IEI Integration Corp.

MODEL:

ICEROCK3-T10

**Industrial Tablet PC Intel® Core™ i7 CPU,
8 GB DDR3 SDRAM, USB 3.0, Micro HDMI, microSD Slot,
802.11b/g/n Wireless, RFID, Barcode Scanner,
Mobile 3.75G, IP 65, RoHS Compliant**

User Manual

Rev. 1.00 – September 25, 2014

RoHS Lead Free

Revision

Date	Version	Changes
September 25, 2014	1.00	Initial release

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TRADEMARKS

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Introduction

1.1 Overview

Figure 1-1: ICEROCK3-T10

The ICEROCK3-T10 is an industrial tablet PC with a 10.1 inch touchscreen and an IP 65 rating protection. The ICEROCK3-T10 features an Intel® Celeron® 1007U or Intel® Core™ i7-3517 processor with DDR3 SDRAM on-board.

Storage needs are met by the preinstalled 32 GB MLC mSATA module, and by installing a microSD card into the slot on the side panel.

Wireless networking is enabled through an 802.11b/g/n wireless adapter. A Bluetooth 3.0 module provides a connection to Bluetooth devices. An optional mobile 3.75G module provides a connection to mobile phone networks. There are three USB 3.0 ports and one Micro HDMI port for peripherals.

A 1.3 megapixel webcam and microphone provide video conferencing capabilities. Audio connections include one line-out for connecting to headphones and an input for an external microphone. One 2 watt speaker is built-in.

Some ICEROCK3-T10 models also feature a barcode scanner and a RFID reader for advanced data acquisition.

1.2 Model Variations

The ICEROCK3-T10 series has three models. All of the models are equipped with a projected capacitive touchscreen, IPS, 802.11b/g/n Wi-Fi and Bluetooth v3.0. The model variations are listed below.

Models	Intel CPU	Memory	3.75G	GPS	RFID	Barcode	Rear Camera	2nd Battery
ICEROCK3-T10-ETC	Celeron® 1007U	4 GB	No	No	Yes	No	No	No
ICEROCK3-T10-HU	Celeron® 1007U	8 GB	Yes	Yes	Yes	Yes	Yes	Yes
ICEROCK3-T10-HUI	Core™ i7-3517U	8 GB	Yes	Yes	Yes	Yes	Yes	Yes

Table 1-1: Model Variations

1.3 Features

Some of the standard features of the ICEROCK3-T10 tablet PC include:

- 1.70 GHz Intel® Core™ i7-3517U processor or 1.50 GHz Intel® Celeron® processor 1007U platform
- 4.0 GB DDR3 SDRAM on board and optional 4.0 GB DDR3 SDRAM SO-DIMM
- Projected capacitive type touchscreen supported
- Built-in 1.3-megapixel webcam (front panel) and optional 5-megapixel webcam (rear panel)
- Built-in one 2 W speaker and digital microphone
- 802.11b/g/n wireless LAN
- Bluetooth v3.0
- One Micro HDMI and three USB 3.0 ports
- One Key Recovery
- IP 65 rating protection
- RoHS compliant

1.4 Front Panel

The front panel of the ICEROCK3-T10 has a 10.1" TFT LCD with a multi-touch projected capacitive touchscreen. Four LED indicators are also located on the front panel.
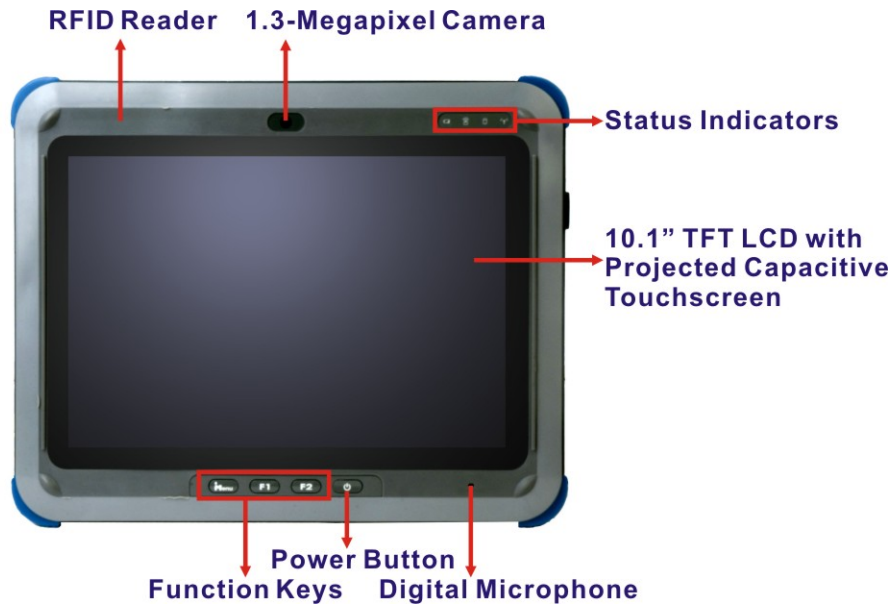
Figure 1-2: Front Panel

1.4.1 Status Indicators
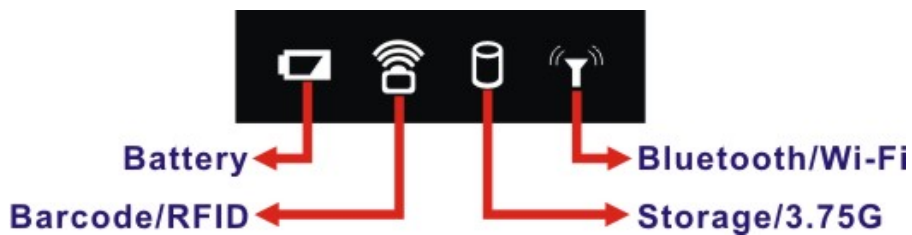
Figure 1-3: Front Panel LED Indicators

There are four LED indicators on the front panel of the ICEROCK3-T10 as show in the figure above. The following table contains descriptions of their functions.

Status Indicator	Description
Battery	**Off:** the system is fully charged or not being charged
	Solid red: Battery 1 is being charged.
	Solid blue: Battery 2 is being charged.
	Blinking red: Battery 1 is low
	Blinking blue: Battery 2 is low
Barcode/RFID	**Off:** the barcode scanner or the RFID reader is off
	Solid red: the barcode scanner is turned on
	Solid blue: the RFID reader is enabled
	Solid purple: the barcode scanner and the RFID reader are both enabled
Storage/3.75G	**Off:** the system is off or suspends
	Blinking red: the storage device is being accessed
	Blinking blue: 3.75G connection is being accessed
Bluetooth/Wi-Fi	**Off:** Bluetooth or Wi-Fi is not active
	Blinking red: Wi-Fi RF is active
	Blinking blue: Bluetooth is active
	Blinking purple: Bluetooth and Wi-Fi are both active

Table 1-2: Status Indicators

1.5 Rear Panel

The rear panel consists of the built-in battery and VESA mounting holes. The optional 5-megapixel camera is also located on the rear panel.
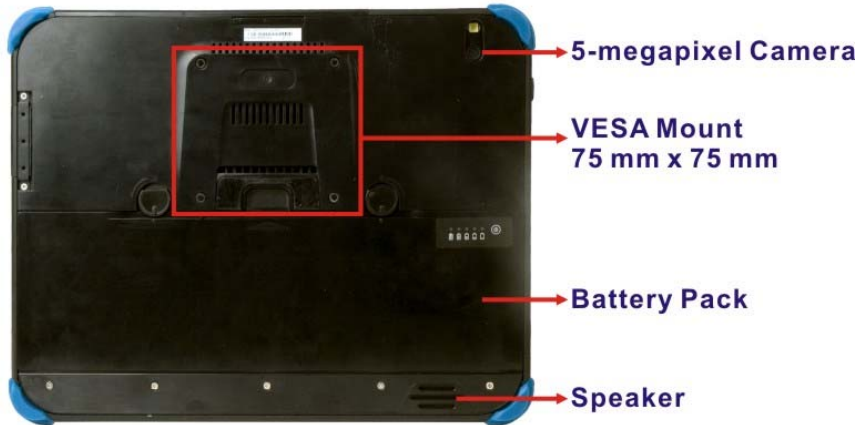
Figure 1-4: Rear Panel

1.6 Side Panels

The right side panel has a barcode on/off button. The left side panel consists of I/O ports and slots. See **Figure 1-5**.
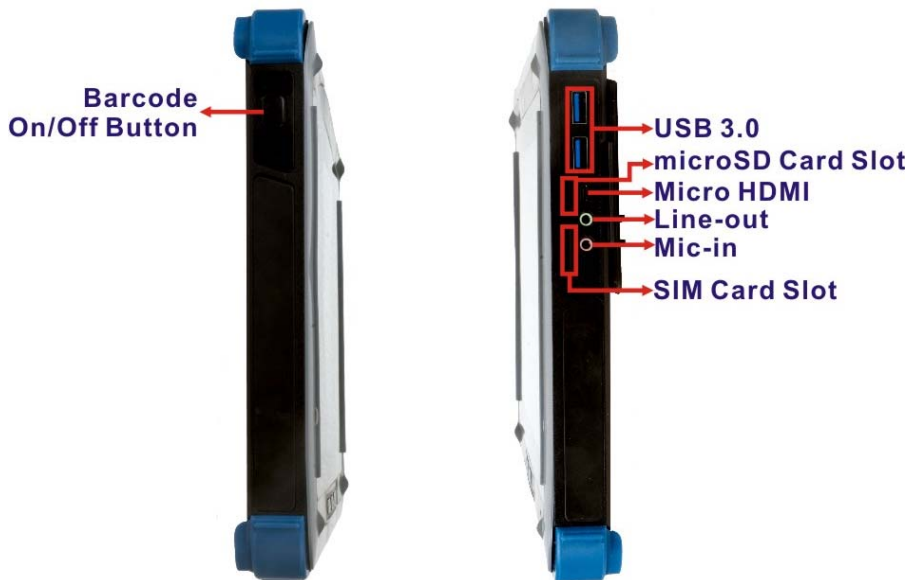
Figure 1-5: Side Panel

1.7 Top Panel

The barcode scanner is located on the top panel shown in the following diagram.

Figure 1-6: Top Panel

1.8 Bottom Panel

The bottom panel has a USB 3.0 connector for installing USB peripheral devices or the charging adapter.

Figure 1-7: Bottom Panel

1.9 Technical Specifications

The technical specifications for the ICEROCK3-T10 systems are listed in the table below.

System	ICEROCK3-T10
CPU	1.700 GHz Intel® Core™ i7-3517U processor 1.50 GHz Intel® Celeron® processor 1007U
Chipset	Intel® HM76
Memory	4.0 GB DDR3 SDRAM on board Optional 4.0 GB DDR3 SDRAM SO-DIMM
OS	Windows Embedded Standard 7
Storage	Preinstalled 32 GB MLC mSATA One microSD card slot
Audio	1 x Speaker (2 W) 1 x Digital microphone on the front panel 1 x Analog microphone connector on the side panel
Camera	1 x 1.3-megapixel webcam (front panel) 1 x Optional 5-megapixel webcam (rear panel)
Display	
LCD	10.1″ LCD with projected capacitive touchscreen and Gorilla Glass
Max. Resolution	1280 x 800
Brightness (cd/m^2)	350
Viewing Angle	85/85/85/85 degree
Communication	
Wireless LAN	802.11b/g/n
Bluetooth	Bluetooth v3.0
Barcode Scanner (Optional)	1D/2D barcode scanner
RFID Reader (Optional)	13.56 MHz RFID compliant with ISO 14443A/B (Mifare, Felica)
GPS (Optional)	GPS with internal antenna
3.75G (Optional)	HSPA/UMTS-800/850/900/1700/1900/2100 MHz

System	ICEROCK3-T10
Power	
Battery	Battery 1 (standard): 3700 mAH Li-ion battery pack with battery capacity LED indicators (five working hours) Battery 2 (optional): internal 3700 mAH battery pack (five working hours)
Power Input	19 V DC input
Power Adapter	90 W AC Power Adapter Input: 100 V AC ~ 240 V AC Output: 19 V DC @ 4.74 A
Physical Character	
Mounting	VESA 75 mm x 75 mm
Dimensions (W x H x D)	297 mm x 234 mm x 32 mm
Operation Temperature	0°C ~ 40°C
Storage Temperature	-20°C ~ 60°C
Humidity	5% ~ 95% non-condensing
Net Weight	1.9 kg
IP Level	IP 65
Safety	CE, FCC
Drop Survival	1.2 m
Connectors and Buttons	
I/O Ports and Switches	3 x USB 3.0 1 x Microphone line-in jack 1 x Audio line-out jack 1 x Micro HDMI 1 x Barcode on/off button
Front Panel Buttons and LED Indicators	1 x Power button 2 x Hotkey 1 x iMenu button 1 x Battery status LED 1 x Barcode/RFID LED 1 x Storage/3.75G LED 1 x Wi-Fi/Bluetooth LED

Table 1-3: Technical Specifications

1.10 Dimensions
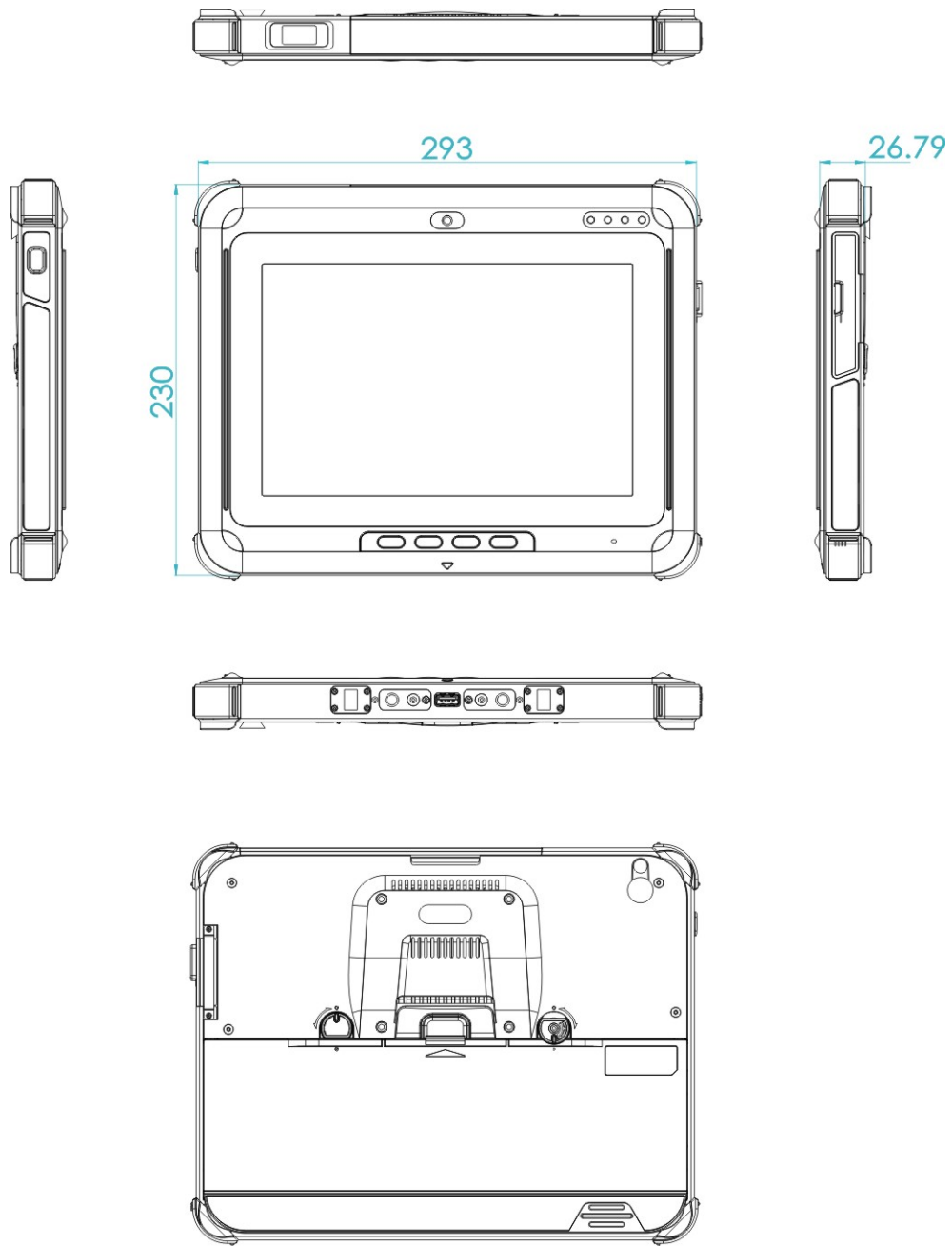
Figure 1-8: Dimensions (units in mm)

Chapter

2

Unpacking

> ⚠ **WARNING:**
>
> When installing the ICEROCK3-T10, make sure to:
>
> - **Turn the power off**: Chance of electrocution. Turn off the monitor and unplug it from the power supply.
> - **Only let certified engineers change the hardware settings**: Incorrect settings can cause irreparable damage to the product.
> - **Take anti-static precautions**: Electrostatic discharge can destroy electrical components and injure the user. Users must ground themselves using an anti-static wristband or similar device.

The installation steps below should be followed in order.

Step 1: Unpack the tablet PC

Step 2: Check all the required parts are included

Step 3: Charge the system

Step 4: Install SIM card or microSD card (if necessary)

Step 5: Mount the tablet PC

Step 6: Connect peripheral devices to the side panel of the ICEROCK3-T10

2.1 Unpacking

To unpack the ICEROCK3-T10, follow the steps below:

> ⚠ **WARNING!**
>
> Only remove the protective plastic cover stuck to the front screen after installation. The plastic layer protects the monitor surface during installation process.

