45CMX/45GMX Series

Motherboard

User's Manual

FOXCONN®

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Version:

User's Manual V1.2 for 45CMX/45GMX Series motherboard.

Symbol description:

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

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

WEEE:

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

More information:

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

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All images are for reference only, please refer to the physical motherboard for specific features.

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 45CMX/45CMX-K/45GMX

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

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

Signature : James Liang

Place / Date : TAIPEI/2007

Printed Name : James Liang

Declaration of conformity

Trade Name:	FOXCONN
Model Name:	45CMX/45CMX-K/45GMX
Responsible Party:	PCE Industry Inc.
Address:	458 E. Lambert Rd. Fullerton, CA 92835
Telephone:	714-738-8868
Facsimile:	714-738-8838
Equipment Classification:	FCC Class B Subassembly
Type of Product:	Motherboard
Manufacturer:	HON HAI PRECISION INDUSTRY COMPANY LTD
Address:	66 , CHUNG SHAN RD., TU-CHENG INDUSTRIAL DISTRICT, TAIPEI HSIEN, TAIWAN, R.O.C.

Supplementary Information:

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

Signature : James Liang

Date : 2007

Installation Precautions

WARNING!

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

CAUTION

Please carefully read the following procedures to install your computer :

- It is suggested to select high-quality, certified fans in order to avoid damage to the motherboard and CPU due to high temperature. Never turn on the computer if the CPU fan is not properly installed.
- We cannot guarantee that your system can operate normally when your CPU is overclocked. Normal operation depends on the overclocking capacity of your device.
- If there is any, when connecting USB, audio, 1394a, RS232 COM, IrDA or S/PDIF cables to the internal connectors on the motherboard, make sure their pinouts are matching with the connectors on the motherboard. Incorrect connections might damage the motherboard.
- When handling the motherboard, avoid touching any metal leads or connectors.
- If there is a PCI Express x16 graphics card installed in your system, we recommend using a 24-pin ATX power supply to get the best performance.
- Before turning on the power, please make sure the power supply AC input voltage setting has been configured to the local standard.
- To prevent damage to the motherboard, do not allow screws to come in contact with the motherboard circuit or its components. Also, make sure there are no leftover screws or metal components placed on the motherboard or within the computer casing.
- If you are uncertain about any installation steps or have a problem related to the use of the product, please consult a certified computer technician.

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Technical Support :

Support

Website :
http://www.foxconnchannel.com

Support Website :
http://www.foxconnchannel.com/support/online.aspx or
http://www.foxconnsupport.com

Worldwide E-mail Support :
pcebg-cisg-support@foxconn.com

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

1

Thank you for buying Foxconn 45CMX/45GMX 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, 45CMX/45GMX enables you to unleash more power from your computer.

This chapter includes the following information:

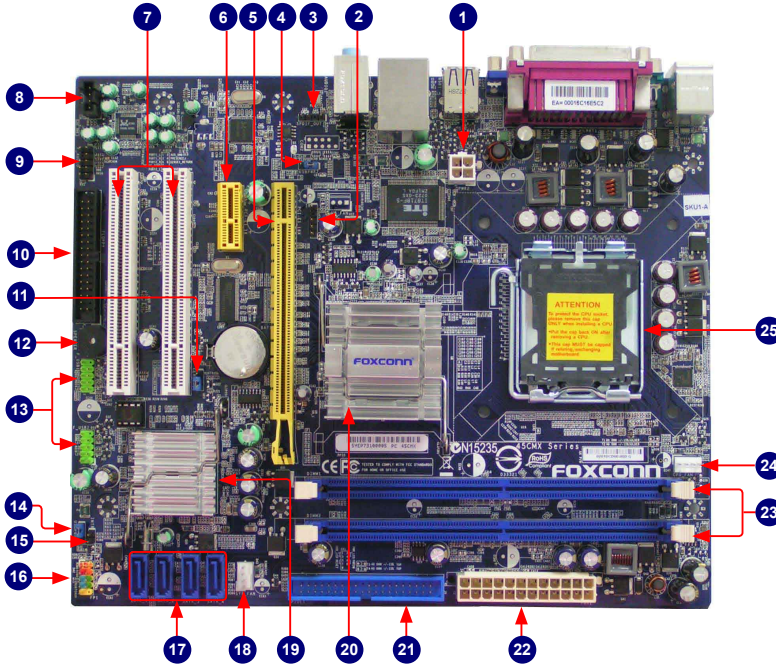
- Product Specifications
- Layout
- Back Panel Connectors

1-1 Product Specifications

CPU	Support LGA775 socket Intel® CPU: Core™ 2 Duo / Pentium® 4 Extreme Edition / Pentium® D / Pentium® 4 / Celeron® / Celeron® D processors
Front Side Bus	1333(oc*)/1066/800/533 MHz FSB (oc* : Overclocking)
Chipset	North Bridge : Intel® 945GC/945G chipset South Bridge : Intel® ICH7
Memory	2 x 240-pin DDR2 DIMM sockets Support up to 4GB of system memory Dual channel DDR2 667/533/400 MHz architecture
Audio	Realtek 6-channel audio chip High Definition Audio 2/4/5.1-channel Support for S/PDIF out Support Jack-Sensing function
LAN	Realtek 10/100 Mb/s LAN chip / Realtek Gigabit LAN chip
Expansion Slots	1 x PCI Express x16 slot 1 x PCI Express x1 slot 2 x PCI slots
Onboard Serial ATA	4 x SATA connectors 300MB/s data transfer rate Support hot plug and NCQ (Native Command Queuing)
USB	Support hot plug Support up to 8 x USB 2.0 ports (4 rear panel ports, 2 onboard USB headers supporting 4 extra ports) Supports USB 2.0 protocol up to 480Mb/s
Internal Connectors	1 x 24-pin ATX main power connector 1 x 4-pin ATX 12V power connector 1 x Floppy disk drive connector 1 x IDE connector 4 x SATA connectors 2 x USB 2.0 connectors (supporting 4 x USB devices) 1 x CPU fan header (4-pin) 1 x System fan header (4-pin) 1 x NB fan header (3-pin, optional) 1 x Front Panel connector 1 x CD_IN connector 1 x Front Audio connector 1 x COM2 connector (optional) 1 x IrDA connector 1 x Chassis Intruder connector 1 x S/PDIF_OUT connector

Back Panel Connectors	1 x PS/2 Keyboard port 1 x PS/2 Mouse port 1 x Serial port 1 x Parallel port 4 x USB 2.0 ports 1 x RJ-45 LAN port 1 x VGA port 6-channel audio ports (Refer Realtek Audio Driver)
Hardware Monitor	System voltage detection CPU/System/NB temperature detection CPU/System/NB fan speed detection System voltage warning CPU/System/NB overheating warning CPU/System/NB fan speed control
PCI Express x1	Support 250 MB/s (500 MB/s concurrent) bandwidth Low power consumption and power management features
PCI Express x16	Support 4 GB/s (8 GB/s concurrent) bandwidth Low power consumption and power management features
Green Function	Support ACPI (Advanced Configuration and Power Interface) Support S0 (normal), S1 (power on suspend), S3 (suspend to RAM), S4 (suspend to disk), and S5 (soft - off)
Bundled Software	FOX ONE FOX LiveUpdate FOX LOGO FOX DMI
Operating System	Support for Microsoft® Windows® Vista/XP/2000
Form Factor	Micro ATX Form Factor, 9.6 inches x 8.0 inches (24.4cm x 20.3cm)

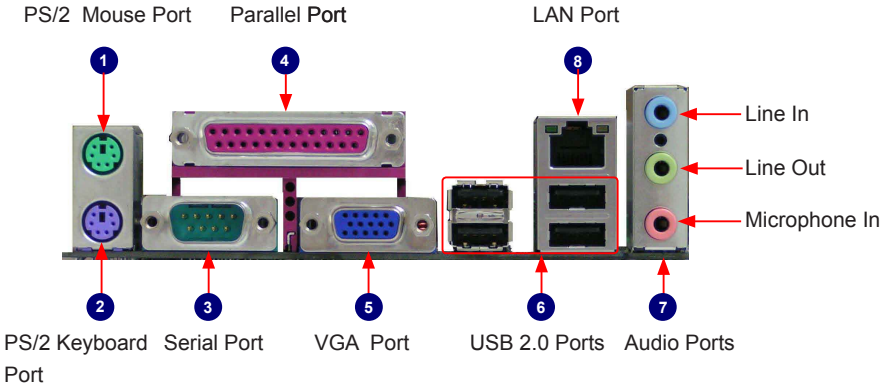
1-2 Layout



1. 4-pin ATX 12V Power Connector
2. IrDA Connector
3. SPDIF OUT Connector
4. USBPW2 Jumper
5. PCI Express x16 Slot
6. PCI Express x1 Slot
7. PCI Slots
8. CD_IN Connector
9. Front Audio Connector
10. Floppy Connector
11. Clear CMOS Jumper
12. Speaker Connector (or Buzzer)
13. Front USB Connectors
14. USBPWR1 Jumper
15. Chassis Intruder Connector
16. Front Panel Connector
17. SATA Connectors
18. SYS_FAN Header
19. South Bridge: Intel® ICH7
20. North Bridge: Intel® 945GC/945G Chipset
21. IDE Connector
22. 24-pin ATX Power Connector
23. DDR2 DIMM Slots
24. CPU_FAN Header
25. LGA 775 CPU Socket

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

1-3 Back Panel Connectors



1. PS/2 Mouse Port

Use the upper port (green) to connect a PS/2 mouse.

2. PS/2 Keyboard Port

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

3. Serial Port

This is output of RS232 COM1 port.

4. Parallel Port

This connector provides printer port interface.

5. VGA Port

To connect with external display devices, such as monitor or LCD display.

6. USB Port

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

7. Audio Connectors

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

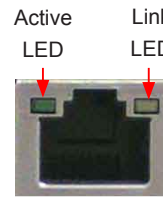
Port	2-channel	4-channel	5.1-channel
Blue	Line In	Rear Speaker Out*	Rear Speaker Out*
Green	Line Out	Front Speaker Out	Front Speaker Out
Pink	Microphone In	Microphone In	Center/Subwoofer Out*

* : 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. The fundamental audio outputs are depicted in the table above.

8. RJ-45 LAN Port

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

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



CAUTION

45CMX supports 10/100 Mb/s Ethernet.
45CMX-K / 45GMX support 1Gb/s Ethernet.

2

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

This chapter includes the following information :

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

Please visit this website for more supporting information about CPU, Memory and VGA for your motherboard :

http://www.foxconnchannel.com/product/Motherboards/compatibility.aspx

2-1 Install the CPU and CPU Cooler

CAUTION

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

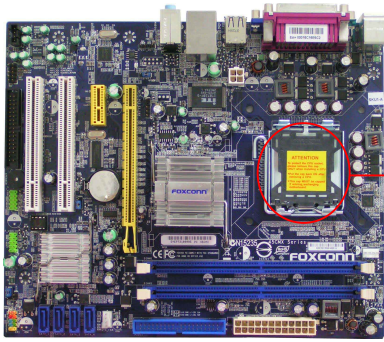
- Make sure that the motherboard supports the CPU.
- Always turn off the computer and unplug the power cord from the power supply before installing the CPU to prevent hardware damage.
- Locate the pin one of the CPU. The CPU cannot be inserted if oriented incorrectly. (Or you may locate the notches on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

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

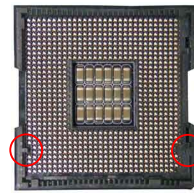
- An Intel® CPU that supports HT Technology
- A chipset that supports HT Technology
- An operating system that is optimized for HT Technology
- A BIOS that supports HT Technology and has it enabled

Install the CPU

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



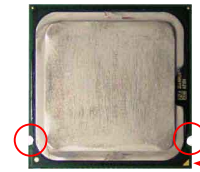
LGA775 CPU Socket



Alignment Key

Pin-1 corner of the CPU Socket

LGA775 CPU



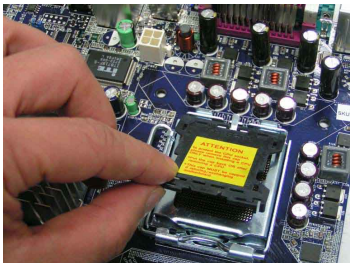
Notch

Pin-1 triangle marking of CPU

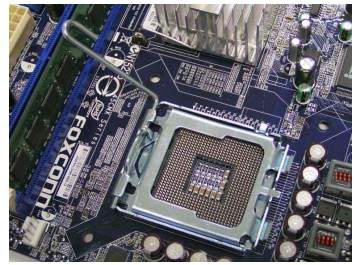
Follow the steps to install the CPU onto the CPU socket :

CAUTION

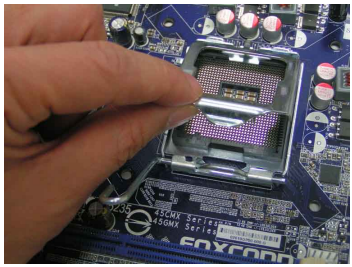
Before installing the CPU, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the CPU.



