IEI Integration Corp.

MODEL:

uIBX-250-BW

Fanless Embedded System with Intel® Celeron® N3160, VGA , HDMI, GbE, Two RS-232/422/485, Four USB 3.0 and RoHS Compliant

User Manual

Rev. 1.01 – 14 October 2016

RoHS Lead Free

Revision

Date	Version	Changes
14 October 2016	1.01	Add Table 3- 1: RJ-45 RS-232/422/485 Serial Port Pinouts Add Table 3- 2: DB-9 RS-232/422/485 Connector Pinouts
2 June 2016	1.00	Initial release

Copyright

COPYRIGHT NOTICE

The information in this document is subject to change without prior notice in order to improve reliability, design and function and does not represent a commitment on the part of the manufacturer.

In no event will the manufacturer be liable for direct, indirect, special, incidental, or consequential damages arising out of the use or inability to use the product or documentation, even if advised of the possibility of such damages.

This document contains proprietary information protected by copyright. All rights are reserved. No part of this manual may be reproduced by any mechanical, electronic, or other means in any form without prior written permission of the manufacturer.

TRADEMARKS

All registered trademarks and product names mentioned herein are used for identification purposes only and may be trademarks and/or registered trademarks of their respective owners.

Manual Conventions

WARNING

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously.

CAUTION

Cautionary messages should be heeded to help reduce the chance of losing data or damaging the product.

NOTE

These messages inform the reader of essential but non-critical information. These messages should be read carefully as any directions or instructions contained therein can help avoid making mistakes.

HOT SURFACE

This symbol indicates a hot surface that should not be touched without taking care.

Table of Contents

1 INTRODUCTION 2

1.1 OVERVIEW 3
1.2 FEATURES 3
1.3 TECHNICAL SPECIFICATIONS 4
1.4 FRONT PANEL 5
1.5 REAR PANEL 6
1.6 DIMENSIONS 7

2 UNPACKING 8

2.1 UNPACKING 9
2.2 PACKING LIST 9
2.3 OPTIONAL ITEMS 10

3 INSTALLATION 11

3.1 ANTI-STATIC PRECAUTIONS 12
3.2 INSTALLATION PRECAUTIONS 12
3.3 INSTALLATION AND CONFIGURATION STEPS 13
3.4 HARD DISK DRIVE (HDD) INSTALLATION 13
3.5 WIRELESS LAN MODULE INSTALLATION (OPTIONAL) 16
3.6 AT/ATX MODE SELECTION 19
3.6.1 AT Power Mode 20
3.6.2 ATX Power Mode 20
3.7 RESET THE SYSTEM 21
3.8 POWERING ON THE SYSTEM 21
3.9 MOUNT THE SYSTEM 22
3.10 RS-232/422/485 SERIAL PORT CONNECTION 23

4 BIOS 26

4.1 INTRODUCTION 27
4.1.1 Starting Setup 27
4.1.2 Using Setup 27

4.1.3 Getting Help *28*
4.1.4 Unable to Reboot after Configuration Changes *28*
4.1.5 BIOS Menu Bar *28*
4.2 MAIN *29*
4.3 ADVANCED *30*
4.3.1 ACPI Settings *30*
4.3.2 F81866 Super IO Configuration *32*
4.3.2.1 Serial Port n Configuration *32*
4.3.3 Hardware Monitor *35*
4.3.3.1 Smart Fan Mode Configuration *36*
4.3.4 RTC Wake Settings *38*
4.3.5 Serial Port Console Redirection *40*
4.3.5.1 Console Redirection Settings *40*
4.3.6 iEi Feature *43*
4.3.7 CPU Configuration *44*
4.3.8 SATA Configuration *45*
4.3.9 USB Configuration *46*
4.4 CHIPSET *47*
4.4.1 North Bridge Configuration *48*
4.4.1.1 Intel IGD Configuration *49*
4.4.2 Southbridge Configuration *50*
4.5 SECURITY *52*
4.6 BOOT *53*
4.7 EXIT *55*

A REGULATORY COMPLIANCE ***57***

B SAFETY PRECAUTIONS ***63***

B.1 SAFETY PRECAUTIONS *64*
B.1.1 General Safety Precautions *64*
B.1.2 Anti-static Precautions *65*
B.1.3 Product Disposal *66*
B.2 MAINTENANCE AND CLEANING PRECAUTIONS *67*
B.2.1 Maintenance and Cleaning *67*
B.2.2 Cleaning Tools *67*

C BIOS MENU OPTIONS *69*

D TERMINOLOGY *72*

E HAZARDOUS MATERIALS DISCLOSURE *76*

List of Figures

Figure 1-1: uIBX-250-BW 3
Figure 1-2: uIBX-250-BW Front Panel 6
Figure 1-3: uIBX-250-BW Rear Panel 6
Figure 1-4: Physical Dimensions (mm) 7
Figure 3-1: Retention Screws Removal 14
Figure 3-2: HDD Bracket 14
Figure 3-3: Insert the HDD 15
Figure 3-4: HDD Retention Screws 15
Figure 3-5: Knockout Holes for Wireless Antenna 16
Figure 3-6: PCIe Mini Slot Location 16
Figure 3-7: Securing the WLAN Module 17
Figure 3-8: Removing the Retention Screw 17
Figure 3-9: Inserting the WLAN Module 18
Figure 3-10: Securing WLAN Module and Connecting RF Cables 18
Figure 3-11: Securing SMA Connector and External Antenna Installation 19
Figure 3-12: AT/ATX Switch Location 20
Figure 3-13: Reset Button Location 21
Figure 3-14: Power Button Location 22
Figure 3-15: Mounting Bracket 23
Figure 3-16: Serial Device Connector 24
Figure 3-17: RJ-45 RS-232/422/485 Serial Port Connector 24
Figure 3-18: DB-9 RS-232/422/485 Connector Pinout Location 25

List of Tables

Table 1-1: Technical Specifications 5
Table 2-1: Package List Contents 10
Table 2-2: Optional Items 10
Table 3-1: RJ-45 RS-232/422/485 Serial Port Pinouts 24
Table 3-2: DB-9 RS-232/422/485 Connector Pinouts 25
Table 4-1: BIOS Navigation Keys 28

BIOS Menus

BIOS Menu 1: Main 29
BIOS Menu 2: Advanced 30
BIOS Menu 3: ACPI Configuration 31
BIOS Menu 4: Super IO Configuration 32
BIOS Menu 5: Serial Port 1 Configuration Menu 32
BIOS Menu 6: Hardware Monitor 35
BIOS Menu 7: Smart Fan Mode Configuration 36
BIOS Menu 8: RTC Wake Settings 39
BIOS Menu 9: Serial Port Console Redirection 40
BIOS Menu 10: Console Redirection Settings 41
BIOS Menu 11: iEi Feature 43
BIOS Menu 12: CPU Configuration 44
BIOS Menu 13: IDE Configuration 45
BIOS Menu 14: USB Configuration 46
BIOS Menu 15: Chipset 48
BIOS Menu 16: Northbridge Chipset Configuration 48
BIOS Menu 17: Integrated Graphics 49
BIOS Menu 18: Southbridge Chipset Configuration 51
BIOS Menu 19: Security 52
BIOS Menu 20: Boot 53
BIOS Menu 21:Exit 55

Chapter

1

Introduction

1.1 Overview

Figure 1-1: uIBX-250-BW

The uIBX-250-BW embedded system is a fanless system with one VGA port and one HDMI for dual display. It accepts an Intel® Celeron® N3160 processor and supports one 204-pin DDR3L 1.35 V SO-DIMM module up to 8 GB (pre-installed 2 GB). The uIBX-250-BW supports a 2.5” SATA HDD with up to 6 Gb/s data transfer rate. Two RS-232/422/485 serial ports and four USB 3.0 ports ensure simplified connectivity to a variety of external peripheral devices.

1.2 Features

The uIBX-250-BW features are listed below:

- Fanless system with Intel® Celeron® N3160 processor
- Dual display
- Two RS-232/422/485
- Full-size PCIe Mini slot for expansion
- Four USB 3.0 ports
- Two GbE LAN ports

1.3 Technical Specifications

The uIBX-250-BW technical specifications are listed in **Table 1-1**.

