set the low limit fan speed

Show current fan speeds



Click it to enable the alert function

Click these buttons to set the high limit fan speed

Fan control has three operating modes :

By Full Speed :

Running at full speed.

By Duty-Cycle :

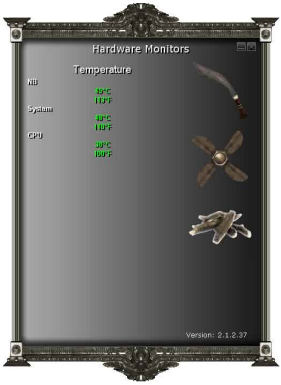
The fan speed is controlled by setting the percentage to the fan duty (between 0% ~ 100%).

By Smart Fan:

Fan speed is controlled by the system automatically.

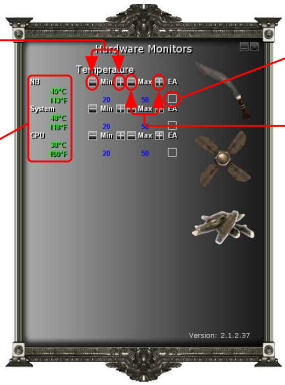
2.3 HW Monitor - Temperature

Move the mouse on the temperature icon  , its menu appears. Click on the temperature icon to get into the temperature setting menu. It allows you to set the low/high limits of CPU temperature, System temperature and NB temperature, and to enable the alert function. If the current temperature value is lower than the low limit or higher than the high limit, then a buzzer sounds.



Click these buttons to set the low limit CPU temperature

Show current temperatures

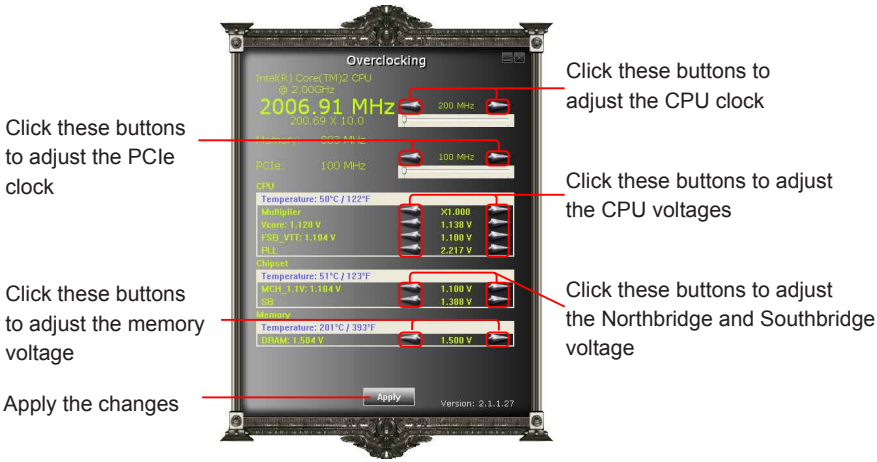


Click it to enable the alert function

Click these buttons to set the high limit CPU temperature

3. Overclocking

Click "Overclocking" icon  to enter the overclok setting menu. It allows you to adjust CPU clock, and to change the voltages of CPU, chipset and memory. After you set the values, click [Apply] button to apply it.

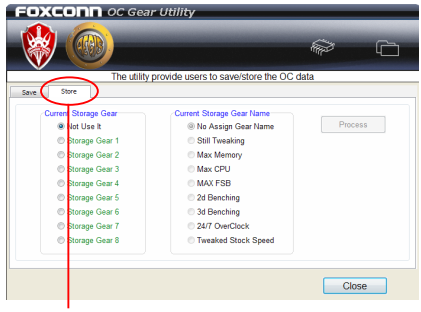


4. OC Gear

Click “OC Gear” icon  to open OC Gear dialog. It is support to read OC Gear from BIOS setting to file and support to write OC Gear setting from file to BIOS.

Benefits: the user only adjust overclocking once and save it in OC Gear function under BIOS setup utility (click “DEL” key to enter BIOS setup utility when boot and select Quantum BIOS item), then easier change many platform just be set by this file.

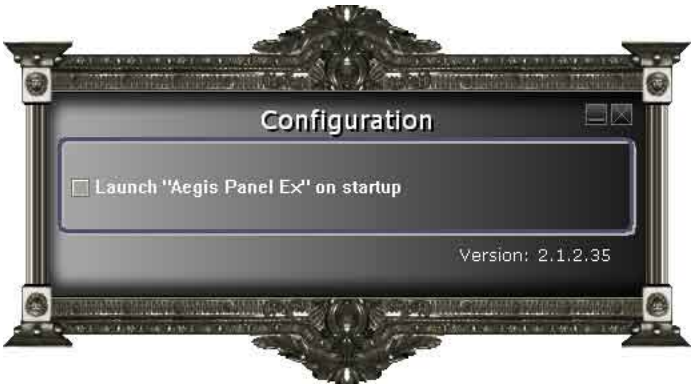
Save to file from BIOS Setting



Store to BIOS from file

5. Configuration

Click "Configuration" icon  to configure Aegis function. You can enable or disable the launch of "Aegis Panel Ex" on startup. If enabled, the Aegis Panel will be automatically activated when the Windows operating system is running.



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 :

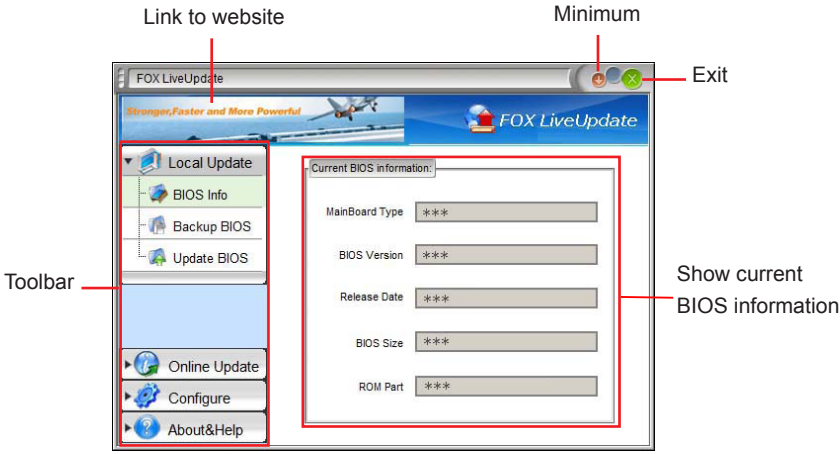
- Windows 2000
- Windows XP (32-bit and 64-bit)
- Windows 2003 (32-bit and 64-bit)
- Windows Vista (32-bit and 64-bit)

Using FOX LiveUpdate :

1. Local Update

1-1 Local Update - BIOS Information

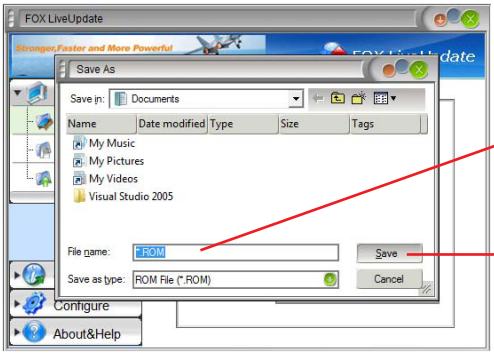
This page lets you know your system BIOS information.



*** : please refer to the physical motherboard for detail.

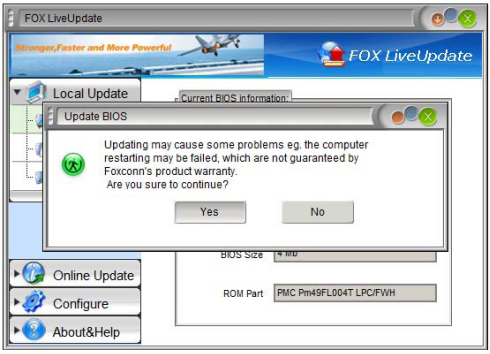
1-2 Local Update - Backup

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.



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.



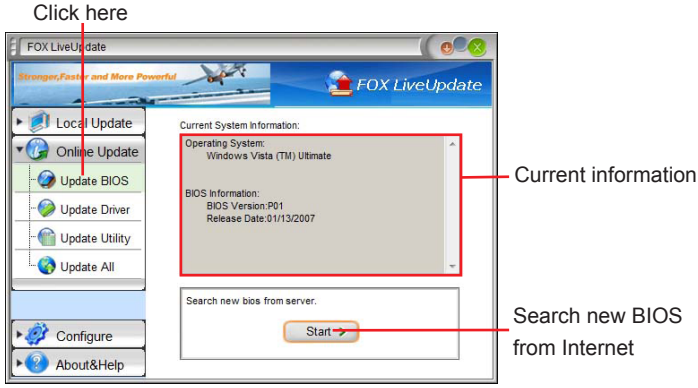
CAUTION

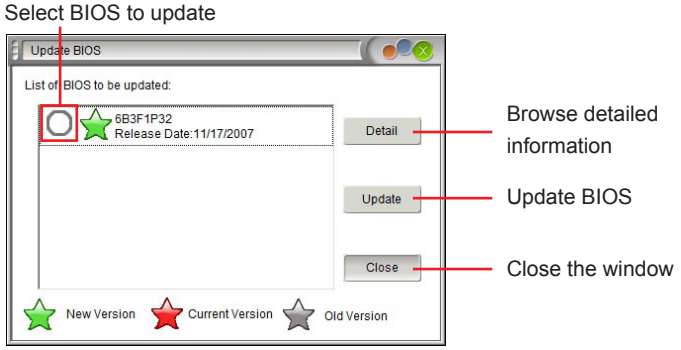
FOX LiveUpdate can automatically backup old BIOS before update. This feature can be enabled in the "Configure-System" setup. Please refer to "Configure-System" section for more detail. The default backup directory is C:\LiveUpdate_Temp, but the backup file name will be automatically generated. It is 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

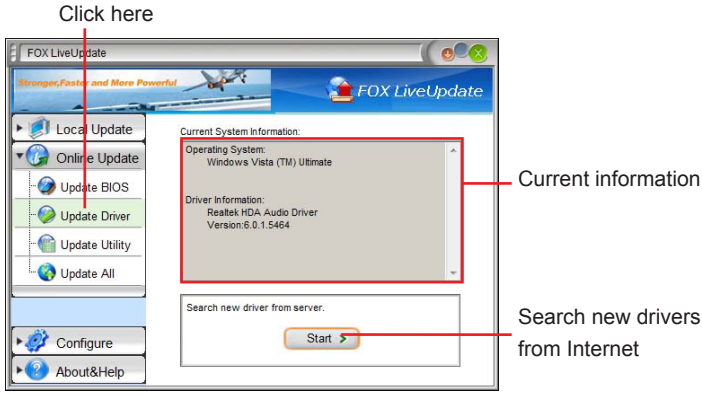
This page lets you update your system BIOS from Internet. Click “start”, it will search the new BIOS from Internet. Then follow the wizard to finish the update operation.

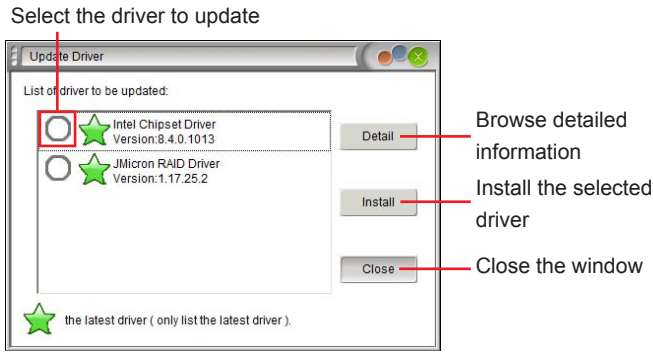




2-2 Online Update - Update Driver

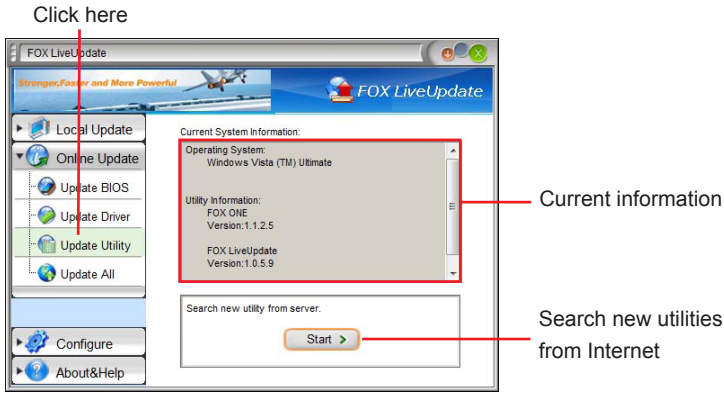
This page lets you update your system drivers from Internet. Click “start”, it will search the new drivers from Internet. Then follow the wizard to finish the update operation.

