



®

AXIOMTEK

IFO2225-873 Series

**22" TFT Fanless Touch Panel
Computer with Intel® Core™ i7/i5/i3
Processors**

User's Manual



Disclaimers

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Safety Approvals

- CE Marking
- FCC Class B

● FCC Compliance

This equipment has been tested in compliance with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are meant to provide reasonable protection against harmful interference in a residential installation. If not installed and used in accordance with proper instructions, this equipment might generate or radiate radio frequency energy and cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following methods:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment to another outlet of a circuit that doesn't connect with the receiver.
4. Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with the emission limits.

Safety Precautions

Before getting started, please read the following important safety precautions.

1. The IFO2225-873 Series does not come equipped with an operating system. An operating system must be loaded first before installing any software into the computer.
2. Be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.
3. Disconnect the power cord from the IFO2225-873 Series before making any installation. Be sure both the system and external devices are turned OFF. A sudden surge of power could ruin sensitive components. Make sure the IFO2225-873 Series is properly grounded.
4. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
5. The brightness of the flat panel display will be getting weaker as a result of frequent usage. However, the operating period varies depending on the application environment.
6. Turn OFF the system power before cleaning. Clean the system using a cloth only. Do not spray any liquid cleaner directly onto the screen. The IFO2225-873 Series may come with or w/o a touchscreen. Although the touchscreen is chemical resistant, it is recommended that you spray the liquid cleaner on a cloth first before wiping the screen. In case your system comes without the touchscreen, you must follow the same procedure and not spray any cleaner on the flat panel directly.
7. Avoid using sharp objects to operate the touchscreen. Scratches on the touchscreen may cause malfunction or internal failure to the touchscreen.
8. The flat panel display is not susceptible to shock or vibration. When assembling the IFO2225-873 Series, make sure it is securely installed.
9. Do not leave this equipment in an uncontrolled environment where the storage temperature is below -20°C or above 60°C. It may damage the equipment.
10. External equipment intended for connection to signal input/out or other connectors shall comply with relevant UL/IEC standard.
11. Do not open the system's back cover. If opening the cover for maintenance is a must, only a trained technician is allowed to do so. Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:
 - Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help to discharge any static electricity on your body.
 - When handling boards and components, wear a wrist-grounding strap, available from most electronic component stores.

Classification

1. Degree of protection against electric shock: Not classified.
2. Degree of protection against the ingress of water: IPX1.
3. Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.
4. Mode of operation: Continuous.
5. Type of protection against electric shock: Class I equipment.

General Cleaning Tips

You may need the following precautions before you begin to clean the computer. When you clean any single part or component for the computer, please read and understand the details below fully.

1. When you need to clean the device, please rub it with a piece of dry cloth.
2. Be cautious of the tiny removable components when you use a vacuum cleaner to absorb the dirt on the floor.
3. Turn the system off before you start to clean up the component or computer.
4. Never drop the components inside the computer or get circuit board damp or wet.
5. Be cautious of all kinds of cleaning solvents or chemicals when you use it for the sake of cleaning. Some individuals may be allergic to the ingredients.
6. Try not to put any food, drink or cigarette around the computer.

Cleaning Tools

Although many companies have created products to help improve the process of cleaning your computer and peripherals, users can also use household items to clean their computers and peripherals. Below is a listing of items you may need or want to use while cleaning your computer or computer peripherals.

Keep in mind that some components in your computer may only be able to be cleaned using a product designed for cleaning that component, if this is the case it will be mentioned in the cleaning.

- Cloth: A piece of cloth is the best tool to use when rubbing up a component. Although paper towels or tissues can be used on most hardware as well, we still recommend you to rub it with a piece of cloth.
- Water or rubbing alcohol: You may moisten a piece of cloth a bit with some water or rubbing alcohol and rub it on the computer. Unknown solvents may be harmful to the plastics parts.
- Vacuum cleaner: Absorb the dust, dirt, hair, cigarette particles, and other particles out of a computer can be one of the best methods of cleaning a computer. Over time these items can restrict the airflow in a computer and cause circuitry to corrode.
- Cotton swabs: Cotton swabs moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas in your keyboard, mouse, and other locations.
- Foam swabs: Whenever possible it is better to use lint free swabs such as foam swabs.



Note

We strongly recommend that you should shut down the system before you start to clean any single components.

Please follow the steps below:

1. Close all application programs.
2. Close operating software.
3. Turn off power switch.
4. Remove all devices.
5. Pull out power cable.

Scrap Computer Recycling

If the computer equipments need the maintenance or are beyond repair, we strongly recommend that you should inform your Axiomtek distributor as soon as possible for the suitable solution. For the computers that are no longer useful or no longer working well, please contact your Axiomtek distributor for recycling and we will make the proper arrangement.

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Table of Contents

Disclaimers	ii
Safety Approvals	iii
Safety Precautions	iv
Classification	v
General Cleaning Tips	v
Cleaning Tools	vi
Scrap Computer Recycling	vii
Chapter 1 Introduction	1
1.1 Features	1
1.2 Specifications	2
1.3 Dimensions	4
1.4 I/O Outlets	6
1.5 Package Checklist	8
Chapter 2 Hardware Installation	9
2.1 Installing CPU and DRAM	9
2.2 Installing Hard Disk Drive	13
2.3 Serial Port Interfaces	17
2.4 Installing PCI-Express Mini Card	17
2.5 Installing Add-on Card (Optional)	21
2.6 Mounting	24
2.6.1 Wall Mounting.....	24
2.6.2 VESA-Arm Mounting	25
2.6.3 Desktop Stand Mounting (Optional)	25
Chapter 3 AMI BIOS Setup Utility	29
3.1 Starting	29
3.2 Navigation Keys	29
3.3 Main Menu	30
3.4 Advanced Menu	31
3.5 Chipset Menu	41
3.6 Boot Menu	46
3.7 Security Menu	47

3.8	Save & Exit Menu	48
Chapter 4 Drivers Installation..... 51		
4.1	System Drivers	51
4.2	Touch Screen.....	52
4.2.1	Specifications	52
4.2.2	Installing Touch Screen	52
4.3	OSD Sync Service	55
4.3.1	Installing OSD Sync	55
4.3.2	OSD Function Keys.....	56
4.3.3	OSD Notification Bar	57
4.3.4	Uninstalling OSD Sync.....	58
Appendix A Watchdog Timer..... 61		
A.1	About Watchdog Timer	61
A.2	How to Use Watchdog Timer.....	61
Appendix B Digital I/O		
B.1	Digital I/O Software Programming	63
Appendix C iAMT Settings		
C.1	Entering MEBx.....	65
C.2	Set and Change Password	66
C.3	Intel® iAMT Web Console.....	68

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Chapter 1

Introduction

The IFO2225-873 is an ultra slim panel computer equipped with 22-inch 250nits brightness WSXGA+ LCD display and supports superior 2nd and 3rd Generation Intel® Core™ i7/ i5/ i3/ Pentium®/ Celeron® processors up to 35W and up to 16G of dual-channel DDR3 system memory. Powered by Intel® mobile QM77 express chipset, it offers excellent 3D graphics and dual-view capability. The fanless design and waterproof enclosure allow it to operate reliably and quietly as it applied in any infotainment environments.

The panel also supports dual view and multiple I/O options. Furthermore, the IFO2225-873 supports a PCI or PCI-Express interface for flexibility and an internal antenna for wireless expansion. With a built-in 5 mega pixels camera and speakers, this durable panel computer is also the best solutions for VoIP and remote monitoring. This safe, reliable and user-friendly panel computer can ensure customer's project success and best suited for infotainment, advertising messaging, and other digital signage applications.

1.1 Features

- 22" (250nits) WSXGA+ TFT LCD, resolution: 1680x1050
- Fanless 2nd and 3rd Generation Intel® Core™ i7/ i5/ i3/ Pentium®/ Celeron® processors
- Spill and dust resistant design (front panel: IP65, whole enclosure: IPX1)
- 1 PCI or PCI-Express x4 expansion slot (Optional)
- Supports USB3.0
- Built-in 5 mega pixels camera
- WiFi/ Bluetooth/ HSDPA/ LTE communication module (Optional)

1.2 Specifications

- **Front Bezel**
 - Plastic ABS.
- **LCD Panel**
 - Display Type: 22" WSXGA TFT.
 - Brightness (Cd/M²): 250nits.
 - Resolution: 1680x1050.
 - Viewing Angle(H/V): 178°/178°.
- **Main System**
 - CPU:
Fanless socket rPGA988B 2nd and 3rd Generation Intel® Core™ i7/ i5/ i3/ Pentium®/ Celeron® processors, TDP is up to 35W.
 - Chipset:
Intel® QM77 PCH.
 - System Memory:
Two 204-pin DDR3 SO-DIMM with maximum up to 16GB memory capacity.
 - Storage:
Support one 2.5" SATA HDD.
Support one mSATA SSD.
 - Optical Drive:
One Super Multi DVD (Optional)
 - Watchdog Timer:
1~255 seconds or minutes; up to 255 levels.
- **I/O Connectors**
 - One RS-232/422/485 (COM1).
 - Two RS-232 (COM2/3).
 - Two 1000/100/10Mbps Ethernet
 - Two USB 2.0 (isolated 4KV).
 - Two USB 3.0 and two USB 2.0.
 - Audio: one MIC-in and one line-out.
 - One dual-mode DisplayPort.
 - One +24V DC-in power connector.
- **Expansion Interface**
 - One PCI or PCI-Express x4 slot (Optional).
 - One full-size PCI-Express Mini Card socket with mSATA support.
 - One half-size PCI-Express Mini Card socket with SIM card slot.
- **Speaker**
 - Two 2W internal speakers.
- **Camera**
 - One 5 mega pixels camera.
- **Touch Screen**
 - 5-wire resistive type.
 - Light Transmission: 80%.
 - Touch Lifetime: 35 million touches.
- **OSD Function Key**
 - LCD brightness up/down, audio volume up/down, and touch on/off.

- **Power Supply**
 - 100~240V AC-DC Adapter.
- **Dimensions**
 - 573.5mm(22.57")(W) x 75.9mm(2.98")(D) x 398.9mm(15.7")(H).
- **Weight**
 - 9.4kg (20.72lb).
- **Environmental Limits**
 - Operating Temperature: 0°C~40°C (32°F~104°F).
 - Storage Temperature: -20°C~60°C (-4°F~140°F).
 - Relative Humidity: 10%~95%, non-condensing.
- **Certification**
 - CE class B.

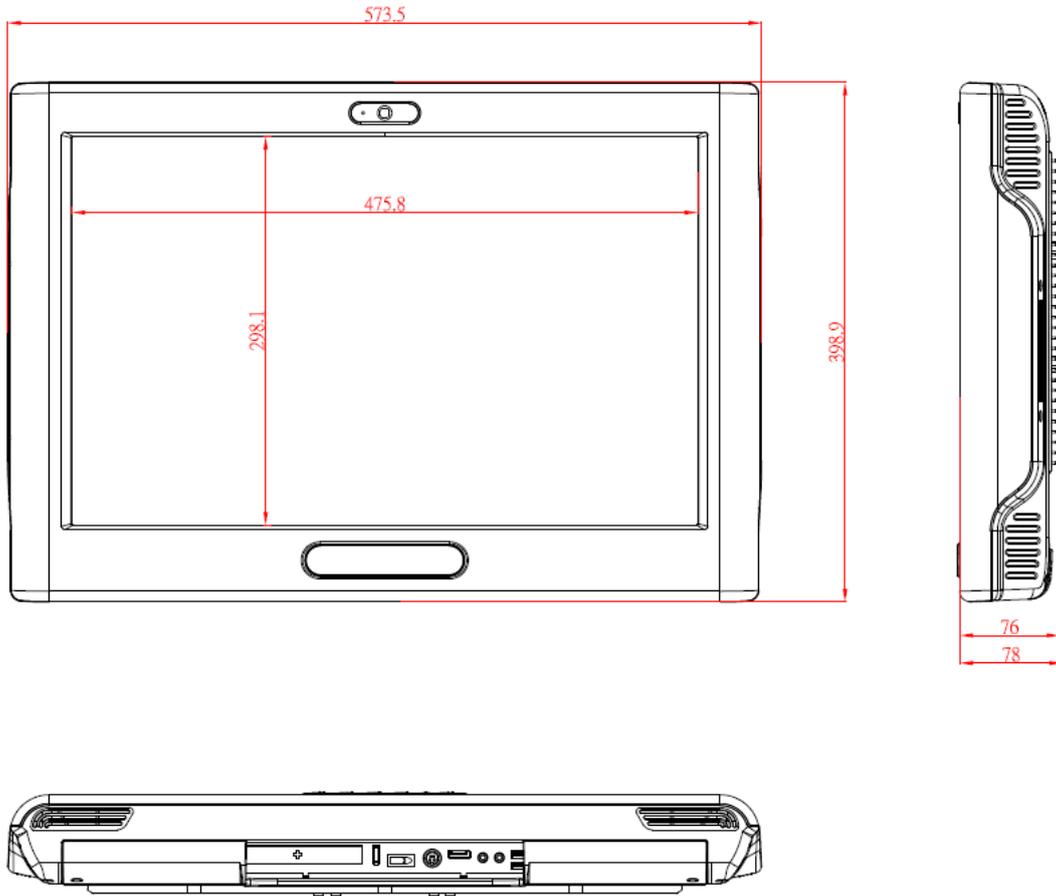


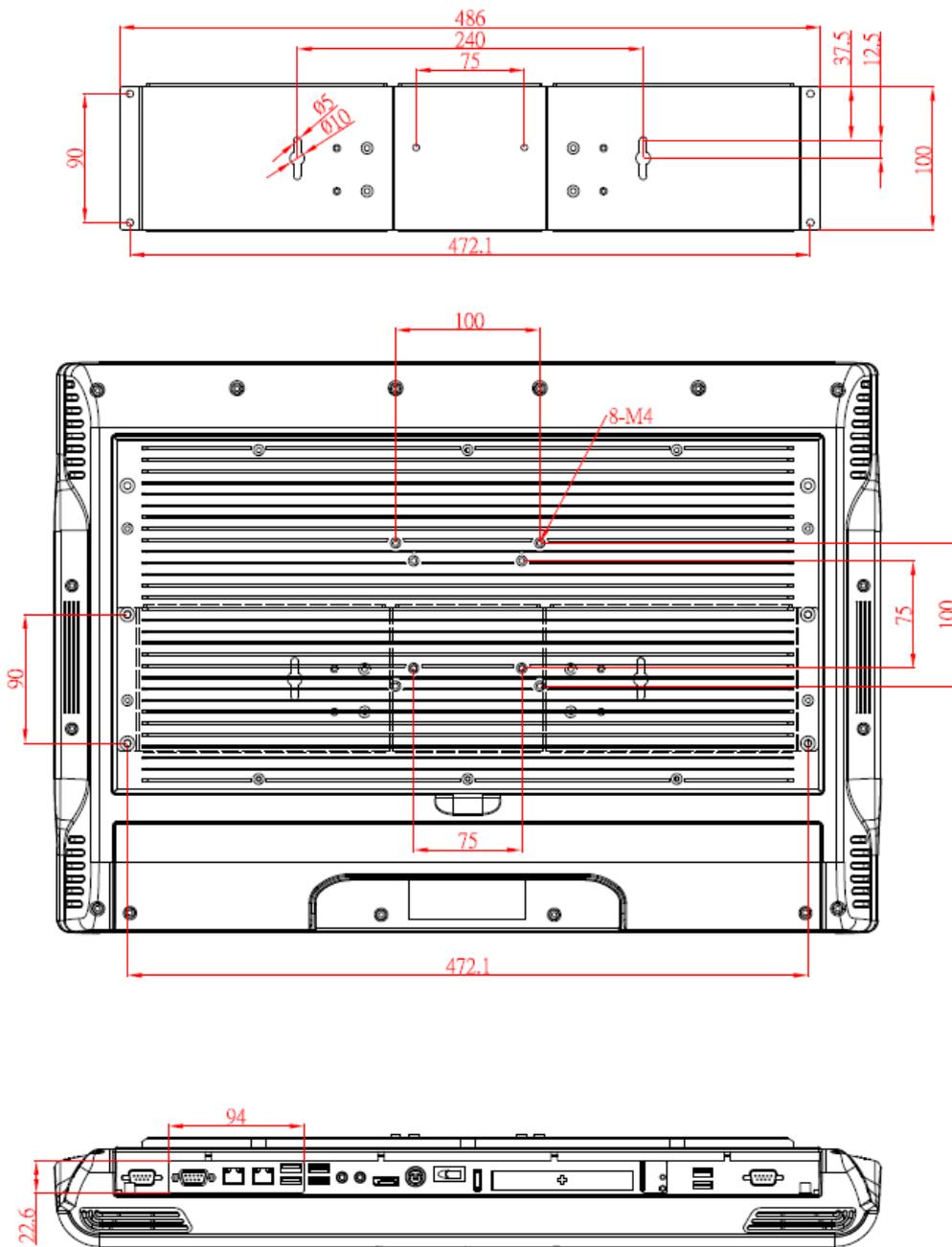
Note

1. *All specifications and images are subject to change without notice.*
2. *If you choose to use 45W Core™ i7 processor, the operation temperature of IFO2225-873 is 0°C~35°C.*
3. *Isolation two USB ports share 0.5A together.*

1.3 Dimensions

The following diagram shows dimensions and outlines of the IFO2225-873 Series.





