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Small Cube System
Fanless Series
FX5613 User' Manual

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If your board requires servicing, contact the dealer from whom you purchased the product for service information. You can help assure efficient servicing of your product by following these guidelines:

- ❑ A list of your name, address, telephone, facsimile number, or email address where you may be reached during the day
- ❑ Description of you peripheral attachments
- ❑ Description of your software (operating system, version, application software, etc.) and BIOS configuration
- ❑ Description of the symptoms (Extract wording any message)

For updated BIOS, drivers, manuals, or product information, please visit us at www.fabiatech.com

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Chapter 1 Introducing the FX5613 System

Overview

The FX5613 is an embedded system with 5.1/2" low-power CPU module inside. This user's manual provides information on the physical features, installation, and BIOS setup of the FX5613.

Built to unleash the total potential of the AMD Geode™, support 1GHz CPU, this system supports two 10/100/1000M Base -TX LAN ports, 512MB DDR333-RAM , mini PCI socket for wireless LAN, Four USB2.0 ports, video out, audio and a VGA controller.

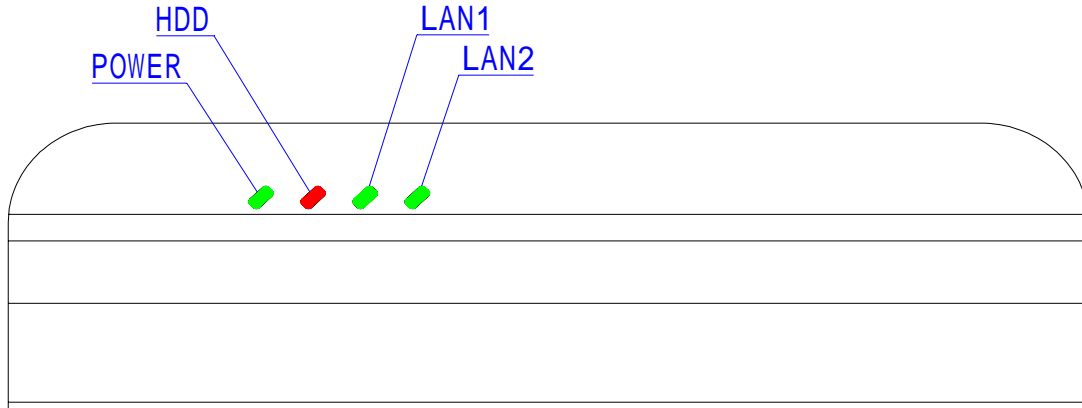
Each FX5613 has four ports for I/O communications. Four RS-232C ports are available.

The FX5613 is perfect for ATM machines, KIOSK, point-of-sales/point-of-information, gaming and infotainment, measurement technology, lotteries, banking and Thin Client and small Embedded Control. The unit is only 178.0mm (D) X249.0mm (W) X72mm (H).

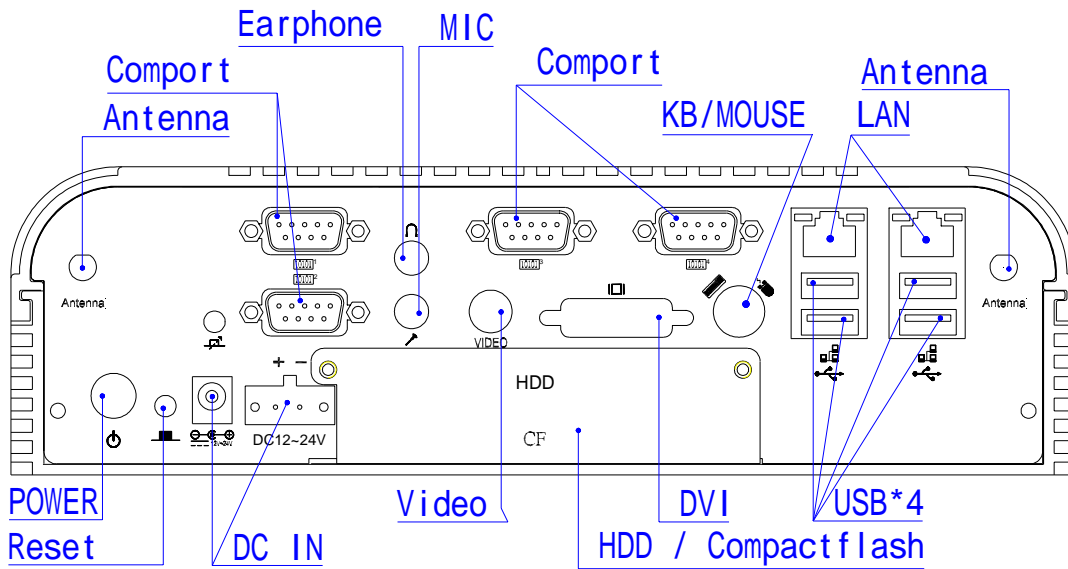
Series Comparison Table

Model	FX5613
Processor	AMD Geode™ NX1500 1GHz
Chipset	VIA KN400A+VT8237R Plus
1 184 Pin-DIMM (Max.)	512MB/1GB DDR333/266Mhz
CRT VGA	Yes(DVI)
Watchdog Timer	Yes
Multi I/O	Four Serial ports
Enhanced IDE and CF	One
Video Out	One
USB 2.0	Four
Audio	Line -Out And MIC
RJ45 WAN port (100/1000Mbps)	Two
Mini-PCI Socket	One
Dimensions (Unit: mm)	178(D) x 249(W) X 72(H)

Layout



FX5613



Specifications

❑ *Processor Board –*

AMD Geode™ NX1500 1GHz Low Power CPU with 512MB DDR-RAM
333MHz. VIA CN400 Front side Bus 133Mhz. Support AGPX8 and Hardware
Video Acceleration MPEG2 VIA VT8237R

❑ *I/O Outlets –*

Two 100/1000 base-TX Ethernet LAN ports.

Four RS-232 ports with DB9 and four USB2.0 ports.

One DVI connector for CRT and one PS/2 compatible keyboard and
mouse interfaces.

One Audio Line-Out and Microphone-Input

One Mini PCI Socket for Wireless LAN module.

One DC-In plug connector and power switch.

❑ *LED Indicator –*

One power LED, One hard disk access LED, and 2 LAN-Access LEDs.

❑ *Storage Bay-*

One Compact Flash slot with plug-in aperture and cover,

One 2.5" hard disk space with HDD holder.

❑ *Power requirement –*

+12~+24V DC with 20% tolerance, 40VA minimum.

❑ *Dimensions -*

178.0mm (D) x 249.0mm (W) x 72.0mm (H)

Packing List

Upon receiving the package, verify the following things. Should any of the mentioned happens, contact us for immediate service.

- Unpack and inspect the FX5613 package for possible damage that may occur during the delivery process.
- Verify the accessories in the package according to the packing list and see if there is anything missing or incorrect package is included.
- If the cable(s) you use to install the FX5613 is not supplied from us, please make sure the specification of the cable(s) is compatible with the FX5613 system.

Note: after you install the FX5613, it is recommended that you keep the diskette or CD that contains drivers and document files, and keep the document copies, or unused cables in the carton for future use.

The following lists the accessories that may be included in your FX5613 package. Some accessories are optional items that are only shipped upon order.

- One FX5613 embedded system.
- One AC to DC24V power adapter and 1 AC power code.
- One 3-end keyboard and mouse adapter cable
- One DVI to CRT adapter cable
- One pack of 2.5" hard disk installation kit with fixed screws and 2-pin apart able terminal block.
- One compact disc includes software utility.

Chapter 2 Hardware Installation

This chapter introduces the system connectors & jumper settings, and guides you to apply them for field application.

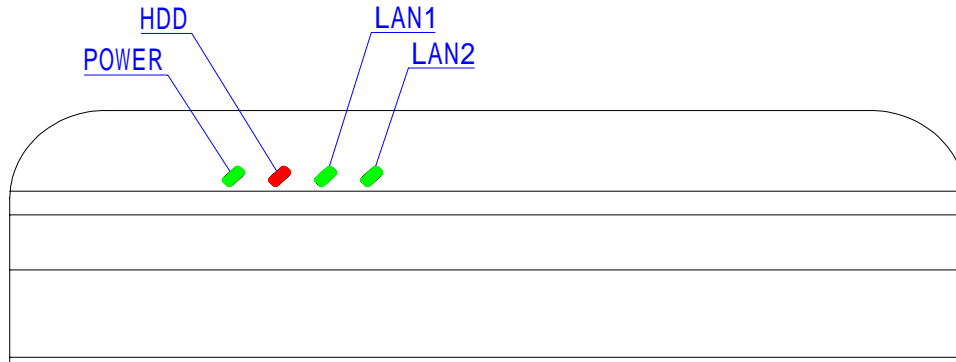
Before Installation

Before you install the system, make sure you follow the following descriptions.

1. Before removing the cover, shut down the operation System and disconnect power switch to off and unplug AC-to DC Adapter cable.
2. Install or unplug any connector, Compact Flash, and hard disk be sure that the power is disconnected or power switch to off from the system. If not, this may damage the system.
3. The ESD (Electricity Static Discharge) may be created from human body that touches the board. It may do damage to the board circuit.

□ **LED Indicators (On the Front Panel)**

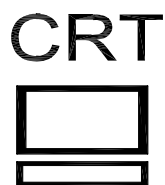
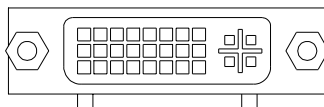
The Power and HDD LED's has two distinctive statuses: Off for inactive operation and blinking light for activity. And the 2 LED's for LAN ports. The LAN1 and LAN2 LED's (Green) indicate on-line/access status of LAN1 and LAN2 respectively.



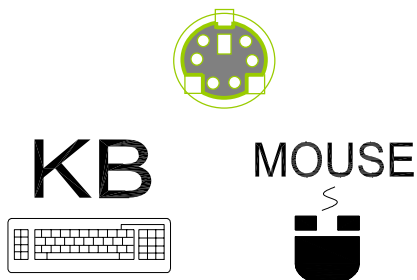
□ **Connecting the Monitor, Keyboard and Mouse**

If you are connecting the monitor, keyboard, mouse to the FX5613 using the connections provided on the side of the chassis. See following figure and a side pictures.

1. A DVI connector is provided for CRT signals



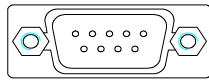
2. The connector can attach standard PS/2 type keyboard and can attached PS/2 mouse. Standard PS/2 keyboard and Mouse can be plugged into this connector without any adapter cable.



KB /Mouse	Description
1	-
2	Keyboard / Mouse Data
3	Ground
4	VCC
5	-
6	Keyboard/ Mouse Clock

□ **Connecting the COM ports**

The DB9 (COM1/2/3/4) is standard serials port connector. The following tables show the signal connections of these connectors.



COM
10101

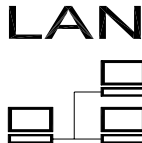
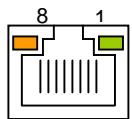
DB-9	RS-232 Signal
1	-DCD
6	-DSR
2	RXD
7	-RTS
3	-TXD
8	-CTS
4	-DTR
9	-RI
5	Ground
Case	Case Ground

□ **Connecting the L1/L2 LAN ports and USB Ports**

The RJ45 connector with 2 LED's for WAN/LAN. The left side LED (orange) indicates data is being accessed and the right side LED (green) indicates on-line status. (On indicates on-line and off indicates off-line)

RJ45 connector

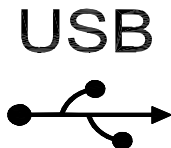
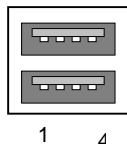
The following lists the pin assignment of RJ45.