Step 1: Use sharp cutters to open the box.

Step 2: Remove the ICEROCK3-T10 and the packing material out of the box.

Step 3: Make sure all the components listed in the packing list are present.

2.2 Packing List

The ICEROCK3-T10 tablet PC is shipped with the following components:

Quantity	Item	Image
1	ICEROCK3-T10	
1	Power adapter	
1	Power cable	
1	Charging adapter	
1	Utility CD	
1	One Key Recovery CD	

Table 2-1: Packing List

These optional items are also available.

Item	Image
3-in-1 combo reader (P/N: ICEROCK3-3IN1-R10)	
Charging station (P/N: ICEROCK3-CR01-R10)	
Carrying case (P/N: 7Z000-ICEROCK3-10POUCH)	

Table 2-2: Optional Items

Chapter

3

Installation

3.1 Charge the System

> ![WARNING icon] **WARNING:**
>
> When charging the system, make sure a power supply with the correct input voltage is being fed into the system. Incorrect voltages applied to the system may cause damage to the internal electronic components and may also cause injury to the user.

To charge the ICEROCK3-T10, follow the steps below.

Step 1: Install the charging adapter to the ICEROCK3-T10. Secure the charging adapter by tightening the two retention screws on either side of the adapter.

Figure 3-1: Install Charging Adapter

Step 2: Connect the ICEROCK3-T10 with a power source through the power adapter came with the package.

Step 3: The system starts to charge the battery and the charge status LED lights up indicating the battery is being charged. When the battery is fully charged, the power status LED turns off. Please refer to **Section 1.4.1: Status Indicators**.

Figure 3-2: Charge Status LED

Step 4: The battery 1 capacity can be viewed by pressing the button on the battery pack (**Figure 3-3**).

Figure 3-3: Battery Capacity Indicators

Step 5: The user can also turn on the system to check the battery capacity via the Windows Embedded 7 power management screen (**Figure 3-4**).

Figure 3-4: Windows Embedded 7 Power Management Screen

 NOTE:

The external battery is hot swappable which means the user can install the battery without turning off the system.

3.1.1 Optional Charging Station

The ICEROCK3-T10 can be charged through the optional charging station. To charge the system, install the ICEROCK3-T10 into the charging station as shown in **Figure 3-5**. Then, connect the charging station with a power source through the power adapter came with the ICEROCK3-T10 package.

Figure 3-5: Charge the System through Charging Station

3.2 Power-up the System

To power-up the system, push the power button on the top panel for few seconds until the power button lights up.

Power Button

Figure 3-6: Power Button Location

3.3 SD Card Installation

This section covers the installation of a microSD card.

Step 1:   Open the I/O cover on the side panel. Locate the microSD card slot.

Step 2:   Install the microSD card in the slot indicated below.

Figure 3-7: Install microSD Card

Step 3:   Replace the I/O cover.

3.4 SIM Card Installation (Optional)

This section covers the installation of a SIM card for mobile network connections on the ICEROCK3-T10 models with optional mobile 3.75G module.

Step 1: Open the I/O cover on the side panel. Locate the SIM card slot.

Step 2: Install the SIM card in the slot indicated below.

Figure 3-8: SIM Card Installation

Step 3: Replace the I/O cover.

3.5 Using RFID Reader

There is a RFID reader on the front panel. To use the RFID reader, follow the steps below.

Step 1: Check the RFID status indicator on the front panel to make sure the RFID function is enabled (see **Section 1.4.1**). The RFID function is enabled by default in the BIOS menu. If the RFID reader is disabled, please go to **Chipset →PCH-IO Configuration** BIOS menu to enable it (refer to **Section 5.4.1**).

Step 2: Follow the instruction described in **Section 4.7** to install the RFID driver.

Step 3: Double click the **PcscTool** icon in the RFID folder in the driver CD.
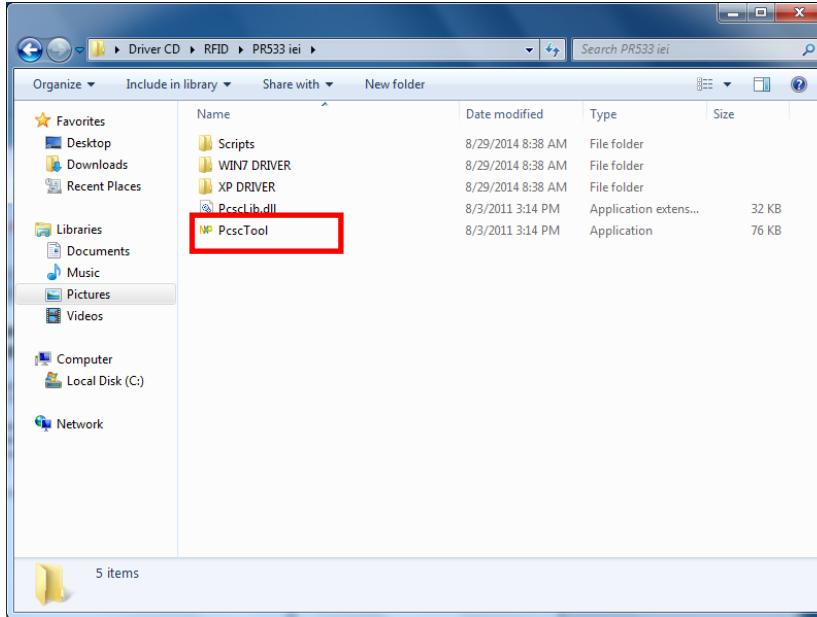
Figure 3-9: PcscTool Location

Step 4: The NXP PCSC Tool window appears (**Figure 3-10**).
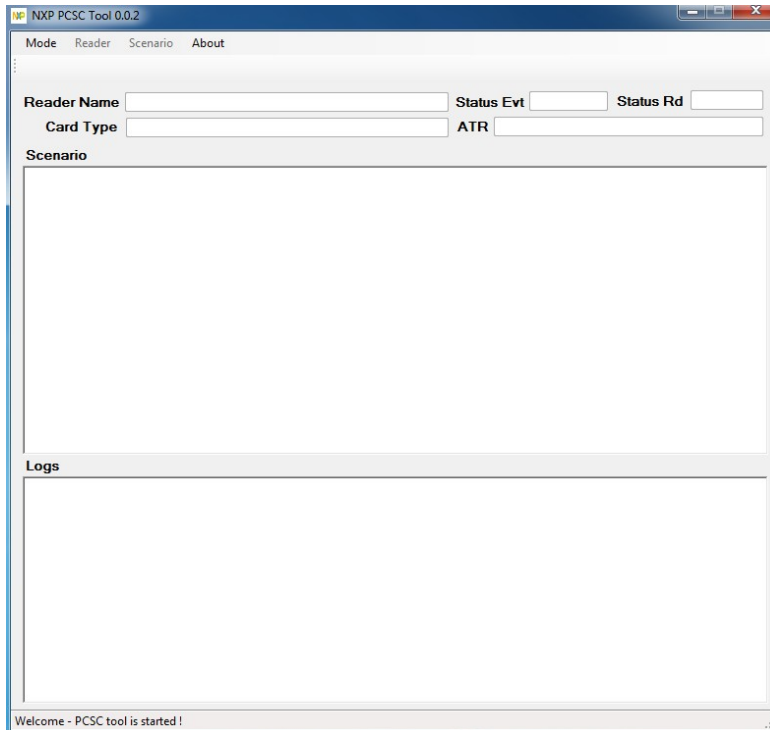
Figure 3-10: NXP PCSC Tool Screen

Step 5: Select **Automatic** from the Mode menu (**Figure 3-11**).
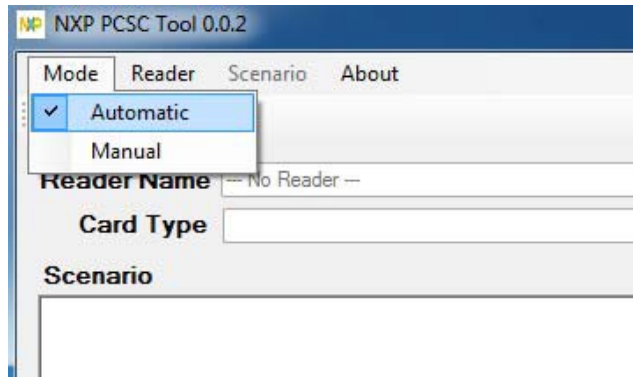
Figure 3-11: NXP PCSC Tool – Mode Selection

Step 6: Choose **Select a Reader** from the Reader menu (**Figure 3-12**).
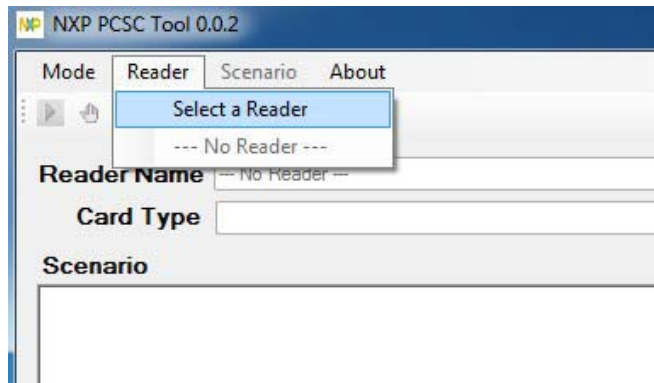
Figure 3-12: NXP PCSC Tool – Reader Selection

Step 7: The Select the reader window prompts. Select a RFID reader and click **OK**. See

Figure 3-13.
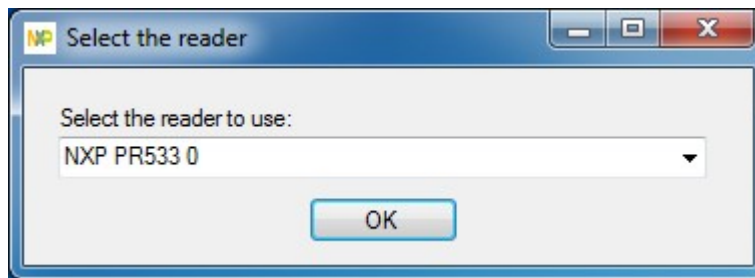
Figure 3-13: NXP PCSC Tool – Select the Reader

Step 8: Click the Arrow button shown in **Figure 3-14** to read RFID card.
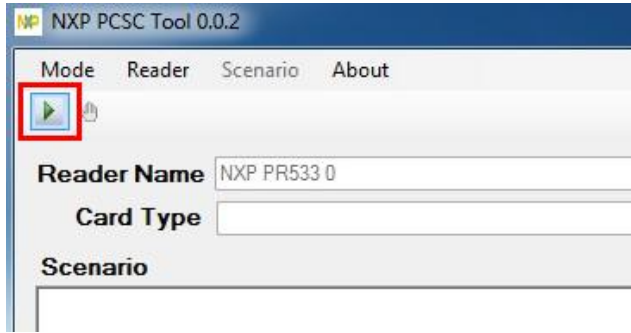
Figure 3-14: NXP PCSC Tool – Read RFID Card

Step 9: Use the RFID reader to read a RFID card. The RFID reader is located on the front panel as shown in **Figure 3-15**. The card information will be shown in the Scenario and Logs columns of the PCSC Tool.

Figure 3-15: RFID Reader Location

3.6 Using Barcode Scanner

Some models of the ICEROCK3-T10 have a barcode scanner on the top panel. To use the barcode scanner, follow the steps below.

Step 1: Check the barcode status indicator on the front panel to make sure the barcode function is enabled (see **Section 1.4.1**). The barcode function is enabled by default in the BIOS menu. If the barcode scanner is disabled, please go to **Chipset → PCH-IO Configuration** BIOS menu to enable it (refer to **Section 5.4.1**).

Step 2: Install EZConfig-Scanning barcode scanner program from the driver CD. Double click "EZConfig-Scanning-Setup.exe" file in the "2D" folder as shown in **Figure 3-16**.
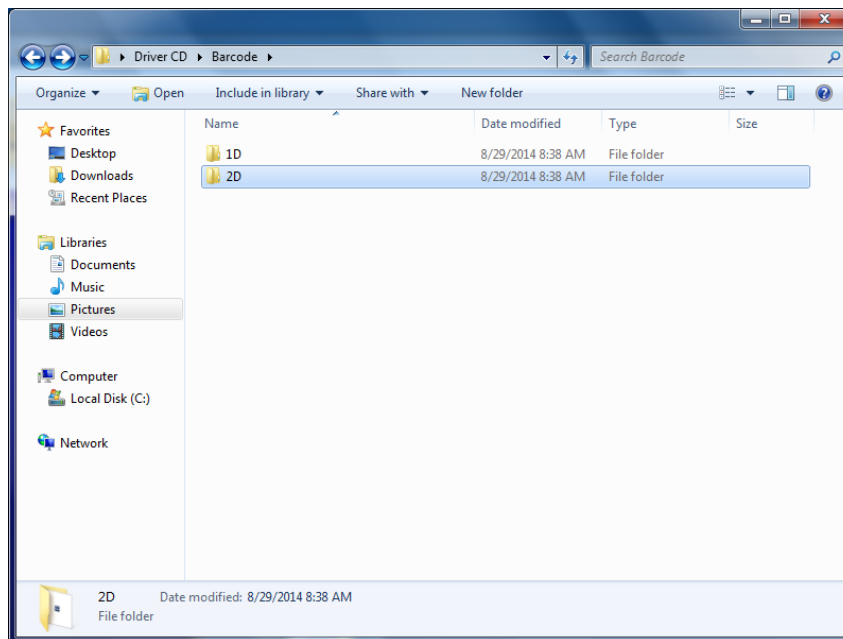
Figure 3-16: Barcode Scanner Program Location

Step 3: The EZConfig-Scanning InstallShield Wizard screen appears (**Figure 3-17**). Follow the step-by-step instruction of the installation wizard to install the EZConfig-Scanning barcode scanner program.
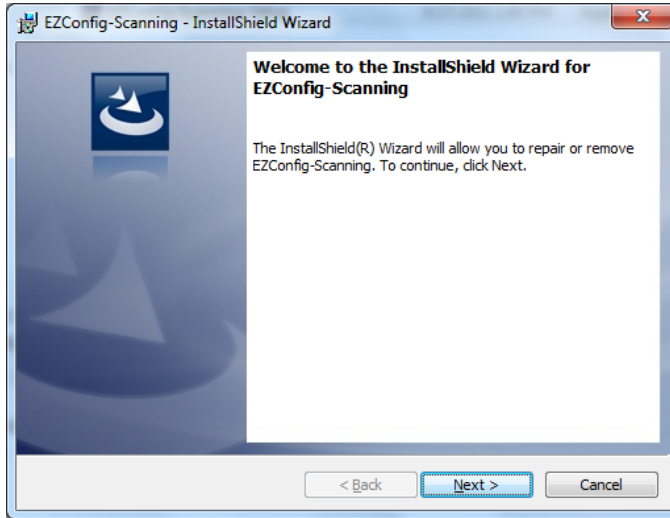
Figure 3-17: EZConfig-Scanning InstallShield Wizard

Step 4: Double click the **EZConfig-Scanning** icon on the desktop. The

EZConfig-Scanning window appears (**Figure 3-18**).
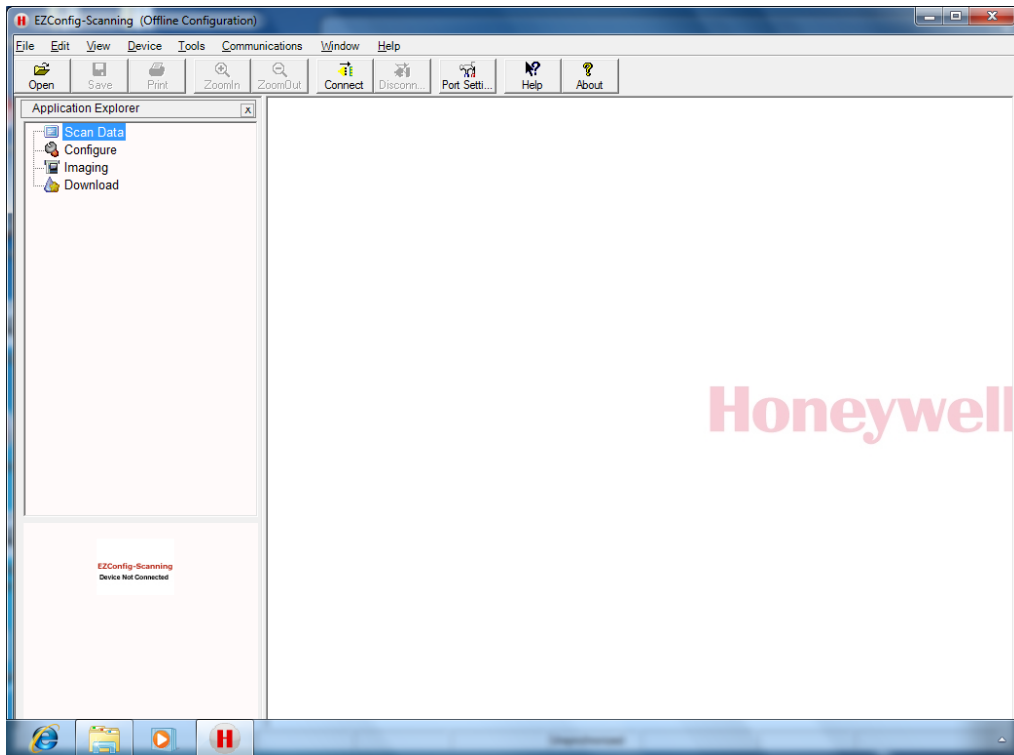
Figure 3-18: EZConfig-Scanning Window

Step 5: Click the **Port Settings** button on the tool bar. Refer the following information to configure the COM port settings for the barcode scanner. After the configuration, click the **Config Comm** button (**Figure 3-19**).