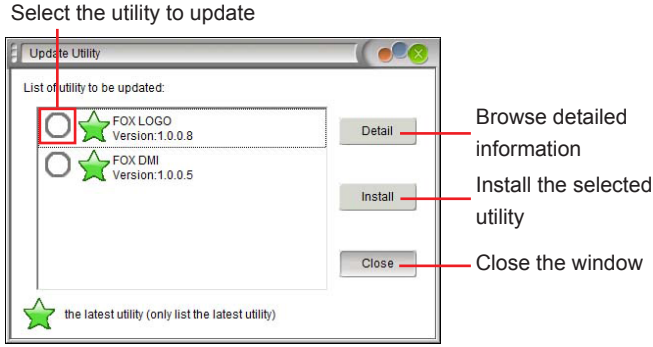




2-3 Online Update - Update Utility

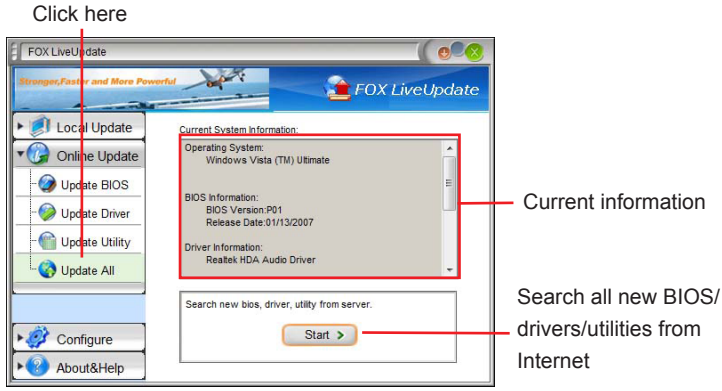
This page lets you update utilities from Internet. Click “start”, it will search the new utilities from Internet. Then follow the wizard to finish the update operation.

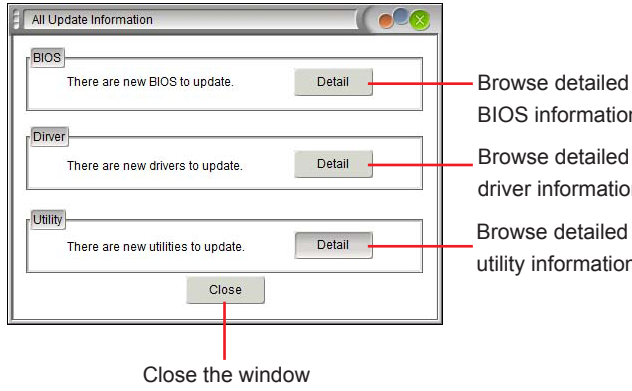




2-4 Online Update - Update All

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.

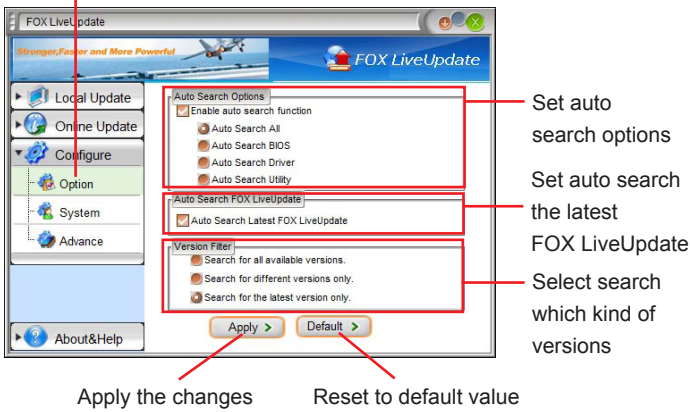




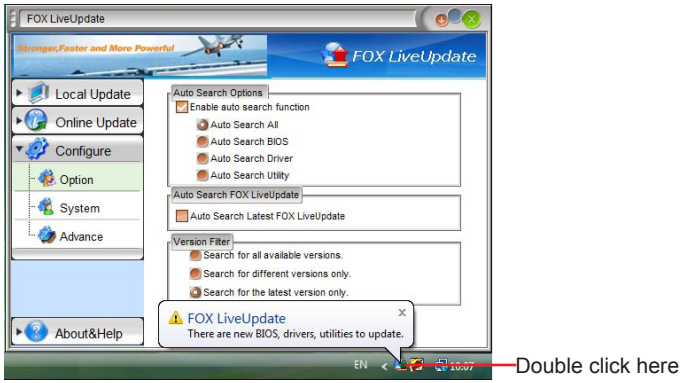
3. Configure

3-1 Configure - option

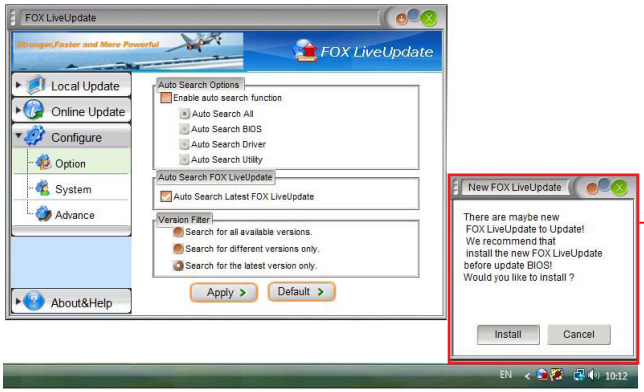
This page lets you set auto search options. After you enable the auto search function, FOX LiveUpdate will start its searching from Internet and if any qualified item found, it will pop out a message on the task bar to inform you to do the next step.



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



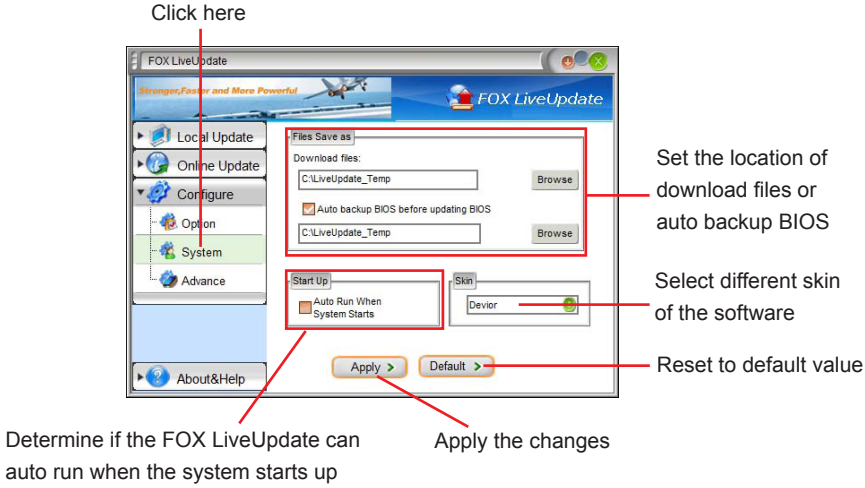
When you enable "Auto Search FOX LiveUpdate", if your FOX LiveUpdate version is older, it will auto search from internet and prompt you to install the new version.



Prompt you to install the new FOX LiveUpdate

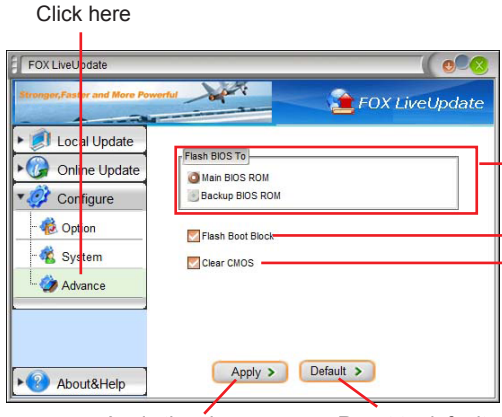
3-2 Configure - System

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



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.

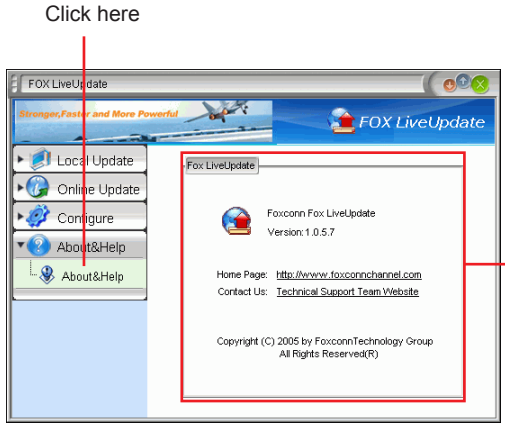


CAUTION

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

4. About & Help

This page shows some 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 "Display Full Screen Logo Show" setting in "Boot Setting Configuration" 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 mother-board if there is any problem occurred.

Supporting Operating Systems :

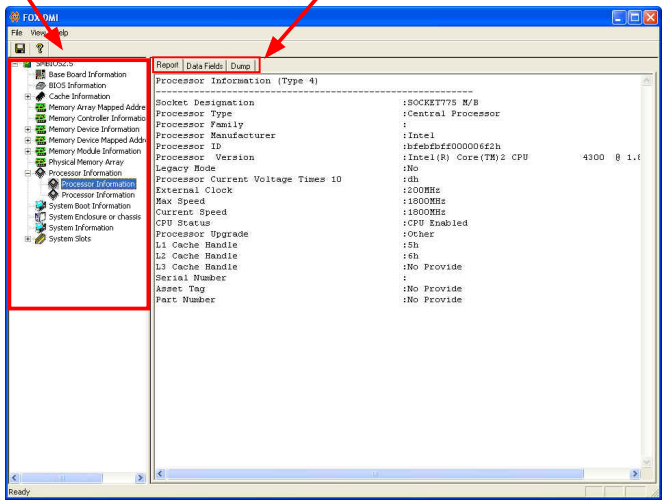
- Windows 2000
- Windows XP (32-bit and 64-bit)
- Windows 2003 (32-bit and 64-bit)
- Windows Vista (32-bit and 64-bit)

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



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

Only Flaming Blade motherboard supports RAID feature.
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.

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.

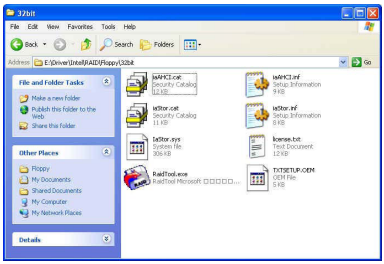
- Both AHCI and RAID modes need to install **Intel® Matrix Storage driver.**
- Set SATA mode in BIOS to AHCI, you can skip RAID BIOS creation steps, but the software driver installation of **Intel® Matrix Storage Manager** shall follow the same rule as described for RAID.

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.

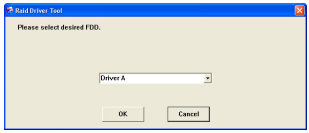
1. Find a PC, put a diskette into its floppy drive A:, this diskette will be formatted later. Put the driver CD into DVD-ROM drive.

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.

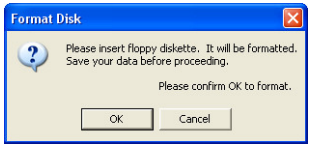


3. Click "GO" to start.

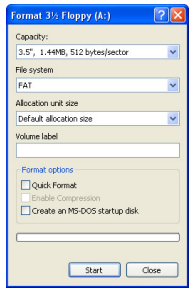
4. Select the desired destination FDD drive. It can be the default drive A: or any USB FDD. Click "OK" to continue.



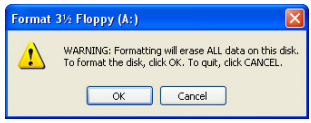
5. Insert a diskette, click "OK" to continue.



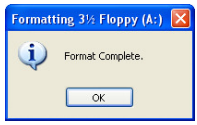
6. You can input a volume label for this diskette, click on "Start" to format.



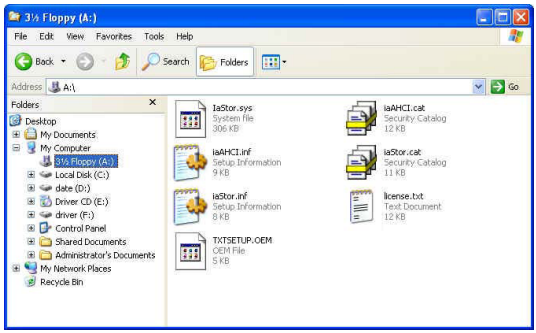
7. Click on "OK" to go through this warning message.



8. Format finished. Click "OK" to continue copying of RAID driver into this diskette.



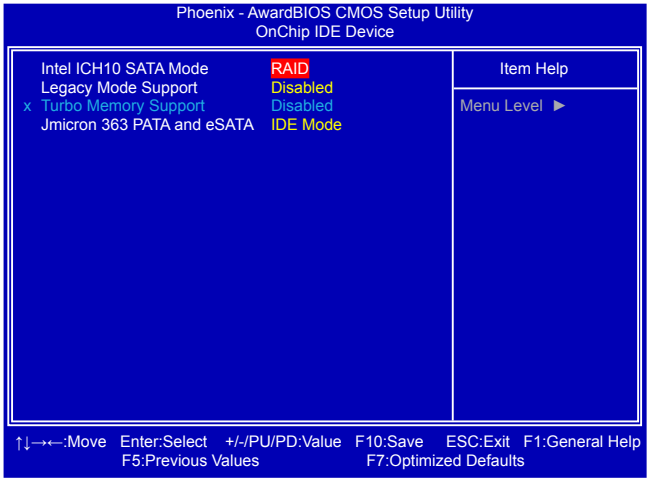
9. Check if the diskette contains the driver files.
   Later, when in the process of installing Windows XP in your RAID system, it will ask you to use this floppy diskette to provide driver for additional specific devices, for example, a RAID device.