L1/L2

LAN1/LAN2	Signal	LAN1/LAN2	Signal
1	TPTX+	5	TPTX1-
2	TPTX -	6	TPRX -
3	TPRX+	7	TPRX1+
4	TPTX1+	8	TPRX1-

The FX5613 supports a four port USB connector. Any USB device can be attached to USB ports with plug-and-play supported. The left side port is USB # 1/2 and the right side port is USB # 3/4



USB#1~4	Signal
Pin 1	USBV
Pin 2	USB D-
Pin 3	USB D+
Pin 4	USBG

□ **Connecting the Audio Microphone In/ Speak Out**



Mic-In



Line-Out

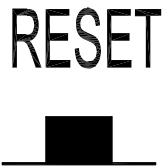
□ **Connecting the Video Out**



Video Out NTSC/PAL

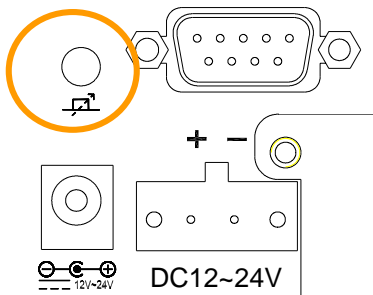
□ **Reset Push Button (On the Back Side)**

The FX5613 has a push button switcher for system reset; Push and release the button will cause hardware reset of FX5613 and restart system booting.



□ **User Defined Push Button Switch**

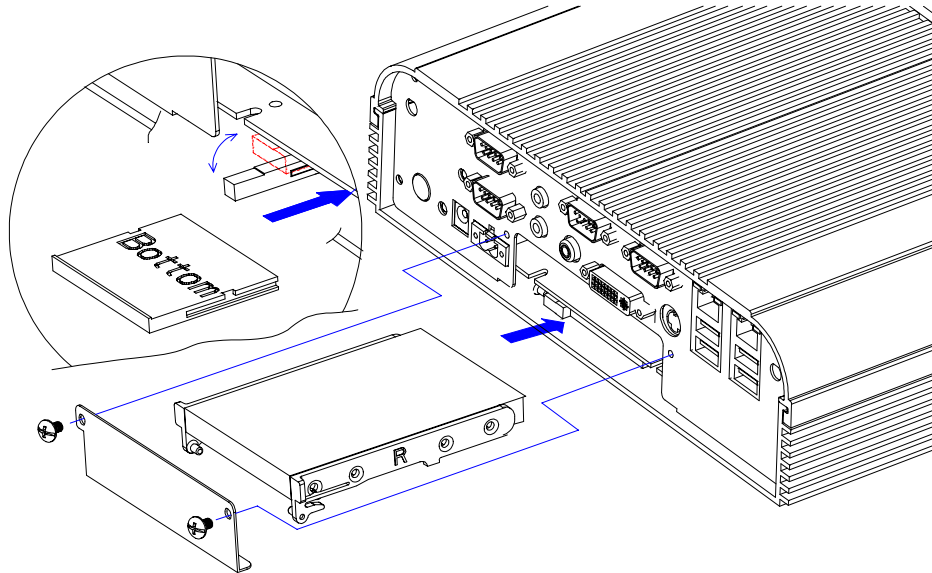
This push button switch is located between COM port and DC-Power connectors. User can read its status from input line of on-board GPIOs. (Please see the spots circled.)



User Defined Push Button	
Bit Location	
	Bit 3 of 4048h

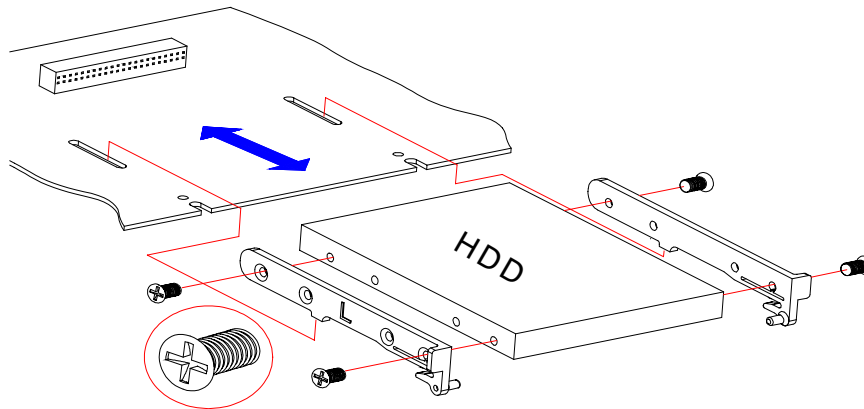
□ **Installing/Ejecting 2.5" HDD**

If you are installing hardware option, you can remove the back cover. The following figure will guide you how to install 2.5" HDD inside the FX5613 and how to install the FX5613 fixers.



□ **Installing HDD**

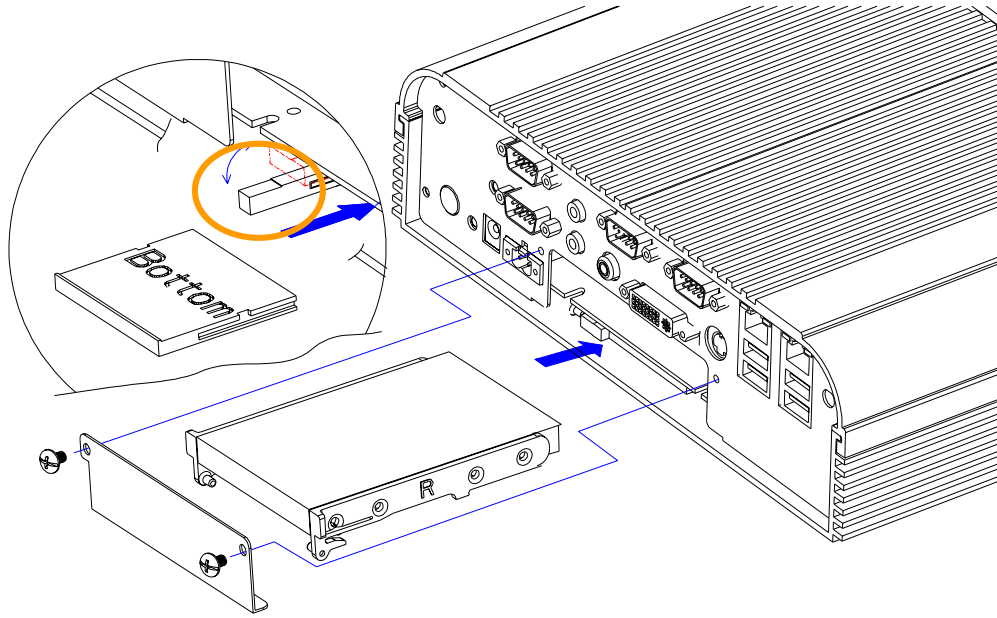
The following figure will guide you install fix support HDD and to inside the FX5613.



Note: Use caution when handling the hard disk to prevent damage to IDE connector as you insert hard disk. Gently slide the hard disk into the IDE and stop when you feel resistance.

□ **Installing Compact Flash**

If you are installing Compact Flash modules you need to remove a backside cover. It is necessary to bend the CF ejector outside before closing the cover. (Please see the spots circled.)

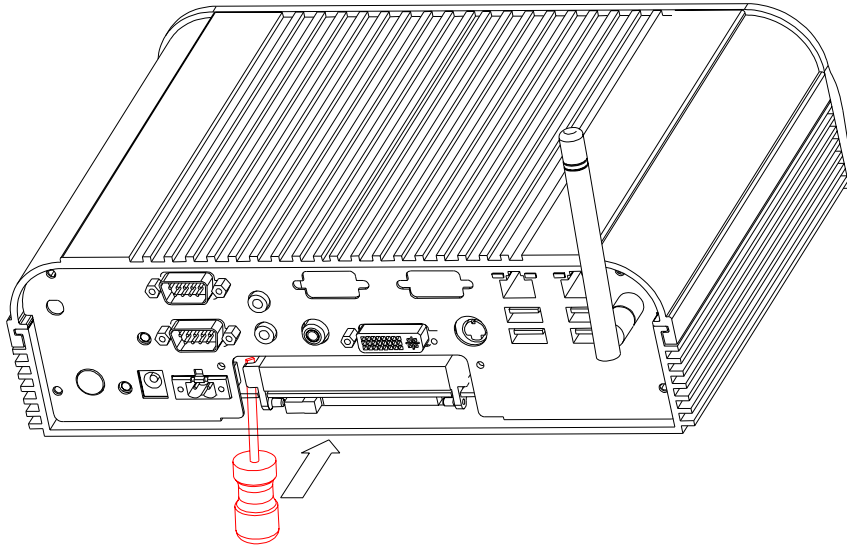


Note: Unscrew the screws when installing Compact Flash module.

The Compact Flash socket (on the FX5613) supports 3.3V Compact Flash and Micro Drives.

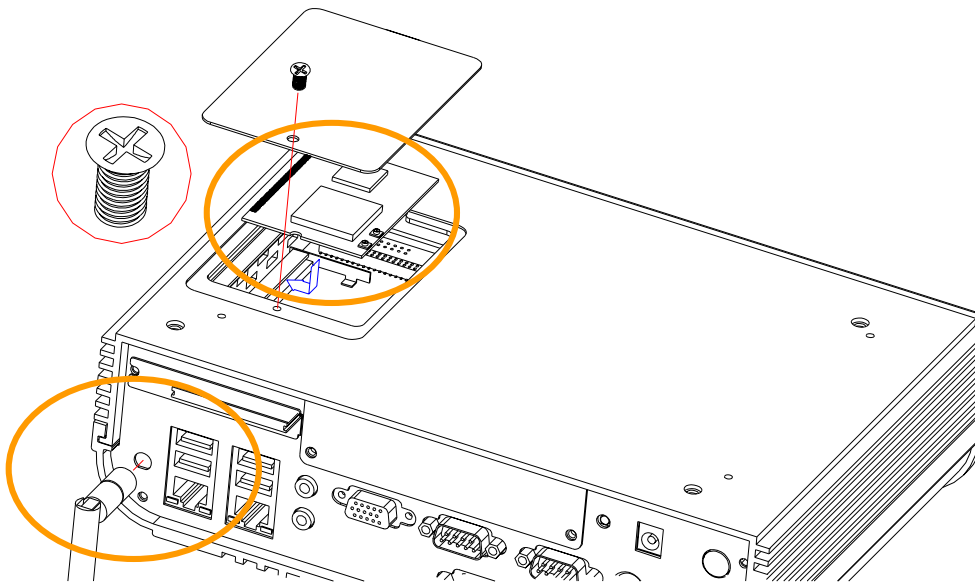
□ **Ejecting HDD – Depend on Screwdriver**

If you are removing HDD option, you can use I-type screwdriver or equivalent as shown on right-down figure and push ahead to eject the hard disk with guiders