- **Port Number:** COM2
- **Baud Rate:** 115200
- **Parity Bits:** None
- **Date Bits:** 8
- **Stop Bits:** 1
- **Hand Shaking:** 0-None
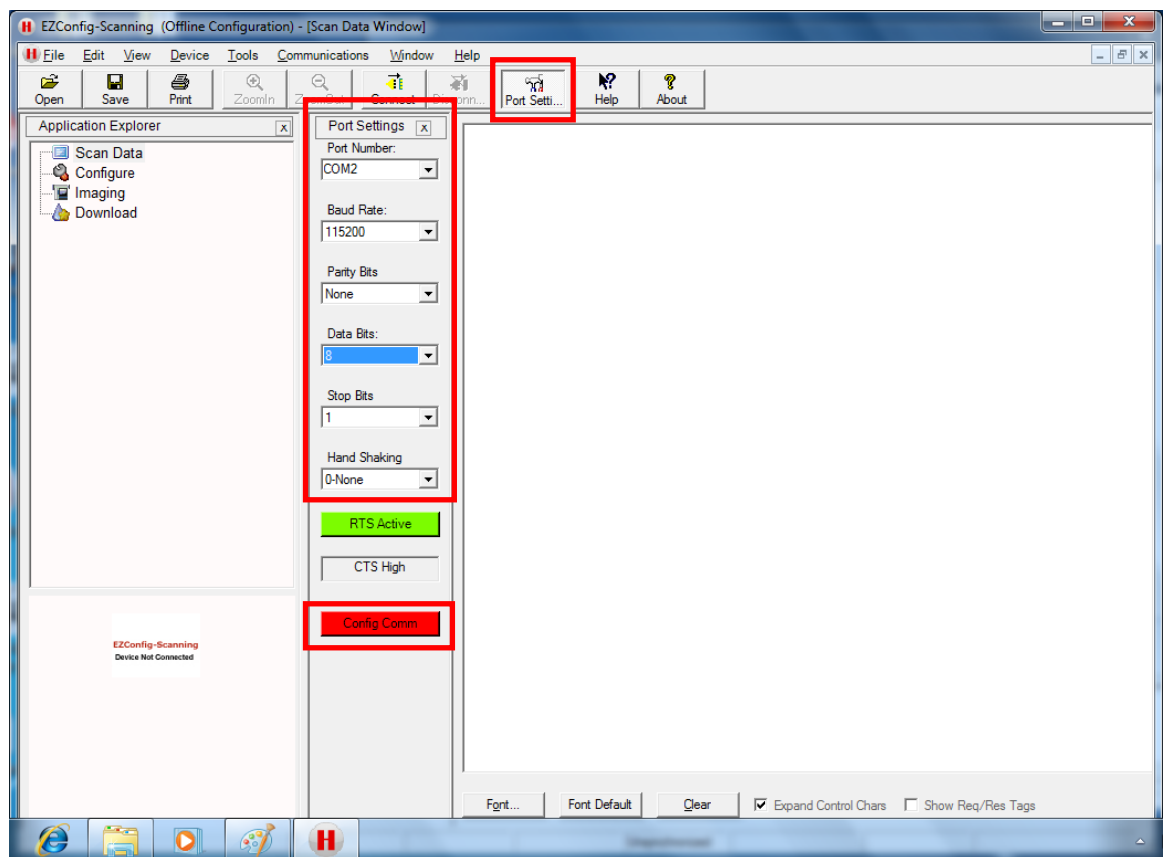
Figure 3-19: EZConfig-Scanning – Port Settings

Step 6: The **Config Comm** button turns from red to green, meaning the program is successfully connected to the barcode scanner.

Step 7: Push the barcode on/off button on the right side panel to turn on the barcode scanner. The barcode status indicator on the front panel lights up in red (if the RFID reader is enabled at the same time, the indicator will turns from blue to purple).

Figure 3-20: Barcode On/Off Button and Barcode Status Indicator

Step 8: Scan a barcode and the barcode number will be displayed in the Scan Data Window on the right (**Figure 3-21**).

![NOTE] **NOTE:**

The Scan Data Window must be enabled to be able to display the scanned barcode number. To enable, click **View → Scan Data Window**.
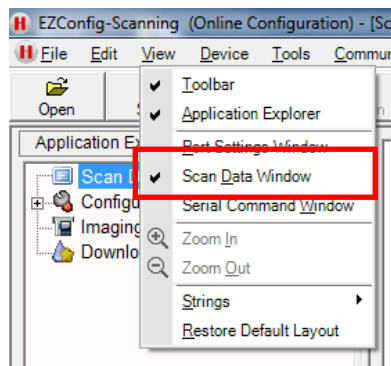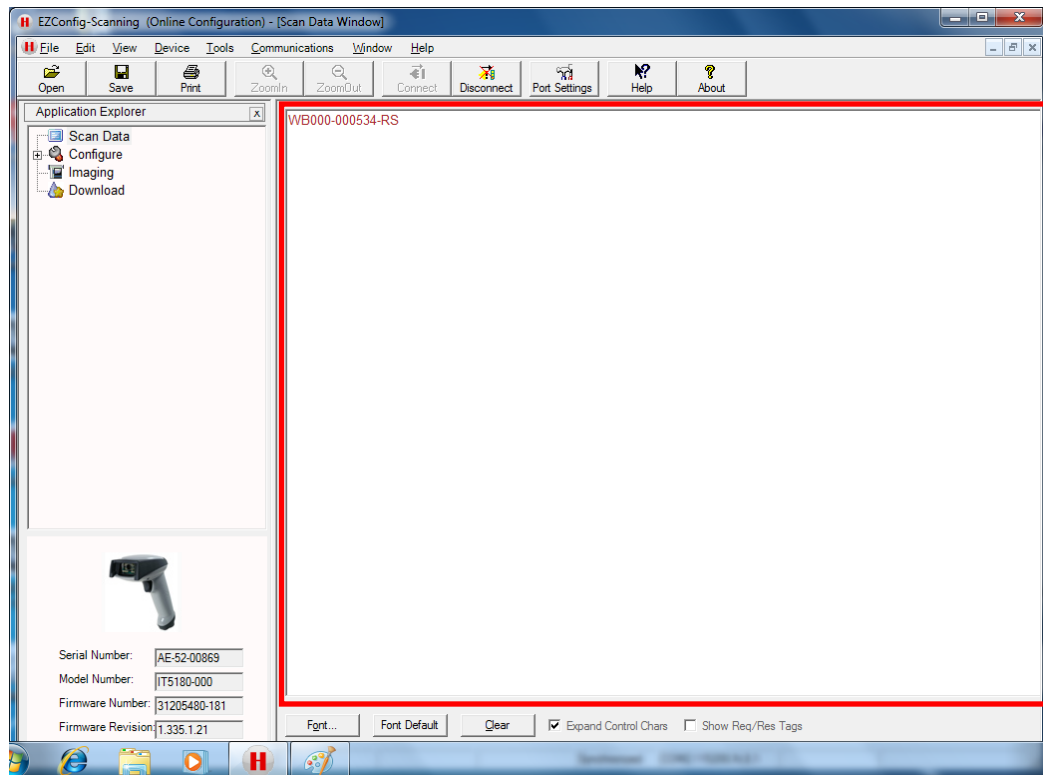
Figure 3-21: Barcode Information Display Area

3.7 Using GPS Evaluation Software

To evaluate the GPS function on the ICEROCK3-T10 models with GPS module, please follow the instruction below.

Step 1: The GPS function is enabled by default in the BIOS menu. If the GPS function is disabled, please go to **Chipset → PCH-IO Configuration** BIOS menu to enable it (refer to **Section 5.4.1**).

Step 2: Install the u-center GPS evaluation software from the driver CD. Double click the u-center setup file in the "GPS Module" folder as shown in **Figure 3-22**.

NOTE:

The u-center software installation requires network connection. Please connect the ICEROCK3-T10 to the Internet before installation.
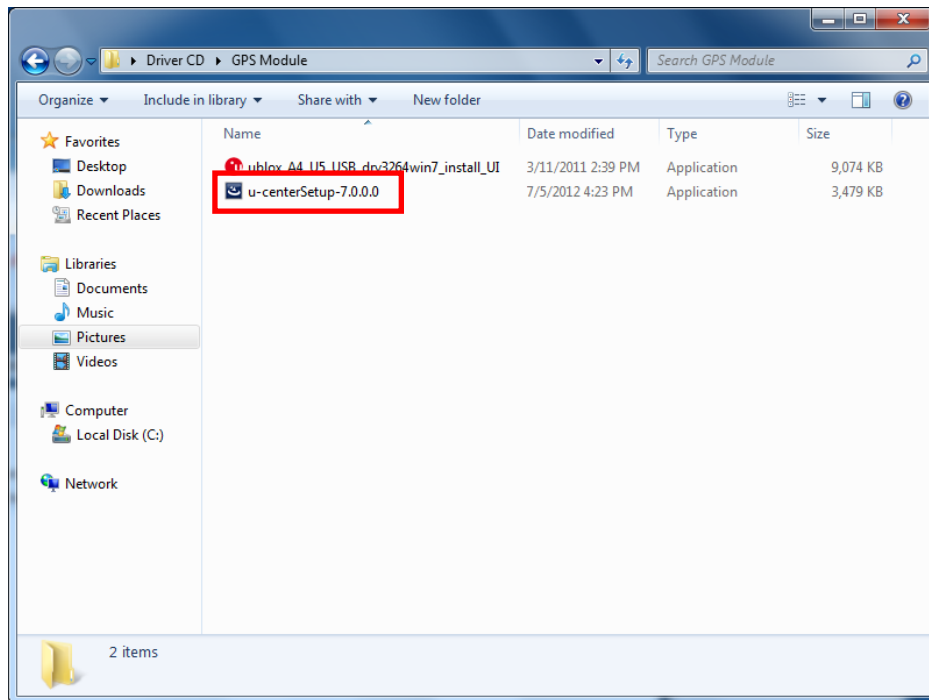
Figure 3-22: GPS Evaluation Software Location

Step 3: The InstallShield Wizard screen appears. Follow the step-by-step instruction of the installation wizard to install the u-center GPS evaluation software.

Step 4: After the installation is complete, double click the **u-center** icon on the desktop. The u-center window appears (**Figure 3-23**). Before start using the software, please make sure the GPS module is connected successfully by checking the information on the bottom (circled in red in **Figure 3-23**). The GPS module uses COM1 port with 9600 baud rate, and the blinking green light shows the connection is good.
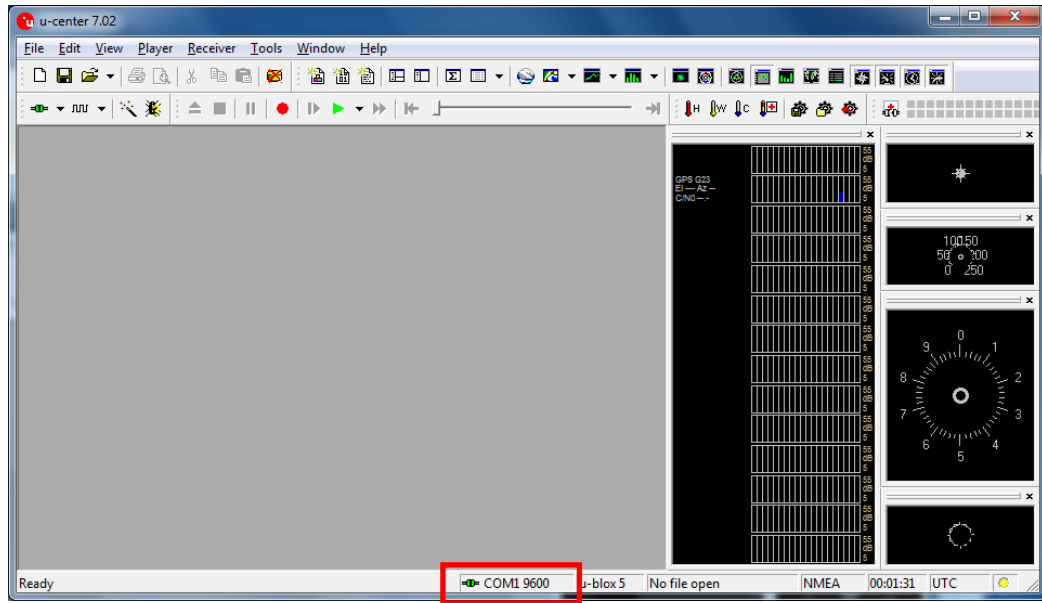
Figure 3-23: u-center Window

3.8 Mounting the System

The ICEROCK3-T10 is VESA (Video Electronics Standards Association) compliant and can be mounted on a mounting device with a 75 mm interface pad. The VESA mounting screw holes are located on the rear panel as shown in the following diagram. To mount the ICEROCK3-T10, please refer to the user manual that came with the mounting device.

Figure 3-24: VESA Mount Screw Holes

3.9 I/O Connectors

The I/O connectors on the left side of the ICEROCK3-T10 extend the capabilities of the tablet PC but are not essential for operation (**Figure 3-25**).
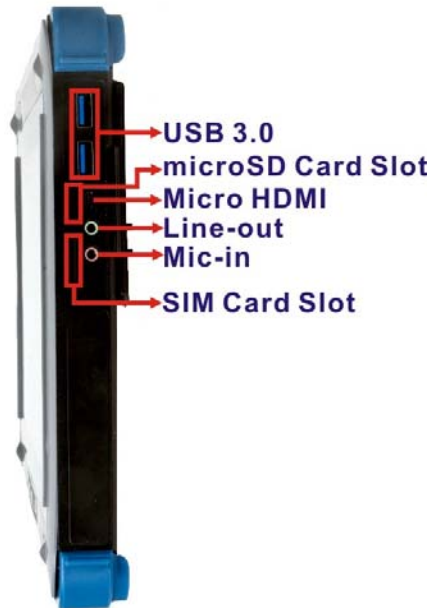
Figure 3-25: Left Side I/O Connectors

3.9.1 Audio connectors (Mic-in and Headphones)

The audio jacks on the external audio connector enable the ICEROCK3-T10 to be connected to a stereo sound setup. To install the audio devices, follow the steps below.

Step 1: **Identify the audio plugs**. The plugs on your headphone or speakers may not match the colors on the side panel audio jacks. If audio plugs are plugged into the wrong jacks, sound quality will be very bad.

Step 2: **Plug the audio plugs into the audio jacks**. Plug the audio plugs into the audio jacks. If the plugs on your speakers are different, an adapter will need to be used to plug them into the audio jacks.

- **Line Out port (Lime):** Connects to a headphone or a speaker.
- **Microphone (Pink):** Connects to a microphone.
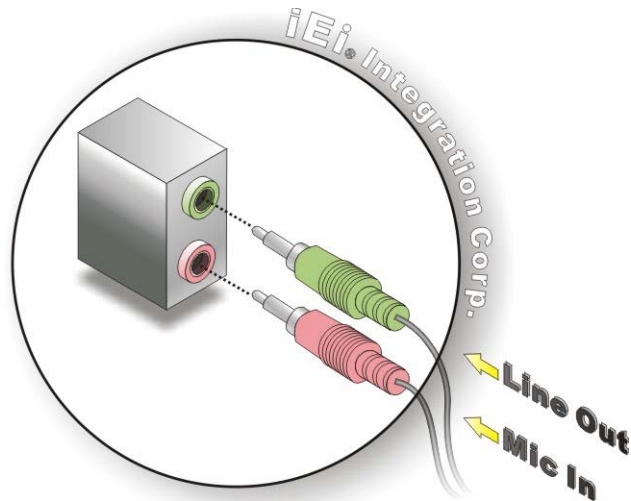
Figure 3-26: Audio Connectors

Step 3: **Check audio clarity**. Check that the sound is coming through the right speakers by adjusting the balance front to rear and left to right.

3.9.2 Micro HDMI Device Connection

There is one Micro HDMI connector on the left side of the ICEROCK3-T10. To connect a HDMI device, please follow the instructions below.

Step 1: **Located the Micro HDMI connector**. The location of the Micro HDMI connector is shown in **Figure 3-25**.

Step 2: **Align the connectors.** Align the HDMI device connector with the connector on the ICEROCK3-T10. See figure below.
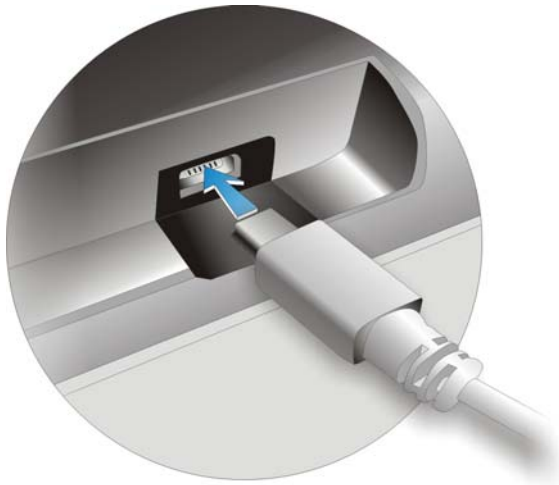
Figure 3-27: Micro HDMI Device Connection

Step 3: **Insert the device connector.** Once aligned, gently insert the HDMI device

connector into the connector on the ICEROCK3-T10.