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

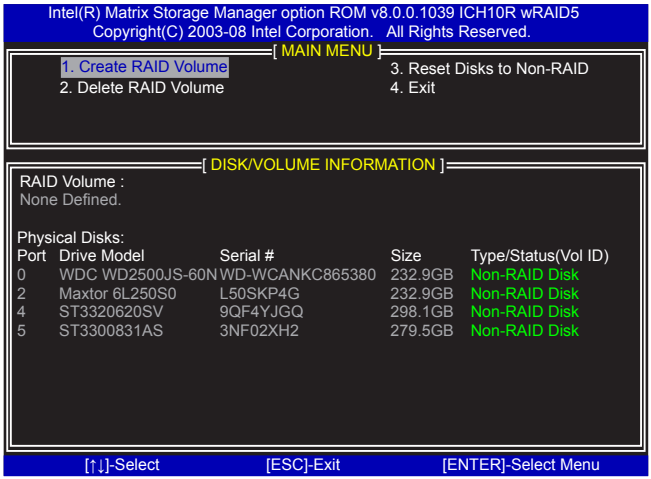
1. Enter the BIOS setup by pressing <DEL> key during the POST(Power On Self Test).
2. Select the “Integrated Peripherals” from the “Main menu”, then select the “OnChip IDE Device” item and press <Enter> to go to the configuration items.
3. Select and Set the “Intel ICH10 SATA Mode” option to [RAID].
4. Press <F10> to save the setting then PC will reboot itself.



5-3 Create RAID in BIOS

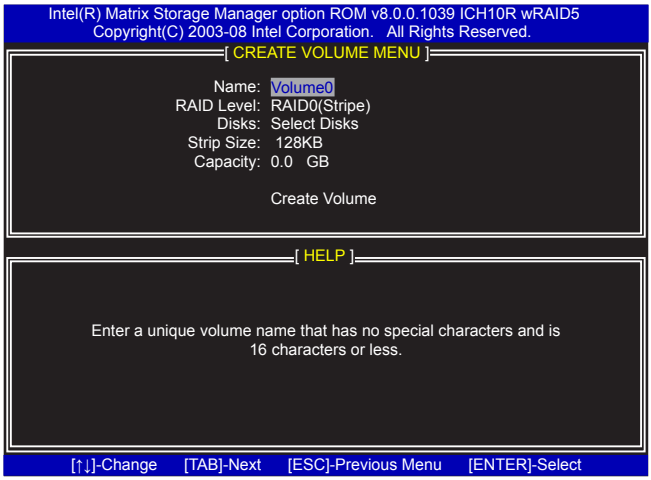
Enter RAID BIOS Setup

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.



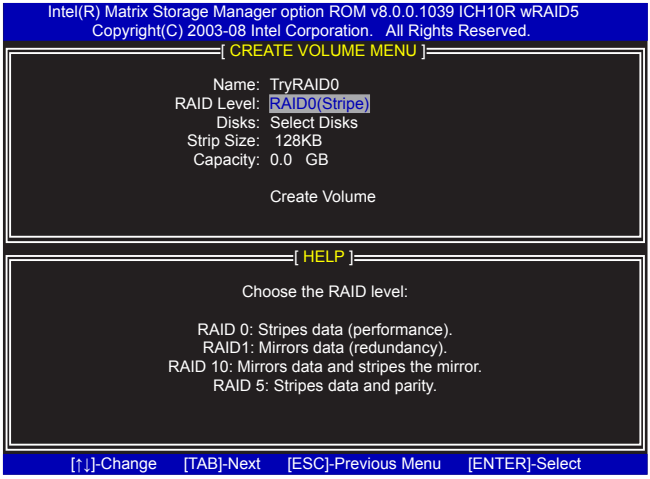
Create RAID Volume
Create RAID 0 (1st Volume)

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

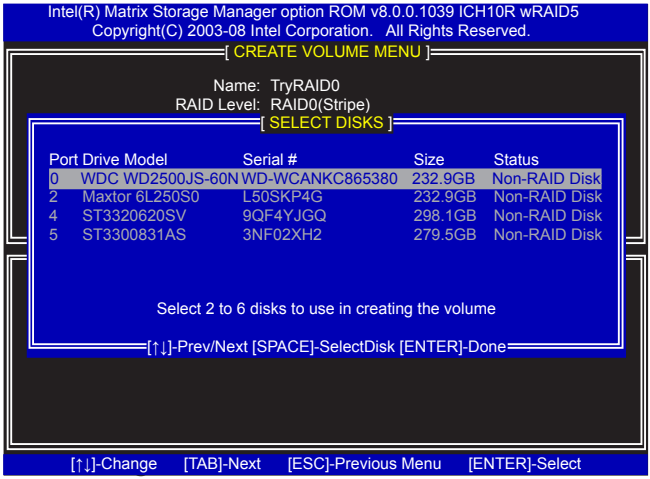


2. In "**Name**" item, you can input a device name for the RAID0 system and press <Enter> to apply it. Here, we name it as TryRAID0 to replace the default Volume0.

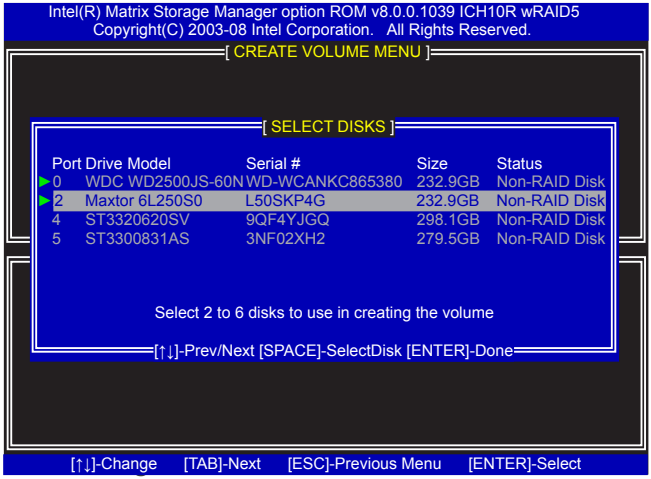
3. In "**RAID Level**" item, you can use Up or Down arrow key to make a selection from one of RAID0, 1, 5, 10 items. Select RAID0 (Stripe) and press <Enter>.



4. It then goes to “**Disks**” item. Press <Enter> to choose the hard disks for this RAID0 system.

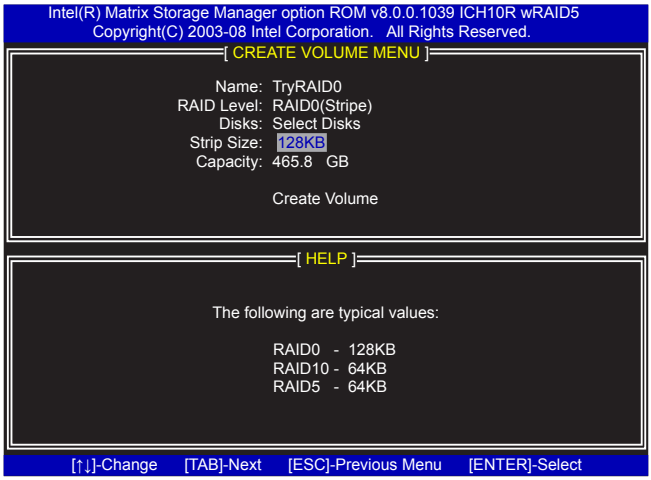


5. From the hard drive list, use Up or Down arrow key to reach the hard disks you want to combine them as RAID0, then press <Space> key to select them. A triangle sign will appear to indicate the drive selected. Here, we select two 232.9GB hard disks as an example. Press <Enter> key to finish the selection.

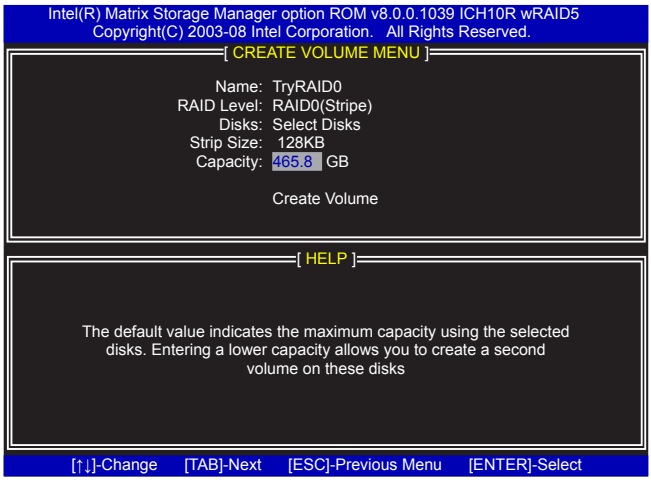


6. It is now entering “**Strip Size**” menu. Use Up or Down arrow key to select the desired strip size. The available values range from 4KB to 128KB. The strip value should be selected based on different applications. Some suggested choices are :
   16K - Best for sequential transfer.
   64K - Good general purpose strip size.
   128K - Best performance for most desktops and workstations .

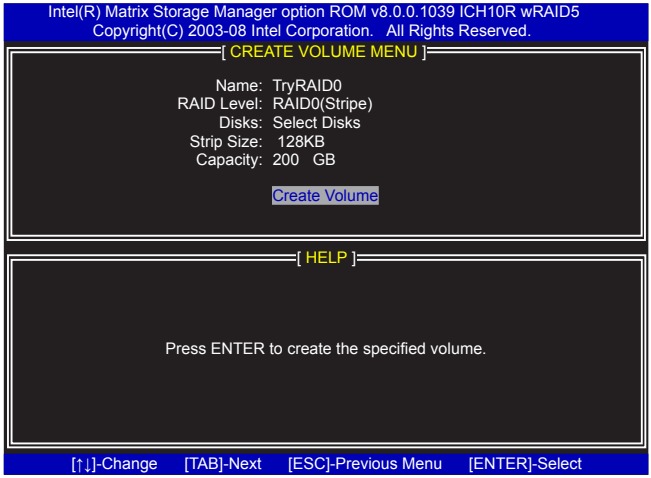
The default value is 128K for RAID0. Press <Enter>.



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>.

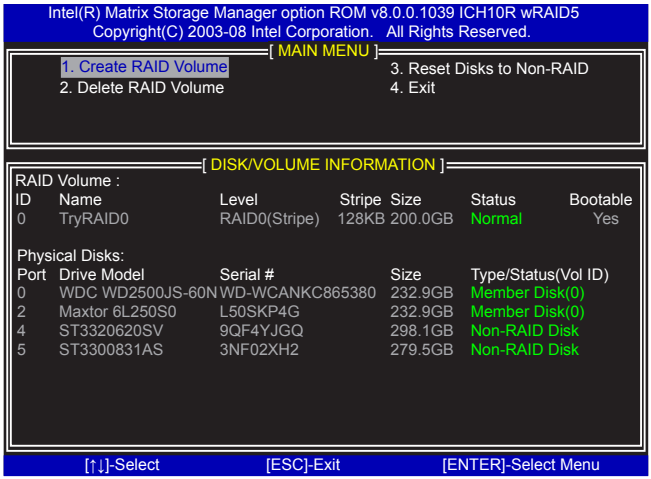


8. In “**Create Volume**” item, press <Enter>.



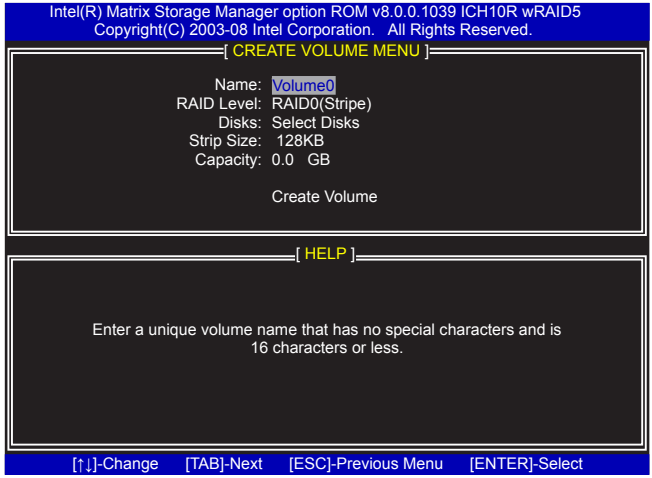
A warning message will appear :

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



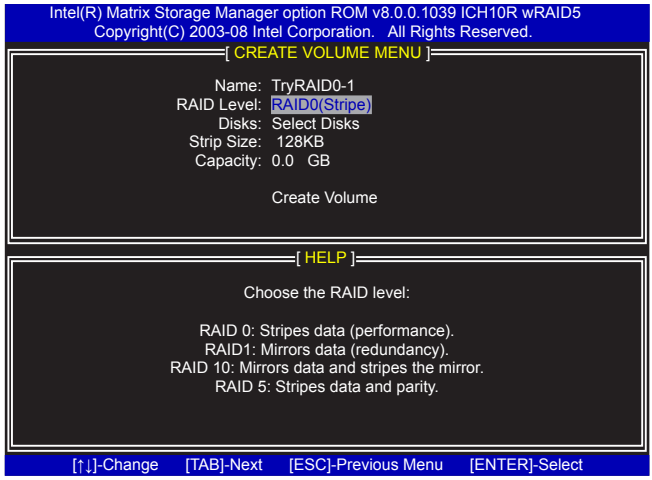
Create RAID0 (2nd Volume)

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

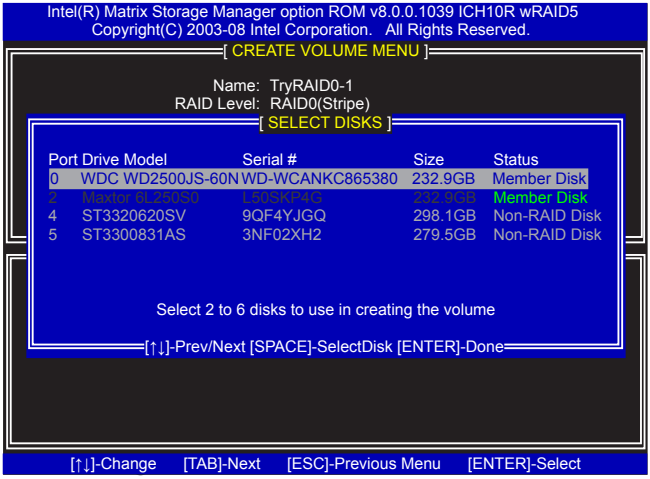


2. In "**Name**" item, we name it as TryRAID0-1 for second volume.
3. In "**RAID Level**" item, you can use Up or Down arrow key to make a selection, only RAID0, 1 can be selected. Select RAID0 (Stripe) and press <Enter>.