1. Remove protective socket cover.



2. Release the CPU socket lever.



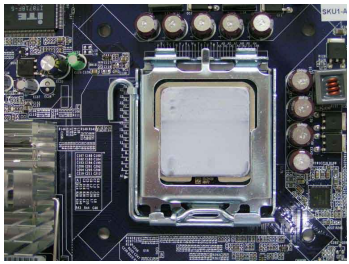
3. Lift the metal cover on the CPU socket.

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

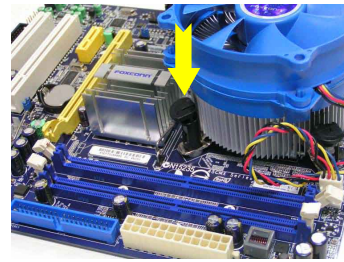
5. When CPU is properly seated, replace the metal cover and push the CPU socket lever back to its locked position.

Install the CPU Cooler

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

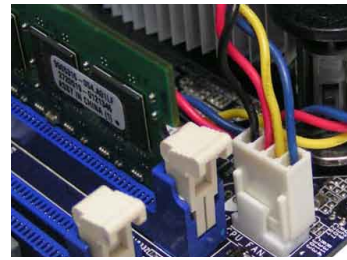


1. Apply and spread an even thermal grease on the surface of CPU.

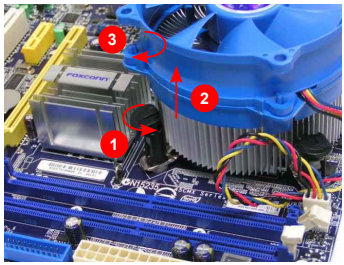


2. Place the four bolts of the CPU cooler to the holes of the motherboard, push them straight down from the top, and the bolts will be fastened on the motherboard. That's it.

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



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



Release bolts of CPU cooler from motherboard :

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

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.

2

Dual Channel Memory Configuration

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

Two DDR2 memory sockets are divided into two channels :

Channel 0 : DIMM1
Channel 1 : DIMM2

The combinations of DIMM modules are :

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

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

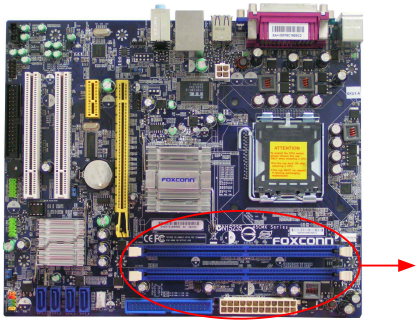
CAUTION

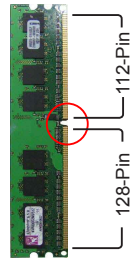
It is recommended that memory of the same capacity, brand, speed, and chips be used and please select dual channel first to achieve optimum performance.

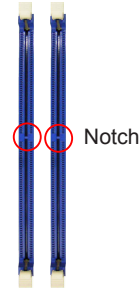
Installing a Memory

CAUTION

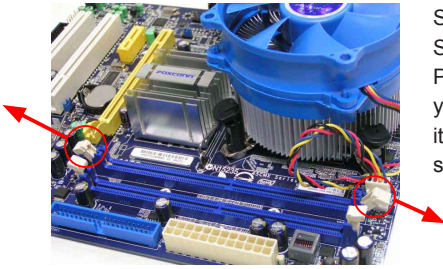
Before installing a memory module, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the memory module. Be sure to install DDR2 DIMMs on this motherboard.



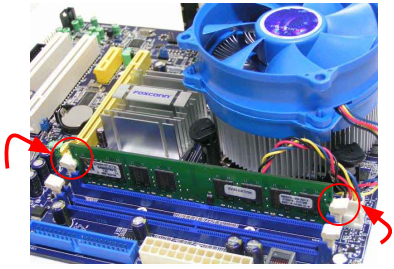




If you take a look at front side of memory module, it has asymmetric pin counts on both sides separated by a notch in the middle, so it can only fit in one direction. Follow the steps below to correctly install your memory modules into the sockets.



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.

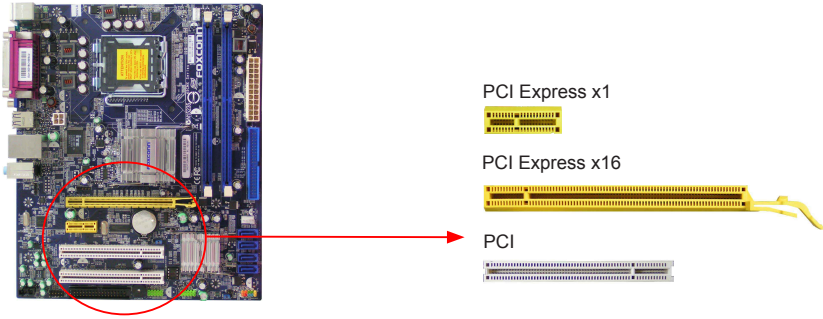


Step 2:
The clips at both ends of the socket will snap into place when the memory module is securely inserted.

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

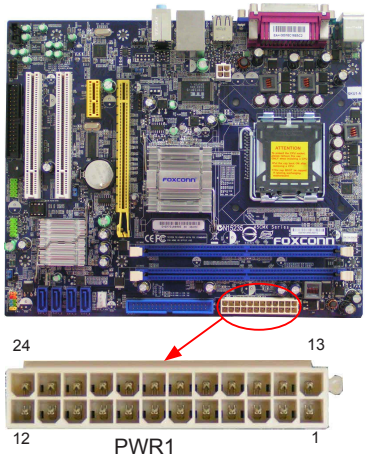
Power Connectors

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.

2

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.

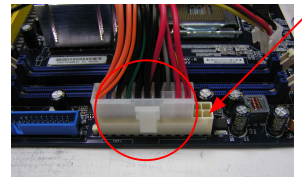


Pin #	Definition	Pin #	Definition
1	3.3V	13	3.3V
2	3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON(Soft On/Off)
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	Power Good	20	-5V
9	+5V SB(Stand by +5V)	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	3.3V	24	GND

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.

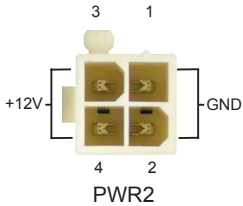
Pin No. 24



20-Pin Power

4-pin ATX 12 V Power Connector : PWR2

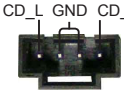
Connect the 4-pin ATX 12V power supply to PWR2 and provides power to the CPU.



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

Audio Connector : CD_IN

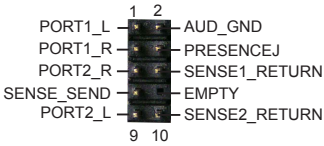
CD_IN is a Sony standard audio connector, it can be connected to a CD/DVD-ROM drive through a CD/DVD audio cable.



CD_IN

Audio Connector : F_AUDIO

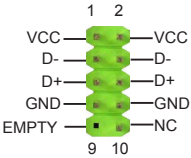
The audio connector supports HD Audio standard. It provides the Front Audio output choice.



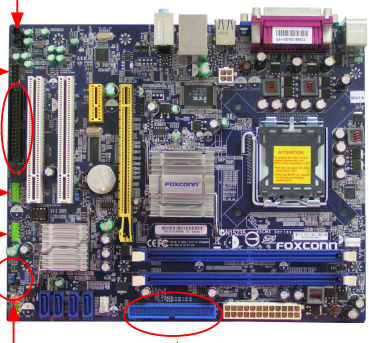
F_AUDIO

Floppy Disk Drive Connector : FLOPPY

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



F_USB 1/2

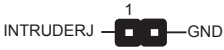


USB Connectors : F_USB1/2

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

Chassis Intruder Connector : INTR

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



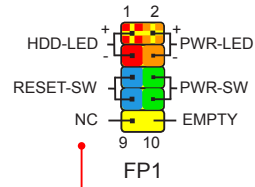
INTR

IDE Connector : PIDE

With the provided Ultra DMA 100/66 IDE ribbon cable, you can connect to any IDE type of hard disk and CD/DVD ROM/RW drive.

Front Panel Connector : FP1

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



Hard Disk LED Connector (HDD-LED)

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

Reset Switch (RESET-SW)

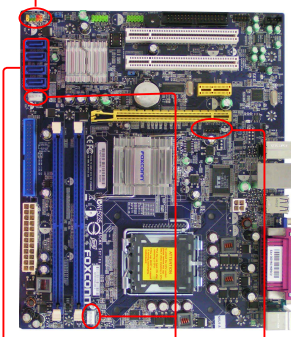
Attach the connector to the Reset switch on the front panel of the case; the system will restart when the switch is pressed.

Power LED Connector (PWR-LED)

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

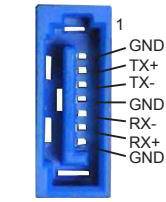
Power Switch Connector (PWR-SW)

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



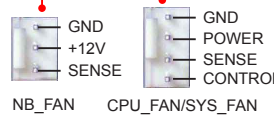
Serial ATA Connectors : SATA_1/2/3/4

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



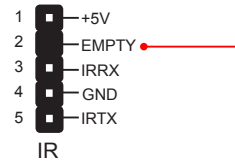
Fan Connectors : CPU_FAN, SYS_FAN, NB_FAN(optional)

There are two main fan headers on this motherboard. The fan speed can be controlled and monitored in "PC Health Status" section of the BIOS Setup. These fans can be automatically turned off after the system enters S3, S4 and S5 sleeping states. Another 3-pin NB fan connector is optional.



IrDA Connector : IR

This connector supports infrared wireless transmitting and receiving device.



2-5 Jumpers

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

Description of Jumpers

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

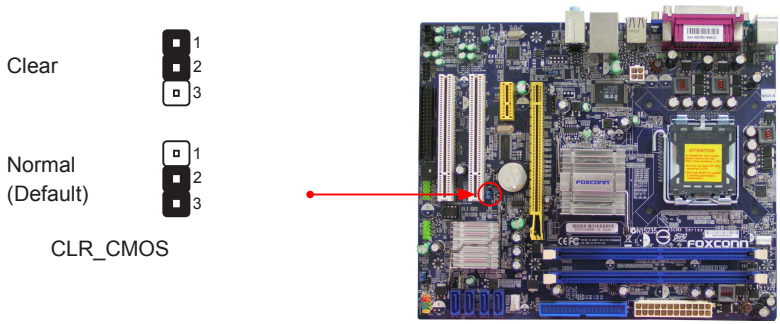
Jumper	Diagram	Definition	Description
1	1	1-2	Set Pin 1 and Pin 2 closed
	1	2-3	Set Pin 2 and Pin 3 closed
1	1	Closed	Set two pins closed
	1	Opened	Set two pins opened

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 and 3, put it onto pins 1 and 2 to short them. This will clear CMOS data.
3. Return the setting to its original with pins 2 and 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.



