H67M Series Motherboard

User's Manual

FOXCONN®

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Version:

User's Manual V1.0 for H67M Series motherboard.
P/N: 3A222NM00-000-G

Symbol description:

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

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

WEEE:

The use of this symbol indicates that this product may not be treated as household waste. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could 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

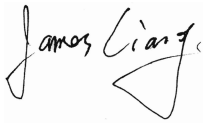
HON HAI PRECISION INDUSTRY COMPANY LTD
66 , CHUNG SHAN RD., TU-CHENG INDUSTRIAL DISTRICT,
TAIPEI HSIEN, TAIWAN, R.O.C.

declares that the product

Motherboard H67M-S/H67M/H67M-V

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/2010

Printed Name : James Liang

Declaration of conformity

FC

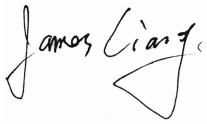
Trade Name:	FOXCONN
Model Name:	H67M-S/H67M/H67M-V
Responsible Party:	PCE Industry Inc.
Address:	458 E. Lambert Rd. Fullerton, CA 92835
Telephone:	714-738-8868
Facsimile:	714-738-8838

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 : 2010

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 fan is not properly installed.
- We cannot guarantee that your system can operate normally when your CPU is overclocked. Normal operation depends on the overclocking capacity of your device.
- If there is any, when connecting USB, audio, 1394a, RS232 COM, IrDA or S/PDIF cables to the internal connectors on the motherboard, make sure their pinouts are matching with the connectors on the motherboard. Incorrect connections might damage the motherboard.
- When handling the motherboard, avoid touching any metal leads or connectors.
- If there is a PCI Express x16 graphics card installed in your system, we recommend using a 24-pin ATX power supply to get the best performance.
- Before turning on the power, please make sure the power supply AC input voltage setting has been configured to the local standard.
- To prevent damage to the motherboard, do not allow screws to come in contact with the motherboard circuit or its components. Also, make sure there are no leftover screws or metal components placed on the motherboard or within the computer casing.
- If you are uncertain about any installation steps or have a problem related to the use of the product, please consult a certified computer technician.

TABLE OF CONTENTS

Technical Support :

Support

Website :
http://www.foxconnchannel.com

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

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

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

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

Thank you for buying Foxconn H67M Series motherboard. Foxconn products are engineered to maximize computing power, providing only what you need for break-through performance.

With advanced overclocking capability and a range of connectivity features for today multi-media computing requirements, H67M-S/H67M/H67M-V enables you to unleash more power from your computer.

This chapter includes the following information:

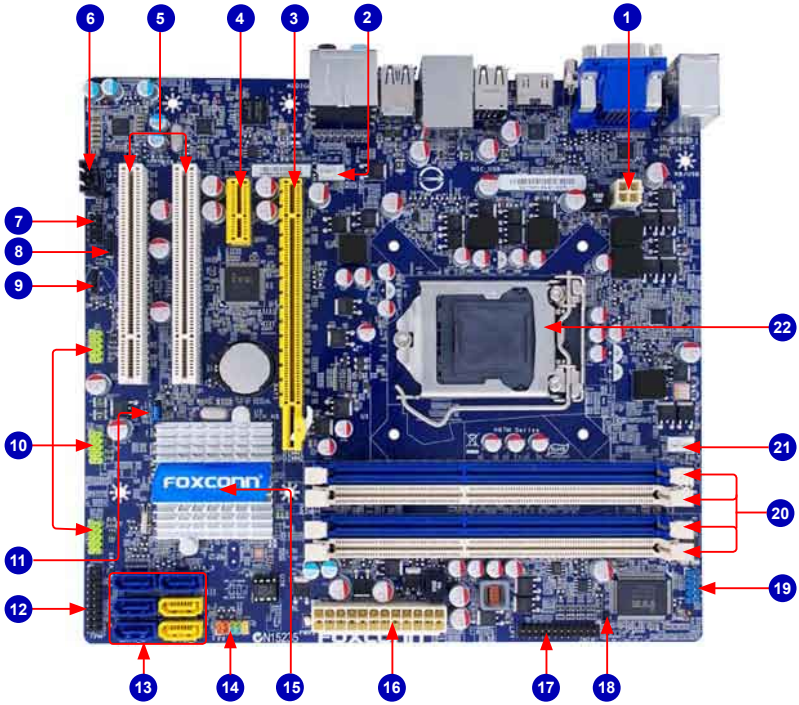
- Product Specifications
- Layout
- Back Panel Connectors

1-1 Product Specifications

CPU	Support LGA1155 for Intel Sandybridge series CPU Max processor power up to 95W Support 32nm CPU For the latest CPU information, please visit: http://www.foxconnsupport.com/cpusupportlist.aspx
Chipset	Intel® H67
Memory	4 x 240-pin DDR3 DIMMs Support up to 16GB of system memory Dual channel DDR3 2200(oc*)/1600/1333/1066 MHz architecture (oc*: Overclocking)
Expansion Slots	1 x PCI Express x16 slots 1 x PCI Express x1 slots 2 x PCI slots
Storage	H67 chipset: - 2 x SATA 3.0 connectors 600MB/s data transfer rate - 4 x SATA 2.0 connectors 300MB/s data transfer rate - Support RAID 0, 1, 5 and 10 - Support Hot Plug and NCQ (Native Command Queuing)
LAN	Realtek 8111E
Audio	Realtek ALC887 (H67M-S/H67M)/ALC662 (H67M-V) audio chip: - High Definition Audio - 2/4/5.1/7.1-channel (H67M-S/H67M) - 2/4/5.1-channel(H67M-V) - Support for S/PDIF Out - Support Jack-Sensing function
USB	H67 chipset: - Support up to 12 x USB 2.0 ports (6 rear panel ports, 3 onboard USB headers supporting 6 extra ports) NEC chipset: - Support up to 2 x USB 3.0 ports(H67M-S)
Internal Connectors	1 x 24-pin ATX main power connector 1 x 4-pin ATX 12V power connector 6 x SATA connectors 3 x USB 2.0 connectors (supporting 6 x USB devices) 1 x TPM header 1 x CPU fan header (4-pin) 1 x System fan header (4-pin) 1 x Front Panel connector 1 x Front Audio connector 1 x Speaker header (Buzzer connector Reserved) 1 x COM1 connector 1 x SPDIF_OUT connector

Internal Connectors	1 x LPT connector 1 x CD_IN connector 1 x Chassis intrusion alarm header (INTR) 1 x CLR_CMOS jumper
Back Panel Connectors	1 x PS/2 port 1 x VGA port 1 x DVI-D port 6 x USB 2.0 ports 1 x RJ-45 LAN port 1 x HDMI port (H67M-S/H67M) 2 x USB 3.0 ports (H67M-S) 8-channel Audio ports (H67M-S/H67M) 6-channel Audio ports (H67M-V)
Hardware Monitor	System voltage detection CPU/System temperature detection CPU/System fan speed detection CPU overheating warning CPU/System fan speed control
PCI Express x1	Support 250MB/s (500MB/s concurrent) bandwidth Low power consumption and power management features
PCI Express x16 Gen2.0	Support 8GB/s (16GB/s concurrent) bandwidth Low power consumption and power management features
Green Function	Support ACPI (Advanced Configuration and Power Interface) Support S0 (normal), S1 (power on suspend), S3 (suspend to RAM), S4 (suspend to disk), S5 (soft - off) Support EuP Function
Bundled Software	FOX ONE FOX LiveUpdate FOX LOGO FOX DMI
Operating System	Support for Microsoft® Windows® 7/Vista/XP
Form Factor	Micro ATX Form Factor, 9.6 inches x 8.8 inches (24.4cm x 22.4cm)

1-2 Layout

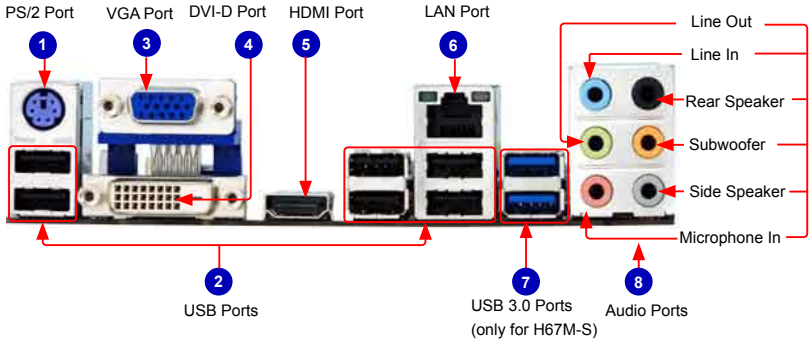


1. 4-pin ATX 12V Power Connector
2. SYS_FAN1 Header
3. PCI Express x16 Slot
4. PCI Express x1 Slot
5. PCI Express Slot
6. CD_IN Connector
7. Front Audio Connector
8. SPDIF_OUT Connector
9. Speaker Connector
10. Front USB Connectors
11. Clear CMOS Jumper
12. TPM Connector
13. SATA Connectors
14 Front Panel Connector
15. Chipset: Intel® H67
16. 24-pin ATX Power Connector
17. LPT Connector
18. INTR2 Connector
19. COM1 Connector
20. DDR3 DIMM Slots
21. CPU_FAN Header
22. LGA1155 CPU Socket

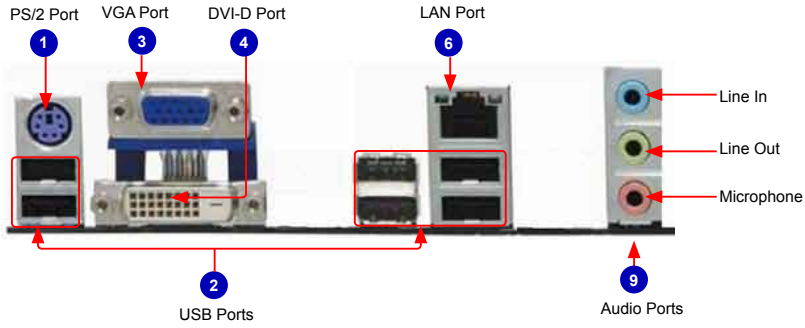
Note : The above motherboard layout is for reference only, please refer to the physical motherboard for detail.

1-3 Back Panel Connectors

Back panel connectors of 7.1 channel (H67M-S/H67M):



Back panel connectors of 5.1 channel (H67M-V):



1. PS/2 Port

Use the PS/2 port 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. VGA Port

Use this port to connect external display devices, such as monitor or LCD display.

4. DVI_D Port

The DVI-D port supports DVI-D specification. Connect a monitor that supports DVI-D connection to this port.

5. HDMI Port (only for H67M-S/H67M)

The HDMI (High-Definition Multimedia Interface) provides an all-digital audio/video interface to transmit the uncompressed audio/video signals and is HDCP compliant. Connect the HDMI audio/video device to this port. The HDMI Technology can support a maximum resolution of 1920x1080p but the actual resolutions supported depend on the monitor being used.

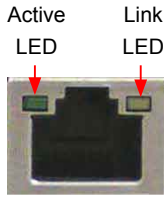
CAUTION

Both HDMI and DVI ports share the same signals. They are not able to work at the same time.

6. RJ-45 LAN Port

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

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



7. USB 3.0 Ports (only for H67M-S)

The USB port supports the USB 3.0/2.0/1.1 specification. Use this port for USB devices such as an USB keyboard/mouse, USB printer, USB flash drive and etc. You need to install the USB 3.0 driver in the Driver CD before using it.

8. Audio Ports (8 jacks)

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

9. Audio Ports (6 jacks)

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

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

*: Please refer to Chapter 4, and run the Realtek audio driver (in CD) to assign the audio output ports for different applications of 2/4/5.1 channels or 2/4/5/7.1 channels. The fundamental audio outputs are depicted in the table above.

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

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

CPU Support List:

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

Memory, VGA Compatibility List:

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

2-1 Install the CPU and CPU Cooler

CAUTION

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

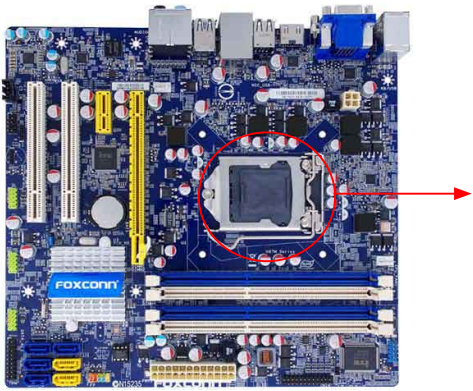
- Make sure that the motherboard supports the CPU.
- Always turn off the computer and unplug the power cord from the power supply before installing the CPU to prevent hardware damage.
- Locate the pin one of the CPU. The CPU cannot be inserted if oriented incorrectly. (Or you may locate the notches on both sides of the CPU and alignment keys on the CPU socket.)
- Apply an even and thin layer of thermal grease on the surface of the CPU.
- Do not turn on the computer if the CPU cooler is not installed, otherwise overheating and damage of the CPU may occur.
- Set the CPU host frequency in accordance with the CPU specifications. It is not recommended that the system bus frequency be set beyond hardware specifications since it does not meet the standard requirements for the peripherals. If you wish to set the frequency beyond the standard specifications, please do so according to your hardware specifications including the CPU, graphics card, memory, hard drive, etc.

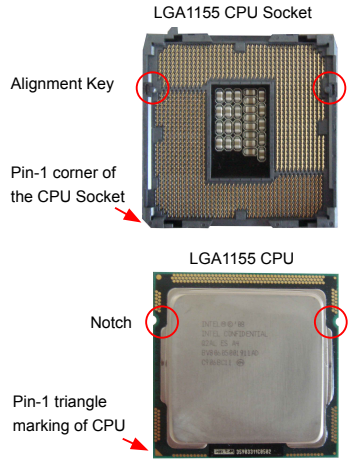
Hyper-Threading Technology System Requirements:
(Go to Intel's website for more information about the Hyper-Threading Technology)

- An Intel® CPU that supports HT Technology
- A chipset that supports HT Technology
- An operating system that is optimized for HT Technology
- A BIOS that supports HT Technology and has it enabled

Install the CPU

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



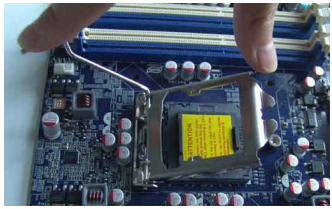


Follow the steps to install the CPU onto the CPU socket :

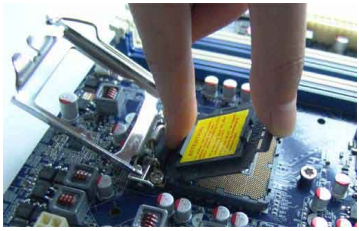
CAUTION

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.

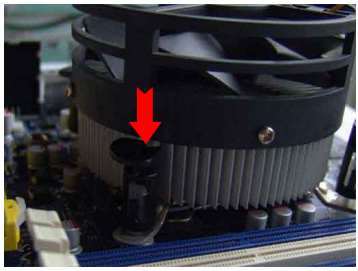
4. Check pin one marking (triangle) with the pin one corner of the CPU socket, align the CPU notches with the socket alignment keys and gently put the CPU onto the socket.

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

Install the CPU Cooler

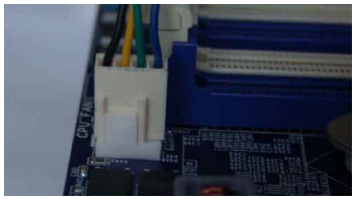
Follow the steps below to correctly install the CPU cooler on the motherboard.

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

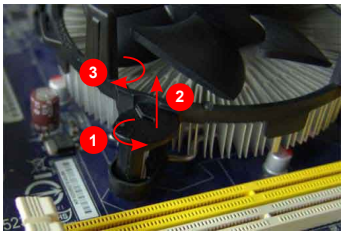


2. Place the four bolts of the CPU cooler to the holes of the motherboard, push them straight down from the top, and the bolts will be fastened on the motherboard. That's it.

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



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



Release bolts of CPU cooler from motherboard :

1. Turning the push pin (bolt) along with the direction of arrow (counterclockwise).
2. Pull the push pin straight up.
3. Turning push pin clockwise to its default position.

CAUTION

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

2-2 Install the Memory

CAUTION

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

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

Dual Channel Memory Configuration

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

Four DDR3 memory sockets are divided into two channels :
Channel 0 : DIMM1 , DIMM2
Channel 1 : DIMM3 , DIMM4

The combinations of DIMM modules are :

	DIMM1	DIMM2	DIMM3	DIMM4
Single Channel	DS/SS	-	-	-
Single Channel	DS/SS	DS/SS	-	-
Single Channel	-	DS/SS	-	-
Single Channel	-	-	DS/SS	-
Single Channel	-	-	-	DS/SS
Single Channel	-	-	DS/SS	DS/SS
Dual Channel	DS/SS	-	DS/SS	-
Dual Channel	DS/SS	-	-	DS/SS
Dual Channel	-	DS/SS	DS/SS	-
Dual Channel	-	DS/SS	-	DS/SS
Dual Channel	DS/SS	DS/SS	DS/SS	DS/SS

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

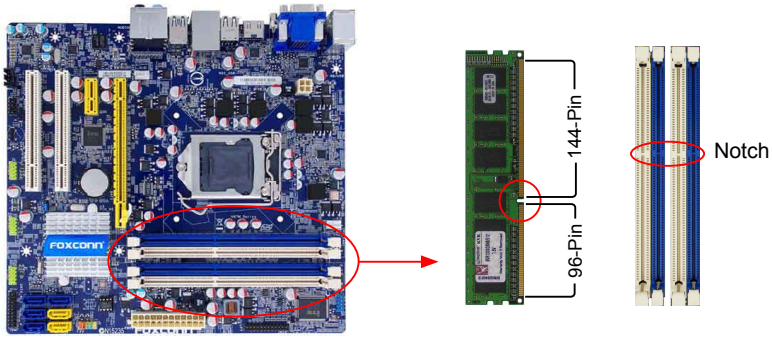
CAUTION

For this motherboard, DIMM(1,2), DIMM(3,4) are two pairs of channels. For Lynnfield CPU, in each pair of DIMM channel, you need to install blue DIMM first, then install white DIMM the second. White DIMM can not function if no blue DIMM is installed. (Please refer to the silkscreen next to the DIMM slots to identify the sequence of DIMM(1,2, 3, 4) on the motherboard.)

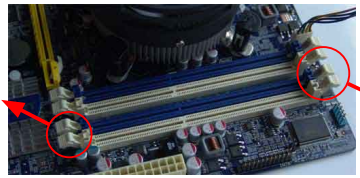
Installing a Memory

CAUTION

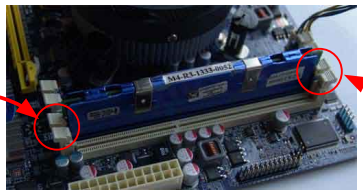
Before installing a memory module, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the memory module. Be sure to install DDR3 DIMMs on this motherboard.



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.

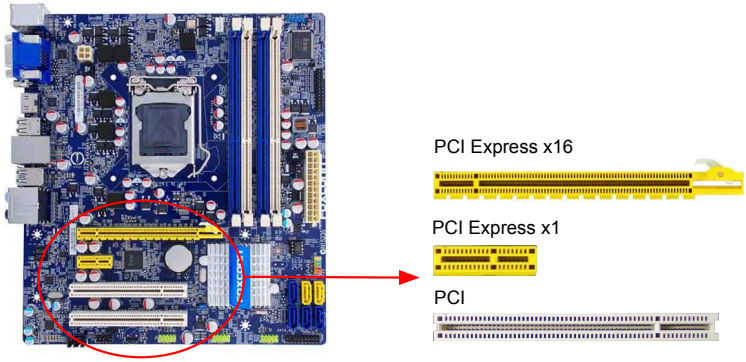


Step 2:
The clips at both ends of the socket will snap into place when the memory module is securely inserted.

2-3 Install an Expansion Card

CAUTION

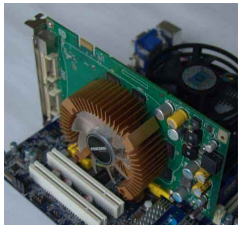
- Make sure the motherboard supports the expansion card. Carefully read the manual that came with your expansion card.
- Always turn off the computer and unplug the power cord from the power outlet before installing an expansion card to prevent hardware damage.



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 locked by the latch at the end of the PCI Express x16 slot.

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

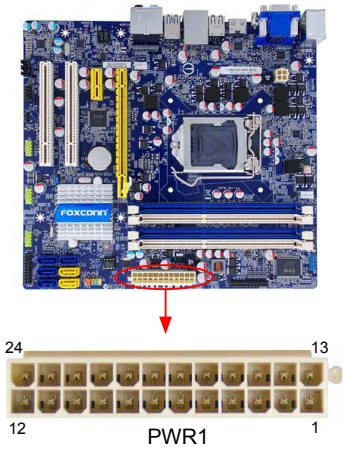
2-4 Install other Internal Connectors

Power Connectors

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

24-pin ATX Power Connector : PWR1

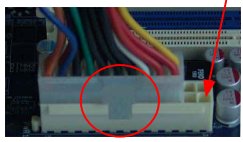
PWR1 is the ATX power supply connector. Make sure that the power supply cable and pins are properly aligned with the connector on the motherboard. Firmly plug the power supply cable into the connector and make sure it is secure.