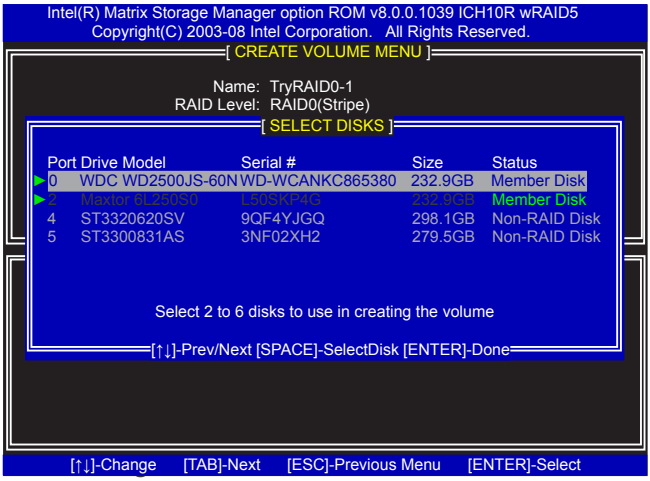
(Note : You also can try to select RAID1 for the second volume as an experiment here)



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.

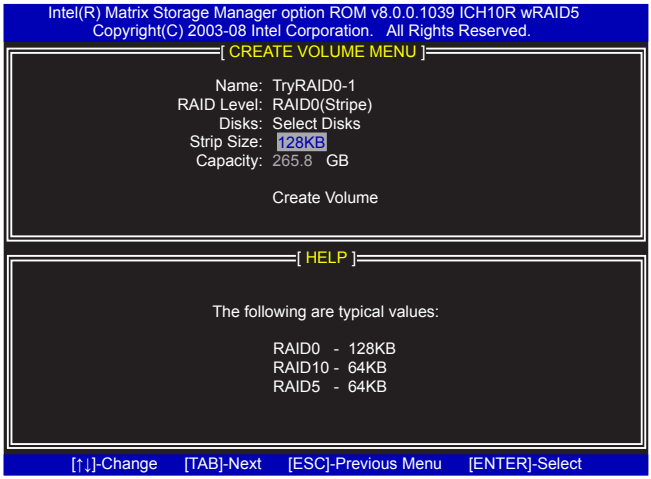
The available values of Strip Size range from 4KB to 128KB. The strip value should be selected based on different applications. Some suggested choices are :

16K - Best for sequential transfer.

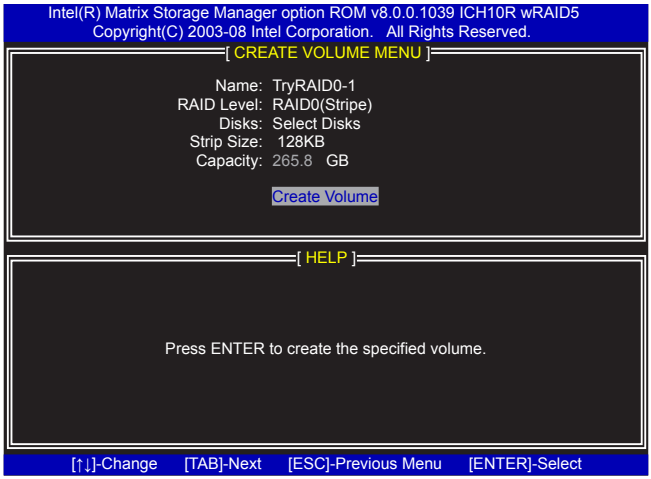
64K - Good general purpose strip size.

128K - Best performance for most desktops and workstations .

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

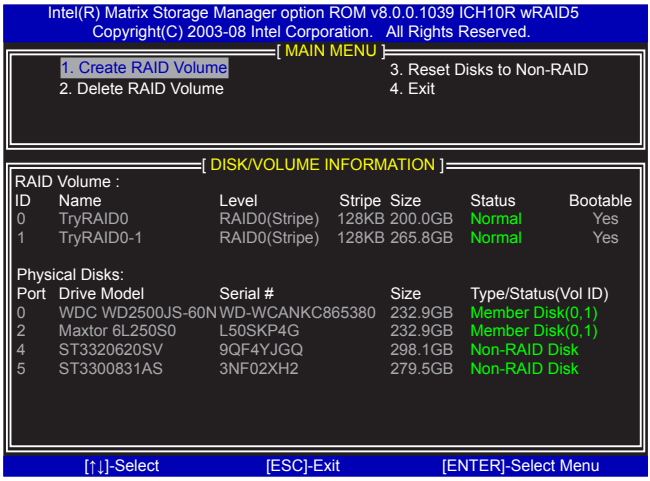


7. Select “**Create Volume**” and press <Enter>.



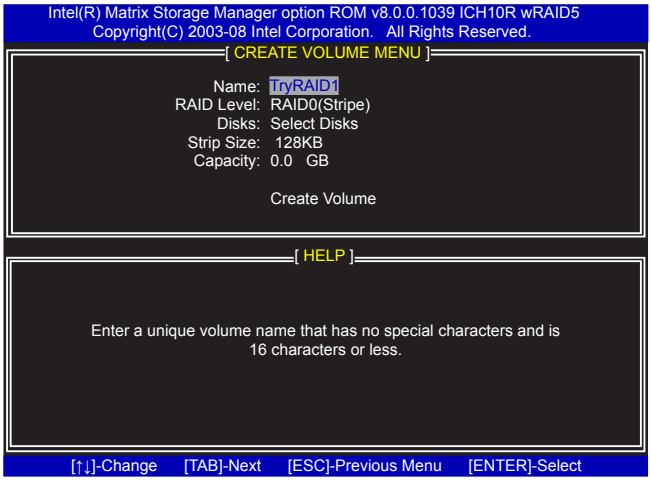
A message will appear :

Press <Y> to create the volume and return to the main menu. Two RAID0 volumes were configured.

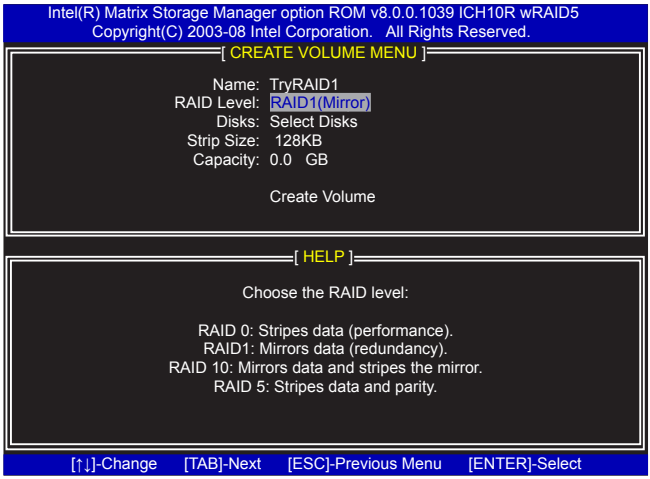


Create RAID 1

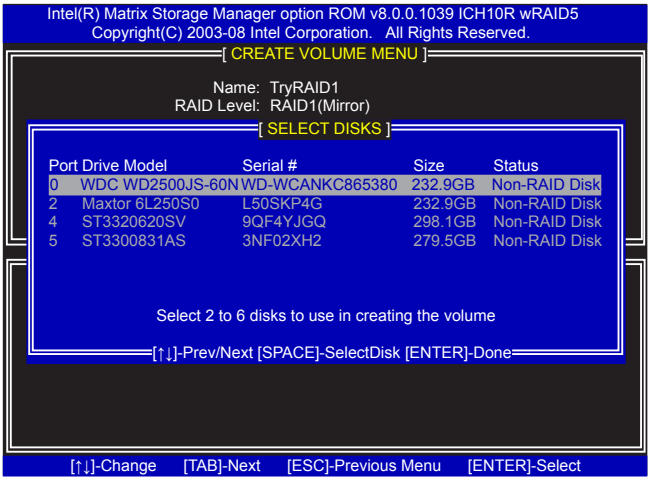
1. Select “**1.Create RAID Volume**” from the main menu and press <Enter>.
2. In "**Name**" item, you can input a device name for the RAID1 system and press <Enter> to apply it. Here, we name it as TryRAID1 to replace the default Volume0.



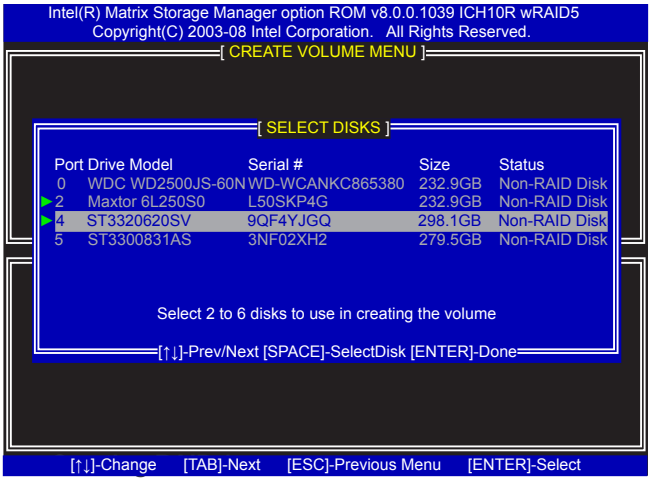
3. In “**RAID Level**” item, you can use Up or Down arrow key to make a selection from one of RAID0, 1, 5, 10 items. Select RAID1 (Mirror) and press <Enter>.



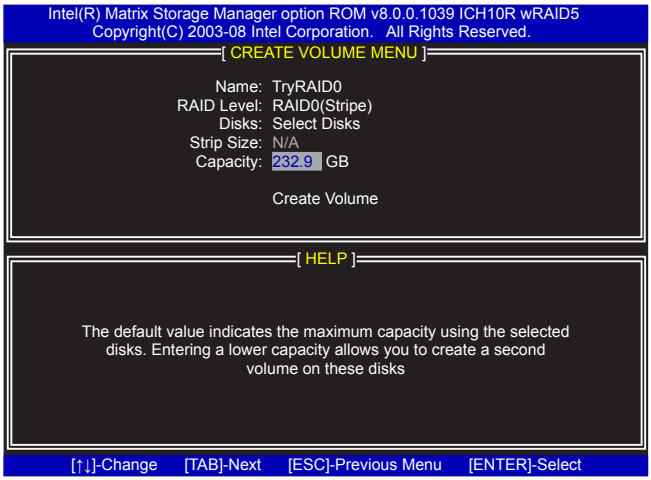
4. It then goes to "**Disks**" item. Press <Enter> to choose the hard disks for this RAID1 system.



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.

