Statement:

This manual is the intellectual property of Foxconn, Inc. Although the information in this manual may be changed or modified at any time, Foxconn does not obligate itself to inform the user of these changes.

Trademark:

All trademarks are the property of their respective owners.

Version:

User's Manual V1.0 for 945PL7AE/945P7AE motherboard.

Symbol description:

Note: refers to important information that can help you to use motherboard better.

Attention: indicates that it may damage hardware or cause data loss, and tells you how to avoid such problems.

Warning: means that a potential risk of property damage or physical injury exists.

More information:

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

This product and its accessories are produced after 13th Aug., 2005 and comply with the WEEE2002/96EC directive.

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

945PL7AE/945P7AE

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/2006

Printed Name : James Liang Position/ Title : Assistant President

Declaration of conformity

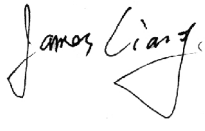
FC

Trade Name:	Foxconn
Model Name:	**945PL7AE/945P7AE**
Responsible Party:	PCE Industry Inc.
Address:	458 E. Lambert Rd.
	Fullerton, CA 92835
Telephone:	714-738-8868
Facsimile:	714-738-8838
Equipment Classification:	FCC Class B Subassembly
Type of Product:	Motherboard
Manufacturer:	**HON HAI PRECISION INDUSTRY COMPANY LTD**
Address:	66 , CHUNG SHAN RD., TU-CHENG INDUSTRIAL DISTRICT, TAIPEI HSIEN, TAIWAN, R.O.C.

Supplementary Information:

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

Tested to comply with FCC standards.

Signature :  Date : 2006

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Attention:

1. Attach the CPU and heatsink using silica gel to ensure full contact.
2. It is suggested to select high-quality, certified fans in order to avoid damage to the motherboard and CPU due high temperatures.
3. Never turn on the machine if the CPU fan is not properly installed.
4. Ensure that the DC power supply is turned off before inserting or removing expansion cards or other peripherals, especially when you insert or remove a memory module. Failure to switch off the DC power supply may result in serious damage to your system or memory module.

Attention:

We cannot guarantee that your system will operate normally while over-clocked. Normal operation depends on the over-clock capacity of your device.

Attention:

Since BIOS programs are upgraded from time to time, the BIOS description in this manual is just for reference. We do not guarantee that the content of this manual will remain consistent with the actual BIOS version at any given time in the future.

Attention:

The pictures of objects used in this manual are just for your reference. Please refer to the physical motherboard.

This manual is suitable for motherboard of 945PL7AE/ 945P7AE. Each motherboard is carefully designed for the PC user who wants diverse features.

-L with onboard 10/100M LAN (Default is omitted.)
-K with onboard Gigabit LAN
-6 with 6-Channel audio (Default is omitted.)
-8 with 8-Channel audio
-E with 1394
-S with SATA
-2 with DDR2
-R with RAID
-H comply with RoHS directives

You can find PPID label on the motherboard. It indicates the functions that the motherboard has.
For example:

The letters on the black mark of the PPID label mean that the motherboard supports 6-Channel Audio (-6)(default), onboard 10/100M LAN (-L)(default), 1394 port (-E),SATA connectors (-S).

Chapter 1

Thank you for buying Foxconn's 945PL7AE/945P7AE series motherboard. This series of motherboard is one of our new products, and offers superior performance, reliability and quality, at a reasonable price. This motherboard adopts the advanced Intel® 945PL/945P + ICH7/ICH7R chipset, providing users a computer platform with a high integration-compatibility-performance price ratio.

This chapter includes the following information:

- Main Features
- Layout
- Rear I/O Ports

Main Features

Size

- ATX form factor of 11.6 inch x 8.6 inch

Microprocessor

- Supports Intel® Core™ 2 Extreme Edition,Core™ 2 Duo, Pentium® D,Pentium® 4 Extreme Edition, Pentium® 4, Celeron® D processors in an LGA775 package
- Supports FSB at 1066 MHz /800 MHz /533 MHz(1066 only for 945P7AE)

Chipset

- Intel® 945PL/945P (North Bridge) + ICH7/ICH7R (South Bridge)

System Memory

- Two 240-pin DIMM slots
- Supports Dual-Channel DDR2 667/533/400(667 only for 945P7AE)
- Supports up to 4GB DDR2 memory

USB 2.0 Ports

- Supports hot plug
- Eight USB 2.0 ports(four real panel ports, two onboard USB headers providing four ports)
- Supports USB 2.0 protocol up to 480Mbps transmission rate

Onboard Serial ATA II

- 300MBps data transfer rate
- Supports RAID 0, RAID 1, RAID 10 (only for ICH7R)
- Four internal Serial ATA II connectors

Onboard LAN (-K)

- One LAN interface built-in onboard
- Supports 10/100/1000 Mbit/sec Ethernet

Onboard Audio (-6)(optional)

- AC'97 2.3 Specification Compliant
- Supports S/PDIF output
- Onboard Line-in jack,Microphone-in jack,Line-out jack
- Supports 6-channel audio(setting via software)

Onboard Audio (-8)(optional)

- Supports S/PDIF output
- Supports Jack-Sensing function
- Supports Intel® High Definition Audio

PCI Express x16

- Supports 4 GB/sec (8 GB/sec concurrent) bandwidth
- Low power consumption and power management features

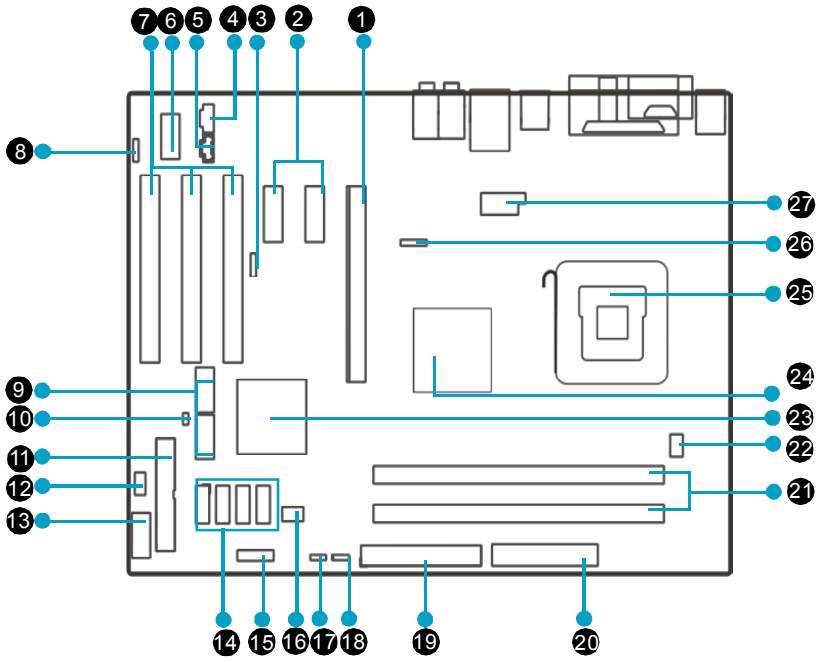
Green Function

- Supports ACPI (Advanced Configuration and Power Interface)
- Supports S0 (normal), S1 (power on suspend), S3 (suspend to RAM), S4 (Suspend to disk - depends on OS), and S5 (soft - off)

Expansion Slots

- Three PCI slots
- one PCI Express x16 Graphics slot
- two PCI Express x1 slots

Layout



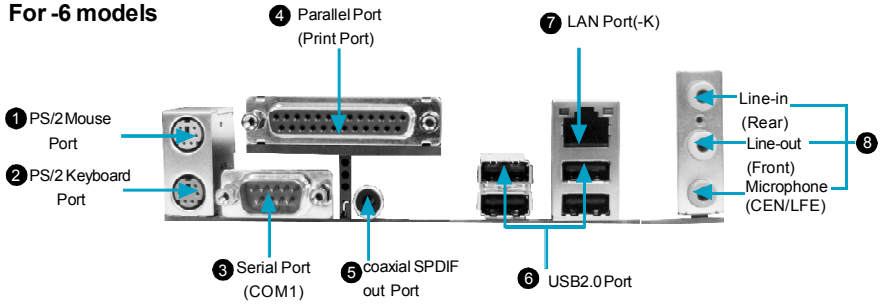
1. PCI Express x16 Slot
2. PCI Express x1 Slots
3. Speaker Connector
4. CD_IN Connector
5. AUX_IN Connector(optional)
6. Front Audio Connector
7. PCI Slots
8. SPIDF_OUT Connector
9. Front USB Connectors
10. Chassis Intruder Connector
11. FDD Connector
12. SPI Connector
13. Front Panel Connector
14. SATA II Connectors
15. FWH/LPC Connector
16. SYS_FAN Connector
17. BIOS WP Protect Jumper(optional)
18. Clear CMOS Jumper
19. IDE Connector: PIDE
20. 24-pin ATX Power Connector: PWR2
21. DDR2 DIMM Slots
22. CPU_Fan Connector
23. South Bridge: Intel®ICH7/ICH7R Chipset
24. North Bridge: Intel® 945P/PL Chipset
25. LGA 775 CPU Socket
26. IrDA Header
27. 8-pin ATX_12V Power Connector: PWR1

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

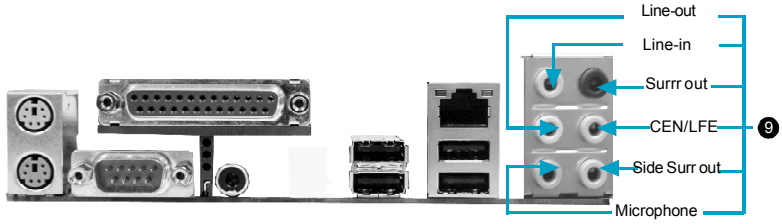
Rear I/O Ports

This motherboard provides the ports as below:

For -6 models



For -8 models



8. Line-in jack,Line-outjack,Microphone jack (for -6models)
When using a 2-channel sound source,the Line-out jack is used to connect to speaker or headphone;the Line-in port connects to an external CD player,tape player or other audio device. The Microphone jack is used to connect to the microphone.
When using a 6-channel sound source,connect the front speaker to the green audio output;connect the rear speaker to the blue audio output;connect the center speaker/subwoofer to the red Microphone output.