1.4 I/O Outlets

The following figures show locations of the IFO2225-873 Series I/O outlets



No.	Description
1	Brightness Adjustment Buttons
2	Volume Adjustment Buttons
3	Power LED Indicator
4	MIC
5	Power Button
6	Speaker (R)
7	COM2 (RS-232) Connector
8	COM1 (RS-232/422/485) Connector
9	Two Isolated Giga LAN Ports
10	Two Isolated USB 2.0 Ports
11	Two USB 3.0 Ports
12	Audio Jack (Line-out / MIC-in)
13	DisplayPort
14	Power Connector
15	Power Switch
16	PCI or PCI-Express Slot
17	Two USB 2.0 Ports
18	COM3 (RS-232) Connector
19	Speaker (L)

1.5 Package Checklist

The package bundled with your IFO2225-873 Series should contain the following items:

- IFO2225-873 Series unit x1
- 100~240V AC-DC Adapter x 1
- Driver/utility disc x1 containing driver and user's manual
- Super Multi DVD cover x2 (for Super Multi DVD version)
- Wall-mount bracket x1



Note

If you can not find this package or any items are missing, please contact Axiomtek distributors immediately.

Chapter 2

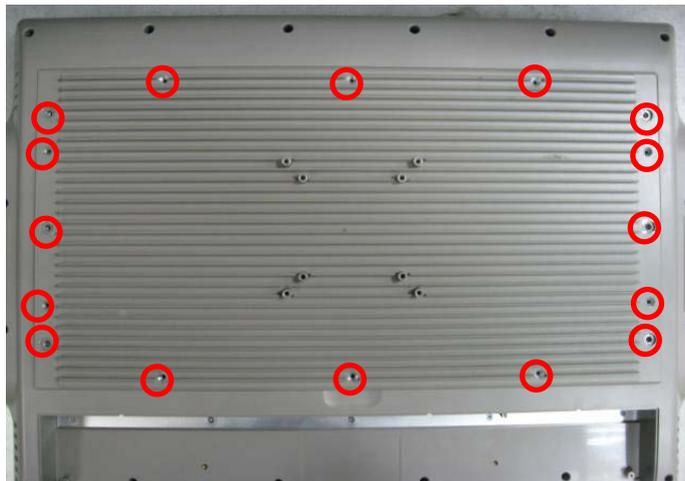
Hardware Installation

The IFO2225-873 Series is convenient and easy to maintain for your various hardware configurations, such as CPU (Central Processing Unit) and HDD (Hard Disk Drive). This chapter will show you how to install the hardware.

2.1 Installing CPU and DRAM

The IFO2225-873 provides socket rPGA988B for processor and two 204-pin DDR3 SO-DIMM sockets that support system memory up to 16GB. To install memory modules, please follow the steps below.

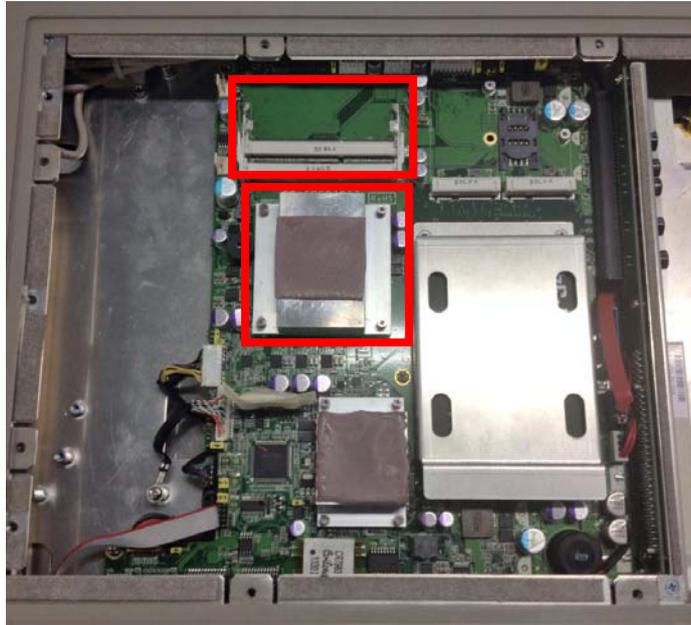
- Step 1.** Turn off the system, and unplug the power cord.
- Step 2.** Locate and release these screws to open the back cover.



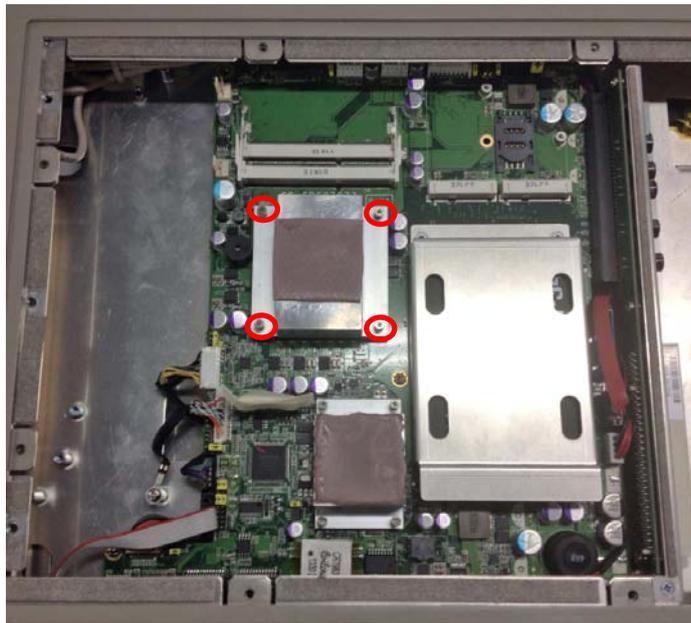
- Step 3.** Please open the back cover by lifting the joint part as marked.



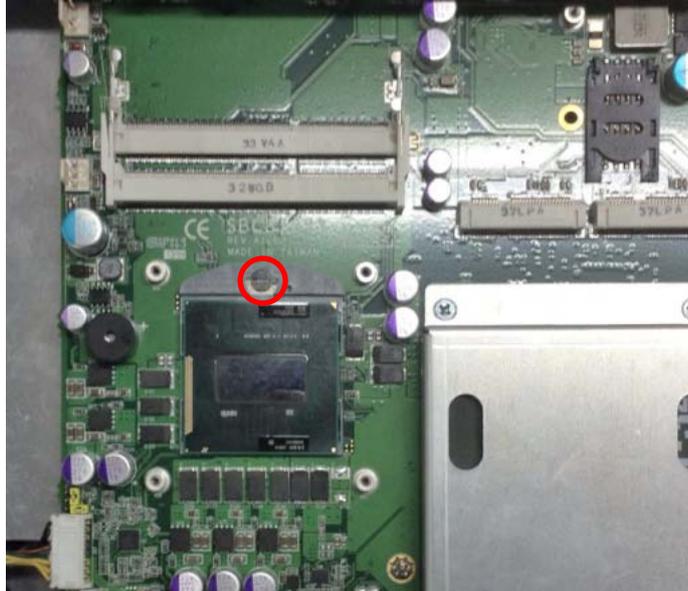
Step 4. Open the back cover and you can see the mainboard. Then locate the SO-DIMM socket and CPU cooler.



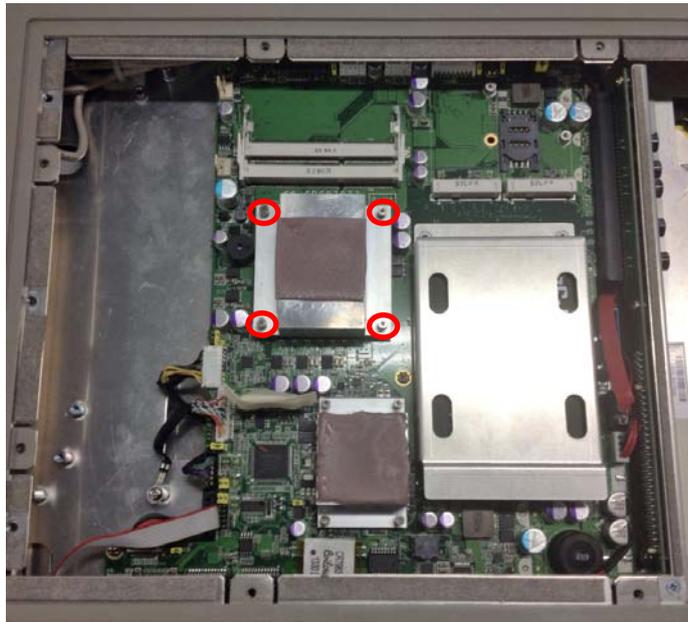
Step 5-1. Release these screws as marked.



Step 5-2. Align pins of the CPU with pin holes of the socket. Be careful of the CPU's orientation, you must align the arrow mark on the CPU with the arrow key on the socket. Place the CPU into the socket, and use a screwdriver to lock it onto the socket as marked.



Step 5-3. Place the heat sink on the CPU, and lock it down as marked.



Step 6-1. Push down latches on both sides of the SO-DIMM socket.



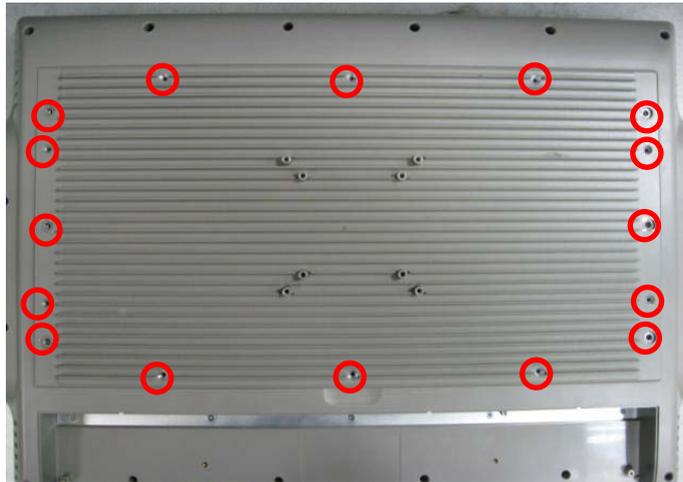
Step 6-2. Install the memory module into the socket and push it firmly down until it is fully seated. The socket latches are levered upwards and clipped onto the edges of the SO-DIMM.



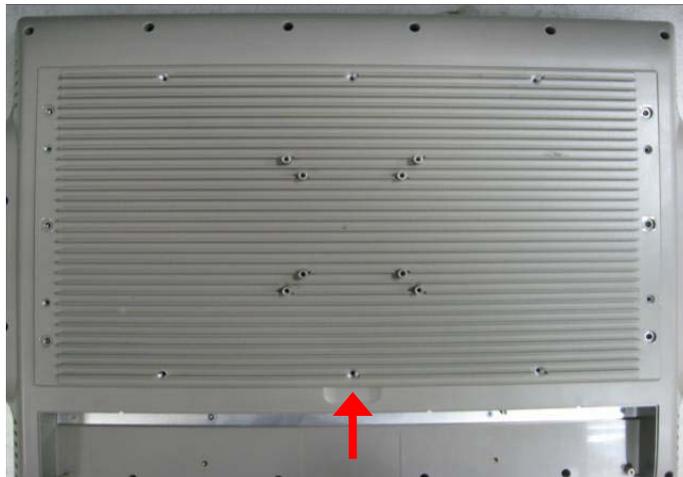
2.2 Installing Hard Disk Drive

The IFO2225-873 Series offers a convenient drive bay module for users to install HDD. The system offers users one 2.5" Hard Disk Drive (HDD) for installation. Please follow these steps:

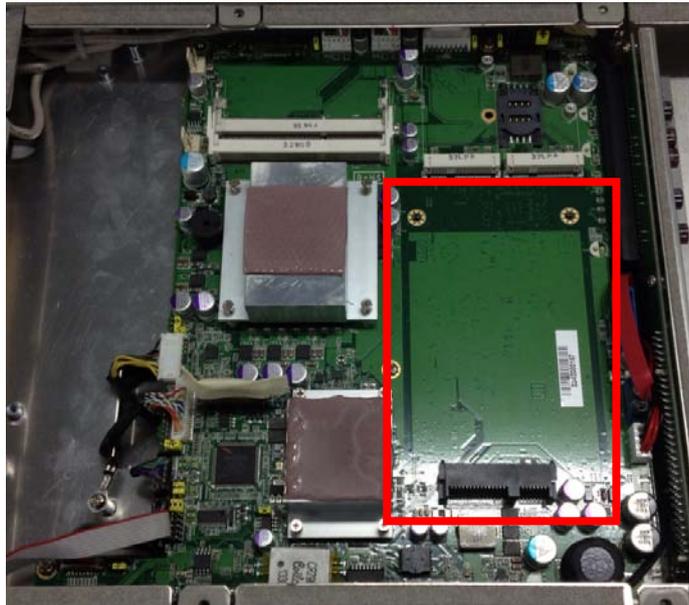
- Step 1.** Turn off the system, and unplug the power cord.
- Step 2.** Locate and release these screws to open the back cover.



- Step 3.** Please open the back cover by lifting the joint part as marked.



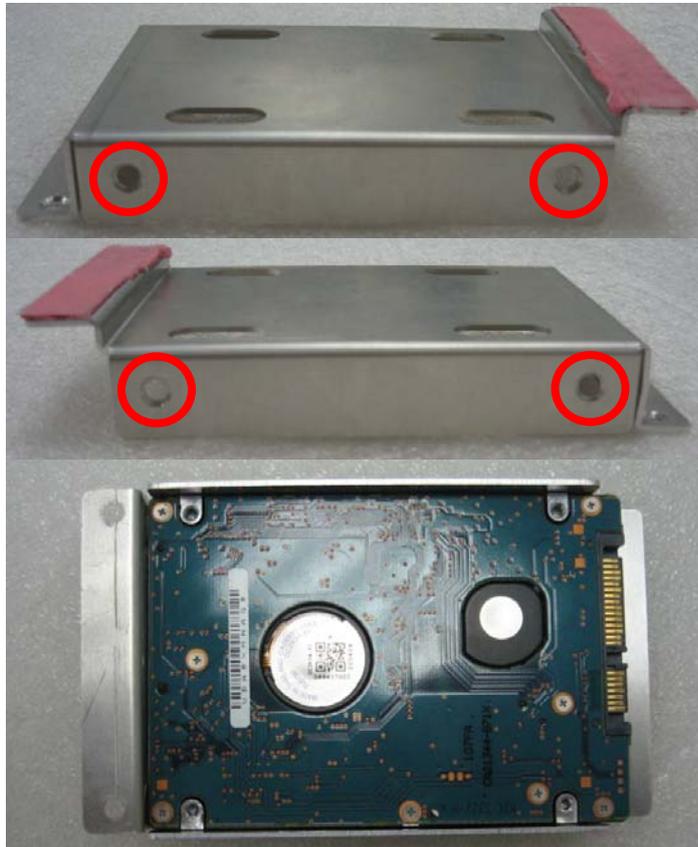
- Step 4.** You can find the HDD bracket in accessory package. Locate the HDD socket on mainboard as marked.



Step 5. Fix HDD to the bracket with assembly parts.

1. HDD bracket x1
2. 2.5" HDD
3. Screw x4

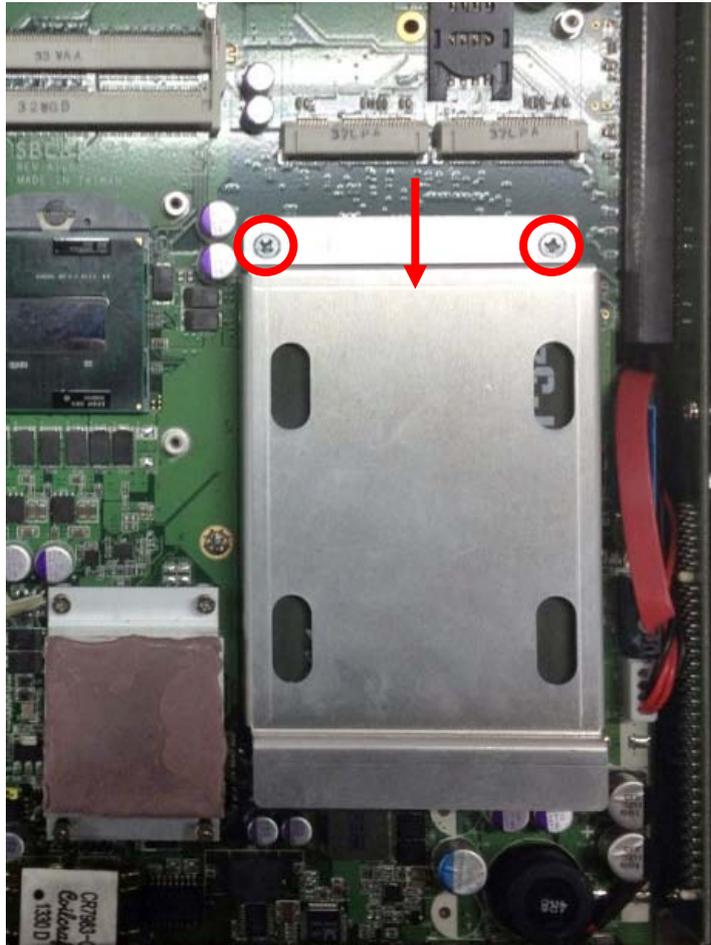
Place HDD into the mounting bracket and fasten it by driving screws into the four screw holes on both sides of the bracket.



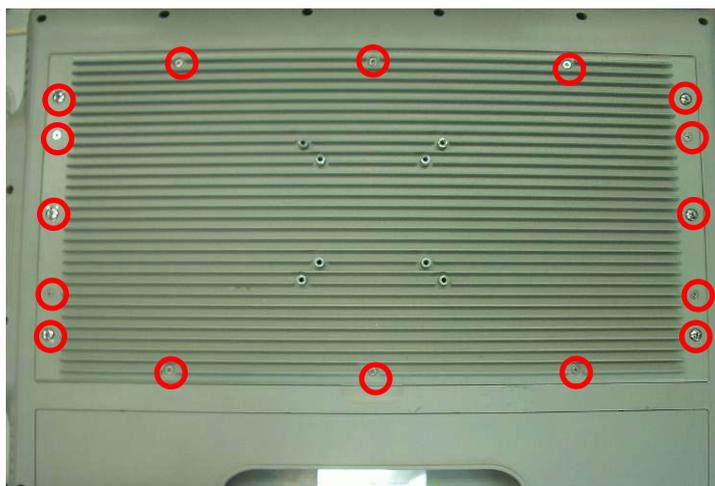
Caution

Please follow the instructions of HDD installation carefully and make sure the PCB side of HDD is facing up.