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

CAUTION

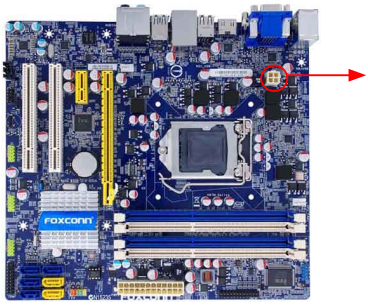
We recommend you using a 24-pin power supply. If you are using a 20-pin power supply, you need to align the ATX power connector according to the picture.

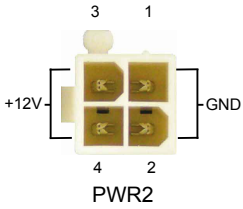


20-Pin Power

4-pin ATX 12 V Power Connector : PWR2

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

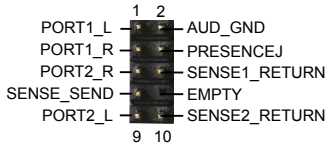




Pin #	Definition
1	GND
2	GND
3	+12V
4	+12V

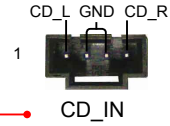
Audio Connector : F_AUDIO

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



CD_IN Connector :

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

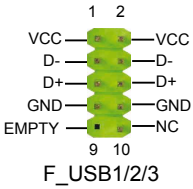


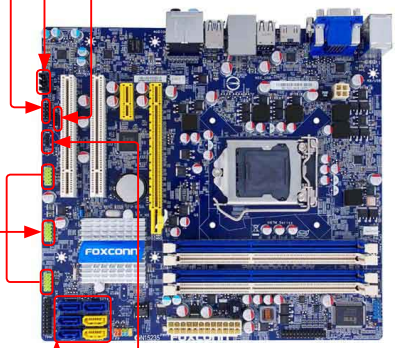
S/PDIF OUT Connector : SPDIF_OUT

The connector is used for S/PDIF output.

USB Connectors : F_USB1/2/3

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



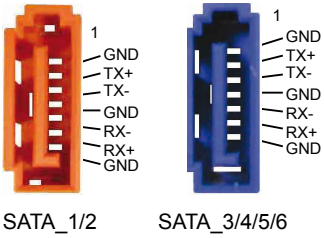


Speaker Connector : SPEAKER

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

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 SATA_3/4/5/6 allows up to 300MB/s data transfer rate, the SATA_1/2 support SATA 3.0 specification, and allows up to 600MB/s data transfer rate.



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)

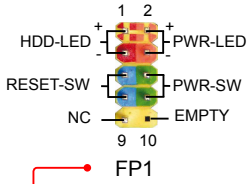
Attach the connector to the Reset switch on the front panel of the case; the system will restart when the switch is pressed.

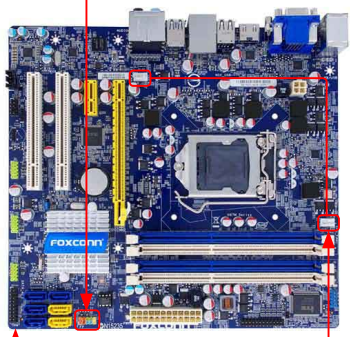
Power LED Connector (PWR-LED)

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)

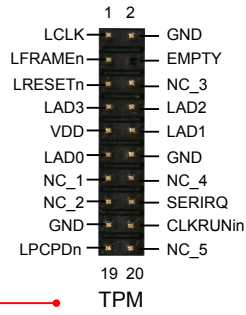
Connect to the power button on the front panel of the chassis. Push this switch allows the system to be turned on and off rather than using the power supply button.





TPM Connector : TPM

The TPM (Trusted Platform Module) provides the ability to the PC to run applications more secure and to make transactions and communication more trustworthy. To utilize this function, you should purchase additional device and install it.

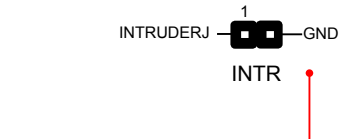


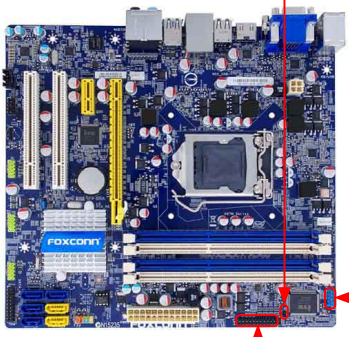
Fan Connectors : CPU_FAN, SYS_FAN1

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

Chassis Intruder Alarm Connector : INTR

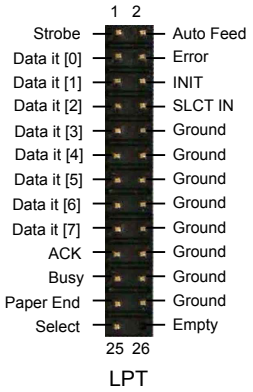
The connector can be connected to a security switch on the chassis. The system can detect the chassis intrusion through the function of this connector. If eventually the chassis is closed, the system will send a message out.





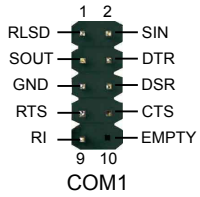
LPT Connector (optional) : LPT

The connector supports parallel port which can be connected to a printer or a scanner. System usually assign IRQ7 as it's default interrupt request and the parallel port has three operation mode: [SPP], [EPP], [ECP].



COM Connector : COM1

This motherboard supports one serial RS232 COM port for legacy compatibility. User must purchase another RS232 cable with a 9-pin D-sub connector at one end to connect with the external RS232 device and another end with 10-pin female connector to connect with COM1 connector in the motherboard.



2-5 Jumpers

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

Description of Jumpers

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

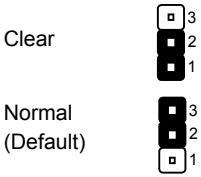
Jumper	Diagram	Definition	Description
1	1	1-2	Set Pin 1 and Pin 2 closed
	1	2-3	Set Pin 2 and Pin 3 closed

Clear CMOS Jumper: CLR_CMOS

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

The steps to clear CMOS data are :

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



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

3

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

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

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

This chapter includes the following information :

- Enter BIOS Setup
- Main
- Advanced
- Chipset
- Boot
- Power
- Health
- Security
- Health
- Save & Exit

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

Enter BIOS Setup

The BIOS is the communication bridge between hardware and software, correctly setting up the BIOS parameters is critical to maintain optimal system performance. Power on the computer, when the message "**Press <DEL> to enter Setup, <F7> to Boot Menu**" 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.

Use the arrow right/left keys to select a specific function and go to the submenu. Each function is explained below:

Main

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

Advanced

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

Chipset

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

Boot

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

Power

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

Health

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

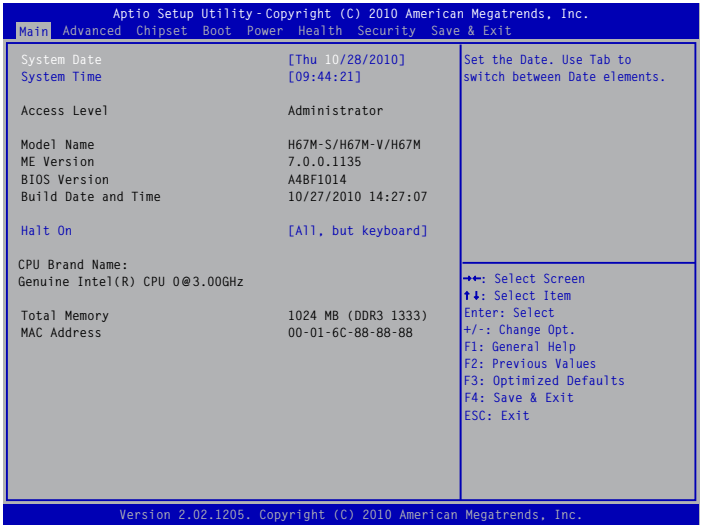
Security

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

Save&Exit

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. You also can save or discard the changes and exit BIOS setup here.

Main



► **System Date**
<weekday><month><date> <year> format.
Day—weekday from Sun. to Sat., this message is automatically displayed by BIOS (Read Only).
Month—month from 1 to 12.
Date—date from 1 to 31.
Year—year, set up by users.
Use [ENTER], [TAB] or [SHIFT-TAB] to select a field. Use [+] or [-] to input the value.

► **System Time**
This item allows you to configure the desired time. Use [ENTER], [TAB] or [SHIFT-TAB] to select a field. Use [+] or [-] to input the value.
The three fields of the setting are <hour> : <minute> : <second> respectively.

► **Access Level**
It displays your current access level. If you enter system with a user password, it will dispaly “User”. If no password is set or you enter system with administrator password, this item will dispaly “Administrator”.

► **Model Name**
This item shows the model name of this product.

► **ME Version**
It displays the current ME version.

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

► **Build Date and Time**
This item shows the BIOS building date and time.

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

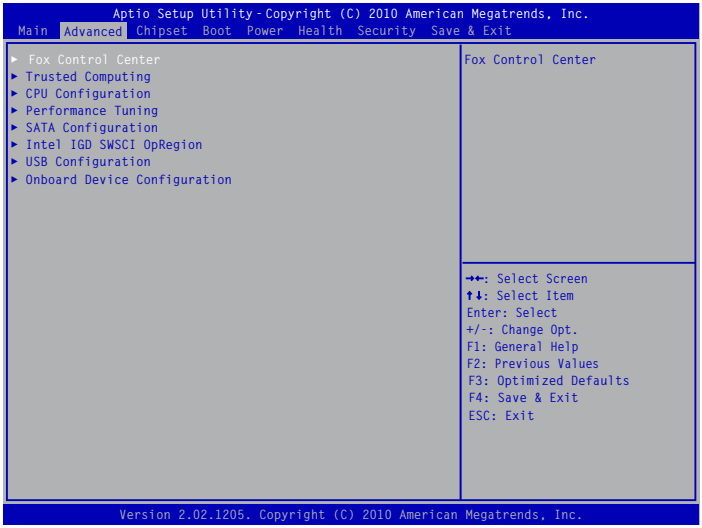
[All Errors]: All errors can result in system halt.
[No Errors]: No error can result in system halt.
[All, but keyboard]: All errors but keyboard can result in system halt.

► **CPU Brand Name**
It displays the current CPU name.

► **Total Memory**
This item displays the total memory size. The size is depending on how many memory modules are installed in your system before powering on.

► **MAC Address**
This item displays the onboard LAN MAC address.

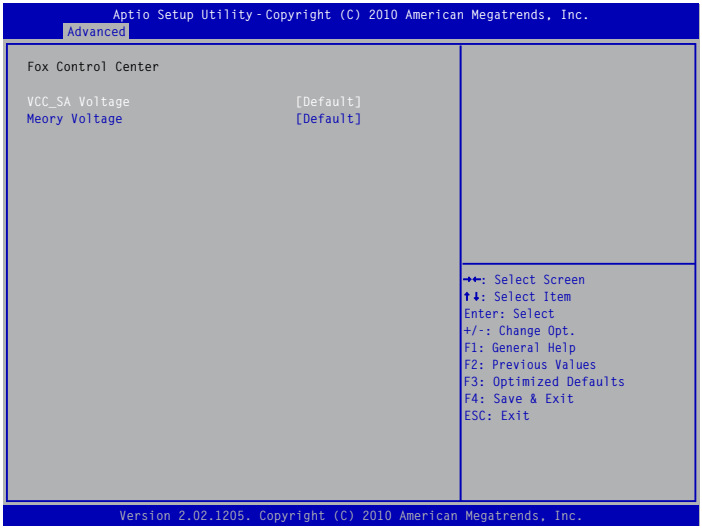
Advanced



► **Fox Control Center/Trusted Computing/CPU Configuration/Performance Tuning/SATA Configuration/Intel IGD SWSCI OpRegion /Intel TXT(LT) Configuration/USB Configuration/Onboard Device Configuration**

Press <Enter> to go to relative submenu.

Fox Control Center



► **VCC_SA Voltage**

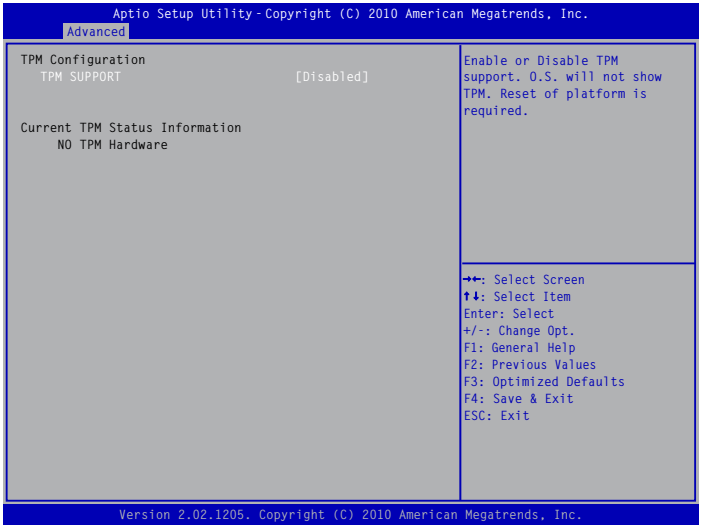
This item is used to change the VCC_SA voltage in a step of 12.5mV. The voltage can be

incremented from +12.5mV to +500.0mV.

► **Memory Voltage**

This item is used to change the memeory voltage in a step of 12.5mV. The voltage can be incremented from +12.5mV to +500.0mV.

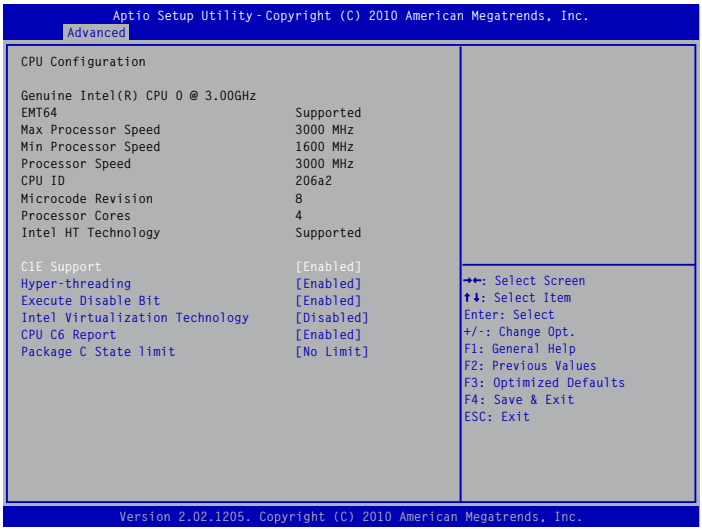
Trusted Computing



► **TPM SUPPORT**

This item is used to decide whether to support TPM (Trusted Platform Module) device function. Default option is [Disabled]. If you want to support TPM, first you need to install a TPM device on the motherboard and set this item to [Enabled], then save changing and reset your computer, otherwise the operation system can not show the relative information.

CPU Configuration



► **C1E Support(Appears only when CPU supports)**
C1E represents Enhanced HALT State. It is a feature which CPU uses to reduce power consumption when in halt state. C1E drops the CPU's multiplier and voltage to lower levels when a HLT (halt) command is issued. This item is used to enable/disable the C1E support.

► **Hyper-Threading**
This item is used to enable/disable the Hyper-Threading Technology feature.

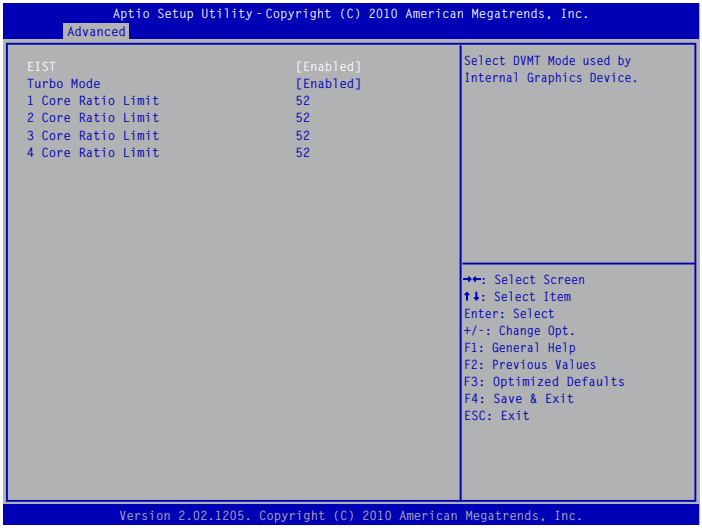
► **Execute Disable Bit**
This item is used to enable/disable the Execute Disable Bit feature.
Intel's Execute Disable Bit functionality can help prevent certain classes of malicious buffer overflow attacks when combined with a supporting operating system.
Execute Disable Bit allows the processor to classify areas in memory by where application code can execute and where it cannot. When a malicious worm attempts to insert code in the buffer, the processor disables code execution, preventing damage and worm propagation. Replacing older computers with Execute Disable Bit-enabled systems can halt worm attacks, reducing the need for virus-related repairs. By combining Execute Disable Bit with anti-virus, firewall, spyware removal, e-mail filtering software, and other network security measures, IT managers can free IT resources for other initiatives.

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

► **CPU C6 Report**
This item is used to enable or disable CPU C6 (ACPI C3) report to OS.

► **Package C State limit**
It is used to select the C-State mode.

Performance Tuning
CPU Performance Tuning



► **EIST**

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

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.

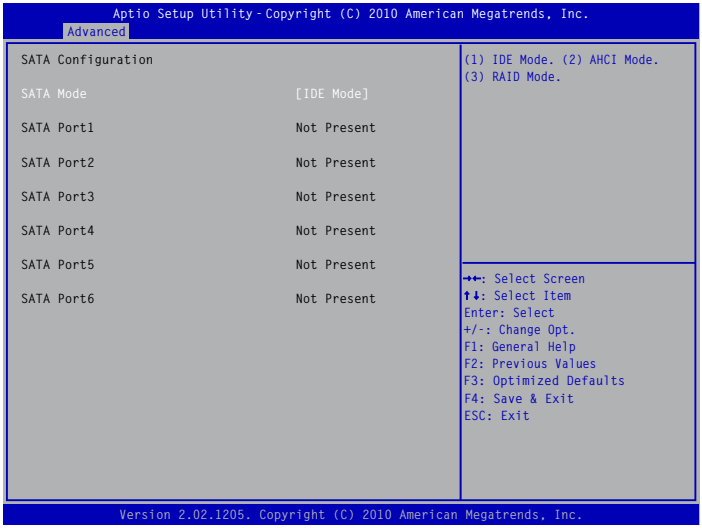
► **Turbo Mode**

Turbo mode allows processor cores to run faster than its marked frequency in specific condition. It appears only when the “EIST” is enabled.

► **1-Core/2-Core/3-Core/4-Core Ratio Limit**

When the “Turbo Mode” is enabled, this limit is for 1/2/3/4 core active. 0 means using the factory configured value.

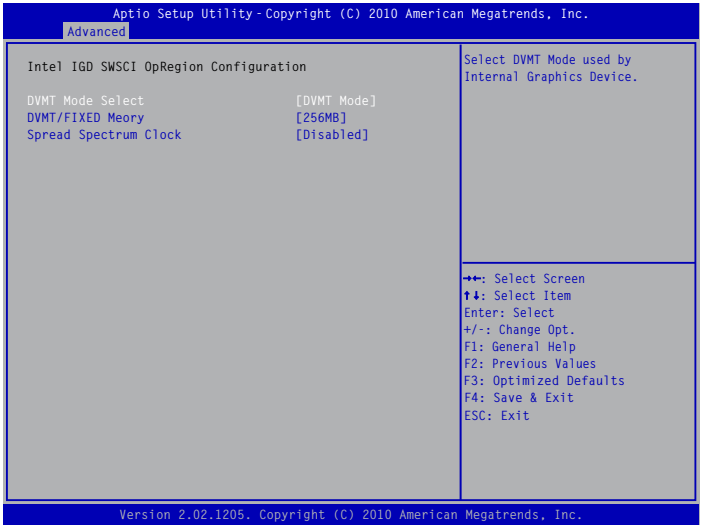
SATA Configuration



► **SATA Mode**

This item is used to set the operating mode of your SATA ports. Setting options: [Disabled]; [IDE Mode]; [AHCI Mode]; [RAID Mode].

Intel IGD SWSCI OpRegion



► **DVMT Mode Select**

This item is used to select DVMT Mode used by Internal Graphics Device.