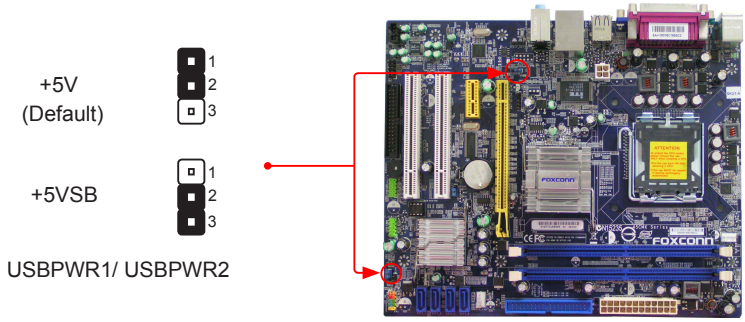
WARNING!

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

USB device wake-up Jumper: USBPWR1 / USBPWR2

1. Set the jumper to pins 1-2 (+5V) to wake up the computer from S1 sleep mode using the connected USB devices.
2. Set the jumper to pins 2-3 (+5VSB) to wake up the computer from S3 and S4 sleep modes using the connected USB devices. At the same time, a corresponding setting must be set in BIOS as below:

Set “CMOS Setup” -> “Power Management Setup” ->“Power Management Events” -> “USB KB Wake-Up From S3” to “Enabled”.



CAUTION

- USBPWR1 is for the internal USB connectors, USBPWR2 is for the rear USB ports.
- The USB device wake-up feature requires a power supply that can provide 500mA on +5VSB lead for each USB port; otherwise, the system will not power up.
- The total current consumed must not exceed the power supply capability (+5VSB) whether under normal condition or in sleep mode.

3

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

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

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

This chapter includes the following information :

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

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

Enter BIOS Setup

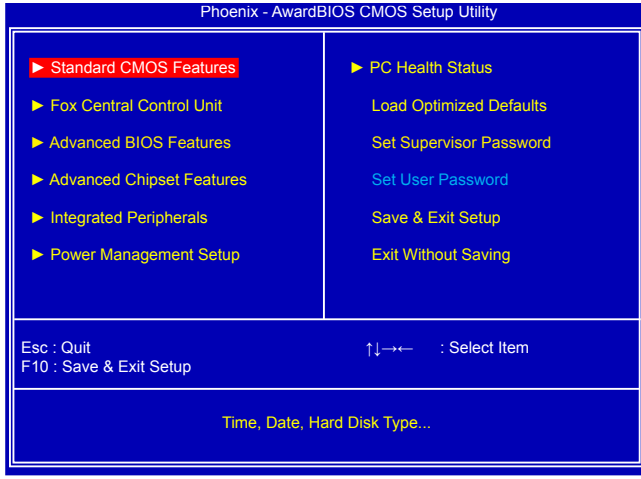
The BIOS is the communication bridge between hardware and software, correctly setting up the BIOS parameters is critical to maintain optimal system performance. Power on the computer, when the message "**Press TAB to show POST screen, DEL to enter SETUP, ESC to enter Boot Menu**" appears at the bottom of the screen, you can press <Del> key to enter SETUP.

CAUTION

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

Main Menu

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



► Standard CMOS Features

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

► Fox Central Control Unit

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

► Advanced BIOS Features

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

► Advanced Chipset Features

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

► Integrated Peripherals

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

► **Power Management Setup**

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

► **PC Health Status**

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

► **Load Optimized Defaults**

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

► **Set Supervisor Password**

The supervisor password can be set up through this menu.

► **Set User Password**

The user password can be set up through this menu.

► **Save & Exit Setup**

Save setting values to CMOS and exit.

► **Exit Without Saving**

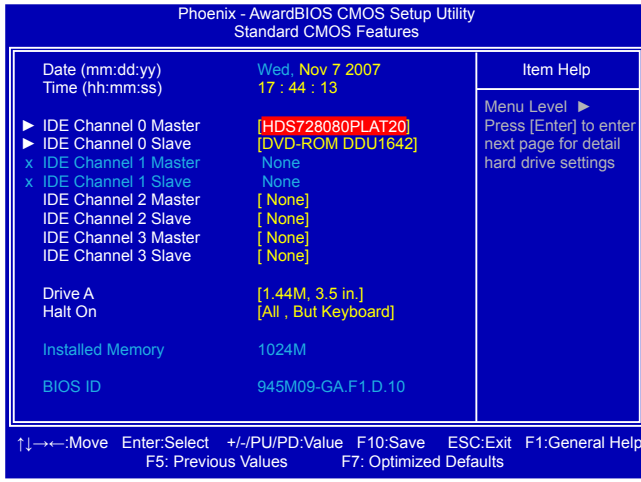
Do not change anything and exit the setup.

CAUTION

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

Standard CMOS Features

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



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

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

Month—month from 1 to 12.

Date—date from 1st to 31st.

Year—year, set up by users.

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

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

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

► **IDE Channel 0/1/2/3**

These categories identify the hard disks connected to the PATA and SATA ports in the system. The display of each channel will be different if the setting of On-Chip Serial ATA (in OnChip IDE Device menu) is set to [Combined], [Enhanced] or [SATA Only] mode. Please refer to Page 32-33 for detail.

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

Award (Phoenix) BIOS is supporting 3 HDD modes : CHS, LBA and Large.

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

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

► Drive A

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

► Halt On

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

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

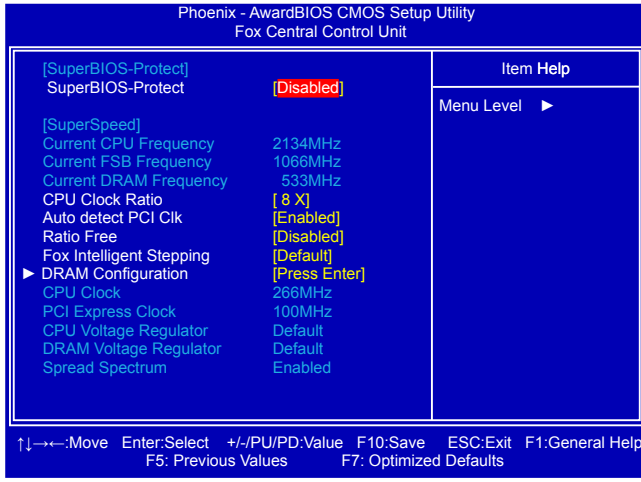
► Installed Memory

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

► BIOS ID

This item shows the information of the BIOS ID.

Fox Central Control Unit



► SuperBIOS-Protect

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

► Current CPU Frequency

This option shows the current frequency of CPU.

► Current FSB Frequency

This option shows the current frequency of FSB.

► Current DRAM Frequency

This option shows the current frequency of DRAM.

► CPU Clock Ratio

This option is used to configure the CPU Clock Ratio. Multiply CPU clock with this ratio, you can get the CPU speed. Increase this ratio may overclock your CPU.

► Auto Detect PCI Clk

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

► Ratio Free

This option is only used for CPU of which its frequency is more than 3.4 GHz. When you use this type of CPU, CPU Clock Ratio value is fixed at 14X.

► Fox Intelligent Stepping (FIS)

You can select different overclock option by this item. The available setting values are : [Default], [Manual], [Step1], [Step2] and [Step 3].

[Default] - the system will automatically adjust its CPU clock based on the current loading in running O/S and application programs.

[Step 1] - CPU is overclocked by a BIOS preset value. Each CPU with different speed has its own set of preset value.

[Step 2] - Same definition as [Step 1].

[Step 3] - Same definition as [Step 1].

[Manual] - It means you can manually select a CPU clock to run your system.
Any selected setting must be saved and exit BIOS to activate it.
More detailed descriptions of FIS feature can be found in FOX One utility of Chapter 4.

► DRAM Configuration

Press <Enter> to go to its submenu.

The following 5 settings are valid only when the Fox Intelligent Stepping is set to [Manual].

► CPU Clock

This option is used to set the CPU clock.

► PCI Express Clock

This option is used to set the speed of PCI Express slot. It may enhance the graphics card speed.

► CPU Voltage Regulator

This option is used to regulate the CPU voltage.

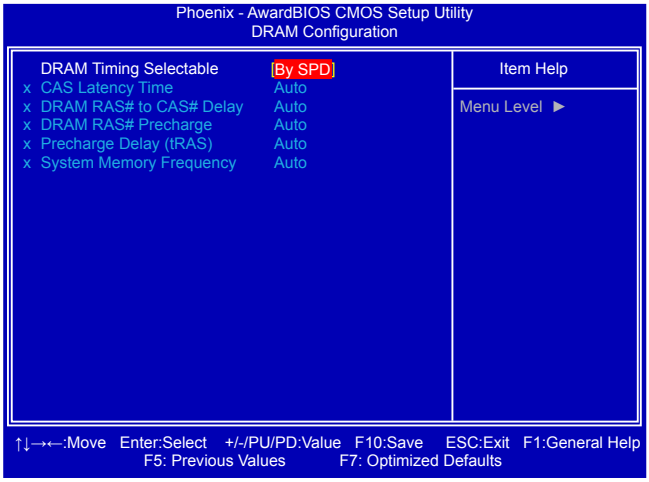
► DRAM Voltage Regulator

This option is used to regulate the DRAM voltage.

► Spread Spectrum

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

DRAM Configuration



► DRAM Timing Selectable

This item is used to enable/disable provision of DRAM timing by SPD device. The Serial Presence Detect (SPD) device is a small EEPROM chip, mounted on a DDR2 memory module. It contains important information about the module's speed, size, addressing mode and various other parameters, so that the motherboard memory controller (chipset) can better access the memory device. Select [Manual], then you can configure DRAM timing by yourselves.

The following 5 settings are valid only when the DRAM Timing Selectable is set to [Manual].

► **CAS Latency Time (tCL)**

This item controls the CAS latency The CAS Latency is the number of clock cycles that elapse from the time the request for data is sent to the actual memory location until the data is transmitted from the module.

► **DRAM RAS# to CAS# Delay (tRCD)**

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

► **DRAM RAS# Precharge (tRP)**

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

► **Precharge Delay (tRAS)**

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

► **System Memory Frequency**

This item is used to manually select a DRAM speed. The options are [Auto], [400MHz], [533MHz] and [667MHz].

Note: When you use the CPU that FSB is 1333MHz, the options are [Auto], [500MHz], [667MHz] and [834MHz].

Advanced BIOS Features

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

► CPU Feature                [Press Enter]        Item Help
► Removable Device Priority  [Press Enter]
► Hard Disk Boot Priority    [Press Enter]        Menu Level ►
  CPU L1 & L2 Cache          [Enabled]
  First Boot Device          [Hard Disk]
  Second Boot Device         [CDROM]
  Third Boot Device          [Removable]
  Boot Other Device          [Enabled]
  Boot Up Floppy Seek        [Disabled]
  Boot Up NumLock Status     [on]
  Security Option            [Setup]
  APIC Mode                  [Enabled]
  Delay For HDD              [ 2]
  Full Screen Logo Show      [Enabled]
  Small Logo(EPA) Show       [Disabled]

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

► **CPU Feature**

Press <Enter> to go to its submenu.

► **Removable Device Priority**

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

► **Hard Disk Boot Priority**

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

► **CPU L1 & L2 Cache**

Enable/Disable CPU cache setting. L1, L2 cache are small, fast memory caches that are built into a CPU and help speed access to important and frequently-used data. L1 cache is typically smaller and faster than L2 cache. L1 cache is an abbreviation of Level 1 cache.