- Step 6.** Place HDD bracket into the system. Plug HDD into SATA connector on the mainboard. Then fasten bracket with screws to mainboard as marked.



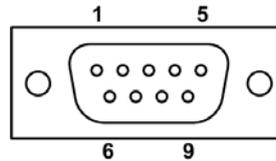
- Step 7.** Close back cover to the chassis, and fasten securely with all screws.



2.3 Serial Port Interfaces

The IFO2225-873 Series has three serial ports; COM1 (RS-232/422/485) with isolated 4KV, COM2 (RS-232), and COM3 (RS-232). You can change the communication mode (RS-232/422/485) via BIOS setting, see section 3.4. Each serial port interface is available through standard DB-9 connector. The pin assignments of RS-232/RS-422/RS-485 are listed in table below.

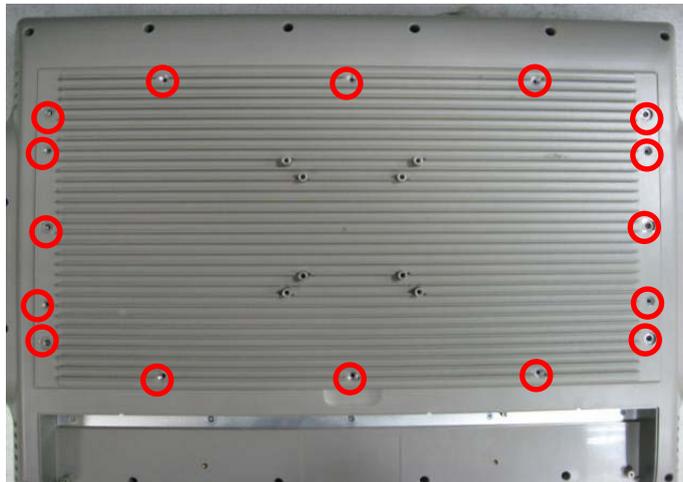
Pin	RS-232	RS-422 (COM1 only)	RS-485 (COM1 only)
1	DCD	TX-	Data-
2	RXD	TX+	Data+
3	TXD	RX+	NC
4	DTR	RX-	NC
5	GND	NC	NC
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC



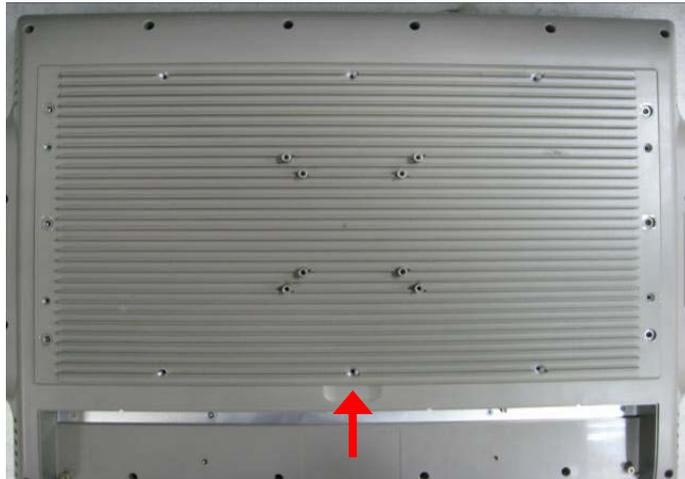
2.4 Installing PCI-Express Mini Card

To install PCI-Express Mini Card, please follow the steps below.

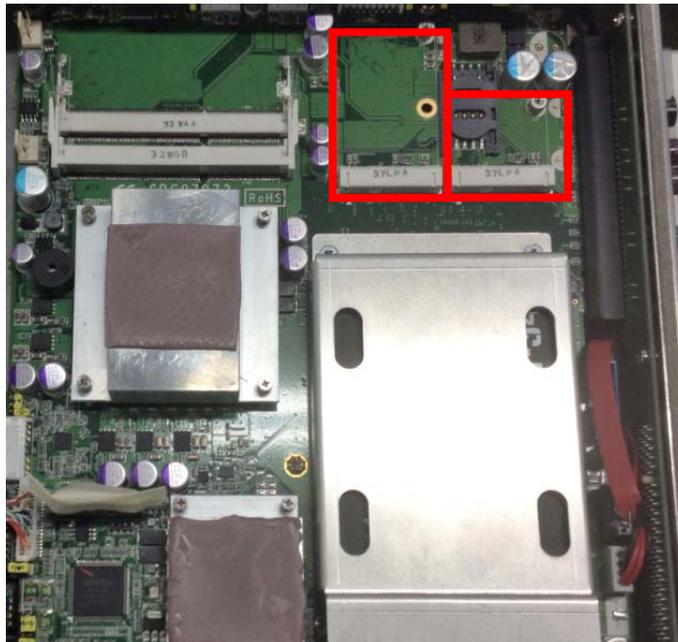
- Step 1.** Turn off the system, and unplug the power cord.
- Step 2.** Locate and release these screws to open the back cover.



Step 3. Please open the back cover by lifting the joint part as marked.



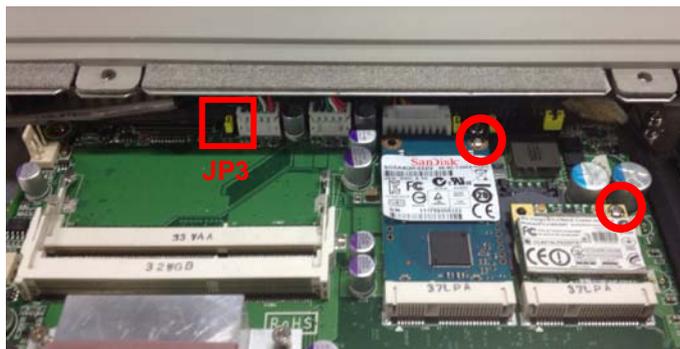
Step 4. On the mainboard, there are two sockets. One is for full-size Mini Card which supports mSATA. The other is for half-size Mini Card with a SIM card slot.



Step 5. Insert Mini Card into the socket and push it firmly down until it is fully seated as marked.



Step 6. Use screws to fasten the Mini Card.



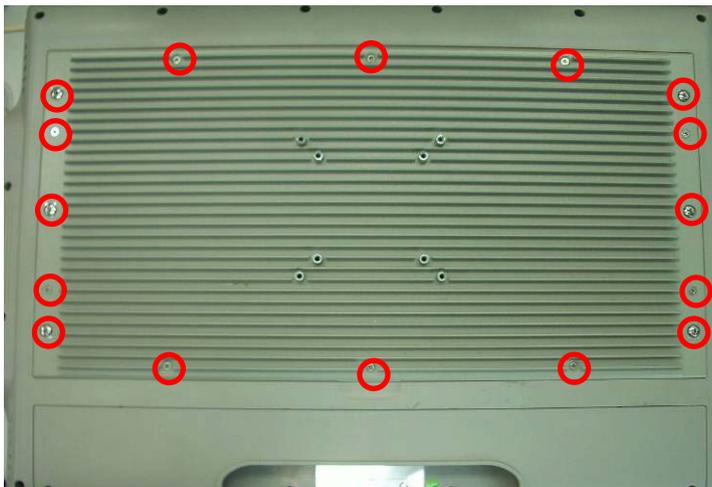
If you intend to install mSATA, remember to change JP3 setting to pin 2-3 close (see table below).

Function	JP3 Setting
Select PCI-Express (Default)	1-2 close
Select mSATA	2-3 close

Step 8. If wireless or 3G module is installed, you need to find the built-in antenna cable and make sure to connect it to the connector on wireless or 3G module.



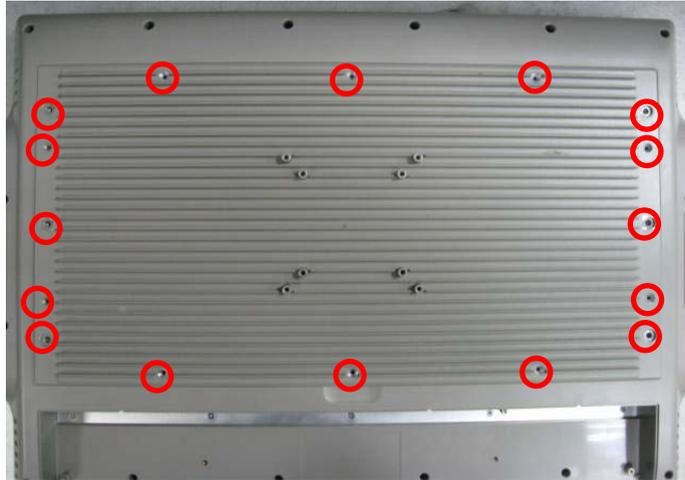
Step 9. Close back cover to the chassis, and fasten securely with all screws.



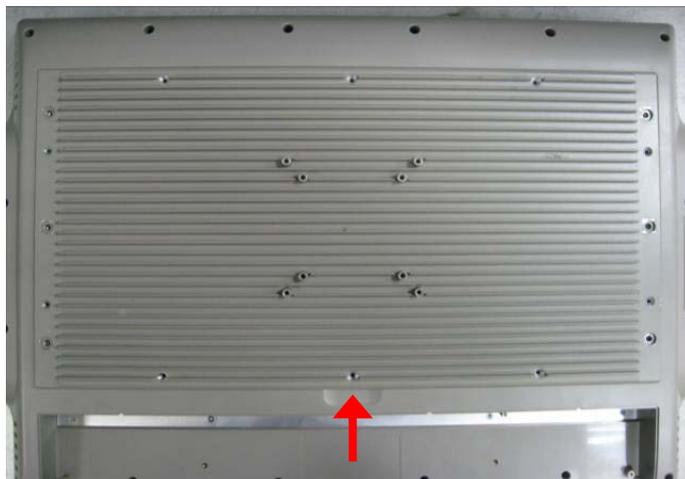
2.5 Installing Add-on Card (Optional)

To install an optional add-on card, please follow the steps below.

- Step 1.** Turn off the system, and unplug the power cord.
- Step 2.** Locate and release these screws to open the back cover.



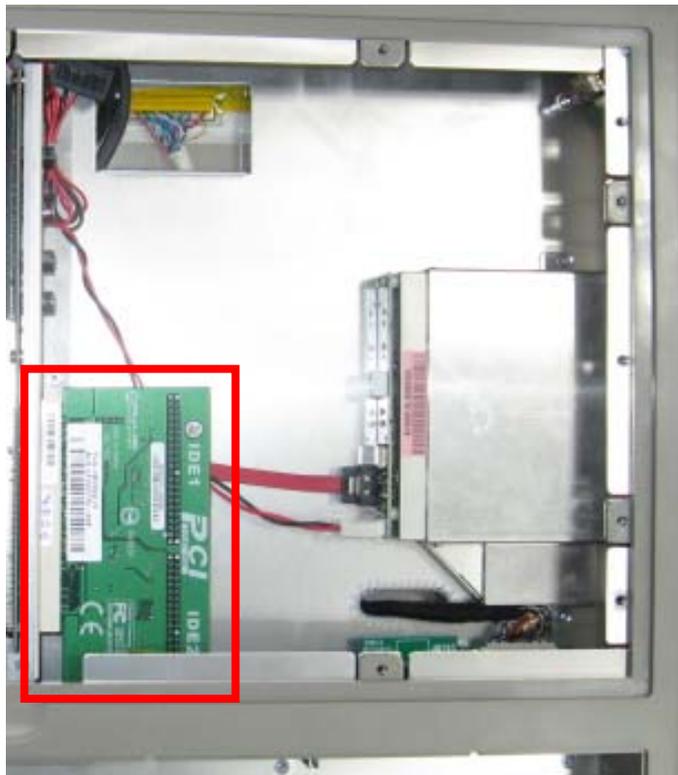
- Step 3.** Please open the back cover by lifting the joint part as marked.



Step 4. Release the screw as marked. And remove plates.



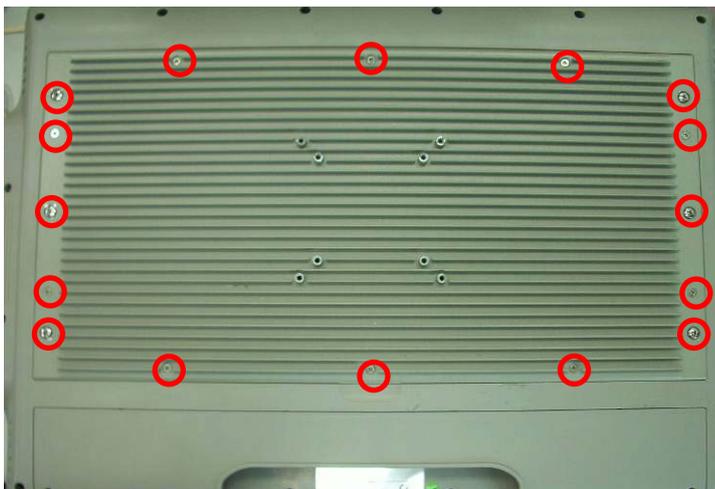
Step 5. Insert the add-on card into the socket firmly until it is completely seated.



Step 6. Fasten with screw as marked.



Step 7. Close back cover to the chassis, and fasten securely with all screws.



2.6 Mounting

There are several mounting ways for the IFO2225-873 Series; Wall mount, VESA-Arm and Desktop Stand mountings.

2.6.1 Wall Mounting

For Wall mounting installation, please follow the steps below.

Step 1. Prepare all assembly parts for the Wall mounting.



Step 2. Use screws to attach Wall mount kit to the back side of chassis, as shown below.



2.6.2 VESA-Arm Mounting

Use screws to assemble VESA-Arm to the back side of chassis, as shown below.



2.6.3 Desktop Stand Mounting (Optional)

The IFO2225-873 Series provides you with an optional Desktop Stand mounting. Please follow the steps below.

Step 1. Prepare all assembly parts for the Desktop Stand mounting.

Screw A



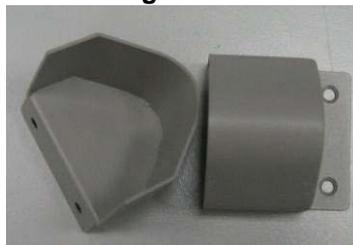
Screw B



Screw C



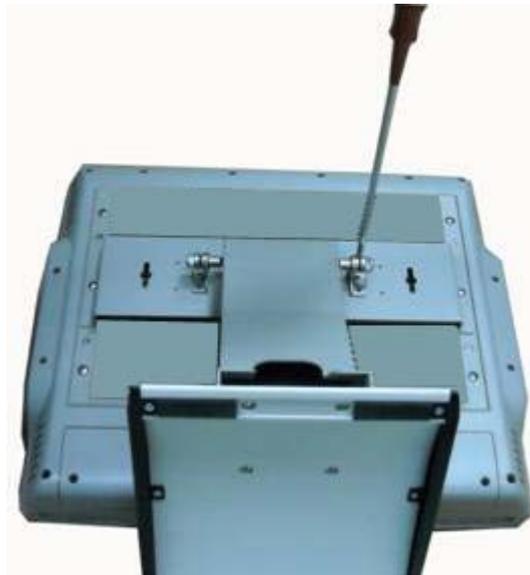
Hinge Cover



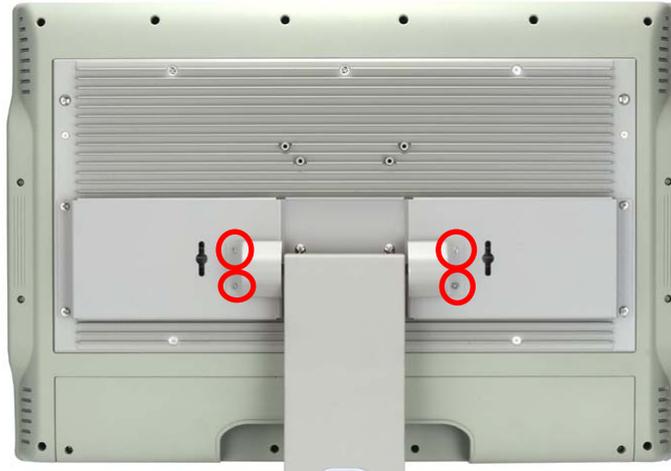
Step 2. Assemble the Desktop Stand by using Screw A as marked on figure below.



Step 3. Attach the Desktop Stand to the back side of chassis by using Screw B.



Step 4. Then fix the hinge cover with Screw C as marked on figure below.



Step 5. Now the Desktop Stand mounting is finished.



Rear View



Front View

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Chapter 3

AMI BIOS Setup Utility

The AMI UEFI BIOS provides users with a built-in setup program to modify basic system configuration. All configured parameters are stored in a flash chip to save the setup information whenever the power is turned off. This chapter provides users with detailed description about how to set up basic system configuration through the AMI BIOS setup utility.

3.1 Starting

To enter the setup screens, follow the steps below:

1. Turn on the computer and press the key immediately.
2. After you press the key, the main BIOS setup menu displays. You can access the other setup screens from the main BIOS setup menu, such as the Advanced and Chipset menus.

It is strongly recommended that you should avoid changing the chipset's defaults. Both AMI and your system manufacturer have carefully set up these defaults that provide the best performance and reliability.

3.2 Navigation Keys

The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process. These keys include <F1>, <F2>, <Enter>, <ESC>, <Arrow> keys, and so on.