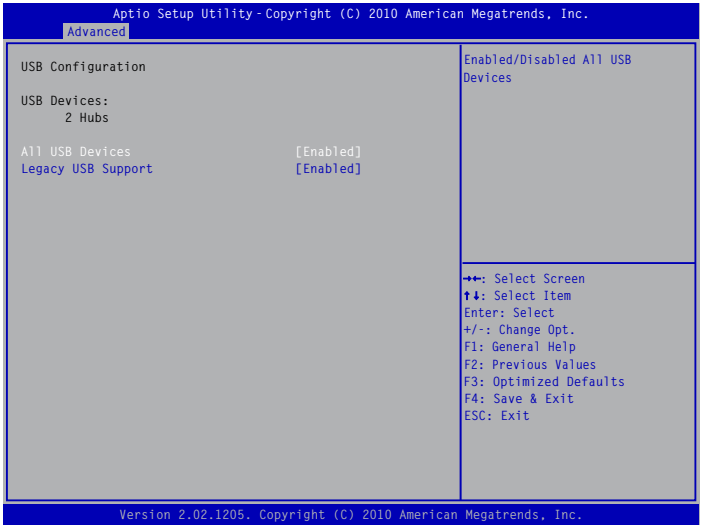
► **DVMT/FIXED Meory**

This item is used to select DVMT/FIXED Meory size used by Internal Graphics Device.

► **Spread Spectrum Clock**

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

USB Configuration



► **All USB Devices**

This item is used to enable or disable the support for USB devices.

► **Legacy USB Support**

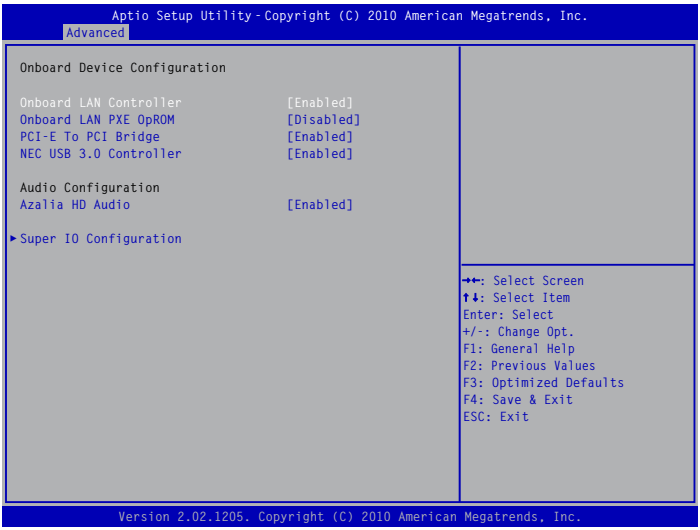
This item is used to enable the support for USB devices on legacy OS. If you have a USB keyboard or mouse, set to enabled.

[Enabled]: This option will enable the legacy USB support.

[Disabled]: This option will keep USB devices available only for EFI applications.

[Auto]: This option will disable the legacy support if no USB devices are connected.

Onboard Device Configuration



► **Onboard LAN Controller**
This item is used to enable or disable the onboard LAN controller.

► **Onboard LAN PXE OpROM**
This item is used to enable or disable onboard LAN boot option ROM.

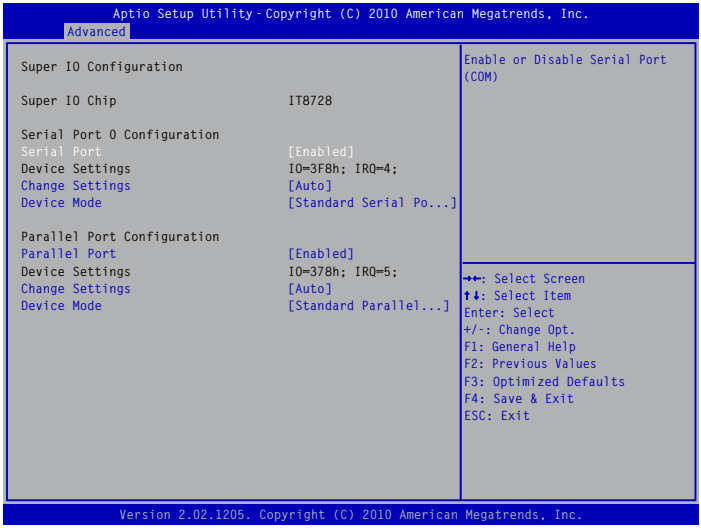
► **PCI-E To PCI Bridge**
This item is used to enable or disable the PCI-E To PCI Bridge.

► **NEC USB 3.0 Controller (only for H67M-S)**
This item is used to enable or disable the USB 3.0 controller.

► **Azalia HD Audio**
This item is enable oe disable the Azalia HD audio.

► **Super IO Configuration**
Press <Enter> to go to its submenu.

Super IO Configuration



► **Serial Port**
This item is used to enable or disable the serial port (COM).

► **Device Settings**
This item shows the resource assigned to the serial port.

► **Change Settings**
This item is used to select an optimal settings for the serial port.

► **Device Mode**
This item is used to change the serial port mode.

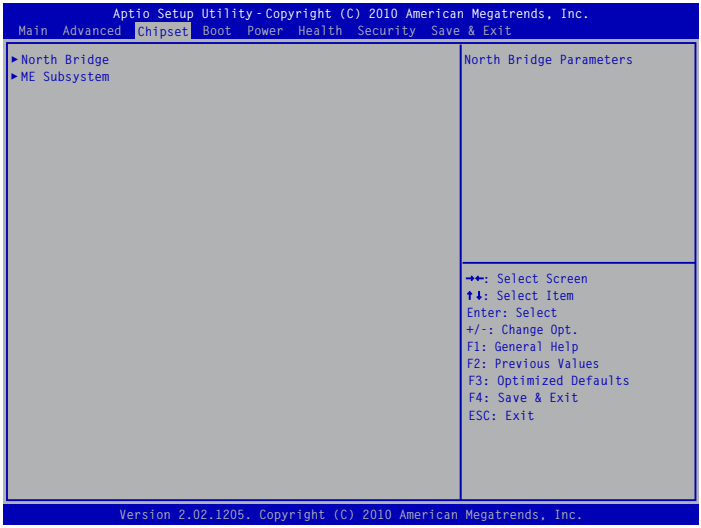
► **Parallel Port**
This item is used to enable or disable the parallel port.

► **Device Settings**
This item shows the resource assigned to the parallel port.

► **Change Settings**
This item is used to select an optimal settings for the parallel port.

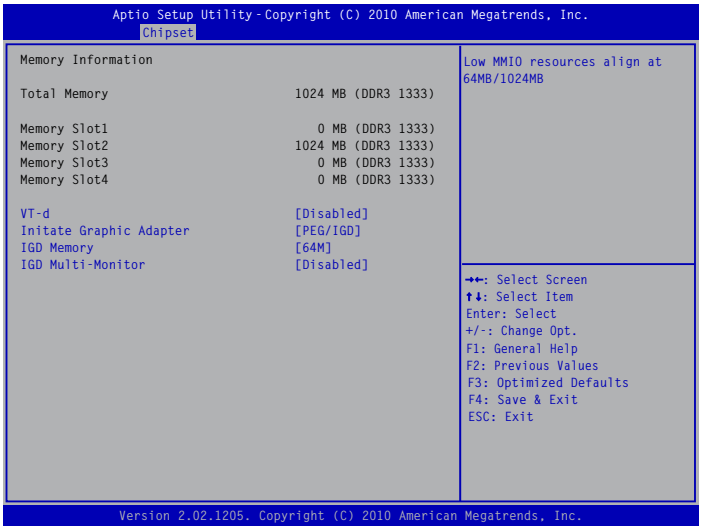
► **Device Mode**
This item is used to change the parallel port mode.

Chipset



► **North Bridge/ME Subsystem**
Press <Enter> to go to its submenu.

North Bridge



► **Total Memory**
This item displays the current using memory information.

► **Memory Slot 1/2/3/4**
These items display the memory size installed on each slot.

► **VT-d**

This item is used to enable or disable the VT-d feature. Intel® Virtualization Technology for Directed I/O (VT-d) can help end users improve security and reliability of the systems and also improve performance of I/O devices in virtualized environment.

► **Initial Graphic Adapter**

This item is used to select which graphics controller is used as the primary boot device.

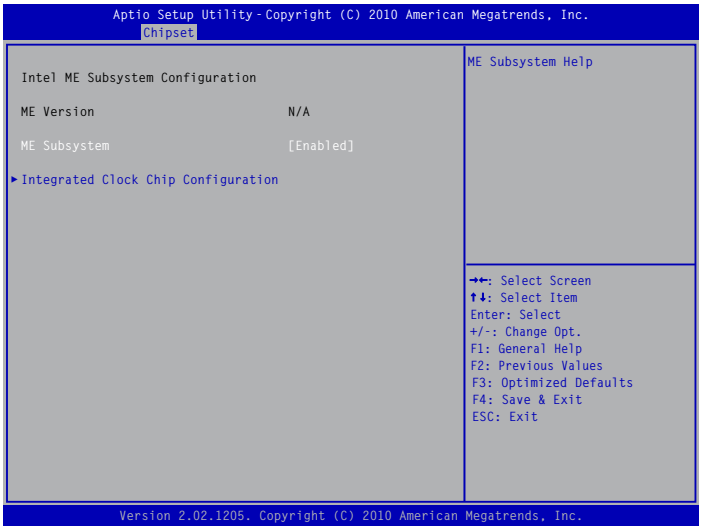
► **IGD Memory**

This item is used to select the IGD(Integrated Graphics Device) share memory size. Default value is [64MB].

► **IGD Multi-Monitor**

This item is used to enable or disable the IGD Multi-Monitor by internal graphics device.

ME Subsystem



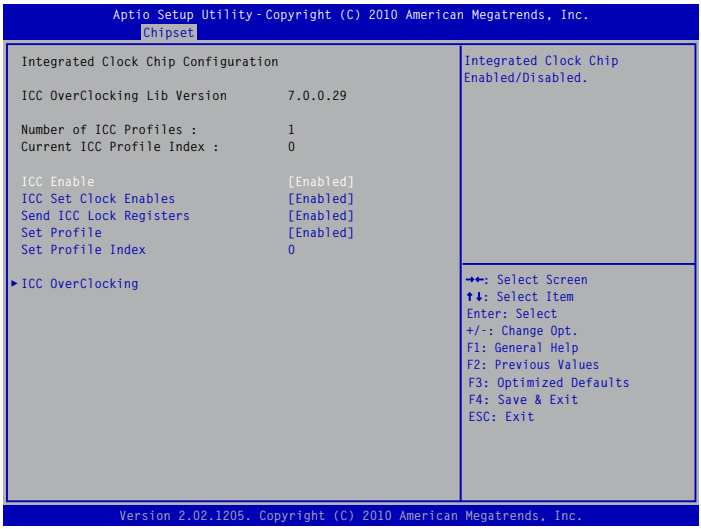
► **ME Subsystem**

This item is used to enable or disable the ME subsystem.

► **Integrated Clock Chip Configuration**

Press <Enter> to go to its submenu.

Intergrated Clock Chip Configuration



► **ICC Enable**
This item is used to enable or disable the Integrated Clock Chip(ICC).

► **ICC Set Clock Enables**
This item is used to enable or disable the ICC clock.

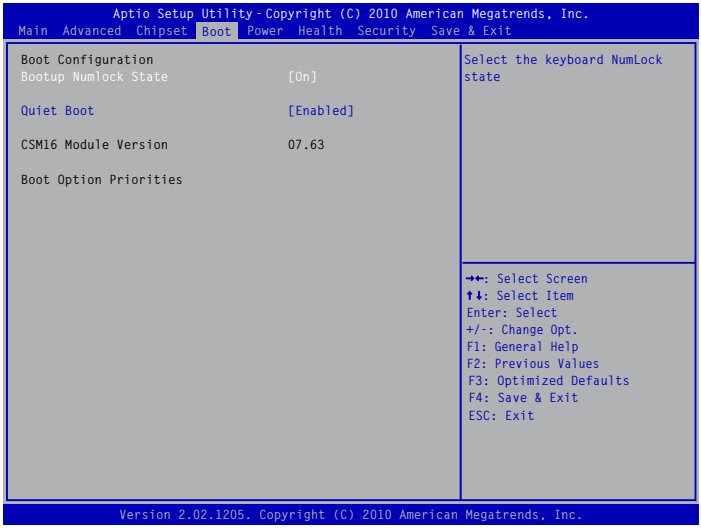
► **Set ICC Lock Registers**
This item is used to enable or disable send ICC lock registers.

► **Set Profile**
This item is used to enable or disable the ICC profile support.

► **Set Profile Index**
This item appears only when the Set Profile is enabled, it is used to set ICC profile index.

► **ICC OverClocking**
This submenu is used to display or set ICC clock spread spectrum if the function is supported.

Boot



► **Bootup Numlock State**

This item is used to select the keyboard numlock state. The defaulte setting is [On].

► **Quiet Boot**

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

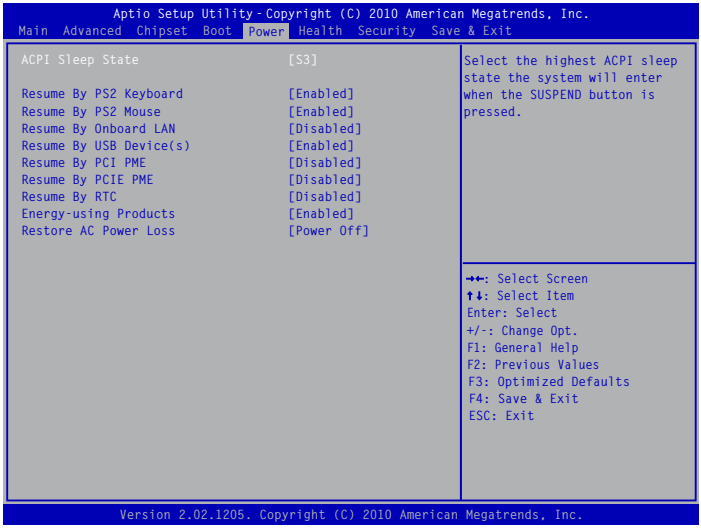
[Disabled] : Displays the normal POST messages.

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

► **Boot Option Priorities**

BIOS auto detect the presence of boot devices, you can configure the priority for boot devices.

Power



► **ACPI Sleep State**
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.

► **Resume by PS2 Keyboard**
This item is used to enable/disable the PS2 keyboard to generate a wake up.

► **Resume by PS2 Mouse**
This item is used to enable/disable the PS2 mouse to generate a wake up.

► **Resume by Onboard LAN**
This item is used to enable/disable the onboard LAN to generate a wake up.

► **Resume by USB Device(s)**
This item is used to wake up the system by a USB device when it is staying at S3 state.

► **Resume by PCI PME**
This item is used to enable/disable the PCI device to generate a wake up.

► **Resume by PCIE PME**
This item is used to enable/disable the PCI Express device to generate a wake up.

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

► **RTC Alarm Date(Days)**
When Resume by RTC is enabled, select a specific date to generate a wake up.

► **RTC Alarm Time(HH:MM:SS)**
When Resume by RTC is enabled, select a specific time to generate a wake up.

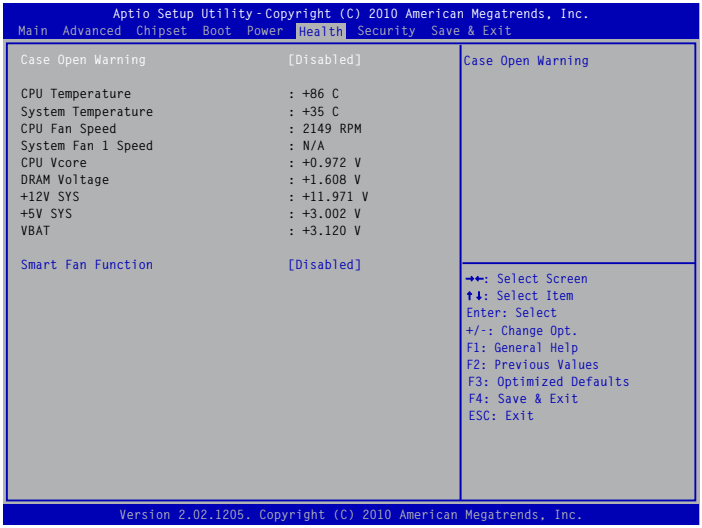
► **Energy-using Products**
This item is used to enable/disable the EuP(Energy-using Products) feature. When enable, the suspend power of the chipset will be cut off in S5 suspend mode in order to reduce the power

consumption of motherboard.
Enabled: S1/S3/S4 is normal, S5 wake up only by pressing the power button.
Disabled: Normal ACPI function.

► **Restore AC Power Loss**

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

Health



► **Case Open Warning**
This item is used to enable or disable case open warning function.

► **CPU Temperature**
These items show the current CPU temperature detected automatically by the system.

► **System Temperature**
These items show the current System temperature detected automatically by the system.

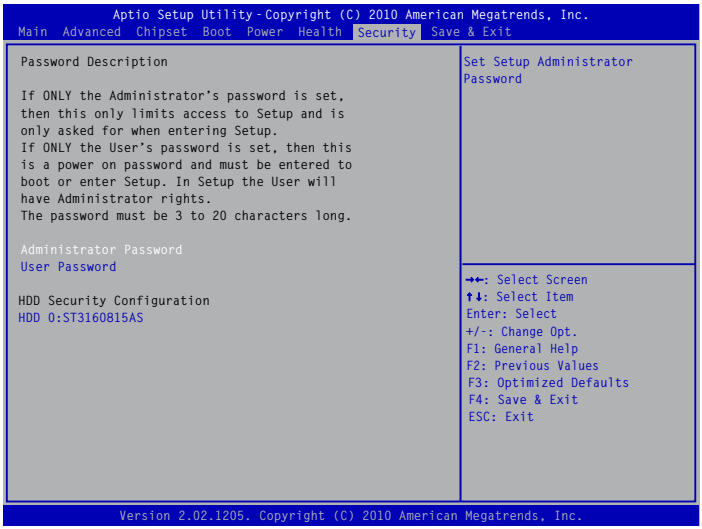
► **CPU Fan Speed**
This item shows the current CPU Fan speed detected automatically by the system.

► **System Fan 1 Speed**
This item shows the current North Bridge Fan speed detected automatically by the system.

► **CPU Vcore/DRAM Voltage/+12V SYS/+5V SYS/VBAT**
These items show the Current CPU Ccore/DRAM/+12V SYS/+5V SYS/VBAt voltage detected automatically by the system.

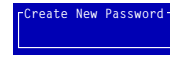
► **Smart Fan Function**
This option is used to enable or disable smart fan function. Default value is [Disabled]. Only when this option is enabled, you can set some correlative parameters. "Smart Fan Automatic Mode" is the principle figure of CPU smart fan function for your reference.

Security



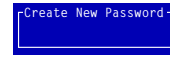
► **Administrator Password**

This item is used to install or change administrator password. After you input administrator password, it then will ask you to confirm the password.



► **User Password**

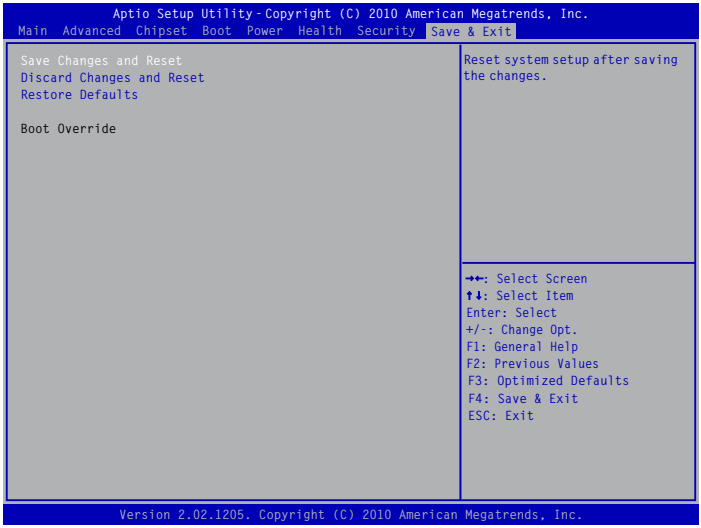
This item is used to install or change user password.



► **HDD Security Configuration**

"HDD Security Configuration" appears only when you connect HDD to your system. Press "Enter" key on the item "HDD 0:ST3160815AS" to enter into the "HDD Password Configuration" interface, then press "Enter" on "Set HDD Password" to set, modify and clear HardDisk password. HDD Password need to be installed for enabling Security.

Save & Exit



► **Save Changes and Reset**

If you select this option and press <Enter>, a message will be displayed in the screen. Select [Yes] to save your changes and reset computer, select [No] or <ESC> to return to the main menu.

► **Discard Changes and Reset**

If you select this option and press <Enter>, a message will be displayed in the screen. Select [Yes] to exit setup utility and reset computer without saving your modifications, select [No] or <ESC> to return to the main menu.

► **Restore Defaults**

Optimal defaults are the best settings of this motherboard.

Always load the Optimal defaults after updating the BIOS or after clearing the CMOS values. Select this option and press Enter, it will pop out a dialogue box to let you load the defaults. Select <Yes> and then press <Enter> to load the defaults. Select <No> and press <Enter>, it will not load.