3.9.3 USB Device Connection

There are two USB 3.0 connectors on the side panel. To connect a USB device, please follow the instructions below.

Step 1: **Located the USB connectors**. The locations of the USB connectors are shown

in **Figure 3-25**.

Step 2: **Align the connectors.** Align the USB device connector with one of the

connectors on the ICEROCK3-T10. See figure below.
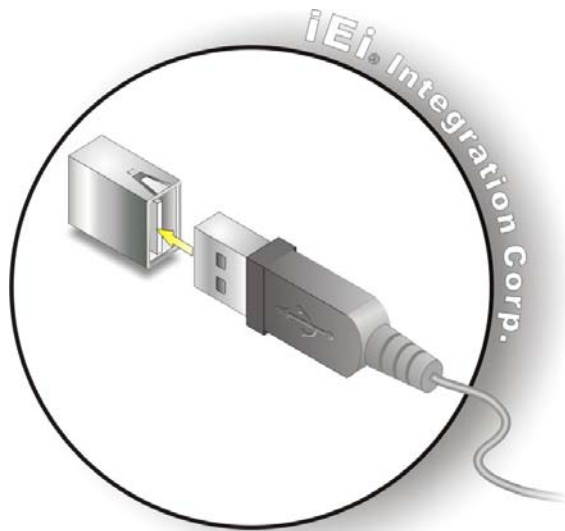
Figure 3-28: USB Device Connection

Step 3: **Insert the device connector.** Once aligned, gently insert the USB device

connector into the connector on the ICEROCK3-T10.

Chapter

4

Driver Installation

4.1 Available Software Drivers

NOTE:

The contents of the driver folder may vary throughout the life cycle of the product and is subject to change without prior notice. Visit the IEI website or contact technical support for the latest updates.

The following drivers can be installed on the system:

- Chipset driver
- Graphics driver
- 3.75G driver
- Audio driver
- Bluetooth driver
- RFID driver
- USB 3.0 driver
- Wireless LAN driver

Connect the Utility CD came with the ICEROCK3-T10 to the system and follow the installation instructions given below to install the drivers.

NOTE:

The chipset driver must be installed first, then the graphics driver. After finishing installing the chipset driver and graphics driver, the user can continue to install other drivers in any order.

4.2 Intel® Chipset Driver

To install the chipset driver, please follow the steps below.

Step 1: Select **BIOS** from the list of the driver CD and the following screen shows.
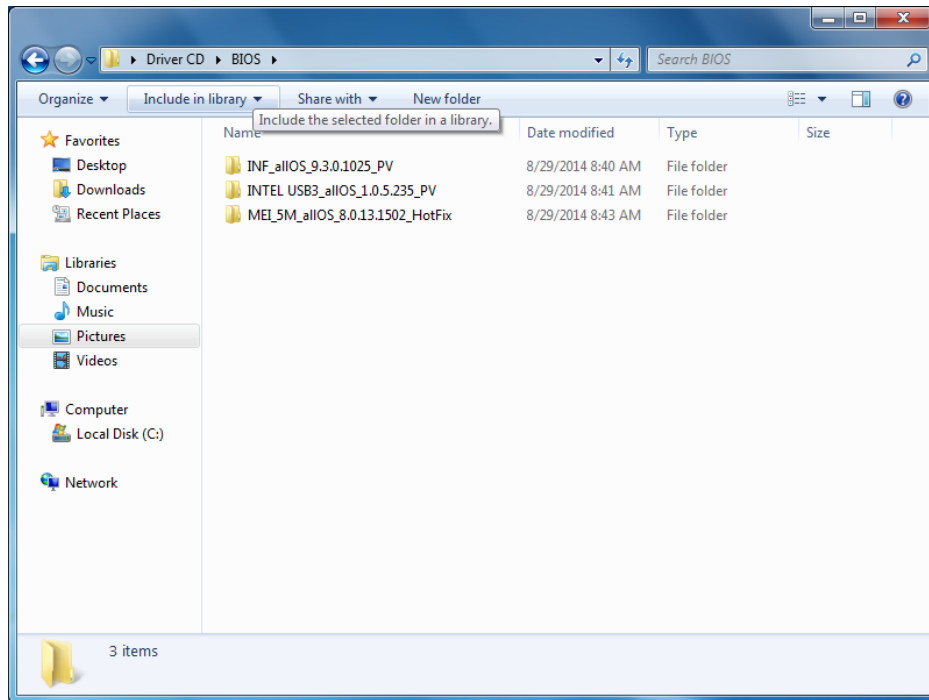
Figure 4-1: Chipset Driver Location

Step 2: There are three folders, and each folder contains chipset related drivers to be installed. Double click the setup file in each folder and follow the step-by-step instruction of the installation wizard to install the drivers.

4.3 Intel® Graphics Driver

To install the graphics driver, please follow the steps below.

Step 1: Select **VGA** from the list of the driver CD. Locate the driver setup file as shown in Figure 4-2.
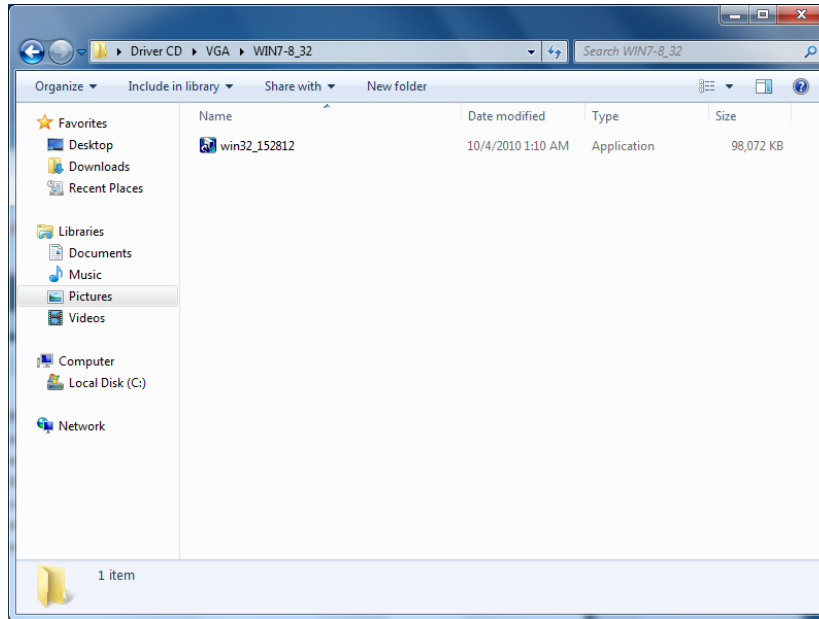
Figure 4-2: Graphics Driver Location

Step 2: Double click the setup file in the folder. The **Intel® Graphics Driver**

InstallShield Wizard appears (**Figure 4-3**).
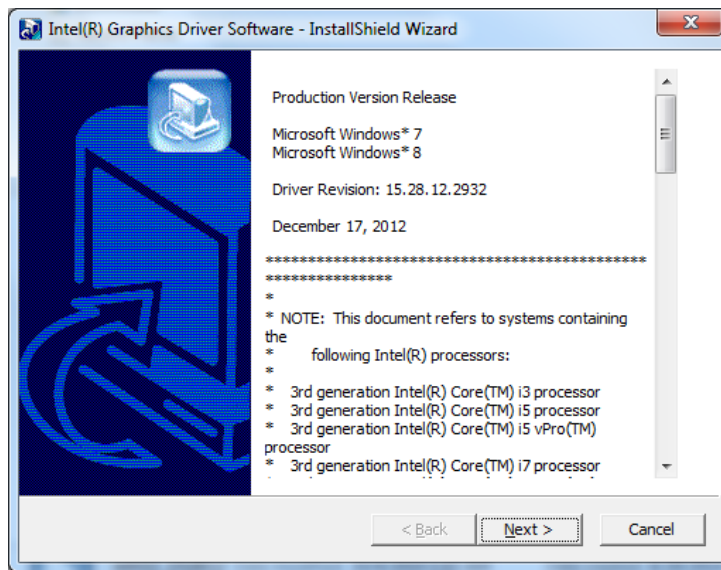
Figure 4-3: Intel® Graphics Driver InstallShield Wizard

Step 3: Follow the step-by-step instruction of the installation wizard to install the

graphics driver.

4.4 3.75G Driver

To install the driver for the 3.75G module, please follow the steps below.

Step 1: Select **GOBI 3000** from the list of the driver CD. Locate the driver setup file in the **Drivers** folder as shown in **Figure 4-6**.
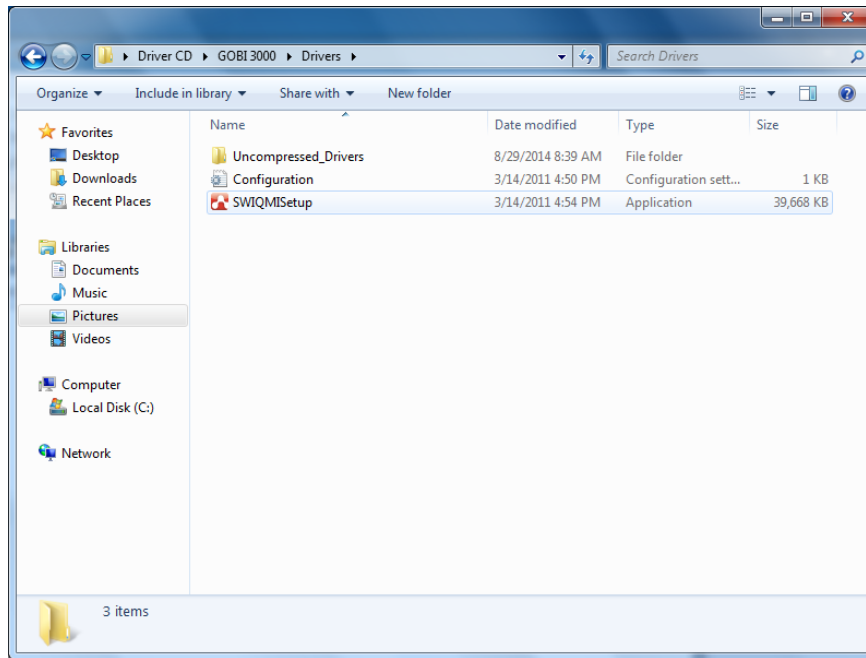
Figure 4-4: 3.75G Driver Location

Step 2: Double click the setup file in the folder. The **InstallShield Wizard** screen appears (**Figure 4-7**).

Figure 4-5: 3.75G Driver InstallShield Wizard

Step 3:   Follow the step-by-step instruction of the installation wizard to install the HD

Audio driver.

4.5 Audio Driver

To install the driver for the speaker and the microphone, please follow the steps below.

Step 1:   Select **Audio** from the list of the driver CD. Locate the driver setup file as shown
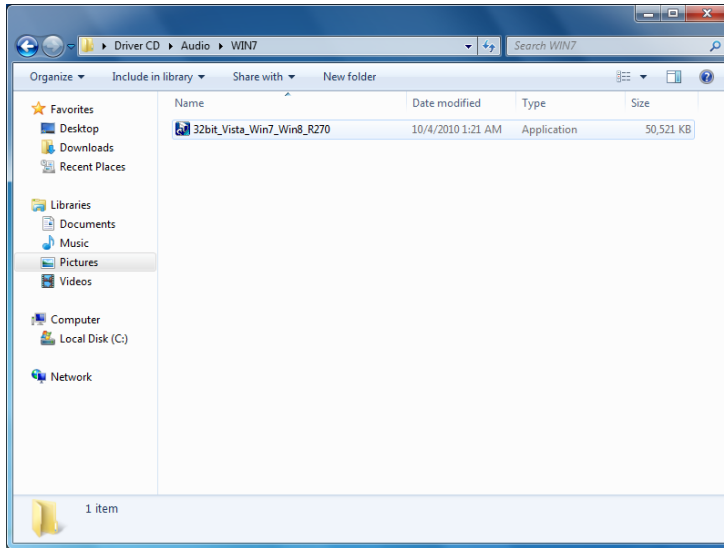
in **Figure 4-6**.

Figure 4-6: Speaker and Microphone Driver Location

Step 2: Double click the setup file in the folder. The **InstallShield Wizard** screen

appears (**Figure 4-7**).

Figure 4-7: Realtek HD Audio Driver InstallShield Wizard

Step 3: Follow the step-by-step instruction of the installation wizard to install the HD

Audio driver.

4.6 Bluetooth Driver

To install the Bluetooth driver, please follow the steps below.

Step 1: Select **Wireless LAN & Bluetooth** from the list of the driver CD. Select the

Bluetooth folder as shown in Figure 4-8.
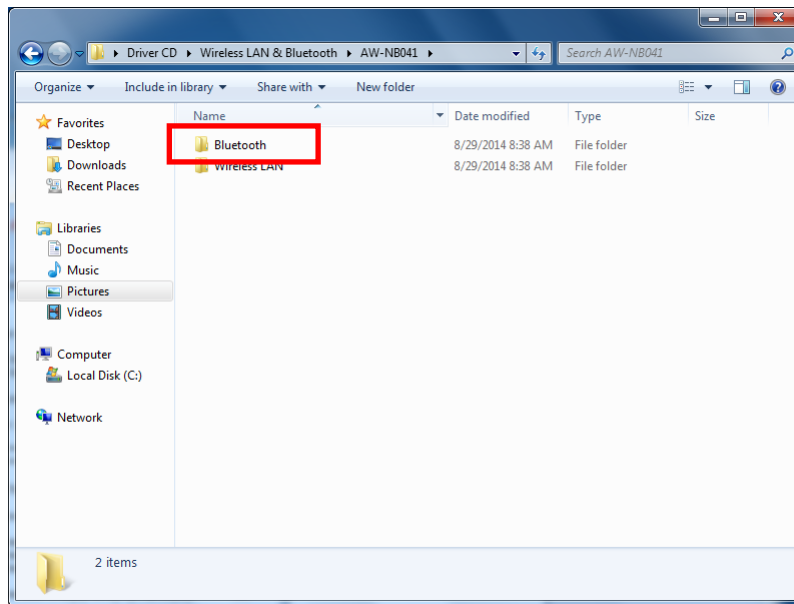
Figure 4-8: Bluetooth Driver Location

Step 2: Double click the setup file in the folder. The InstallShield Wizard screen appears.
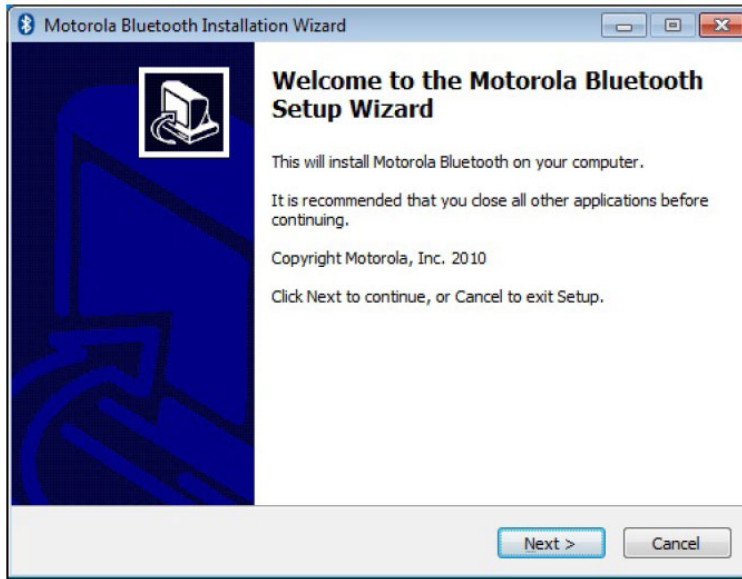
Figure 4-9: Bluetooth Driver InstallShield Wizard

Step 3: Follow the step-by-step instruction of the installation wizard to install the Bluetooth driver.

4.7 RFID Driver

To install the RFID driver, please follow the steps below.

Step 1: Select **RFID** from the list of the driver CD. Double click the setup file in the **WIN7 Driver** folder to install the RFID driver (**Figure 4-11**).
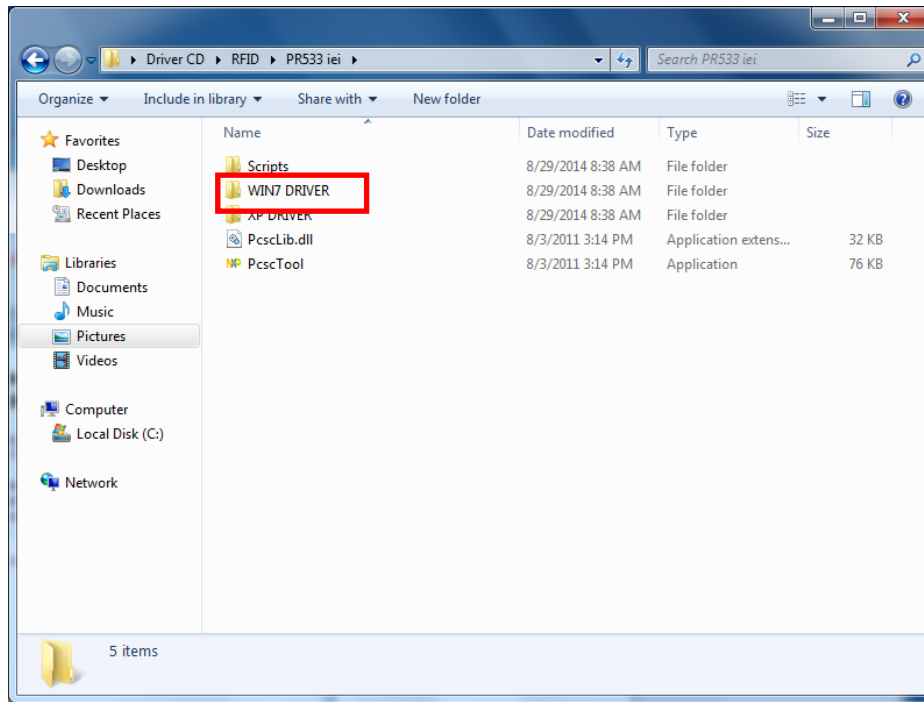
Figure 4-10: RFID Driver Folder

Step 2: Follow the step-by-step instruction of the installation wizard (**Figure 4-11**) to

install the RFID driver.