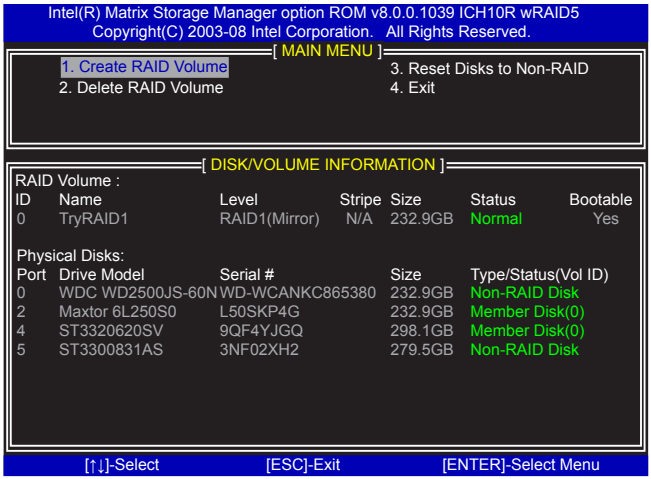


6. It will skip “**Strip Size**” menu for RAID1.



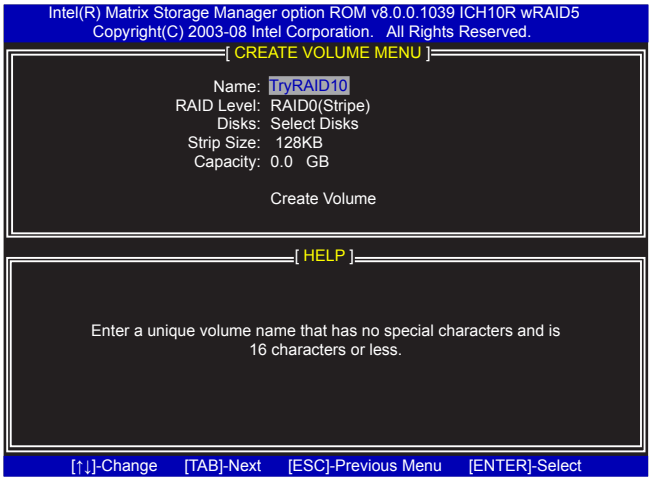
7. In “**Capacity**” item, use the default value, and press <Enter>. The size of the smaller hard disk 232.9GB is becoming the default value, and it indicates the maximum capacity.
8. Select “**Create Volume**” and press <Enter>. A warning message will appear :

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

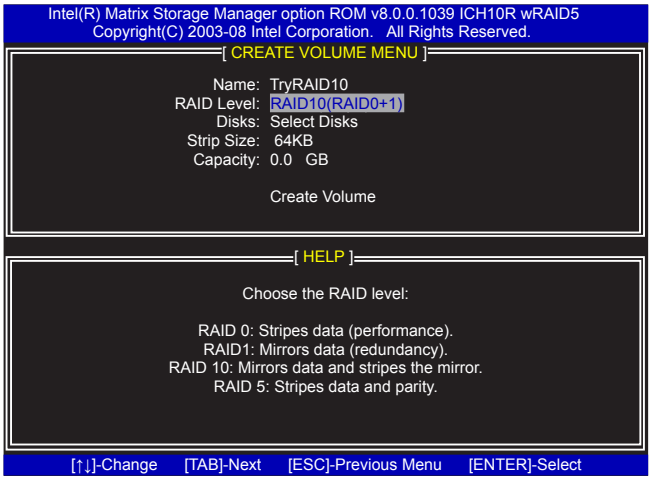


Create RAID 10 (0+1)

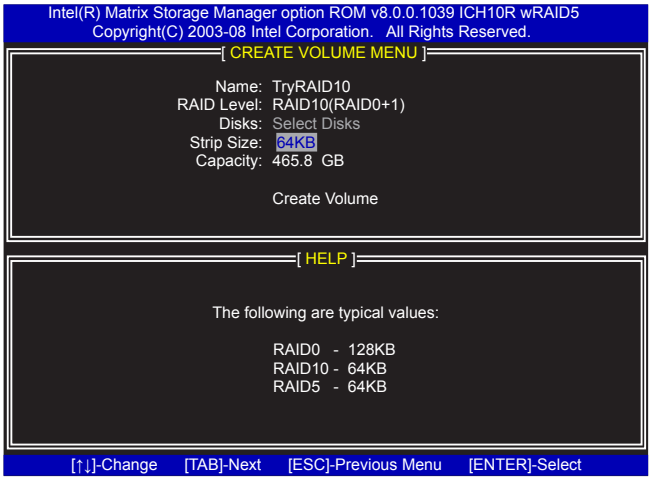
1. Select “**1.Create RAID Volume**” from the main menu and press <Enter>.
2. In "**Name**" item, you can input a device name for the RAID10 system and press <Enter> to apply it. Here, we name it as TryRAID10 to replace the default Volume0.



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>.

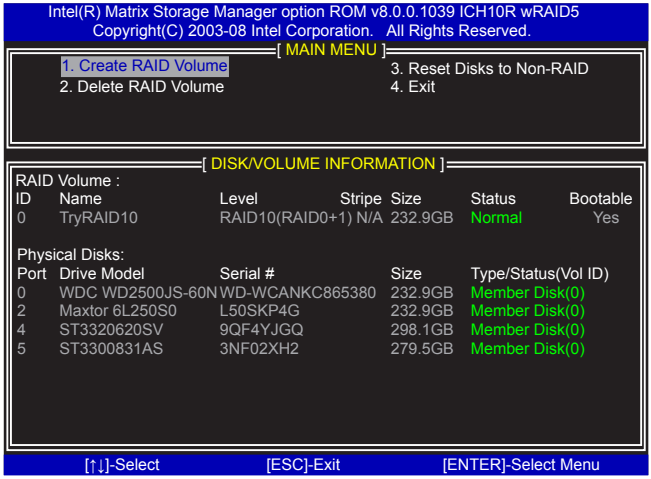


4. After exiting from "**RAID Level**", it goes directly to "**Stripe Size**" item. Because all four disks are selected for RAID10, so there is no need to go to **Disks** option.
5. Use Up or Down arrow key to select the desired strip size when entering "**Strip Size**" menu. The default value is 64K.



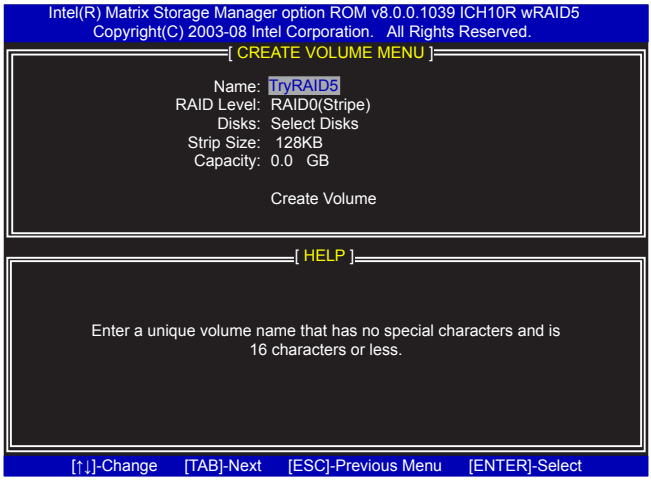
6. In "**Capacity**" item, use the default value, and press <Enter>. The default value is twice the smallest hard disk size, that is, 232.9GB * 2 = 465.8GB.
7. Select "**Create Volume**" and press <Enter>. A warning message will appear :

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

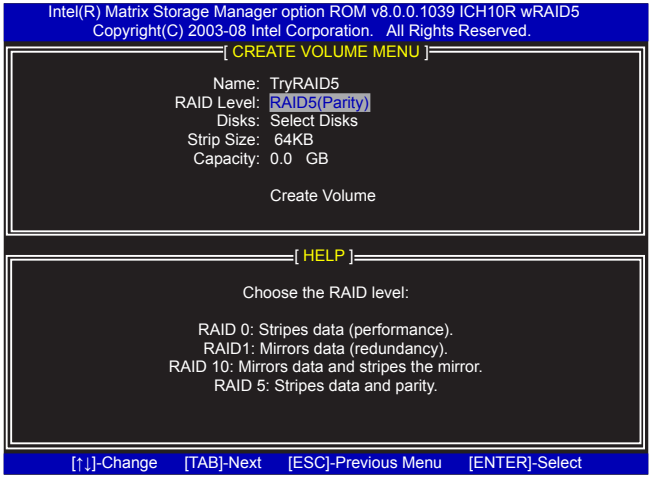


Create RAID5 (Parity)

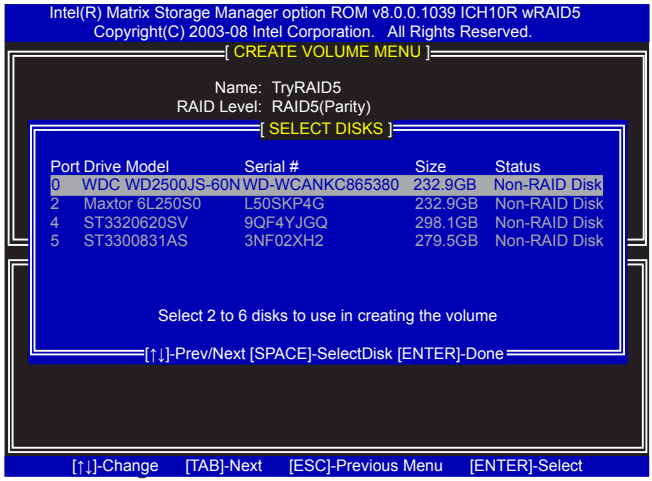
1. Select “**1.Create RAID Volume**” from the main menu and press <Enter>.
2. In "**Name**" item, you can input a device name for the RAID5 system and press <Enter> to apply it. Here, we name it as TryRAID5 to replace the default Volume0.



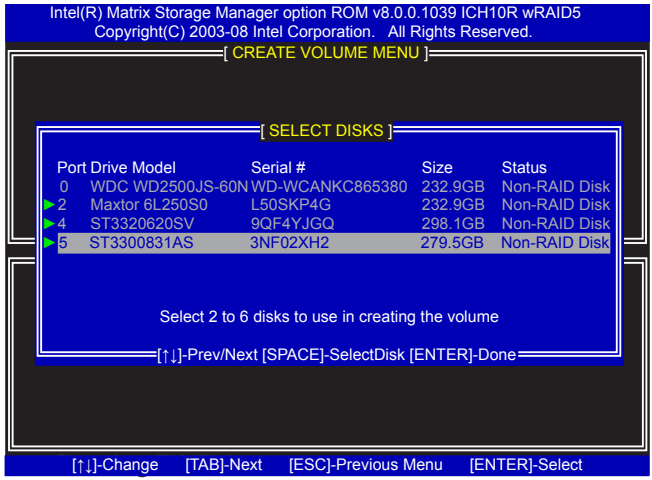
3. In “**RAID Level**” item, you can use Up or Down arrow key to make a selection from one of RAID0, 1, 5, 10 items. Select RAID5(Parity) and press <Enter>.



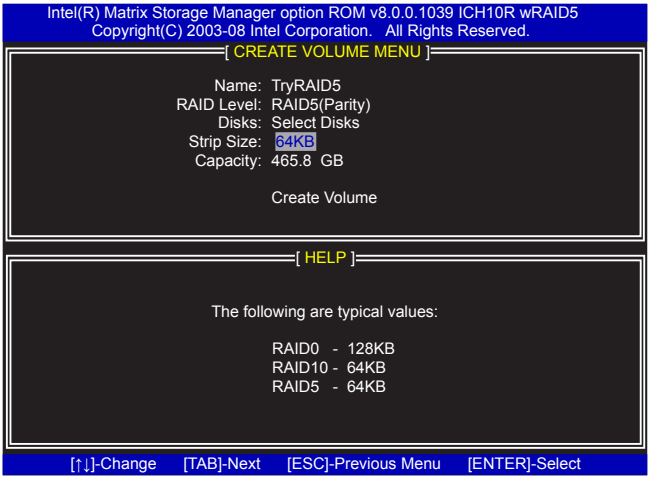
4. It then goes to "**Disks**" item. Press <Enter> to choose the hard disks for this RAID5 system.



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.

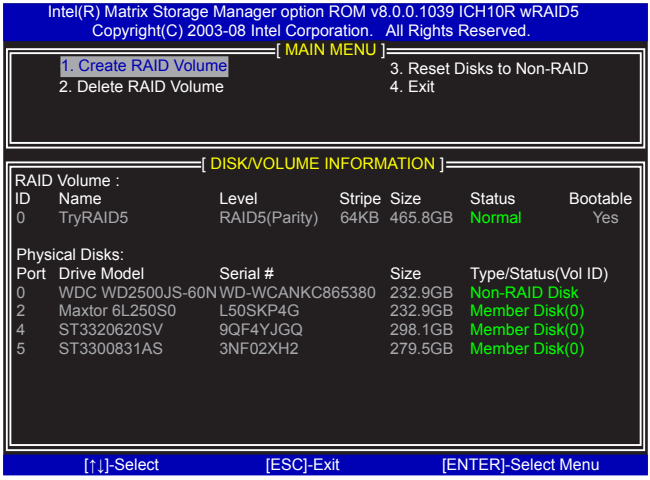


6. Use Up or Down arrow key to select the desired strip size when entering "**Strip Size**" menu. The default value is 64K. Press <Enter>.