9. Line in, Line out, Microphone, Rear, LEF/CEN, Side Jacks(for -8models)
When using an 8-channel sound source, connect the front speaker to the green audio output; connect the rear sound speaker to the black audio output; connect the center speaker/subwoofer to the orange audio output; connect the side sound speaker to the grey audio output.

Chapter 2

This chapter introduces the hardware installation process, including the installation of the CPU, memory, power supply, slots, and 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:

- CPU
- Memory
- Power supply
- Other Connectors
- Expansion Slots
- Jumpers

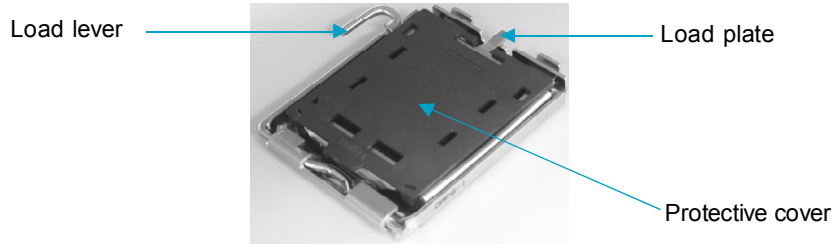
CPU

This motherboard supports single processor including Intel® Core™ 2 Extreme Edition,Core™ 2 Duo,Pentium® D,Pentium® 4 Extreme Edition,Pentium® 4, Celeron® D processors in an LGA775 package with a Front Side Bus (FSB) of 533/800/1066 MHz(1066 for 945P7AE).

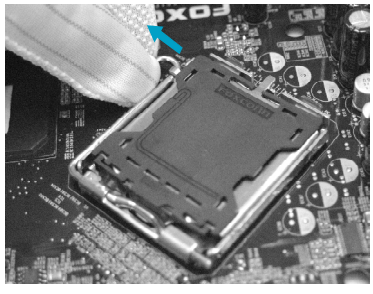
For the detailed CPU support list on this motherboard, please visit the website: http://www.foxconnchannel.com

Installation of CPU

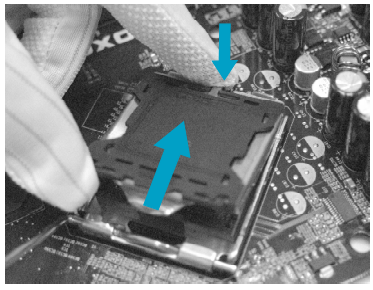
Below is the CPU socket illustration. Follow these procedures to install a CPU.



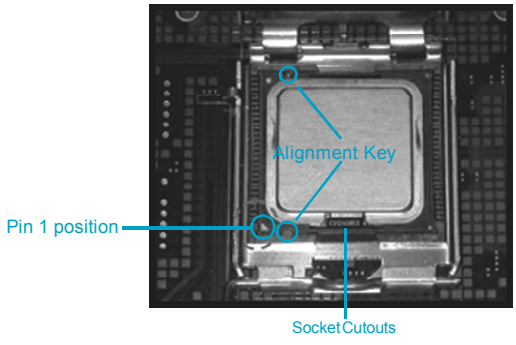
1. Use thumb and forefinger to hold the hook of the load lever and pull the lever down and away from socket to unlock it. Lift the load lever.



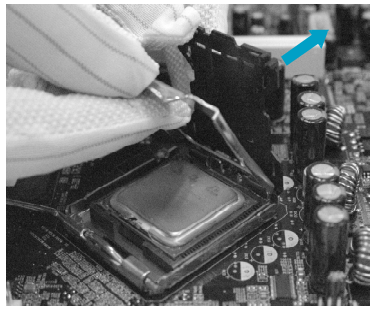
2. Push down the rear tab with your forefinger to bring the front end of the load plate up slightly. Open the load plate with thumb. Be careful not to touch the contacts.



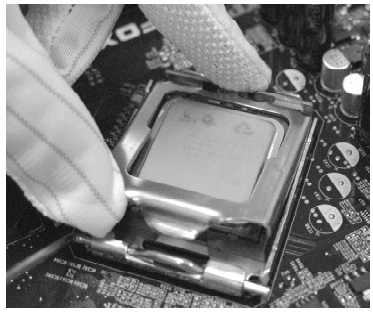
3. Hold CPU with thumb and forefinger. Ensure fingers align to socket cutouts. Match the CPU triangle marker to Pin 1 position as shown below. The alignment key also provides the orientation directed function. Lower the CPU straight down without tilting or sliding the CPU in the socket.



4. After installing the CPU, remove the protective cover from load plate. The protective cover is used to protect the contacts of the socket. Do not discard the protective cover. Always replace the socket cover if the CPU is removed from the socket.



5. Close the load plate, and slightly push down the tongue side.



6. Lower the lever and lock it to the load plate, then the CPU is locked completely.

Note :

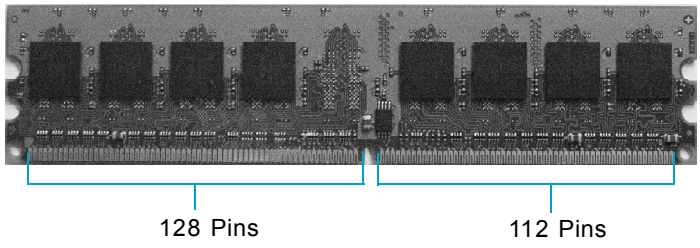
Excessive temperatures will severely damage the CPU and system. Therefore, you should install CPU cooling fan and make sure that the cooling fan works normally at all times in order to prevent overheating and damaging to the CPU. Please refer to your CPU fan user guide to install it properly.

Memory

This motherboard includes two 240-pin DIMM slots. So You must install at least one memory bank to ensure normal operation.

Installation of DDR2 Memory

1. There is only one gap near the center of the DIMM slot, and the memory module can be fixed in one direction only. Unlock a DIMM slot by pressing the module clips outward.
2. Align the memory module to the DIMM slot, and insert the module vertically into the DIMM slot.



3. The plastic clips at both sides of the DIMM slot will lock automatically.

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

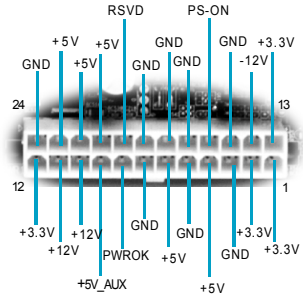
Power Supply

This motherboard uses an ATX power supply. In order to avoid damaging any devices, make sure that they have been installed properly prior to connecting the power supply.

24-pin ATX power connector: PWR2

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

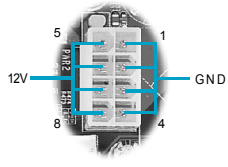
24-pin ATX Power Connector



8-pin ATX_12 V Power Connector: PWR1

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

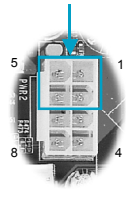
8-pin ATX_12 V Power Connector



Note:

We strongly recommend that you use 8-pin ATX 12V power supply. If you want to use 4-pin power supply, connect the 4-pin power connector as shown.

Connect a 4-pin power plug here



Other Connectors

This motherboard includes connectors for FDD devices, IDE devices, Serial ATA devices, USB devices, IR module, and others.

FDD Connector: FLOPPY

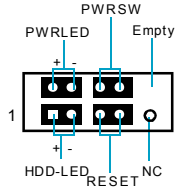
This motherboard includes a standard FDD connector, supporting 360K, 720K, 1.2M, 1.44M, and 2.88M FDDs.

IDE Connectors: PIDE

The PIDE connector supports Ultra ATA 100/66 IDE hard disk drives. Connect the cable's blue connector to the IDE connector, then connect the gray connector to the slave device (hard disk drive) and the black connector to the Ultra ATA master device. If you install two hard disks, you must configure the second drive as a slave device by setting its jumper accordingly. Refer to the hard disk documentation for the jumper settings.

Front Panel Connector: FP1

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



FP1

HDD LED Connector (HDD-LED)

The connector connects to the case's HDD indicator LED indicating the activity status of hard disks.

Reset Switch (RESET)

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 (PWRLED)

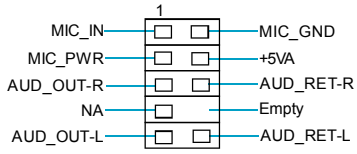
Attach the connector to the power LED on the front panel of the case. The Power LED indicates the system's status. When the system is in S0 status, the LED is on. When the system is in S1 status, the LED is blink; When the system is in S3, S4, S5 status, the LED is off.

Power Switch Connector (PWRSW)

Attach the connector to the power button of the case. Pushing this switch allows the system to be turned on and off rather than using the power supply button.

Audio Connector: F_AUDIO(for -6 models)

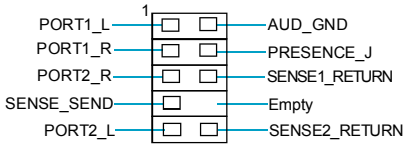
The audio interface provides two kinds of audio output choices: the Front Audio,the Rear Audio.Their priority is sequenced from high to low(Front Audio to Rear Audio).If headphones are plugged into the front panel of the chassis(using the Front Audio),then the Line-out (Rear Audio) on the rear panel will not work. If you don't want to use the Front Audio, pin 5 and 6,pin 9 and 10 must be SHORT, and then the signal will be sent to the rear audio port.



F_AUDIO

Audio Connector: F_AUDIO(for -8 models)

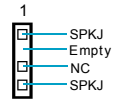
The audio interface provides two kinds of audio output choices:the Front Audio, the Rear Audio.Their priority is the same.Front Audio supports retasking function.



F_AUDIO

Speaker Connector: SPEAKER

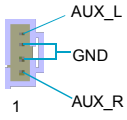
The speaker connector is used to connect speaker of the chassis.



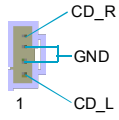
SPEAKER

Audio Connectors: CD_IN,AUX_IN(optional)

CD_IN and AUX_IN are Sony standard CDaudioconnectors,they can be connected to a CD-ROM drive through a CD audio cable.