► **First/Second/Third Boot Device**

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

► **Boot Other Device**

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

► **Boot Up Floppy Seek**

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

► **Boot Up NumLock Status**

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

► **Security Option**

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

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

This item is used to enable or disable APIC function.

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

APICs are beneficial for the following reasons :

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

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

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

►Delay For HDD (Secs)

You can select the delay for HDD while booting. It allows you to use your system with old fashion type IDE devices which run slowly.

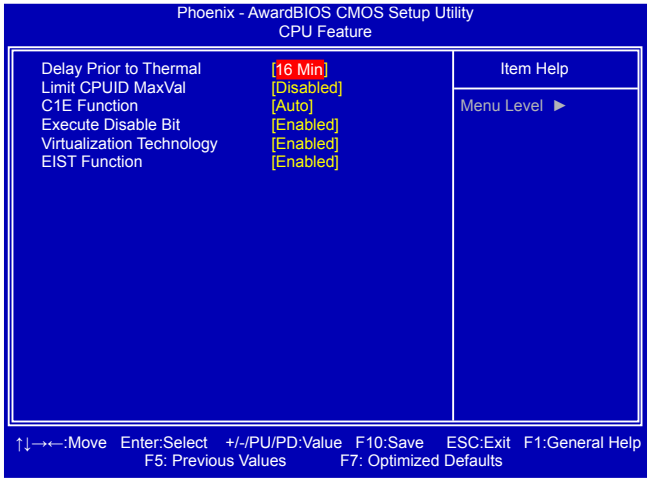
► Full Screen Logo Show

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

► Small Logo(EPA) Show

This item allows you to enable or disable the EPA logo.

CPU Feature



► Delay Prior to Thermal

Some processors come with a Thermal Monitor which consists of a on-die thermal sensor and a Thermal Control Circuit (TCC).

When the thermal sensor detects that the processor has reached its maximum safe operating temperature, it will activate the TCC. The TCC will then modulate the clock cycles by inserting null cycles, typically at a rate of 50-70% of the total number of clock cycles. This results in the processor "resting" 50-70% of the time.

As the die temperature drops, the TCC will gradually reduce the number of null cycles until no more is required to keep the die temperature below the safe point. Then the thermal sensor turns the TCC off. This mechanism allows the processor to dynamically adjust its duty cycles to ensure its die temperature remains within safe limits.

The Delay Prior To Thermal BIOS feature controls the activation of the Thermal Monitor's mode. It allows you to determine when the Thermal Monitor should be activated after the system boots. For example, with the default value of 16 Minutes, the BIOS activates the Thermal Monitor 16 minutes after the system starts booting up.

Generally, the Thermal Monitor should not be activated immediately on booting as the processor will be under a heavy load during the booting process. Lower delay time unnecessarily reduces the processor's performance during the booting up process. Therefore, to ensure optimal booting performance, the activation of the Thermal Monitor must be delayed for a set period of time.

It is recommended that you set this BIOS feature to the lowest value (in minutes) that exceeds the time it takes to fully boot up your computer. For example, if it takes 5 minutes to fully boot up your system, you should select 8 Minutes.

You should not select a delay value that is unnecessarily long. Without the Thermal Monitor, your processor may heat up to a critical temperature (approximately 135°C), at which point the thermal sensor shuts down your processor by removing the core voltage within 0.5 seconds.

3

► Limit CPUID MaxVal

This item is used to enable or disable CPUID maximum value limit configuration. Set Limit CPUID MaxVal to 3. Should be [Disabled] for WinXP.

► C1E Function

C1E represents Enhanced HALT State. It is a feature which Intel 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.

► Execute Disable Bit

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

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

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

► Virtualization Technology

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.

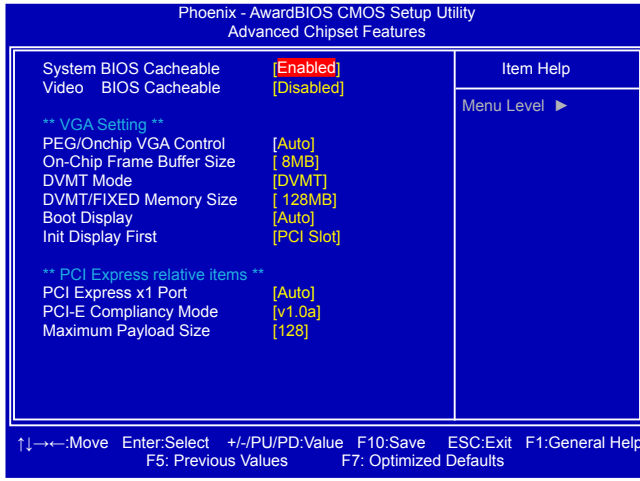
► EIST Function

You can select the EIST (Processor Power Management, PPM) through this item. Setting values: [Enabled] (For fully support ACPI OS, e.g. Windows XP, Vista); [Disabled] (For legacy OS, e.g. Windows2000);

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.

Advanced Chipset Features



► System BIOS Cacheable

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

► Video BIOS Cacheable

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

** VGA Setting **

► PEG/Onchip VGA Control

This option is used to enable or disable PCI Express graphics card or onboard VGA.

► On-Chip Frame Buffer Size

Intel 945G/945GC chipset supports the selection of two different sizes of pre-allocated memory : 1MB and 8MB. This pre-allocated memory selection is supplied for legacy VGA and SVGA graphics support and compatibility. Upon boot, the System BIOS will pre-allocate the amount selected (1MB or 8MB) from the top of the main system memory, which will be dedicated for VGA/SVGA graphics. The VGA graphics memory is needed for applications run from a Microsoft MS-DOS or legacy operating system, where there is no Intel Graphics Driver loaded.

► DVMT Mode

Dynamic Video Memory Technology (DVMT) dynamically allocates system memory for use as video memory to ensure the most efficient use of available resources for maximum 2D/3D graphics performance.

The amount of video memory allocated depends upon the amount requested by the operating system. When the memory is no longer required, it is returned to the operating system for use by other applications or system functions. DVMT allocates memory based on system needs. This BIOS option allows you to adjust the amount of memory available for DVMT.

Fixed is a memory allocation method addition to the Unified Memory Architecture (UMA) concept, wherein a static amount of page-locked graphics memory is allocated during driver

initialization. This fixed amount of memory will provide the user with a guaranteed graphics memory at all times, and will no longer be available to the OS.

DVMT is an enhancement of the UMA concept, wherein the graphics driver allocates memory as needed for running graphics applications. If a user is not performing any graphics-intensive operations, most of the DVMT memory can be utilized by the OS for other uses. We recommend using DVMT setting for better overall system performance.

► **DVMT/FIXED Memory Size**

Select graphics memory size for Fixed or DVMT usage.

► **Boot Display**

Select boot display device. Options are Auto, CRT, TV and EFP.

► **Init Display First**

Select PCI-Express graphics card as the default first display device.

This option is used to select the source of primary display device. It can be onboard display or PCI-Express graphics card. Select Auto then if no PCI-E graphics card is installed, on board VGA will be used.

PCI Express relative items

► **PCI Express x1 Port**

This item is used to enable/disable PCI Express x1 port, or let it be auto-detected.

► **PCI-E Compliancy Mode**

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

► **Maximum Payload Size**

This item is used to set maximum Transaction Layer Packets (TLP) payload size for PCI Express devices. The unit is byte.

Integrated Peripherals

```
Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals

► OnChip IDE Device        [Press Enter]        Item Help
► Onboard Device           [Press Enter]
► SuperIO Device           [Press Enter]        Menu Level ►
► USB Device Setting       [Press Enter]

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

► OnChip IDE Device / Onboard Device / SuperIO Device / USB Device Setting

Press <Enter> to go to relative submenu.

OnChip IDE Device

```
Phoenix - AwardBIOS CMOS Setup Utility
OnChip IDE Device

  IDE HDD Block Mode          [Enabled]        Item Help
  IDE DMA Transfer Access     [Enabled]
  On-Chip Primary PCI IDE     [Enabled]        Menu Level ►
  IDE Primary Master PIO      [Auto]           If your IDE hard drive
  IDE Primary Slave PIO       [Auto]           supports block mode
  IDE Primary Master UDMA     [Auto]           select Enabled for
  IDE Primary Slave UDMA      [Auto]           automatic detection of
  On-Chip Secondary PCI IDE   [Enabled]        the optimal number of
  IDE Secondary Master PIO    [Auto]           block read/writes per
  IDE Secondary Slave PIO     [Auto]           sector the drive can
  IDE Secondary Master UDMA   [Auto]           support.
  IDE Secondary Slave UDMA    [Auto]

  *** On-Chip Serial ATA Setting ***
  On-Chip Serial ATA          [Enhanced Mode]
  SATA PORT Speed Settings    [Force GEN II]
x PATA IDE Mode               Primary
  SATA Port                   P1,P3 is Secondary

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

► IDE HDD Block Mode

If your IDE hard drive supports block mode, select [Enabled] for automatic detection of the optimal number of block read/write per sector.

► IDE DMA Transfer Access

[Disabled] : to disable DMA transfers for all IDE drives. They will revert to PIO mode transfers.
[Enabled] : to enable DMA transfers for all IDE drives. The proper DMA mode will be detected at boot-up. If the drive does not support DMA transfers, then it will use PIO mode instead.
Recommend leaving this BIOS feature at the default [Enabled] setting. You should only disable

it for troubleshooting purposes. For example, certain IDE devices may not run properly using DMA transfers when the PCI bus is overclocked. Disabling DMA support will force the drive to use the slower PIO transfer mode. This may allow the drive to work properly with the higher PCI bus speed.

► On-Chip Primary PCI IDE

Enable/Disable Primary IDE port. It also relates to the drives displayed on the IDE Channel 0 Master/Slave in "Standard CMOS Feature" menu.

► IDE Primary Master PIO

Specify a particular PIO mode (0,1,2,3,4) for legacy PIO operation or select Auto and let the system automatically detect it.

► IDE Primary Slave PIO

Specify a particular PIO mode (0,1,2,3,4) for legacy PIO operation or select Auto and let the system automatically detect it.

► IDE Primary Master UDMA

Disable UDMA operation or select Auto and let the system automatically detect it.

► IDE Primary Slave UDMA

Disable UDMA operation or select Auto and let the system automatically detect it.

► On-Chip Secondary PCI IDE / ► IDE Secondary Master PIO / ► IDE Secondary Slave PIO / ► IDE Primary Secondary UDMA / ► IDE Secondary Slave UDMA

Settings of Secondary PCI IDE as defined on the Primary PCI IDE. It also relates to the drives displayed on the IDE Channel 1 Master/Slave in "Standard CMOS Feature" menu.

► On-Chip Serial ATA

[Disabled] : Disable SATA Controller. Only 2 IDE drives are available at PATA port.

[Combined Mode] : PATA and SATA are combined, maximum there are four IDE drives. You can select PATA as the Primary PCI IDE or select SATA as the Primary PCI IDE through the below "PATA IDE Mode" setting. Four drives are displayed as IDE Channel 0 Master/Slave and IDE Channel 1 Master/Slave in "Standard CMOS Feature" menu.

[Enhanced Mode] : Maximum of 6 IDE drives are supported. Two PATA drives are displayed as IDE Channel 0 Master/Slave, and four SATA drives are displayed as IDE Channel 2 Master/Slave and IDE Channel 3 Master/Slave in "Standard CMOS Feature" menu.

[SATA Only] : SATA is operating in legacy mode. Four SATA drives are displayed as IDE Channel 0 Master/Slave and IDE Channel 1 Master/Slave in "Standard CMOS Feature" menu.