Chassis	
Color	Black
Dimensions (WxDxH)	136.6 x 102.4 x 52 (mm)
System Fan	Fanless
Chassis Construction	Extruded aluminum alloy
Motherboard	
CPU	Intel® Celeron® N3160 (up to 2.24 GHz, quad-core, 2 MB cache, TDP=6W)
Chipset	SoC
System Memory	1 x 204-pin DDR3L 1.35 V SO-DIMM (system max: 8 GB) Pre-installed 2 GB
Storage	
Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD bay
I/O Interfaces	
USB 3.0	4 x USB 3.0 ports
Ethernet	2 x RJ-45 PCIe GbE by Intel® I211 controller
RS-232/422/485	2 x RJ-45 RS-232/422/485
Button	1 x Power button, 1 x AT/ATX switch
Display	1 x HDMI, 1 x VGA
Resolution	HDMI: 3840 x 2160@30MHz VGA: 1920 x1200@60Hz
Audio	1 x Line-out, 1 x Mic-in
Other	HDD LED
Power	
Power Input	DC Jack: 12 V DC

Power Consumption	12V @ 2A (Intel® Celeron® N3160 with 2 GB memory)
Reliability	
Mounting	Wall mount, VESA 75
Operating Temperature	-20°C ~60°C with air flow (SSD), 10% ~ 95%, non-condensing
Operating Shock	Half-sine wave shock 5G, 11ms, 3 shocks per axis
Operating Vibration	MIL-STD-810F 514.5 C-1 (HDD), MIL-STD-810F 514.5 C-2 (SSD)
Weight (Net/Gross)	470 g/1.4 kg
Safety/EMC	CE/FCC
OS	
Supported OS	Microsoft® Windows 8, Microsoft® Embedded Standard 7 E

Table 1-1: Technical Specifications

1.4 Front Panel

The front panel of the uIBX-250-BW has the following features (**Figure 1-2**):

- 1 x HDD LED
- 1 x Mic in
- 1 x Line out
- 1 x Power button
- 1 x VGA connector
- 2 x USB 3.0 connectors

Figure 1-2: uIBX-250-BW Front Panel

1.5 Rear Panel

The rear panel of the uIBX-250-BW has the following features (**Figure 1-3**):

- 1 x 12 V DC IN
- 1 x AT/ATX Switch
- 2 x USB 3.0 connector
- 2 x RJ-45 LAN connectors
- 2 x RS-232/422/485 serial port connectors
- 1 x Reset button
- 1 x HDMI connector

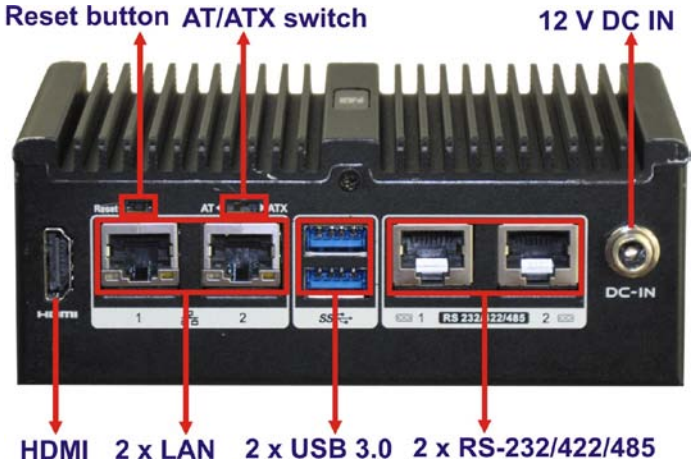


Figure 1-3: uIBX-250-BW Rear Panel

1.6 Dimensions

The physical dimensions are shown below:

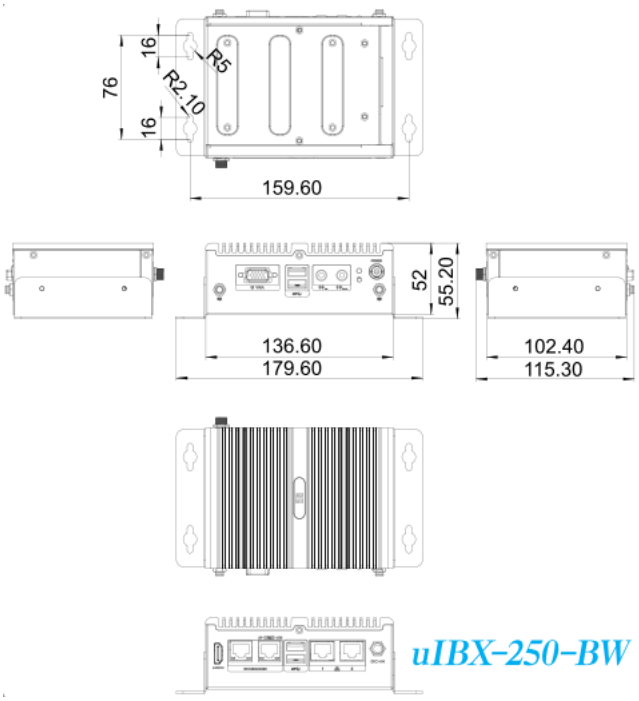


Figure 1-4: Physical Dimensions (mm)

Chapter

2

Unpacking

2.1 Unpacking

To unpack the embedded system, follow the steps below:

Step 1: Use box cutters, a knife or a sharp pair of scissors that seals the top side of the external (second) box.

Step 2: Open the external (second) box.

Step 3: Use box cutters, a knife or a sharp pair of scissors that seals the top side of the internal (first) box.

Step 4: Lift the system out of the boxes.

Step 5: Remove both polystyrene ends, one from each side.

Step 6: Make sure all the components listed in the packing list are present.

2.2 Packing List

NOTE:

If some of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the uIBX-250-BW from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@iei.com.tw.

The uIBX-250-BW is shipped with the following components:

Quantity	Item and Part Number	Image
1	uIBX-250-BW	

Quantity	Item and Part Number	Image
1	Power Adapter	
1	Power Cord	
2	Mounting Bracket	
1	Utility CD	
1	One Key Recovery CD	

Table 2-1: Package List Contents

2.3 Optional Items

The following are optional component(s) which may be separately purchased:

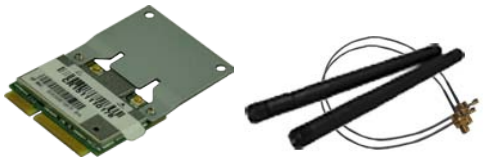
EMB-WIFI-KIT01-R11 (1T1R Wi-Fi module kit for embedded system , IEEE802.11b/g/n, 1 x Wi-Fi module, 2 x RF cable, 2 x Antenna, RoHs)	

Table 2-2: Optional Items

Chapter

3

Installation

3.1 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the maintenance of the uIBX-250-BW may result in permanent damage to the uIBX-250-BW and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the WAFER series motherboard and the power module. (Dry climates are especially susceptible to ESD.) It is therefore critical that whenever the uIBX-250-BW is opened and any electrical component 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 the board.
- ***Self-grounding***: Before handling the board, touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring the uIBX-250-BW, place it on an anti-static pad. This reduces the possibility of ESD damaging the uIBX-250-BW.

3.2 Installation Precautions

During installation, be aware of the precautions below:

- **Read the user manual**: The user manual provides a complete description of the uIBX-250-BW, installation instructions and configuration options.
- **DANGER! Disconnect Power**: Power to the uIBX-250-BW must be disconnected during the installation process, or before any attempt is made to access the rear panel. Electric shock and personal injury might occur if the rear panel of the uIBX-250-BW is opened while the power cord is still connected to an electrical outlet.

- **Qualified Personnel**: The uIBX-250-BW must be installed and operated only by trained and qualified personnel. Maintenance, upgrades, or repairs may only be carried out by qualified personnel who are familiar with the associated dangers.
- **Air Circulation**: Make sure there is sufficient air circulation when installing the uIBX-250-BW. The uIBX-250-BW's cooling vents must not be obstructed by any objects. Blocking the vents can cause overheating of the uIBX-250-BW. Leave at least 5 cm of clearance around the uIBX-250-BW to prevent overheating.
- **Grounding**: The uIBX-250-BW should be properly grounded. The voltage feeds must not be overloaded. Adjust the cabling and provide external overcharge protection per the electrical values indicated on the label attached to the back of the uIBX-250-BW.