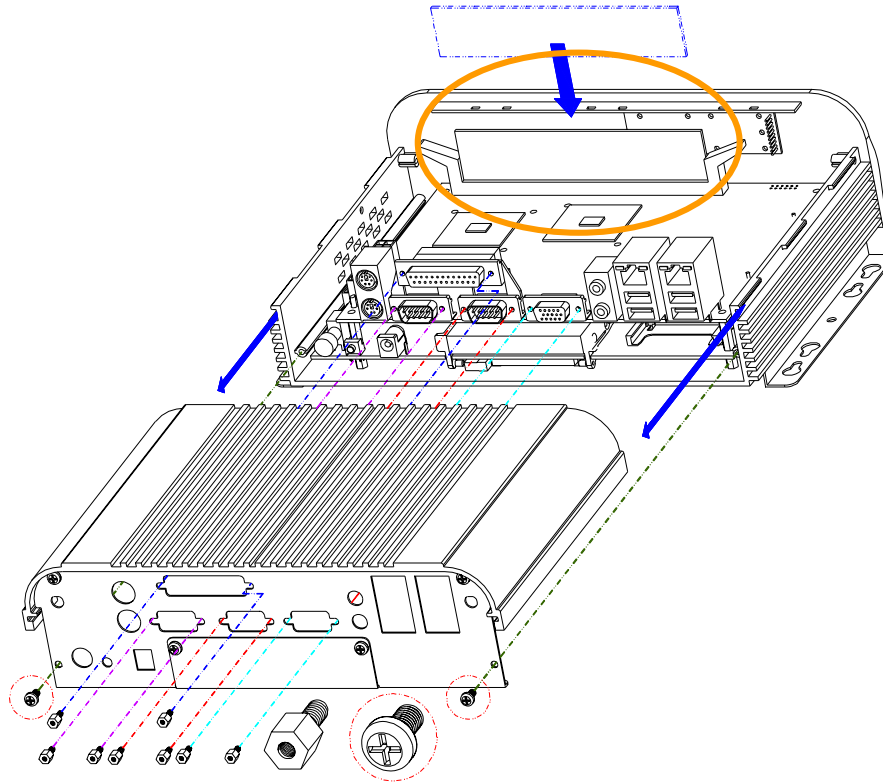
□ **Installing Mini PCI Card: Mini PCI Socket for WLAN Modules**

You may extend additional mini PCI WLAN module to FX5613 by removing the bottom cover. Connect the antenna cable from backside antenna hole to Mini PCI WLAN (the auxiliary board). Release the screws on the bottom of the unit. (Please see the spots circled.)



□ **Installing Memory: DIMM Socket For DDR Modules**

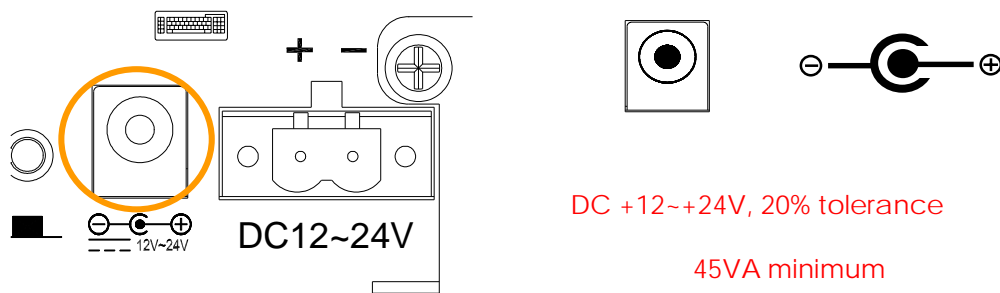
You may extend additional memory to FX5613 by removing the top cover, See as following figure and rear pictures. The DIMM socket supports 128MB to 1GB of DDR RAM modules.



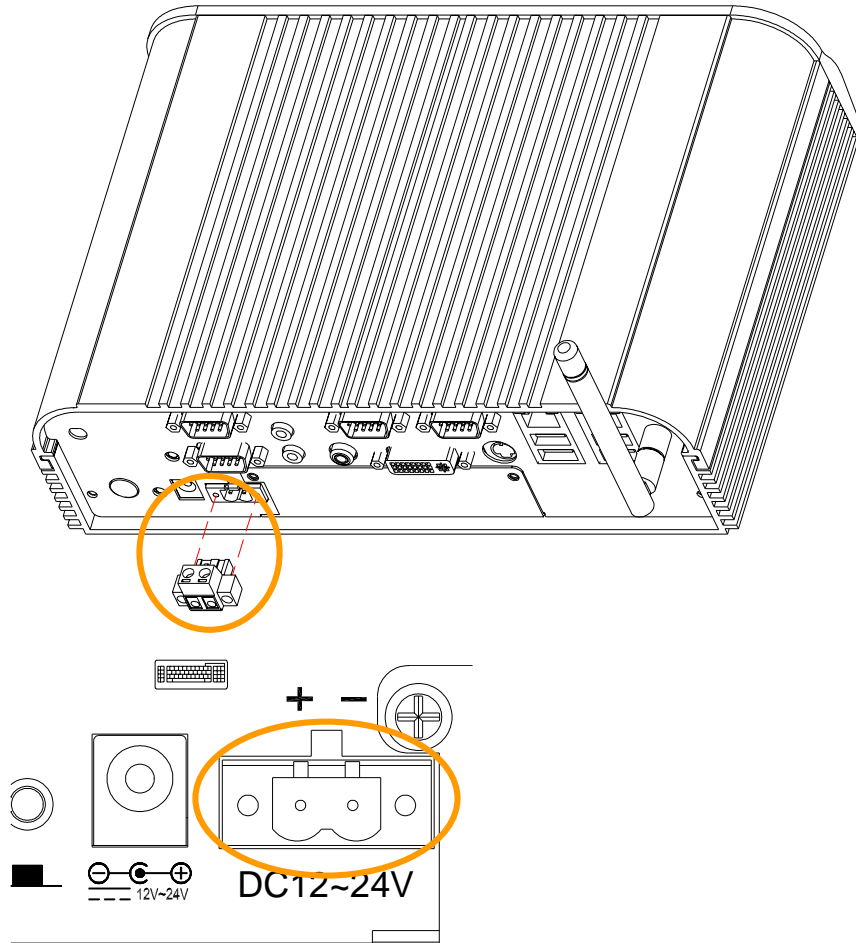
□ **Connecting the DC Power and Power Button**

Power is supplied through an external AC/DC power adapter or power DC In. Check the technical specification section for information about AC/DC power input voltage. See following figure and a side pictures.

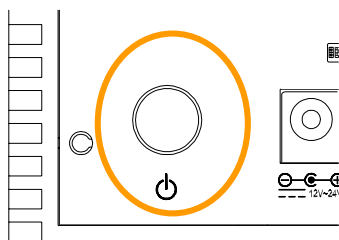
1. DC-Power Jack: Use External AC/DC power adapter



2. DC Power Connector: Use external 2-pin apart able terminal block. (Please see the spots circled.)



3. Power Button: Pushing the Power button once will switch the FX5613 on and off, depending on system BIOS (Power Management Setup) or OS setting. Pushing the power button while in the on mode for more than 4 seconds will turn the FX5613 system off.



Power button: On/Off

Chapter 3 BIOS Setup

This chapter describes the BIOS setup.

Overview

BIOS are a program located on a Flash memory chip on a circuit board. It is used to initialize and set up the I/O peripherals and interface cards of the system, which includes time, date, hard disk drive, the ISA bus and connected devices such as the video display, diskette drive, and the keyboard. This program will not be lost when you turn off the system.

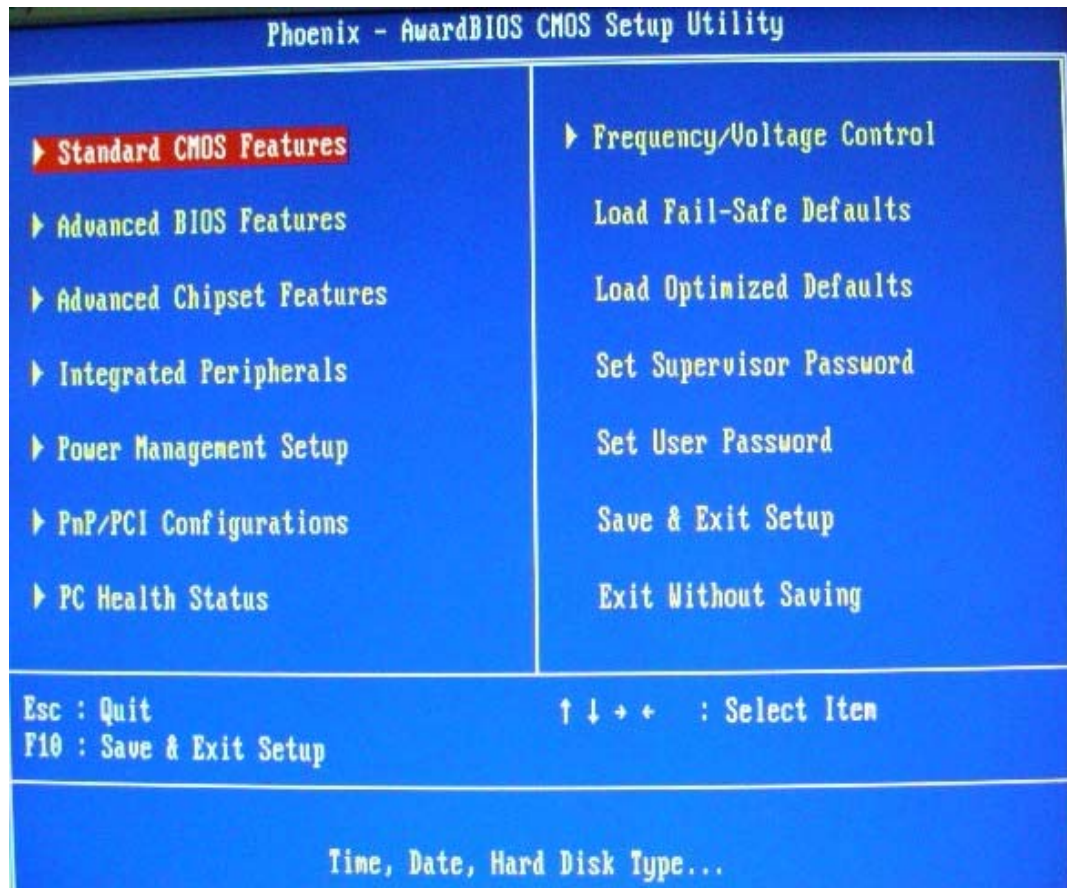
The BIOS provides a menu-driven interface to the console subsystem. The console subsystem contains special software, called firmware that interacts directly with the hardware components and facilitates interaction between the system hardware and the operating system.

The BIOS default values ensure that the system will function at its normal capability. In the worst situation the user may have corrupted the original settings set by the manufacturer.

All the changes you make will be saved in the system RAM and will not be lost after power-off.

When you start the system, the BIOS will perform a self-diagnostics test called Power On Self Test (POST) for all the attached devices, accessories, and the system. Press the [Del] key to enter the BIOS Setup program, and then the main menu will show on the screen.

Note: Change the parameters when you fully understand their functions and subsequence.