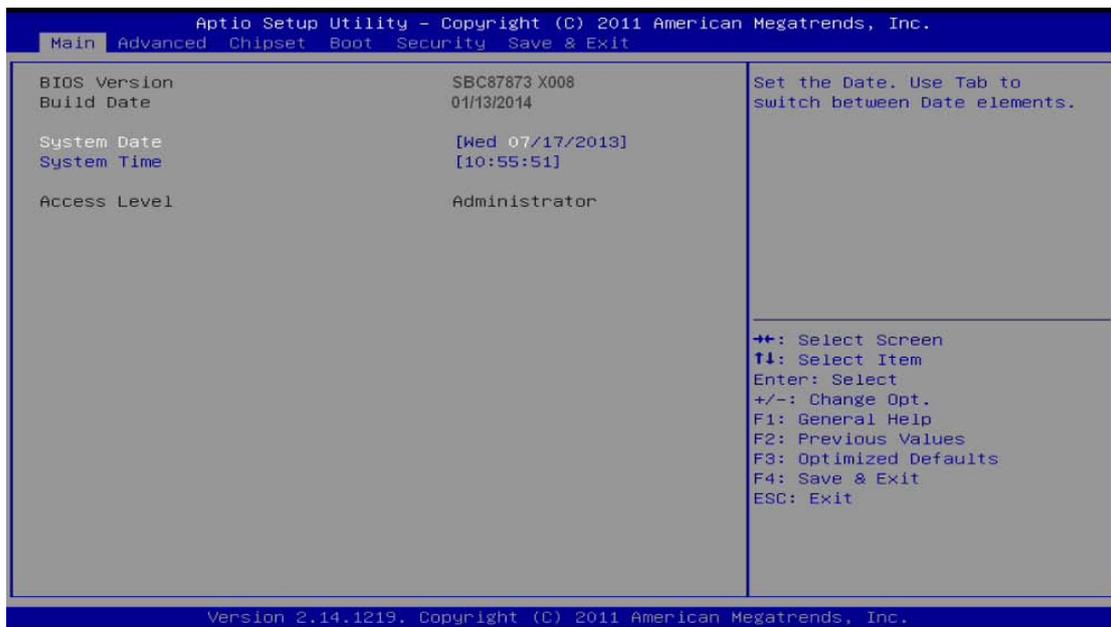
Note

Some of the navigation keys differ from one screen to another.

Hot Keys	Description
→← Left/Right	The Left and Right <Arrow> keys allow you to select a setup screen.
↑↓ Up/Down	The Up and Down <Arrow> keys allow you to select a setup screen or sub-screen.
+– Plus/Minus	The Plus and Minus <Arrow> keys allow you to change the field value of a particular setup item.
Tab	The <Tab> key allows you to select setup fields.
F1	The <F1> key allows you to display the General Help screen.
F2	The <F2> key allows you to Load Previous Values.
F3	The <F3> key allows you to Load Optimized Defaults.
F4	The <F4> key allows you to save any changes you have made and exit Setup. Press the <F4> key to save your changes.
Esc	The <Esc> key allows you to discard any changes you have made and exit the Setup. Press the <Esc> key to exit the setup without saving your changes.
Enter	The <Enter> key allows you to display or change the setup option listed for a particular setup item. The <Enter> key can also allow you to display the setup sub- screens.

3.3 Main Menu

The first time you enter the setup utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. System Time/Date can be set up as described below. The Main BIOS setup screen is shown below.



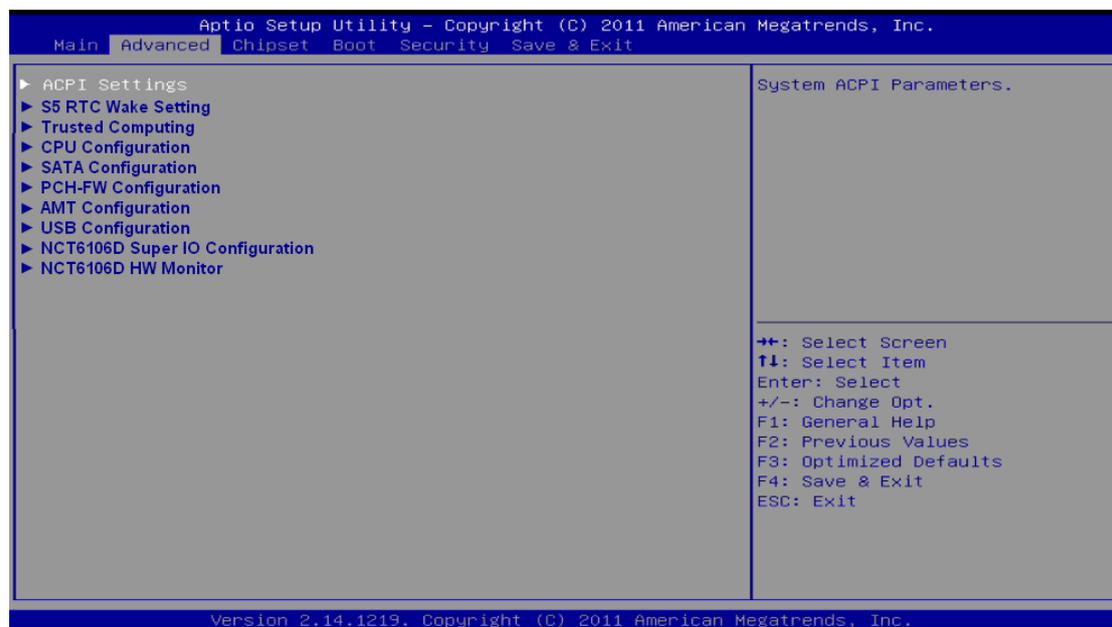
- **BIOS Information**
Display the auto-detected BIOS information.
- **System Date/Time**
Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.
- **Access Level**
Display the access level of current user.

3.4 Advanced Menu

The Advanced menu also allows users to set configuration of the CPU and other system devices. You can select any of the items in the left frame of the screen to go to the sub menus:

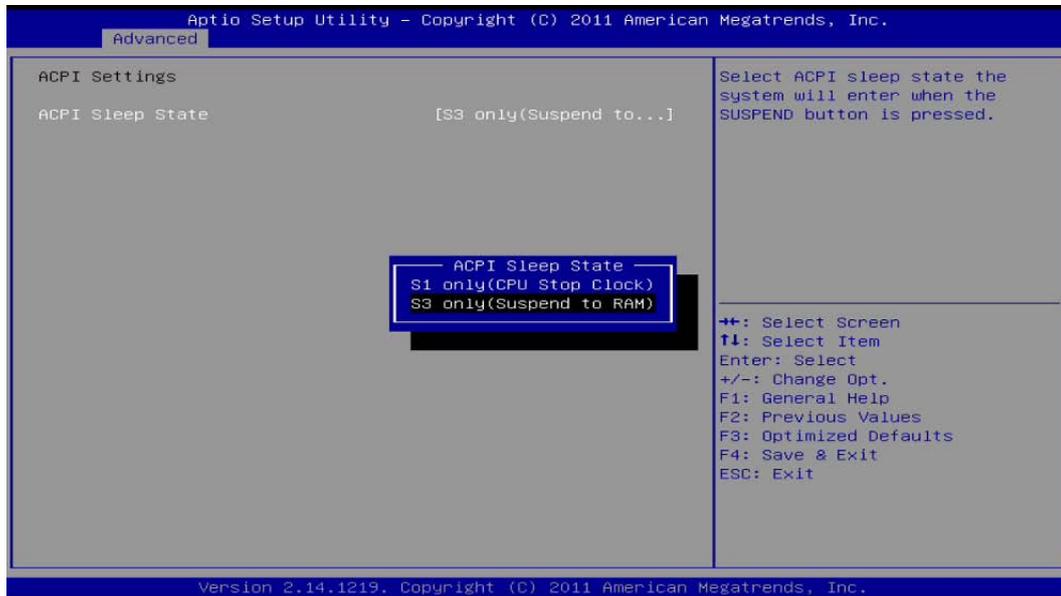
- ▶ ACPI Settings
- ▶ S5 RTC Wake Setting
- ▶ Trusted Computing
- ▶ CPU Configuration
- ▶ SATA Configuration
- ▶ PCH-FW Configuration
- ▶ AMT Configuration
- ▶ USB Configuration
- ▶ NCT6106D Super IO Configuration
- ▶ NCT6106D HW Monitor

For items marked with “▶”, please press <Enter> for more options.



- **ACPI Settings**

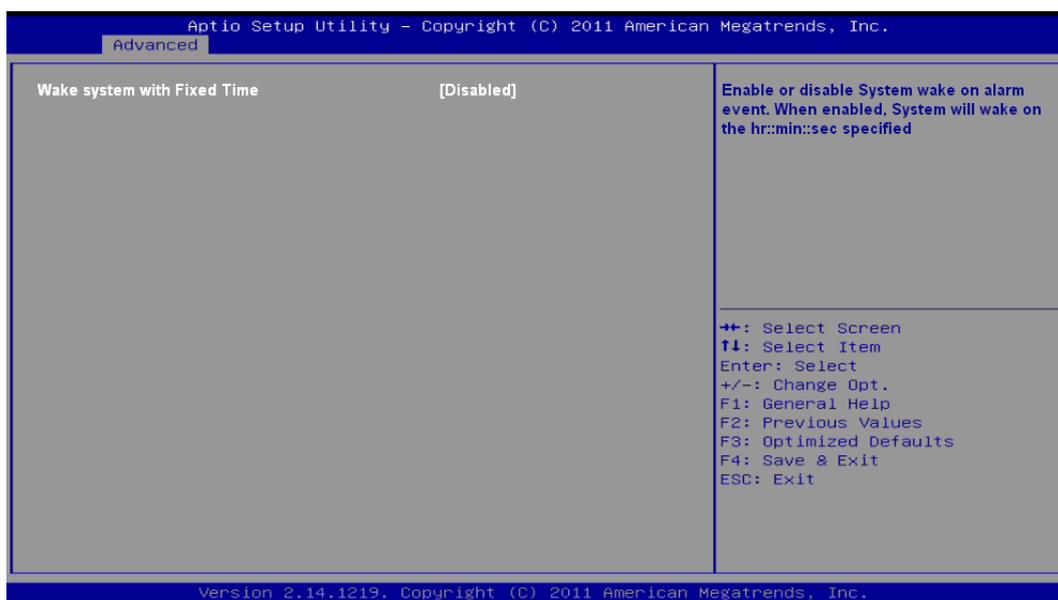
You can use this screen to select options for the ACPI configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.



ACPI Sleep State

Allow you to select the Advanced Configuration and Power Interface (ACPI) state to be used for system suspend. Configuration options are S1 (CPU Stop Clock) and S3 (Suspend to RAM). The S3 (Suspend to RAM) option selects the highest ACPI sleep state the system will enter when SUSPEND button is pressed.

- **S5 RTC Wake Setting**

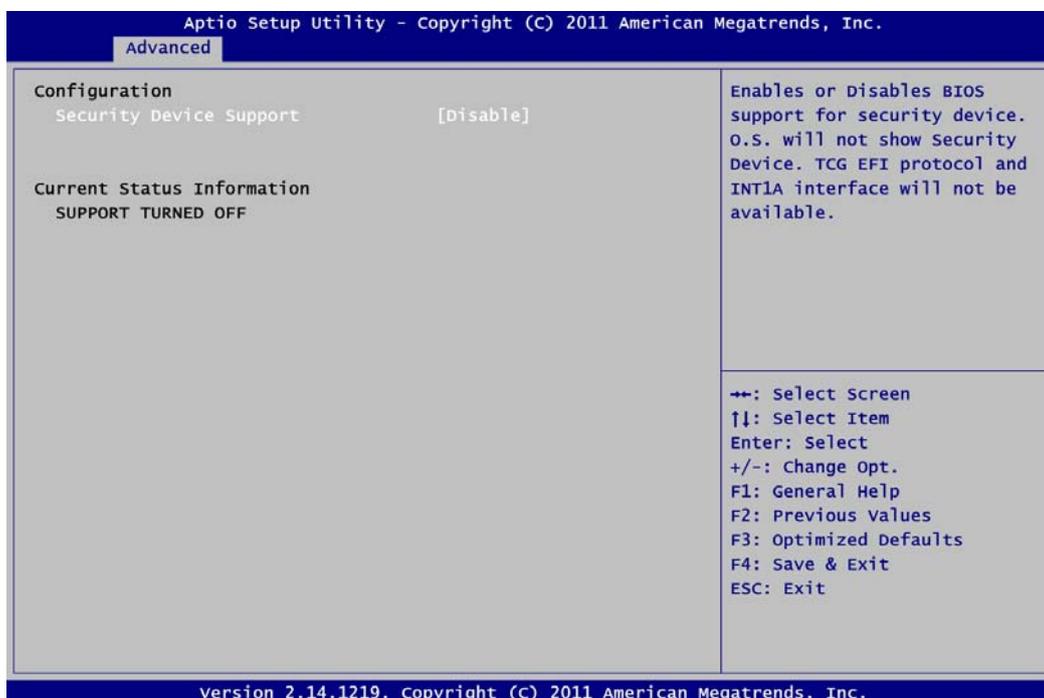


Wake system with Fixed Time

Enable or disable the system wake on alarm event. If enabled, system will wake on the time specified

- **Trusted Computing**

This screen provides function for specifying the TPM settings.



Security Device Support

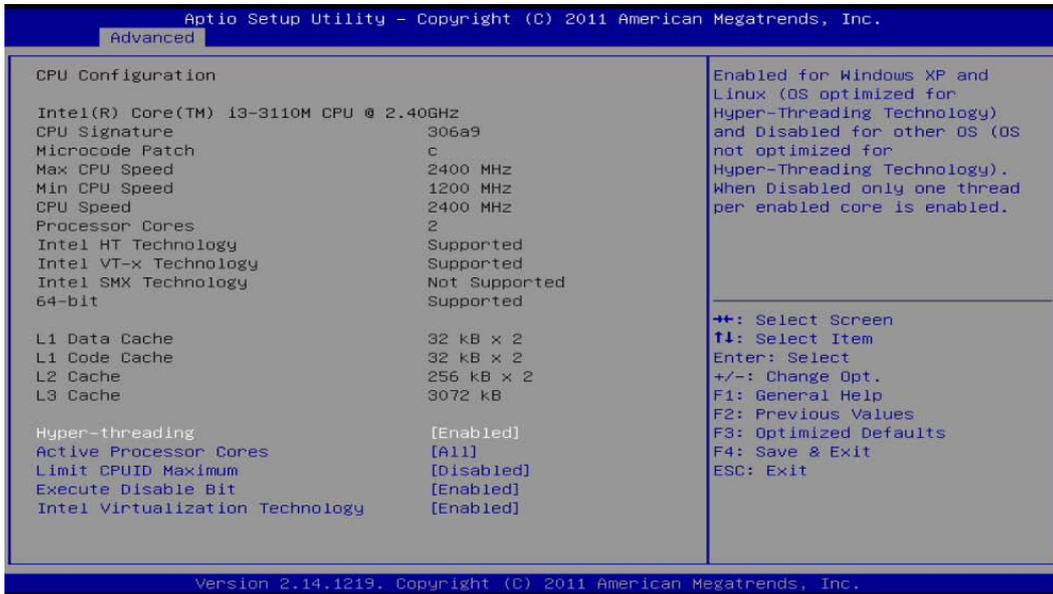
Enable or disable BIOS support for security device..

Current Status Information

Display current TPM status information.

- **CPU Configuration**

This screen shows the CPU configuration, and you can change the value of the selected option.



Hyper-Threading

Enable or disable Hyper-Threading Technology, which makes a single physical processor perform multi-tasking function as two logical ones.

Active Processor Cores

Set the number of cores to enable in each processor package.

Limit CPUID Maximum

Allow user to limit the maximum value of CPUID. In Windows® XP environment, this item should be disabled.

Execute Disable Bit

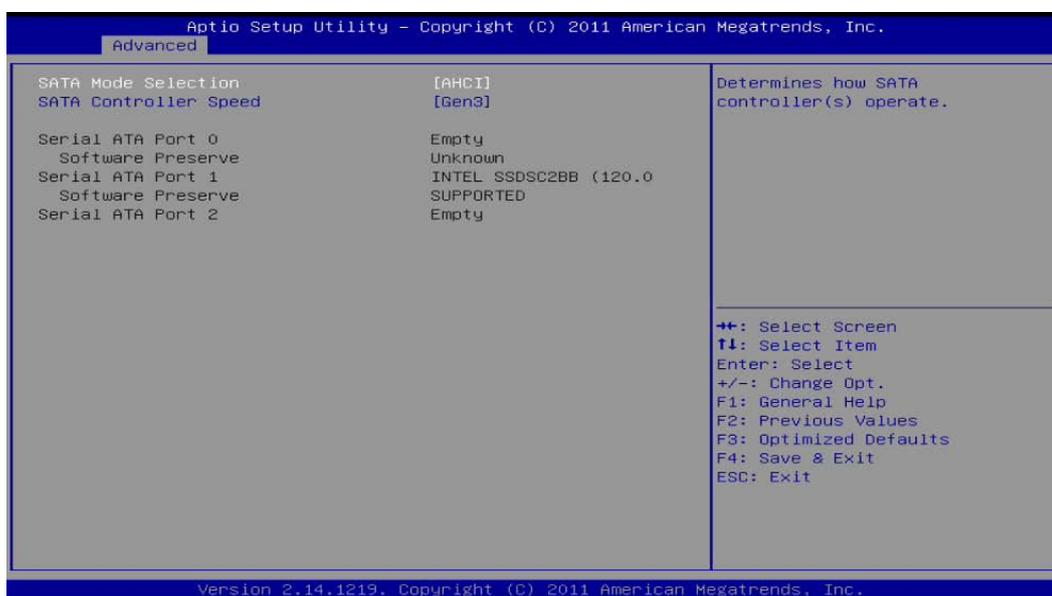
Enable or disable the No-Execution Page Protection Technology.