3.3 Installation and Configuration Steps

The following installation steps must be followed.

Step 1: Unpack the uIBX-250-BW.

Step 2: Configure the system.

Step 3: Connect peripheral devices to the uIBX-250-BW.

Step 4: Mount the uIBX-250-BW.

3.4 Hard Disk Drive (HDD) Installation

To install the hard drive, please follow the steps below:

Step 1: Remove three retention screws from the HDD cover (**Figure 3-1**).

Figure 3-1: Retention Screws Removal

Step 2: Open the HDD cover and locate the HDD bracket (**Figure 3-2**).

Figure 3-2: HDD Bracket

Step 3: Attach the HDD to the HDD bracket, and then slide the HDD to connect the HDD to the SATA connector. (**Figure 3-3**).

Figure 3-3: Insert the HDD

Step 4: Secure the HDD with the HDD bracket by four retention screws on the HDD cover.

Figure 3-4: HDD Retention Screws

Step 5: Replace the HDD cover and secure it using three previously removed retention screws.

3.5 Wireless LAN Module Installation (Optional)

To install the optional wireless LAN (WLAN) module, please follow the steps below.

Step 1: **Remove the bottom surface**. See **Section 3.4.**

Step 2: **Remove the two knockout holes** for antenna installation. The two knockout holes are located on the rear panel of the uIBX-250-BW as shown in **Figure 3-5**.

Figure 3-5: Knockout Holes for Wireless Antenna

Step 3: **Locate the PCIe Mini slot (Figure 3-6)**.

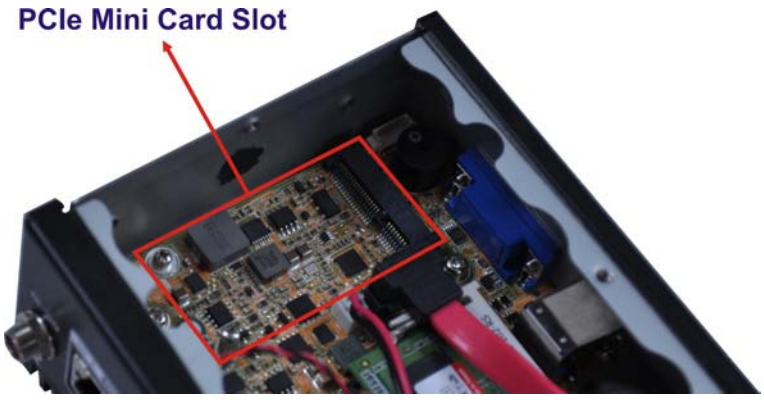


Figure 3-6: PCIe Mini Slot Location

Step 4: **Secure the WLAN module.** Secure the mechanical part to the WLAN card.

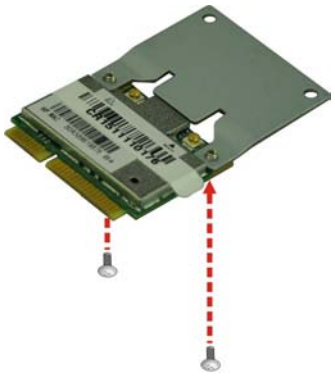


Figure 3-7: Securing the WLAN Module

Step 5: **Remove the retention screw.** Remove the retention screw for full-size card installation as shown in **Figure 3-8**.

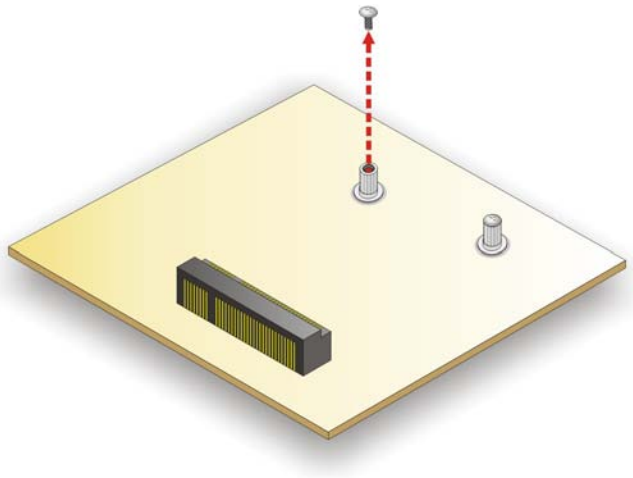


Figure 3-8: Removing the Retention Screw

Step 6: **Insert into the socket at an angle**. Line up the notch on the WLAN module with the notch on the slot. Slide the WLAN module into the slot at an angle of about 20º (**Figure 3-9**).

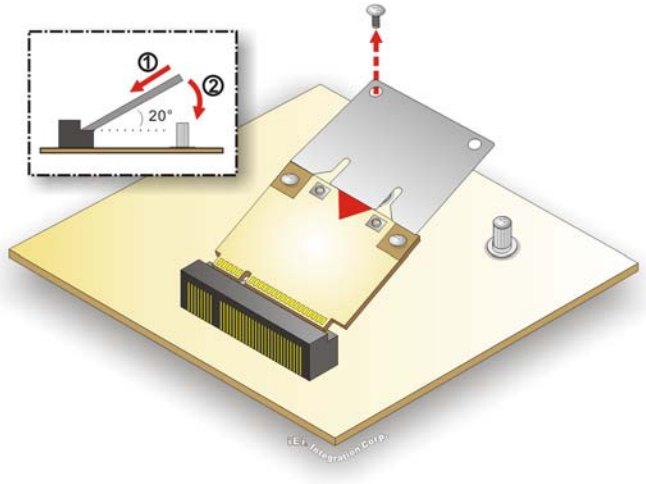


Figure 3-9: Inserting the WLAN Module

Step 7: **Secure the WLAN module**. Secure the WLAN module with the retention screw previously removed (**Figure 3-10**).

Step 8: **Connect the two RF cables** to the antenna connectors on the WLAN module (**Figure 3-10**).

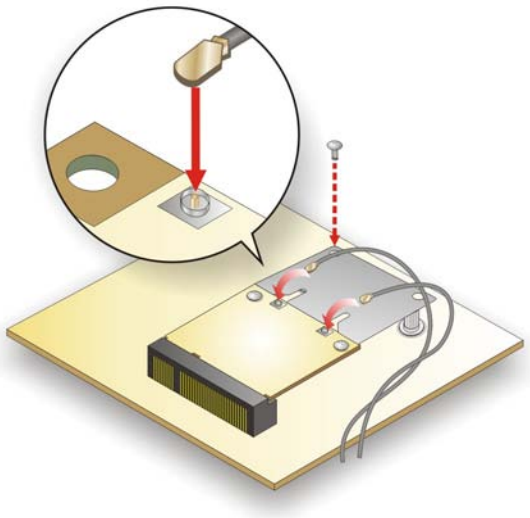


Figure 3-10: Securing WLAN Module and Connecting RF Cables

Step 9: **Remove the nut and washer from the SMA connector** at the other end of the RF cable.

Step 10: **Insert the SMA connector** to the antenna connector holes on the rear panel.

Step 11: **Secure the SMA connector** by inserting the washer and tightening it with nut.

Step 12: **Install the external antenna**.