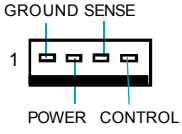
AUX_IN



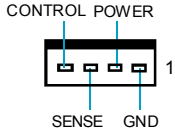
CD_IN

Fan Connectors: CPU_FAN, SYS_FAN

The fan speed can be detected and viewed in "PC Health Status" section of the CMOS Setup. These fans will be automatically turned off after the system enters S3, S4 and S5 mode.



CPU_FAN

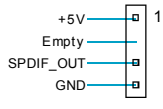


SYS_FAN

S/PDIF Out Connector: SPDIF_OUT

The S/PDIF OUT connector is capable of providing digital audio to external speaker or compressed AC3 data to an external Dolby digital decoder.

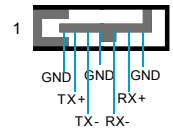
Note:The empty pin of S/PDIF cable should be aligned to empty pin of S/PDIF out connector.



SPDIF_OUT

Serial ATA II Connectors: SATA_1, SATA_2, SATA_3, SATA_4

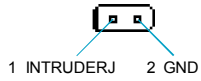
The Serial ATA II connector is used to connect the Serial ATA II device to the motherboard. These connectors support the thin Serial ATA II cables for primary storage devices. The current Serial ATA II interface allows up to 300MB/s data transfer rate.



SATA_1/2/3/4

Chassis Intruder Connector: INTR

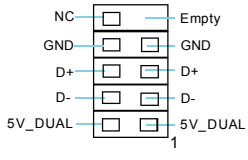
The connector connects to the chassis security switch on the case. The system can detect the chassis intrusion through the status of this connector. If the connector has been closed once, the system will send a message. To utilize this function, set “Case Open Warning” to “Enabled” in the “PC Health Status” section of the CMOS Setup. Save and exit, then boot the operating system once to make sure this function takes effect.



INTR

USB Headers: F_USB1, F_USB2,

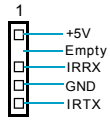
Besides four USB ports on the rear panel, the series of motherboards also have two headers on board which may connect to front panel USB cable (optional) to provide additional four USB ports.



F_USB 1/2

IrDA Connector: IR

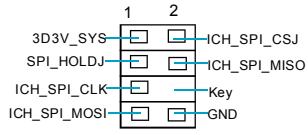
This header supports wireless transmitting and receiving device. Before using this function, configure the settings of IR Mode from the "Integrated Peripherals" section of the CMOS Setup.



IR

SPI Connector: SPI

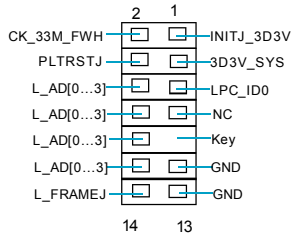
This motherboard provides a SPI connector, which is used to flash the SPI BIOS. Connect one side of a cable to the connector, then attach the BIOS Flash Card to the other side of the cable.



SPI

FWH/LPC Connector: FWH/LPC

This motherboard provides a LPC connector, which is used to flash the LPC BIOS.Connect one side of a cable to the connector, then attach the BIOS Flash Card to the other side of the cable.



FWH/LPC

Expansion Slots

This motherboard includes three 32-bit master PCI slots,two PCI Express x 1 slots,one PCI Express x 16 slot.

PCI Slots

The expansion cards can be installed in the three PCI slots. PCI slots support cards such as a LAN card, USB card, SCSI card and other cards that comply with PCI specifications.

PCI Express x1 Slots

This motherboard has two PCI Express x1 slots that designed to accommodate less bandwidth-intensive cards, such as a modem or LAN card.

PCI Express x16 Slot

This motherboard has one PCI Express x16 slots that reserved for graphics or video cards. The difference in bandwidth between the x16, x1 slots is notable to be sure, with the x16 slot pushing 4GB/sec (8GB/sec concurrent) of bandwidth, and the PCI Express x1 slot offering 250MB/sec.

For the detailed PCI Express x16 graphics cards support list on this motherboard, please visit the website: http://www.foxconnchannel.com

Jumpers

The users can change the jumper settings on this motherboard if needed. 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 settings.

Description of Jumpers

1. For the jumpers on this motherboard, pin 1 can be identified by the bold silk-screen. However, in this manual, pin 1 is simply labeled as "1".
2. The following table provides some explanation of the jumper pin settings. User should refer to this when adjusting jumper settings.

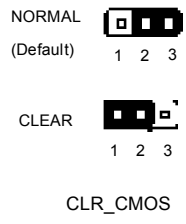
Jumper	Diagram	Definition	Description
		1-2	Set pin1 and pin2 closed
		2-3	Set pin2 and pin3 closed
		Closed	Set the pin closed
		Open	Set the pin opened

Clear CMOS Jumper: CLR_CMOS

The motherboard uses the CMOS RAM to store all the set parameters. The CMOS can be cleared by removing the CMOS jumper.

How to clear CMOS?

1. Turn off the AC power supply and connect pins 1 and 2 together using the jumper cap.
2. Return the jumper setting to normal (pins 2 and 3 together with the jumper cap).
3. Turn the AC power supply back on.

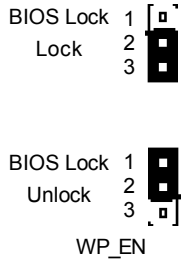


Warning:

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

BIOS Write Protect Jumper: WP_EN

To protect the system BIOS from viruses, this motherboard is designed with a BIOS write-protection jumper (WP_EN). Link pins 1 and 2 on WP_EN , the BIOS can be flashed, which means the BIOS Lock is unlock. While link pin 2 and 3 on WP_EN, your system will be protected, and will not be infected by virus such as CIH,but it can not be flashed.



Chapter 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 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
- PnP/PCI Configurations
- PC Health Status
- Load Fail-Safe Defaults
- Load Optimized Defaults
- Set Supervisor/User Password
- Save & Exit Setup
- Exit Without Saving

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 following message briefly appears at the bottom of the screen during the POST (Power On Self Test), press <Del> key to enter the Award BIOS CMOS Setup Utility.

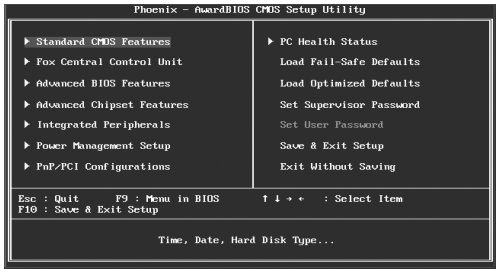
Press TAB to show POST Screen, DEL to enter SETUP.

Note:

We do not suggest that you change the default parameters in the BIOS Setup, and we shall not be responsible for any damage that result from any changes that you make.

Main Menu

The main menu allows you to select from the list of setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept or go to the sub-menu.



Main Menu

The items in the main menu are explained as below:

Standard CMOS Features

The basic system configuration can be set up through this menu.

FOX Central Control Unit

The special features 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.

Power Management Setup
All the items of Green function features can be set up through this menu.

PnP/PCI Configurations
The system's PnP/PCI settings and parameters can be modified through this menu.

PC Health Status
This will display the current status of your PC.

Load Fail-Safe Defaults
The default BIOS settings can be loaded through this menu.

Load Optimized Defaults
The optimal performance settings can be loaded through this menu, however, the stable default values may be affected.

Set Supervisor Password
The supervisor password can be set up through this menu.

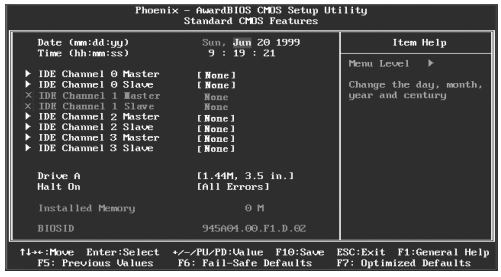
Set User Password
The user password can be set up through this menu.

Save & Exit Setup
Save CMOS value settings to CMOS and exit setup.

Exit Without Saving
Abandon all CMOS value changes and exit setup.

Standard CMOS Features

This sub-menu is used to set up the standard CMOS features, such as the date, time, HDD model and so on. Use the arrow keys select the item to set up, and then use the <PgUp> or <PgDn> keys to choose the setting values.



Standard CMOS Features Menu

Date

This option allows you to set the desired date (usually as the current day) with the <day><month><date><year> format.

Day—weekday from Sun. to Sat., defined by BIOS (read-only).

Month—month from Jan. to Dec..

Date—date from 1st to 31st, can be changed using the keyboard.

Year—year, set up by users.

Time

This option allows you to set up the desired time (usually as the current time) with <hour><minute><second> format.

IDE Channel 0/1/2/3 Master/Slave

There are three choices provided for the Enhanced IDE BIOS: None, Auto, and Manual. “None” means no HDD is installed or set; “Auto” means the system can auto-detect the hard disk when booting up; by choosing “Manual” and changing Access Mode to “CHS”, the related information should be entered manually. Enter the information directly from the keyboard and press < Enter>:

Cylinder	number of cylinders	Head	number of heads
Precomp	write pre-compensation	Landing Zone	landing zone
Sector	number of sectors		

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

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

Floppy Drive A

This option allows you to select the kind of FDD to be installed, including “None”, [360K, 5.25 in], [1.2M, 5.25 in], [720K, 3.5 in], [1.44M, 3.5 in] and [2.88 M, 3.5 in].

Halt On

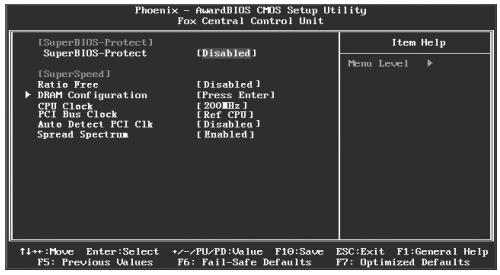
This category determines whether or not the computer will stop if an error is detected during powering up.

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.

Memory

This is a Display-Only Category, showing the capacity of your installed memory.

FOX Central Control Unit



FOX Central Control Unit Menu

[SuperBIOS-Protect]

❖**SuperBIOS-Protect**

SuperBIOS-Protect function protects your PC from viruses,e.g CIH.