Intel Virtualization Technology

Allow a hardware platform to run multiple operating systems separately and simultaneously, enabling one system to virtually function as several systems.

- **SATA Configuration**

In the SATA Configuration menu, you can see the currently installed hardware in the SATA ports. During system boot up, the BIOS automatically detects the presence of SATA devices.



SATA Mode Selection

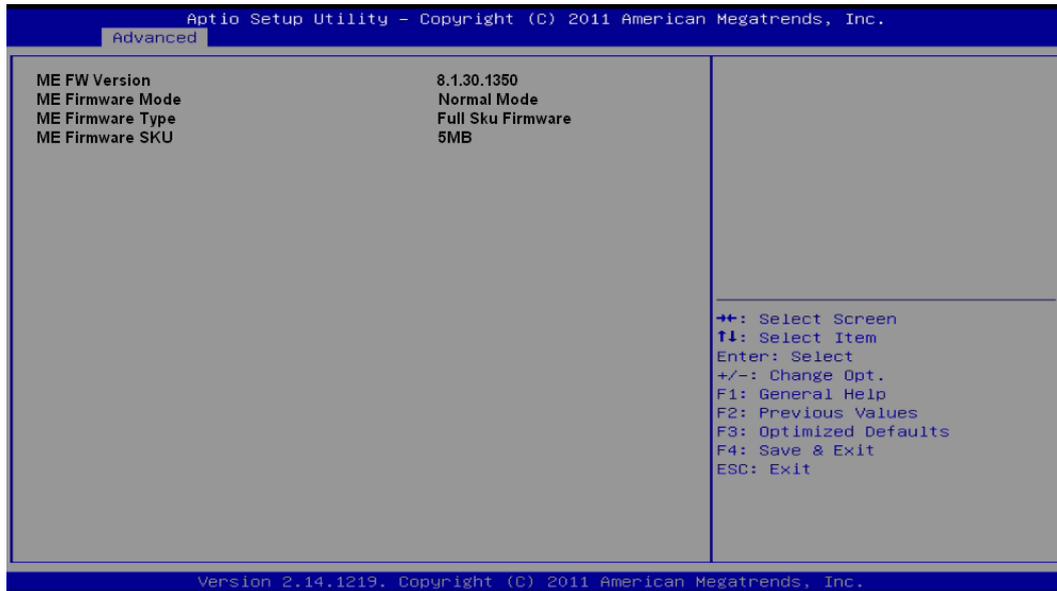
Determine how SATA controller(s) operate. Operation mode options are IDE Mode and AHCI (Advanced Host Controller Interface) Mode.

SATA Controller Speed

Allow you to select SATA controller speed. Configuration options are Gen1, Gen2 and Gen3.

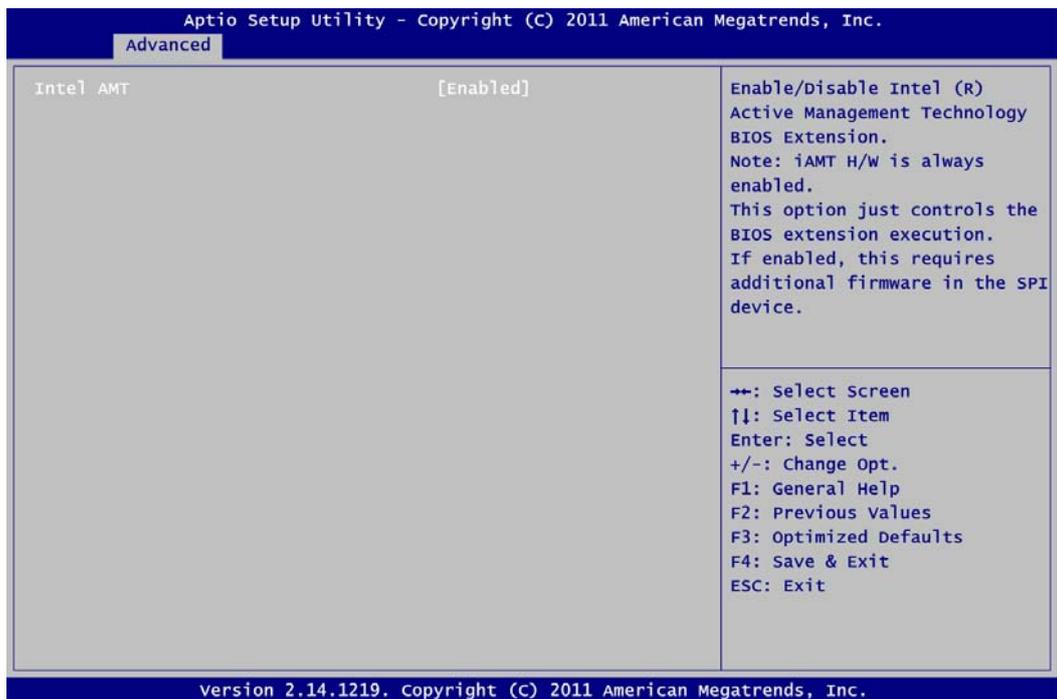
- **PCH-FW Configuration**

You can use this screen to confirm ME Firmware information.



- **AMT Configuration**

Use this screen to configure AMT parameters.

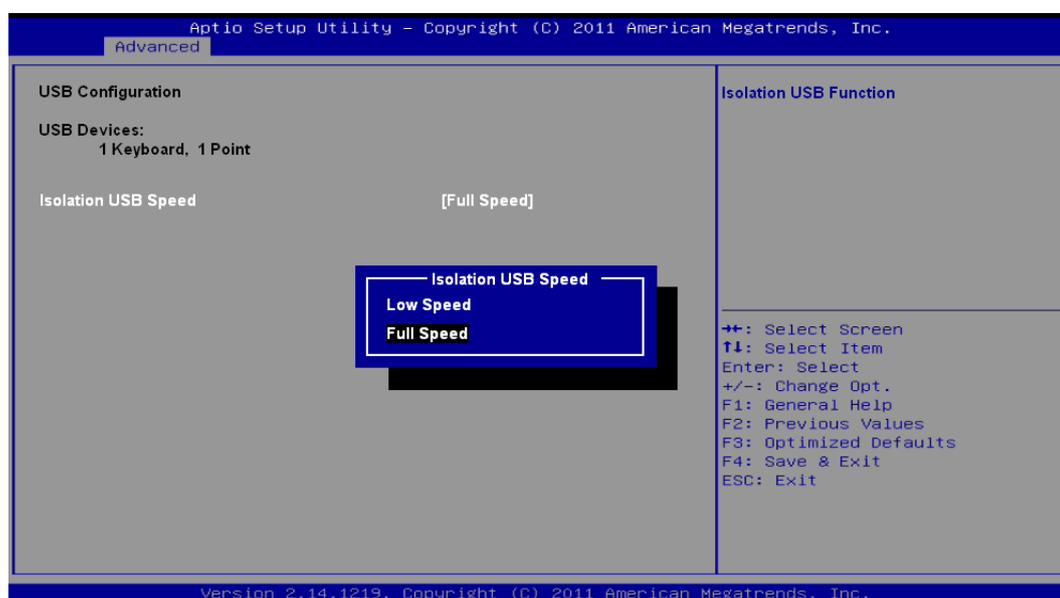


Intel AMT

Enable or disable Intel® Active Management Technology BIOS Extension.

- **USB Configuration**

This screen shows the USB configuration, and you can change the value of the selected option.



USB Devices

Display all detected USB devices.

Isolated USB Speed

The isolated USB port supports only low and full speed. Depending on the speed of your USB device, you must select the correct USB speed. Otherwise, the USB device cannot work.

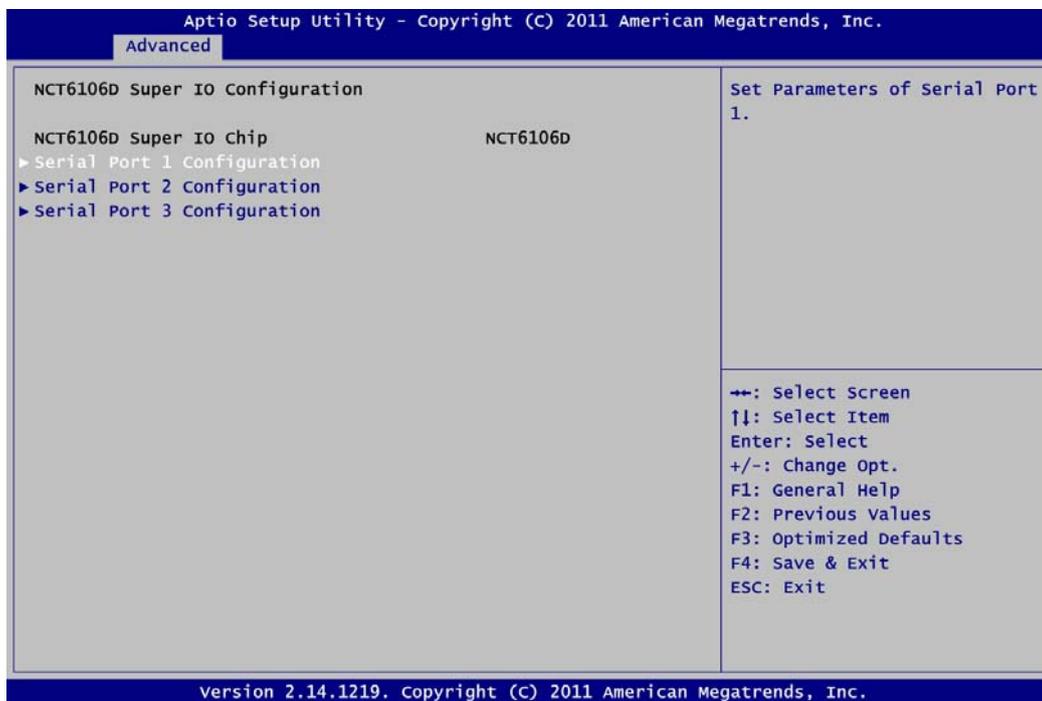


Note

For high speed USB device, check whether it support full or low speed. Then select the appropriate USB speed in BIOS setting before connecting it to the isolated USB port.

- **NCT6106D Super IO Configuration**

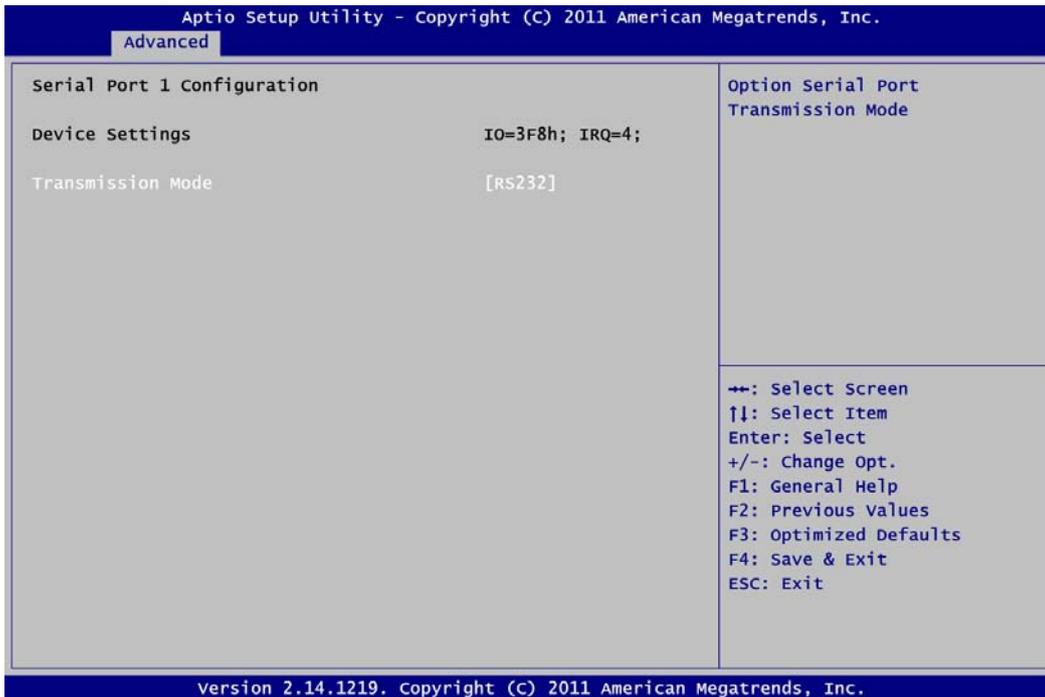
You can use this screen to select options for the Super IO Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen. For items marked with "▶", please press <Enter> for more options.



Serial Port 1~3 Configuration

Set parameters of serial port 1~3.

- **Serial Port 1 Configuration**



Device Settings

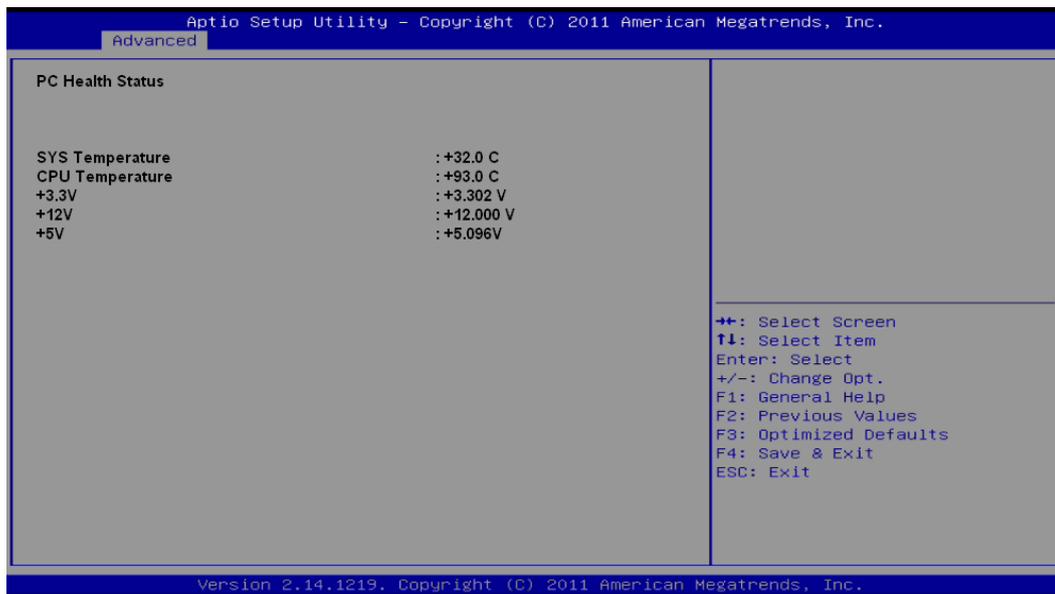
The optimal setting for base I/O address is 3F8h and for interrupt request address is IRQ4.

Transmission Mode

This item allow user to set RS-232/RS-422/RS-485 transmission mode for serial port 1.

- **NCT6106D HW Monitor**

This screen monitors hardware health status.



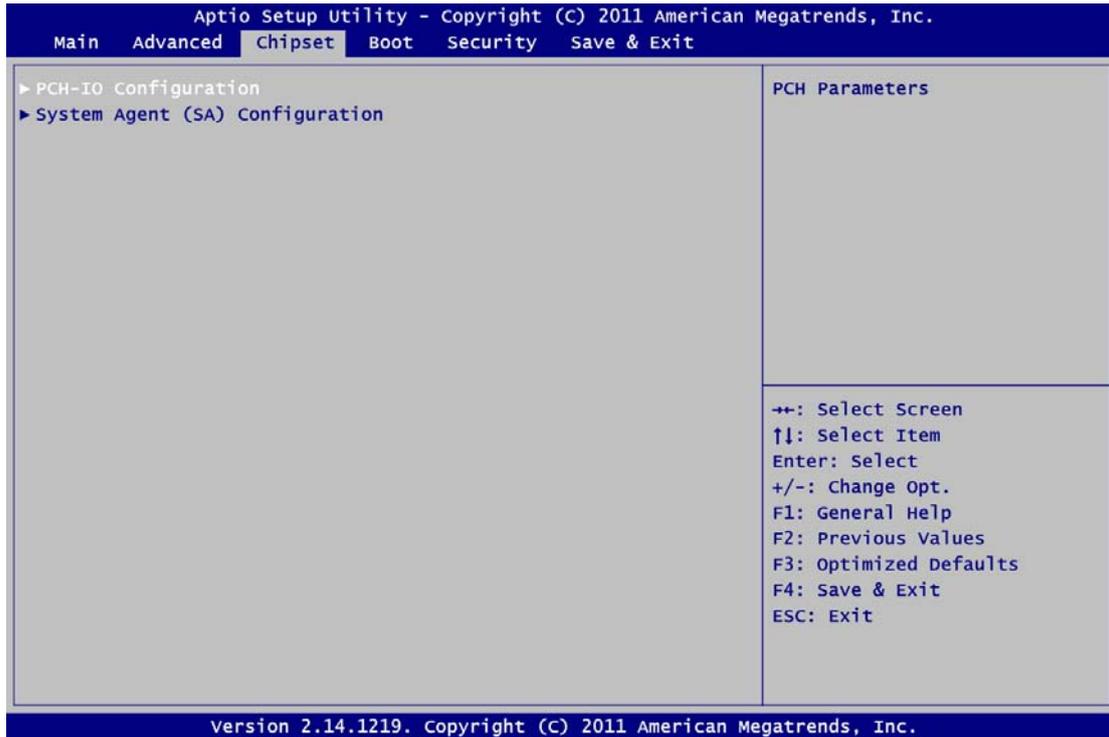
This screen displays the temperature of system and CPU, system voltages (+3.3V, +12V and +5V).