Figure 4-11: RFID Driver Installation

4.8 USB 3.0 Driver

To install the USB 3.0 driver, please follow the steps below.

NOTE:

Two USB 3.0 drivers must be installed in order to enable all three USB 3.0 ports on the ICEROCK3-T10. One is included in the Chipset driver folder (see Section 4.2), and the other is in the USB 3.0 driver folder. Please follow the instructions in these two sections to install the USB 3.0 drivers.

Step 1: Select **USB 3.0** from the list of the driver CD. Locate the driver setup file as shown in Figure 4-2.
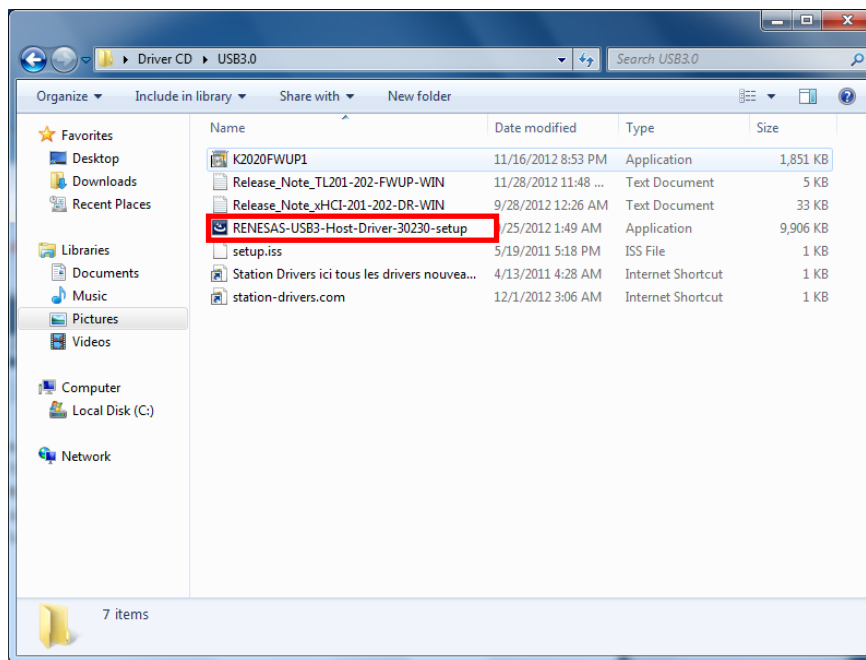
Figure 4-12: USB 3.0 Driver Location

Step 2: Double click the setup file in the folder. The **InstallShield Wizard** appears (**Figure 4-3**).
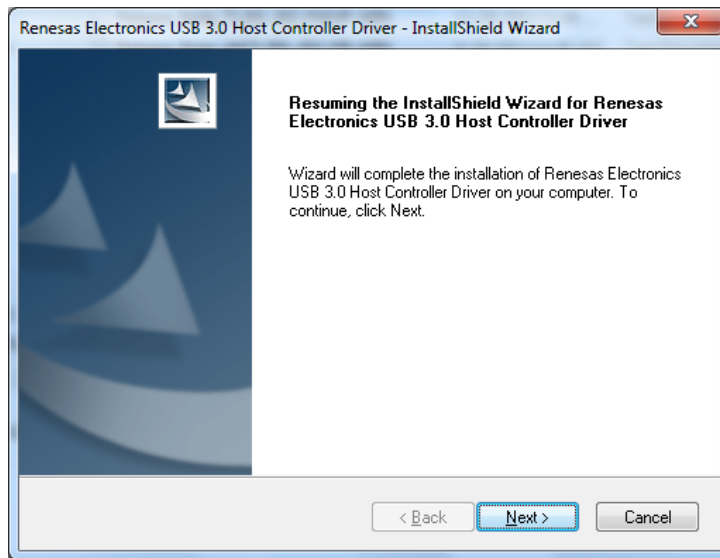
Figure 4-13: USB 3.0 Driver InstallShield Wizard

Step 3: Follow the step-by-step instruction of the installation wizard to install the graphics driver.

4.9 Wireless LAN Driver

To install the wireless LAN driver, please follow the steps below.

Step 1: Select **Wireless LAN & Bluetooth** from the list of the driver CD. Select the **Wireless** folder as shown in Figure 4-14.
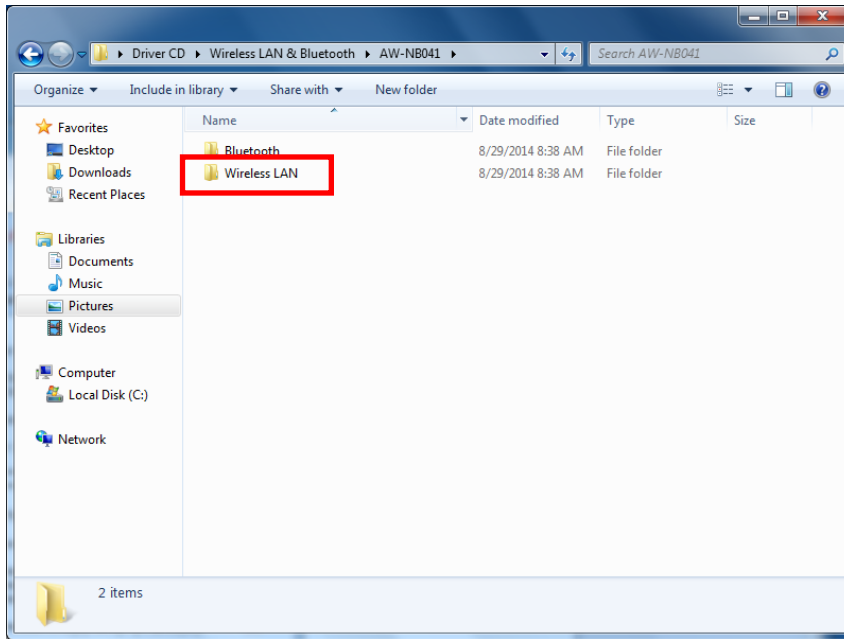
Figure 4-14: Wireless LAN Driver Location

Step 2: Double click the setup file in the **Install_CD** folder. The InstallShield Wizard

screen appears (**Figure 4-15**).
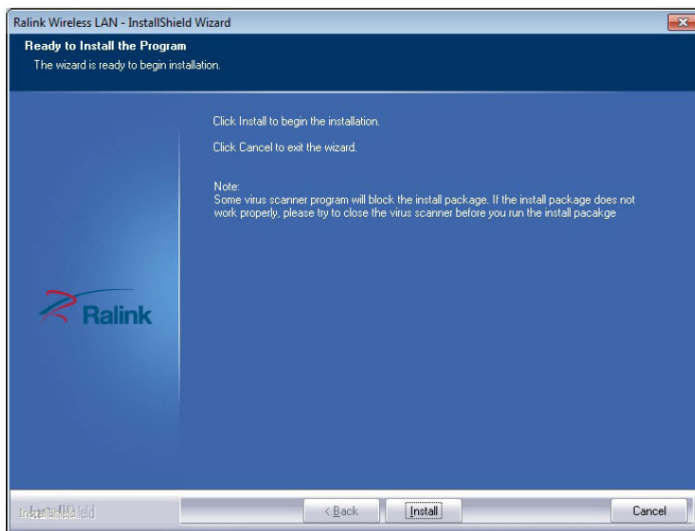
Figure 4-15: Wireless LAN InstallShield Wizard

Step 3: Follow the step-by-step instruction of the installation wizard to install the

Wireless LAN driver.

Chapter

5

BIOS Setup

5.1 Introduction

The BIOS is programmed onto the BIOS chip. The BIOS setup program allows changes to certain system settings. This chapter outlines the options that can be changed.

![NOTE icon] **NOTE:**

> Some of the BIOS options may vary throughout the life cycle of the product and are subject to change without prior notice.

5.1.1 Starting Setup

The AMI BIOS is activated when the computer is turned on. The setup program can be activated in one of two ways.

1. Press the **ENTER** key as soon as the system is turned on or
2. Press the **ENTER** key when the "**Press Enter to enter SETUP**" message appears on the screen.

If the message disappears before the **ENTER** key is pressed, restart the computer and try again.

5.1.2 Using Setup

Use the arrow keys to highlight items, press **ENTER** to select, use the PageUp and PageDown keys to change entries, press **F1** for help and press **ESC** to quit. Navigation keys are shown in **Table 5-1**.

Key	Function
Up arrow	Move to the item above
Down arrow	Move to the item below
Left arrow	Move to the item on the left hand side
Right arrow	Move to the item on the right hand side
+	Increase the numeric value or make changes

Key	Function
-	Decrease the numeric value or make changes
Page up	Move to the next page
Page down	Move to the previous page
Esc	Main Menu – Quit and do not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 key	Load previous values
F3 key	Load optimized defaults
F4 key	Save changes and Exit BIOS

Table 5-1: BIOS Navigation Keys

5.1.3 Getting Help

When **F1** is pressed a small help window describing the appropriate keys to use and the possible selections for the highlighted item appears. To exit the Help Window press **Esc** or the **F1** key again.

5.1.4 BIOS Menu Bar

The **menu bar** on top of the BIOS screen has the following main items:

- Main – Changes the basic system configuration.
- Advanced – Changes the advanced system settings.
- Chipset – Changes the chipset settings.
- Boot – Changes the system boot configuration.
- Security – Sets User and Supervisor Passwords.
- Save & Exit – Selects exit options and loads default settings

The following sections completely describe the configuration options found in the menu items at the top of the BIOS screen and listed above.

5.2 Main

The **Main** BIOS menu (**BIOS Menu 1**) appears when the **BIOS Setup** program is entered.

The **Main** menu gives an overview of the basic system information.

```
        Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
   Main    Advanced   Chipset    Boot    Security  Save & Exit

   BIOS Information                                          Set the Time. Use Tab to
   BIOS Vendor                    American Megatrends        switch between Time
   Core Version                   4.6.5.3                    elements.
   Compliency                     UEFI 2.3; PI 1.2
   Project Version                Z255AR01.ROM
   Build Date and Time            06/16/2014 17:29:48

   iWDD Vendor                    iEi
   iWDD Version                   B252ET10.bin

   Processor Information
   Name                           IvyBridge
   Brand String                   Intel(R) Core(TM) i7-351
   Frequency                      1600 MHz
   Processor ID                   306a9
   Stepping                       E1
   Number of Processors           2Core(s) / 4Thred(s)
   Microcode Revision             13
   GT Info                        GT2 (1000 MHz)

   IGFX VBIOS Version             2143
   Memory RC Version              1.7.0.0
   Total Memory                   8192 MB (DDR3)
   Memory Frequency               1333 Mhz

   PCH Information
   Name                           PantherPoint
   Stepping                       04/C1
   LAN PHY Revision               N/A
                                                            ---------------------
   ME FW Version                  8.1.2.1318
   ME Firmware SKU                1.5MB                      ←→:Select Screen
                                                            ↑↓: Select Item
   SPI Clock Frequency                                      Enter
   DDFR Support                   Unsupported               F1   General Help
   Read Status Clock Frequency    33 MHz                    F2   Previous Values
   Write Status Clock Frequency   33 MHz                    F3   Optimized Defaults
   Fast Read Status Clock Frequency33 MHz                   F4   Save
                                                            ESC  Exit
   System Date                    [Tue 07/04/2011]
   System Time                    [14:20:27]
   Access Level                   Administrator
        Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```

BIOS Menu 1: Main

The Main menu has two user configurable fields:

➔ **System Date [xx/xx/xx]**

Use the **System Date** option to set the system date. Manually enter the day, month and year.

➔ **System Time [xx:xx:xx]**

Use the **System Time** option to set the system time. Manually enter the hours, minutes and seconds.

5.3 Advanced

Use the **Advanced** menu (**BIOS Menu 2**) to configure the CPU and peripheral devices through the following sub-menus:

> **WARNING!**
>
> Setting the wrong values in the sections below may cause the system to malfunction. Make sure that the settings made are compatible with the hardware.

```
        Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
    Main    Advanced    Chipset    Boot    Security  Save & Exit

  > ACPI Settings                                    System ACPI Parameters
  > RTC Wake Settings
  > Trusted Computing
  > CPU Configuration
  > SATA Configuration                               ---------------------
  > Intel Rapid Start Technology
  > USB Configuration                                ←→:Select Screen
  > iWDD Serial Ports Configuration                  ↑↓:Select Item
  > H/M Monitor                                      Enter
  > iEi Feature                                      F1   General Help
                                                     F2   Previous Values
                                                     F3    Optimized
                                                     Defaults
                                                     F4    Save
                                                     ESC   Exit
        Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```

BIOS Menu 2: Advanced

5.3.1 ACPI Settings

The **ACPI Settings** menu (**BIOS Menu 3**) configures the Advanced Configuration and Power Interface (ACPI) options.

```
        Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
        Advanced

  ACPI Settings                                      Select ACPI sleep state
                                                     the system will enter
  ACPI Sleep State              [S3 only (Suspend to…]  when the SUSPEND button
                                                     is pressed.

                                                     ---------------------

                                                     ←→:Select Screen
                                                     ↑↓: Select Item
                                                     Enter
                                                     +/-: Change Opt.
                                                     F1: General Help
                                                     F2: Previous Values
                                                     F3: Optimized Defaults
                                                     F4: Save & Exit
                                                     ESC: Exit
        Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```

BIOS Menu 3: ACPI Configuration

➔ **ACPI Sleep State [S3 only (Suspend to RAM)]**

Use the **ACPI Sleep State** option to specify the sleep state the system enters when it is not being used.

➔ **S1 only (CPU Stop Clock)**
The system enters S1 (POS) sleep state. The system appears off. The CPU is stopped; RAM is refreshed; the system is running in a low power mode.

➔ **S3 only (Suspend to RAM)** DEFAULT
The caches are flushed and the CPU is powered off. Power to the RAM is maintained. The computer returns slower to a working state, but more power is saved.

5.3.2 RTC Wake Settings

The **RTC Wake Settings** menu (**BIOS Menu 4**) configures RTC wake event.

```
        Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
          Advanced

Wake system with Fixed Time      [Disabled]              Enable or disable System
                                                         wake on alarm event.
                                                         When enabled, System
                                                         will wake on the
                                                         dat::hr::min::sec
                                                         specified

                                                         ----------------------

                                                         ←→: Select Screen
                                                         ↑ ↓: Select Item
                                                         Enter
                                                         F1   General Help
                                                         F2   Previous Values
                                                         F3   Optimized Defaults
                                                         F4   Save
                                                         ESC  Exit
          Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```

BIOS Menu 4: RTC Wake Settings

➔ **Wake System with Fixed Time [Disabled]**

Use the **Wake System with Fixed Time** option to specify the time the system should be roused from a suspended state.

➔ **Disabled** DEFAULT   The real time clock (RTC) cannot generate a wake event

➔ **Enabled**   If selected, the following appears with values that can be selected:

*Wake up every day

*Wake up date

*Wake up hour

*Wake up minute

*Wake up second

After setting the alarm, the computer turns itself on from a suspend state when the alarm goes off.

5.3.3 Trusted Computing

Use the **Trusted Computing** menu (**BIOS Menu 5**) to configure settings related to the Trusted Computing Group (TCG) Trusted Platform Module (TPM).

```
          Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
            Advanced

 Configuration                                       Enables or Disables BIOS
   Security Device Support          [Disable]        support for security
                                                     device. O.S. will not
                                                     show Security Device.
 Current Status Information                          TCG EFI protocol and
   No Security Device Found                          INT1A interface will not
                                                     be available.

                                                     ----------------------

                                                     ←→:Select Screen
                                                     ↑↓:Select Item
                                                     Enter
                                                     F1  General Help
                                                     F2  Previous Values
                                                     F3  Optimized
                                                     Defaults
                                                     F4  Save
                                                     ESC  Exit
          Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```

  BIOS Menu 5: Trusted Computing

➔ **Security Device Support [Disable]**

Use the **Security Device Support** option to configure support for the security device.

➔ **Disable** DEFAULT Security device is disabled

➔ **Enable** Security device is enabled

5.3.4 CPU Configuration

Use the **CPU Configuration** menu (**BIOS Menu 6**) to view detailed CPU specifications and configure the CPU.