► SATA PORT Speed Settings

When SATA is operating in [Enhanced Mode], you can select its speed to Disabled, SATA I or SATA II. Default SATA II can get the best performance.

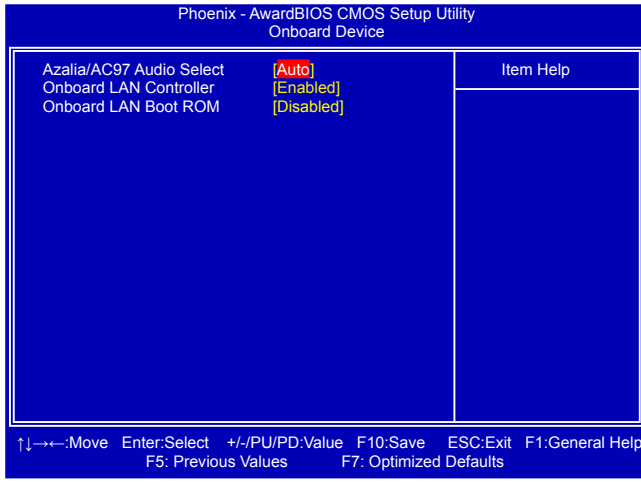
► PATA IDE Mode

When SATA is operating in [Combined Mode], you can further select which one of PATA or SATA is functioning as the Primary IDE and which one is functioning as the Secondary.

► SATA Port

When SATA is operating in [Combined Mode], you can refer to this display message to connect SATA drives with the corresponding SATA ports on the motherboard for correct operations.

Onboard Device



► **Azalia/AC97 Audio Select**

This item is used to select the operation of your audio controller. You can select Azalia for high definition audio, or AC97 for legacy support. Select [Auto], system will automatically check it.

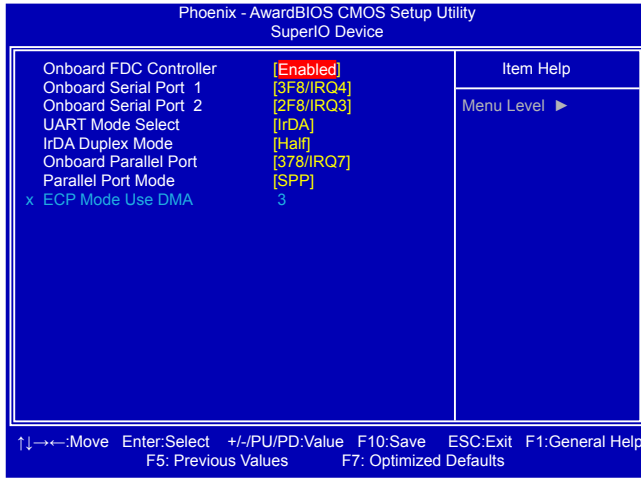
► **Onboard LAN Controller**

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

► **Onboard LAN Boot ROM**

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

SuperIO Device



► **Onboard FDC Controller**

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

► **Onboard Serial Port 1**

This item is used to assign the I/O address and interrupt request (IRQ) for the onboard serial port 1.

► **Onboard Serial Port 2**

This item is used to assign the I/O address and interrupt request (IRQ) for the onboard serial port 2.

► **UART Mode Select**

This item is used to configure COM2 PORT as :

[Normal] : a RS232 device. (optional)

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

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

► **IrDA Duplex Mode**

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

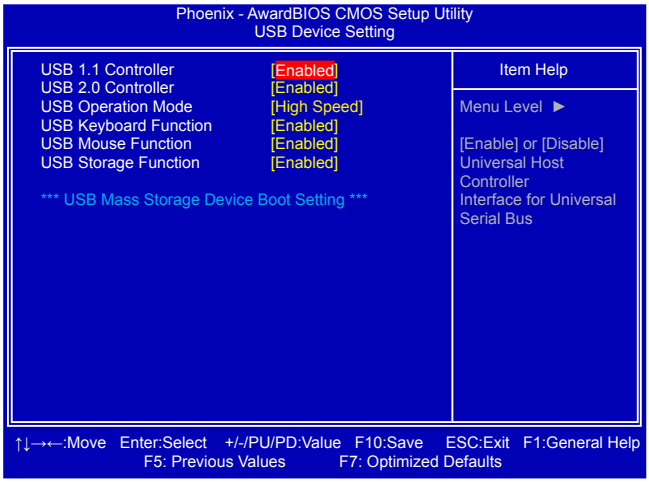
► **Onboard Parallel Port**

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

► **Parallel Port Mode**

This item is used to select the operation modes for the onboard parallel (or Printer) port. They are [SPP], [EPP], [ECP] and [ECP/EPP].

USB Device Setting



► **USB 1.1 Controller**

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

► **USB 2.0 Controller**

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

► **USB Operation Mode**

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

► **USB Keyboard Function**

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

► **USB Mouse Function**

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

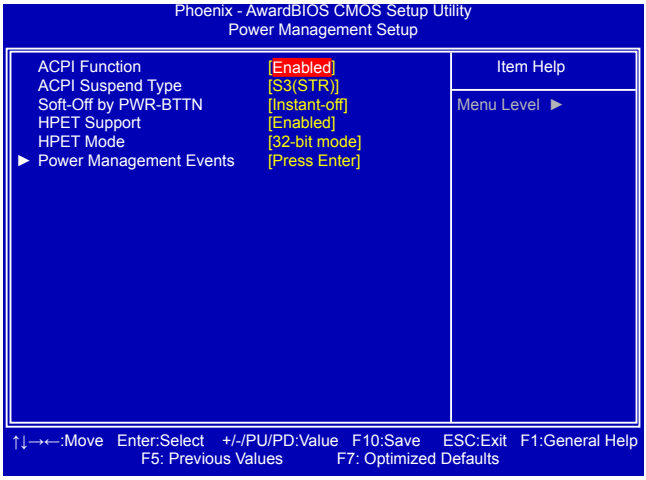
► **USB Storage Function**

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

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

BIOS auto detects the presence of USB Mass Storage Devices, you can configure the Boot setting mode for the detected USB MSD. Setting Options: [Auto]; [FDD Mode]; [HDD Mode].

Power Management Setup



ACPI (Advanced Configuration and Power Interface) is an open industry standard that defines power and configuration management interfaces between an operating system and the BIOS. In other words, it is a standard that describes how computer components work together to manage system hardware. In order to use this function the ACPI specification must be supported by the OS (for example, Windows2000 or WindowsXP).

ACPI defines five sleeping states, they are :

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

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

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

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

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

► ACPI Function

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

► ACPI Suspend Type

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

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

► Soft-Off by PWR-BTTN

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

► HPET Support

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

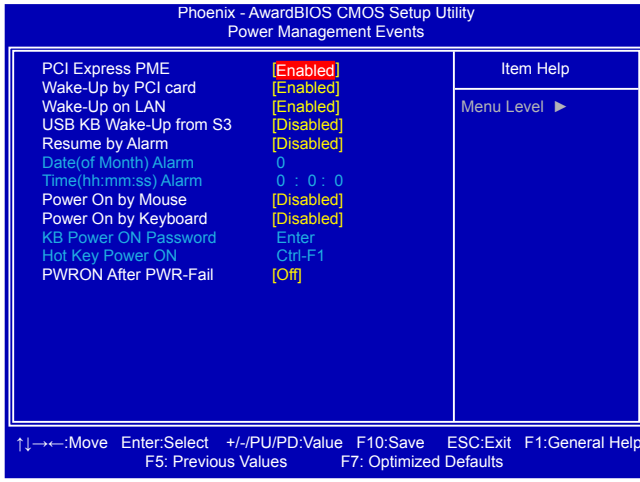
► HPET Mode

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

► Power Management Events

Press <Enter> to select the submenu..

Power Management Events



► PCI Express PME

This item is used to enable/disable PCI PME# event to generate a wake up. PME# is a signal which can be triggered from a PCI card. It represents Power Management Event.

► **Wake-Up by PCI card**

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

► **Wake-Up on LAN**

This item is used to set the system to wake up by LAN.

► **USB KB Wake-Up from S3**

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

► **Resume by Alarm**

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

► **Date (of Month) Alarm**

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

► **Time (hh:mm:ss) Alarm**

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

► **Power On by Mouse**

When enabled, it allows you to use the mouse to wake up the system from soft off and green mode. This feature requires an ATX power supply.

► **Power On by Keyboard**

This item allows you to use the keyboard to wake up the system from soft off and green mode. This feature requires an ATX power supply. The options are: [Disabled]; [Password]; [Hot KEY]; [Any KEY], and [Keyboard 98].

► **KB Power ON Password**

When Power On by Keyboard is set to [Password], this item allows you to input a password to wake up the system from soft off and green mode.

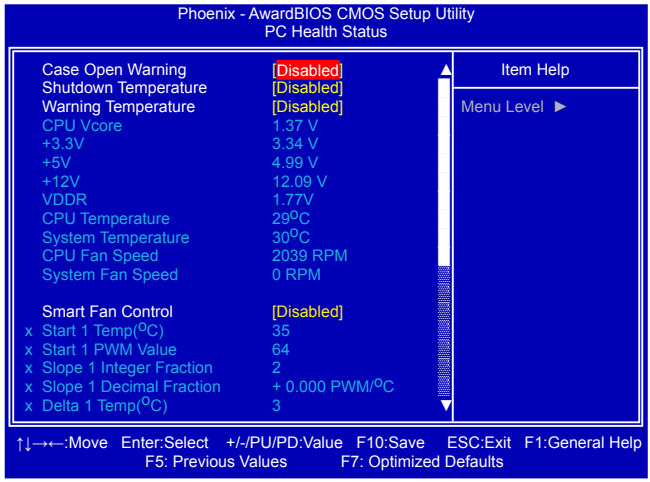
► **Hot Key Power ON**

When Power On by Keyboard is set to [Hot KEY], this item allows you to press a [Ctrl] + Function key to wake up the system from soft off and green mode.

► **PWRON After PWR-Fail**

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

PC Health Status



► Case Open Warning

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

► Shutdown Temperature

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

► Warning Temperature

This option is used to set the warning temperature for the system. When the temperature of CPU is higher than the set value, the motherboard will send out warning information.

► CPU Vcore/+ 3.3V/+5V/+12V/VDDR

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

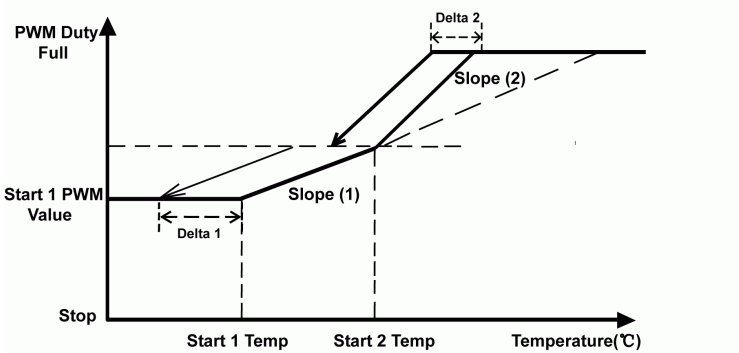
► CPU/System Temperature

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

► CPU Fan/System Fan Speed

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

► Smart Fan Control



Smart Fan Automatic Mode

This option is used to enable or disable smart fan function. 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.

Start 1 Temp(^{O}C)

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

Start 1 PWM Value

It allows you to set an initial PWM value to drive the fan when the temperature reaches Start 1 value and smart fan begins its operation. The higher PWM value can achieve the faster fan speed.

Slope 1 Integer Fraction

It is used to set the integer fraction of the slope 1 in PWM/Temperature diagram. The slope 1 controls the PWM value being stepped up or down versus temperature changes.

Slope 1 Decimal Fraction

It is used to set the decimal fraction of slope 1 of smart fan curve.