3.5 Chipset Menu

The Chipset menu allows users to change the advanced chipset settings. You can select any of the items in the left frame of the screen to go to the sub menus:

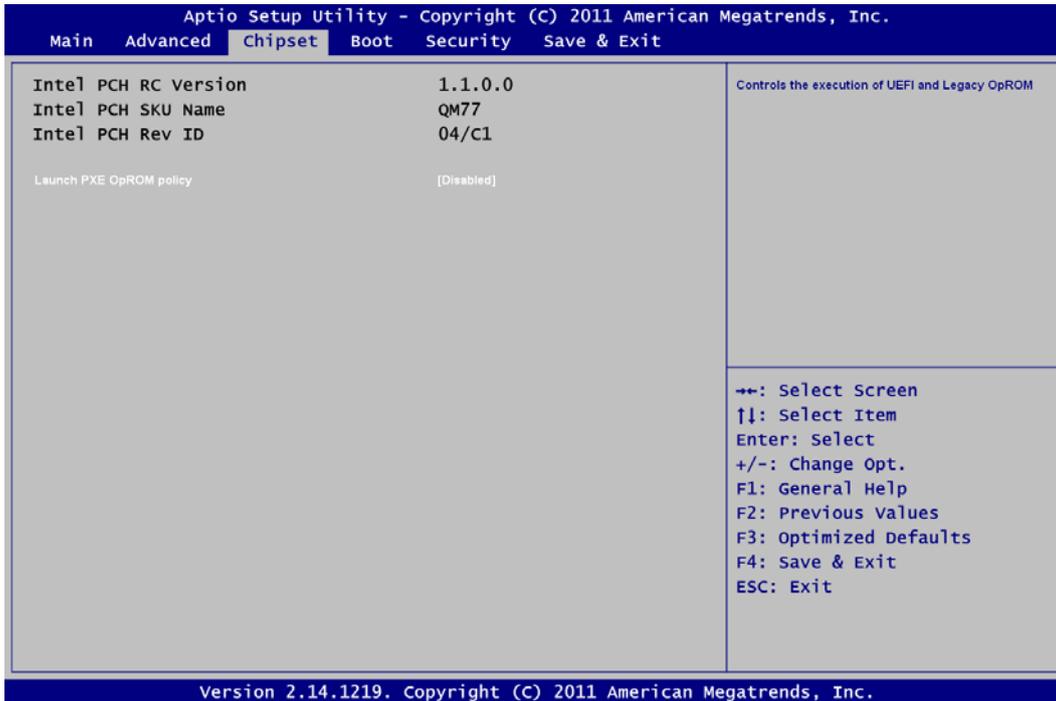
- ▶ PCH-IO Configuration
- ▶ System Agent (SA) Configuration

For items marked with “▶”, please press <Enter> for more options.



- **PCH-IO Configuration**

This screen allows user to set PCH parameters.

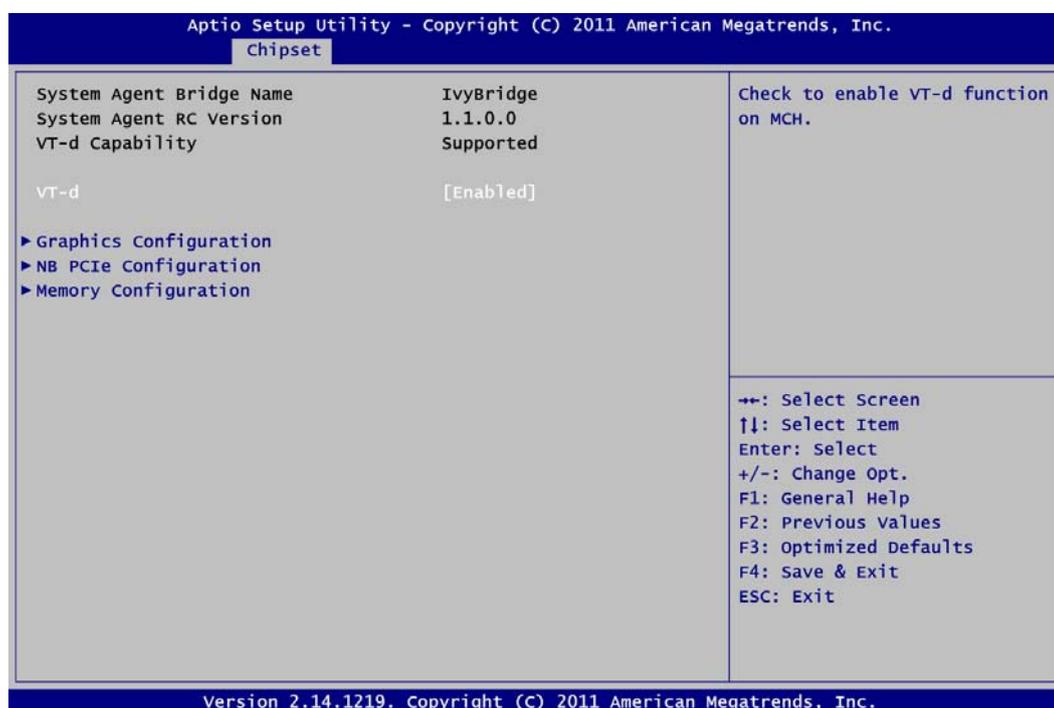


Launch PXE OpROM policy

Control the execution of UEFI and Legacy PXE OpROM.

- **System Agent (SA) Configuration**

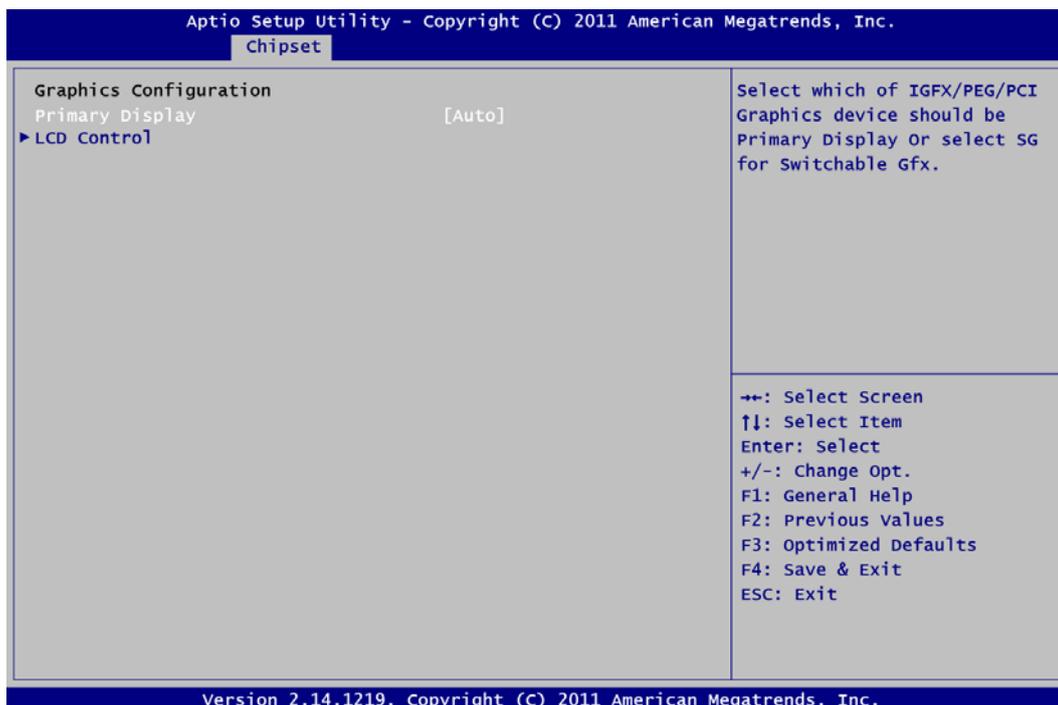
This screen shows System Agent version information and provides function for specifying related parameters.



VT-d

Enable or disable Intel® chipset virtualization technology for directed I/O. VT-d can help end users improve security and reliability of the systems and also improve performance of I/O devices in virtualized environment.

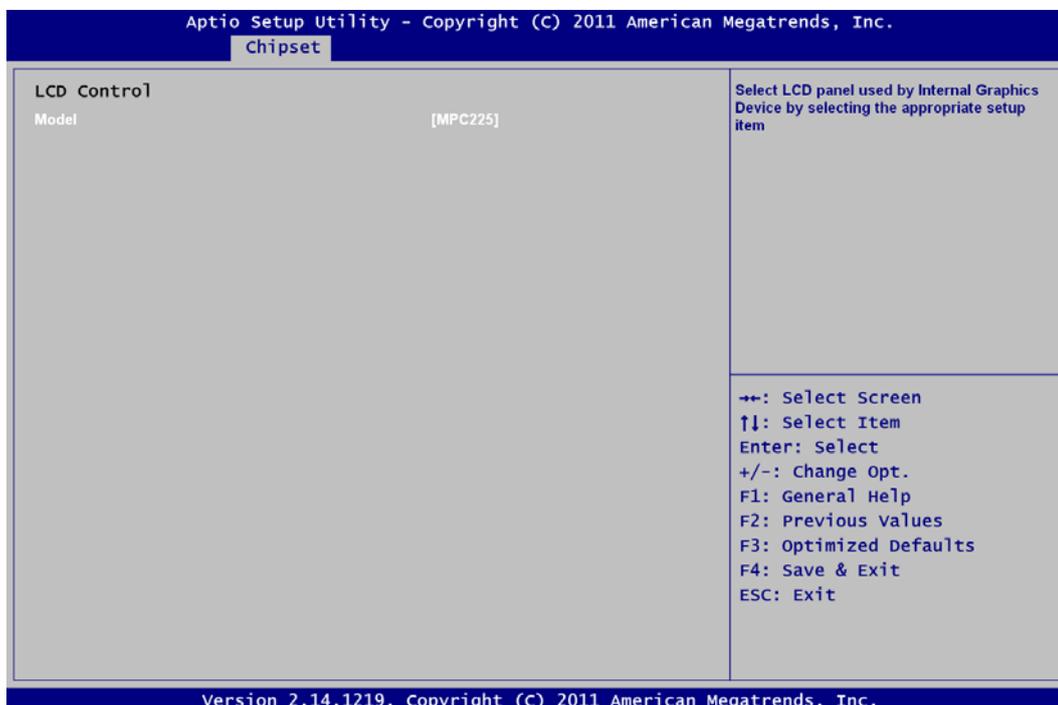
- **Graphics Configuration**



Primary Display

Select the video device which will be activated during POST (Power-On Self Test).

- **LCD Control**

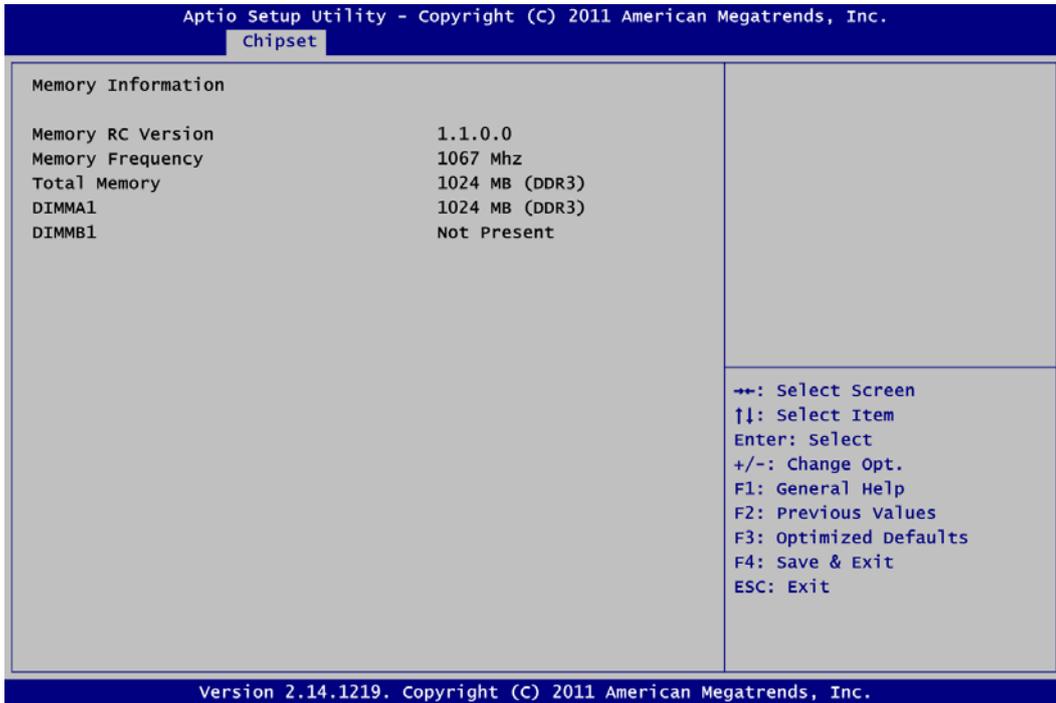


Model

Select the LCD panel used by Internal Graphics Device.

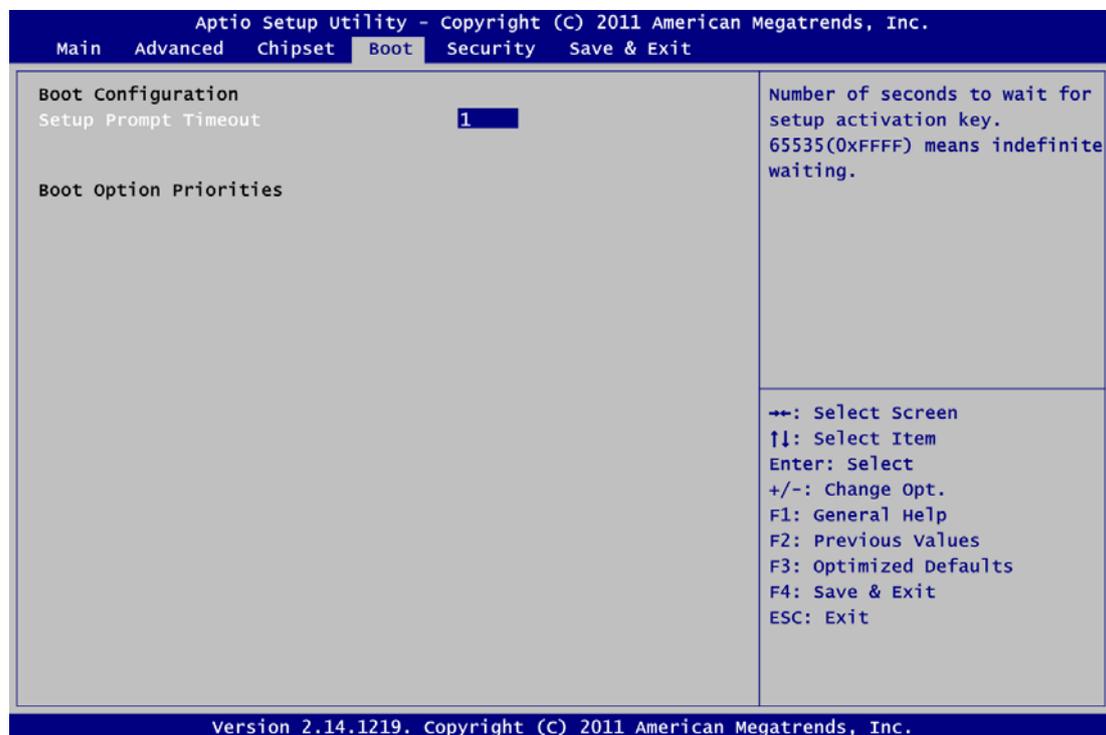
- **Memory Information**

This screen shows system memory information.



3.6 Boot Menu

The Boot menu allows users to change boot options of the system.



- Setup Prompt Timeout**
 Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
- Boot Option Priorities**
 These are settings for boot priority. Specify the boot device priority sequence from the available devices.

3.7 Security Menu

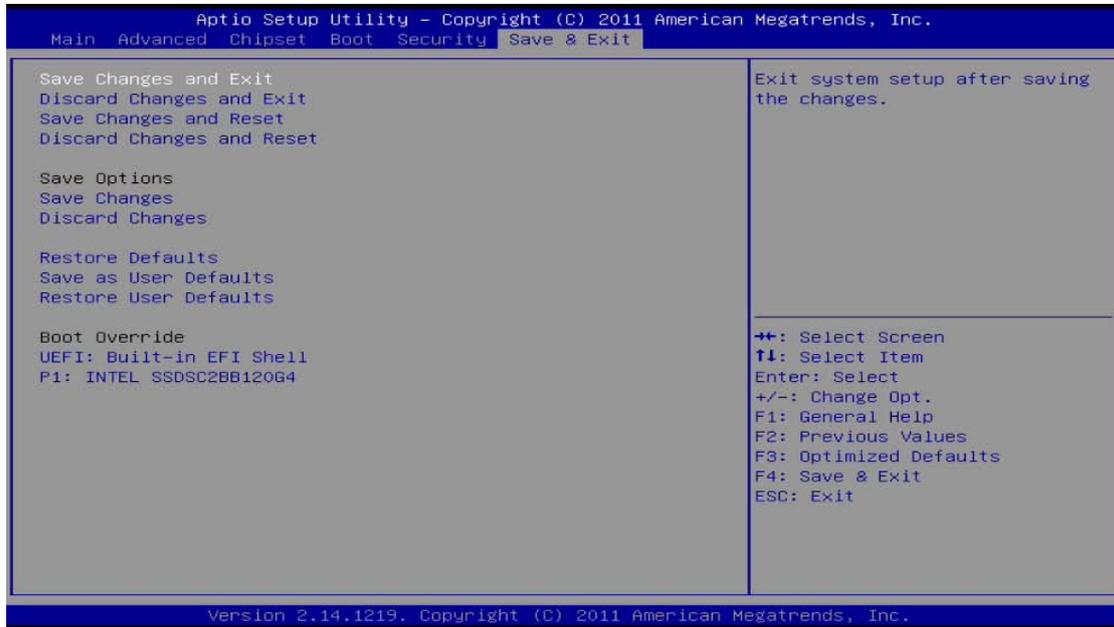
The Security menu allows users to change the security settings for the system.