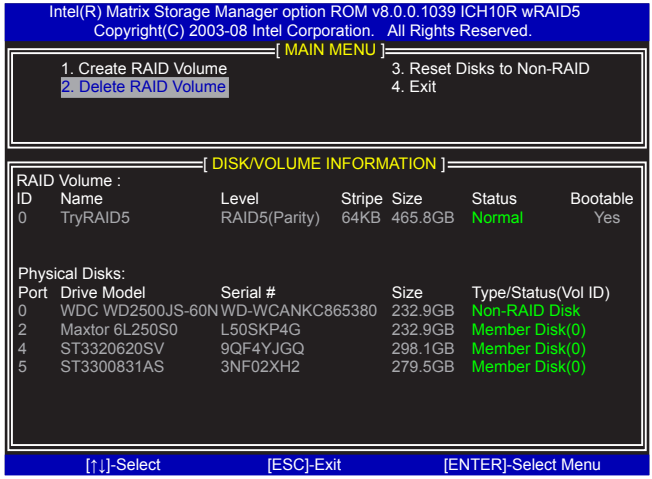
7. In "**Capacity**" item, use the default value, and press <Enter>. The default value is twice that of the smallest hard disk size, that is, 232.9GB * 2 = 465.8GB.
8. Select "**Create Volume**" and press <Enter>. A warning message will appear :

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

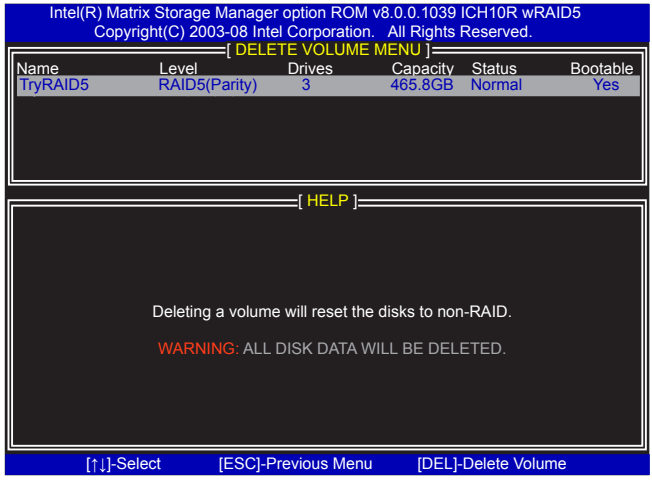


Delete RAID Volume

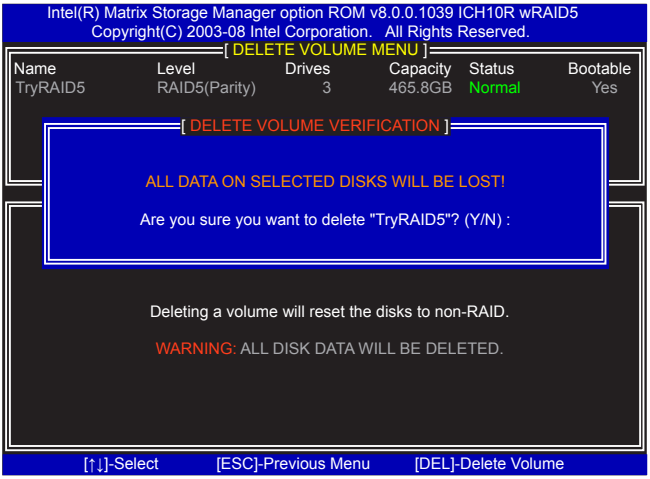
1. Take TryRAID5 for example. Select "**2. Delete RAID Volume**" in main menu and press <Enter>.



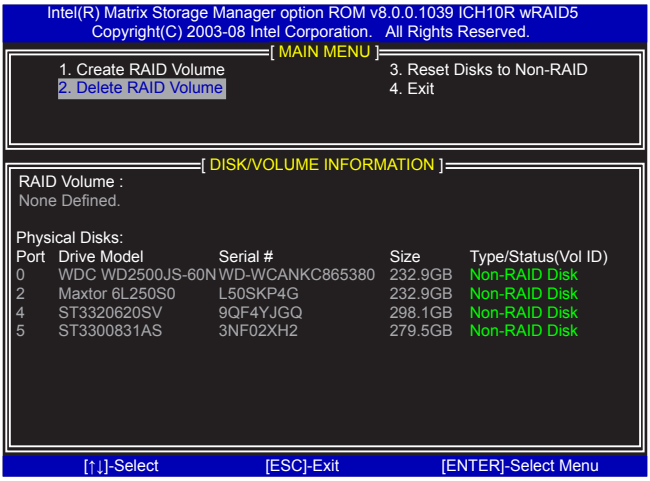
2. Use Up or Down arrow key to select the RAID set you want to delete. Here only one RAID5 is seen, so press <DEL> key to continue.



3. After <DEL> key is pressed, the screen appears as below:
Press <Y> key to confirm the volume deletion.



4. Return to Main Menu.

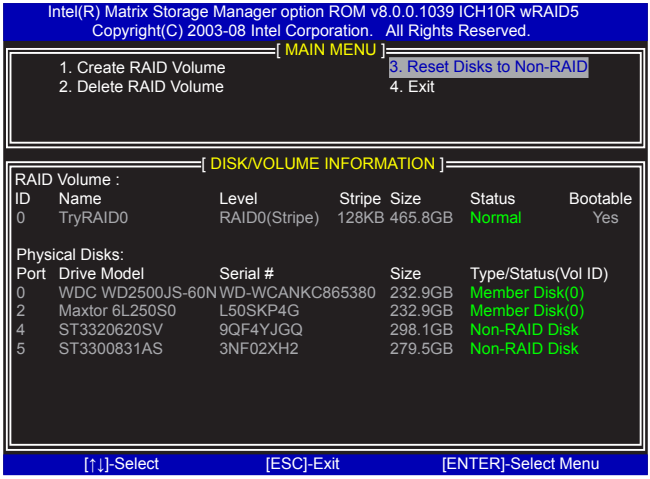


Reset Disks to Non-RAID

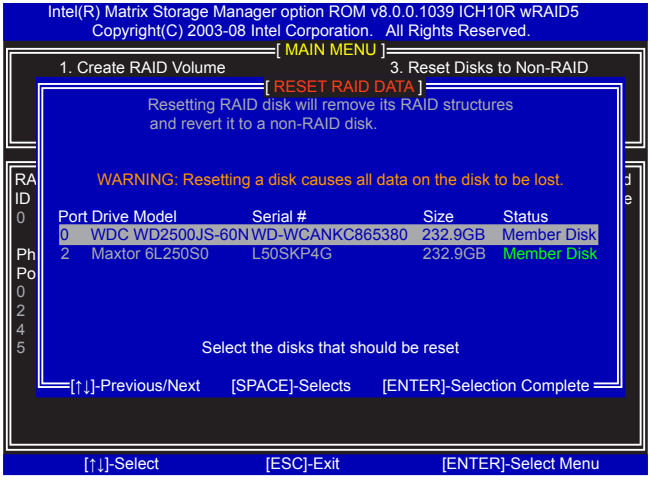
Reset RAID volume allows you to replace a failed disk with a new one, and the operating system will rebuild the data later. For RAID0, reset a hard disk would totally crash the system, but for RAID1, RAID10 and RAID5, they all can be rebuilt.
When rebuild is needed, you must first install a new hard 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.

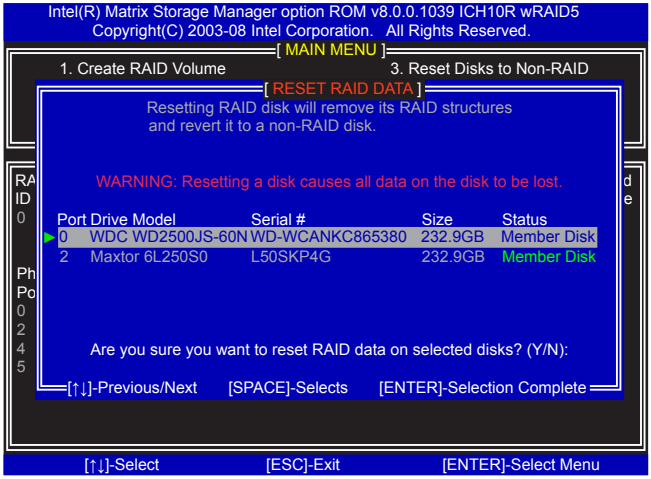
1. A TryRAID0 volume was built with two 232.9GB hard disks, we want to reset one of them. Select "**3. Reset Disks to Non-RAID**" in main menu and press <Enter>.



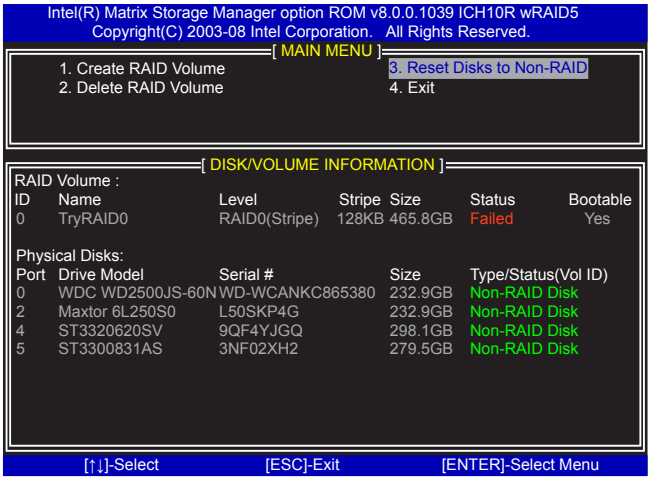
2. A warning message is displayed.



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

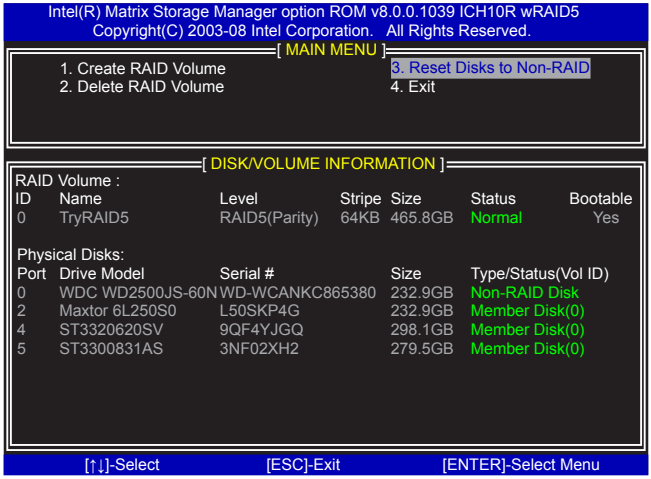


4. It goes back to Main menu with a "Failed" status of RAID0 volume.

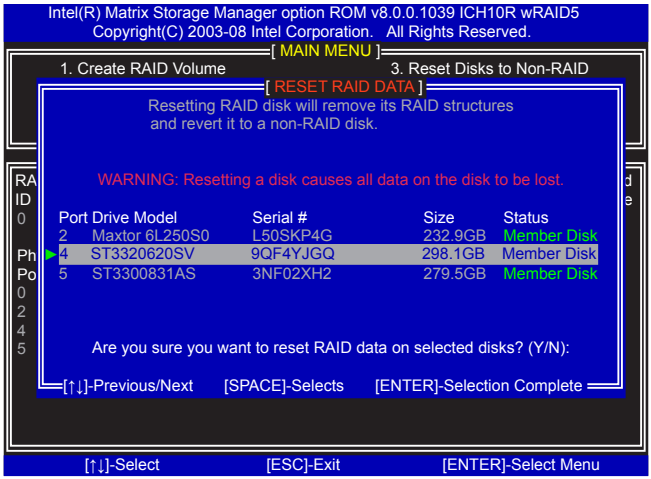


Example 2. Reset a RAID5 system

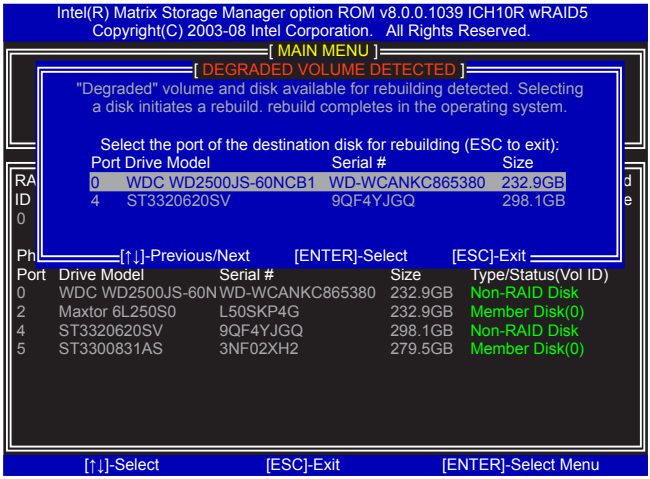
1. A TryRAID5 volume was built with three hard disks, we want to reset one of them. Select "**3. Reset Disks to Non-RAID**" in main menu and press <Enter>.



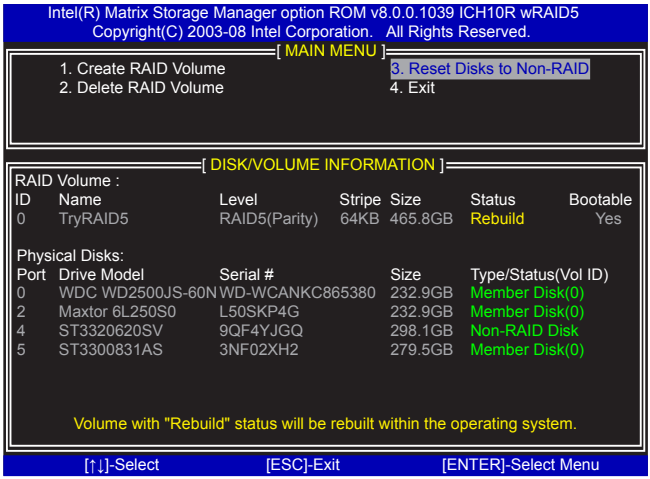
2. A warning message is displayed.
3. Select "**Port 4 - ST3320620SV**" hard disk as the one to be reset. Press <Enter>. A double confirmation message pops out, press <Y> to confirm.