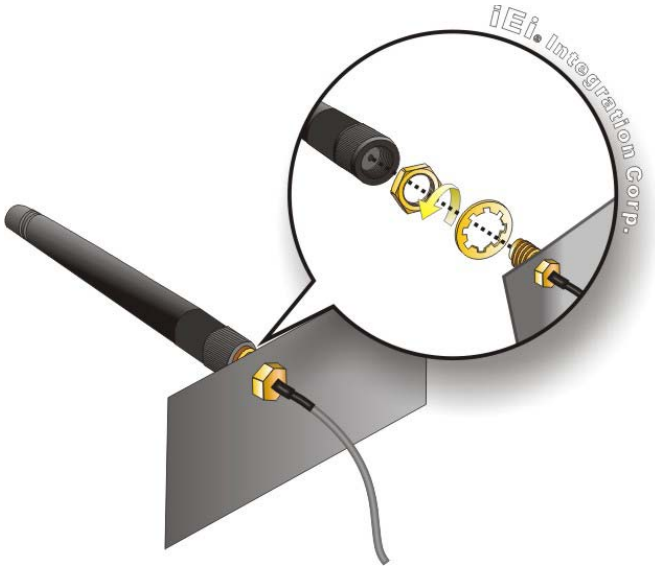


Figure 3-11: Securing SMA Connector and External Antenna Installation

3.6 AT/ATX Mode Selection

AT or ATX power mode can be used on the uIBX-250-BW. The selection is made through an AT/ATX switch located on the rear panel (Figure 3-12). To select AT mode or ATX mode, follow the steps below.

Step 1: Locate the AT/ATX switch on the rear panel (**Figure 3-12**).

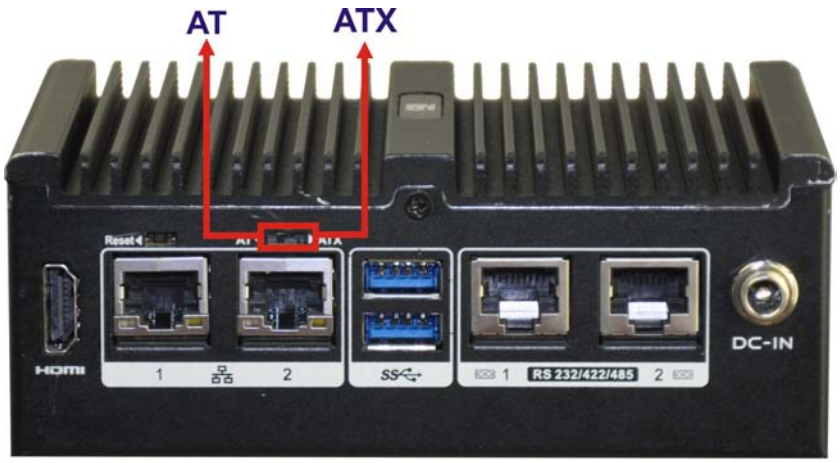


Figure 3-12: AT/ATX Switch Location

Step 2: Adjust the AT/ATX switch.

3.6.1 AT Power Mode

With the AT mode selected, the power is controlled by a central power unit rather than a power switch. The uIBX-250-BW panel PC turns on automatically when the power is connected. The AT mode benefits a production line to control multiple panel PCs from a central management center and other applications including:

- ATM
- Self-service kiosk
- Plant environment monitoring system
- Factory automation platform
- Manufacturing shop flow

3.6.2 ATX Power Mode

With the ATX mode selected, the uIBX-250-BW panel PC goes in a standby mode when it is turned off. The panel PC can be easily turned on via network or a power switch in standby mode. Remote power control is perfect for advertising applications since the broadcasting time for each panel PC can be set individually and controlled remotely. Other possible application includes:

- Security surveillance
- Point-of-Sale (POS)

- Advertising terminal

3.7 Reset the System

The reset button enables user to reboot the system when the system is turned on. To reboot the system, follow the steps below.

Step 1: Locate the reset button on the rear panel (**Figure 3-13**).

Figure 3-13: Reset Button Location

Step 2: Press the reset button.

3.8 Powering On the System

To power on the system, follow the steps below:

Step 1: Press the power button on the front panel (**Figure 3-14**).

Figure 3-14: Power Button Location

3.9 Mount the System

To mount the embedded system onto a wall or some other surface using the two mounting brackets, please follow the steps below.

Step 1: Turn the embedded system over.

Step 2: Align the two retention screw holes in each bracket with the corresponding retention screw holes on the left side and right side.

Step 3: Secure the brackets to the system by inserting two retention screws into each bracket as illustrated in **Figure 3-15**.

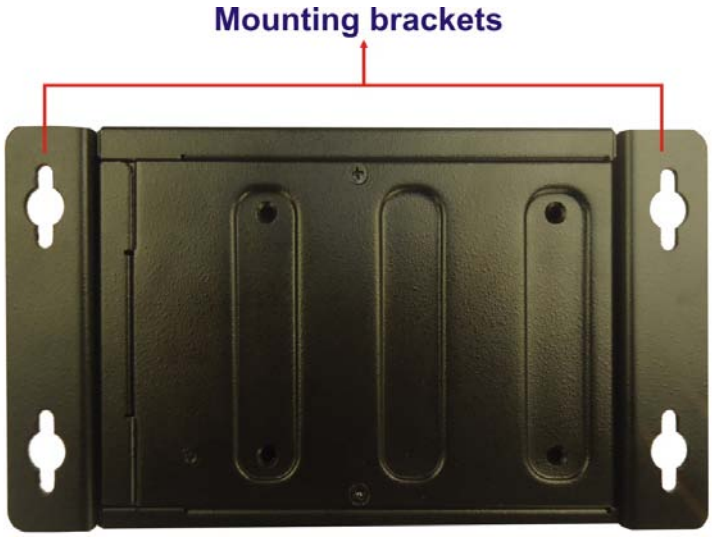


Figure 3-15: Mounting Bracket

Step 4: Drill holes in the intended installation surface.

Step 5: Align the mounting holes in the sides of the mounting brackets with the predrilled holes in the mounting surface.

Step 6: Insert four retention screws, two in each bracket, to secure the system to the wall.

3.10 RS-232/422/485 Serial Port Connection

The uIBX-250-BW has two RS-232/422/485 serial port connectors on the bottom panel. The two serial device slots (RJ-45) connect to a cable with a standard DB-9 connector at the other end (cables included). Follow the steps below to connect a serial device to the uIBX-250-BW.

Step 1: **Locate the RJ-45 connector**. The location of the RJ-45 serial port connector is shown in **Chapter 2**. The RJ-45 connectors for the serial ports can be identified easily as the RJ-45 for the network has two LEDs on the port, while the connectors for the serial cables don't.

Step 2: **Insert the RJ-45 to DB-9 cable.**

Step 3: **Insert the serial connector**. Insert the DB-9 connector of a serial device into the DB-9 connector on the cable. See **Figure 3-16**.

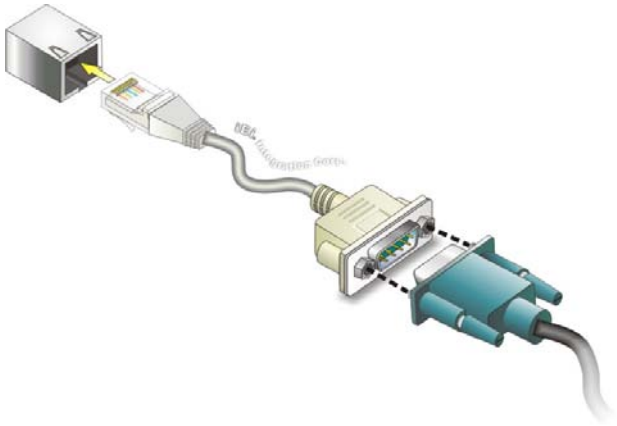


Figure 3-16: Serial Device Connector

Step 4: **Secure the connector**. Secure the serial device connector to the external interface by tightening the two retention screws on either side of the connector.