□ BIOS Functions

On the menu, you can perform the following functions

1. Standard CMOS Features
2. Advanced BIOS Features
3. Advanced Chipset Features
4. Integrated Peripherals
5. Power Management Setup
6. PNP/PCI Configuration
7. PC Health States
8. Frequency/Voltage Control
9. Set Supervisor Password
10. Set User Password
11. Load Optimized Default: to auto configure the system according to optimal setting with pre-defined values. This is also the factory default setting of the system when you receive the board.
12. Load Fail-Safe Default: to configure the system in fail-safe mode with predefined values.
13. Save Settings and Exit: perform this function when you change the setting and exit the BIOS Setup program.
14. Exit without saving: perform this function when you want to exit the program and do not save the change.

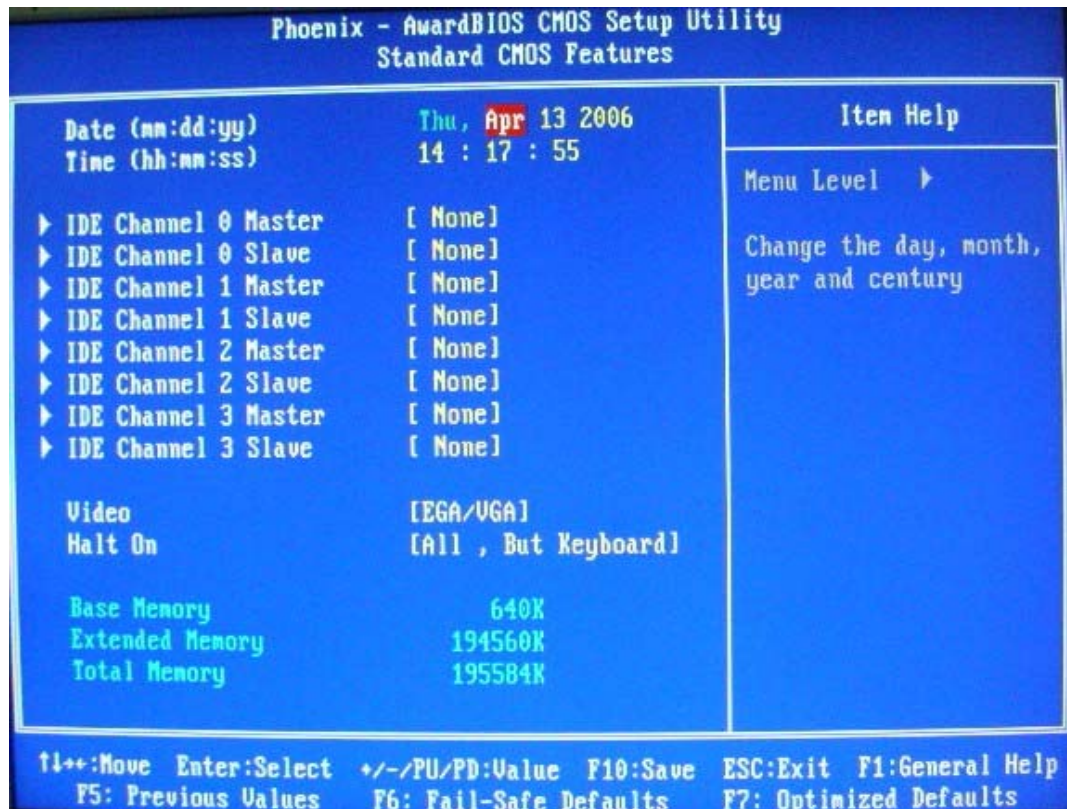
□ **Keyboard Convention**

On the BIOS, the following keys can be used to operate and manage the menu:

Item	Function
ESC	To exit the current menu or message
Page Up/Page Down	To select a parameter
F1	To display the help menu if you do not know the purpose or function of the item you are going to configure
F6	Fail-Safe Default
F7	Optimized Default
F10	Save and exit
UP/Down Arrow Keys	To go upward or downward to the desired item

STANDARD CMOS Feature

This section describes basic system hardware configuration, system clock setup and error handling. If the CPU board is already installed in a working system, you will not need to select this option anymore.



□ Date & Time Setup

Highlight the <Date> field and then press the [Page Up] / [Page Down] or [+]/ [-] keys to set the current date. Follow the month, day and year format.

Highlight the <Time> field and then press the [Page Up] / [Page Down] or [+]/ [-] keys to set the current date. Follow the hour, minute and second format.

The user can bypass the date and time prompts by creating an AUTOEXEC.BAT file. For information on how to create this file, please refer to the MS-DOS manual.

□ Hard Disk Setup

The BIOS supports various types for user settings, The BIOS supports <Pri Master>, <Pri Slave>, so the user can install up to two hard disks. For the master and slave jumpers, please refer to the hard disk's installation descriptions and the hard disk jumper settings.

You can select <AUTO> under the <TYPE> and <MODE> fields. This will enable auto detection of your IDE drives during boot up. This will allow you to change your hard drives (with the power off) and then power on without having to reconfigure your hard drive type. If you use older hard disk drives, which do not support this feature, then you must configure the hard disk drive in the standard method as described above by the <USER> option.

□ **Video**

This option selects the type of adapter used for the primary system monitor that must match your video display card and monitor. Although secondary monitors are supported, you do not have to select the type in Setup.

You have two ways to boot up the system:

When VGA set as primary and monochrome set as secondary, the selection of the video type is "VGA Mode".

When monochrome set as primary and VGA set as secondary, the selection of the video type is "Monochrome Mode".

□ **Error Halt**

This option determines whether the computer will stop if an error is detected during power up.

No errors	The system boot will not be stopped for any error that may be detected.
All errors	Whenever the BIOS detect a non-fatal error the system will be stopped and you will be prompted.
All, But Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors.
All, But Diskette	The system boot will not stop for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

□ **Memory**

This option is display-only which is determined by POST (Power On Self Test) of the BIOS.

□ **Base Memory**

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 512K for systems with 512K memories installed on the motherboard, or 640K for systems with 640K or more memory installed on the motherboard.

□ **Extended Memory**

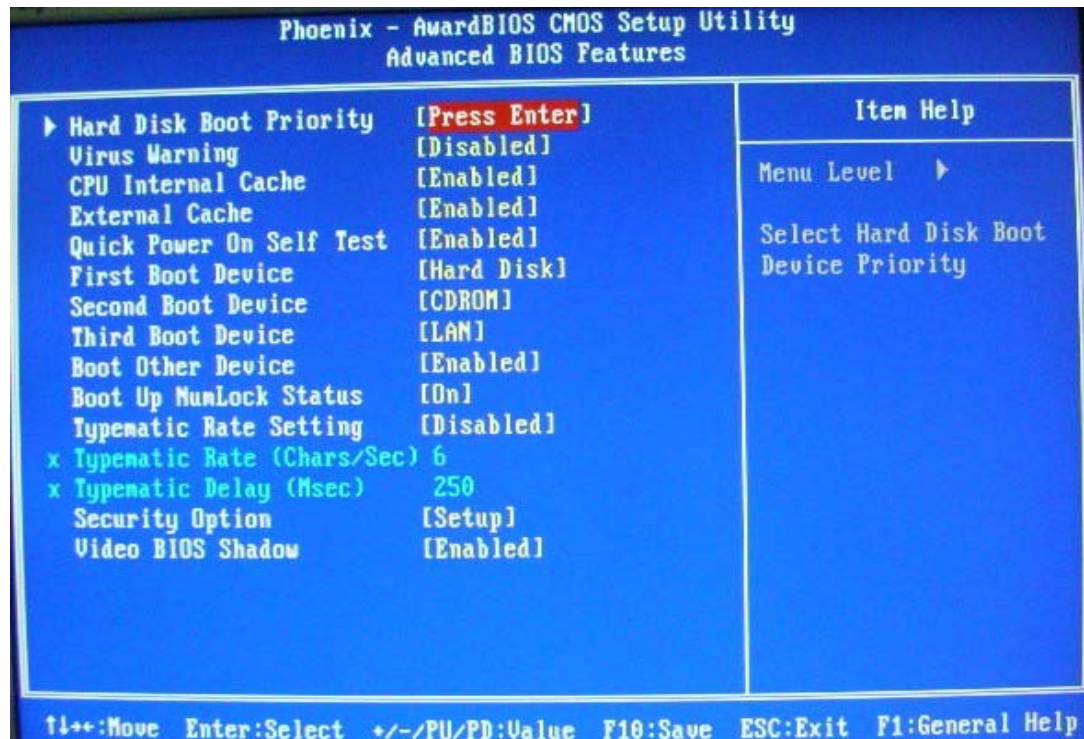
The BIOS determines how much extended memory is present during the POST. This is the amount of memory located above 1MB in the CPU's memory address map.

□ **Total Memory**

System total memory is the sum of basic memory, extended memory, and other memory.

Advanced BIOS Features

This section describes the configuration entries that allow you to improve your system performance, or let you set up some system features according to your preference. Some entries here are required by the CPU board's design to remain in their default settings.



◆ Hard Disk Boot Priority

This field specifies which device the system looks first boot device.

Available options: 1. Bootable Add-in Cards

Default setting: 1. Bootable Add-in Cards

□ Virus Warning

This option may flash on the screen. During and after the system boots up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system and the following error message will appear, in the mean time, you can run an anti-virus program to locate the problem.

Available Options: Disabled, Enabled

Default setting: Disable

❑ **CPU Internal & External Cache**

This function speeds up System access. The CPU has an internal cache.

Available options: Disabled, Enabled

Default setting: Enabled

❑ **Quick Power On Self Test**

This option speeds up Power On Self Test (POST) after you power on the computer. If it is set to Enable, BIOS will shorten or skip some items' checks during POST.

Available options: Disabled, Enabled

Default setting: Enable

❑ **First /Second /Third/Boot Other Device/ Boot Device**

This field specifies which device the system looks first upon power on.

Available options: LS120, Hard Disk, CDROM, ZIP100, USB-ZIP, USB-CDROM, USB-HDD, LAN and Disable

Default setting: Hard Disk, CDROM, LAN

❑ **Boot Up Numlock status**

This field is used to activate the Num Lock function upon system boot. If the setting is on, after a boot, the Num Lock light is lit, and user can use the number key.

Available options: On, Off

Default setting: On

❑ **Typematic rate Setting**

This function specifies the keystroke repeat rate when a key is pressed and held down.

Available options: Disable, Enable

Default setting: Disable

❑ **Typematic Rate (Chars/Sec)**

Typematic Rate sets the rate at which characters on the screen repeat when a key is pressed and held down.

Available options: 6, 8, 10, 12, 15, 20, 24, or 30 characters per second

Default setting: 6

□ **Typematic Delay (Msec)**

The number selected indicates the time period between two identical characters appearing on screen.

Available options: 250,500 750 and 1000

Default setting: 250

□ **Security Option**

This field enables password checking every time the computer is powered on or every time the BIOS Setup is executed. If ***Always*** is chosen, a user password prompt appears every time and the BIOS Setup Program executes and the computer is turned on. If ***Setup*** is chosen, the password prompt appears if the BIOS executed.

Available options: Setup, Always

Default setting: Setup

□ **Video BIOS Shadow**

These fields control the location of the contents of the video ROM beginning at the specified memory location. If no adapter ROM is using the named ROM area, this area is made available to the local bus.