```
          Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
            Advanced

 CPU Configuration                                          Enable for Windows XP and
                                                            Linux (OS optimized for
 Intel(R) Core(TM) i7-3517UE CPU @ 1.70GHz                  Hyper-Threading
 CPU Signature                       306a9                  Technology) and Disabled
 Microcode Patch                     13                     for other OS (OS not
 Max CPU Speed                       1700 MHz               optimized for
 Min CPU Speed                       800 MHz                Hyper-Threading
 CPU Speed                           1600 MHz               Technology). When
 Processor Cores                     2                      Disabled only thread per
 Intel HT Technology                 Supported              enabled core is enabled.
 Intel VT-x Technology               Supported
 Intel SMX Technology                Supported              ---------------------
 64-bit                              Supported
                                                            ←→: Select Screen
 L1 Data Cache                       32 KB x 2              ↑ ↓: Select Item
 L1 Code Cache                       32 KB x 2              Enter
 L2 Cache                            256 KB x 2             F1   General Help
 L3 Cache                            4096 KB                F2   Previous Values
                                                            F3    Optimized
 Hyper-Threading                     [Enabled]             Defaults
 Intel Virtualization Technology     [Disabled]            F4   Save
                                                            ESC  Exit
          Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```

BIOS Menu 6: CPU Configuration

The CPU Configuration menu (**BIOS Menu 6**) lists the following CPU details:

- CPU Signature: Lists the CPU signature value.
- Microcode Patch: Lists the microcode patch being used.
- Max CPU Speed: Lists the maximum CPU processing speed.
- Min CPU Speed: Lists the minimum CPU processing speed.
- CPU Speed: Lists the CPU processing speed.
- Processor Cores: Lists the number of the processor core
- Intel HT Technology: Indicates if Intel HT Technology is supported by the CPU.
- Intel VT-x Technology: Indicates if Intel VT-x Technology is supported by the CPU.

- Intel SMX Technology: Indicates if Intel SMX Technology is supported by the CPU.
- 64-bit: Indicates if 64-bit system is supported by the CPU.
- L1 Data Cache: Lists the amount of data storage space on the L1 cache.
- L1 Code Cache: Lists the amount of code storage space on the L1 cache.
- L2 Cache: Lists the amount of storage space on the L2 cache.
- L3 Cache: Lists the amount of storage space on the L3 cache.

➔ **Hyper Threading [Enabled]**

Use the **Hyper Threading** to enable or disable the CPU hyper threading function.

➔ **Disabled** Disables the use of hyper threading technology

➔ **Enabled** DEFAULT Enables the use of hyper threading technology

➔ **Intel Virtualization Technology [Disabled]**

Use the **Intel Virtualization Technology** option to enable or disable virtualization on the system. When combined with third party software, Intel® Virtualization technology allows several OSs to run on the same system at the same time.

➔ **Disabled** DEFAULT Disables Intel Virtualization Technology.

➔ **Enabled** Enables Intel Virtualization Technology.

5.3.5 SATA Configuration

Use the **SATA Configuration** menu (**BIOS Menu 7**) to change and/or set the configuration of the SATA devices installed in the system.

```
        Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
          Advanced

SATA Controller(s)            [Enabled]              Enable or disable SATA
SATA Mode Selection           [IDE]                  Device.

mSATA1 (M_SATA1) Port         MRMAJ5A032GC2M (30.0GB)
                                                     --------------------

                                                     ←→: Select Screen
                                                     ↑ ↓: Select Item
                                                     EnterSelect
                                                     F1   General Help
                                                     F2   Previous Values
                                                     F3    Optimized
                                                     Defaults
                                                     F4    Save
                                                     ESC   Exit
        Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```

BIOS Menu 7: SATA Configuration

➔ **SATA Controller(s) [Enabled]**

Use the **SATA Controller(s)** option to configure the SATA controller(s).

➔ **Enabled**   DEFAULT   Enables the on-board SATA controller(s).

➔ **Disabled**   Disables the on-board SATA controller(s).

➔ **SATA Mode Selection [IDE]**

Use the **SATA Mode Selection** option to determine how SATA devices operate.

➔ **IDE**   DEFAULT   Configures SATA devices as normal IDE device.

➔ **AHCI**   Configures SATA devices as AHCI device.

5.3.6 Intel(R) Rapid Start Technology

The Intel® Rapid Start Technology is disabled by default.

```
        Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
           Advanced

Intel(R) Rapid Start Technology      [Disabled]


                                               --------------------

                                               ←→: Select Screen
                                               ↑ ↓: Select Item
                                               EnterSelect
                                               F1   General Help
                                               F2   Previous Values
                                               F3    Optimized
                                               Defaults
                                               F4    Save
                                               ESC   Exit

        Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```

BIOS Menu 8: Intel(R) Rapid Start Technology

5.3.7 USB Configuration

Use the **USB Configuration** menu (**BIOS Menu 9**) to read USB configuration information and configure the USB settings.

```
         Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
           Advanced

USB Configuration                                        Enables Legacy USB
                                                         support. AUTO option
USB Devices:                                             disables legacy support
      1 Keyboard                                         if no USB devices are
                                                         connected. DISABLE
Legacy USB Support              [Enabled]                option will keep USB
                                                         devices available only
Mass Storage Devices:                                    for EFI applications.
Generic STORAGE DEVICE 0208      [Auto]
                                                         ---------------------
                                                         ←→:Select Screen
                                                         ↑↓: Select Item
                                                         Enter
                                                         F1  General Help
                                                         F2  Previous Values
                                                         F3   Optimized
                                                         Defaults
                                                         F4   Save
                                                         ESC  Exit
         Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```

BIOS Menu 9: USB Configuration

➔ **USB Devices**

The **USB Devices Enabled** field lists the USB devices that are enabled on the system

➔ **Legacy USB Support [Enabled]**

Use the **Legacy USB Support** BIOS option to enable USB mouse and USB keyboard support. Normally if this option is not enabled, any attached USB mouse or USB keyboard does not become available until a USB compatible operating system is fully booted with all USB drivers loaded. When this option is enabled, any attached USB mouse or USB keyboard can control the system even when there is no USB driver loaded onto the system.

➔ **Enabled**   DEFAULT   Legacy USB support enabled

➔ **Disabled**   Legacy USB support disabled

➔ **Auto**   Legacy USB support disabled if no USB devices are
connected

5.3.8 iWDD Serial Ports Configuration

Use the **iWDD Serial Ports Configuration** menu (**BIOS Menu 10**) to set or change the
configurations for the serial ports.

```
    Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
        Advanced

iWDD Serial Ports Configuration                          Serial Port 1 can be used
                                                         only when you are using
Super IO Chip                    iWDD                    DOCKING board.
> Serial Port 1 Configuration
> Serial Port 2 Configuration
                                                         --------------------
                                                         ←→:Select Screen
                                                         ↑↓:Select Item
                                                         Enter
                                                         F1   General Help
                                                         F2   Previous Values
                                                         F3    Optimized
                                                         Defaults
                                                         F4    Save
                                                         ESC   Exit
       Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```

BIOS Menu 10: iWDD Super IO Configuration

5.3.8.1 Serial Port n Configuration

Use the **Serial Port n Configuration** menu (**BIOS Menu 11**) to configure the serial port n.

```
        Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
          Advanced

 Serial Port 1 Configuration                                  Enable or Disable
                                                              Serial Port (COM)
 Serial Port n Configuration

 Serial Port                       [Enabled]                  ---------------------
 Device Settings                   IO=3F8h; IRQ=4             ←→:Select Screen
                                                              ↑↓: Select Item
 Change Settings                   [Auto]                     Enter
                                                              F1  General Help
                                                              F2  Previous Values
                                                              F3   Optimized
                                                              Defaults
                                                              F4   Save
                                                              ESC  Exit
        Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```

BIOS Menu 11: Serial Port 1 Configuration Menu

5.3.8.1.1 Serial Port 1 Configuration

Use the **Serial Port 1 Configuration** menu to configure the serial port 1 on the docking station.

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

➔ **Disabled**   Disable the serial port

➔ **Enabled**   DEFAULT   Enable the serial port

➔ **Change Settings [Auto]**

Use the **Change Settings** option to change the serial port IO port address and interrupt address.

➔ **Auto**   DEFAULT   The serial port IO port address and interrupt address are automatically detected.

➔ **IO=3F8h;**
IRQ=4

Serial Port I/O port address is 3F8h and the interrupt address is IRQ4

➔ **IO=3E8h;**
IRQ=3, 4

Serial Port I/O port address is 3E8h and the interrupt address is IRQ3, 4

➔ **IO=2F8h;**
IRQ=3, 4

Serial Port I/O port address is 2F8h and the interrupt address is IRQ3, 4

➔ **IO=3E8h;**
IRQ=3, 4

Serial Port I/O port address is 3E8h and the interrupt address is IRQ3, 4

➔ **IO=2E8h;**
IRQ=3, 4

Serial Port I/O port address is 2E8h and the interrupt address is IRQ3, 4

5.3.8.1.2 Serial Port 2 Configuration

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

➔ **Disabled**   Disable the serial port

➔ **Enabled**   DEFAULT   Enable the serial port

➔ **Change Settings [Auto]**

Use the **Change Settings** option to change the serial port IO port address and interrupt address.

➔ **Auto**   DEFAULT   The serial port IO port address and interrupt address are automatically detected.

➔ **IO=2F8h;**
IRQ=3

Serial Port I/O port address is 2F8h and the interrupt address is IRQ3

➔ **IO=3F8h;**
IRQ=3, 4

Serial Port I/O port address is 3F8h and the interrupt address is IRQ3, 4

➔ **IO=2F8h;**
IRQ=3, 4

Serial Port I/O port address is 2F8h and the interrupt address is IRQ3, 4

→	**IO=3E8h;**	Serial Port I/O port address is 3E8h and the interrupt
	IRQ=3, 4	address is IRQ3, 4
→	**IO=2E8h;**	Serial Port I/O port address is 2E8h and the interrupt
	IRQ=3, 4	address is IRQ3, 4

5.3.9 H/W Monitor

The H/W Monitor menu (**BIOS Menu 12**) shows the operating temperature.

```
Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
     Advanced

H/W Monitor
CPU Temperature                    :+47 C

                                                ---------------------
                                                ←→:Select Screen
                                                ↑↓: Select Item
                                                Enter
                                                F1  General Help
                                                F2  Previous Values
                                                F3   Optimized
                                                Defaults
                                                F4   Save
                                                ESC  Exit
     Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```
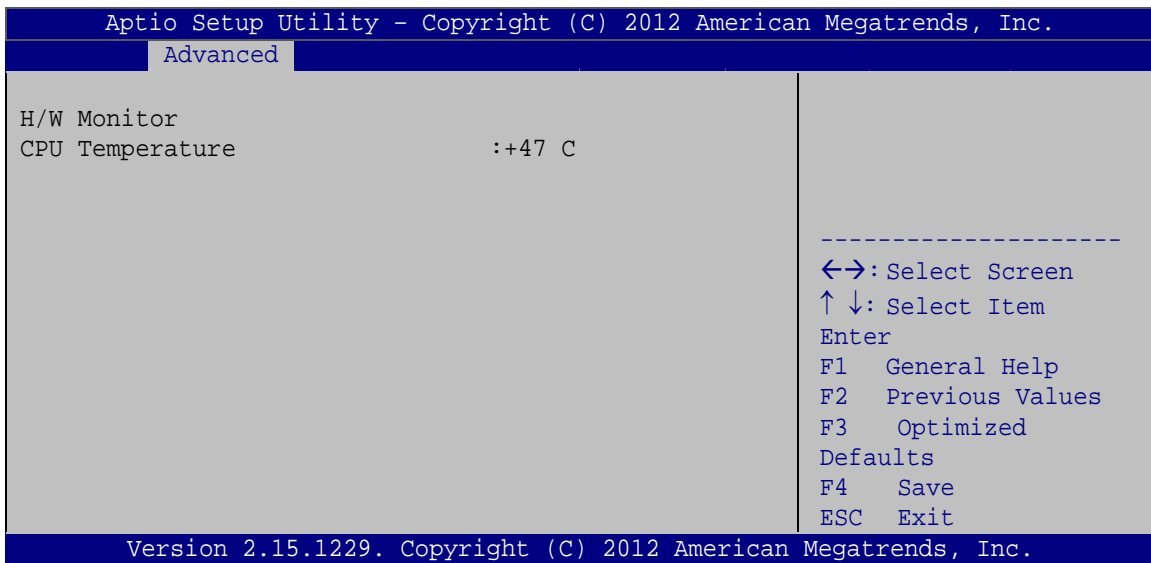
BIOS Menu 12: Hardware Health Configuration

→ **PC Health Status**

The following system parameters and values are shown. The system parameter that is monitored is:

- CPU Temperature

5.3.10 IEI Feature

Use the **IEI Feature** menu (**BIOS Menu 13**) to configure One Key Recovery function.

```
         Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
           Advanced

 iEi Feature                                        Auto Recovery Function
                                                    Reboot and recover
 Auto Recovery Function          [Disabled]         system automatically
                                                    within 10 min, when OS
                                                    crashes. Please install
                                                    Auto Recovery API
                                                    service before enabling
                                                    this function


                                                    ---------------------

                                                    ←→: Select Screen
                                                    ↑ ↓: Select Item
                                                    Enter
                                                    F1   General Help
                                                    F2   Previous Values
                                                    F3   Optimized
                                                    Defaults
                                                    F4   Save
                                                    ESC  Exit
         Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```
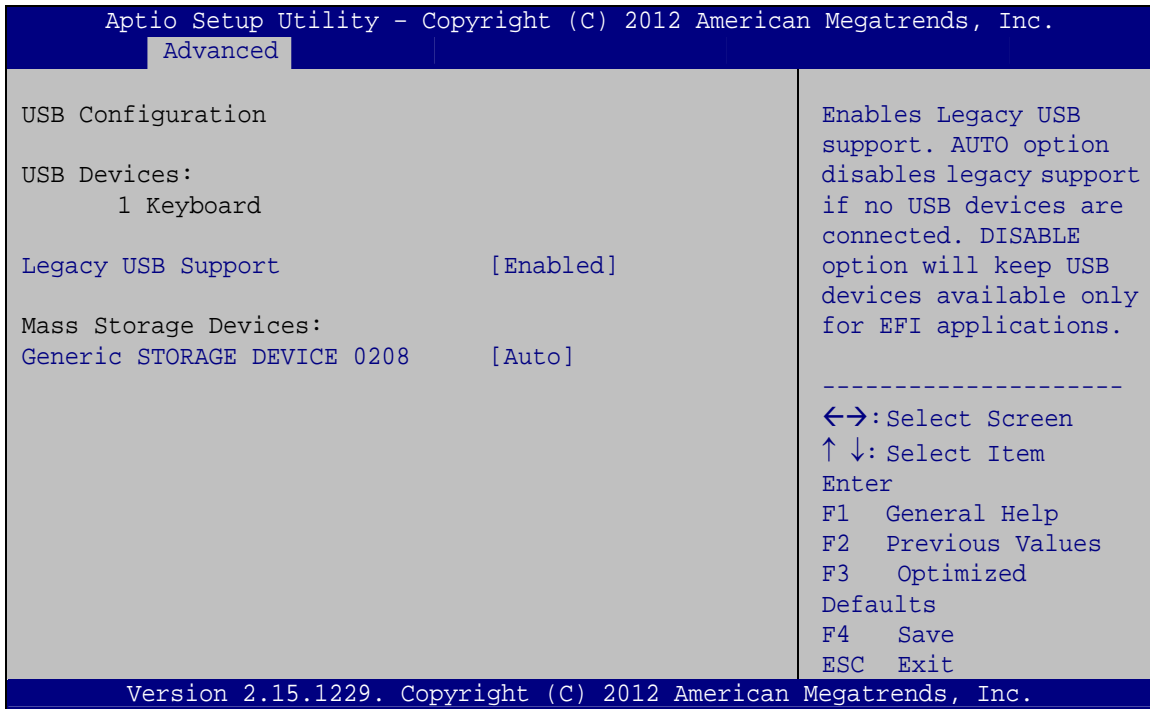
BIOS Menu 13: IEI Feature

➔ **Auto Recovery Function [Disabled]**

Use the **Auto Recovery Function** BIOS option to enable or disable the auto recovery function of the IEI One Key Recovery.

➔ **Disabled**   DEFAULT   Auto recovery function disabled

➔ **Enabled**   Auto recovery function enabled

5.4 Chipset

Use the **Chipset** menu (**BIOS Menu 14**) to access the PCH and System Agent (SA) configuration menus.

![warning icon] **WARNING!**

Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.