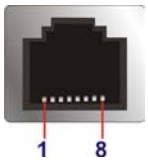


Figure 3-17: RJ-45 RS-232/422/485 Serial Port Connector

Pin	RS-232	RS-422	RS-485
1	NDCD1	RX+	
2	NDSR1		
3	NRX1	RX-	
4	NRTS1		
5	NTX1	TX+	DATA+
6	NCTS1		
7	NDTR1	TX-	DATA-
8	NRI1		

Table 3-1: RJ-45 RS-232/422/485 Serial Port Pinouts

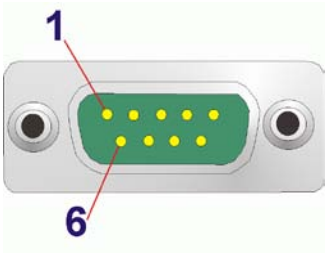


Figure 3-18: DB-9 RS-232/422/485 Connector Pinout Location

Pin	RS-232	RS-422	RS-485
1	NDCD	RX+	
2	NRX	RX-	
3	NTX	TX+	DATA+
4	NDTR	TX-	DATA-
5	GND		
6	NDSR		
7	NRTS		
8	NCTS		
9	NRI		

Table 3-2: DB-9 RS-232/422/485 Connector Pinouts

NOTE:

The communication protocol of the serial ports is set through the BIOS menu in "Advanced → F81866 Super IO Configuration → Serial Port 1/2 Configuration". Use the **Device Mode** BIOS option to configure the correspondent serial ports (refer to **Sections 4.3.2.1.1** and **4.3.2.1.2** for detailed information).

Chapter

4

BIOS

4.1 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:

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

4.1.1 Starting Setup

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

1. Press the **DELETE** or **F2** key as soon as the system is turned on or
2. Press the **DELETE** or **F2** key when the "**Press Del to enter SETUP**" message appears on the screen.

If the message disappears before the **DELETE** or **F2** key is pressed, restart the computer and try again.

4.1.2 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.

Key	Function
Up arrow	Move to previous item
Down arrow	Move to next item
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
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
Esc key	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu

Table 4-1: BIOS Navigation Keys

4.1.3 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.

4.1.4 Unable to Reboot after Configuration Changes

If the computer cannot boot after changes to the system configuration is made, CMOS defaults. Use the jumper described in Chapter **3**.

4.1.5 BIOS Menu Bar

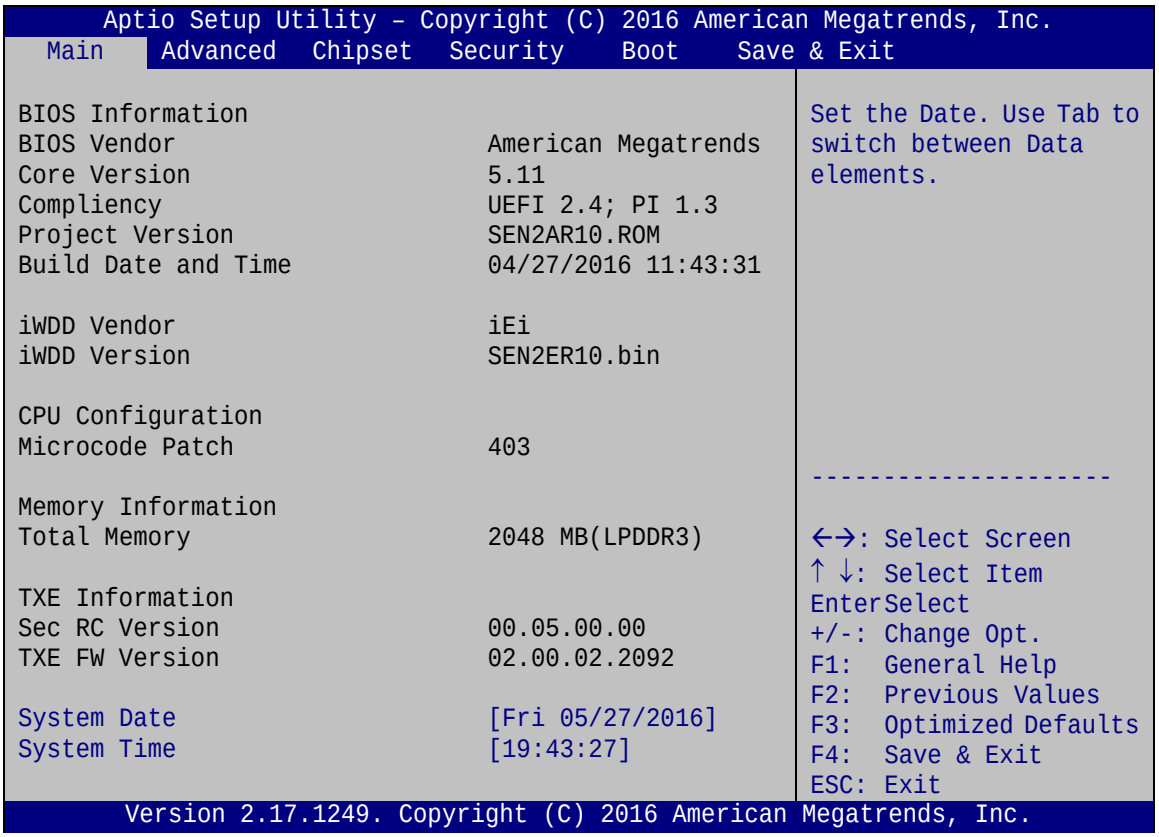
The **menu bar** on top of the BIOS screen has the following main items:

- Main – Changes the basic system configuration.
- Advanced – Changes the advanced system settings.
- Chipset – Changes the chipset settings.
- Security – Sets User and Supervisor Passwords.
- Boot – Changes the system boot configuration.
- 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.

4.2 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.



BIOS Menu 1: Main

The System Overview field also 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.

4.3 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.

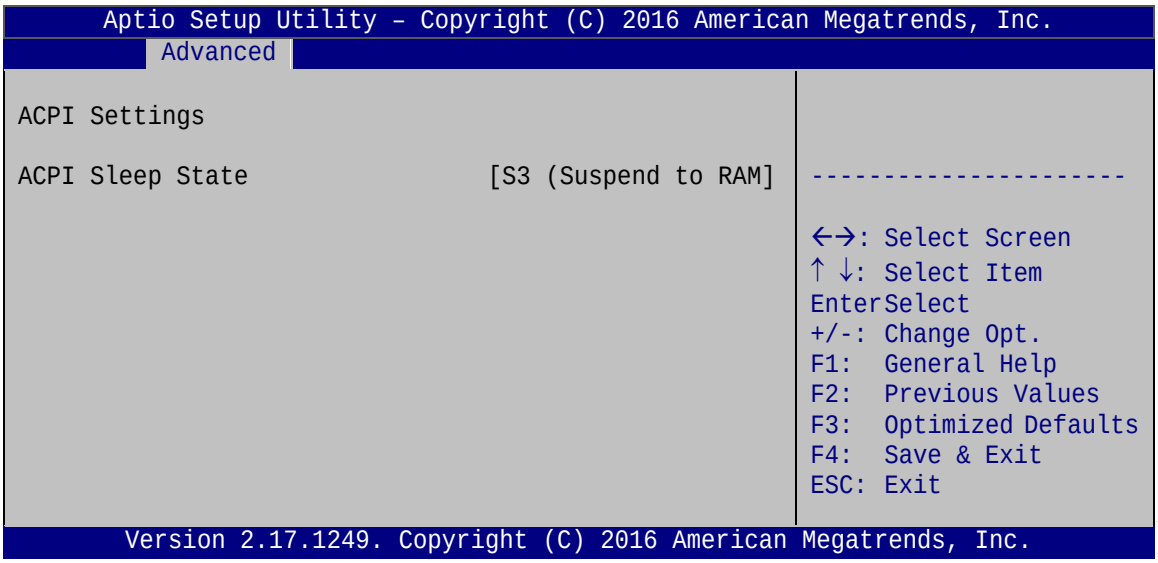
```
      Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc.
  Main    Advanced   Chipset   Security    Boot    Save & Exit

> ACPI Settings                                  System ACPI Parameters.
> F81866 Super IO Configuration
> Hardware Monitor
> RTC Wake Settings
> Serial Port Console Redirection                ----------------------
> iEi Feature                                    ←→: Select Screen
> CPU Configuration                              ↑ ↓: Select Item
> SATA Configuration                             EnterSelect
> USB Configuration                              F1   General Help
                                                 F2   Previous Values
                                                 F3   Optimized Defaults
                                                 F4   Save
                                                 ESC  Exit
       Version 2.17.1249. Copyright (C) 2016 American Megatrends, Inc.
```