[SuperSpeed]

❖**Ratio Free**

This option is used to limit CPU ratio to minimum if CPU supports, then user can furthest overclock extrnal frequency to improve performance.

❖**DRAM Configuration**

Press <Enter> to set the items of DRAM Configuration.

❖**CPU Clock**

This option is used to set the CPU clock.

❖**PCI Bus Clock**

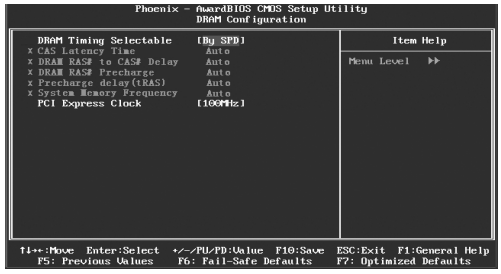
This option is used to set the PCI bus clock.

❖**Auto Detect PCI Clk**

This option is used to set whether the clock of an unused PCI slot will be disabled to reduce electromagnetic interference.The setting values are Dis abled and Enabled.

❖**Spread Spectrum**

If you enable spread spectrum, it can significantly reduce the EMI (Electro-Magnetic Interference) generated by the system. The setting values are Disabled and Enabled.



DRAM Configuration Menu

❖**DRAM Timing Selectable**

This item determines DRAM clock/ timing using SPD or manual configuration.

❖**CAS Latency Time**

This item determines CAS Latency.

❖**DRAM RAS# to CAS# Delay**

This item allows you to select a delay time between the CAS and RAS strobe signals.

❖**DRAM RAS# Precharge**

This item allows you to select the DRAM RAS# precharge time.

❖**Precharge delay(tRAS)**

This item allows you to set the precharge delay time.

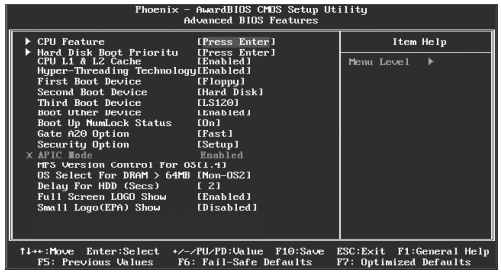
❖**System Memory Frequency**

This item allows you to set System Memory Frequency.

❖**PCI Express Clock**

This item allows you to set PCI Express Clock value.

Advanced BIOS Features



Advanced BIOS Features Menu

❖**CPU Feature**

Press enter to set the items of CPU feature.

❖**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 <PageUp>/<PageDn> or Up/Down arrow keys, and change the HDD priority using <+> or <->; you can exit this menu by pressing <Esc>.

❖**CPU L1 $ L2 Cache**

This option allows you to turn on or off the L1 and L2 CPU Cache.

❖**Hyper-Threading Technology**

This option is used to turn on or off the Hyper-Threading function of the CPU.

Note: This function will not be displayed until a CPU that supports Hyper-Threading has been installed.

❖**First/Second/Third Boot Device**

This option allows you to set the boot device's sequence.

❖**Boot Other Device**

With this function set to enable, the system will boot from some other devices if the first/second/third boot devices failed. The setting values are: Disabled and Enabled.

❖**Boot Up NumLock Status**

This item defines if the keyboard Num Lock key is active when your system is started. The available setting values are: On and Off.

❖**Gate A20 Option**

This option is used to set up the A20 signal control necessary for system is started.

❖**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**

This option is used to enable or disable APIC function.

❖**MPS Version Control For OS**

This option is used to set up the version of MPS Table used in OS.

❖**OS Select For DRAM > 64MB**

This option is only required if you have installed more than 64 MB of memory and you are running the OS/2 operating system.Otherwise,leave this item at the default.

❖**Delay For HDD(secs)**

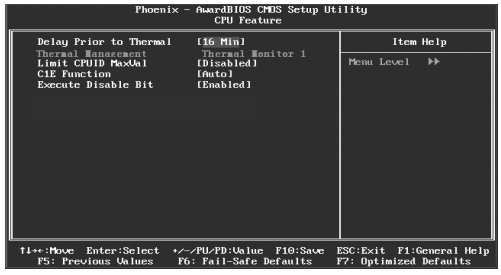
This option is used to set the delay time of selecting the HDD controller.

❖**Full Screen LOGO Show**

This option allows you to enable or disable the full screen logo. The available setting values are: Disabled and Enabled.

❖**Small Logo (EPA) Show**

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



CPU Feature Menu

❖ **Delay Prior to Thermal**

This option is used to set the delay time before the CPU enters auto thermal mode. The setting values are: 4 Min, 8 Min, 16 Min, 32 Min.

❖ **Thermal Management**

This option is used to manage Prescott CPU thermal.

❖ **Limit CPUID MaxVal**

The option is used to set limit CPUID MaxVal. The available setting values are: Disabled and Enabled. Set Limit CPUID MaxVal to 3, should be "Disabled" for WinXP.

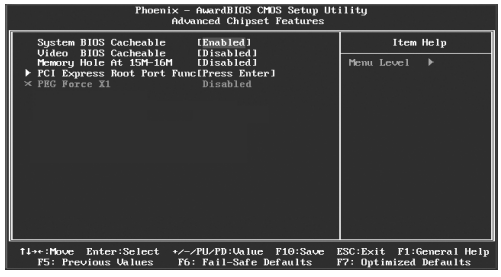
❖ **C1E Function (optional)**

The option is used to enable or disable C1E(Enhanced Halt State) function.

❖ **Execute Disable Bit (optional)**

The option is used to enable or disable execute disable bit.

Advanced Chipset Features



Advanced Chipset Features Menu

❖**System/Video BIOS Cacheble**

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

❖**Memory Hole At 15M-16M**

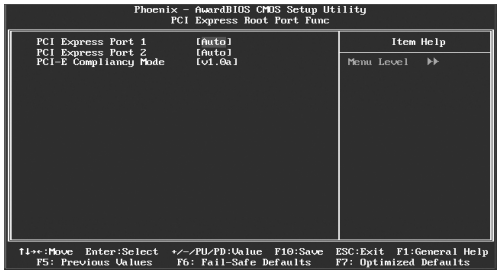
This item is used to determine whether the 15M-16M address field of memory is reserved for the ISA expansion card.

❖**PCI Express Root Port Func**

Press <Enter> to enter PCI Express Root Port Func sub-menu.

❖**PCI Express Root Port Func**

This option is used to set the value of PEG Force X1.



PCI Express Root Port Menu

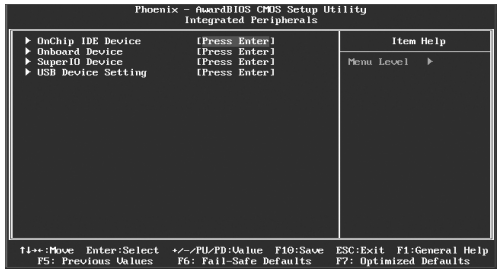
❖**PCI Express Port 1/2**

This option is used to enable or disable PCI Express port 1/2.

❖**PCI-E Compliancy Mode**

This option is used to select PCI-E compliancy mode.

Integrated Peripherals



Integrated Peripherals Menu

❖**OnChip IDE Device**

Press enter to set onchip IDE device.

❖**Onboard Device**

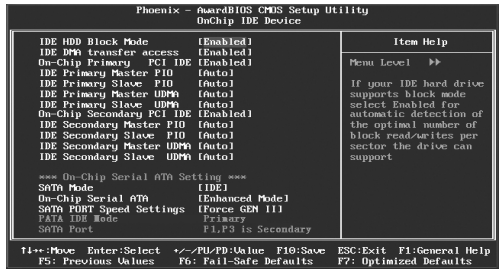
Press enter to set onboard device.

❖**SuperIO Device**

Press enter to set onboard SuperIO device.

❖**USB Device Setting**

Press enter to set USB device.



OnChip IDE Device Menu

❖**IDE HDD Block Mode**

This option is used to set whether the IDE HDD block mode is allowed.

❖**IDE DMA transfer access**

This option is used to set the IDE transfer access—with it set to Enabled, the IDE Transfer Access uses the DMA mode; with it set to Disabled, the IDE Transfer Access uses the PIO mode.

❖**On-Chip Primary PCI IDE**

Use this item to enable or disable the Primary PCI IDE channel that is integrated on the motherboard.

❖**IDE Primary Master/Slave PIO**

These two items allow you assign which kind of PIO(Programmed Input/ Output) is used by IDE devices. Choose Auto to let the system auto detect which PIO mode is best or select a PIO mode from 0-4.

❖**IDE Primary Master/Slave UDMA**

UltraDMA technology provides faster access to IDE devices. If you install a device that supports UltraDMA ,change the appropriate item on this list to Auto.The available setting values are : Disabled and Auto.

❖**On-Chip Secondary PCI IDE**

Use this item to enable or disable the Secondary PCI IDE channel that is integrated on the motherboard.

❖**IDE Secondary Master/Slave PIO**

These two items allow you assign which kind of PIO(Programmed Input/ Output) is used by IDE devices. Choose Auto to let the system auto detect which PIO mode is best or select a PIO mode from 0-4.

❖**IDE Secondary Master/Slave UDMA**

UltraDMA technology provides faster access to IDE devices. If you install a device that supports UltraDMA ,change the appropriate item on this list to Auto.The available setting values are : Disabled and Auto.

[On-Chip Serial ATA Setting]

❖**SATA Mode**

This option is used to set the Serial ATA Mode. The available setting values are: IDE, RAID, AHCI.

❖**On-Chip Serial ATA**

This option is used to set the On-chip Serial ATA function.

❖**SATA PORT Speed Settings**

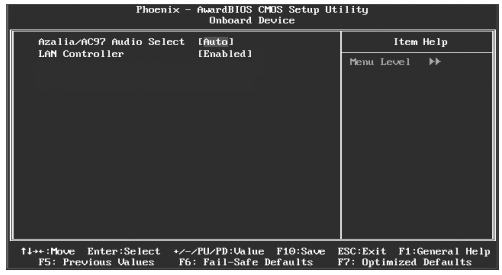
This option is used to set SATA port speed settings.