```
         Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
   Main     Advanced   Chipset    Boot    Security  Save & Exit

 > PCH-IO Configuration                          PCH Parameters
 > System Agent (SA) Configuration

                                                 ---------------------
                                                 ←→:Select Screen
                                                 ↑ ↓: Select Item
                                                 Enter
                                                 F1   General Help
                                                 F2   Previous Values
                                                 F3    Optimized
                                                 Defaults
                                                 F4    Save
                                                 ESC   Exit
         Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```
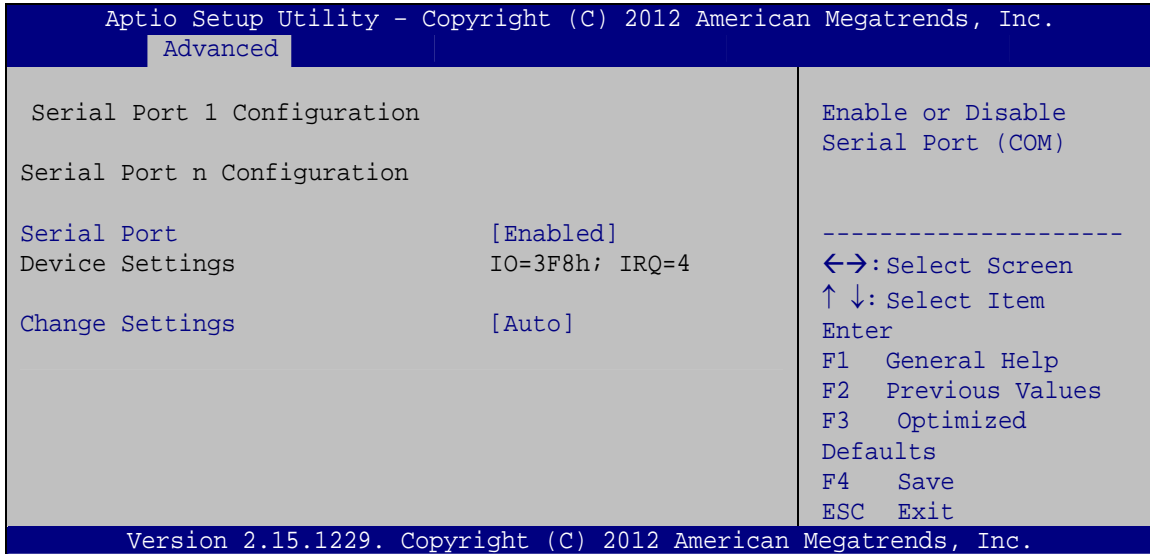
BIOS Menu 14: Chipset

5.4.1 PCH-IO Configuration

Use the **PCH-IO Configuration** menu (**BIOS Menu 15**) to configure the PCH IO settings.

```
           Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
                          Chipset

PCH-IO Configuration                                        Control Detection of
Azalia                            [Enabled]                 the Azalia device.
  Azalia Internal HDMI Codec      [Enabled]                 Disabled = Azalia will
                                                            be unconditionally
Camera Function(Back, CAMERA1)    [Enabled]                 disabled.
Camera Function(Front, CAMERA2)   [Enabled]                 Enabled = Azalia will be
Barcode Function                  [Disabled]                unconditionally
RFID Function                     [Enabled]                 Enabled.
GPS Function                      [Enabled]
Micro-SD Function                 [Enabled]                 ----------------------
3G Radio Function                 [Enabled]
WIFI Radio Function               [Enabled]                 ←→:Select Screen
Bluetooth Function                [Enabled]                 ↑ ↓: Select Item
Windows Rotation Function         [Disabled]                Enter
LCD ECO Mode Function             [Disabled]                F1   General Help
                                                            F2   Previous Values
                                                            F3    Optimized
                                                            Defaults
                                                            F4   Save
                                                            ESC  Exit
           Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```

BIOS Menu 15: Host Bridge Chipset Configuration

➔ **Azalia [Enabled]**

The **Azalia** option enables or disables the HD Audio controller.

➔ **Disabled**   The onboard HD Audio controller is disabled.

➔ **Enabled**   DEFAULT   The onboard HD Audio controller is enabled.

➔ **Azalia Internal HDMI Codec [Enabled]**

The **Azalia Internal HDMI Codec** option enables or disables the HDMI codec for Azalia.

➔ **Disabled**   The HDMI codec for Azalia is disabled.

➔ **Enabled**   DEFAULT   The HDMI codec for Azalia is enabled.

➔ **Camera Function (Back, CAMERA1) [Enabled]**

Use the **Camera Function (Back, CAMERA1)** option to enable or disable the camera function on the rear panel.

➔ **Disabled** Rear camera function disabled

➔ **Enabled** DEFAULT Rear camera function enabled

➔ **Camera Function (Front, CAMERA2) [Enabled]**

Use the **Camera Function (Front, CAMERA2)** option to enable or disable the camera function on the front panel.

➔ **Disabled** Front camera function disabled

➔ **Enabled** DEFAULT Front camera function enabled

➔ **Barcode Function [Disabled]**

Use the **Barcode Function** option to enable or disable the barcode function.

➔ **Disabled** DEFAULT Barcode function disabled

➔ **Enabled** Barcode function enabled

➔ **GPS Function [Enabled]**

Use the **GPS Function** option to enable or disable the GPS function.

➔ **Disabled** GPS function disabled

➔ **Enabled** DEFAULT GPS function enabled

➔ **Micro-SD Function [Enabled]**

Use the **Micro-SD Function** option to enable or disable the microSD card slot.

➔ **Disabled** microSD card slot disabled

➔ **Enabled** DEFAULT microSD card slot enabled

➔ **3G Radio Function [Enabled]**

Use the **3G Radio Function** option to enable or disable the 3G function.

➔ **Disabled** 3G function disabled

➔ **Enabled** DEFAULT 3G function enabled

➔ **WIFI Radio Function [Enabled]**

Use the **WIFI Radio Function** option to enable or disable the Wi-Fi function.

➔ **Disabled** Wi-Fi function disabled

➔ **Enabled** DEFAULT Wi-Fi function enabled

➔ **Bluetooth Function [Enabled]**

Use the **Bluetooth Function** option to enable or disable the Bluetooth function.

➔ **Disabled** Bluetooth function disabled

➔ **Enabled** DEFAULT Bluetooth function enabled

➔ **Windows Rotation Function [Disabled]**

Use the **Windows Rotation Function** option to enable or disable the screen rotation function.

➔ **Disabled** DEFAULT Screen rotation function disabled

➔ **Enabled** Screen rotation function enabled

➔ **LCD ECO Mode Function [Disabled]**

Use the **LCD ECO Mode Function** option to enable or disable the LCD ECO mode.

➔ **Disabled** DEFAULT LCD ECO mode disabled

➔ **Enabled** LCD ECO mode enabled

5.4.2 System Agent (SA) Configuration

Use the **System Agent (SA) Configuration** menu (**BIOS Menu 16**) to configure the System Agent (SA) parameters.

```
            Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
                 Chipset

VT-d                              [Disabled]              Check to enable VT-d
> Graphics Configuration                                  function on MCH.
> Memory Configuration


                                                          --------------------
                                                          →←: Select Screen
                                                          ↑ ↓: Select Item
                                                          Enter: Select
                                                          +/-:  Change Opt.
                                                          F1:   General Help
                                                          F2:   Previous Values
                                                          F3:   Optimized Defaults
                                                          F4:   Save & Exit
                                                          ESC: Exit
            Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```
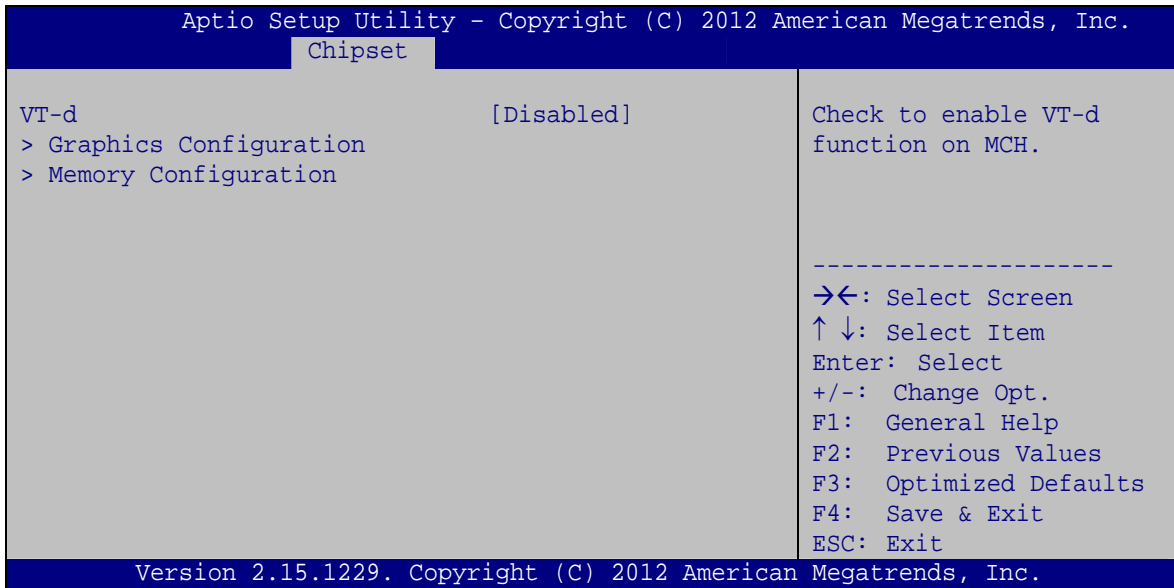
BIOS Menu 16: System Agent (SA) Configuration

➔ **VT-d [Disabled]**

Use the **VT-d** option to enable or disable VT-d support.

➔ **Disabled**   DEFAULT   Disables VT-d support.

➔ **Enabled**   Enables VT-d support.

5.4.2.1 Graphics Configuration

Use the **Graphics Configuration** menu (**BIOS Menu 17**) to configure the graphics settings

```
         Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
               Chipset

Graphics Configuration                                    Select which of
                                                          IGFX/PEG/PCI Graphics
Primary Display                  [Auto]                   device should be Primary
DVMT Pre-Allocated               [256M]                   Display Or select SG for
DVMT Total Gfx Mem               [MAX]                    Switchable Gfx.

Primary IGFX Boot Display        [VBIOS Default]
Current LCD Panel Type           1280x800 24BIT

                                                          --------------------
                                                          →←: Select Screen
                                                          ↑ ↓: Select Item
                                                          Enter: Select
                                                          +/-:  Change Opt.
                                                          F1:   General Help
                                                          F2:   Previous Values
                                                          F3:   Optimized Defaults
                                                          F4:   Save & Exit
                                                          ESC: Exit
         Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```
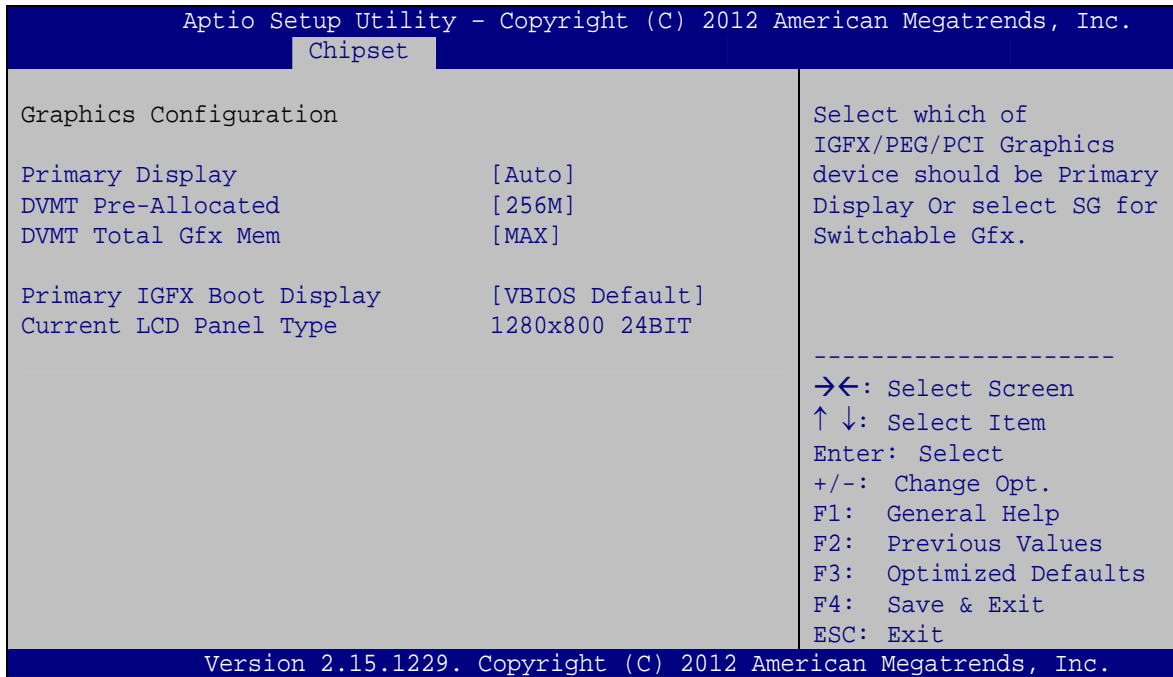
   BIOS Menu 17: Graphics Configuration

➔   **Primary Display [Auto]**

Use the **Primary Display** option to select the graphics controller used as the primary boot device.

- Auto   **DEFAULT**
- IGFX
- PEG

➔   **DVMT Pre-Allocated [256M]**

Use the **DVMT Pre-Allocated** option to specify a fixed amount of memory that can be allocated for the internal graphics device. Configuration options are listed below.

- 32M
- 64M

- 128M
- 256M **DEFAULT**
- 512M

➔ **DVMT Total Gfx Mem [MAX]**

Use the **DVMT Total Gfx Mem** option to specify the maximum amount of memory that can be allocated for the internal graphics device. Configuration options are listed below.

- 128M
- 256M
- MAX **DEFAULT**
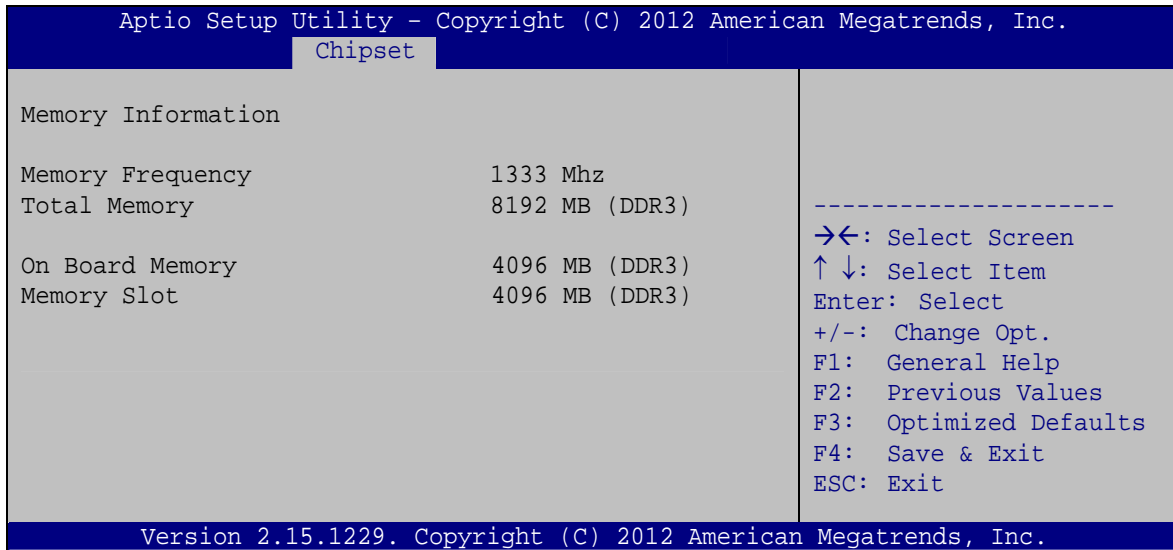
➔ **Primary IGFX Boot Display [VBIOS Default]**

Use the **Primary IGFX Boot Display** option to select the display device used by the system when it boots. Configuration options are listed below.

- VBIOS Default **DEFAULT**
- CRT
- LVDS
- HDMI

5.4.2.2 Memory Configuration

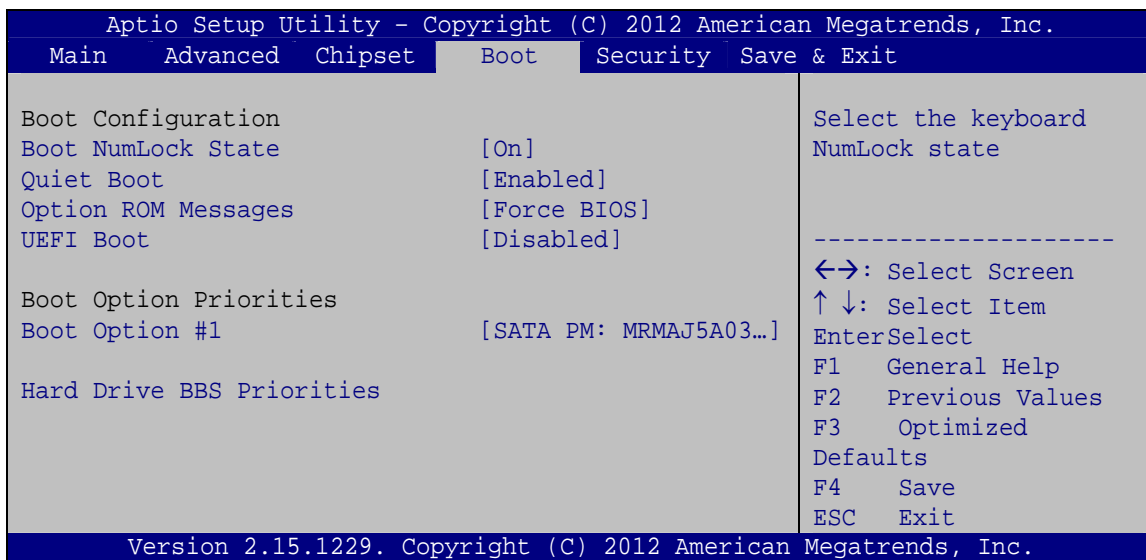Use the **Memory Configuration** menu (**BIOS Menu 18**) to display the memory information.