BIOS Menu 2: Advanced

4.3.1 ACPI Settings

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



BIOS Menu 3: ACPI Configuration

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

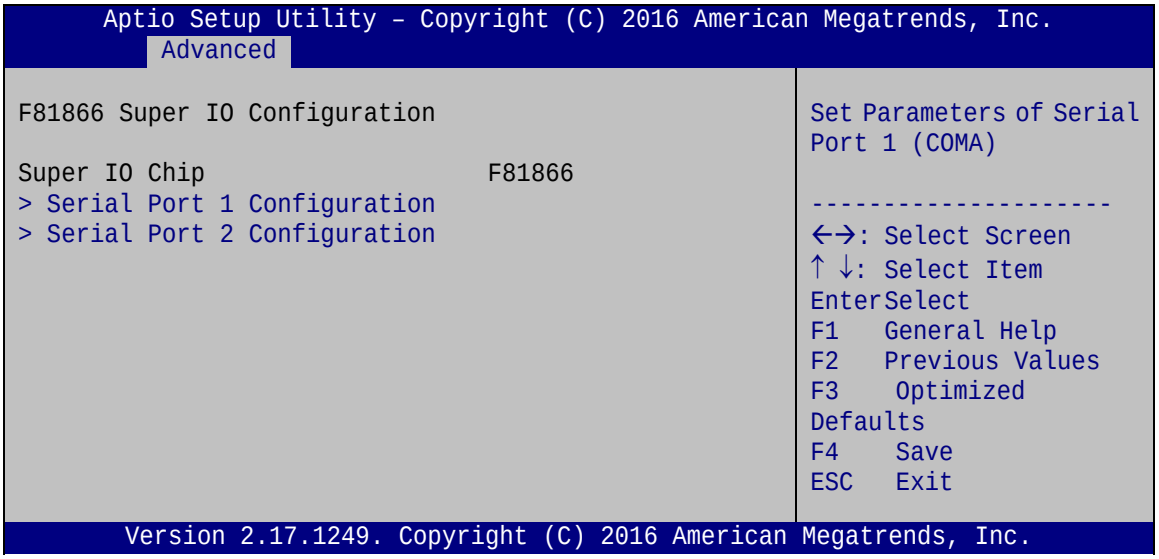
The fields in **ACPI Sleep State** option cannot be changed.

➔ **Suspend Disabled** Disable the suspend function.

➔ **S3 (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.

4.3.2 F81866 Super IO Configuration

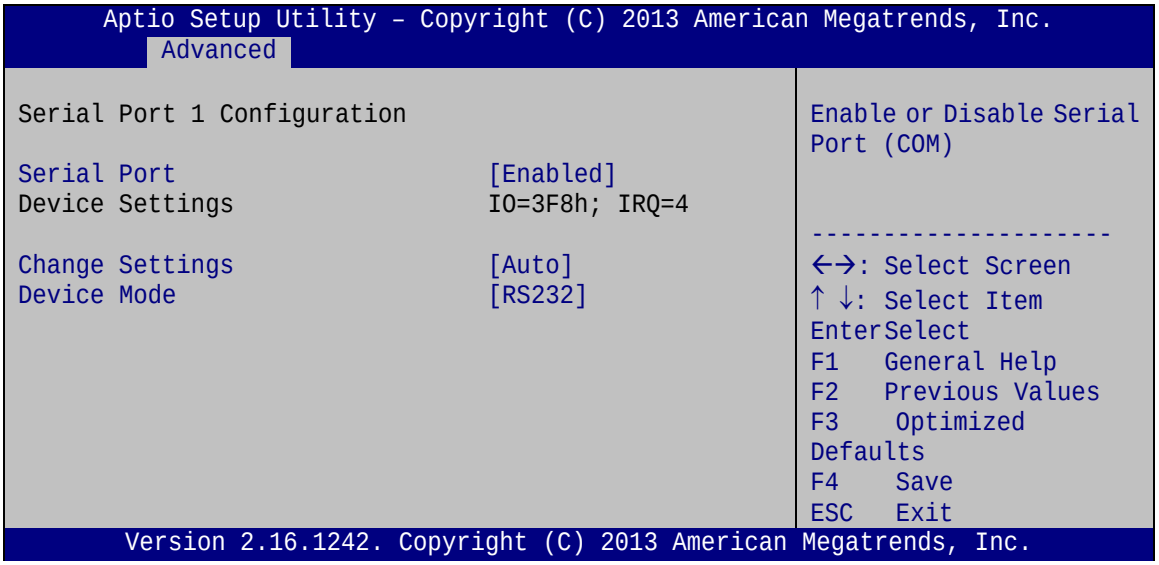
Use the **F81866 Super IO Configuration** menu (**BIOS Menu 4**) to set or change the configurations for the serial ports.



BIOS Menu 4: Super IO Configuration

4.3.2.1 Serial Port n Configuration

Use the **Serial Port n Configuration** menu (**BIOS Menu 5**) to configure the serial port n.



BIOS Menu 5: Serial Port 1 Configuration Menu

4.3.2.1.1 Serial Port 1 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=3F8h; IRQ=4**		Serial Port I/O port address is 3F8h and the interrupt address is IRQ4
➔ **IO=3F8h; IRQ=3, 4,5,6,7,9,10,11,12**		Serial Port I/O port address is 3F8h and the interrupt address is IRQ3,4,5,6,7,9,10,11,12
➔ **IO=2F8h; IRQ=3, 4,5,6,7,9,10,11,12**		Serial Port I/O port address is 2F8h and the interrupt address is IRQ3,4,5,6,7,9,10,11,12
➔ **IO=3E8h; IRQ=3, 4,5,6,7,9,10,11,12**		Serial Port I/O port address is 3E8h and the interrupt address is IRQ3,4,5,6,7,9,10,11,12
➔ **IO=2E8h; IRQ=3, 4,5,6,7,9,10,11,12**		Serial Port I/O port address is 2E8h and the interrupt address is IRQ3,4,5,6,7,9,10,11,12

➔ Device Mode [RS232]

Use the **Device Mode** option to select the serial port mode.

➔ **RS232**	**DEFAULT**	Enables serial port RS-232 support.
➔ **RS422**		Enables serial port RS-422 support.
➔ **RS485**		Enables serial port RS-485 support.

4.3.2.1.2 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, 4,5,6,7,9,10,11,12**		Serial Port I/O port address is 3F8h and the interrupt address is IRQ3,4,5,6,7,9,10,11,12
➔ **IO=2F8h; IRQ=3, 4,5,6,7,9,10,11,12**		Serial Port I/O port address is 2F8h and the interrupt address is IRQ3,4,5,6,7,9,10,11,12
➔ **IO=3E8h; IRQ=3, 4,5,6,7,9,10,11,12**		Serial Port I/O port address is 3E8h and the interrupt address is IRQ3,4,5,6,7,9,10,11,12
➔ **IO=2E8h; IRQ=3, 4,5,6,7,9,10,11,12**		Serial Port I/O port address is 2E8h and the interrupt address is IRQ3,4,5,6,7,9,10,11,12