❖**PATA IDE Mode**

When On-Chip Serial ATA set as “Combined Mode”, this option will be modified. It is used to set the PATA IDE Mode. The available setting values are: Primary, Secondary.

❖**SATA Port**

This option is used to set the Serial ATA Port.



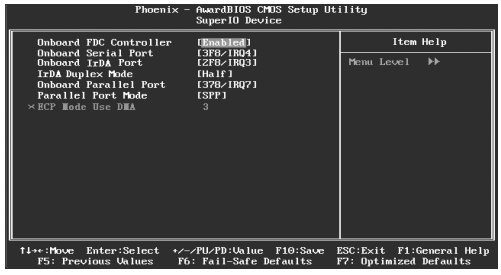
Onboard Device Menu

❖ **Azalia/AC97 Audio Select**

This option is used to set whether onboard Azalia/AC97 Audio is enabled.

❖ **LAN Controller**

This option is used to enable or disable onboard Marvell LAN .



SuperIO Device Menu

❖**Onboard FDC Controller**

This option is used to set whether the Onboard FDC Controller is enabled. The available setting values are: Disabled and Enabled.

❖**Onboard Serial/IrDA Port**

This option is used to set the serial and IrDA ports.

❖**IrDA Duplex Mode**

This option is used to set the mode of IrDA .

❖**Onboard Parallel Port**

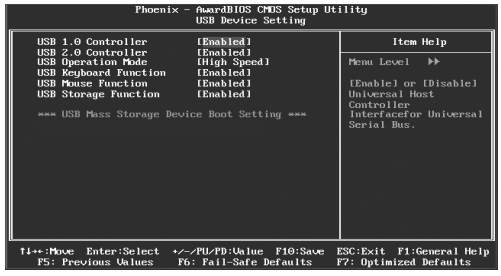
This option allows you to determine onboard parallel port controller I/O address and interrupt request (IRQ).

❖**Parallel Port Mode**

Select an address and corresponding interrupt for the onboard parallel port. The setting values are: SPP, EPP, ECP, ECP+EPP.

❖**ECP Mode Use DMA**

When the Parallel Port Mode is set to ECP or ECP+ EPP, this option is used to select the channel for the ECP mode. The setting values are: 1 and 3.



USB Device Setting Menu

❖**USB 1.0 Controller**

This option is used to set whether the USB 1.0 Controller is enabled. The available setting values are: Disabled and Enabled.

❖**USB 2.0 Controller**

This option is used to set whether the USB 2.0 Controller is enabled.

❖**USB Operation Mode**

This item is used to set the operation mode of USB.

❖**USB Keyboard Function**

This option is used to set whether the USB keyboard controller is enabled.

❖**USB Mouse Function**

This option is used to set whether the USB mouse controller is enabled.

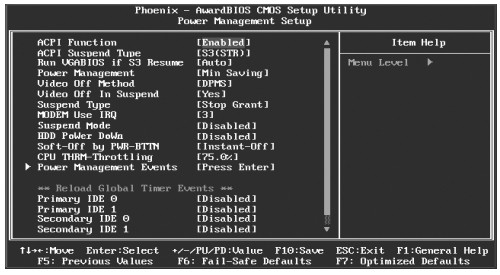
❖**USB Storage Function**

This option is used to set whether the USB storage controller is enabled.

❖**USB Mass Storage Device Boot Setting**

This option is used to set the simulation mode when boots from USB device.

Power Management Setup



Power Management Setup Menu

❖ACPI function

ACPI stands for “Advanced Configuration and Power Interface”. ACPI is a 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). The available setting values are: Enabled and Disabled.

❖ ACPI Suspend Type

This option is used to set the energy saving mode of the ACPI function. When you select “S1 (POS)” mode, the power will not shut off and the supply status will remain as it is, in S1 mode the computer can be resumed at any time. When you select “S3 (STR)” mode, the power will be cut off after a delay period. The status of the computer before it enters STR will be saved in memory, and the computer can quickly return to previous status when the STR function wakes. When you select “S1 & S3” mode, the system will automatically select the delay time.

❖Run VGABIOS if S3 Resume

This option allows the system to initialize the VGABIOS from S3 (Suspend to RAM) sleep state. The available setting values are: Auto, Yes and No.

❖Power Management

This option is used to set the power management scheme.

❖**Video Off Method**

This option is used to define the video off method.”Blank Screen” mode means that after the computer enters power saving mode,only the monitor will close, however ,the vertical and horizontal scanning movement of the screen continues.When you select the “V/H SYNC+Blank ” mode the vertical and horizontal scanning movement of screen stops when the computer enters power saving mode .“-DPMS” mode is a new screeen power management system, and it needs to be supported by the monitor you are using.

❖**Video Off In Suspend**

This option is used to determine whether the video is turned off when the system enters sleep mode. The setting values are:Yes and No.

❖**Suspend Type**

This option is used to set sleep mode.

❖**MODEM Use IRQ**

This option is used to set the IRQ in which the modem can use.The system will automatically wake up when the modem receives an incoming call. In order for this function to work, the Fax/Modem must be connected to the WOM header on the motherboard.

❖**Suspend Mode**

This option is used to set the idle time before the system enters into sleep status.

❖**HDD Power Down**

This option is used to turn off hard disk power if the hard disk is idle for a given period of time.

❖**Soft-Off by PWR-BTN**

This option is used to set the power down method.This function is only valid for systems using an ATX power supply.

❖**CPU THRM-Throttling**

This option is used to specify the CPU speed (at percentage) to slow down the CPU when it reaches the predetermined overheat temperature. The setting values are 75.0%,50.0%,25.0%.

❖**Power Management Events**

Press enter to set the items of power management events.

❖**Reload Global Timer Events**

Primary/Secondary IDE 0/1

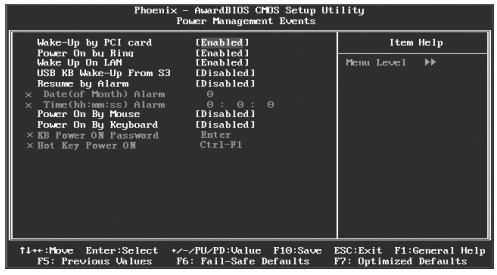
When these items are enabled, the system will restart the power saving timeout counters when any activity is detected on any of the drivers or devices on the primary or secondary 0/1 IDE channels. The setting values are:Disabled and Enabled.

❖**FDD,COM,LPT Port**

When this item is enable,the system will restart the power saving time-out counters when any activity is detected on the floppy disk drive,serial ports,or the parallel port.

❖**PCI PIRQ[A-D]#**

When this item is disabled,any PCI device set as the Master will not power on the system.



Power Management Events Menu

❖ **Wake- up by PCI card**

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

❖ **Power on by Ring**

If this item is enabled, it allows the system to resume from a software power down or power saving mode whenever there is an incoming call to an installed fax. This function needs to be supported by the relevant hardware and software.

❖ **Wake up On LAN**

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

❖ **USB KB Wake-Up From S3**

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

❖ **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 canceled. Also, the PC power source must not be turned off. The setting values are: Disabled and Enabled.

❖ **Date (of Month) Alarm**

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

❖ **Time (hh:mm:ss) Alarm**

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

❖ **Power On by Mouse/Keyboard**

This item is used to set the system to be waked up by Mouse/Keyboard.

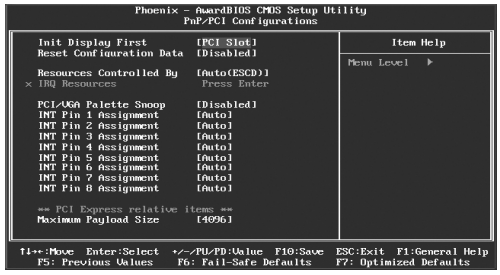
❖**KB Power On Password**

This item is used to set the password when KB power is using.

❖**Hot Key Power ON**

You can use the item to set the hot key combination that turns on the system

PnP/PCI Configurations



PnP/PCI Configurations Menu

❖ **Init Display First**

This option is used to set which display device will be used first when your PC starts up.

❖ **Reset Configuration Data**

This option is used to define the system resource control scheme.If all cards you use support PNP,then select Auto (ESCD) and the BIOS wil automatically distributes interruption resources.If the ISA cards you installed not supporting PNP, you will need to select “Manual” and manually adjust interruption resources in the event of hardware conflicts.However,since this motherboard has no ISA slot,this option doesn’t apply.

❖ **Resources Controlled By**

This option is used to set whether the system is permitted to automatically distribute IRQ DMA and I/O addresses when each time that the machine is turned on. The setting values are: Disabled and Enabled.

❖ **IRQ Resources**

Press the <Enter> key, then manually set IRQ resources.

❖ **PCI/VGA Palette Snoop**

If you use a non-standard VGA card, use this option to solve graphic acceleration card or MPEG audio card problems (e.g., colors not accurately displayed). The setting values are: Disabled and Enabled.

❖ **INT Pin 1-8 Assignment**

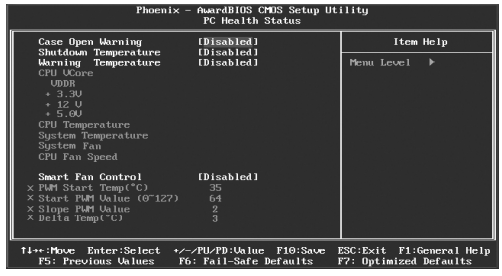
This option is used to name the intertupt request(IRQ) line assigned to a device connected to the PCI interface on your system.

❖ **PCI Express relative items**

Maximum Payload Size

This option is used to set maximum TLP payload size for PCI Express devices. The unit is byte.

PC Health Status



PC Health Status Menu

❖**Case Open Warning**

This option is used to enable or disable case open warning function.The setting values are: Disabled and Enabled.

❖**Shutdown Temperature**

This option is used to set the system temperature upper limit. When the temperature exceeds the setting value, the motherboard will automatically cut off power to the computer.

❖**Warning Temperature**

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

❖**CPU VCore/VDDR/+ 3.3V/+12V/+5.0V**

The current voltages will be automatically detected by the system.

❖**CPU/System Temperature**

The current system/CPU temperature will be automatically detected by the system.