1. **Disabled:** The video ROM is not copied to RAM. The contents of the video ROM cannot be read from or written to cache memory.
2. **Enabled:** The contents of C000h - C7FFFh are written to the same address in system memory (RAM) for faster execution.

Available options: Disabled and Enabled

Default setting: Enable

Advanced Chipset Features

This section describes the configuration of the board's chipset features.



- DRAM Clock/Driver Control
- ◆ Current FSB/DRAM Frequency

This display sent by the CPU host clock and DDR-RAM memory clock

- ◆ DRAM Clock

This Select equates are used for determining the DDR-RAM Memory Clock frequency. SPD represents Serial Presence Detect. It is an 8-bit, 2048 bits EEPROM, built on the SDRAM for different frequencies.

Available Options: By SPD, 100Mhz, 133Mhz, 166Mhz and 200Mhz

Default setting: By SPD

◆ **DRAM Timing**

If the installed SDRAM supports SPD function, select SPD. If not, you can select based on other access time of the SDRAM.

Available Options: Auto By SPD, Manual, Turbo and Ultra

Default setting: Auto By SPD

◆ **DRAM CAS Latency Time**

This field specifies the latency for the Synchronous DRAM system memory signals.

Available Options: 1.5, 2, 2.5 and 3

Default setting: 2.5

➤ **AGP & P2P Bridge Control**

◆ **AGP Aperture Size (MB)**

This field specifies the system memory size that can be used by the Accelerated Graphics Port (AGP).

Available Options: 4MB, 8MB, 16MB, 32MB, 64MB, 128MB, 256MB, 512MB and 1GB

Default setting: 64 MB

◆ **VGA Share Memory Size**

This field specifies which VGA display memory. You can select either Video memory on the VGA. There are setting share onboard memory.

Available Options: 16MB, 32MB and 64MB

Default setting: 64MB

◆ **Select Display Device**

This field specifies which VGA display will be used when the system is boot. You can select the CRT+TV or the CRT booting on the VGA.

Available Options: CRT+TV, DVI, CRT+DVI, and CRT

Default setting: CRT

➤ **CPU & PCI Bus Control**

◆ **PCI1/2 Master OWS Write**

This field specifies the PCI1/2 Master 0 wait state installed in the PCI expansion bus.

Available Options: Disable and Enable

Default setting: Enable

◆ **PCI1/2 Post Write**

This field specifies the PCI1/2 post write installed in the PCI expansion bus.

Available Options: Disable and Enable

Default setting: Enable

□ **System BIOS Cacheable**

The contents of the named ROM area are written to the same address in system memory (RAM) for faster execution. Also, the contents of the RAM area can be read from and written to cache memory.

Available Options: Disabled, Enabled

Default setting: Enabled

□ **Video RAM Cacheable**

This field specifies selecting enabled allows caching of the video BIOS ROM, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Available Options: Disabled, Enabled

Default setting: Enabled

□ **BIOS Write Protect**

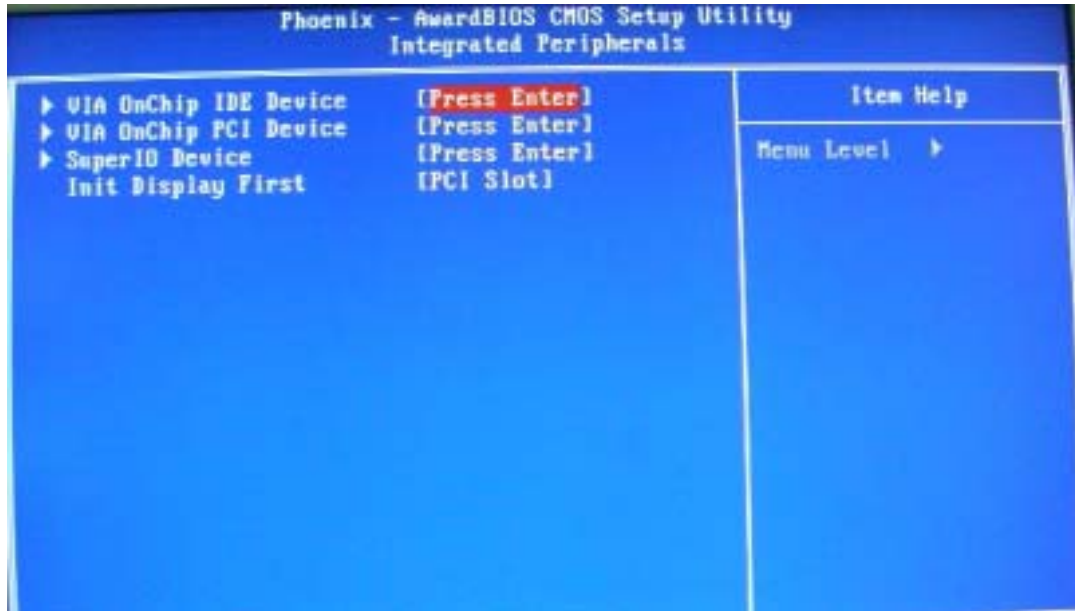
This field specifies selecting enabled allows updating the system BIOS.

Available Options: Disabled, Enabled

Default setting: Disable

Integrated Peripherals

This section describes the function of peripheral features.



- VIA Onchip IDE Device
- ◆ OnChip Primary/Secondary PCI IDE

This field specifies the IDE channel that can be applied when using IDE hard disk connector.

Available Options: Disabled, Enable

Default setting: Enable

- ◆ IDE Primary/Secondary Master/Slave PIO

IDE hard drive controllers can support up to two separate hard drives. These drives have a master/slave relationship, which is determined by the cabling configuration used to attach them to the controller. Your system supports one IDE controller – a primary and a secondary – so you have the ability to install up to four separate hard disks.

PIO means Programmed Input/Output. Rather than have the BIOS issue a series of commands to affect a transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by them. This is simpler and more efficient (and faster). Your system supports five modes, numbered from 0 to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode.

◆ **IDE Primary/Secondary Master/Slave UDMA**

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, select Auto to enable. This option allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive (HDD).

◆ **IDE HDD Block Mode**

This option allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive (HDD).

➤ **VIA PCI Device**

◆ **VIA-3058AC'97 Audio**

This field specifies the internal Audio Control.

Available Options: Disable, Enable

Default setting: Enable

◆ **OnChip USB/EHCI Controller**

Select Enable if a USB device is installed to the system. If Disabled are selected, the system will not be able to use a USB device.

Available Options: Disabled, Enabled

Default setting: Enabled

◆ **Onboard LAN Boot ROM**

This field specifies the PXE boot ROM of the onboard LAN chip.

Available Options: Disabled, Enable

Default setting: Disable

◆ **LAN1/2 Chipset Controller**

This field specifies the Enable or Disable of the onboard LAN chip.

Available Options: Disabled, Enable

Default setting: Enable

➤ **Super IO Device**

◆ **OnBoard UART/IRQ Port 1/2/3/4,**

These fields select the I/O port address for each Serial port.

Available Options: Disabled, 3F8H/IRQ4, 2F8H/IRQ3, and 3E8H/IRQ11, 2E8H/IRQ10.

Default setting: 3F8/IRQ4, 2F8H/IRQ3, and 3E8H/IRQ11, 2E8H/IRQ10.

◆ **OnBoard UART 2 Mode Select**

These fields item can select RS-232, RS-422 and RS-485 of select port 2.

Available Options: RS-232, RS-422 and RS485

Default setting: RS-232

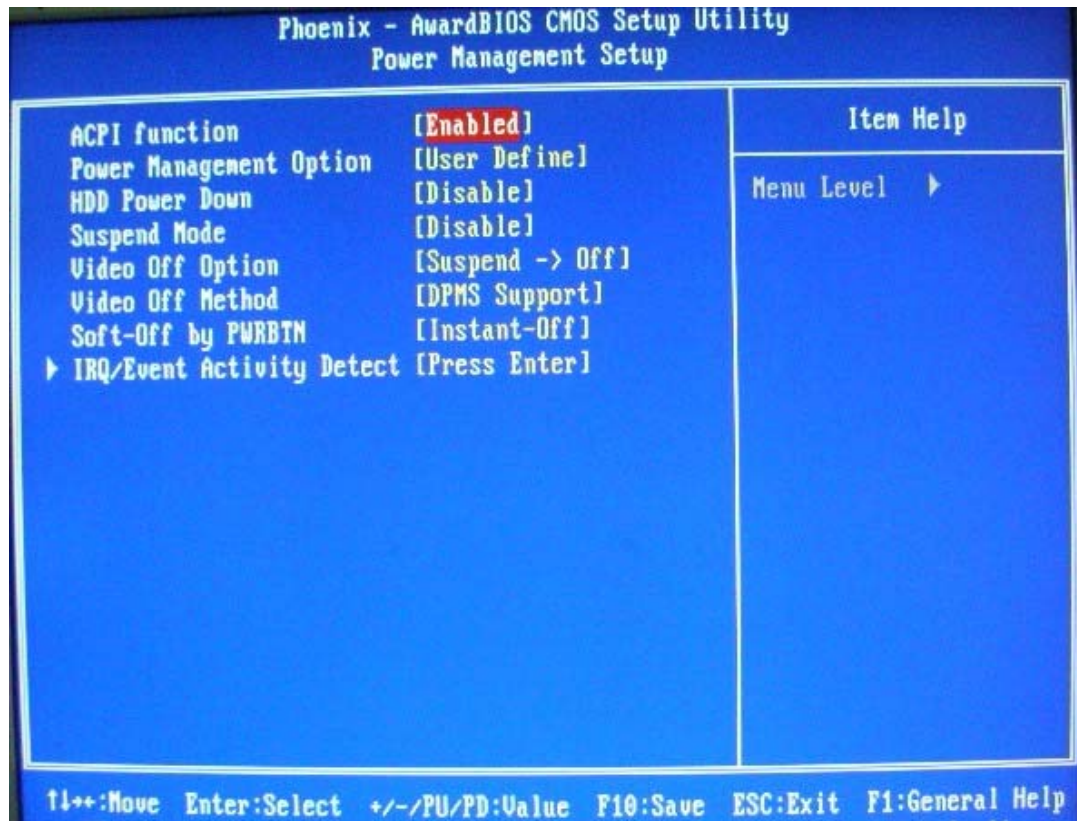
□ **Init Display First**

This field specifies which VGA display will be used when the system is boot. You can select either the onboard AGP or the VGA card installed on the PCI bus.

Available Options: AGP, PCI Slot

Default setting: PCI Slot

Power Management Setup



ACPI Function

This field specifies allow you enable Advanced Configuration and Power Management. When you use Windows/OS standby mode can set to enable.

Available Options: Disabled, Enabled

Default setting: Enable

Power Management Option

Select Enabled to activate the chipset Power Management and APM (Advanced Power Management) features.

Available Options: User Define, Min Saving, Max Saving

Default setting: User Define

Video Of Method

When enabled, this feature allows the VGA adapter to operate in a power saving mode.

V/H SYNC + Blank - This selection will cause the system to turn off the vertical and

horizontal synchronization ports and write blanks to the video buffer.

Blank Screen - This option only writes blanks to the video buffer.

DPMS - Select this option if your monitor supports the Display Power Management Signal (DPMS) standard of the Video Electronics Standards to select video power management values.