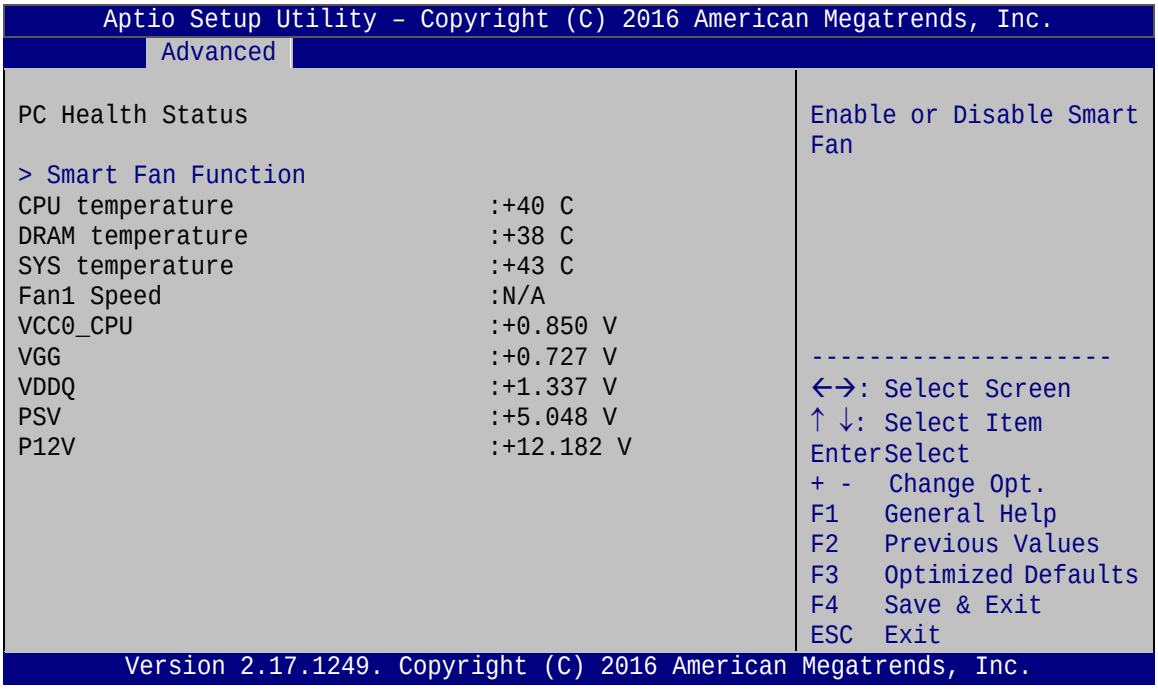
➔ Device Mode [RS232]

Use the **Device Mode** option to select the serial port mode.

➔ **RS232**	**DEFAULT**	Enables serial port RS-232 support.
➔ **RS422**		Enables serial port RS-422 support.
➔ **RS485**		Enables serial port RS-485 support.

4.3.3 Hardware Monitor

The Hardware Monitor menu (**BIOS Menu 6**) contains the fan configuration submenus and displays operating temperature, fan speeds and system voltages.



BIOS Menu 6: Hardware Monitor

➔ PC Health Status

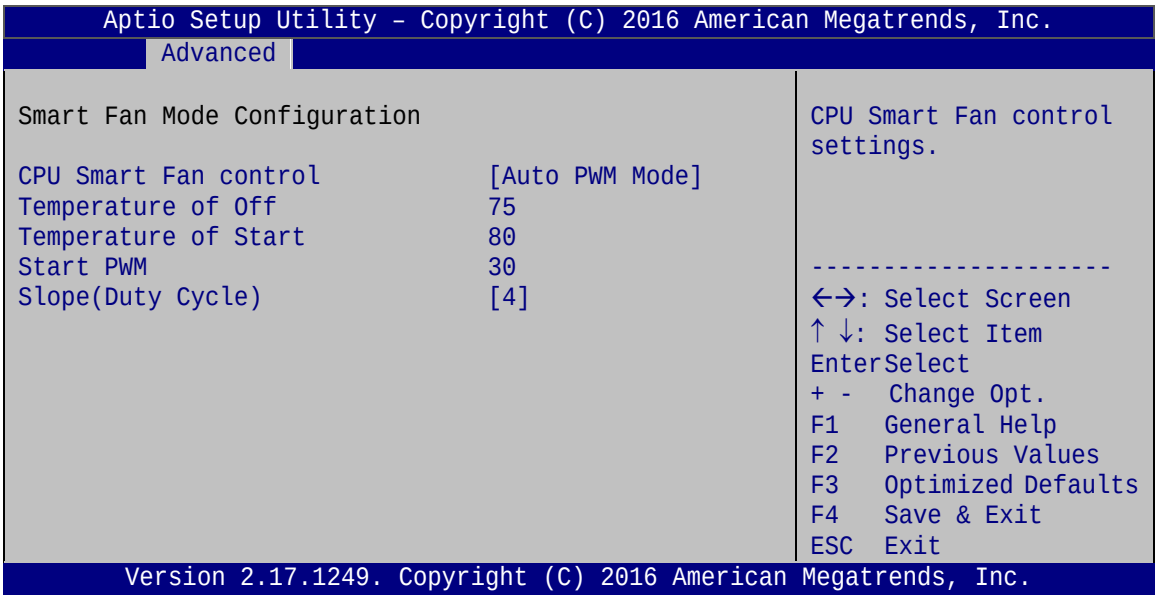
The following system parameters and values are shown. The system parameters that are monitored are:

- Temperatures:
  - CPU Temperature
  - DRAM temperature
  - SYS temperature
- Fan Speed:
  - CPU Fan Speed
- Voltages:
  - VCC0_CPU
  - VGG
  - VDDQ

- PSV
- P12V

4.3.3.1 Smart Fan Mode Configuration

Use the **Smart Fan Mode Configuration submenu** (**BIOS Menu 7**) to configure fan temperature and speed settings.



BIOS Menu 7: Smart Fan Mode Configuration

➔ CPU Smart Fan control [Auto PWM Mode]

Use the **CPU Smart Fan control** BIOS option to configure the CPU Smart Fan.

➔ **Manual PWM Mode**		The fan spins at the speed set in the manual PWM setting
➔ **Auto PWM Mode**	**DEFAULT**	The fan adjusts its speed using these settings: Temperature of Off Temperature of Start Start PWM Slope (Duty Cycle)

➔ Temperature of Off [75]

WARNING:

Setting this value too high may cause the fan to speed up only when the CPU is at a very high temperature and therefore cause the system to be damaged.

The **Temperature of Off** option can only be set if the **CPU Smart Fan control** option is set to **Auto Mode**. If the CPU temperature is lower than **Temperature of Off**, the fan speed change to be lowest. To set a value, select the **Temperature of Off** option and enter a decimal number between 0 and 127. The temperature range is specified below.

- Minimum Value: 0°C
- Maximum Value: 127°C

➔ Temperature of Start [80

WARNING:

Setting this value too high may cause the fan to rotate at full speed only when the CPU is at a very high temperature and therefore cause the system to be damaged.

The **Temperature of Start** option can only be set if the **CPU Smart Fan control** option is set to **Auto Mode**. If the CPU temperature is between **Temperature of Off** and **Temperature of Start**, the fan speed change to be **Start PWM**. To set a value, select the **Temperature of Start** option and enter a decimal number between 0 and 127. The temperature range is specified below.

- Minimum Value: 0°C
- Maximum Value: 127°C

➔ Start PWM [30]

The **Start PWM** option can only be set if the **CPU Smart Fan control** option is set to **Auto Mode**. Use the **Start PWM** option to set the PWM start value. To set a value, select the **Start PWM** option and enter a decimal number between 0 and 100. The temperature range is specified below.

- Minimum Value: 0
- Maximum Value: 100

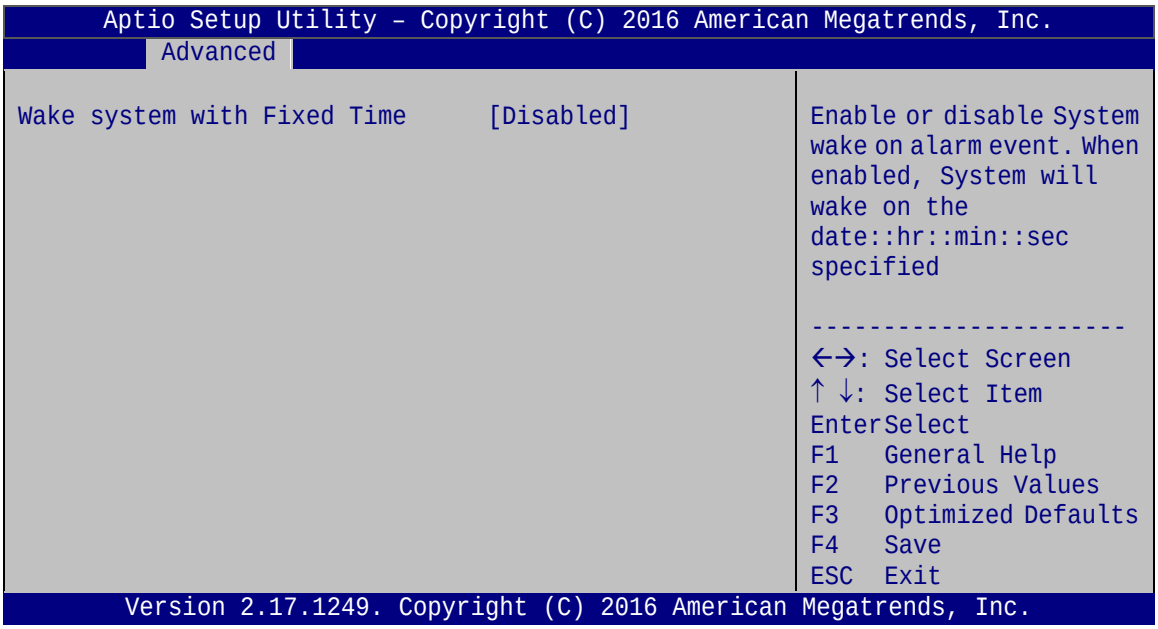
➔ Slope (Duty Cycle) [4]