❖**System Fan**

The System fan speed will be automatically detected by the system.

❖**CPU Fan Speed**

The CPU fan speed will be automatically detected by the system.

❖**Smart FAN Control**

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

❖ **PWM Start Temp**

This option is used to set PWM Start Temperature.

❖ **Start/Slope PWM Value**

These items are used to set Start/Slope PWM Value.

Load Fail-Safe Defaults

Press <Enter> to select this option. A dialogue box will pop up that allows you to load the default BIOS settings. Select <Y> and then press <Enter> to load the defaults. Select <N> and press <Enter> to exit without loading. The defaults set by BIOS set the basic system functions in order to ensure system stability. But if your computer cannot POST properly, you should load the fail-safe defaults to restore the original settings. Then carry out failure testing. If you only want to load the defaults for a single option, you can select the desired option and press the <F6> key.

Load Optimized Defaults

Select this option and press <Enter>, and a dialogue box will pop up to let you load the optimized BIOS default settings. Select <Y> and then press <Enter> to load the optimized defaults. Select <N> and press <Enter> to exit without loading. The defaults set by BIOS are the optimized performance parameters for the system, to improve the performance of your system components. However, if the optimized performance parameters are not supported by your hardware devices, it will likely cause system reliability and stability issues. If you only want to load the optimized default for a single option, select the desired option and press the <F7> key.

Set Supervisor/User 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. The User password can also start the system. While the User password can be used to view the current CMOS settings, these settings cannot be modified using the User password. When you select the Set Supervisor/User Password option, the following message will appear in the center of the screen, which will help you to set the password:

Enter Password:

Enter your password, not exceeding 8 characters, then press <Enter>. The password you enter will replace any previous password. When prompted, key in the new password and press <Enter>.

If you do not want to set a password, just press <Enter> when prompted to enter a password, and in the screen the following message will appear. If no password is keyed in, any user can enter the system and view/modify the CMOS settings.

Password Disabled!!!
Press any key to continue …

Under the menu "Advanced BIOS Features", if you select "System" from the Security Option, you will be prompted to enter a password once the system is started or whenever you want to enter the CMOS setting program. If the incorrect password is entered, you will not be permitted to continue.
Under the menu "Advanced BIOS Features", if you select "Setup" from the Security Option, you will be prompted to enter a password only when you enter the CMOS setting program.

Save & Exit Setup

When you select this option and press <Enter>, the following message will appear in the center of the screen:

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

Press <Y> to save your changes in CMOS and exit the program; press <N> or <ESC> to return to the main menu.

Exit Without Saving

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

Quit Without Saving (Y/N)?N

Press <Y> to exit CMOS without saving your modifications; press <N> or <ESC> to return to the main menu.

Chapter 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
- Installing drivers
- Installing utilities

Utility CD content

This motherboard comes with one Utility CD. To begin using the CD, simply insert the CD into your CD-ROM drive. The CD will automatically displays the main menu screen.

1. Install Driver

945P7AE:

A.Intel Chipset Driver B.Realtek HDA Driver
C.Realtek LAN Driver D.Intel RAID Driver

945PL7AE:

A.Intel Chipset Driver B.Realtek LAN Driver
C.Realtek Audio Driver

2. Utility

A.FOX ONE B.FOX LiveUpdate
C.Microsoft DirectX 9.0 D.Adobe Acrobat Reader
E.Norton Internet Security F.Creat RAID Driver Floppy
G.Intel RAID Utility(only for 945P7AE)

3. Click on dynamic Foxconn Logo to visit our homepage.

Installing Drivers

There are two ways to install driver: manual and auto. Click the drivers that you want to install and begin the setup steps by manual. Or you just chick “one click Setup” button to install the drivers by auto after installing Intel Chipset Driver. (below pictures are drivers of 945P7AE)

Installing Utilities

You can select the utilities that you want to install and begin the setup steps.

Chapter 5

This chapter will introduce how to use attached software.

This chapter provides the following information:

- FOX ONE
- Fox LiveUpdate

FOX ONE

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

With FOX ONE, you can

-Modify system performance settings, such as bus speeds, CPU voltages, fan speed, and other system performance options that are supported by the BIOS

-Monitor hardware temperature, voltage, frequency and fan speed

Supported Operating Systems:

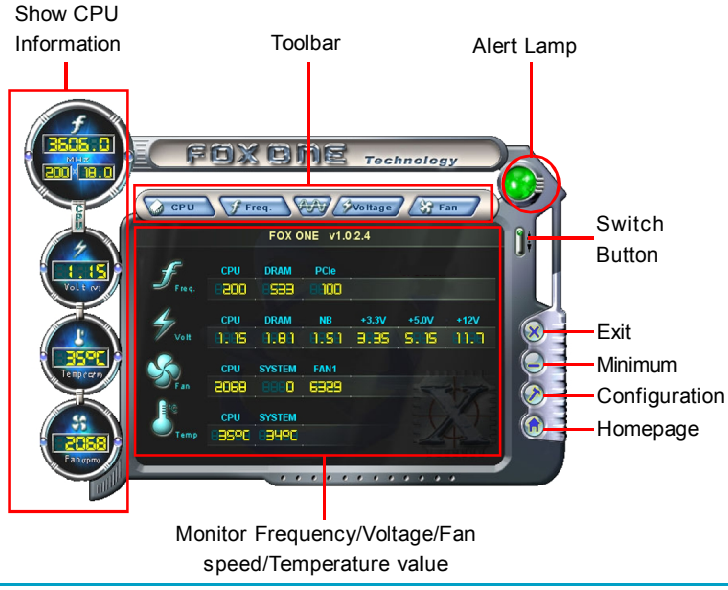
-Windows 2000

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

-Windows 2003 (32-bit and 64-bit)

Using FOX ONE:

1. Main Page



Toolbar
Use the toolbar to navigate to other pages.

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

Switch Button
Click this button, it will shorten to below figure. It helps you to minitor your system healthy status at any time.

Click here to return to previous status

Exit
Click this button to exit the program.

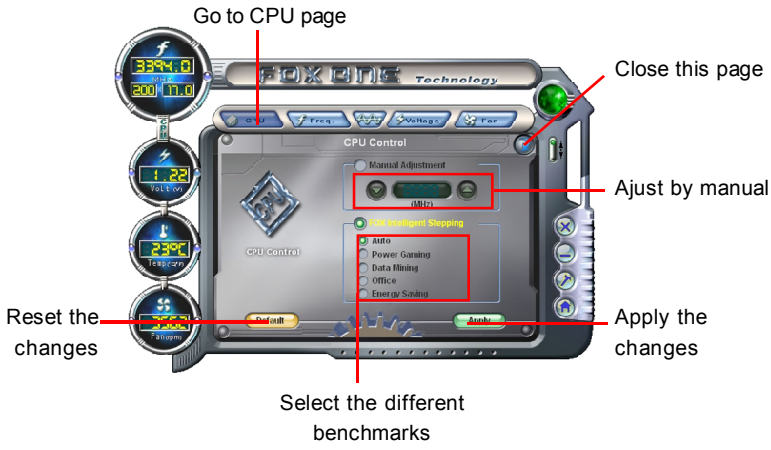
Minimum
Click this button to minimize the window.

Configuration
Click this button to configurate the parameters for the program. It determines which items will be shown in shorten mode.

Homepage
Click this button to visit Foxconn motherboard website.

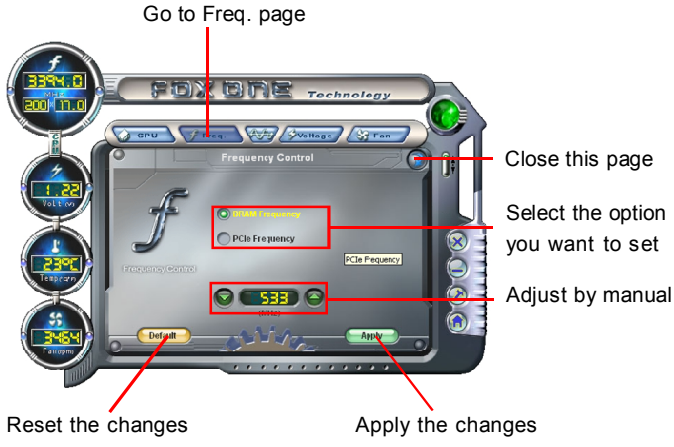
2. CPU Page - CPU Control

This page lets you select and run the FOX ONE developed benchmarks to determine the current performance level of the system. You can also adjust by manual. Only this page is set to Manual Adjustment, the Freq., Vlotage, and Fan pages can be adjusted by manual.



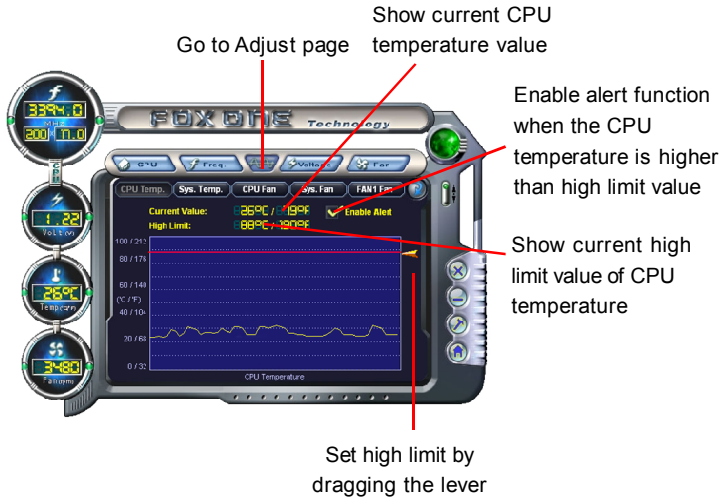
3. Freq. Page - Frequency Control

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



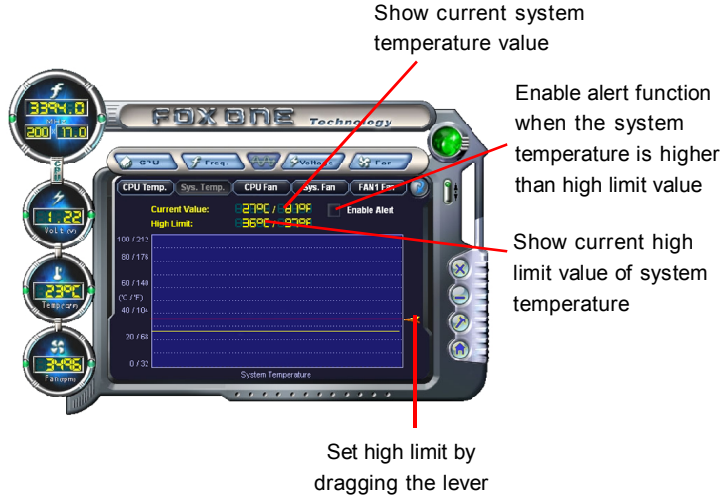
4.1 Limit Setting - CPU Temp.