```
          Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
                         Chipset

Memory Information

Memory Frequency                      1333 Mhz
Total Memory                          8192 MB (DDR3)
                                                              ---------------------
On Board Memory                       4096 MB (DDR3)          →←: Select Screen
Memory Slot                           4096 MB (DDR3)          ↑ ↓: Select Item
                                                              Enter: Select
                                                              +/-:  Change Opt.
                                                              F1:   General Help
                                                              F2:   Previous Values
                                                              F3:   Optimized Defaults
                                                              F4:   Save & Exit
                                                              ESC: Exit

          Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```

BIOS Menu 18: Memory Configuration

5.5 Boot

Use the **Boot** menu (**BIOS Menu 19**) to configure system boot options.

```
          Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
     Main    Advanced   Chipset    Boot    Security  Save & Exit

Boot Configuration                                            Select the keyboard
Boot NumLock State              [On]                          NumLock state
Quiet Boot                      [Enabled]
Option ROM Messages             [Force BIOS]
UEFI Boot                       [Disabled]                    ---------------------
                                                              ←→: Select Screen
Boot Option Priorities                                        ↑ ↓: Select Item
Boot Option #1                  [SATA PM: MRMAJ5A03…]          EnterSelect
                                                              F1    General Help
Hard Drive BBS Priorities                                     F2    Previous Values
                                                              F3    Optimized
                                                              Defaults
                                                              F4    Save
                                                              ESC   Exit

          Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```

BIOS Menu 19: Boot

➔ **Bootup NumLock State [On]**

Use the **Bootup NumLock State** BIOS option to specify if the number lock setting must be modified during boot up.

➔ **On** DEFAULT Allows the Number Lock on the keyboard to be enabled automatically when the computer system boots up. This allows the immediate use of the 10-key numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard is lit.

➔ **Off** Does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard lights up when the Number Lock is engaged.

➔ **Quiet Boot [Enabled]**

Use the **Quiet Boot** BIOS option to select the screen display when the system boots.

➔ **Disabled** Normal POST messages displayed

➔ **Enabled** DEFAULT OEM Logo displayed instead of POST messages

➔ **Option ROM Messages [Force BIOS]**

Use the **Option ROM Messages** option to set the Option ROM display mode.

➔ **Force BIOS** DEFAULT Sets display mode to force BIOS.

➔ **Keep Current** Sets display mode to current.

➔ **UEFI Boot [Disabled]**

Use the **UEFI Boot** option to enable or disable to boot from the UEFI devices.

➔ **Enabled**   Boot from UEFI devices is enabled.

➔ **Disabled**   DEFAULT   Boot from UEFI devices is disabled.

➔ **Boot Option #1 [SATA PM: MRMAJ5A03…]**

Use the **Boot Option #1** option to specify the boot priority from the available devices.

➔ **Hard Drive BBS Priorities**

Use the **Hard Drive BBS Priorities** option to set the order of the legacy devices in this group.

5.6 Security

Use the **Security** menu (**BIOS Menu 20**) to set system and user passwords.

```
      Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
  Main     Advanced   Chipset      Boot    Security  Save & Exit

Password Description                             Set Administrator
                                                 Password
If ONLY the Administrator's password is set,
then this only limits access to Setup and is
only asked for when entering Setup
If ONLY the User's password is set, then this
is a power on password and must be entered to
boot or enter Setup. In Setup the User will
have Administrator rights.                       --------------------
The password length must be
in the following range:                          ←→: Select Screen
Minimum length                    3              ↑ ↓: Select Item
Maximum length                    20             EnterSelect
                                                 F1   General Help
                                                 F2   Previous Values
Administrator Password                           F3    Optimized
User Password                                    Defaults
                                                 F4   Save
HDD Security Configuration:                      ESC   Exit
HDD0:MRMAJ5A032GC

      Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```
BIOS Menu 20: Security

➔ **Administrator Password**

Use the **Administrator Password** to set or change a administrator password.

➔ **User Password**

Use the **User Password** to set or change a user password.

5.7 Exit

Use the **Exit** menu (**BIOS Menu 21**) to load default BIOS values, optimal failsafe values and to save configuration changes.

```
       Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
   Main    Advanced   Chipset     Boot     Security  Save & Exit

 Save Changes and Reset                              Exit system setup after
 Discard Changes and Reset                           saving the changes.

 Restore Defaults
 Save as User Defaults
 Restore User Defaults

                                                     --------------------
                                                     ←→: Select Screen
                                                     ↑ ↓: Select Item
                                                     EnterSelect
                                                     F1   General Help
                                                     F2   Previous Values
                                                     F3    Optimized
                                                     Defaults
                                                     F4    Save
                                                     ESC   Exit
       Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```

BIOS Menu 21:Exit

➔ **Save Changes and Reset**

Use the **Save Changes and Reset** option to save the changes made to the BIOS options and to exit the BIOS configuration setup program.

➔ **Discard Changes and Reset**

Use the **Discard Changes and Reset** option to exit the system without saving the changes made to the BIOS configuration setup program.

➔ **Restore Defaults**

Use the **Restore Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F3 key can be used for this operation.**

➔ **Save as User Defaults**

Use the **Save as User Defaults** option to save the changes done so far as user defaults.

➔ **Restore User Defaults**

Use the **Restore User Defaults** option to restore the user defaults to all the setup options.

Chapter

6

System Maintenance

6.1 System Maintenance Introduction

If the components of the ICEROCK3-T10 fail they must be replaced, such as the wireless LAN module or the motherboard. Please contact the system reseller or vendor to purchase the replacement parts.

6.2 Motherboard Replacement

In the case of motherboard failure, please contact an IEI sales representative, reseller or system vendor. The motherboard is accessible after opening the rear cover.

6.3 Battery Replacement

This section covers the replacement of the battery pack.

Step 1: Unlock the two battery latches on the rear panel by rotating the latches as shown in **Figure 6-1**.
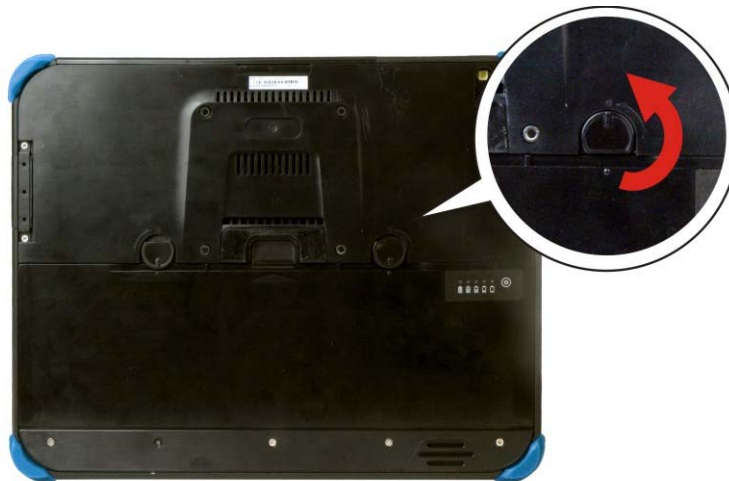
Figure 6-1: Unlock Battery Latches

Step 2: Remove the battery pack.

Step 3: Install a battery pack as shown in **Figure 6-2**.

Figure 6-2: Battery Installation

Step 4: Lock the battery by rotating the battery latches to a proper position.

Appendix

A

Safety Precautions

⚠ **WARNING:**

The precautions outlined in this chapter should be strictly followed. Failure to follow these precautions may result in permanent damage to the ICEROCK3-T10.

A.1 Safety Precautions

Please follow the safety precautions outlined in the sections that follow:

A.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- *Follow the electrostatic precautions* outlined below whenever the ICEROCK3-T10 is opened.
- *Make sure the power is turned off and the power cord is disconnected* whenever the ICEROCK3-T10 is being installed, moved or modified.
- *Do not apply voltage levels that exceed the specified voltage range*. Doing so may cause fire and/or an electrical shock.
- *Electric shocks can occur* if the ICEROCK3-T10 chassis is opened when the ICEROCK3-T10 is running.
- *Do not drop or insert any objects* into the ventilation openings of the ICEROCK3-T10.
- *If considerable amounts of dust, water, or fluids enter the ICEROCK3-T10*, turn off the power supply immediately, unplug the power cord, and contact the ICEROCK3-T10 vendor.
- **DO NOT** do the following:
  o **DO NOT** drop the ICEROCK3-T10 against a hard surface.
  o **DO NOT** strike or exert excessive force onto the LCD panel.
  o **DO NOT** touch any of the LCD panels with a sharp object
  o **DO NOT** use the ICEROCK3-T10 in a site where the ambient temperature exceeds the rated temperature

A.1.2 Anti-static Precautions

> **WARNING:**
>
> Failure to take ESD precautions during the installation of the ICEROCK3-T10 may result in permanent damage to the ICEROCK3-T10 and sever injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the ICEROCK3-T10. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the ICEROCK3-T10 is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- **Wear an anti-static wristband**: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- **Self-grounding**: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- **Use an anti-static pad**: When configuring or working with an electrical component, place it on an antic-static pad. This reduces the possibility of ESD damage.
- **Only handle the edges of the electrical component**: When handling the electrical component, hold the electrical component by its edges.

A.1.3 Product Disposal

⚠️ **CAUTION:**

Risk of explosion if battery is replaced by and incorrect type. Only certified engineers should replace the on-board battery.

Dispose of used batteries according to instructions and local regulations.

- Outside the European Union - If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method.
- Within the European Union:
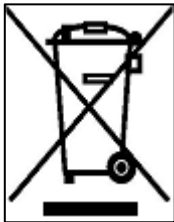
EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask the shop where you purchased the product. The mark on electrical and electronic products only applies to the current European Union Member States.

Please follow the national guidelines for electrical and electronic product disposal.

A.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the ICEROCK3-T10, please follow the guidelines below.

A.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the ICEROCK3-T10, please read the details below.

- Except for the LCD panel, never spray or squirt liquids directly onto any other components. To clean the LCD panel, gently wipe it with a piece of soft dry cloth or a slightly moistened cloth.
- The interior does not require cleaning. Keep fluids away from the interior.
- Be careful not to damage the small, removable components inside.
- Turn off before cleaning.
- Never drop any objects or liquids through the openings.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning.
- Avoid eating, drinking and smoking nearby.

A.2.2 Cleaning Tools

Some components may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use for cleaning.

- *Cloth* – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended.
- *Water or rubbing alcohol* – A cloth moistened with water or rubbing alcohol should be used.
- *Using solvents* – The use of solvents is not recommended as they may damage the plastic parts.
- *Vacuum cleaner* – Using a vacuum specifically designed for computers is one of the best methods of cleaning. Dust and dirt can restrict the airflow and cause circuitry to corrode
- *Cotton swabs* - Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.
- *Foam swabs* - Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Appendix

B

BIOS Options

Below is a list of BIOS configuration options in the BIOS chapter.

Appendix

C

Terminology

AC '97	Audio Codec 97 (AC'97) refers to a codec standard developed by Intel® in 1997.
ACPI	Advanced Configuration and Power Interface (ACPI) is an OS-directed configuration, power management, and thermal management interface.
AHCI	Advanced Host Controller Interface (AHCI) is a SATA Host controller register-level interface.
ATA	The Advanced Technology Attachment (ATA) interface connects storage devices including hard disks and CD-ROM drives to a computer.
ARMD	An ATAPI Removable Media Device (ARMD) is any ATAPI device that supports removable media, besides CD and DVD drives.
ASKIR	Amplitude Shift Keyed Infrared (ASKIR) is a form of modulation that represents a digital signal by varying the amplitude ("volume") of the signal. A low amplitude signal represents a binary 0, while a high amplitude signal represents a binary 1.
BIOS	The Basic Input/Output System (BIOS) is firmware that is first run when the computer is turned on and can be configured by the end user
CODEC	The Compressor-Decompressor (CODEC) encodes and decodes digital audio data on the system.
CompactFlash®	CompactFlash® is a solid-state storage device. CompactFlash® devices use flash memory in a standard size enclosure. Type II is thicker than Type I, but a Type II slot can support both types.
CMOS	Complimentary metal-oxide-conductor is an integrated circuit used in chips like static RAM and microprocessors.
COM	COM refers to serial ports. Serial ports offer serial communication to expansion devices. The serial port on a personal computer is usually a male DB-9 connector.
DAC	The Digital-to-Analog Converter (DAC) converts digital signals to analog signals.
DDR	Double Data Rate refers to a data bus transferring data on both the rising and falling edges of the clock signal.

DMA	Direct Memory Access (DMA) enables some peripheral devices to bypass the system processor and communicate directly with the system memory.
DIMM	Dual Inline Memory Modules are a type of RAM that offer a 64-bit data bus and have separate electrical contacts on each side of the module.
DIO	The digital inputs and digital outputs are general control signals that control the on/off circuit of external devices or TTL devices. Data can be read or written to the selected address to enable the DIO functions.
EHCI	The Enhanced Host Controller Interface (EHCI) specification is a register-level interface description for USB 2.0 Host Controllers.
EIDE	Enhanced IDE (EIDE) is a newer IDE interface standard that has data transfer rates between 4.0 MBps and 16.6 MBps.
EIST	Enhanced Intel® SpeedStep Technology (EIST) allows users to modify the power consumption levels and processor performance through application software. The application software changes the bus-to-core frequency ratio and the processor core voltage.
FSB	The Front Side Bus (FSB) is the bi-directional communication channel between the processor and the Northbridge chipset.
GbE	Gigabit Ethernet (GbE) is an Ethernet version that transfers data at 1.0 Gbps and complies with the IEEE 802.3-2005 standard.
GPIO	General purpose input
HDD	Hard disk drive (HDD) is a type of magnetic, non-volatile computer storage device that stores digitally encoded data.
ICH	The Input/Ouput Control Hub (ICH) is an Intel® Southbridge chipset.
IrDA	Infrared Data Association (IrDA) specify infrared data transmission protocols used to enable electronic devices to wirelessly communicate with each other.
L1 Cache	The Level 1 Cache (L1 Cache) is a small memory cache built into the system processor.
L2 Cache	The Level 2 Cache (L2 Cache) is an external processor memory cache.

LCD   Liquid crystal display (LCD) is a flat, low-power display device that consists of two polarizing plates with a liquid crystal panel in between.

LVDS   Low-voltage differential signaling (LVDS) is a dual-wire, high-speed differential electrical signaling system commonly used to connect LCD displays to a computer.

POST   The Power-on Self Test (POST) is the pre-boot actions the system performs when the system is turned-on.

RAM   Random Access Memory (RAM) is volatile memory that loses data when power is lost. RAM has very fast data transfer rates compared to other storage like hard drives.

SATA   Serial ATA (SATA) is a serial communications bus designed for data transfers between storage devices and the computer chipsets. The SATA bus has transfer speeds up to 1.5 Gbps and the SATA II bus has data transfer speeds of up to 3.0 Gbps.

S.M.A.R.T Self Monitoring Analysis and Reporting Technology (S.M.A.R.T) refers to automatic status checking technology implemented on hard disk drives.

UART   Universal Asynchronous Receiver-transmitter (UART) is responsible for asynchronous communications on the system and manages the system's serial communication (COM) ports.

UHCI   The Universal Host Controller Interface (UHCI) specification is a register-level interface description for USB 1.1 Host Controllers.

USB   The Universal Serial Bus (USB) is an external bus standard for interfacing devices. USB 1.1 supports 12Mbps data transfer rates and USB 2.0 supports 480Mbps data transfer rates.

VGA   The Video Graphics Array (VGA) is a graphics display system developed by IBM.

Appendix

D

Watchdog Timer

  NOTE:

> The following discussion applies to DOS environment. IEI support is contacted or the IEI website visited for specific drivers for more sophisticated operating systems, e.g., Windows and Linux.

The Watchdog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that cause the CPU to crash. This condition may have occurred by external EMIs or a software bug. When the CPU stops working correctly, Watchdog Timer either performs a hardware reset (cold boot) or a Non-Maskable Interrupt (NMI) to bring the system back to a known state.

A BIOS function call (INT 15H) is used to control the Watchdog Timer.

INT 15H:

AH – 6FH Sub-function:	
AL – 2:	Sets the Watchdog Timer's period.
BL:	Time-out value (Its unit-second is dependent on the item "Watchdog Timer unit select" in CMOS setup).

Table D-1: AH-6FH Sub-function

Call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer starts counting down. When the timer value reaches zero, the system resets. To ensure that this reset condition does not occur, calling sub-function 2 must periodically refresh the Watchdog Timer. However, the watchdog timer is disabled if the time-out value is set to zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.

NOTE:

When exiting a program it is necessary to disable the Watchdog Timer,
otherwise the system resets.

Example program:

```
; INITIAL TIMER PERIOD COUNTER
;
W_LOOP:

        MOV     AX, 6F02H       ;setting the time-out value
        MOV     BL, 30          ;time-out value is 48 seconds
        INT     15H
;
; ADD THE APPLICATION PROGRAM HERE
;
        CMP     EXIT_AP, 1      ;is the application over?
        JNE     W_LOOP          ;No, restart the application

        MOV     AX, 6F02H       ;disable Watchdog Timer
        MOV     BL, 0           ;
        INT     15H
;
; EXIT ;
```

Hazardous Materials Disclosure

E.1 Hazardous Materials Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC Without Mercury

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated "Environmentally Friendly Use Period" (EFUP). This is an estimate of the number of years that these substances would "not leak out or undergo abrupt change." This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table on the next page.

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	O	O	O	O	O	O
Display	O	O	O	O	O	O
Printed Circuit Board	O	O	O	O	O	O
Metal Fasteners	O	O	O	O	O	O
Cable Assembly	O	O	O	O	O	O
Fan Assembly	O	O	O	O	O	O
Power Supply Assemblies	O	O	O	O	O	O
Battery	O	O	O	O	O	O

O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006

X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有"环境友好使用期限"的标签，此期限是估算这些物质"不会有泄漏或突变"的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	O	O	O	O	O	O
显示	O	O	O	O	O	O
印刷电路板	O	O	O	O	O	O
金属螺帽	O	O	O	O	O	O
电缆组装	O	O	O	O	O	O
风扇组装	O	O	O	O	O	O
电力供应组装	O	O	O	O	O	O
电池	O	O	O	O	O	O
O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。 X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。						