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

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

This chapter includes the following information:

- Utility CD content
- Install driver and utility
- FOX ONE
- FOX LiveUpdate
- FOX LOGO
- FOX DMI

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

Utility CD content

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

1. Install Driver

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

Options for Windows XP

A. Intel Chipset Driver
B. Intel VGA Driver
C. Realtek HDA Audio Driver
D. Intel LAN Driver
E. Intel RAID Driver
F. Intel Management Engine Driver
G. USB 3.0 Driver

Options for Windows Vista/7

A. Intel Chipset Driver
B. Intel VGA Driver
C. Realtek HDA Audio Driver
D. Intel LAN Driver
E. Intel Management Engine Driver
F. USB 3.0 Driver

2. Software Utilities

Use these options to install additional software programs. FOX ONE is a very powerful user interface program which allows you to change your system setting without going to BIOS. Some auto features help user to improve (or overclock) your system without being a computer literate.

Options for Windows XP

A. FOX ONE
B. FOX LiveUpdate
C. FOX LOGO
D. FOX DMI
E. Microsoft DirectX 9.0
F. Adobe Acrobat Reader
G. Norton Internet Security
H. Browser Configuration Utility

Options for Windows Vista/7

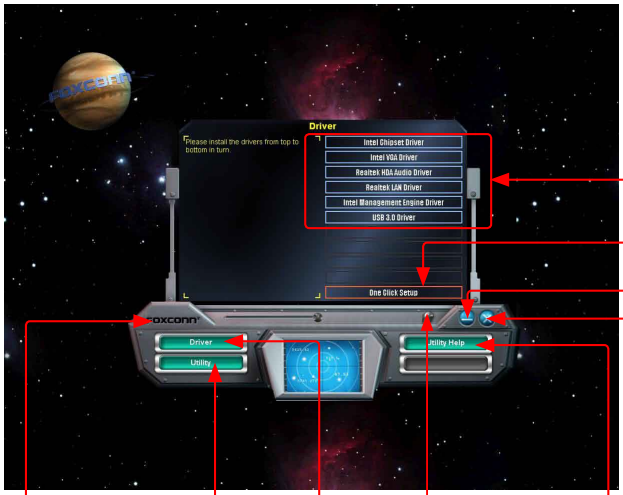
A. FOX ONE
B. FOX LiveUpdate
C. FOX LOGO
D. FOX DMI
E. Adobe Acrobat Reader
F. Norton Internet Security
G. SartView [For IE8]

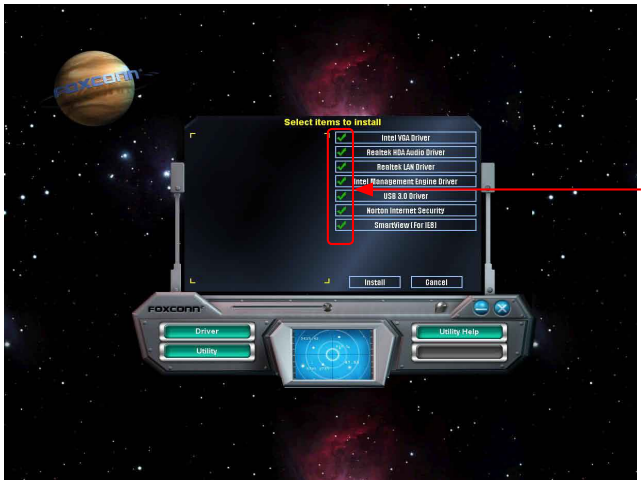
Install driver and utility

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

1. Driver

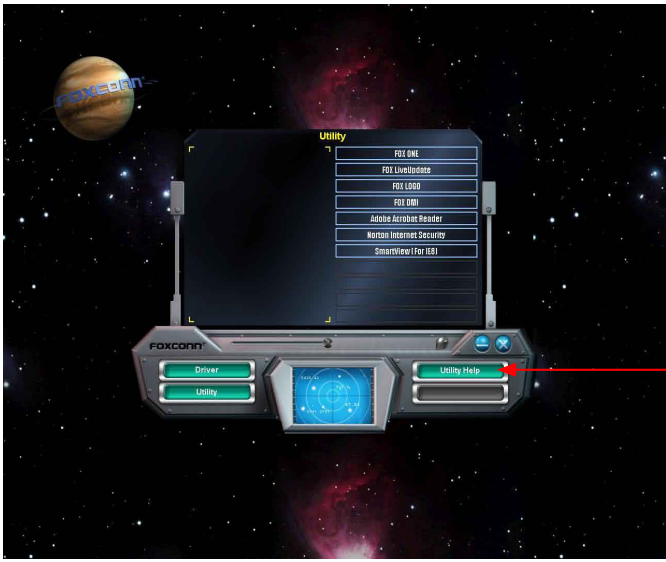
Use these options to install all the drivers for your system. You must click "Intel Chipset Driver" to install it first. After that, you can click ”One Click Setup” and then choose the items you want to install, or you can click on each individual driver to install it manually.





2. Utility

Use these options to install additional software programs. And click “Utility Help” button to view the utility (FOX ONE, FOX LiveUpdate, FOX LOGO, FOX DMI) help manual.



FOX ONE

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

With FOX ONE, you can :

- Modify system performance settings, such as the CPU and memory bus speeds, CPU voltages, fan speeds, and other system performance options.
- Monitor hardware temperatures, voltages, frequencies and fan speeds.

Supporting Operating Systems :

CAUTION

Depending on hardware support, voltage monitoring and Fox Intelligent Stepping features are optional and only supported in some models. If the option is selectable, it also means the feature is supported.

- Voltage Monitoring is supported only in FOX ONE Premium & Deluxe products.
- Fox Intelligent Stepping is supported only in FOX ONE Deluxe products.

- Windows 2000
- Windows 2003 (32-bit and 64-bit)
- Windows 7 (32-bit and 64-bit)
- Windows XP (32-bit and 64-bit)
- Windows Vista (32-bit and 64-bit)

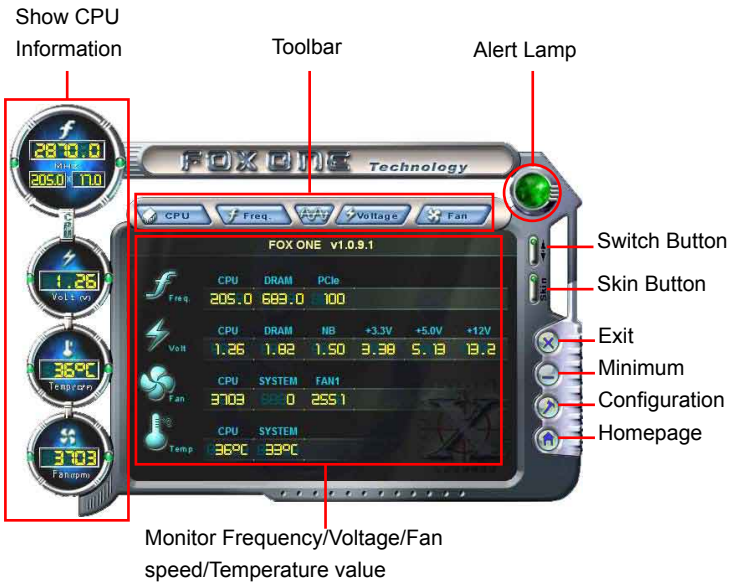
Using FOX ONE :

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

CAUTION

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

1. Main Page



Toolbar

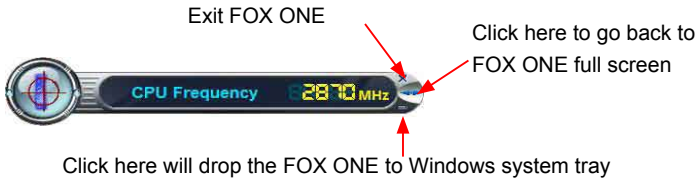
Use the toolbar to navigate to other pages.

Alert Lamp

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

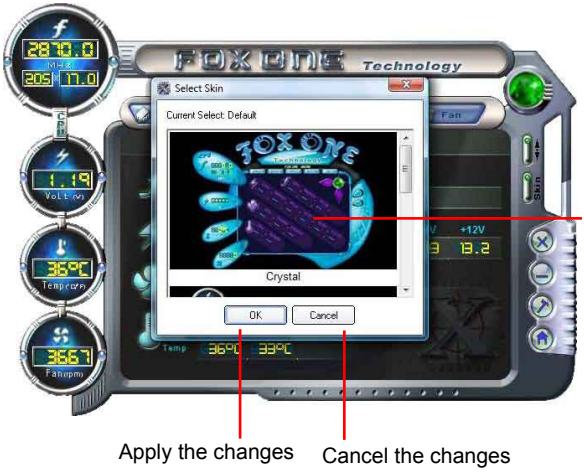
Switch Button

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



Skin Button

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

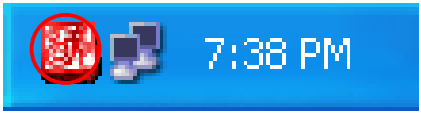


Exit

Click this button to exit the program.

Minimum

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



Homepage

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

Configuration

This menu allows you to configure :

1). Monitor interval (ms) :

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

2). Simple Mode :

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

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

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

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

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

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

2. CPU Page - CPU Control

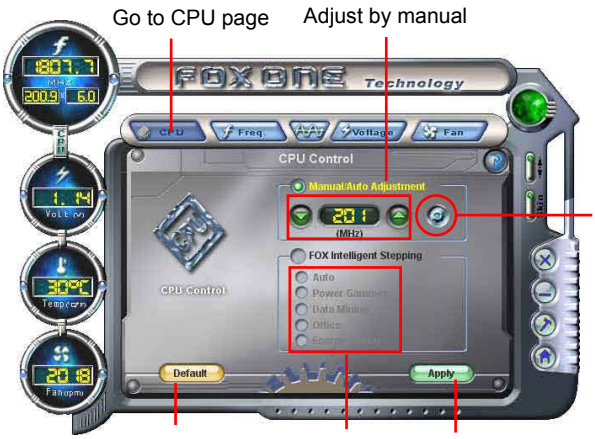
This page lets you select (or overclock) CPU clock to meet the current performance level of the system. The fastest and suitable CPU clock running for current system can be calculated by FOX ONE automatically or manually input by yourselves.

Manual :

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

Auto :

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



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

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

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

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

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

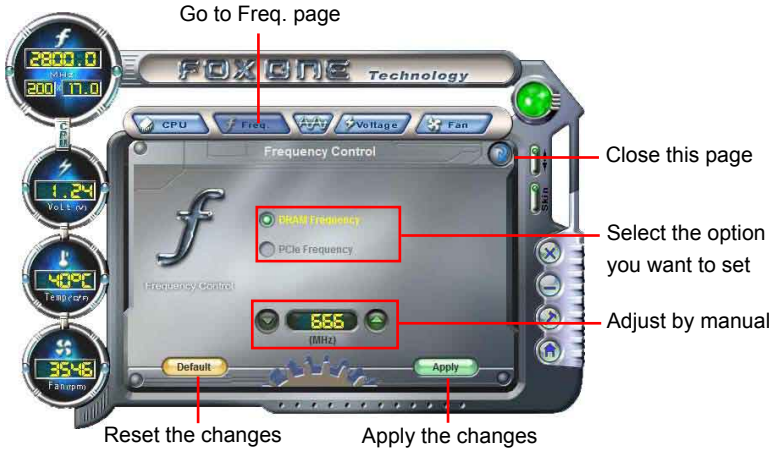
FOX Intelligent Stepping (F.I.S., Optional)

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

3. Frequency Page - Frequency Control

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

4. Limit Setting

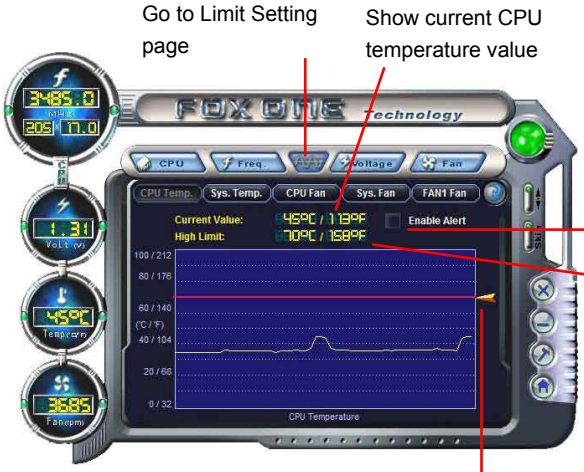


4.1 Limit Setting - CPU Temperature

This page lets you to set CPU high limit temperature and enable the alert function.

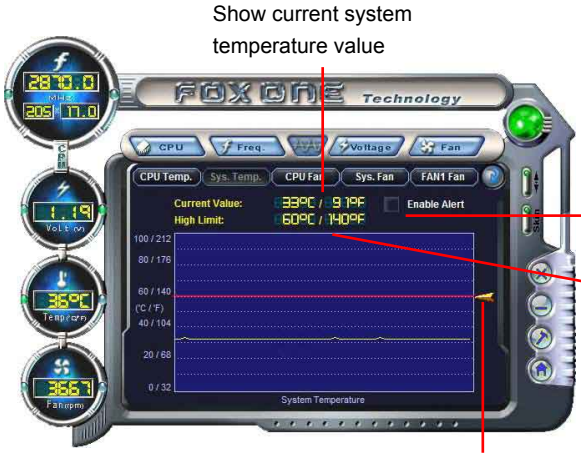
4.2 Limit Setting - System Temperature

This page lets you to set system high limit temperature and enable the alert function.



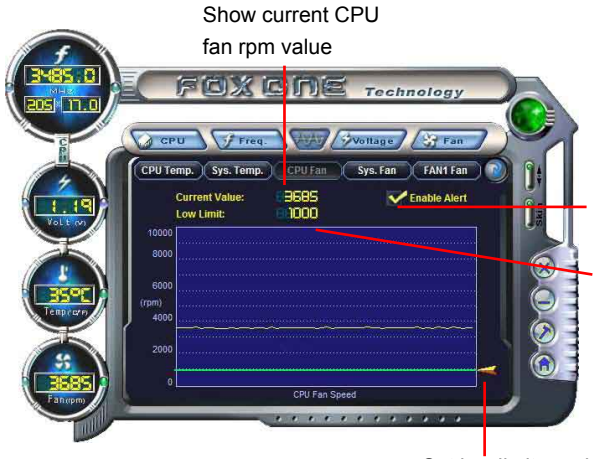
4.3 Limit Setting - CPU Fan

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



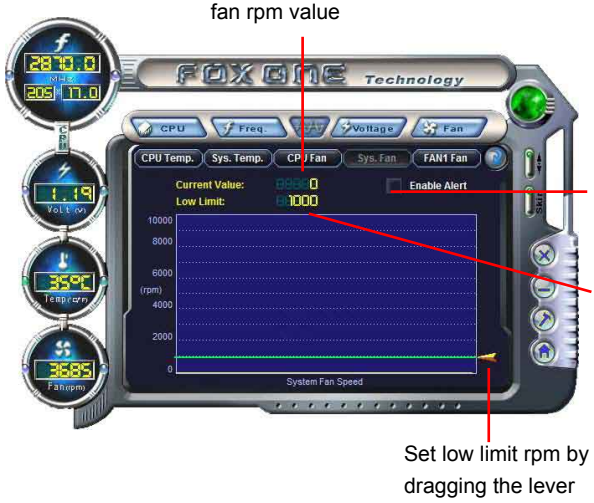
4.4 Limit Setting - System Fan

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



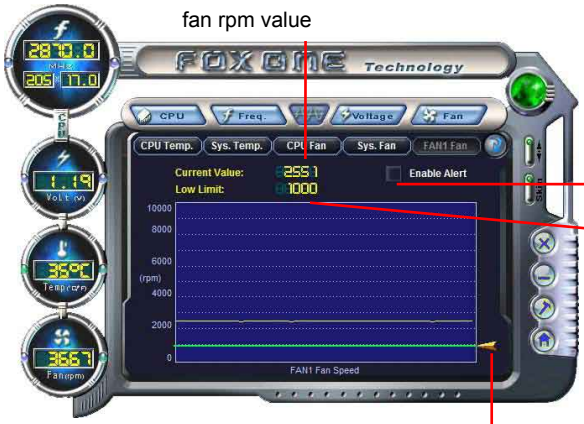
4.5 Limit Setting - FAN1 Fan

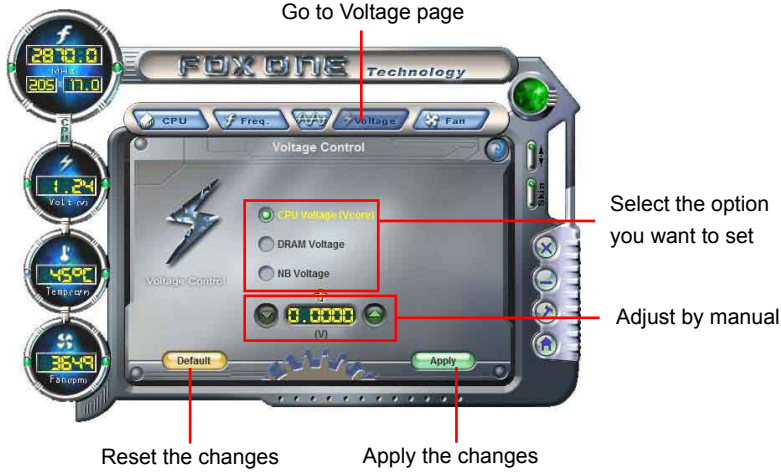
This page lets you to set FAN1 fan low limit rpm and enable the alert function.



5. Voltage Page - Voltage Control (Optional)

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





6. Fan Page - Fan Control

This page lets you enable Smart Fan function or set the fan speed by manual.
When Smart Fan is selected, you must use a 4-pin CPU cooler in your system.

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 :

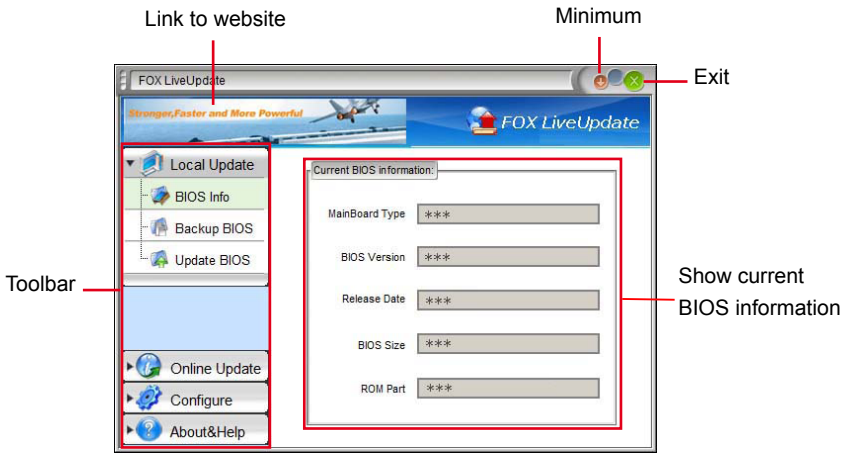
- Windows 2000
- Windows XP (32-bit and 64-bit)
- Windows 2003 (32-bit and 64-bit)
- Windows Vista (32-bit and 64-bit)
- Windows 7 (32-bit and 64-bit)

Using FOX LiveUpdate :

1. Local Update

1-1 Local Update - BIOS Information

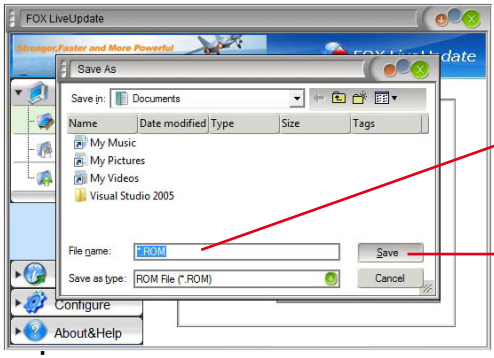
This page lets you know your system BIOS information.



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

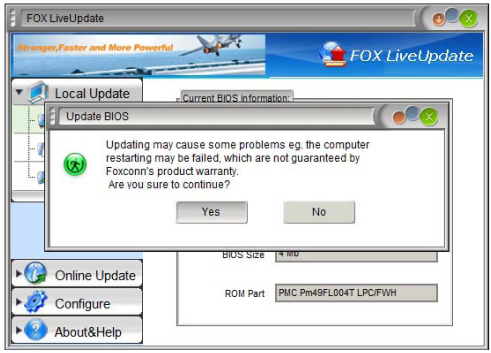
1-2 Local Update - Backup

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

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.