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



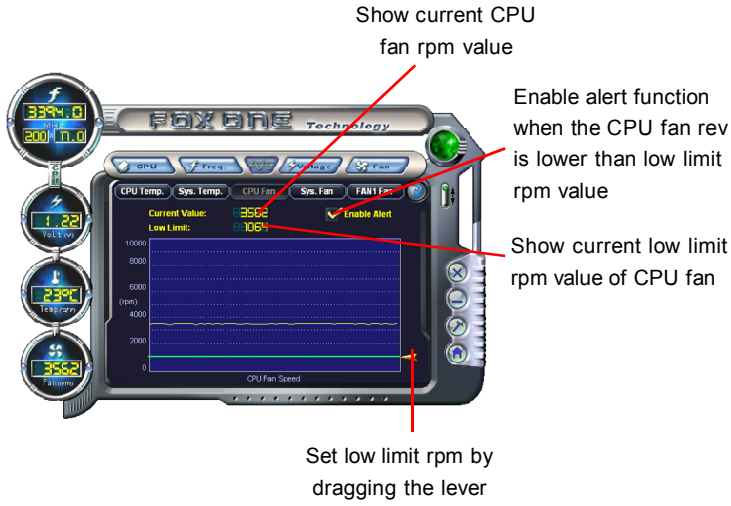
4.2 Limit Setting - Sys Temp.

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



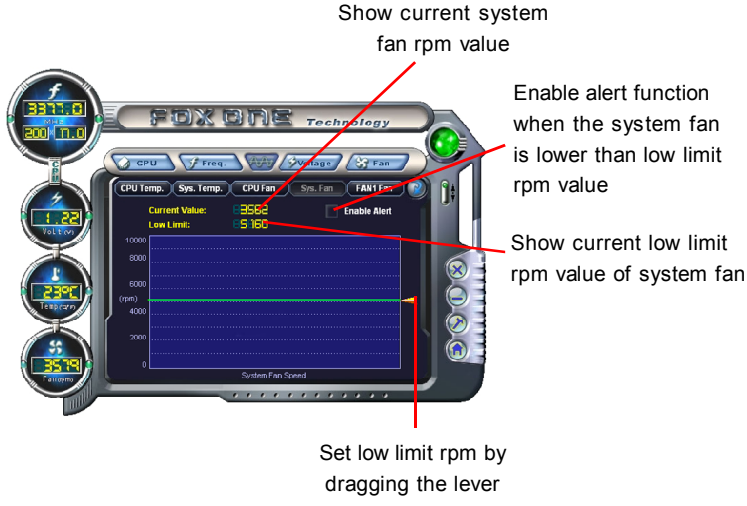
4.3 Limit Setting - CPU Fan

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



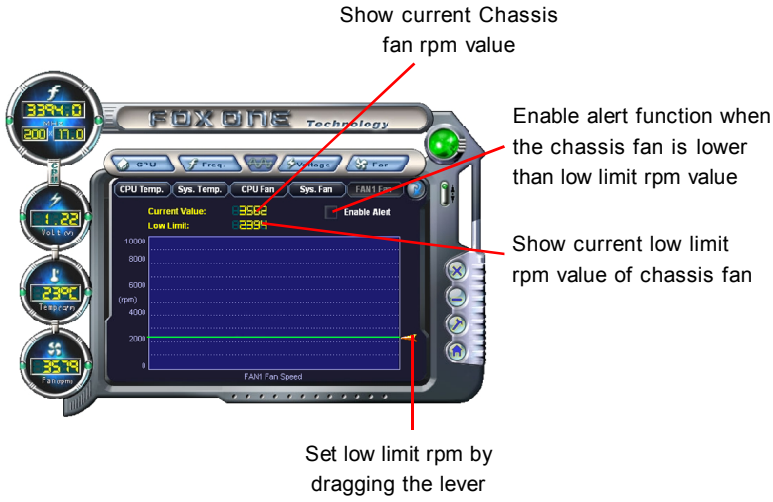
4.4 Limit Setting - Sys Fan

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



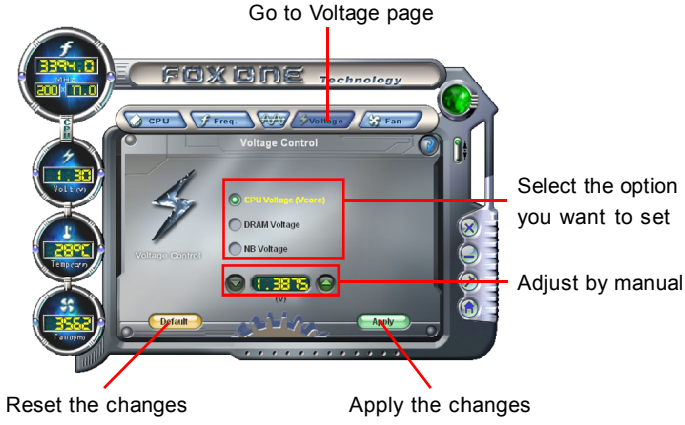
4.5 Limit Setting - Chassis Fan

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



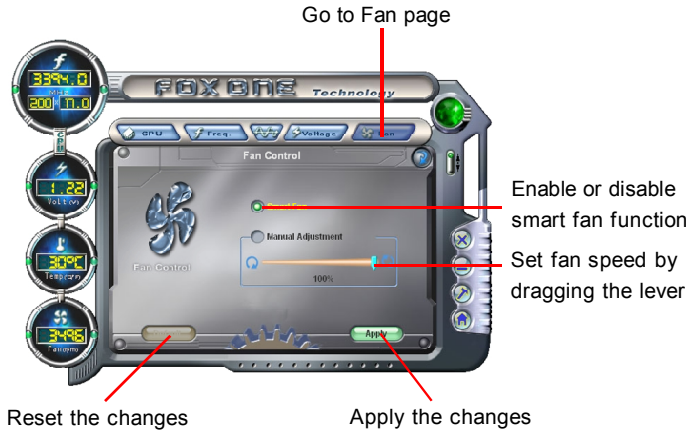
5. Voltage Page - Voltage Control

This page lets you set CPU voltage, memory voltage and North Bridge voltage by manual.



6. Fan Page - Fan Control

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



Fox LiveUpdate

Fox LiveUpdate is a useful utility for backuping and updating the system BIOS, drivers and utilities by local or online.

Supported Operating Systems:

-Windows 2000

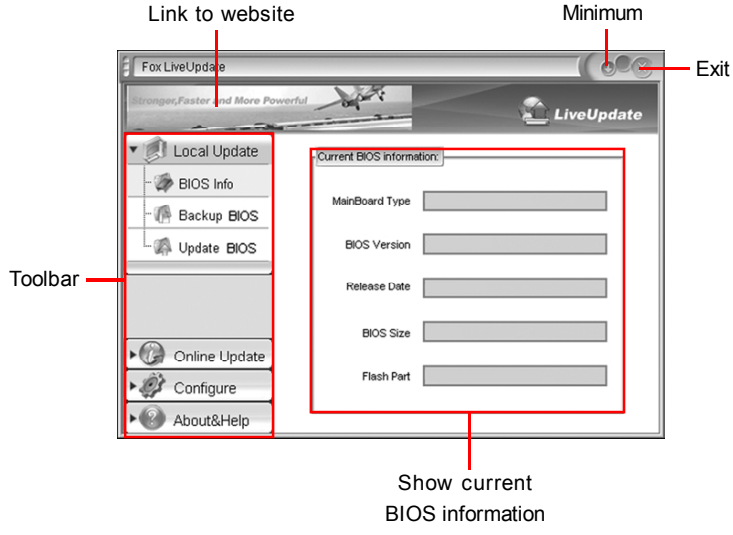
-Windows XP (32-bit and 64-bit)

-Windows 2003 (32-bit and 64-bit)

Using Fox LiveUpdate:

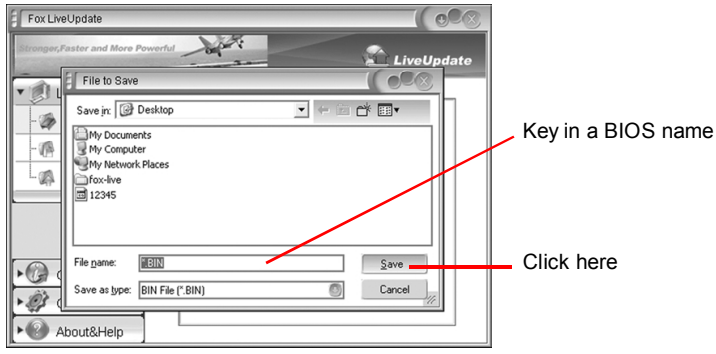
1.1 Local Update - BIOS Info.

This page lets you know your system BIOS information.



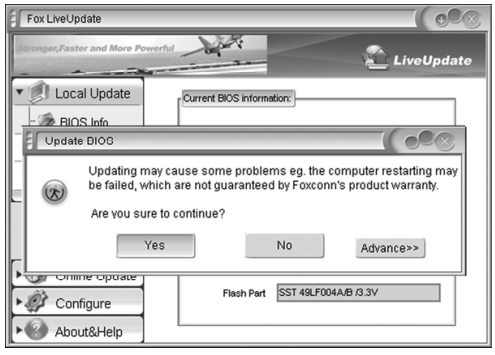
1.2 Local Update - Backup

This page lets you backup your system BIOS. Click “Backup”, then give a name. Click “Save” to finish the backup operation.