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.

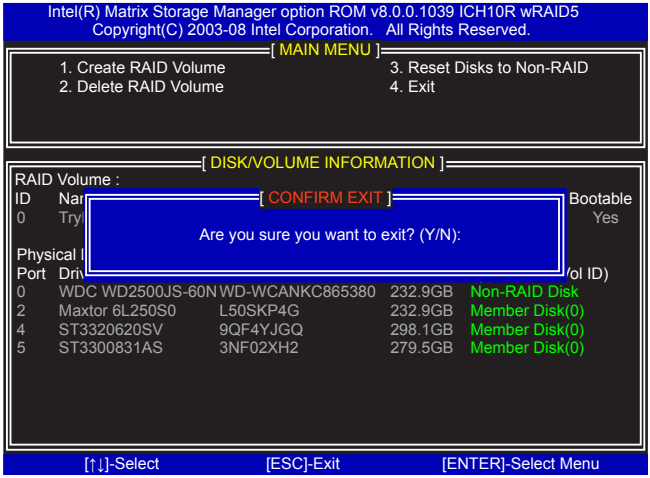


5. It goes back to Main menu with a "Rebuild" status of RAID5 volume. Eventually, a replacement hard disk has to join in and it always keeps three hard disks in the RAID5 system.
6. Operating System will perform the rebuilding later.



Exit RAID BIOS

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



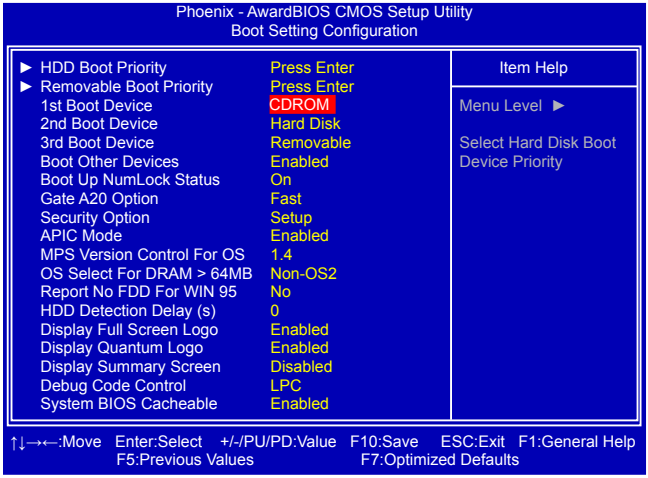
2. Press <Y> to exit Intel® Matrix Storage Manager program. The system will reboot.
3. Shut down the computer, remove WD hard disk, and we will continue for Windows OS installation. If you do not remove irrelevant WD hard disk, Windows may detect it during the installation, and you could be confused.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

5-4 Install a New Windows XP

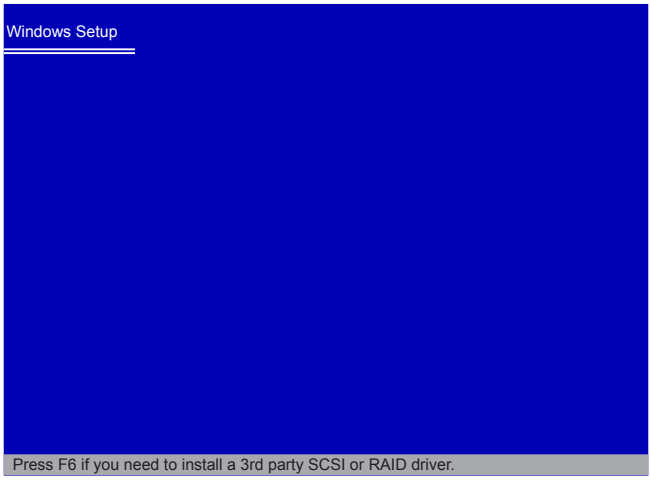
CAUTION

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.

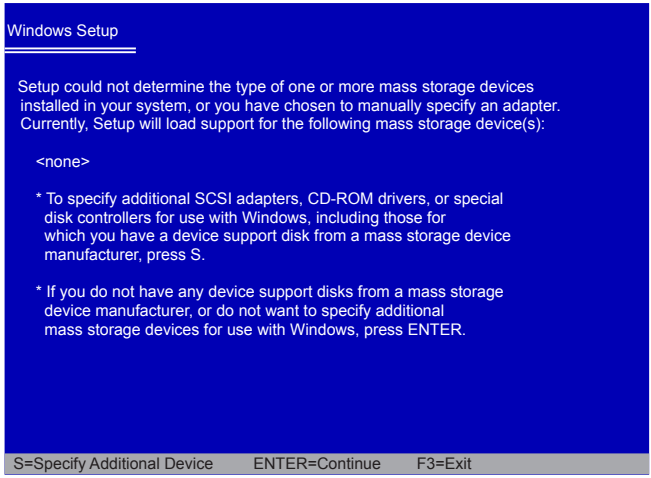
1. Press <DEL> to enter BIOS Setup during POST.
2. Insert the Windows installation CD into the optical drive.
3. Set the “1st Boot Device” to “CDROM”, save changes and exit the BIOS setup.



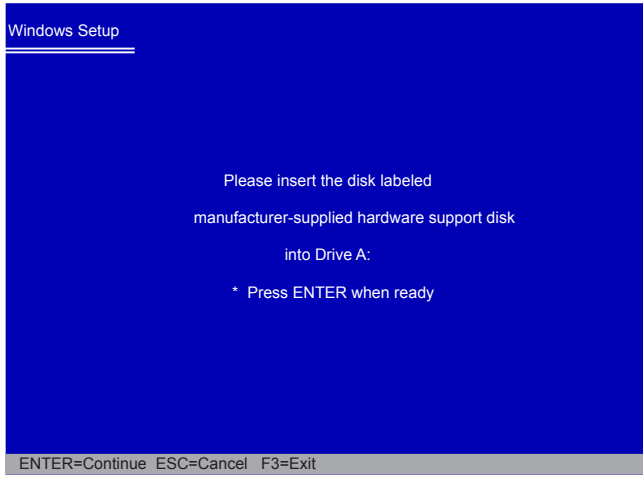
4. The computer will reboot, and it will start installing Windows Operating System. Watch the screen carefully, when the following picture appears, press <F6> key immediately. If you forgot to do this, PC will go to an fatal blue screen, and you may need to reboot the system again. PC may not respond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



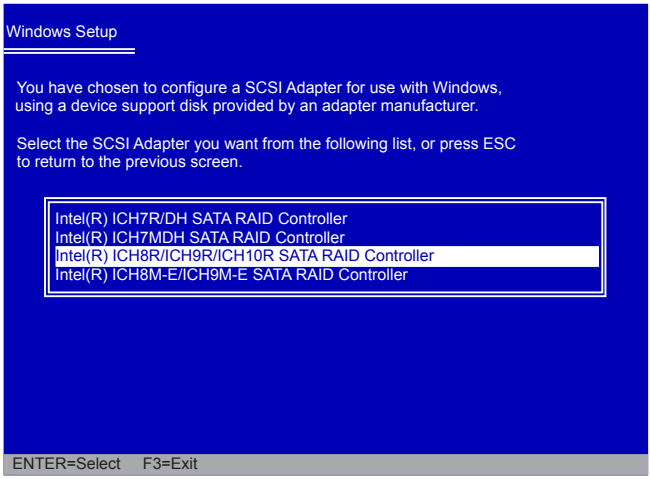
5. After some files are copied to your system, the following picture appears, press <S> to continue the specific driver installation.



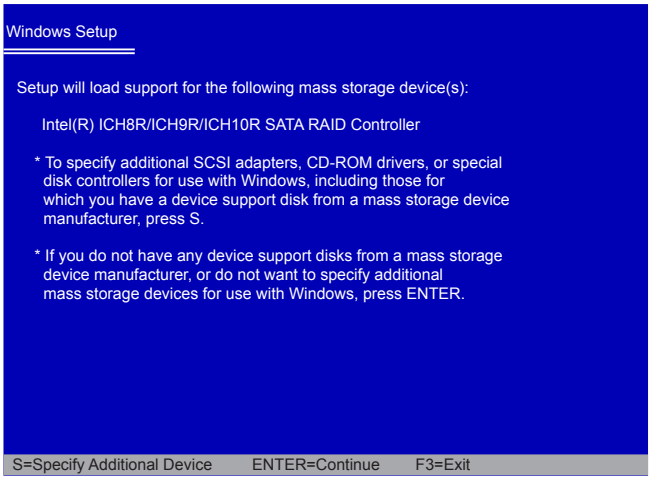
6. It will ask you to insert the RAID driver diskette into you floppy drive. Press <Enter> after it is done.



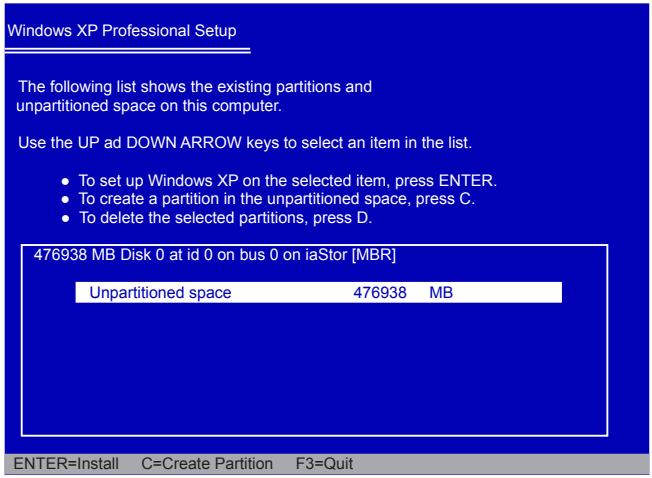
7. Depending on South Bridge chip of your system, select appropriate driver for it. Here, we choose Intel® ICH8R/ICH9R/ICH10R SATA RAID Controller. Press <Enter> to select it.



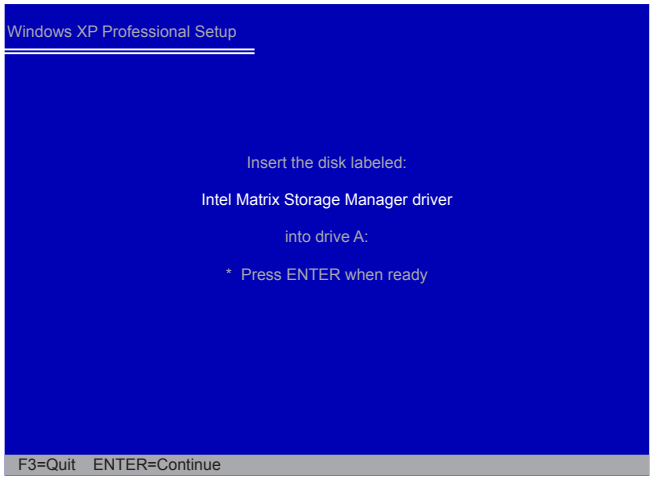
8. A confirmation message pops out to double check if the driver is really what we wanted. Press <Enter> to continue.



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.



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.



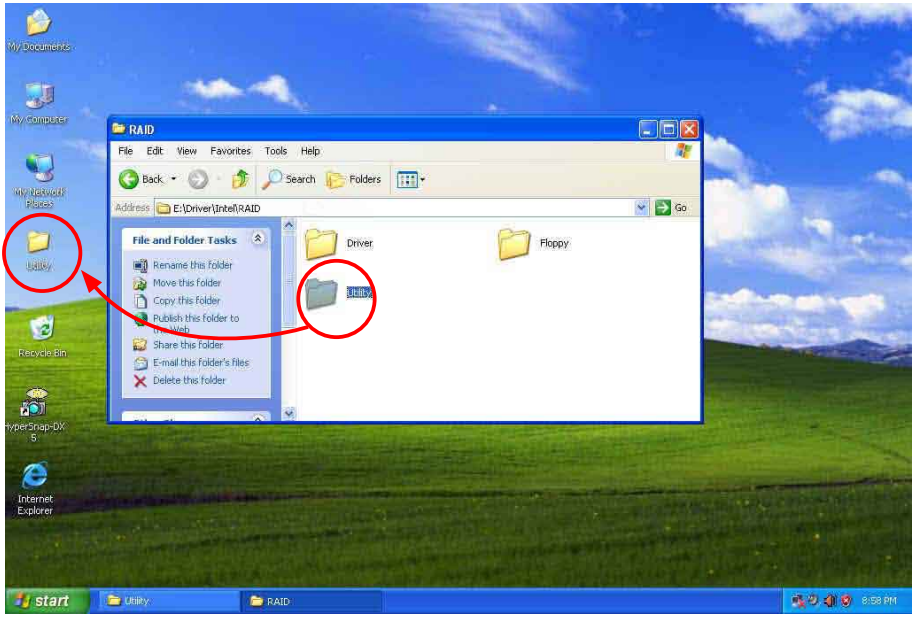
5-5 Existing Windows XP with RAID built as data storage

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.