Available Options: V/H SYNC + Blank, Blank Screen and DPMS

Default setting: DPMS

❑ **Suspend Mode**

This field specifies the When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

Available Options: Disabled, 1 Minute, 2 Minute, 4 Minute, 12 Minute, 20 Minute, 30 Minute, 40 Minute and 1 Hour

Default setting: Disabled

❑ **Soft-Off By PWR-BTIN**

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung". The choices are Delay 4 Sec and Instant-Off.

Available Options: Instant-Off and Delay 4 sec.

Default setting: Instant-Off

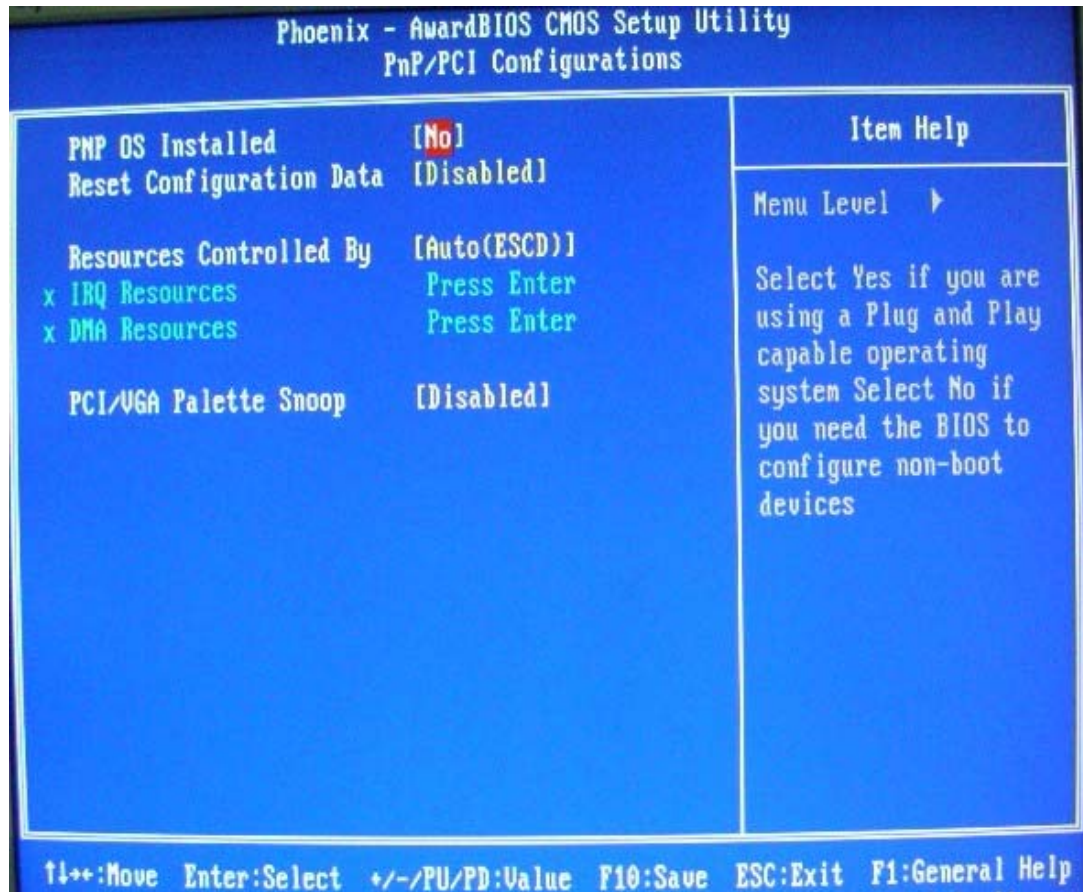
➤ **IRQ/Event Activity Detect**

➤ **IRQs Activity Monitoring**

◆ **IRQ3 ~IRQ15**

This field specifies the power down mode of the system based on the device. When the system does not receive signals from the device, it will enter the Power Down mode immediately. To enable the power saving mode, select Monitor. To disable it, select Ignore.

PnP/PCI Configurations



- **Reset Configuration Data:** Enable, Disable

If you select Enable to reset Extended System Configuration Data (ESCD) when you exit setup is you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operation operating system cannot boot.

Available Options: Enable, Disable

Default setting: Disable

- **Resources Controlled By:** Auto [ESCD], Manual

If you select Auto, all the interrupt request (IRQ), DMA assignment, and Used DMA fields disappear, as the BIOS automatically assigns them. The default value is "Manual".

Available Options: Auto [ESCD], Manual

Default setting: Auto [ESCD]

➤ **X IRQ/DMA Resources**

◆ **IRQ-n/DMA-n Assigned: PCI Device and Reserved**

You may assign each system interrupt/DMA a type, depending on the type of device using the interrupt/DMA.

□ **PCI/VGA Palette Snoop**

When Enabled is selected, multiple VGA devices operating on different buses can handle data from the CPU on each set of palette registers on every video device. Bit 5 of the command register in the PCI device configuration space is the VGA Palette Snoop bit. (0 is disabled).

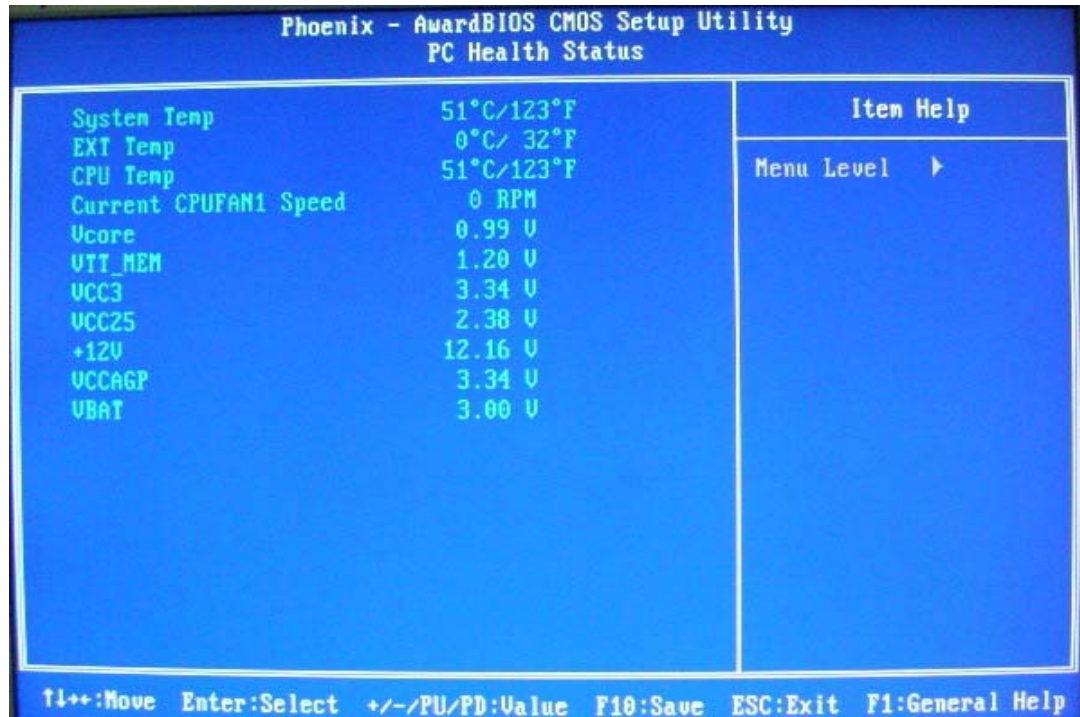
Available Options:

Disabled: Data read and written by the CPU is only directed to the PCI VGA devices palette registers.

Enabled: Data read and written by the CPU is directed to both the PCI VGA devices palette registers.

PC Health Status

On the Hardware Monitor Setup screen, you can monitor the system temperature, CPU voltage, and CPU fan speed...



□ System Hardware Monitor

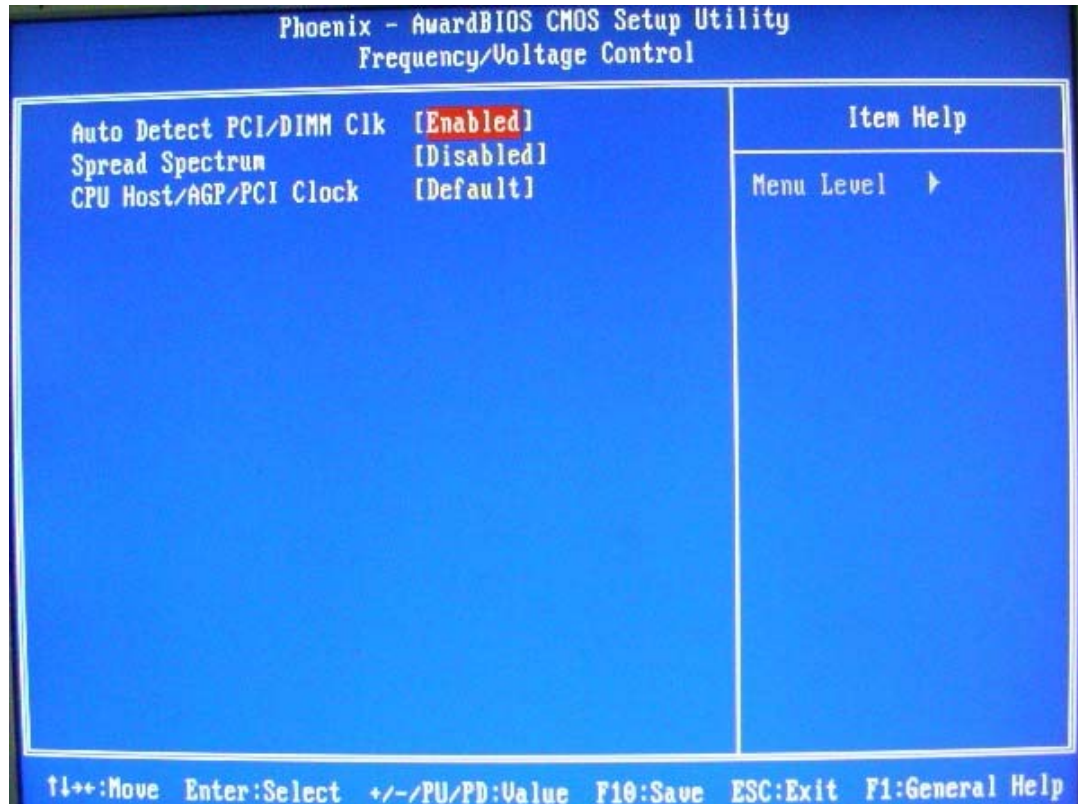
In this field, you can monitor or detect the followings items. These items are view-only and cannot be changed.

- System Temp.
- Ext. Tempe.
- CPU Temp.
- Current CPU Fan1 Speed
- VCORE A
- VTT_MEM
- VCC3
- VC25
- +12.00V
- VCCAGP
- +1.350V
- VBAT (V)

VBAT (On board Battery)

Frequency/Voltage Control

By choosing the Frequency/Voltage Control option from the Initial Setup Screen menu, the screen below is displayed.



Caution: *Incorrect settings in Frequency/Voltage Control may damage the system CPU, video adapter, or other hardware.*

Password Setup

There are two security passwords: Supervisor and User. Supervisor is a privileged person that can change the User password from the BIOS.

According to the default setting, both access passwords are not set up and are only valid after you set the password from the BIOS.

To set the password, please complete the following steps.