- **Administrator Password**
This item indicates whether an administrator password has been set (installed or uninstalled).
- **User Password**
This item indicates whether a user password has been set (installed or uninstalled).

3.8 Save & Exit Menu

The Save & Exit menu allows users to load your system configuration with optimal or fail-safe default values.



- **Save Changes and Exit**
When you have completed the system configuration changes, select this option to leave Setup and return to Main Menu. Select Save Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to save changes and exit.
- **Discard Changes and Exit**
Select this option to quit Setup without making any permanent changes to the system configuration and return to Main Menu. Select Discard Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to discard changes and exit.
- **Save Changes and Reset**
When you have completed the system configuration changes, select this option to leave Setup and reboot the computer so the new system configuration parameters can take effect. Select Save Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to save changes and reset.
- **Discard Changes and Reset**
Select this option to quit Setup without making any permanent changes to the system configuration and reboot the computer. Select Discard Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to discard changes and reset.
- **Save Changes**
When you have completed the system configuration changes, select this option to save changes. Select Save Changes from the Save & Exit menu and press <Enter>. Select Yes to save changes.

- **Discard Changes**
Select this option to quit Setup without making any permanent changes to the system configuration. Select Discard Changes from the Save & Exit menu and press <Enter>. Select Yes to discard changes.
- **Restore Defaults**
It automatically sets all Setup options to a complete set of default settings when you select this option. Select Restore Defaults from the Save & Exit menu and press <Enter>.
- **Save as User Defaults**
Select this option to save system configuration changes done so far as User Defaults. Select Save as User Defaults from the Save & Exit menu and press <Enter>.
- **Restore User Defaults**
It automatically sets all Setup options to a complete set of User Defaults when you select this option. Select Restore User Defaults from the Save & Exit menu and press <Enter>.
- **Boot Override**
Select a drive to immediately boot that device regardless of the current boot order.

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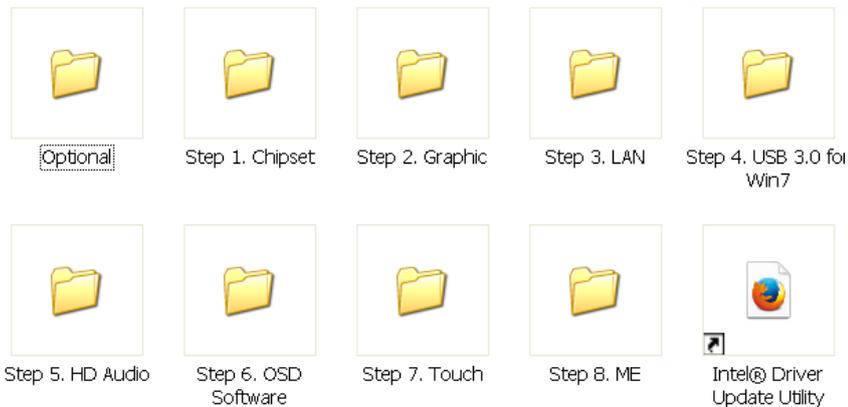
Chapter 4

Drivers Installation

The device drivers are located in driver CD that comes with the IFO2225-873 Series package. The setup program will guide you to install utilities and device drivers under Windows® 8, Windows® 7 or Windows® XP operating system. Carefully read and follow instructions in this chapter before starting the installation.

4.1 System Drivers

1. Insert driver CD into your disc drive. Then go to “\IFO2225-873\Driver” folder.



2. Follow the installation sequence arranged from Step 1 to Step 8, as stated in each folder name (see figure above).

4.2 Touch Screen

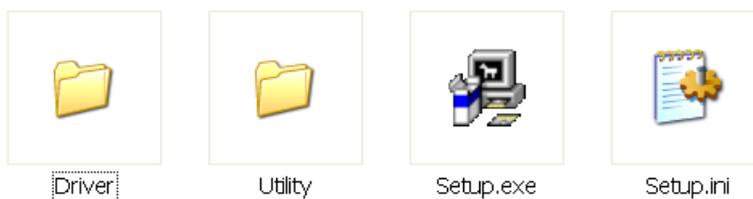
4.2.1 Specifications

- **Touch Screen**
 - 5-wire analog resistive type.
- **Touch Screen Controller**
 - PenMount 6000 microcontroller.
- **Communications**
 - USB.
- **Resolution**
 - 1024x1024.
- **Power Input**
 - 5V.
- **Power Consumption**
 - Standby Mode : 13.4mA.
 - Active Mode: 24.6mA.(VCC=5V, top sheet panel resistance: 274Ω, bottom sheet panel resistance: 770Ω)

4.2.2 Installing Touch Screen

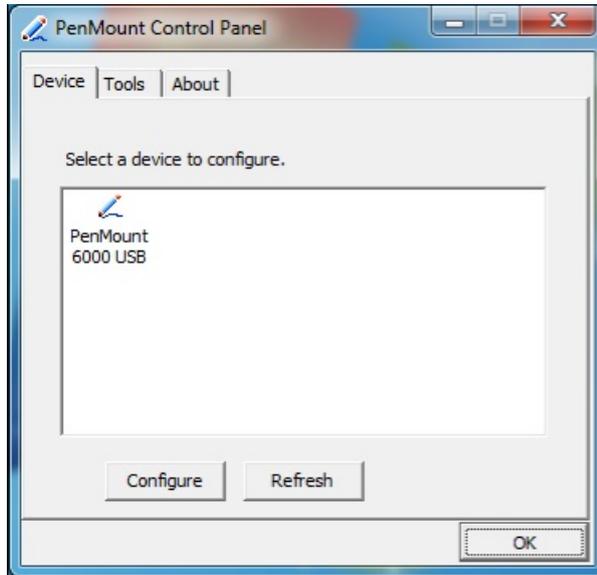
The IFO2225-873 Series offers touch screen driver supporting Windows® 8, Windows® 7 and Windows® XP. User should read the instructions in this section carefully before starting the installation.

1. Insert driver CD into your disc drive and go to “\IFO2225-873\Driver\Step 7. Touch” folder.

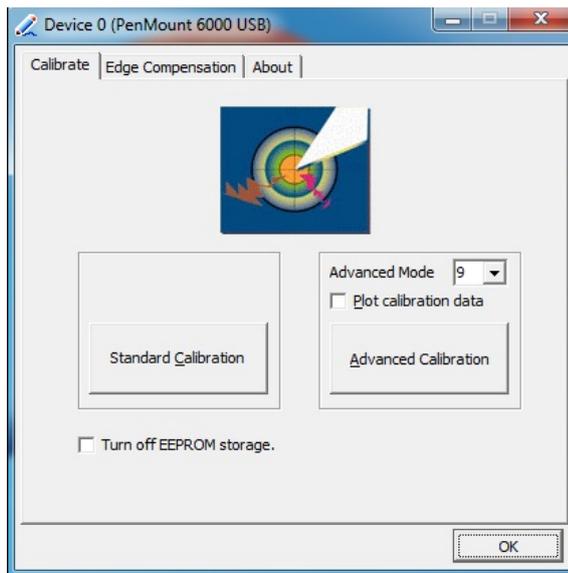


2. Run Setup.exe program from driver folder. Follow the installation procedure and press “OK”.

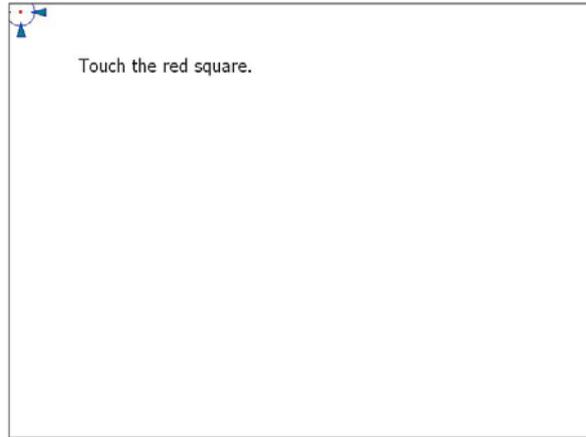
3. Click Start menu and select "PenMount Control Panel", and then double click the "PenMount 6000 USB".



4. Click the "Standard Calibration" button, and you should see the following figure.



5. Before using touch screen, you are suggested to calibrate it in order to align touch screen's coordinates with those of the LCD display behind it. Without proper calibration, application software cannot act accurately when a button or icon on display is pressed down. Click "Standard Calibration" and touch the calibration point according to instructions. There are altogether five points on screen to help you complete the calibration.



6. Finally, press "OK".

4.3 OSD Sync Service

This service synchronizes front panel OSD function keys with brightness and volume adjustment in Windows® operating system. It is also capable of showing OSD notification bar on the display screen.

4.3.1 Installing OSD Sync

Below you can find step by step instructions for installing OSD Sync.

1. Insert driver CD into your disc drive and go to “\IFO2225-873\Driver\Step 6. OSD Software” folder.



OSDSync service:
setup manual
V2_0_1.doc



Setup_x64.msi



Setup_x86.msi

2. Run Setup_x64.msi if you are using 64-bit operating system. Or run Setup_x86.msi if you are using 32-bit operating system.
3. Follow the installation procedure and press “OK”.



Note

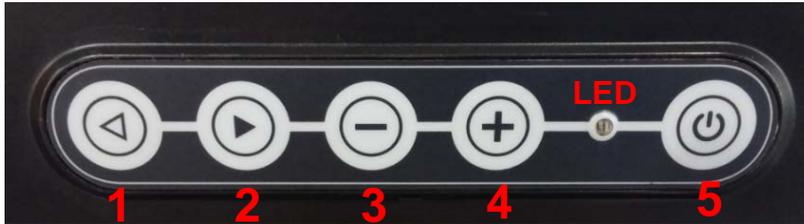
In Windows® XP and Windows® 8, OSD Sync installation requires that .NET Framework 3.5 is installed. Link to Microsoft official website to download .NET Framework 3.5.



Note

The brightness OSD function keys can still work without OSD Sync service installed. But it cannot synchronize with operating system and cannot show OSD notification bar on the display screen. On the contrary, the volume OSD function keys can't work without OSD Sync service installed.

4.3.2 OSD Function Keys



Function Key	Description
Key 1	Brightness-. Decrease the brightness of LCD screen.
Key 2	Brightness+. Increase the brightness of LCD screen.
Key 3	Volume-. Decrease the volume.
Key 4	Volume+. Increase the volume.
Key 5	Power on/off system.
Key 1+2 (press for 2 seconds)	Press both keys (key 1 and 2) at the same time to turn on/off LCD display.
Key 3+4	Press both keys (key 3 and 4) at the same time to enable/disable speaker mute feature.

For keys 1, 2, 3, and 4, the keypress event is triggered repeatedly if you press/hold down key for more than 1 second. For example, press and hold key 4, you can realize that the volume keeps going up until key 4 is released.

Power LED Indicator

Color	Description
Green	Power on (S0).
Black	Power off (S5).
Orange	LCD display off.
Flashing orange	Touch screen off.

4.3.3 OSD Notification Bar

Press front panel OSD function key, and the operating system will show OSD notification status as follows:



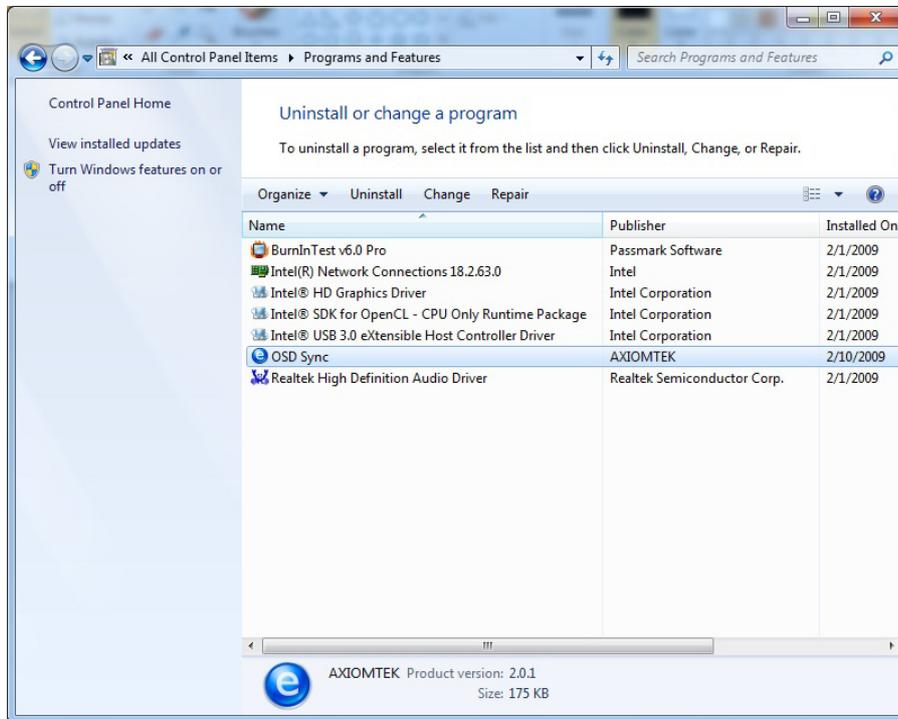
You can find OSD Sync service as shown in figure below.



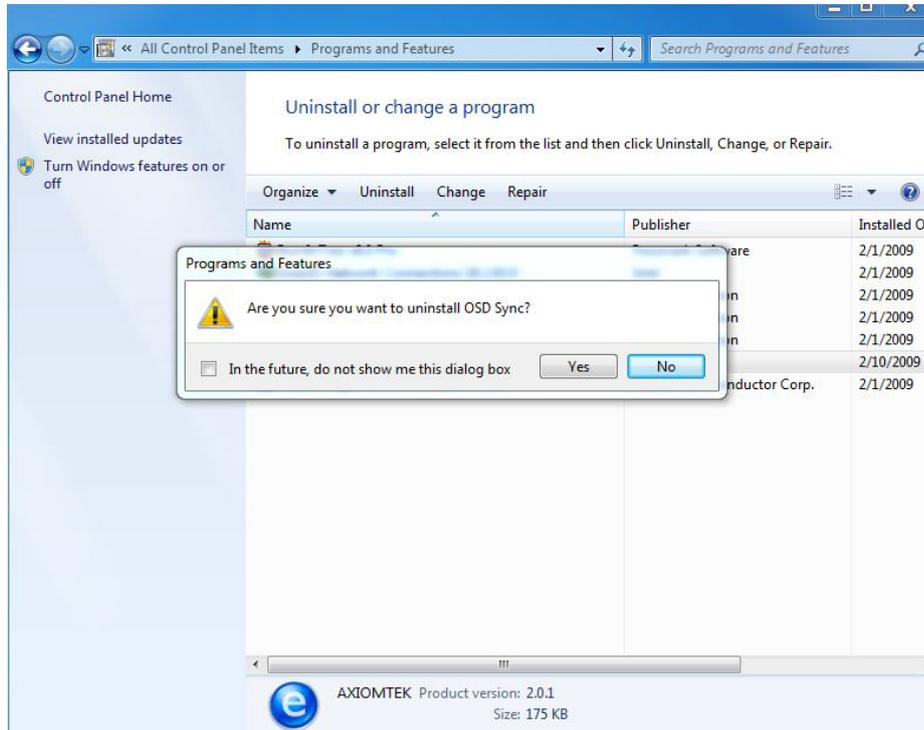
4.3.4 Uninstalling OSD Sync

Step by step instructions for uninstalling OSD Sync are given below.

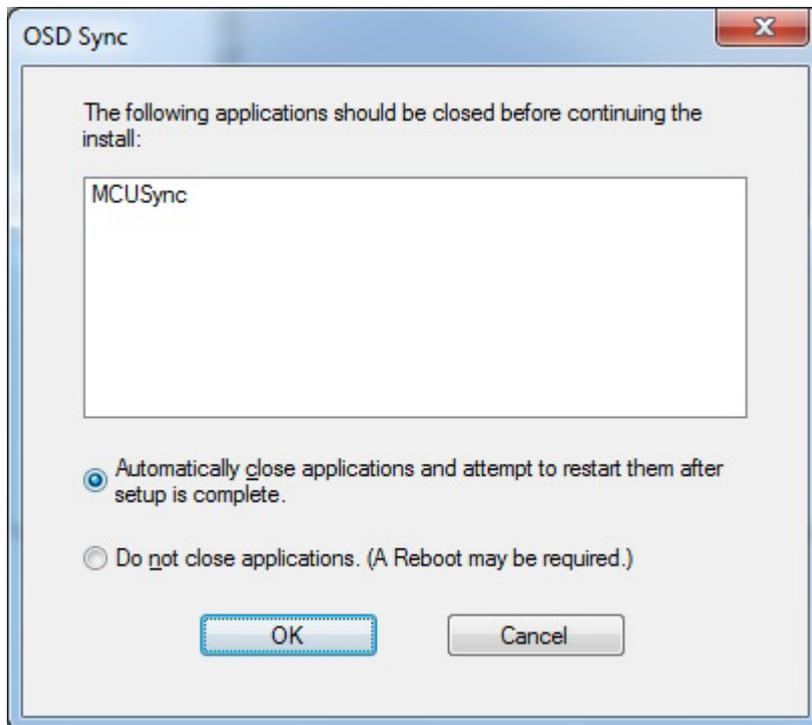
1. Go to Control Panel\Programs and Features.