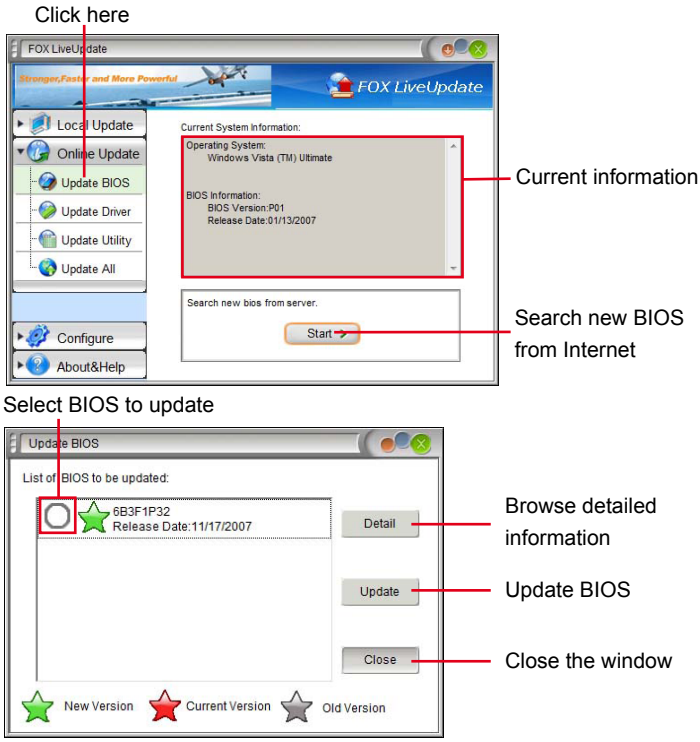
CAUTION

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

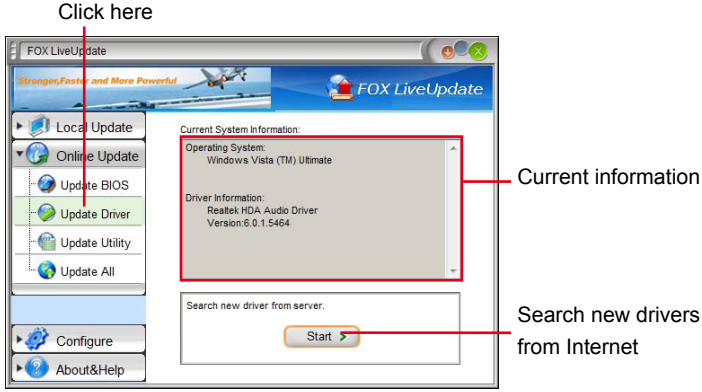
2-1 Online Update - Update BIOS

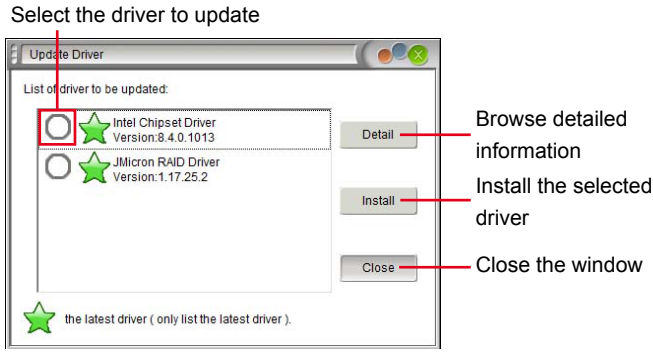
This page lets you update your system BIOS from Internet. Click “start”, it will search the new BIOS from Internet. Then follow the wizard to finish the update operation.



2-2 Online Update - Update Driver

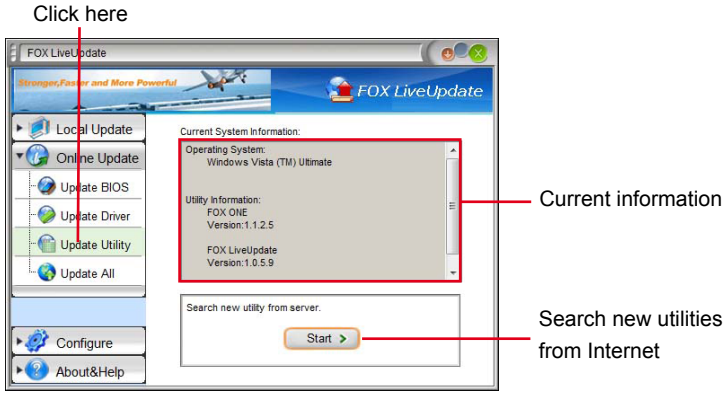
This page lets you update your system drivers from Internet. Click “start”, it will search the new drivers from Internet. Then follow the wizard to finish the update operation.

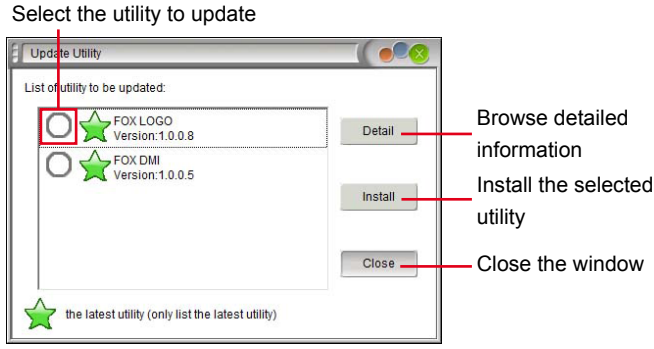




2-3 Online Update - Update Utility

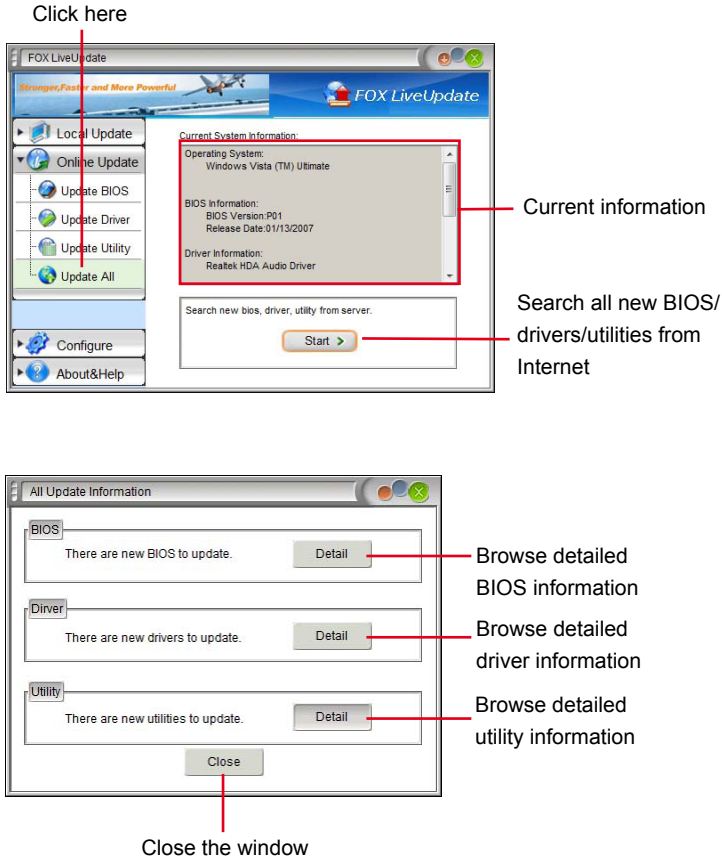
This page lets you update utilities from Internet. Click “start”, it will search the new utilities from Internet. Then follow the wizard to finish the update operation.





2-4 Online Update - Update All

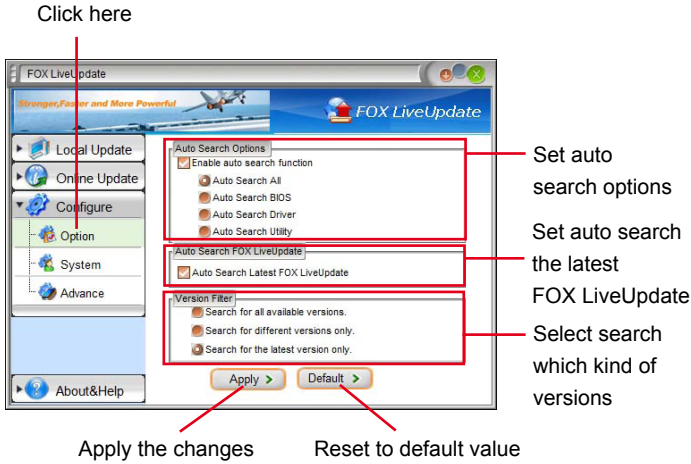
This page lets you update your system drivers from Internet. Click “start”, it will search all new BIOS/drivers/utilities from Internet. Then follow the wizard to finish the update operation.



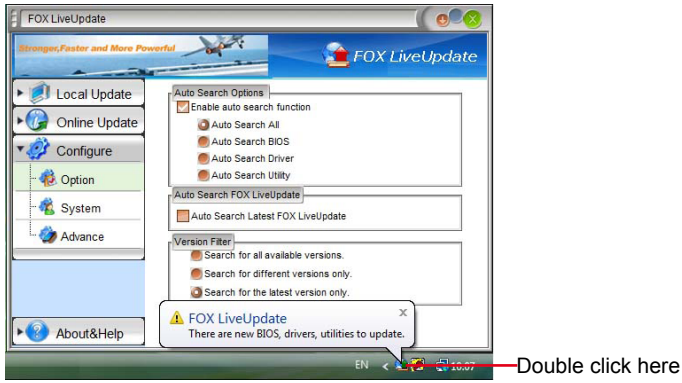
3. Configure

3-1 Configure - option

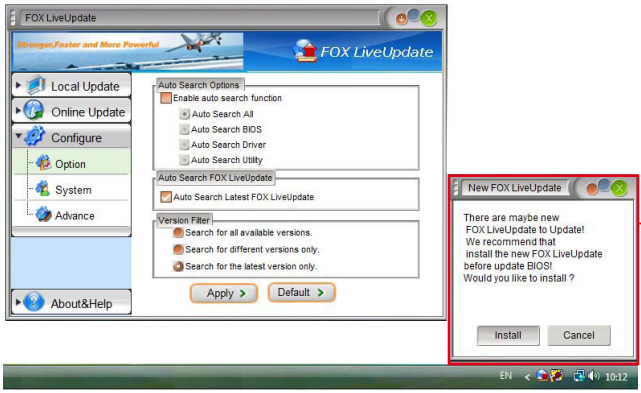
This page lets you set auto search options. After you enable the auto search function, FOX LiveUpdate will start its searching from Internet and if any qualified item found, it will pop out a message on the task bar to inform you to do the next step.



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.

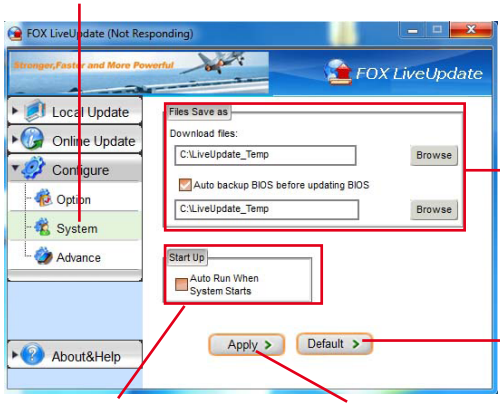


Prompt you to install the new FOX LiveUpdate

4

3-2 Configure - System

This page lets you set the backup BIOS location.



Set the location of download files or auto backup BIOS

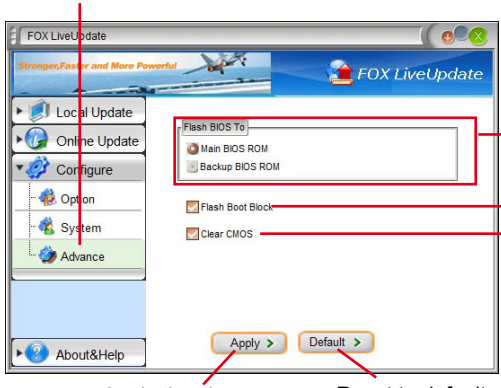
Reset to default value

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

Apply the changes

3-3 Configure - Advance

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

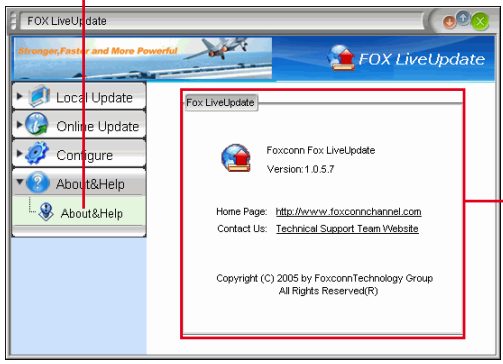


CAUTION

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

4. About & Help

This page shows some information about FOX LiveUpdate.



FOX LOGO

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

You can prepare a JPG image (1024x768) file, then use FOX LOGO to open it and change the boot time Logo. Boot time Logo will be displayed if you enable the BIOS "Quiet Boot" setting in "Boot" 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)
- Windows 7 (32-bit and 64-bit)

Using FOX LOGO:

Main Page

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

FOX DMI

FOX DMI is a full Desktop Management Interface viewer, and it provides three DMI data formats : Report, Data Fields and Memory Dump.
With DMI information, system maker can easily analyze and troubleshoot your motherboard if there is any problem occurred.

Supporting Operating Systems :

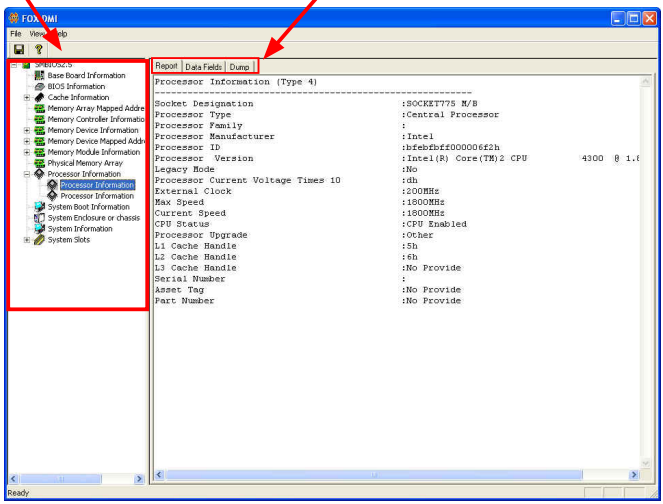
- Windows 2000
- Windows XP (32-bit and 64-bit)
- Windows 2003 (32-bit and 64-bit)
- Windows Vista (32-bit and 64-bit)
- Windows 7 (32-bit and 64-bit)

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 include 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

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.
6. Windows XP or Vista Install 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® PCH. 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 Manager 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 149.0GBs and two 74.5GBs. 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.

The topic will be introduced :

Installing a new Windows XP in a brand new RAID system.

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.

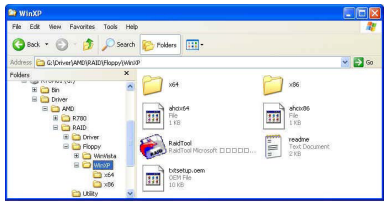
- Both AHCI and RAID modes need to install **Intel® Matrix Storage Manager driver.**
- Set SATA mode in BIOS to AHCI, you can skip RAID BIOS creation steps, but the software driver installation of **Intel® Matrix Storage Manager** shall follow the same rule as described for RAID.

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.

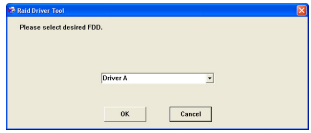
1. Find a PC, put a diskette into its floppy drive A:, this diskette will be formatted later. Put the driver CD into DVD-ROM drive.

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.

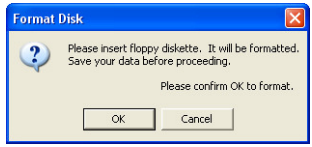


3. Click "GO" to start.

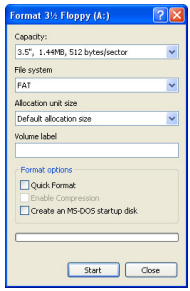
4. Select the desired destination FDD drive. It can be the default drive A: or any USB FDD. Click "OK" to continue.



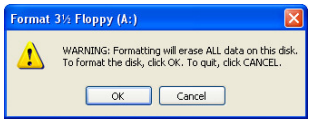
5. Insert a diskette, click "OK" to continue.



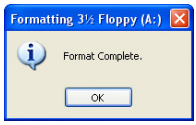
6. You can input a volume label for this diskette, click on "Start" to format.



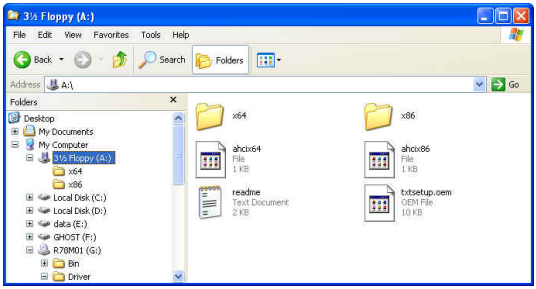
7. Click on "OK" to go through this warning message.



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



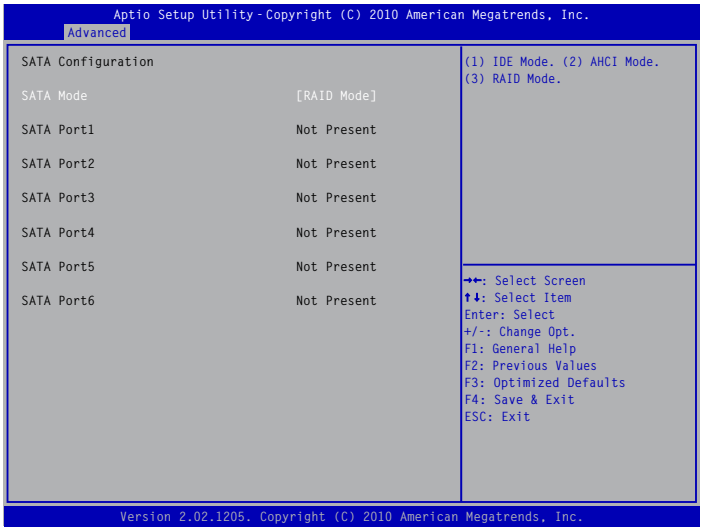
9. Check if the diskette contains the driver files.
   Later, when in the process of installing Windows XP in your RAID system, it will ask you to use this floppy diskette to provide driver for additional specific devices, for example, a RAID device.



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

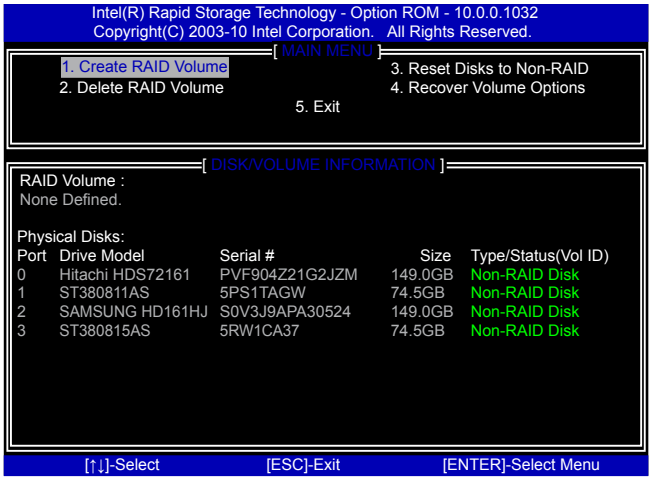
1. Enter the BIOS setup by pressing <DEL> key during the POST(Power On Self Test).
2. Select the “SATA Configuration” from the “Advanced”, then set the “SATA Mode” option to [RAID Mode].
3. Press <F4> to save the setting then PC will reboot itself.



5-3 Create RAID in BIOS

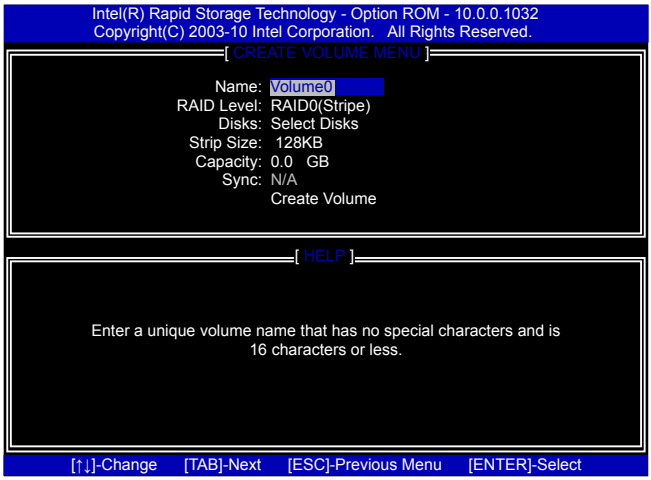
Enter RAID BIOS Setup

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.