1. Select **Change Supervisor Password**.
2. Type the desired password (up to 8 character length) when you see the message, "Enter New Supervisor Password."
3. Then you can go on to set a user password (up to 8 character length) if required. Note that you cannot configure the User password until the Supervisor password is set up.
4. Enter Advanced BIOS Features screen and point to the Security Option field.
5. Select System or Setup.
 - ❖ **System:** a visitor who attempts to enter BIOS or operating system will be prompted for password.
 - ❖ **Setup:** a visitor who attempts to the operating system will be prompted for user password. You can enter either User password or Supervisor password.
6. Point to **Save Settings and Exit** and press Enter.
7. Press Y when you see the message, "Save Current Settings and Exit (Y/N)?"

Note: it is suggested that you write down the password in a safe place to avoid that password may be forgotten or missing.

To set the password, please complete the following steps.

1. Select **Change Supervisor Password**.
2. Press Enter instead of entering any character when you see the message, "Enter New Supervisor Password."
3. Thus you can disable the password.

Chapter 4 Software Installation

The enclosed diskette includes FX5613 VGA, Audio, USB, System and LAN driver. To install and configure you FX5613 system, you need to perform the following steps.

System Driver

WIN 98/2000/XP Driver

Install KN400A Chipset, IRQ Routing, USB, AGP Driver and PCI IDE Bus Master Driver.

- Step 1: To install the KN400A driver, insert the CD ROM into the CD ROM device, and enter DRIVER>SysChip>VIA4in1>VIA_HyperionPro_V504A.
- Step 2: Execute Setup.exe file.
- Step 3: The screen shows the SETUP type. Press any key to enter the main menu.
- Step 4: As the setup is completed, the system will generate the message as follows.

Yes, I want to restart my computer now. Installation is done!

No, I will restart my computer later.

System must be restart then complete the installation.

Note: In the Syschip> VIA4in1>VIA_HyperionPro_V504A directory, a Readme.htm file is included to provide installation information.

VGA Driver for WIN98SE/ME/2000/XP

Step 1: To install the VGA driver, insert the CD ROM into the CD ROM device, and enter DRIVER>VGA>KN400A>Win2K&WinXP, Win9X&WinME.

Step 2: Execute SETUP.EXE file.

Step 3: The screen shows the SETUP type. Press any key to enter the main menu.

Step 4: As the setup is completed, the system will generate the message as follows.

Yes, I want to restart my computer now. Installation is done!

No, I will restart my computer later.

System must be restart then complete the installation.

Step 5: In the WINDOWS2000/XP/98SE/ME, you can find the <DISPLAYL> icon located in the {CONTROL PANEL} group.

Step 6: Adjust the <Refresh Rate>, and <Resolution>.

Audio Drivers

WIN 98/2000/XP Driver

Step 1: To install the AUDIO driver, insert the CD ROM into the CD ROM device, and enter DRIVER>AUDIO>VT8237R.

Step 2: Execute SETUP.exe file.

Step 3: The screen shows the SETUP type. Press any key to enter the main menu.

Step 4: As the setup is completed, the system will generate the message as follows.

Yes, I want to restart my computer now. Installation is done!

No, I will restart my computer later.

System must be restart then complete the installation.

Note: In the DRIVER>AUDIO>VT8237R directory, a Readme.htm file is included to provide installation information.

USB 2.0 Driver

WIN 9X/ME Driver

- Step 1: To install the USB driver, insert the CD ROM into the CD ROM device, and enter DRIVER>USB>VT8237R.
- Step 2: Start the "Add New Hardware" wizard in control panel
(Click Start/Settings/Control Panel).
- Step 3: Select "Hardware" and click "Device Manager" button.
- Step 4: Double Click "USB Root Hub".
- Step 5: Select "Driver".
- Step 6: Click "Install" to install the driver.
- Step 7: Follow the instructions on the screen to complete the installation.
- Step 8: Click "Finish" after the driver installation is complete.

Note: In the DRIVER>USB>VT8237R directory, a Readme.doc file is included to provide installation information.

LAN Utility & Driver

- 1 To install the LAN utility OR driver, insert the CD ROM into the CD ROM device, and enter DRIVER>LAN>RTL8110S>Diag or Windows. If your system is not equipped with a CD ROM device, copy the LAN driver from the CD ROM to CF.
- 2 Execute install2KXP.exe/install98se.exe or setup.exe file.

Note: In the RTL8110S directory, a README.TXT is included to provide installation information.

BIOS Flash Utility

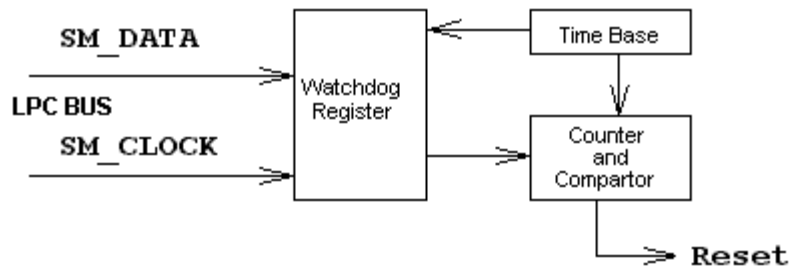
In the <UTILITY> directory, there is the AWDFLASH file.

- Step 1: Use the AWDFLASH.EXE program to update the BIOS setting.
- Step 2: And then refer to the chapter "BIOS Setup", as the steps to modify BIOS.
- Step 3: Now the CPU board's BIOS loaded with are the newest program; user can use it to modify BIOS function in the future, when the BIOS add some functions.

Watchdog Timer

This section describes how to use the Watchdog Timer, including disabled, enabled, and trigger functions.

The FX5613 is equipped with a programmable time-out period watchdog timer. You can use your own program to enable the watchdog timer. Once you have enabled the watchdog timer, the program should trigger the I/O every time before the timer times out. If your program fails to trigger or disable this timer before it times out, e.g. because of a system hang-up, it will generate a reset signal to reset the system. The time-out period can be programmed to be set from 1 to 255 seconds or minutes.



The CD-ROM includes a Watch Dog demo file. In the WATCHDOG/F81216D/TURBOC: Library and Test Program written in Turbo C++

The WATCHDOG includes a demonstration program established for users who would like to configure the Watchdog timer by themselves.

Note: In the WATCHDOG/F81216D directory, README.TXT file is included to provide demo program information.

Watchdog Timer Setting

The watchdog timer is a circuit that may be used from your program software to detect system crashes or hang-ups. LED1 on this CPU board is the watchdog timer indicator, which is located at the upper-left corner above the USB connector. Whenever the watchdog timer is enabled, the LED will blink to indicate that the timer is counting. The watchdog timer is automatically disabled after reset.

Once you have enabled the watchdog timer, your program must trigger the watchdog timer every time before it times out. After you trigger the watchdog timer, it will be set to non-zero value to watchdog counter and start to count down again. If your program fails to trigger the watchdog timer before time-out, it will generate a reset pulse to reset the system.

The factor of the watchdog timer time-out constant is approximately 1 second. The period for the watchdog timer time-out is between 1 to FF timer factors.

If you want to reset your system when watchdog times out, the following table listed the relation of timer factors between time-out periods.

Time Factor	Time-Out Period (Seconds)	Time-Out Period (Minutes)
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
"	"	"
"	"	"
"	"	"
FF	FF	FF

Watchdog Timer Enabled

To enable the watchdog timer, you have to output a byte of timer factor to the watchdog register whose address is 4Eh and data port is 4fH. The following is an Assemble program, which demonstrates how to enable the watchdog timer and set the time-out period at 28 seconds.

```

;-----
; Enter the extended function mode, interruptible double-write
;-----
Mov     dx, 4eh           ; Enter to extended function mode
Mov     al, 87h
Out     dx, al
Out     dx, al
Mov     al, 07h          ; Select register index 0x07
Out     dx, al
;-----
; Logical device 8, configuration IO Port 300H register, CR60 Bit 1,2,CR61 Bit 0~7
;-----
Mov     dx, 4fh          ; Select LDN 8
Mov     al, 08h
Out     dx, al
Mov     dx, 4eh
Mov     al, 60h          ; Select LDN 8 register index 0x60
Out     dx, al
Mov     dx, 4fh
Mov     al, 03h          ; Set Watch Dog timer base address high byte to 0x03h
Out     dx, al
Mov     dx, 4eh
Mov     al, 61h          ; Select LDN 8 register index 0x61
Out     dx, al
Mov     dx, 4fh
Mov     al, 00h          ; Set Watch Dog Timer base address low byte to 0x00h
Out     dx, al
;-----
; Logical device 8, configuration register, CR30 Bit 0, Enable Watch Dog Timer Device
;-----
Mov     dx, 4eh
Mov     al, 30h          ; Select LDN 8 register index 0x30
Out     dx, al
Mov     dx, 4fh
Mov     al, 01h          ; Enable Watch Dog Timer Device
Out     dx, al
;-----
; Exit extended function mode
;-----
Mov     dx, 4eh
Mov     al, 0aah
Out     dx, al

```

Watchdog Timer Trigger

After you enable the watchdog timer, your program must write the same factor as enabling to the watchdog register at least once every time-out period to its previous setting. You can change the time-out period by writing another timer factor to the watchdog register at any time, and you must trigger the watchdog before the new time-out period in next trigger.

```

;-----
;Set Watch Dog timer to 20 second used base address 0x300~0x301:
;-----
MOV AX,03H      ;Select unit to one second and clear time out status
MOV DX,300H
OUT DX,AX
MOV AX,14H      ;Set timer to 20 second and enable time
MOV DX,301H
OUT DX,AX
OUT DX,AX

```

Watchdog Timer Disabled

To disable the watchdog timer, simply write a 00H to the watchdog register.

```

;-----
; Enter the extended function mode, interruptible double-write
;-----
Mov     dx, 4eh      ; Enter to extended function mode
Mov     al, 77h
Out     dx,al
Out     dx,al
Mov     al,07h      ; Select register index 0x07
Out     dx,al
;-----
; Logical device 8, configuration register, CR30 Bit 0, Disable Watchdog Timer Device
;-----
Mov     dx,4fh      ; Select LDN 8
Mov     al,08h
Out     dx,al
Mov     dx,4eh
Mov     al,30h      ; Select LDN 8 register index 0x30
Out     dx,al
Mov     dx,4fh
Mov     al,00h      ; Disable Watch Dog Timer Device
Out     dx,al
;-----
; Exit extended function mode
;-----
Mov     dx,4eh
Mov     al,0aah
Out     dx,al

```


Chapter 5 Technical Reference

This section outlines the errors that may occur when you operate the system, and also gives you the suggestions on solving the problems.

Topic include:

- Trouble Shooting for Post Beep & Error Messages
- Technical Reference

Trouble Shooting for Post Beep and Error Messages

The following information informs the Post Beep & error messages. Please adjust your systems according to the messages below. Make sure all the components and connectors are in proper position and firmly attached. If the errors still exist, please contact with your distributor for maintenance.

□ **POST BEEP**

Currently there are two kinds of beep codes in BIOS setup.

- One indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by three short beeps.
- The other indicates that an error has occurred in your DRAM. This beep code consists of a constant single long beep.

□ **CMOS BATTERY FAILURE**

When the CMOS battery is out of work or has run out, the user has to replace it with a new battery.