Delta 1 Temp(^{O}C)

It is used to set the delta value for temperature. When change of the temperature reaches plus/minus delta 1 value, then the PWM will be increased or decreased by a step value based on the slope 1 formula.

Start 2 Temp(^{O}C)

Slope 2 Integer Fraction

Slope 2 Decimal Fraction

Delta 2 Temp(^{O}C)

The definition of the above items are the same as slope 1 curve. The only difference is the formula of slope 2 is defined as below :

For example, slope 1= 2.500, slope 2 integer fraction = 1, slope 2 decimal fraction = 0.125, slope 2 = 2.500+1+0.125 = 3.625.

During the operation, the PWM value is subject to change based on the variation of temperature. When temperature changes its value between start 1 temperature and full limit, each time the change of temperature exceeding the delta value, the PWM will change accordingly. If the temperature increases X^{O}C, the PWM value will increase X*slope.

Sys Start 1 Temp(^{O}C), Sys Start 1 PWM Value, Sys Slope 1 Integer Fraction, Sys Slope 1 Decimal Fraction, Sys Delta 1 Temp(^{O}C),

Sys Start 2 Temp(^{O}C), Sys Slope 2 Integer Fraction, Sys Slope 2 Decimal Fraction, Sys Delta 2 Temp(^{O}C)

These are parameters for System Smart Fan. The principle is the same as CPU Smart Fan.

Load Optimized Defaults

Select this option and press <Enter>. A dialogue pops out, select <Y> then press <Enter> to load the defaults; press <N> to skip. By this default, BIOS have set the optimized performance parameters of system to improve the performances of system components. But if the optimized performance parameters to be set cannot be supported by your hardware devices, the system may fail to work. It may happen on when you installed too many add-on cards on your system, or overloaded the hardware until it can not afford.

```
Load Optimized Defaults (Y/N)? N
```

3

Set Supervisor Password

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

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

```
Enter Password:
```

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

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

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

Set User Password

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

Save & Exit Setup

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

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

Exit Without Saving

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

```
Quit Without Saving (Y/N)? N
```

4

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

This chapter includes the following information:

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

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

Utility CD content

This motherboard comes with one 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.

A. Intel Chipset Driver
B. Realtek HDA Audio Driver
C. Realtek 811X LAN Driver
D. Intel VGA Driver

2. Software Utilities

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

A. FOX ONE
B. FOX LiveUpdate
C. FOX LOGO
D. FOX DMI
E. Microsoft DirectX 9.0
F. Adobe Acrobat Reader
G. Norton Internet Security
H. Create RAID Driver Floppy (Not Supported)

Install driver and utility

1. Install Driver

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

Manual Installation Step by Step

Automatic Installation by One Click.

Exit the program

Click to visit Foxconn's website

Select to Install Utilities

Select to Install Drivers

Browse CD

Drop to System Tray

2. Install Utility

You can select the specific utility to install.

FOX ONE

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

With FOX ONE, you can :

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

CAUTION

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

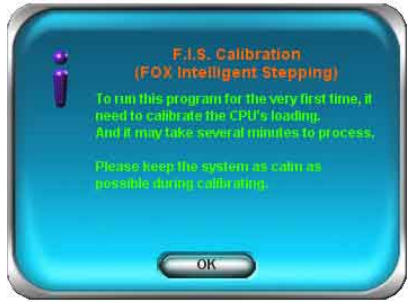
- Voltage Monitoring is supported only in FOX ONE Premium & Deluxe products.
- Fox Intelligent Stepping is supported only in FOX ONE Deluxe products.

Supporting Operating Systems :

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

Using FOX ONE :

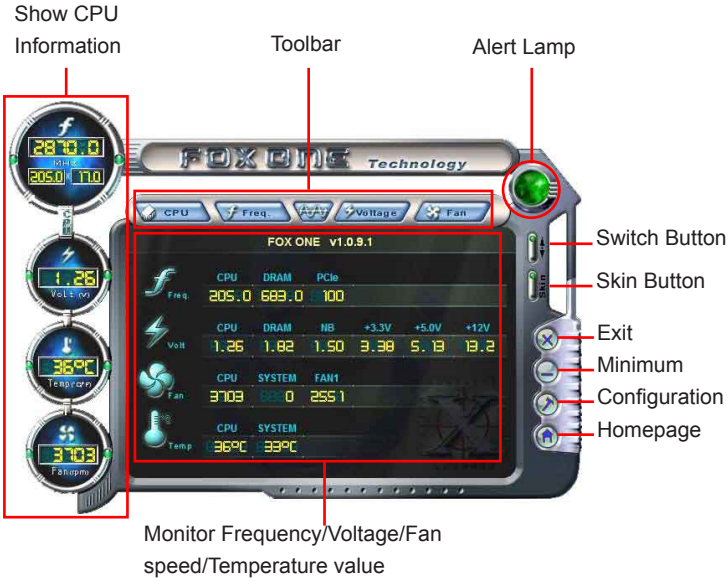
The very first time you run FOX ONE, F.I.S. Calibration function (FOX Intelligent Stepping) will require you to calibrate the CPU's loading. Click "OK" to proceed and start the Utility. F.I.S. is a feature of FOX ONE, which can automatically adjust your CPU clock based on your current system loading.



CAUTION

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

1. Main Page



Toolbar

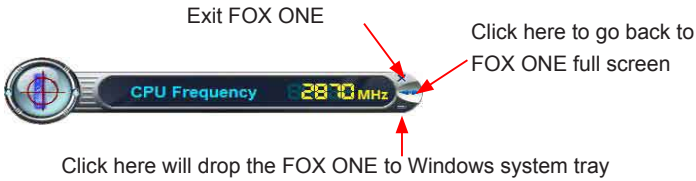
Use the toolbar to navigate to other pages.

Alert Lamp

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

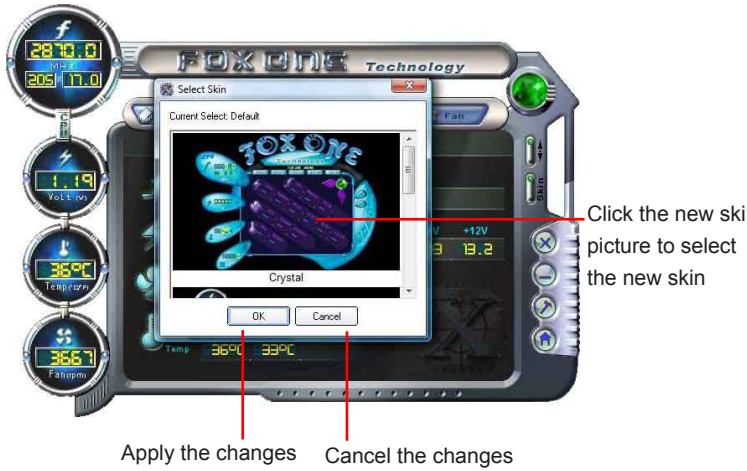
Switch Button

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 provided. 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 which different messages of system settings 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

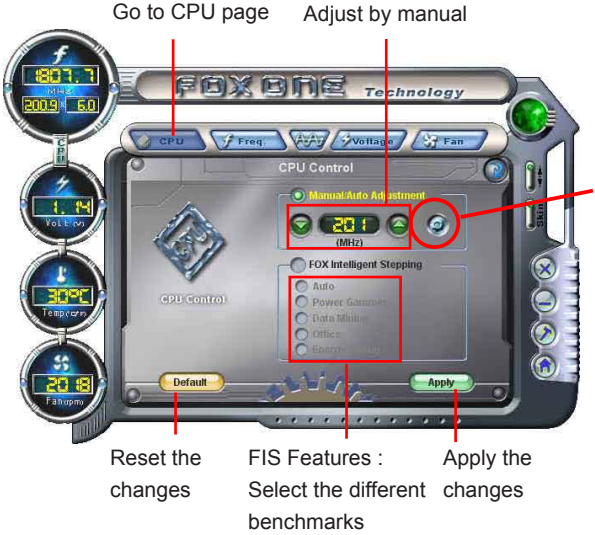
This page lets you select (or overclock) CPU clock to meet the current performance level of the system. The fastest and suitable CPU clock running for current system can be calculated by FOX ONE automatically or manually input by yourselves.

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.

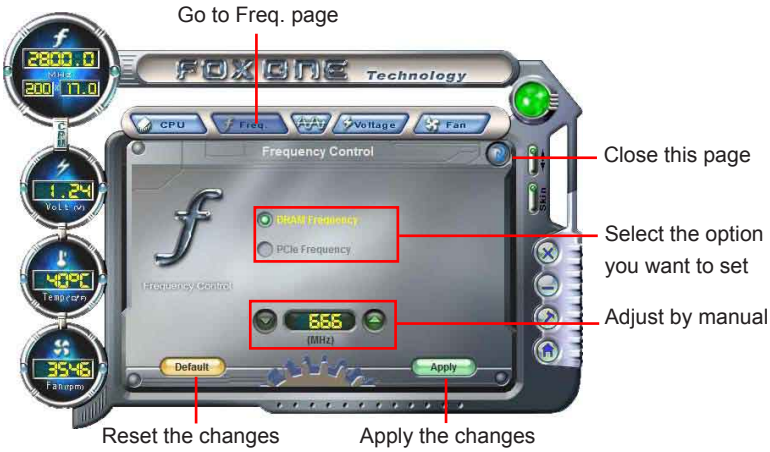
Now, your system is running at a CPU clock of 255MHz.

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

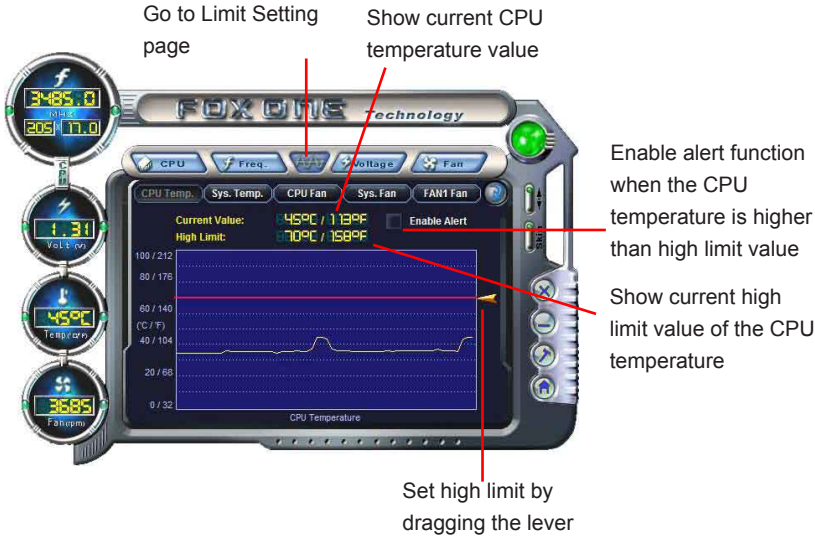
This page lets you set memory and PCI Express frequencies by manual.