1.3 Local Update - Update

This page lets you update your system BIOS from Internet. After click “Update”, there will show warning message, please read it carefully. If you still want to continue, click “Yes”. Then load a local BIOS file and follow the wizard to finish the operation.

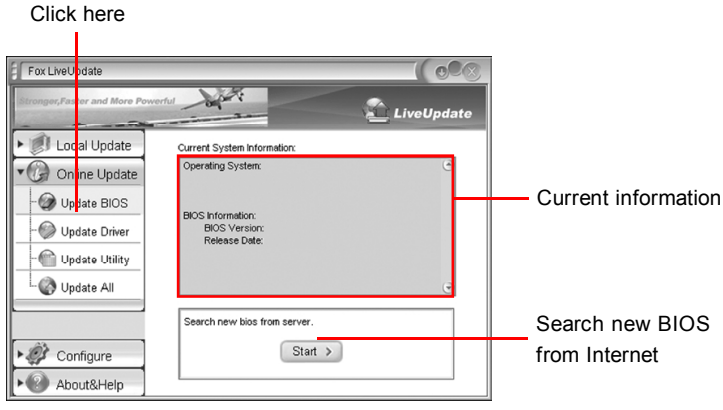


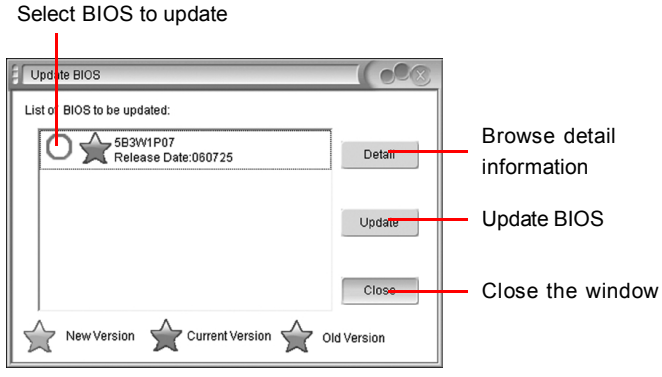
Note:

Fox LiveUpdate will auto backup BIOS before update because we have enabled this function in Configure option.

2.1 Online Update - Update BIOS

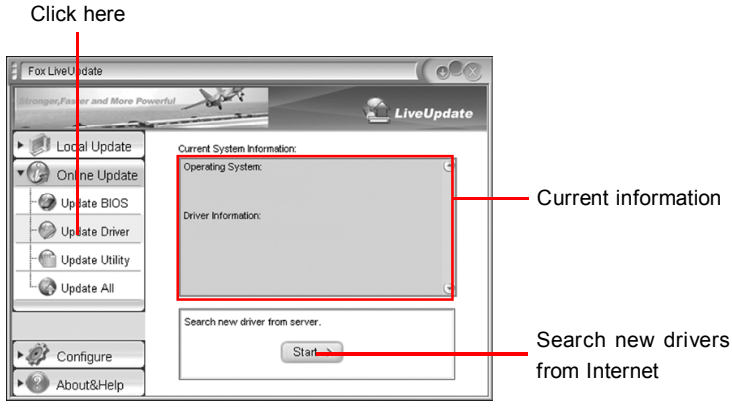
This page lets you update your system BIOS from Internet. Click “start”, it will search the new BIOS from Internet. Then follow the wizard to finish the update operation.

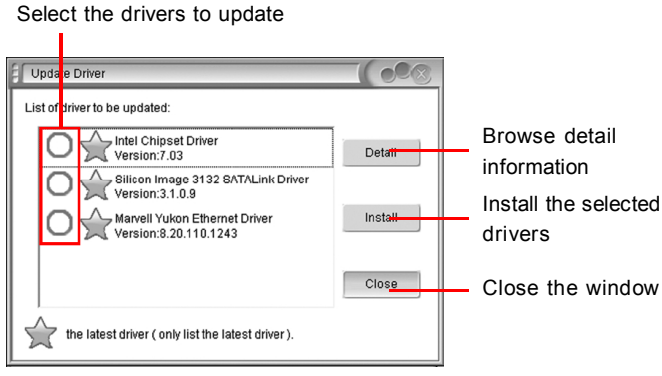




2.2 Online Update - Update Driver

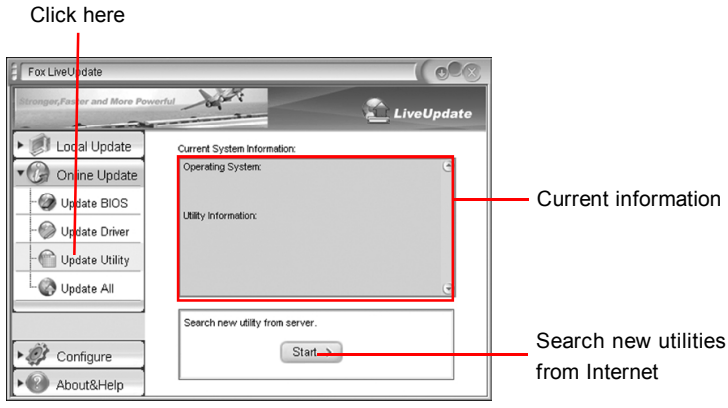
This page lets you update your system drivers from Internet. Click “start”, it will search the new drivers from Internet. Then follow the wizard to finish the update operation.





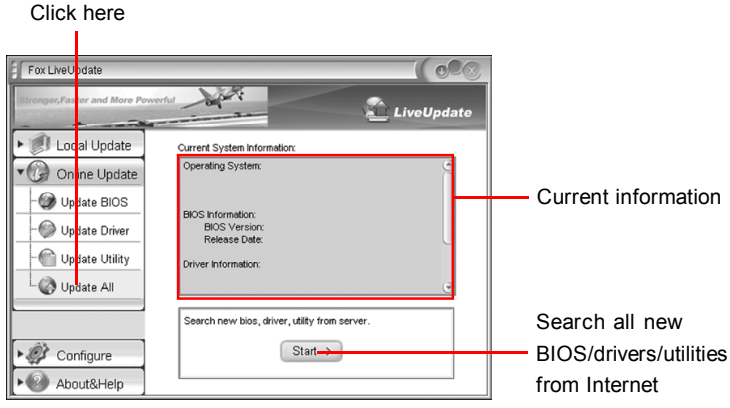
2.3 Online Update - Update Utility

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.



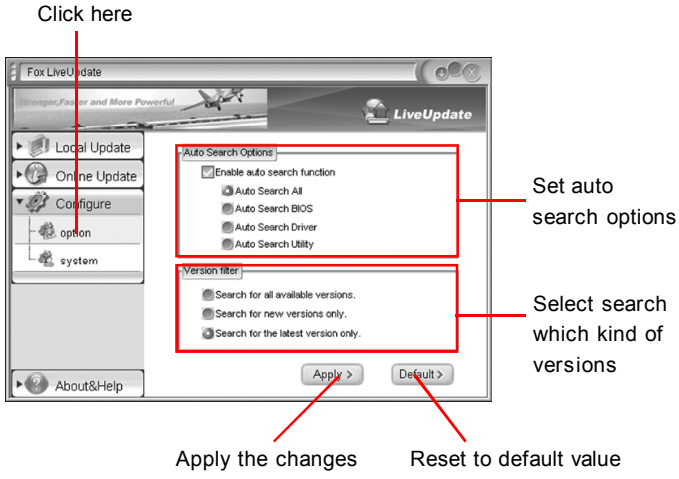
2.4 Online Update - Update All

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.



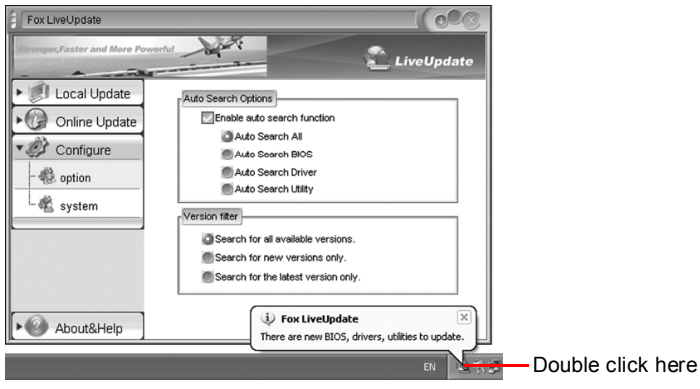
3.1 Configure - option

This page lets you set auto search options. After your setting, the utility will start searching and related information will show on the task bar.



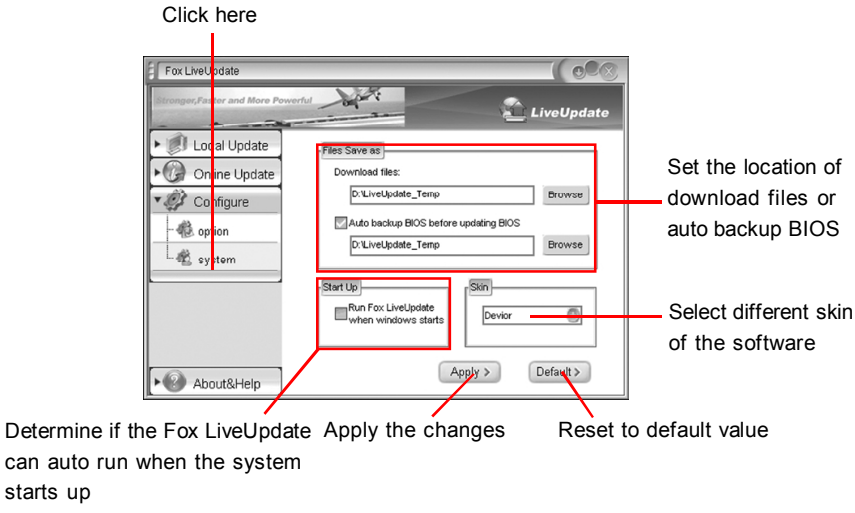
Note:

When enable auto search function, Fox LiveUpdate will appear searching result on task-bar. Double click the icon, you can see the detail information.



3.2 Configure - System

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



4. About & Help

This page shows some information about Fox LiveUpdate.