□ **CMOS CHECKSUM ERROR**

This error informs that the CMOS has corrupted. When the battery runs weak, this situation might happen. Please check the battery and change a new one when necessary.

□ **DISK BOOT FAILURE**

When you can't find the boot device, insert a system disk into Drive A and press < Enter >. Make sure both the controller and cables are all in proper positions, and also make sure the disk is formatted. Then reboot the system.

□ **DISKETTE DRIVES OR TYPES MISMATCH ERROR**

When the diskette drive type is different from CMOS, please run setup or configure the drive again.

□ **ERROR ENCOUNTERED INITIALIZING HARD DRIVE**

When you can't initialize the hard drive, ensure the following things:

1. The adapter is installed correctly
2. All cables are correctly and firmly attached
3. The correct hard drive type is selected in BIOS Setup

□ **ERROR INITIALIZING HARD DISK CONTROLLER**

When this error occurs, ensure the following things:

1. The cord is exactly installed in the bus.
2. The correct hard drive type is selected in BIOS Setup
3. Whether all of the jumpers are set correctly in the hard drive

□ **FLOPPY DISK CONTROLLER ERROR OR NO CONTROLLER PRESENT**

When you cannot find or initialize the floppy drive controller, please ensure the controller is in proper BIOS Setup. If there is no floppy drive installed, ensure the Diskette Drive selection in Setup is set to NONE.

□ **KEYBOARD ERROR OR NO KEYBOARD PRESENT**

When this situation happens, please check keyboard attachment and no keys being pressed during the boot. If you are purposely configuring the system without a keyboard, set the error halt condition in BIOS Setup to HALT ON ALL, BUT KEYBOARD. This will cause the BIOS to ignore the missing keyboard and continue the boot procedure.

❑ **MEMORY ADDRESS ERROR**

When the memory address indicates error, you can use this location along with the memory map for your system to find and replace the bad memory chips.

❑ **MEMORY SIZE HAS CHANGED**

Memory has been added or removed since last boot. In EISA mode, use Configuration Utility to re-configure the memory configuration. In ISA mode enter BIOS Setup and enter the new memory size in the memory fields.

❑ **MEMORY VERIFYING ERROR**

It indicates an error verifying a value is already written to memory. Use the location along with your system's memory map to locate the bad chip.

❑ **OFFENDING ADDRESS MISSING**

This message is used in connection with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem cannot be isolated.

❑ **REBOOT ERROR**

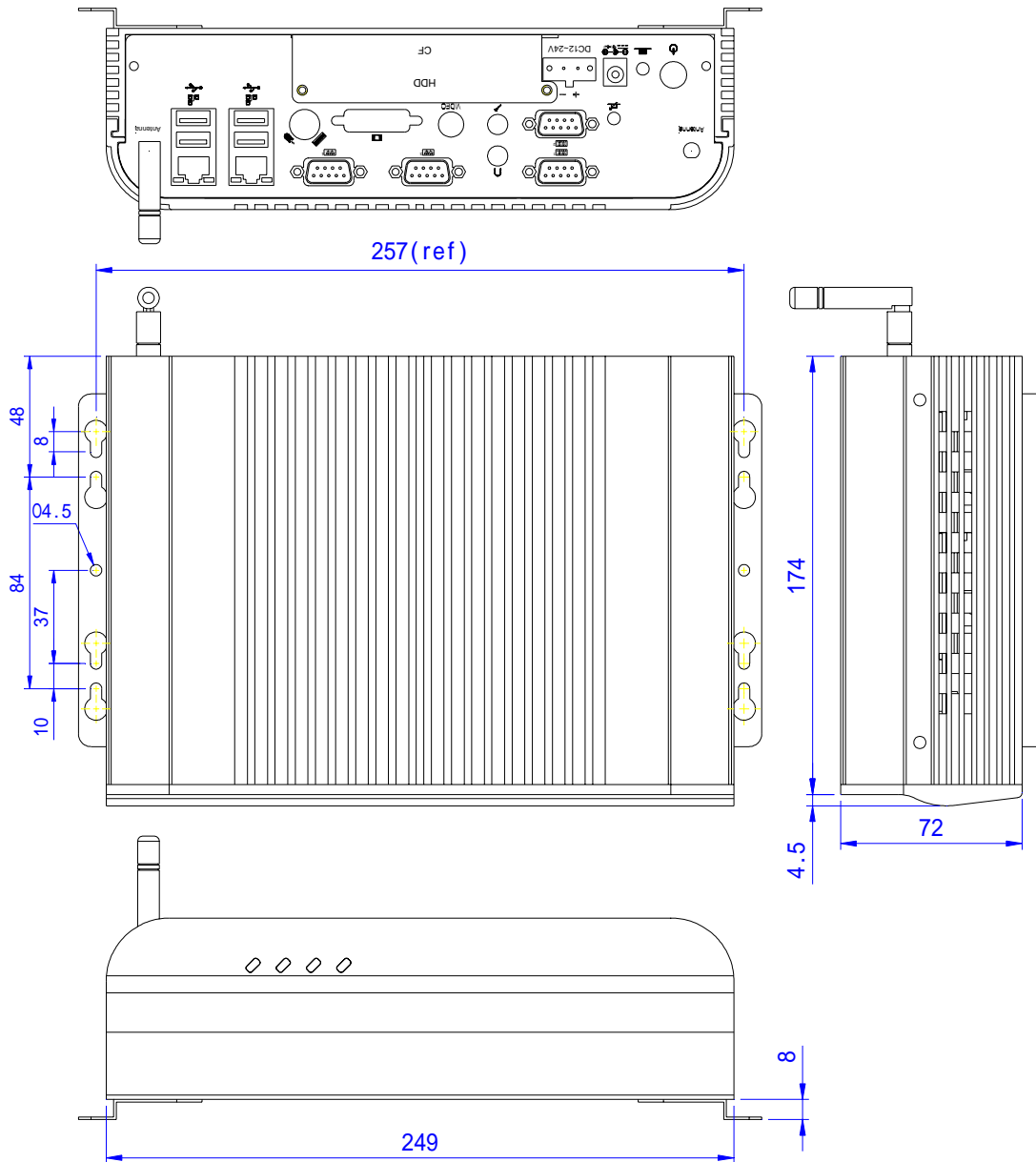
When this error occurs that requires you to reboot. Press any key and the system will reboot.

❑ **SYSTEM HALTED**

Indicates the present boot attempt has been aborted and the system must be rebooted. Press and hold down the CTRL and ALT keys and press DEL.

Appendix

Dimension



Technical Reference

Physical and Environmental

DC Inputs: 24V/40VA Minimum

Temperature: Operating 0°C ~ 50°C

Relative humidity 5 % to 95 % non-condensing

Surface Temperature of Chassis :

5°C to 45°C (W/HDD)/0°C to 50°C (W/CF card only)

Serial Ports

The ACEs (Asynchronous Communication Elements ACE1 to ACE2) are used to convert parallel data to a serial format on the transmit side and convert serial data to parallel on the receiver side. The serial format, in order of transmission and reception, is a start bit, followed by five to eight data bits, a parity bit (if programmed) and one, one and half (five-bit format only) or two stop bits. The ACEs are capable of handling divisors of 1 to 65535, and produce a 16x clock for driving the internal transmitter logic.

Provisions are also included to use this 16x clock to drive the receiver logic. Also included in the ACE is a completed MODEM control capability, and a processor interrupt system that may be software tailored to the computing time required to handle the communications link.

The following table is a summary of each ACE accessible register

DLAB	Port Address	Register
0	Base + 0	Receiver buffer (read)
		Transmitter holding register (write)
0	Base + 1	Interrupt enable
X	Base + 2	Interrupt identification (read only)
X	Base + 3	Line control
X	Base + 4	MODEM control
X	Base + 5	Line status
X	Base + 6	MODEM status
X	Base + 7	Scratched register
1	Base + 0	Divisor latch (least significant byte)
1	Base + 1	Divisor latch (most significant byte)

□ **Receiver Buffer Register (RBR)**

Bit 0-7: Received data byte (Read Only)

□ **Transmitter Holding Register (THR)**

Bit 0-7: Transmitter holding data byte (Write Only)

□ **Interrupt Enable Register (IER)**

Bit 0: Enable Received Data Available Interrupt (ERBFI)

Bit 1: Enable Transmitter Holding Empty Interrupt (ETBEI)

Bit 2: Enable Receiver Line Status Interrupt (ELSI)

Bit 3: Enable MODEM Status Interrupt (EDSSI)

Bit 4: Must be 0

Bit 5: Must be 0

Bit 6: Must be 0

Bit 7: Must be 0

□ **Interrupt Identification Register (IIR)**

Bit 0: "0" if Interrupt Pending

Bit 1: Interrupt ID Bit 0

Bit 2: Interrupt ID Bit 1

Bit 3: Must be 0

Bit 4: Must be 0

Bit 5: Must be 0

Bit 6: Must be 0

Bit 7: Must be 0

□ **Line Control Register (LCR)**

Bit 0: Word Length Select Bit 0 (WLS0)

Bit 1: Word Length Select Bit 1 (WLS1)

WLS1	WLS0	Word Length
0	0	5 Bits
0	1	6 Bits
1	0	7 Bits
1	1	8 Bits

Bit 2: Number of Stop Bit (STB)

Bit 3: Parity Enable (PEN)

Bit 4: Even Parity Select (EPS)

Bit 5: Stick Parity

Bit 6: Set Break

Bit 7: Divisor Latch Access Bit (DLAB)

□ **MODEM Control Register (MCR)**

Bit 0: Data Terminal Ready (DTR)

Bit 1: Request to Send (RTS)

Bit 2: Out 1 (OUT 1)

Bit 3: Out 2 (OUT 2)

Bit 4: Loop

Bit 5: Must be 0

Bit 6: Must be 0

Bit 7: Must be 0

□ **Line Status Register (LSR)**

Bit 0: Data Ready (DR)

Bit 1: Overrun Error (OR)

Bit 2: Parity Error (PE)

Bit 3: Framing Error (FE)

Bit 4: Break Interrupt (BI)

Bit 5: Transmitter Holding Register Empty (THRE)

Bit 6: Transmitter Shift Register Empty (TSRE)

Bit 7: Must be 0

□ **MODEM Status Register (MSR)**

Bit 0: Delta Clear to Send (DCTS)

Bit 1: Delta Data Set Ready (DDSR)

Bit 2: Training Edge Ring Indicator (TERI)

Bit 3: Delta Receive Line Signal Detect (DSLSD)

Bit 4: Clear to Send (CTS)

Bit 5: Data Set Ready (DSR)

Bit 6: Ring Indicator (RI)

Bit 7: Received Line Signal Detect (RSLD)

□ **Divisor Latch (LS, MS)**

	LS	MS
Bit 0:	Bit 0	Bit 8
Bit 1:	Bit 1	Bit 9
Bit 2:	Bit 2	Bit 10
Bit 3:	Bit 3	Bit 11
Bit 4:	Bit 4	Bit 12
Bit 5:	Bit 5	Bit 13
Bit 6:	Bit 6	Bit 14
Bit 7:	Bit 7	Bit 15

Desired Baud Rate	Divisor Used to Generate 16x Clock
300	384
600	192
1200	96
1800	64
2400	48
3600	32
4800	24
9600	12
14400	8
19200	6
28800	4
38400	3
57600	2
115200	1