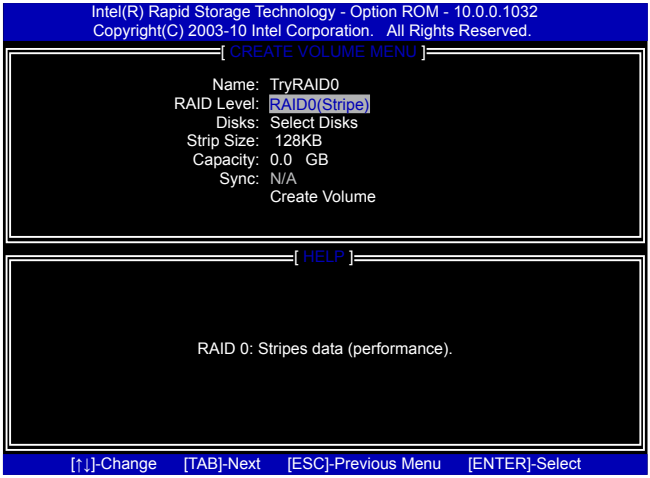
Create RAID Volume
Create RAID 0 (1st Volume)

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

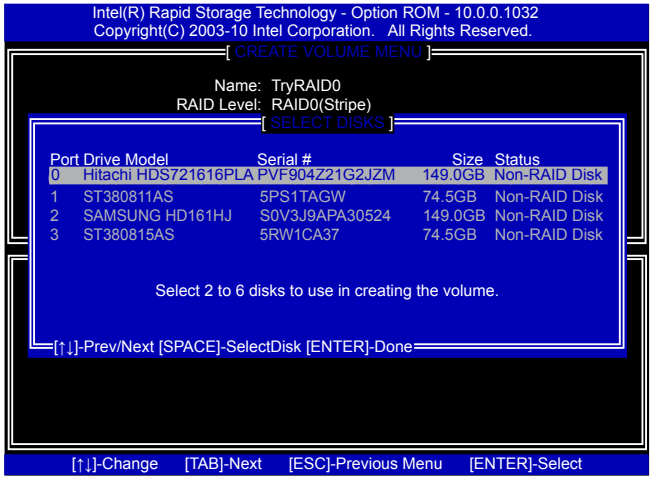


2. In "**Name**" item, you can input a device name for the RAID0 system and press <Enter> to apply it. Here, we name it as TryRAID0 to replace the default Volume0.

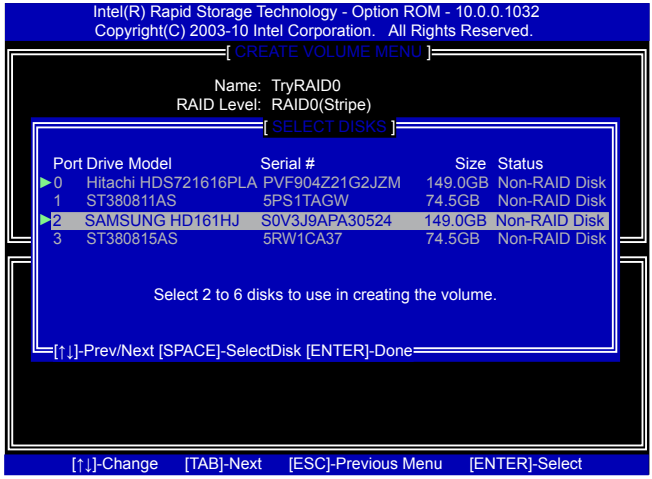
3. In "**RAID Level**" item, you can use Up or Down arrow key to make a selection. Select RAID0 (Stripe) and press <Enter>.



4. It then goes to "**Disks**" item. Press <Enter> to display the hard disks list for this RAID0 system.

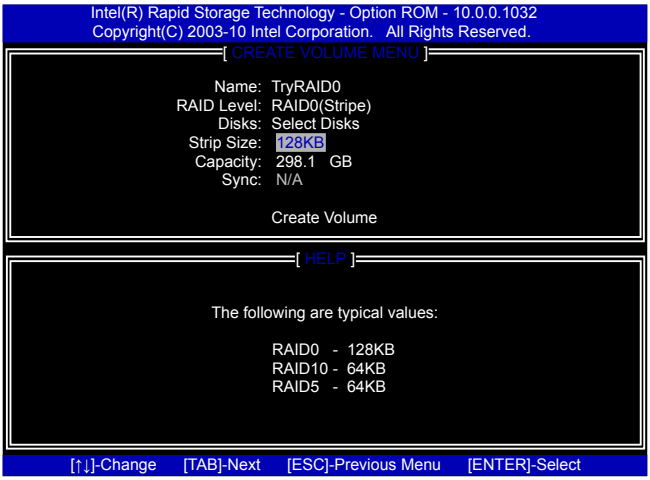


5. From the hard drive list, use Up or Down arrow key to reach the hard disks you want to combine them as RAID0, then press <Space> key to select them. A triangle sign will appear to indicate the drive selected. Here, we select two 149.0GB hard disks as an example. Press <Enter> key to finish the selection.

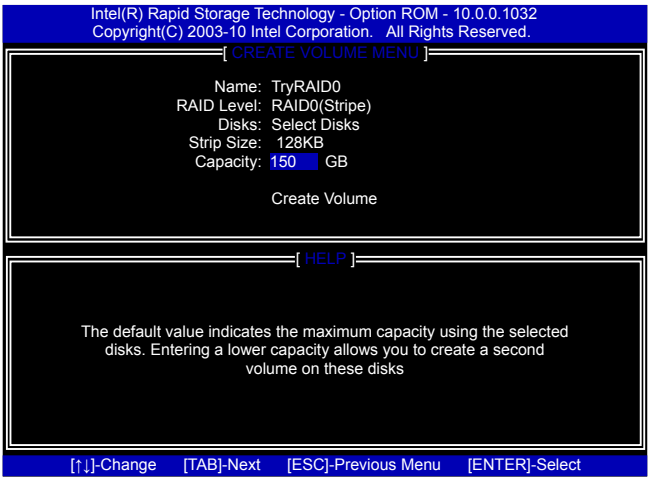


6. It is now entering “**Strip Size**” menu. Use Up or Down arrow key to select the desired strip size. The available values range from 4KB to 128KB. The strip value should be selected based on different applications. Some suggested choices are :
   16K - Best for sequential transfer.
   64K - Good general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

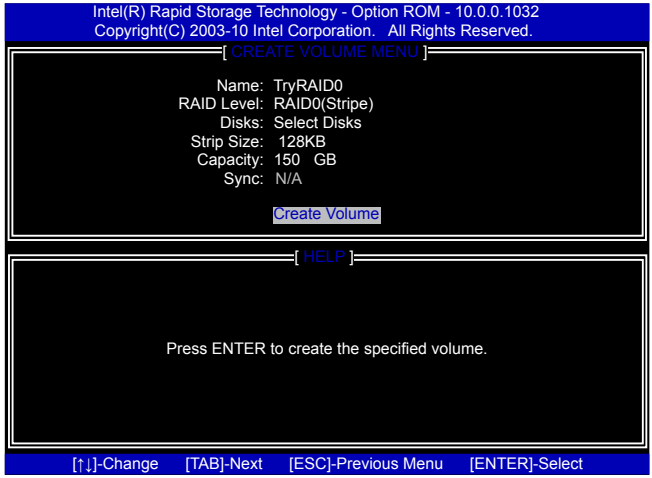
The default value is 128K for RAID0. Press <Enter>.



7. In “**Capacity**” item, the default value indicates the maximum capacity using the selected disks. 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 150GB here to build the first volume. Later, we will also describe how the second volume is generated. Input 150GB, and press <Enter>.

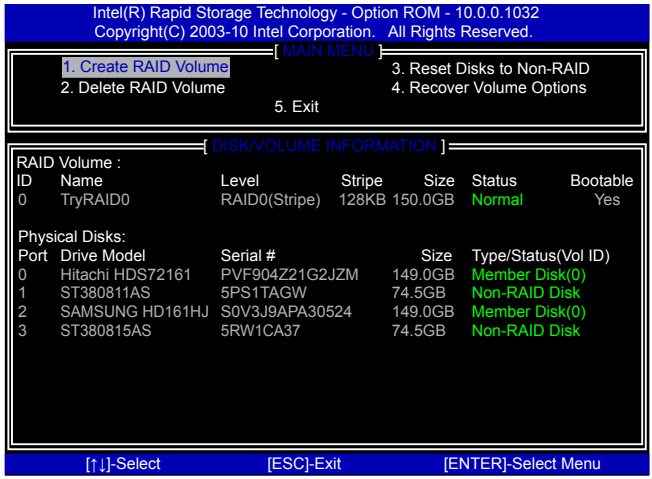


8. In “**Create Volume**” item, press <Enter>.



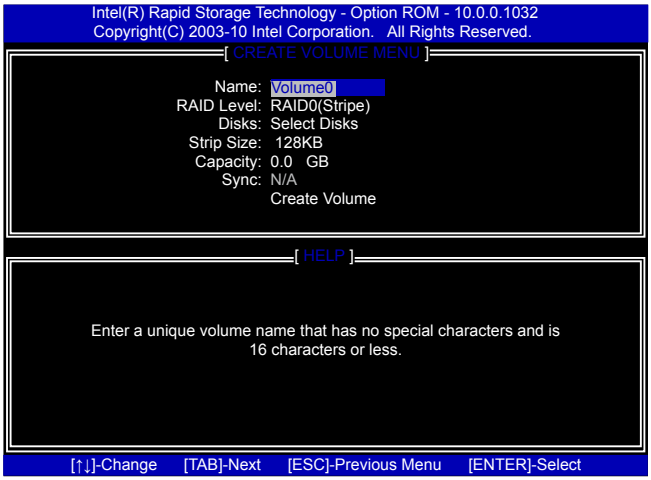
A warning message will appear :

9. Press <Y> to create the volume and return to the main menu, a 150GB RAID0 system is normally configured.



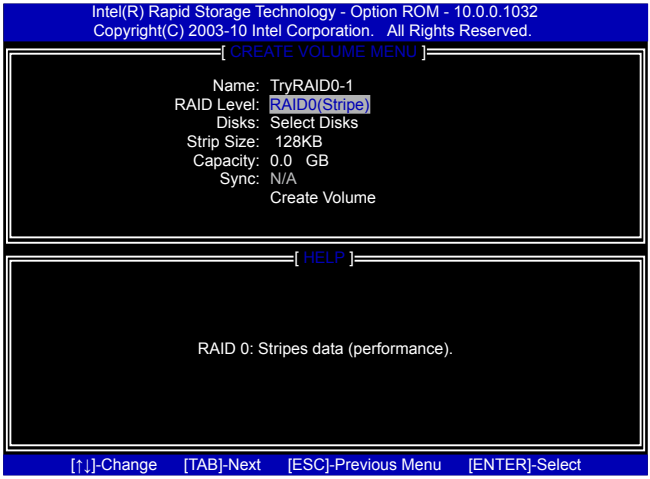
Create RAID0 (2nd Volume)

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

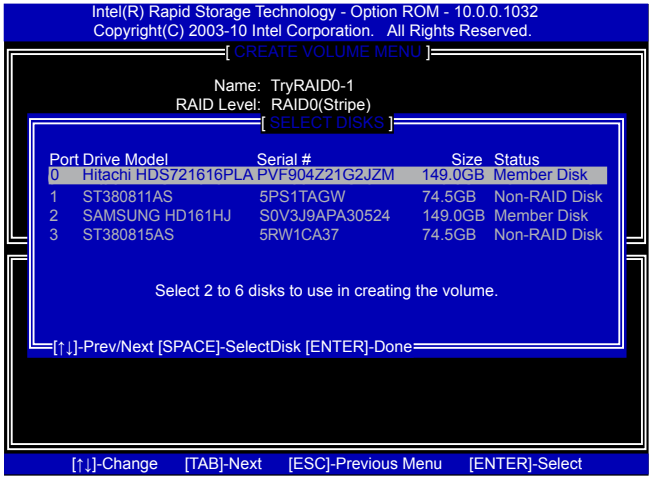


2. In "**Name**" item, we name it as TryRAID0-1 for second volume.
3. In “**RAID Level**” item, you can use Up or Down arrow key to make a selection, only RAID0, 1 can be selected. Select RAID0 (Stripe) and press <Enter>.

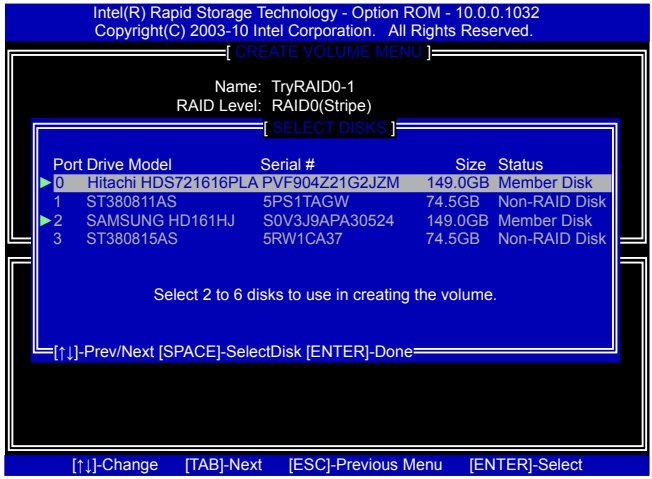
(Note : You also can try to select RAID1 for the second volume as an experiment here)



4. It then goes to "**Disks**" item. Press <Enter> to display the hard disks list 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 signs will appear to indicate the selections. Press <Enter> to continue.



6. It goes to “**Strip Size**” menu directly. Capacity automatically displays 148.1GB, and at this time, you can not input any value in capacity as there is no additional volume available.

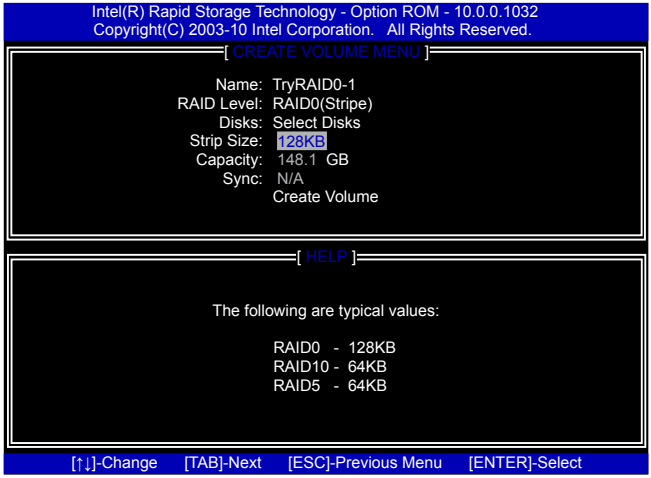
The available values of Strip Size range from 4KB to 128KB. The strip value should be selected based on different applications. Some suggested choices are :

16K - Best for sequential transfer.

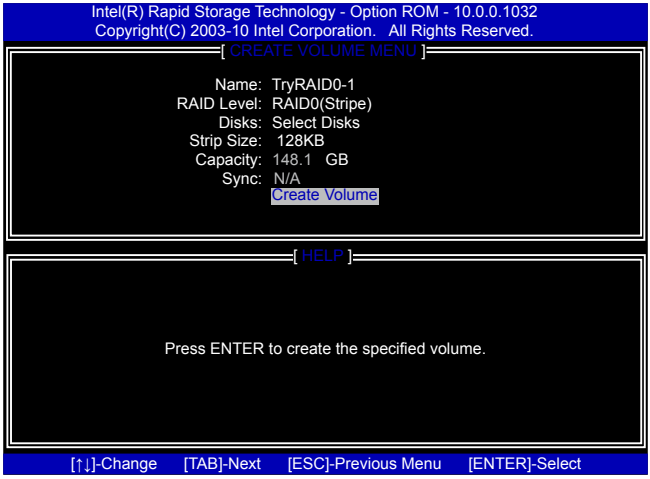
64K - Good general purpose strip size.

128K - Best performance for most desktops and workstations .

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

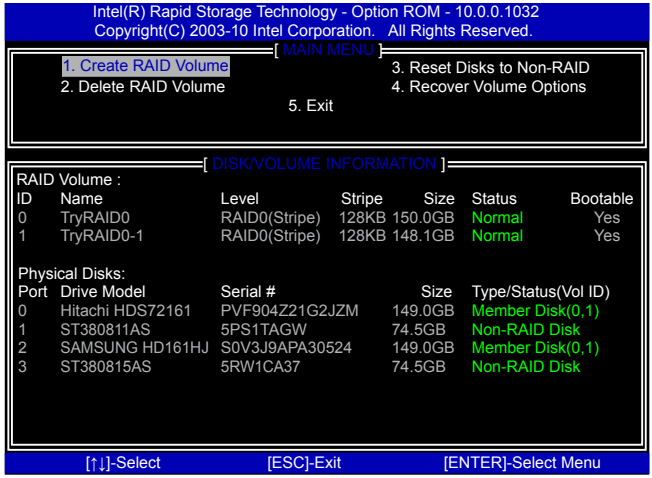


7. Select “**Create Volume**” and press <Enter>.



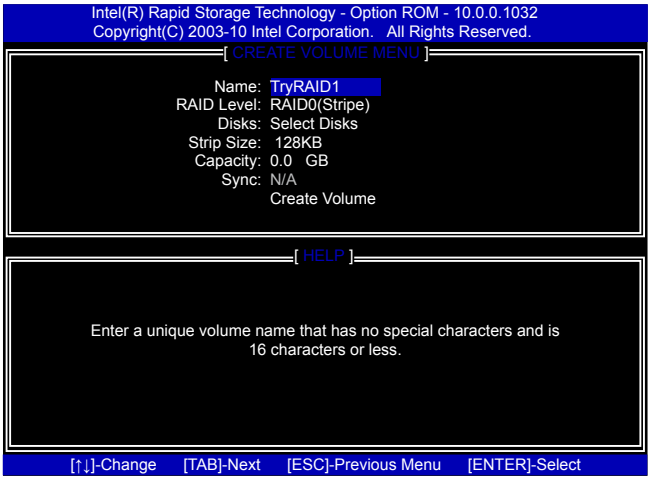
A message will appear :

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

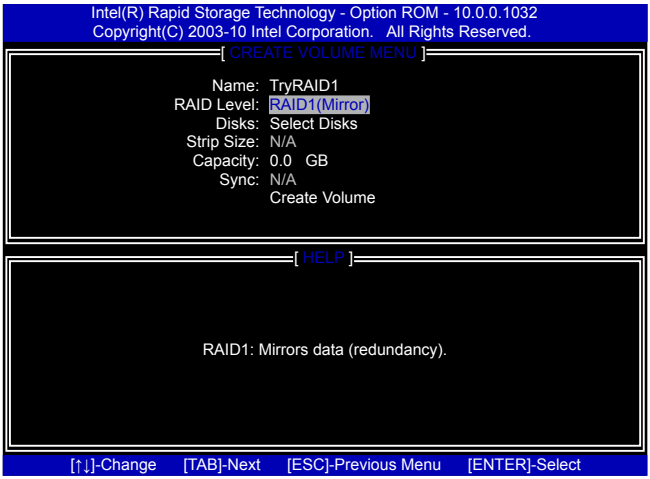


Create RAID 1

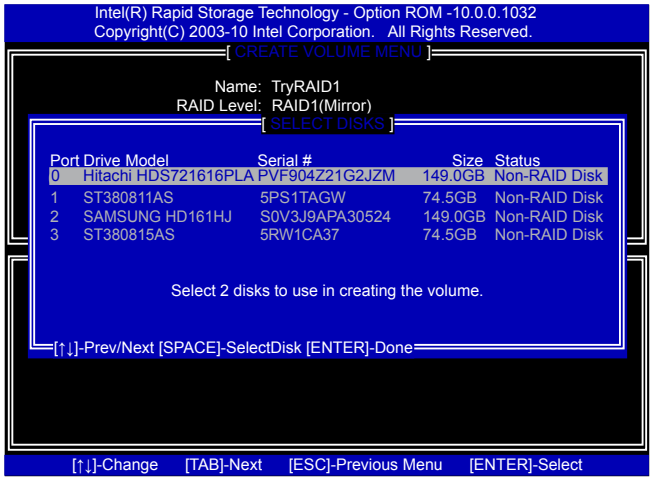
1. Select “**1.Create RAID Volume**” from the main menu and press <Enter>.
2. In "**Name**" item, you can input a device name for the RAID1 system and press <Enter> to apply it. Here, we name it as TryRAID1 to replace the default Volume0.



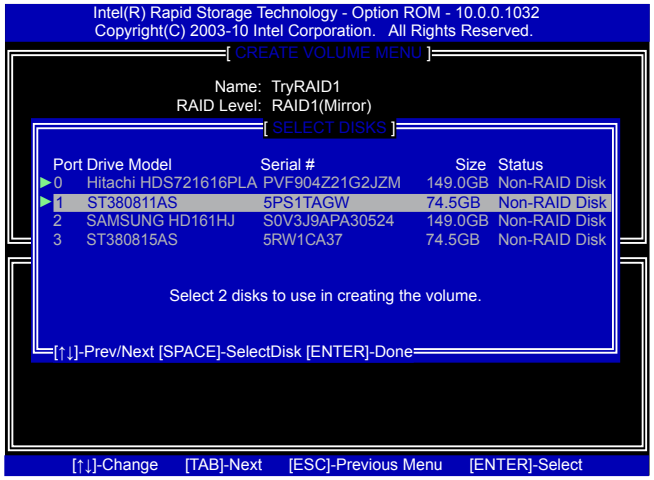
3. In “**RAID Level**” item, you can use Up or Down arrow key to make a selection. Select RAID1 (Mirror) and press <Enter>.