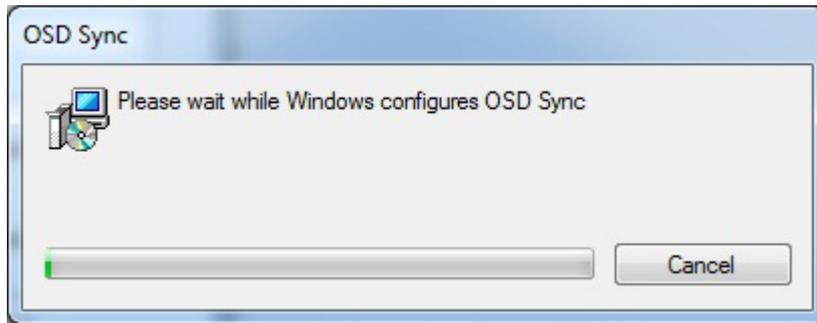
2. Select and double click the OSD Sync. When the following screen appears, click "Yes" to next step.



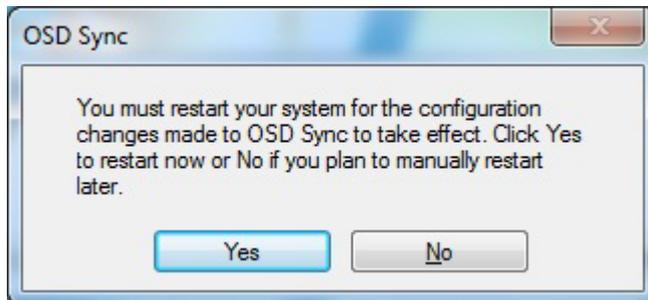
3. You are suggested to select "Automatically close applications and attempt to restart them after setup is complete". Then click "OK".



4. Please wait while operating system processes the following operations.



5. Click "Yes" to complete the uninstall process and reboot.



Appendix A

Watchdog Timer

A.1 About Watchdog Timer

Software stability is major issue in most application. Some embedded systems are not watched by human for 24 hours. It is usually too slow to wait for someone to reboot when computer hangs. The systems need to be able to reset automatically when things go wrong. The watchdog timer gives us solution.

The watchdog timer is a counter that triggers a system reset when it counts down to zero from a preset value. The software starts counter with an initial value and must reset it periodically. If the counter ever reaches zero which means the software has crashed, the system will reboot.

A.2 How to Use Watchdog Timer

The following example enables configuration using debug tool.

Enable WDT (Watchdog Timer)

↓

Enable configuration:

-O 2E 87 ; Un-lock super I/O
-O 2E 87

↓

Select logic device:

-O 2E 07
-O 2F 08

↓

WDT device enable:

-O 2E 30
-O 2F 01

↓

Set timer unit:

-O 2E F0
-O 2F 00 ; (where 00: Sec; 08:Minute)

↓

Set base timer:

-O 2E F1
-O 2F 0A ; Set reset time (where 0A (hex) = 10sec)

Disable WDT (Watchdog Timer)

↓

Enable configuration:

-O 2E 87 ; Un-lock super I/O
-O 2E 87

↓

Select logic device:

-O 2E 07
-O 2F 08

↓

WDT device disable:

-O 2E 30
-O 2F 00

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Appendix B

Digital I/O

B.1 Digital I/O Software Programming

The following example enables configuration using debug tool.

Start digital I/O programming

↓

Enable configuration:

-O 2E 87 ; Un-lock super I/O
-O 2E 87

↓

Select logic device:

-O 2E 07
-O 2F 07

↓

Enable GPIO2:

-O 2E 30
-O 2F DC
-O 2E 1C
-O 2F 1D

↓

Set I/O register: (set GP20-23: input, GP24-27: output)

-O 2E E8
-O 2F 0F ; 1: input port, 0: output port

↓

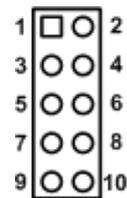
Set data register:

-O 2E E9
-O 2F 00 ; GP24-27 output ports = low
; GP20-23 input ports are read only
-I 2F ; Read GP20-23 input ports (default is high)



Note

Pin	Signal	Pin	Signal
1	GP20 (Bit 0)	2	GP24 (Bit 4)
3	GP21 (Bit 1)	4	GP25 (Bit 5)
5	GP22 (Bit 2)	6	GP26 (Bit 6)
7	GP23 (Bit 3)	8	GP27 (Bit 7)
9	GND	10	GND



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Appendix C

iAMT Settings

The Intel® Active Management Technology (Intel® iAMT) has decreased a major barrier to IT efficiency that uses built-in platform capabilities and popular third-party management and security applications to allow IT a better discovering, healing, and protection their networked computing assets.

In order to utilize Intel® iAMT you must enter the ME BIOS (<Ctrl + P> during system startup), change the ME BIOS password, and then select “Intel® iAMT” as the manageability feature.

C.1 Entering MEBx

1. You must go to BIOS to enable Intel® iAMT function.
2. Exit from BIOS after starting Intel® iAMT, and press <Ctrl + P> to enter MEBx Setting.



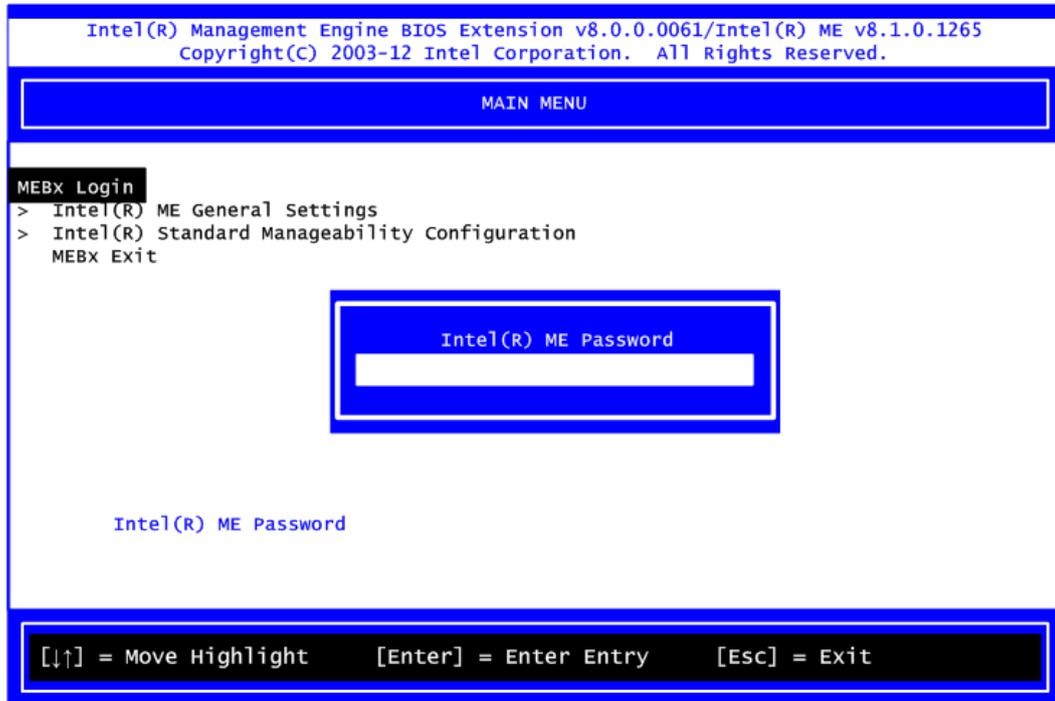
Note

It is better to press <Ctrl + P> before the screen popping out.

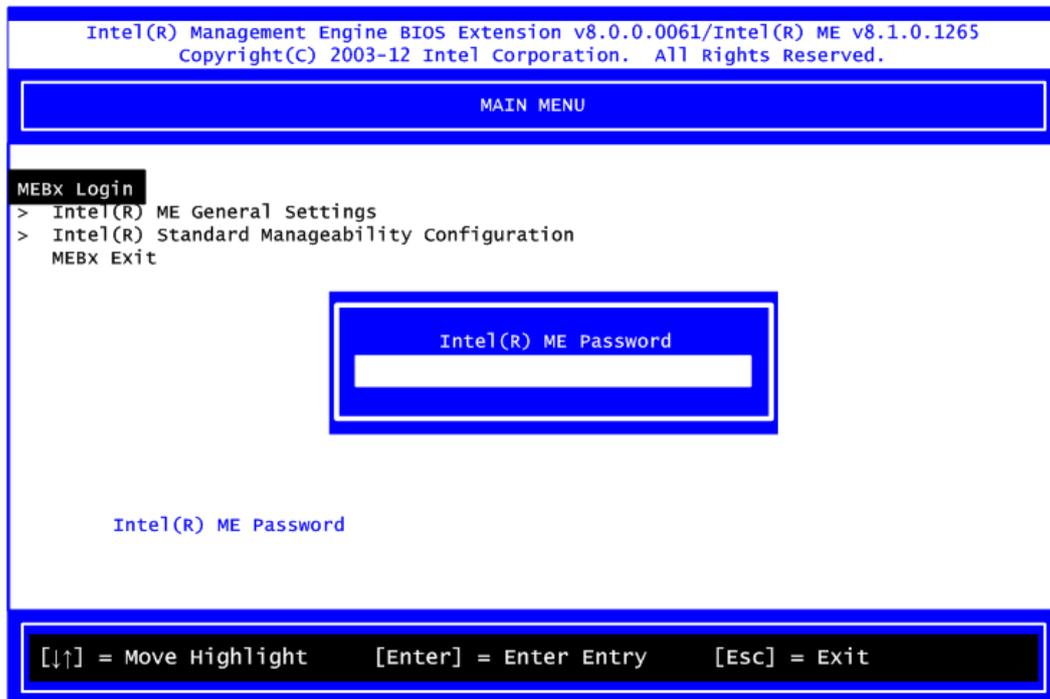


C.2 Set and Change Password

1. You will be asked to set a password when first log in. The default password is "admin".



2. You will be asked to change the password before setting ME.



3. You must confirm your new password while revising. The new password must contain: (example: **!!11qqQQ**) (default value).

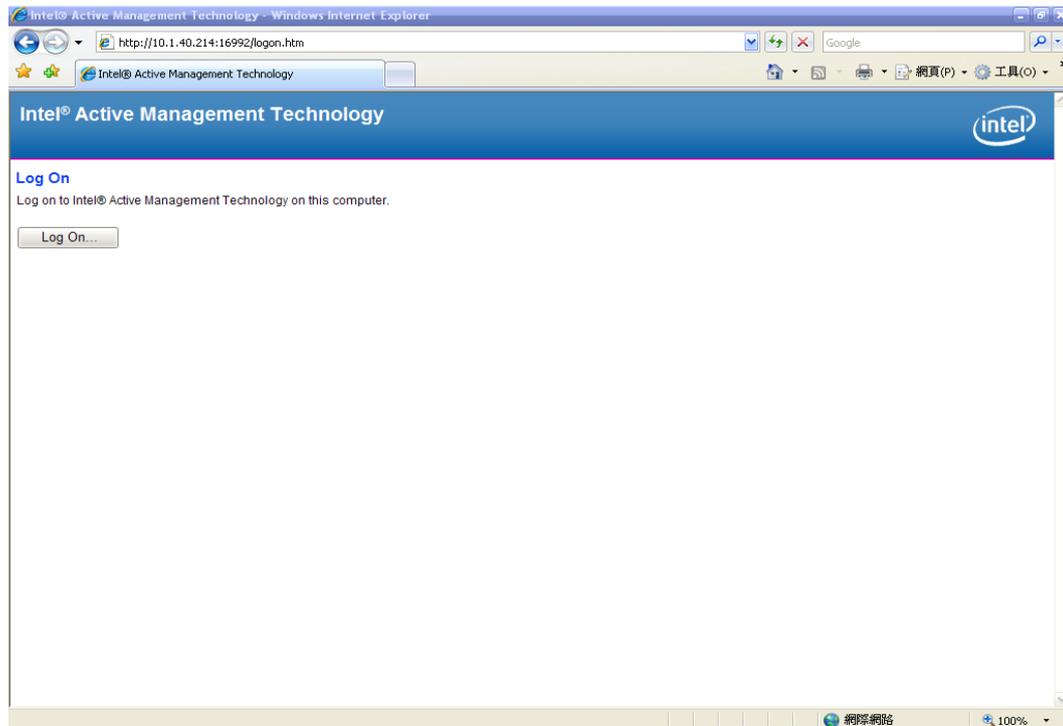
- Eight characters
- One upper case
- One lower case
- One number
- One special symbol, such as ! ` \$ or ; ` (` " , , excepted)

Underline (_) and space are valid characters for password, but they won't make higher complexity.

C.3 Intel® iAMT Web Console

1. From a web browser, please type [http://\(IP ADDRESS\):16992](http://(IP ADDRESS):16992), which connects to Intel® iAMT Web.

Example: <http://10.1.40.214:16992>

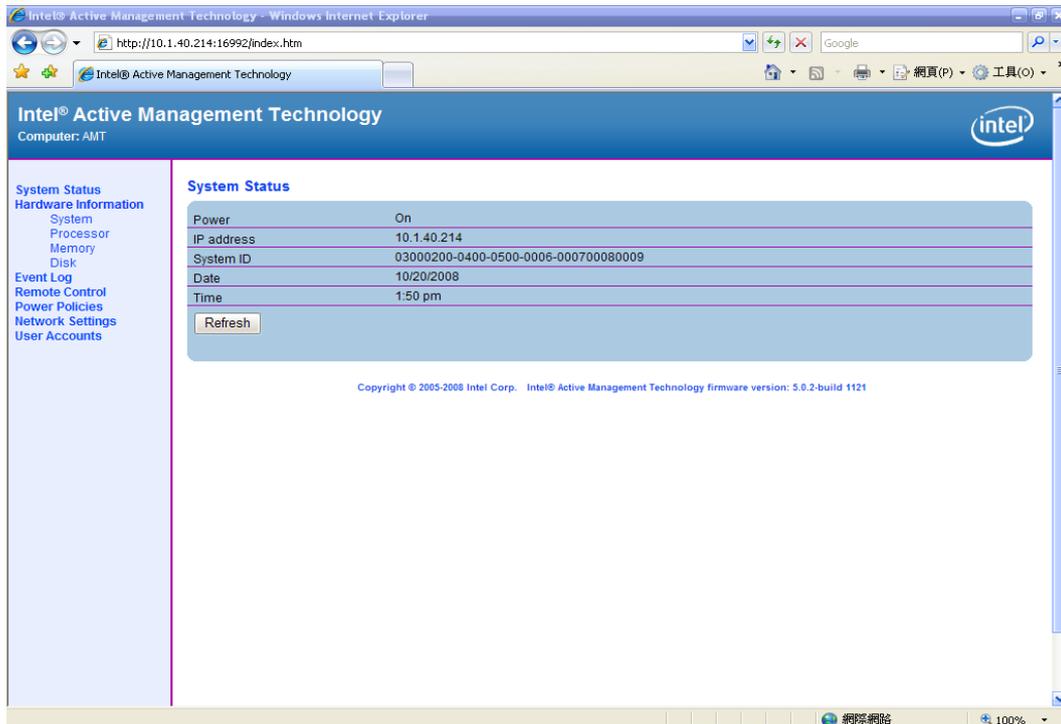


2. To log on, you will be required to type in username and password for access to the Web.

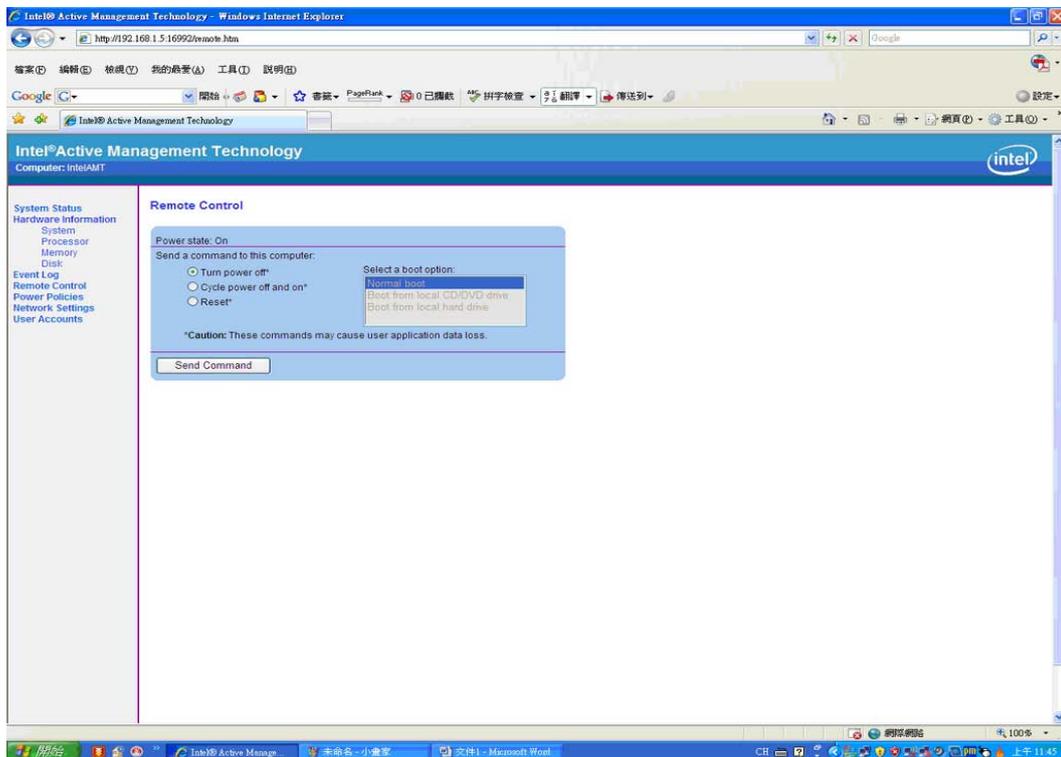
USER: admin (default value)

PASS: (MEBx password)

3. Enter the iAMT Web.



4. Click Remote Control, and select commands on the right side.



5. When you have finished using the iAMT Web console, close the Web browser.