4. Limit Setting

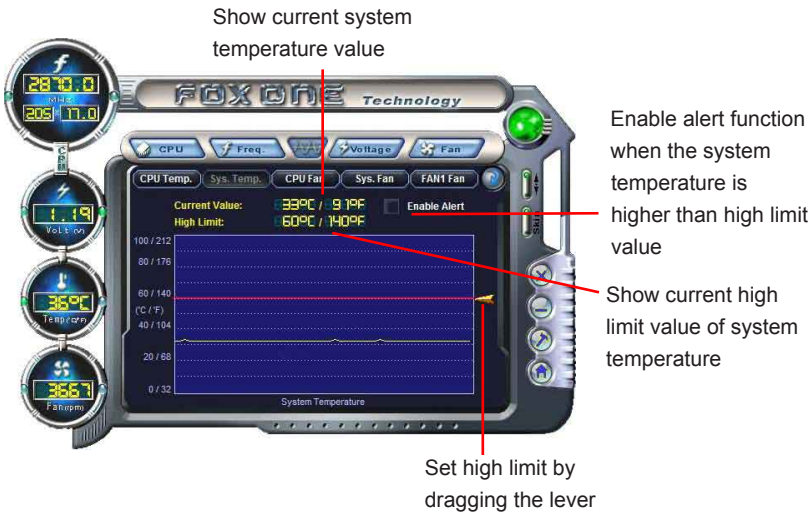
4.1 Limit Setting - CPU Temperature

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



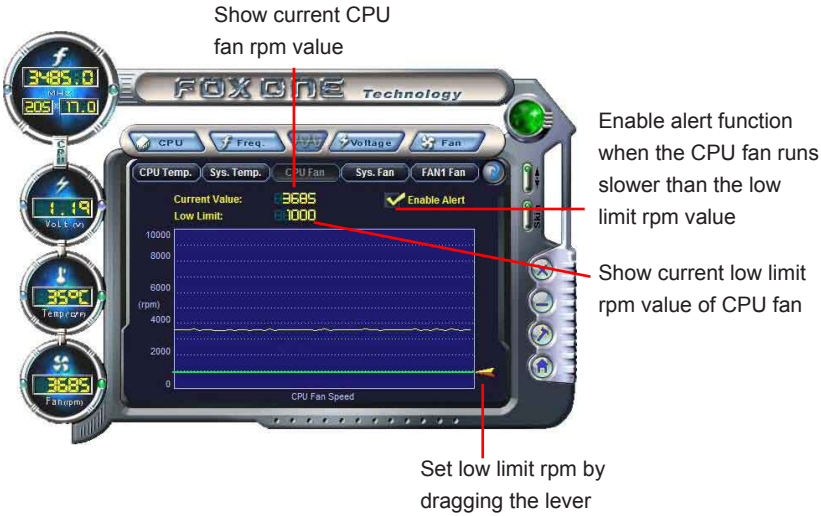
4.2 Limit Setting - System Temperature

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



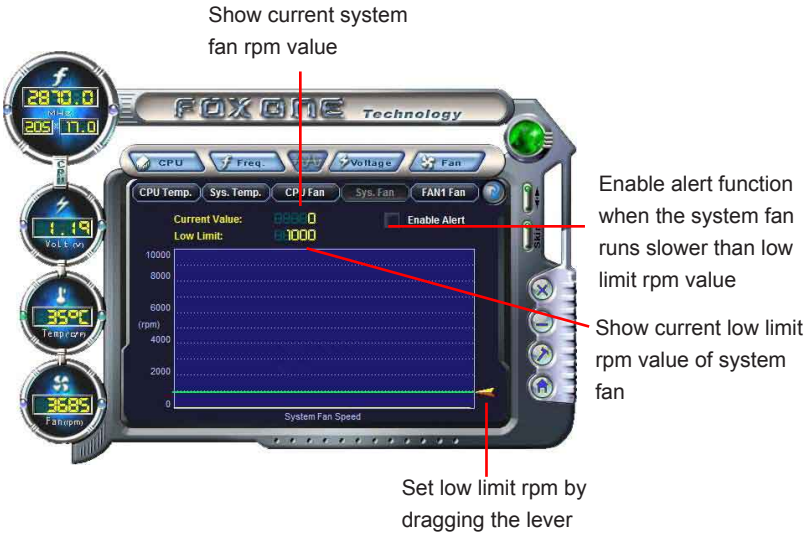
4.3 Limit Setting - CPU Fan

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



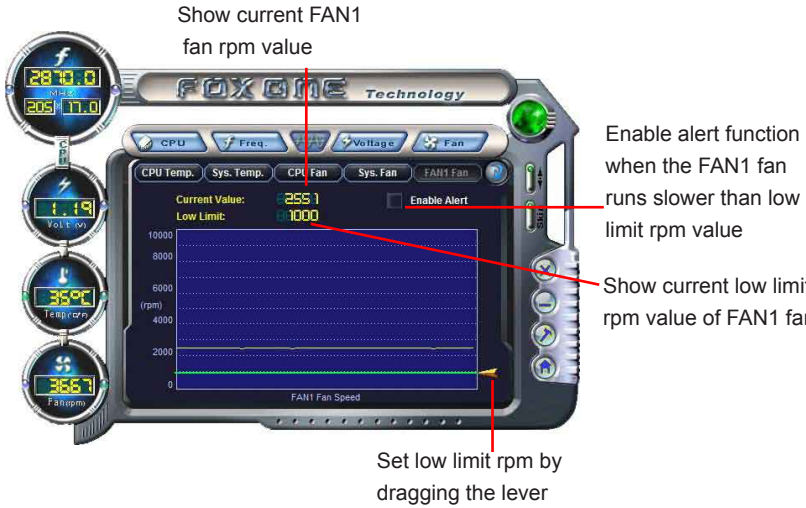
4.4 Limit Setting - System Fan

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



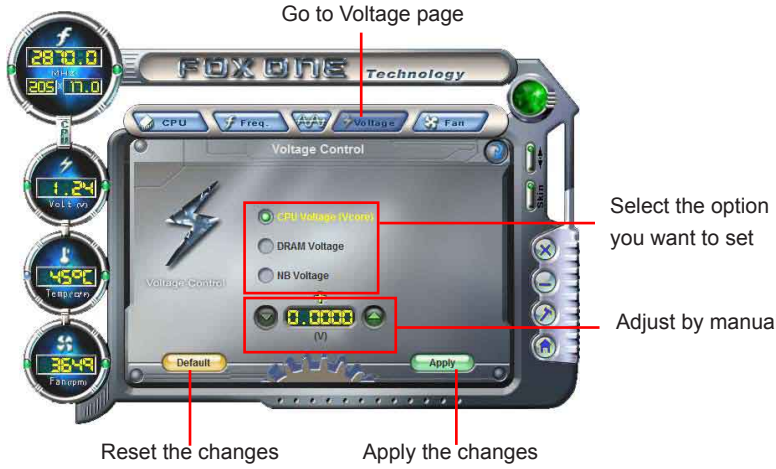
4.5 Limit Setting - FAN1 Fan

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



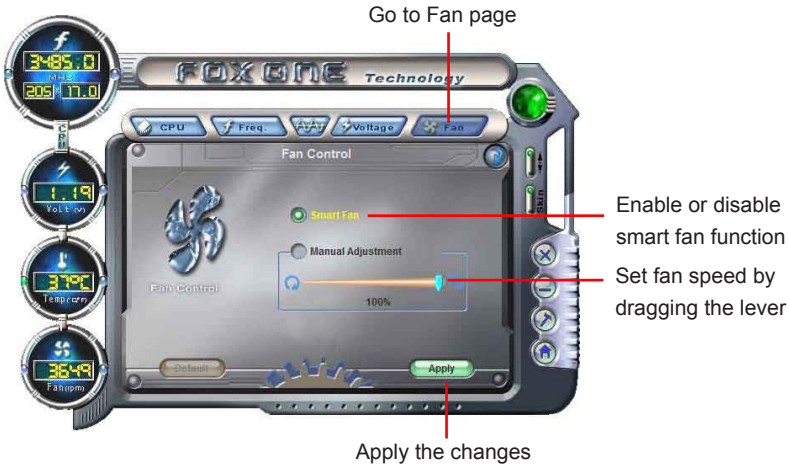
5. Voltage Page - Voltage Control (Optional)

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 :

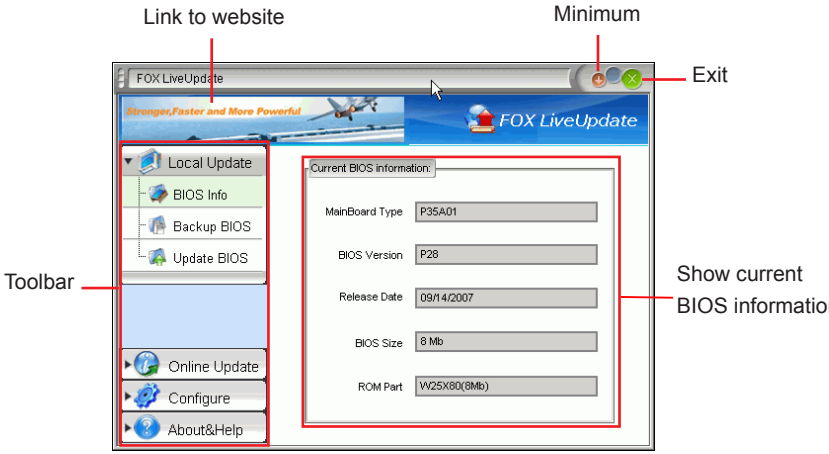
- Windows 2000
- Windows XP (32-bit and 64-bit)
- Windows 2003 (32-bit and 64-bit)
- Windows Vista (32-bit and 64-bit)

Using FOX LiveUpdate :

1. Local Update

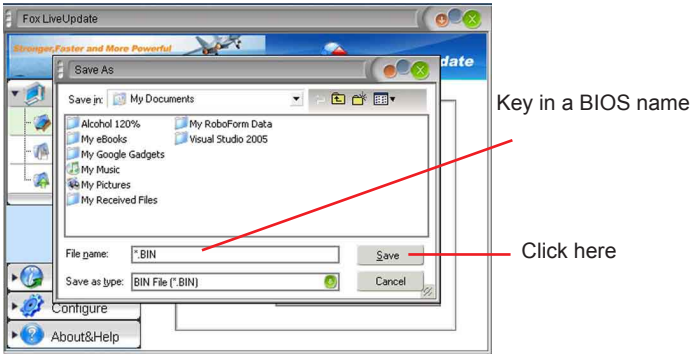
1-1 Local Update - BIOS Information

This page lets you know your system BIOS information.



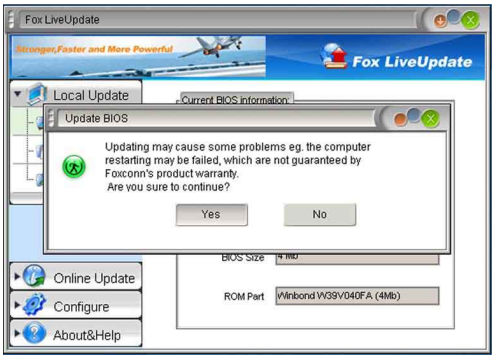
1-2 Local Update - Backup

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



1-3 Local Update - Update

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



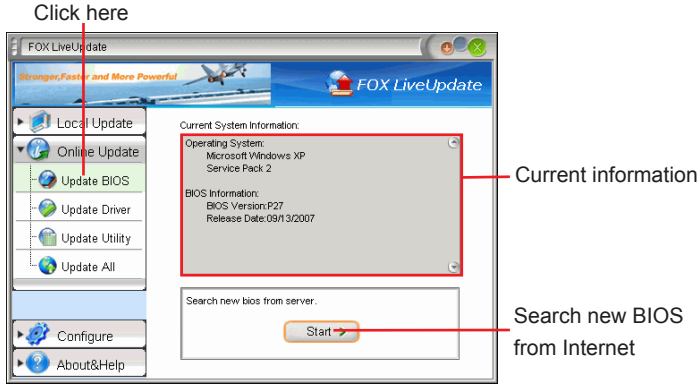
CAUTION

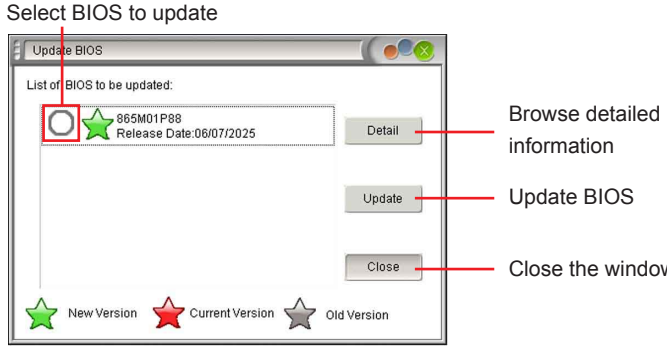
FOX LiveUpdate can automatically backup old BIOS before update. This feature can be enabled in the "Configure-System" setup. Please refer to "Configure-System" section for more detail. The default backup directory is C:\LiveUpdate_Temp, but the backup file name will be automatically generated. It is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

2. Online Update

2-1 Online Update - Update BIOS

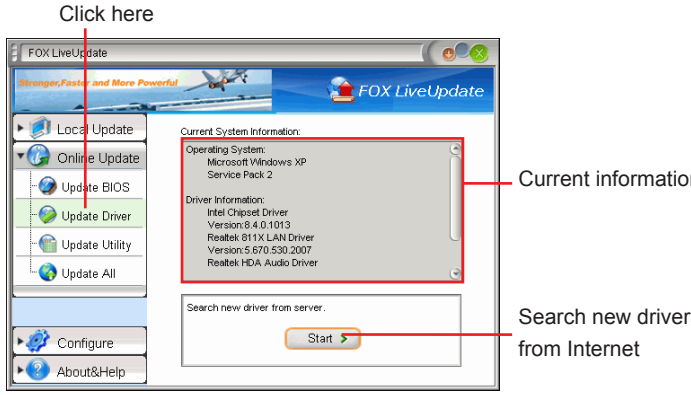
This page lets you update your system BIOS from Internet. Click “start”, it will search the new BIOS from Internet. Then follow the wizard to finish the update operation.