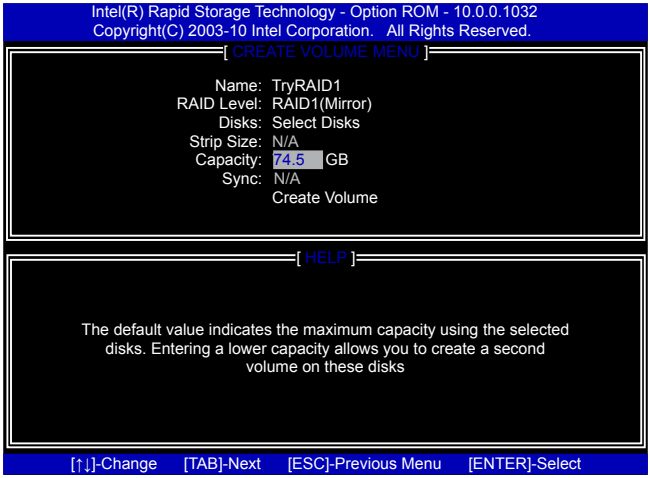
4. It then goes to “**Disks**” item. Press <Enter> to dispaly the hard disks list for this RAID1 system.



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 149.0GB and one 74.5GB hard disks. Press <Enter> key to finish the selection.

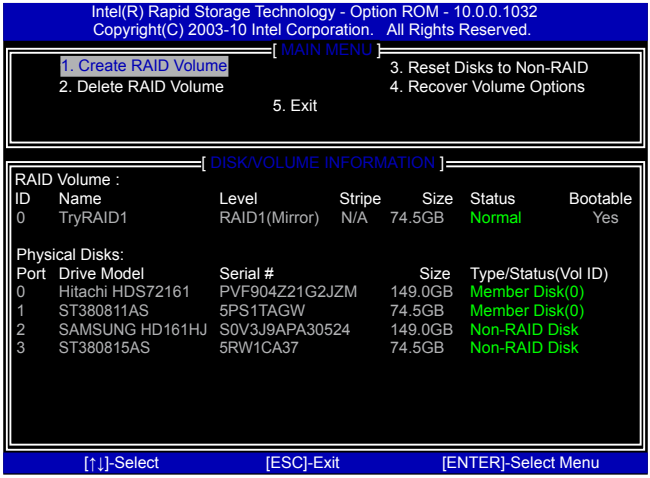


6. It will skip “**Strip Size**” menu for RAID1.



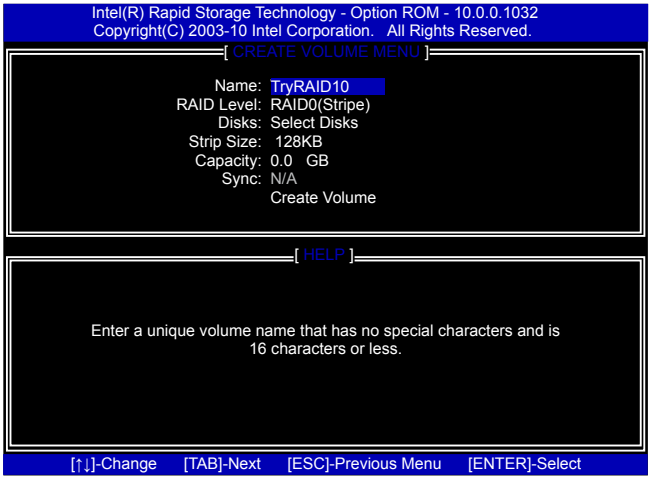
7. In “**Capacity**” item, use the default value, and press <Enter>. The size of the smaller hard disk 74.5GB is becoming the default value, and it indicates the maximum capacity.
8. Select “**Create Volume**” and press <Enter>. A warning message will appear:

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

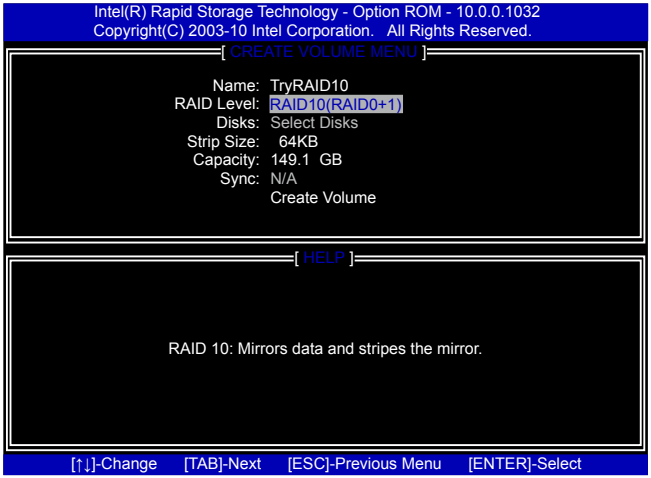


Create RAID 10 (0+1)

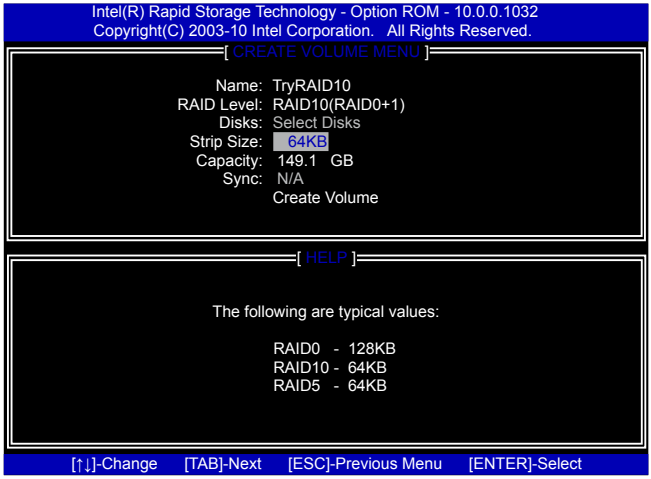
1. Select “**1.Create RAID Volume**” from the main menu and press <Enter>.
2. In "**Name**" item, you can input a device name for the RAID10 system and press <Enter> to apply it. Here, we name it as TryRAID10 to replace the default Volume0.



3. In “**RAID Level**” item, you can use Up or Down arrow key to make a selection. Select RAID10(RAID0+1) and press <Enter>.

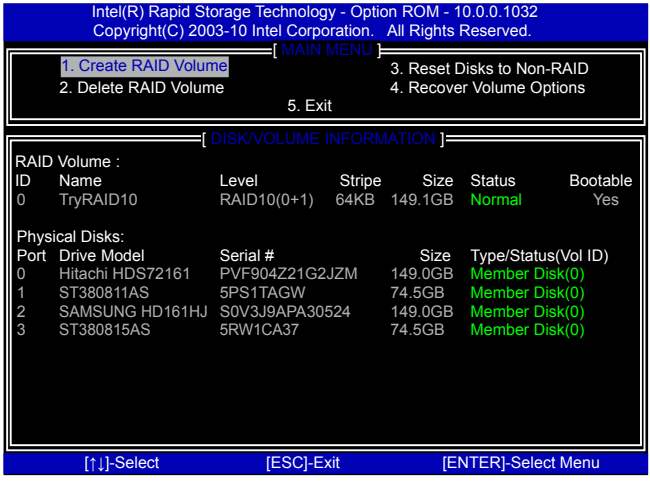


4. After exiting from "**RAID Level**", it goes directly to "**Stripe Size**" item. Because all four disks are selected for RAID10, so there is no need to go to **Disks** option.
5. Use Up or Down arrow key to select the desired strip size when entering "**Strip Size**" menu. The default value is 64K.



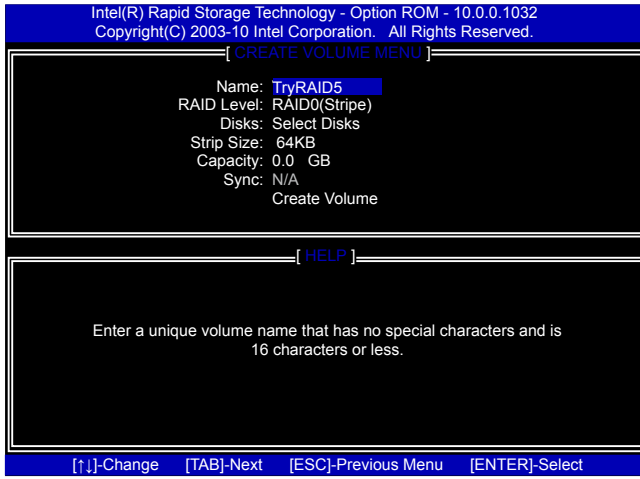
6. In "**Capacity**" item, use the default value, and press <Enter>. The default value is twice the smallest hard disk size, that is, 74.5GB * 2 = 149GB.
7. Select "**Create Volume**" and press <Enter>. A warning message will appear :

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

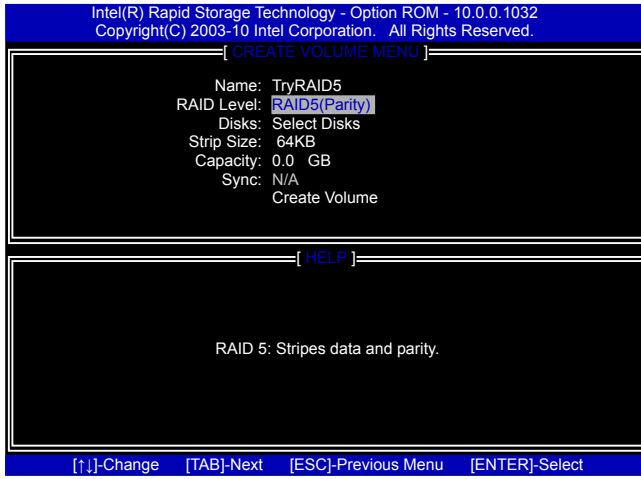


Create RAID5 (Parity)

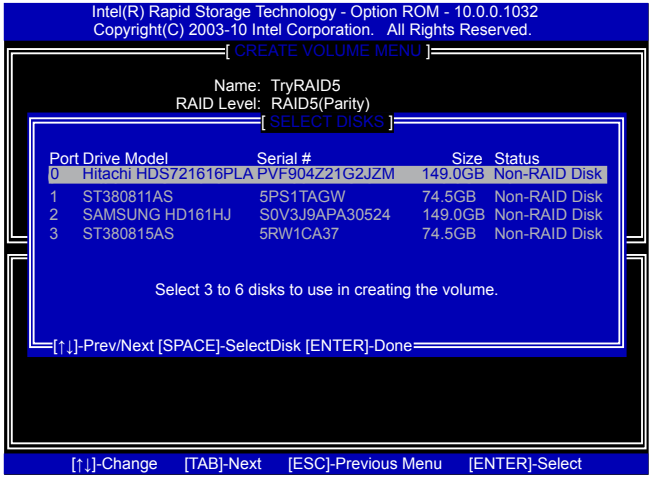
1. Select “**1.Create RAID Volume**” from the main menu and press <Enter>.
2. In "**Name**" item, you can input a device name for the RAID5 system and press <Enter> to apply it. Here, we name it as TryRAID5 to replace the default Volume0.



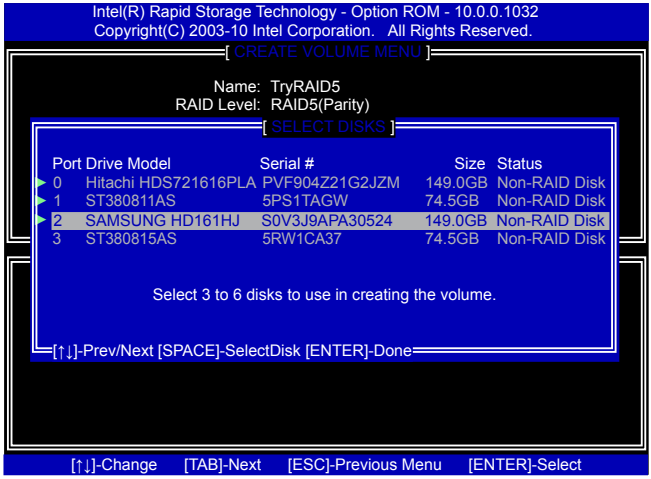
3. In “**RAID Level**” item, you can use Up or Down arrow key to make a selection. Select RAID5(Parity) and press <Enter>.



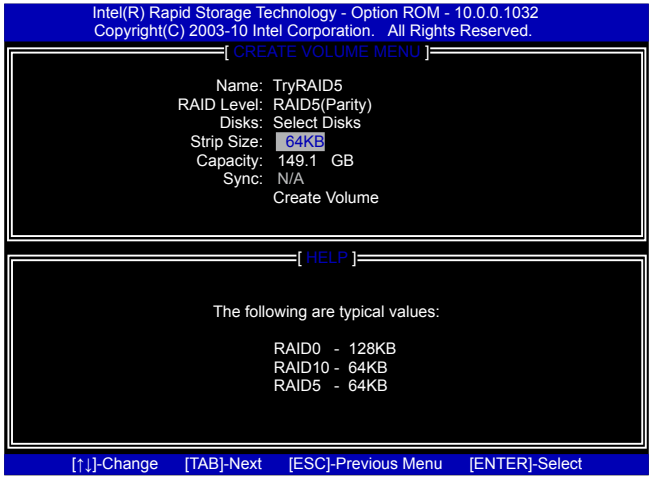
4. It then goes to “**Disks**” item. Press <Enter> to display the hard disks list for this RAID5 system.



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 two 149.0GB and 74.5GB hard disks for an example. Press <Enter> key to finish the selection.

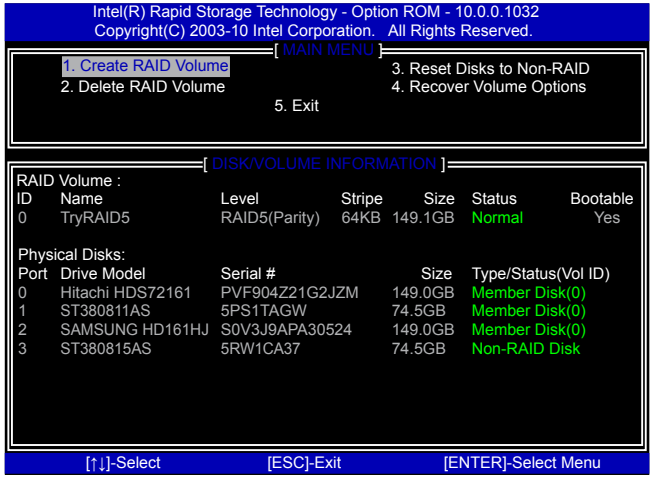


6. Use Up or Down arrow key to select the desired strip size when entering "**Strip Size**" menu. The default value is 64K. Press <Enter>.



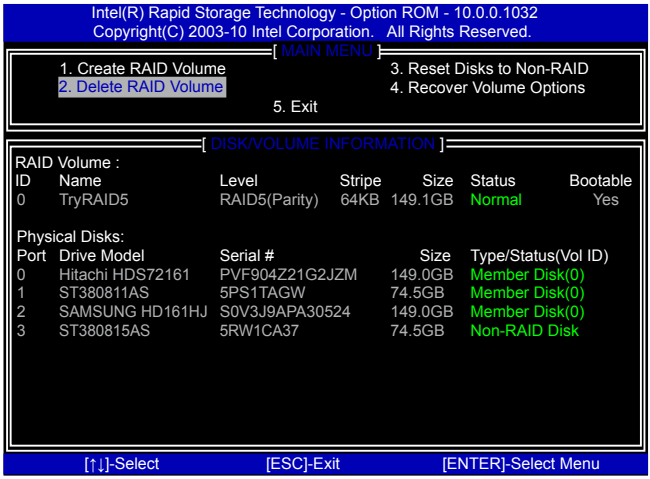
7. In "**Capacity**" item, use the default value, and press <Enter>. The default value is twice that of the smallest hard disk size, that is, 74.5GB * 2 = 149GB.
8. Select "**Create Volume**" and press <Enter>. A warning message will appear :

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

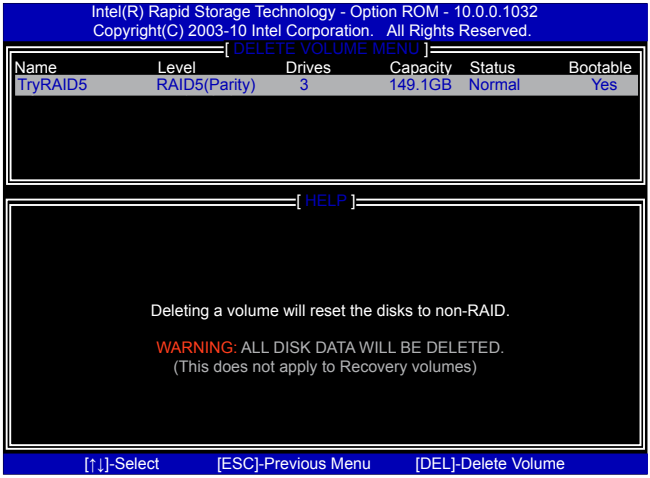


Delete RAID Volume

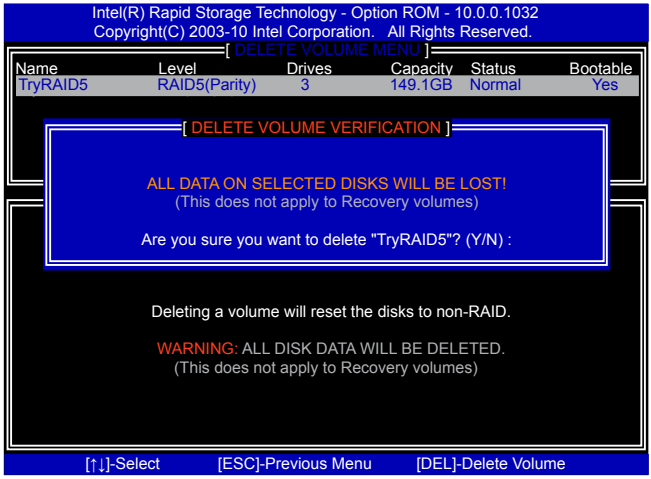
1. Take TryRAID5 for example. Select "**2. Delete RAID Volume**" in main menu and press <Enter>.



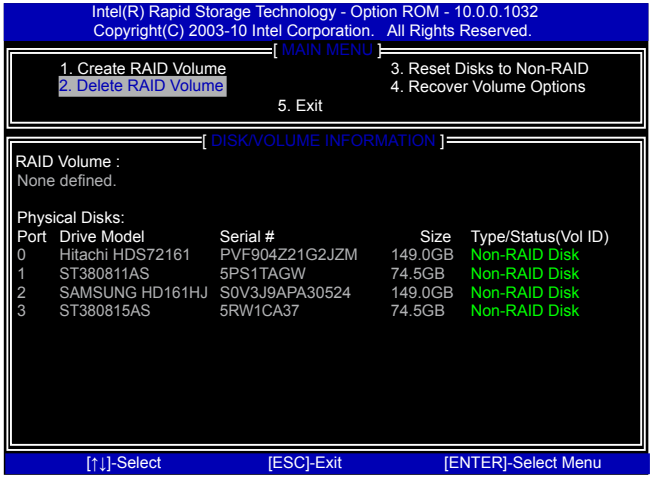
2. Use Up or Down arrow key to select the RAID set you want to delete. Here only one RAID5 is seen, so press <DEL> key to continue.



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



4. Return to Main Menu.

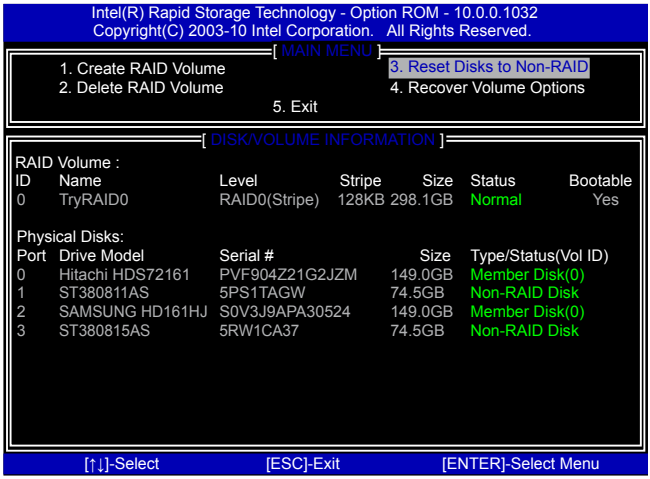


Reset Disks to Non-RAID

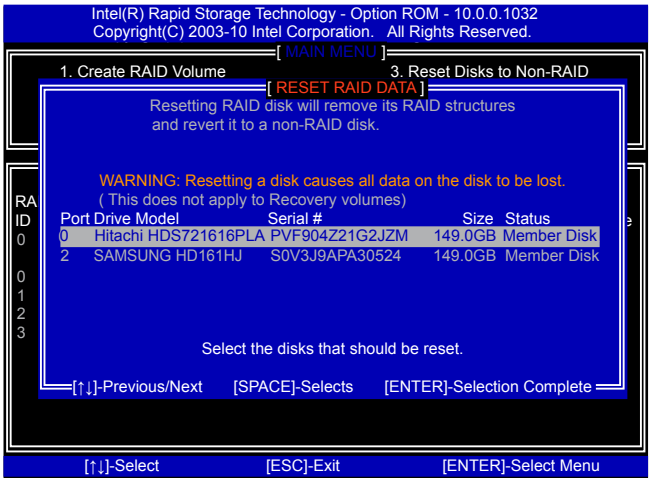
Reset RAID volume allows you to replace a failed disk with a new one, and the operating system will rebuild the data later. For RAID0, reset a hard disk would totally crash the system, but for RAID1, RAID10 and RAID5, they all can be rebuilt.
When rebuild is needed, you must first install a new hard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

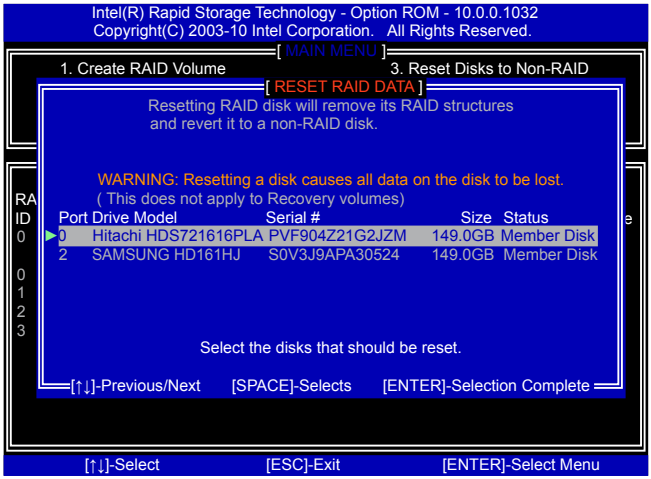
1. A TryRAID0 volume was built with two 149.0GB hard disks, we want to reset one of them. Select "**3. Reset Disks to Non-RAID**" in main menu and press <Enter>.