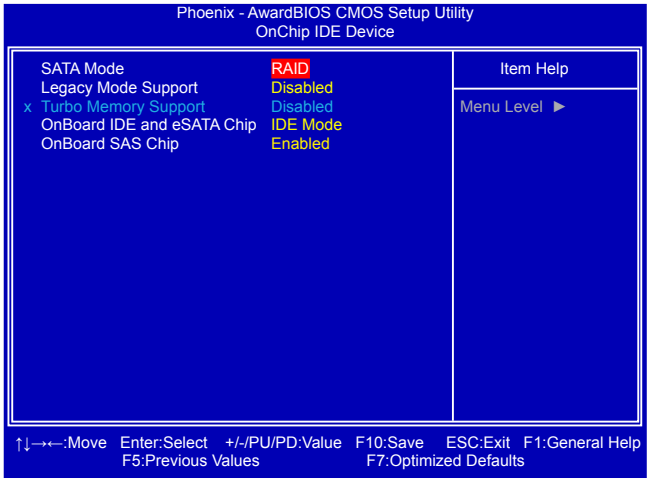
The conditions to install Intel® driver successfully, you need :
1. BIOS "SATA Mode" must be set to [AHCI] or [RAID].
2. You'd better have an IDE CD drive.

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.

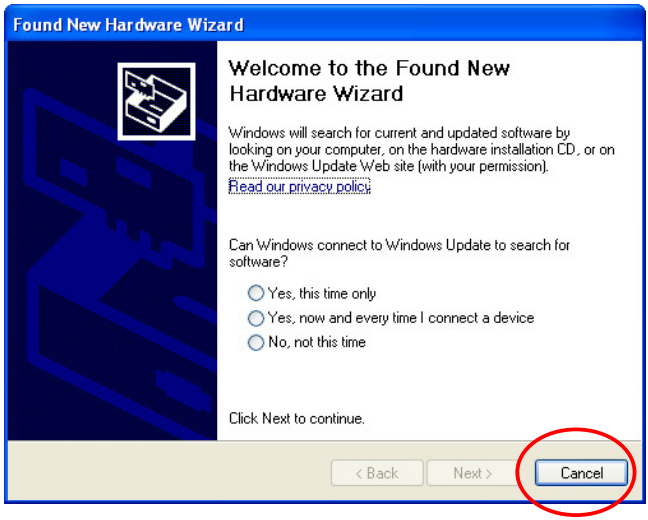
The correct steps are :
1. In current Windows XP system (no matter what SATA or IDE CD drive you have), browse the CD, copy the whole directory of Intel® Matrix Storage Manager setup program to your desktop. For example, drag and copy directory "**\Driver\Intel\RAID\Utility**" to your desktop.



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.

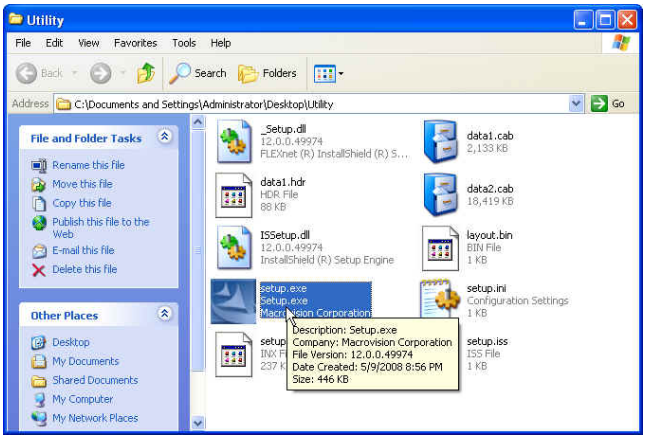


3. Copy section 5-3, Create RAID in BIOS.
   Press <CTRL><I> simultaneously to get into RAID BIOS set up (Intel® Matrix Storage Manager option ROM utility).
   Configure your new hard disks to RAID0, 1, 5 or 10. Exit RAID BIOS. PC will reboot.
4. The Windows XP is running again and a new hardware of RAID disk was found.
   Click [Cancel] to skip this Wizard.

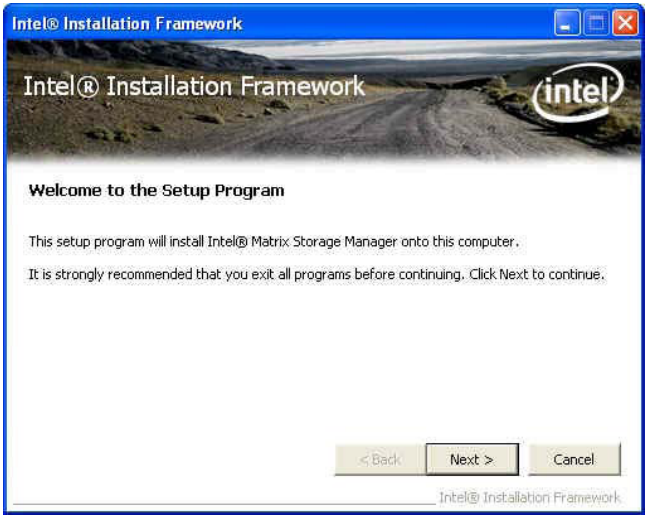


Click to exit.

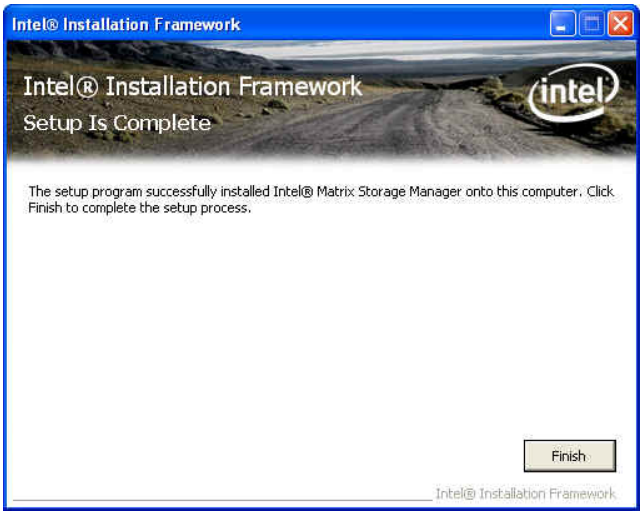
5. Use Explorer to get into the Intel® driver directory which was previously copied to the desktop.



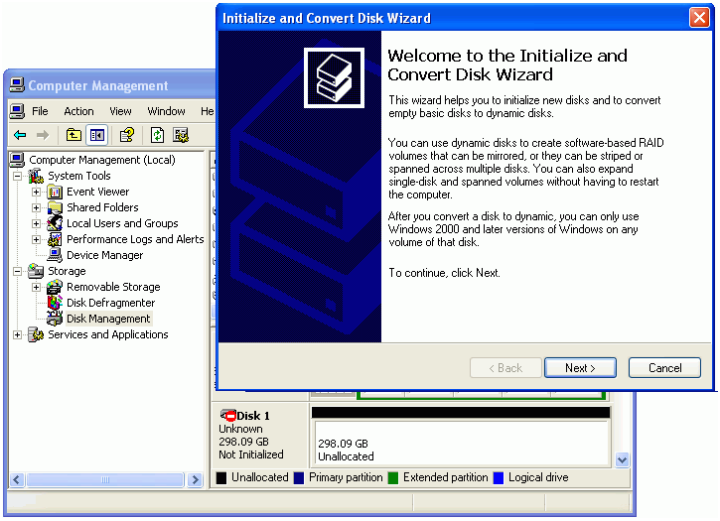
6. Click on Setup.exe to install Intel® Matrix Storage Manager driver.



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.



ATI® CrossFireX™ Technology

Introduction

ATI® CrossFireX™ 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 ATI® GPU solution. It allows up to four identical PCI Express™ x16 graphics cards.

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

- CrossFireX™ Ready motherboard, such as Foxconn's Flaming Blade/ Flaming Blade GTI.
- 2, 3 or 4 CrossFireX™ graphics cards

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

Using CrossFireX™ Technology

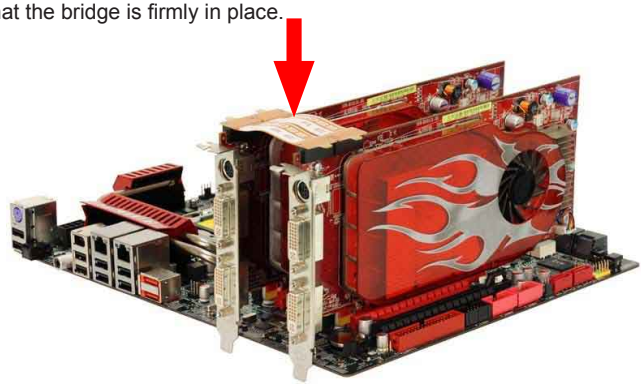
1. Please uninstall any existing graphics card drivers which would possibly create a conflict before attempting to install this display card.

2. Install the first Radeon CrossFireX™ graphics card to PCI-E1_16X slot.

3. Install the second Radeon CrossFireX™ graphics card to PCI-E2_16X slot.

4. If you wish to use 3 graphics cards we recommend using the lower 2 PCIE 16x slots to keep the first card running at 16x lanes while the second and third will run at 8x each.

5. Align and firmly insert the CrossFire bridge onto the edge connector of each graphics card. Make sure that the bridge is firmly in place.



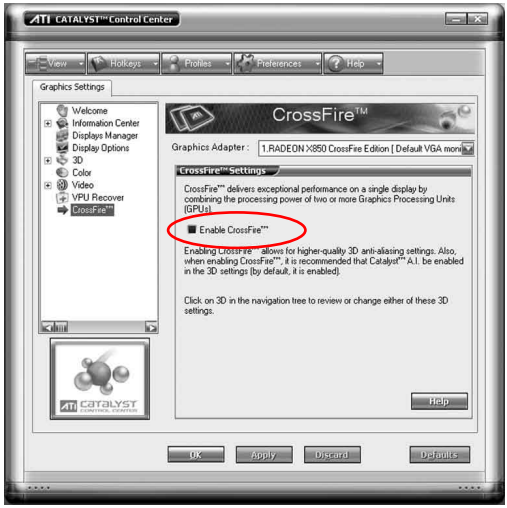
6. Power on your computer and get into OS (Windows® XP 32-bit with SP2 or Windows® XP Professional 64-bit Edition).

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 

to launch it. Click "View"-->Select "Advanced View" -->Click "CrossFire™"-->Set "Enable CrossFire™" to Yes.



Now you can enjoy the advanced CrossFireX™ technology.

CAUTION

■ Check AMD/ATI's Power supply recommendations to run CrossFireX™.

NVIDIA® SLI™ Technology

(Only for Flaming Blade)

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.

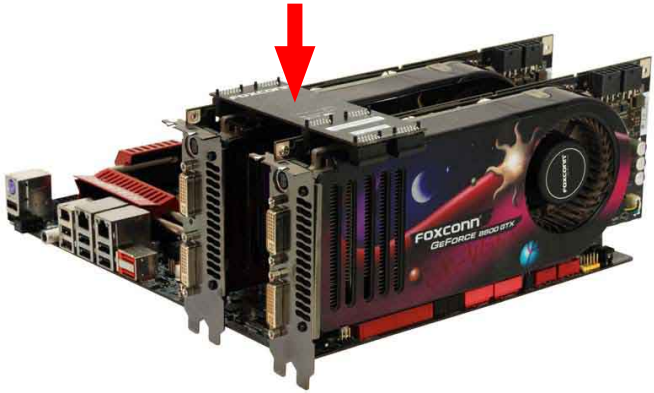
CAUTION

- In 2-way SLI mode, it needs two 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.
- Make sure that your power supply unit can provide at least the minimum power required by your system.
- 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 dual SLI-ready graphics cards

1. Install one graphics card into the PCI-E1_16X slot, 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.



Appendix

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.

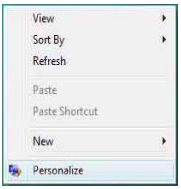
2-2 Installing the graphics cards drivers

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

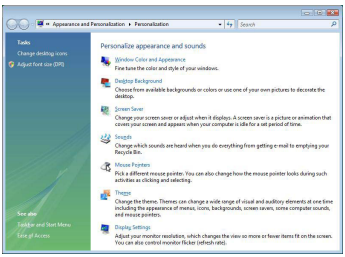
2-3 Enabling the NVIDIA® SLI™ technology

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

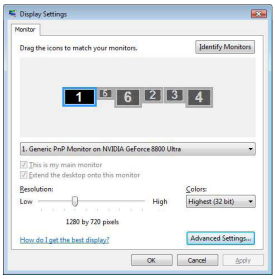
If you cannot see the NVIDIA Control Panel item, select "Personalize", then follow the procedure below:



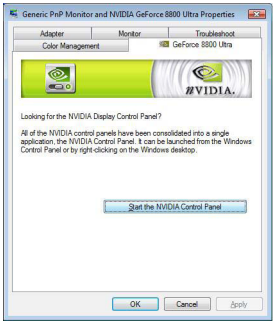
From the "Personalization" window, select "Display Settings".



Click "Advanced Settings" from the dialog box.



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



2. When using two graphics cards:
Select “Set SLI Configuration”, then click "Enable 2-way NVIDIA SLI", when done, click Apply to enable it.

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

When using two graphics cards:
Just select “Set SLI Configuration”, then click "Enable SLI" and set the display, when done, click Apply.

Appendix