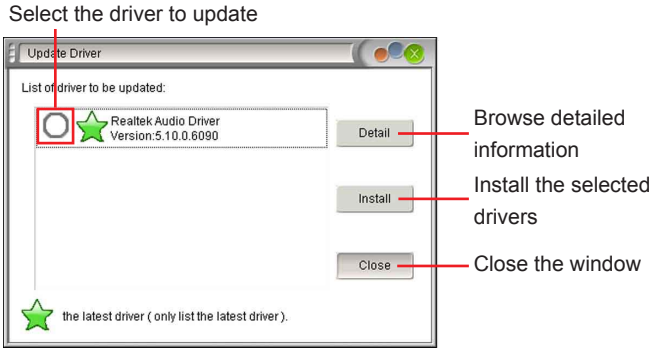




2-2 Online Update - Update Driver

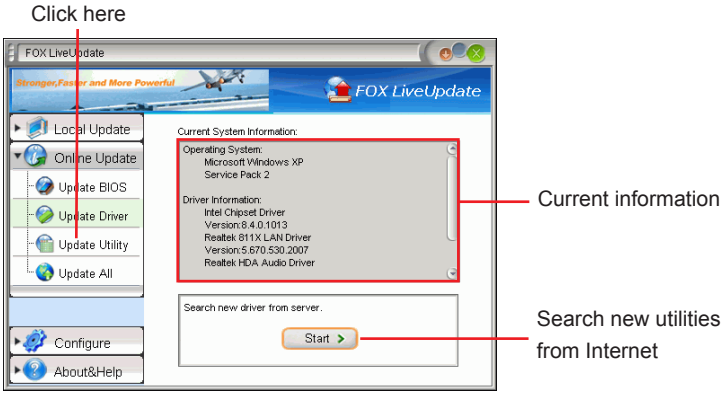
This page lets you update your system drivers from Internet. Click “start”, it will search the new drivers from Internet. Then follow the wizard to finish the update operation.





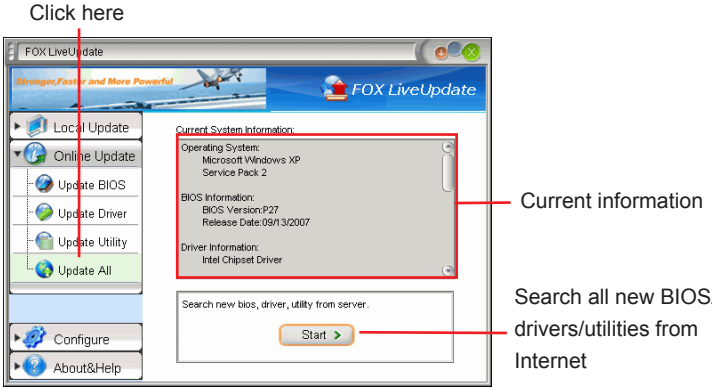
2-3 Online Update - Update Utility

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



2-4 Online Update - Update All

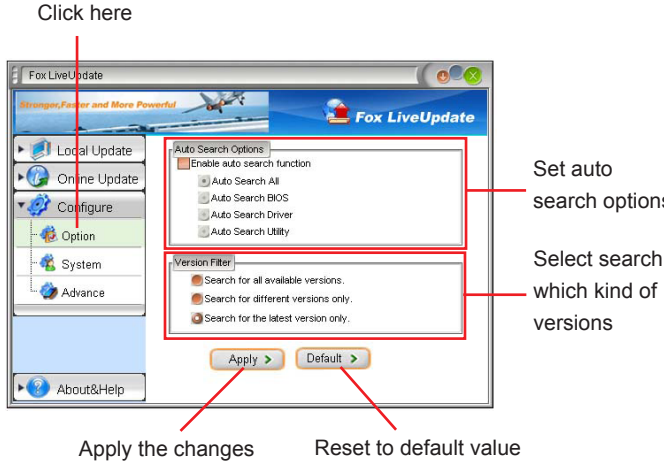
This page lets you update your system drivers from Internet. Click “start”, it will search all new BIOS/drivers/utilities from Internet. Then follow the wizard to finish the update operation.



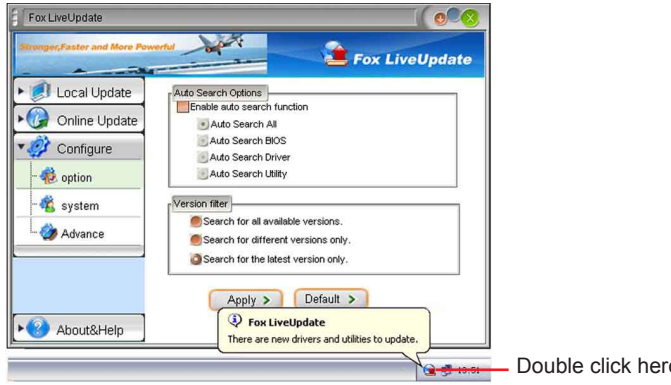
3. Configure

3-1 Configure - option

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

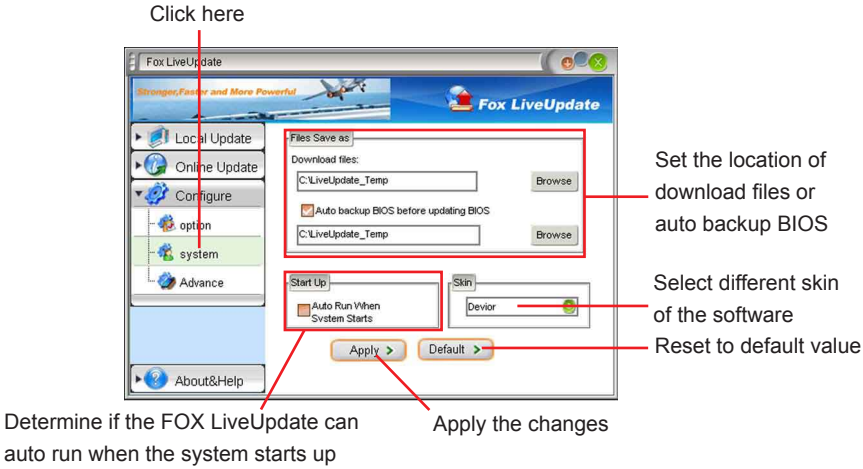


Double click the icon on the system bar, you can see the detailed information.



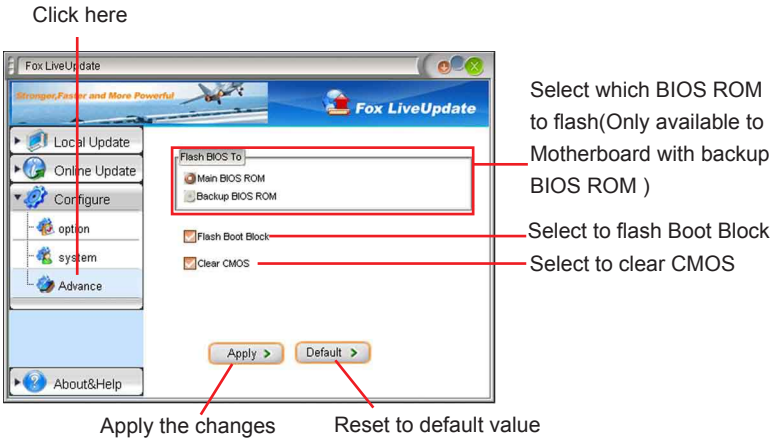
3-2 Configure - System

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



3-3 Configure - Advance

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

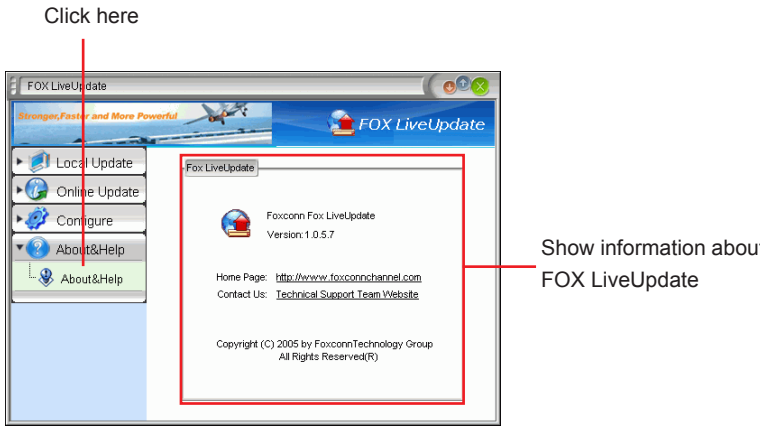


CAUTION

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

4. About & Help

This page shows some information about FOX LiveUpdate.



FOX LOGO

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

You can prepare a bitmap image (640x480) file, then use FOX LOGO to open it and change the boot time Logo. Boot time Logo will be displayed if you enable the BIOS "Full Screen LOGO Show" setting in "Advanced BIOS Features" menu.

Supporting Operating Systems :

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

Using FOX LOGO:

Main Page

WARNING!

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

FOX DMI

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

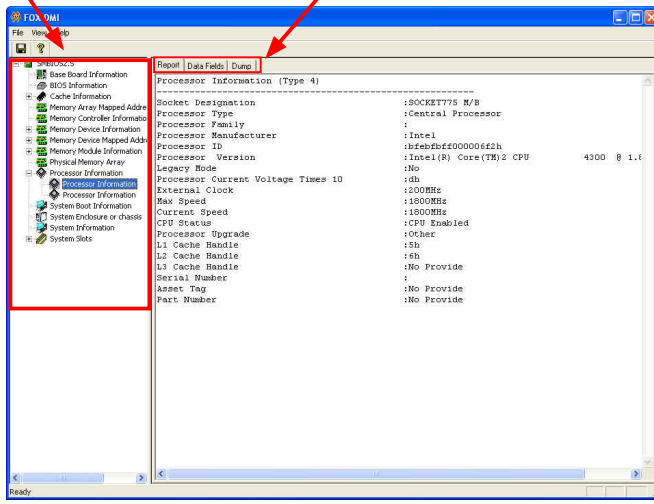
Supporting Operating Systems :

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

4

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