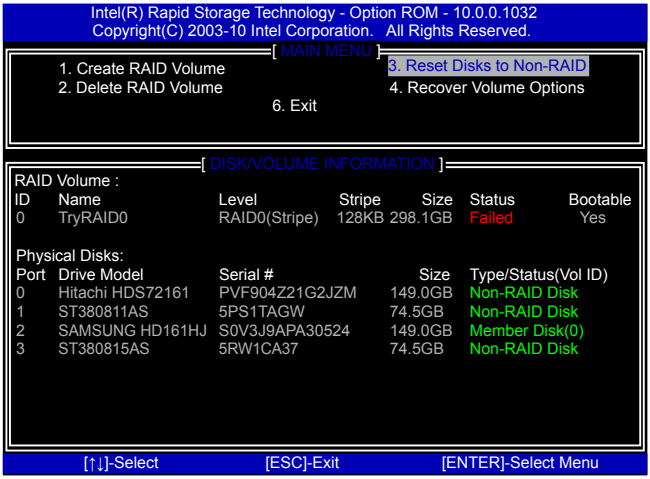
2. A warning message is displayed.



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

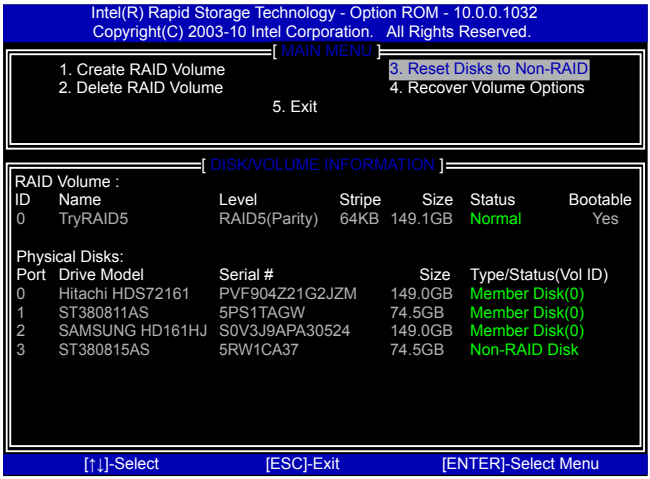


4. It goes back to Main menu with a "Failed" status of RAID0 volume.

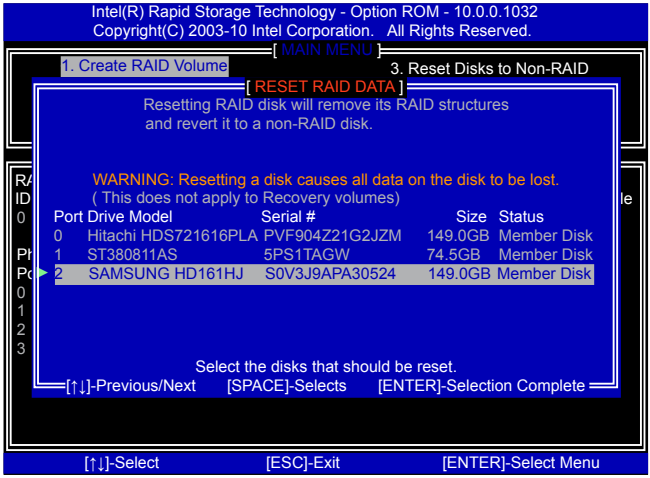


Example 2. Reset a RAID5 system

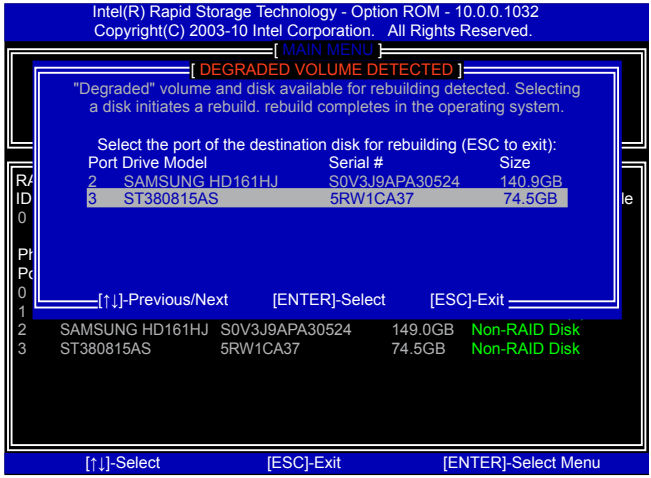
1. A TryRAID5 volume was built with three hard disks, we want to reset one of them. Select "**3. Reset Disks to Non-RAID**" in main menu and press <Enter>.



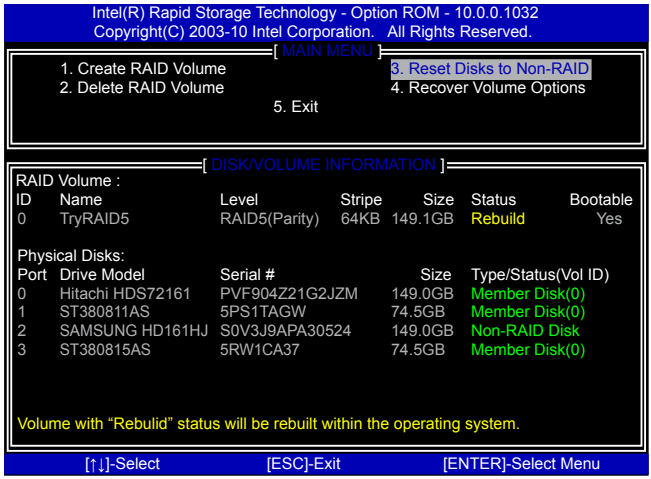
2. A warning message is displayed.
3. Select "**Port 2 - SAMSUNG HD161HJ**" hard disk as the one to be reset. Press <Enter>. A double confirmation message pops out, press <Y> to confirm.



4. A "**DEGRADED VOLUME DETECTED**" screen pops out asking you to select a new hard disk for rebuilding. Here, we select ST 74.5GB. Press <Enter> to select it.

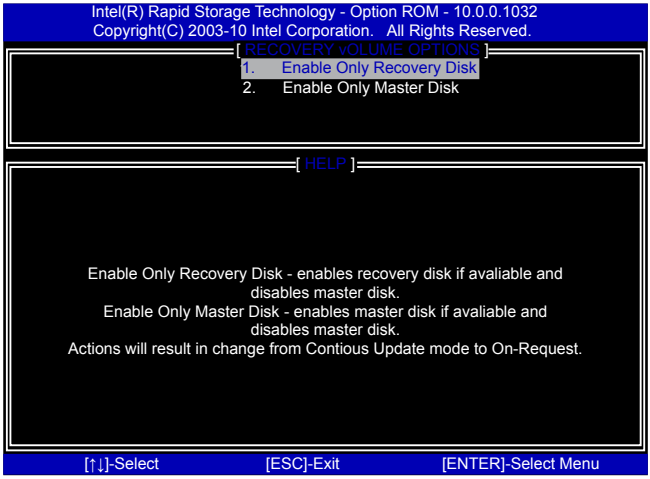


5. It goes back to Main menu with a "Rebuild" status of RAID5 volume. Eventually, a replacement hard disk has to join in and it always keeps three hard disks in the RAID5 system.
6. Operating System will perform the rebuilding later.

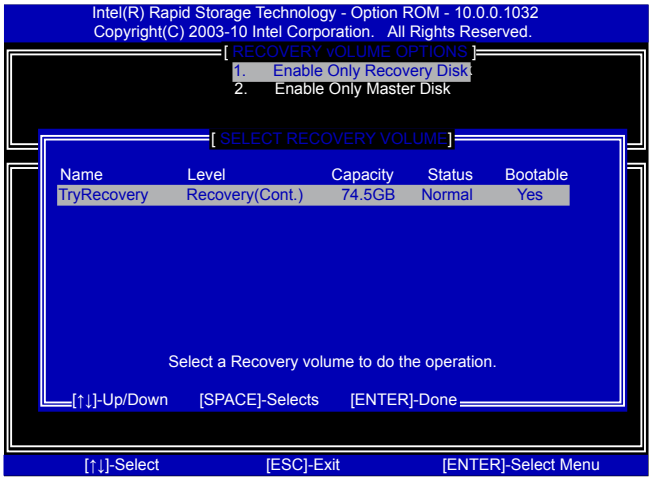


Recovery Volume Options

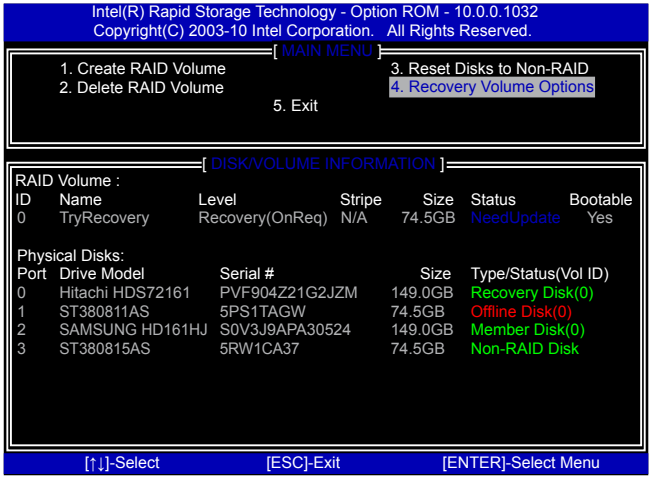
1. “Recovery Volume Options” is only available when “Recovery” is built. Here, we take TryRecovery as an example, select “**4. Recovery Volume Options**” in main menu and press <Enter>. The screen displays:



2. Use Up or Down key to make a selection to enable Recovery or Master disk.
3. Here, we select “**1.Enable Only Recovery Disk**“ and press<Enter> to continue. The screen display:

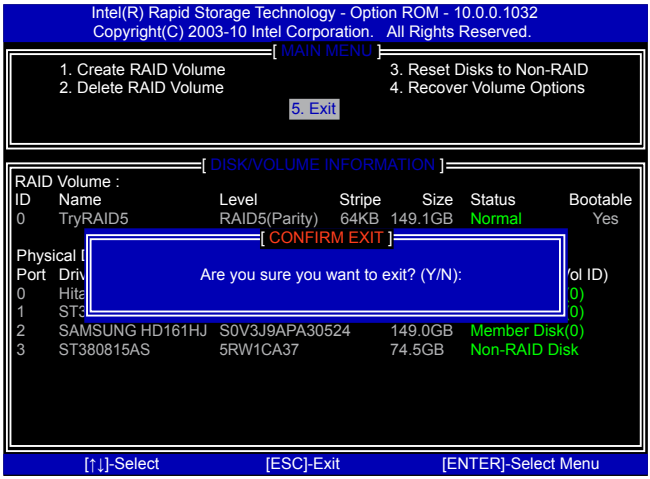


4. Press <Space> key to select it and press <Enter>, it returns to the main menu. You can see the 74.5GB disk is offline, and actions of Recovery change from Contious Update mode to On-Request.



Exit RAID BIOS

1. Take TryRAID5 as an example, select "**5. Exit**" in main menu and press <Enter>. The screen displays :



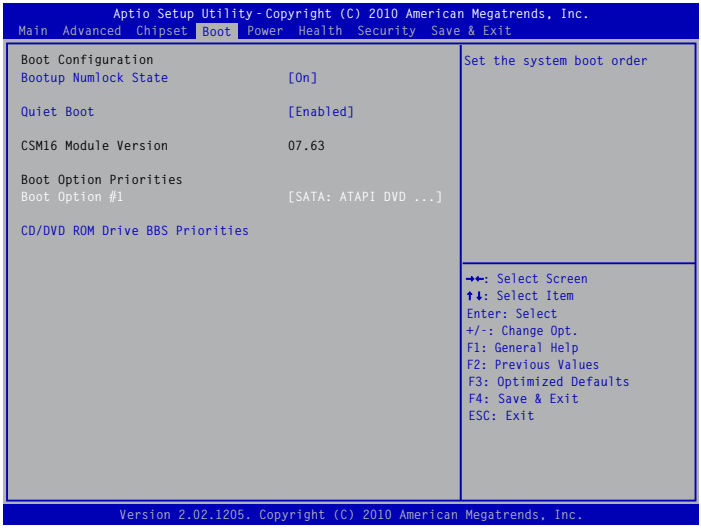
2. Press <Y> to exit Intel® Matrix Storage Manager program. The system will enter BIOS setup.
3. Shut down the computer, remove the Non-RAID disk, and we will continue for Windows OS installation. If you do not remove irrelevant hard disk, Windows may detect it during the installation, and you could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

5-4 Install a New Windows XP

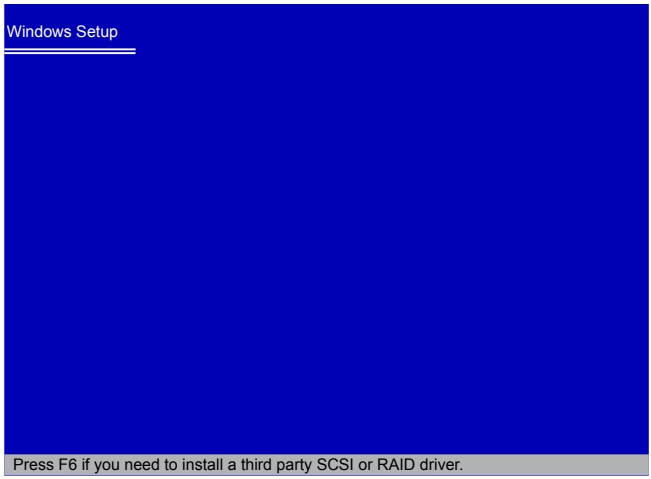
CAUTION

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.

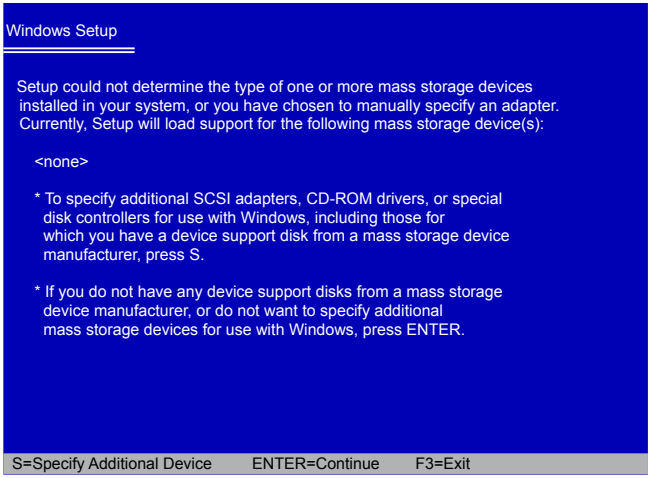
1. Press <DEL> to enter BIOS Setup during POST.
2. Insert the Windows installation CD into the optical drive.
3. Set the “Boot Option #1” to CD/DVD ROM, save changes and exit the BIOS setup.



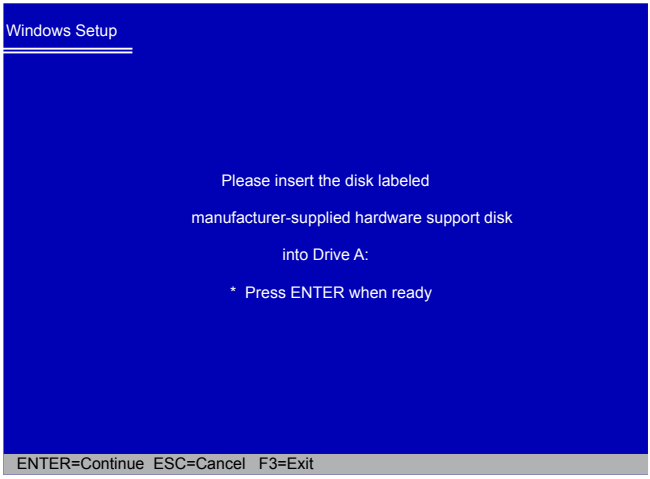
4. The computer will reboot, and it will start installing Windows Operating System. Watch the screen carefully, when the following picture appears, press <F6> key immediately. If you forgot to do this, PC will go to an fatal blue screen, and you may need to reboot the system again. PC may not respond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



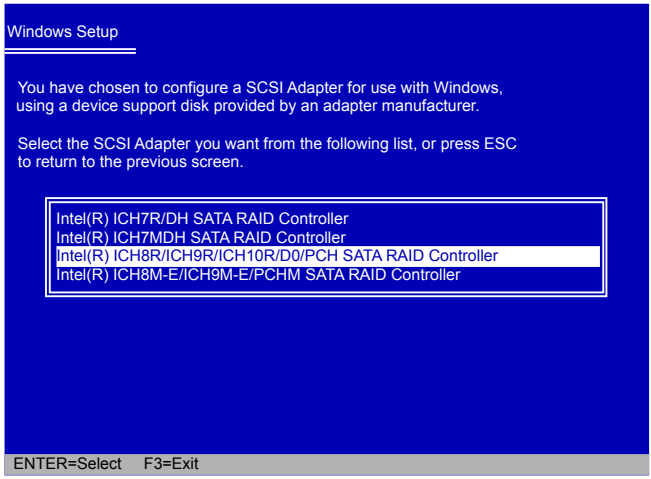
5. After some files are copied to your system, the following picture appears, press <S> to continue the specific driver installation.



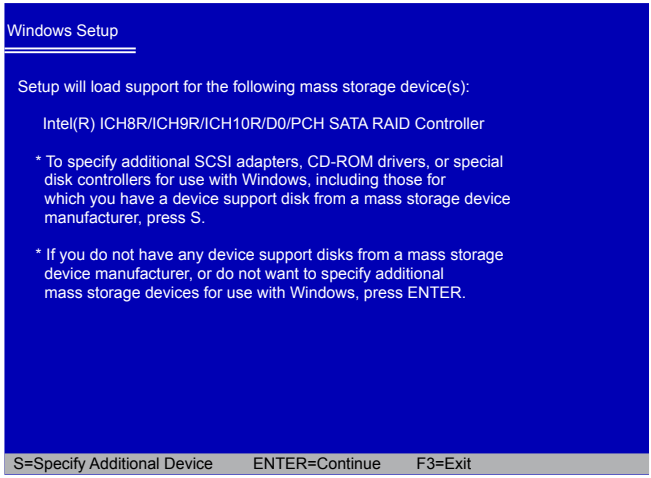
6. It will ask you to insert the RAID driver diskette into you floppy drive. Press <Enter> after it is done.



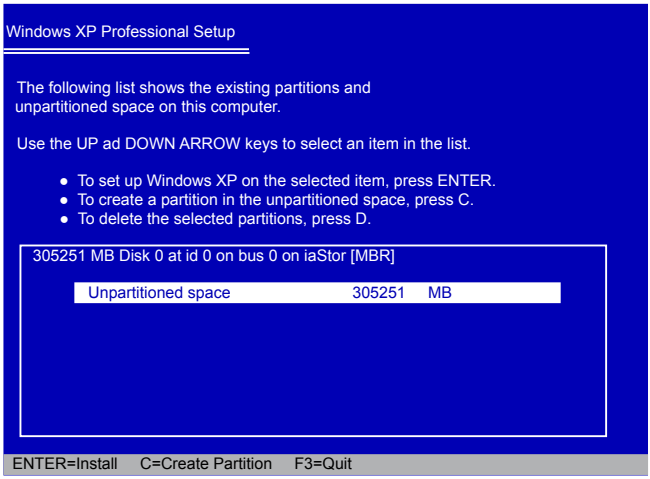
7. Depending on South Bridge chip of your system, select appropriate driver for it. Here, we choose Intel® ICH8R/ICH9R/ICH10R/D0/PCH SATA RAID Controller. Press <Enter> to select it.



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.