The **Slope (Duty Cycle)** option can only be set if the **CPU Smart Fan control** option is set to **Auto Mode**. Use the **Slope (Duty Cycle)** option to select the linear rate at which the PWM mode increases with respect to an increase in temperature. A list of available options is shown below:

- 0
- 1
- 2
- 4
- 8
- 16

4.3.4 RTC Wake Settings

The **RTC Wake Settings** menu (**BIOS Menu 8**) configures RTC wake event.



BIOS Menu 8: RTC Wake Settings

➔ Wake system with Fixed Time [Disabled]

Use the **Wake system with Fixed Time** option to enable or disable the system wake on alarm event.

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

➔ **Enabled** If selected, the **Wake up every day** option appears allowing you to enable to disable the system to wake every day at the specified time. Besides, the following options appear with values that can be selected:

Wake up date

Wake up hour

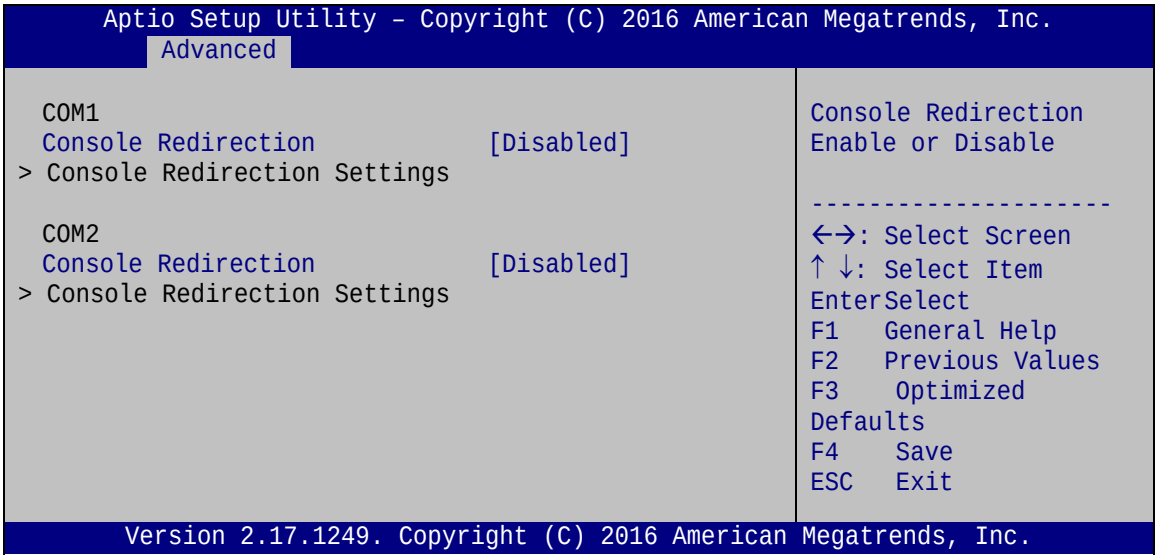
Wake up minute

Wake up second

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

4.3.5 Serial Port Console Redirection

The **Serial Port Console Redirection** menu (**BIOS Menu 17**) allows the console redirection options to be configured. Console redirection allows users to maintain a system remotely by re-directing keyboard input and text output through the serial port.



BIOS Menu 9: Serial Port Console Redirection

➔ Console Redirection [Disabled]

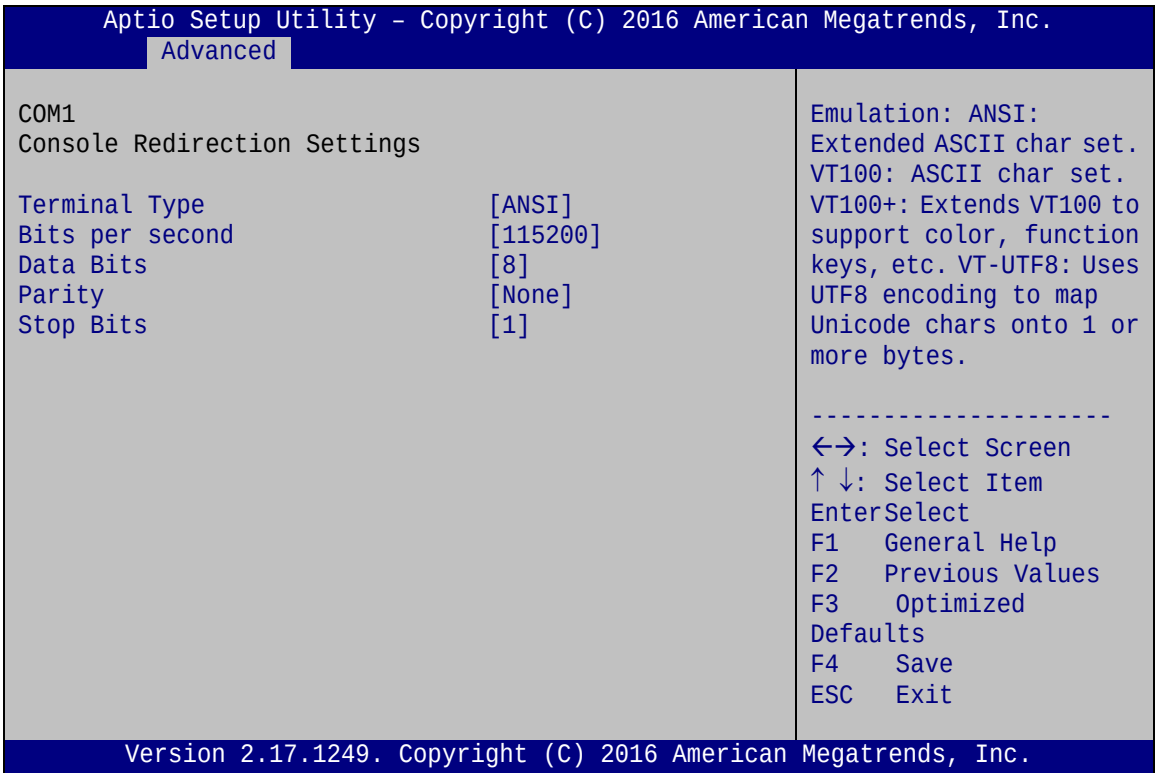
Use **Console Redirection** option to enable or disable the console redirection function.

➔ **Disabled** **DEFAULT** Disabled the console redirection function

➔ **Enabled** Enabled the console redirection function

4.3.5.1 Console Redirection Settings

The **Console Redirection Settings** menu (**BIOS Menu 10**) allows the console redirection options to be configured. The option is active when Console Redirection option is enabled.



BIOS Menu 10: Console Redirection Settings

➔ Terminal Type [ANSI]

Use the **Terminal Type** option to specify the remote terminal type.

➔	**VT100**		The target terminal type is VT100
➔	**VT100+**		The target terminal type is VT100+
➔	**VT-UTF8**		The target terminal type is VT-UTF8
➔	**ANSI**	**DEFAULT**	The target terminal type is ANSI

➔ Bits per second [115200]

Use the **Bits per second** option to specify the serial port transmission speed. The speed must match the other side. Long or noisy lines may require lower speeds.

➔	**9600**	Sets the serial port transmission speed at 9600.
➔	**19200**	Sets the serial port transmission speed at 19200.

- ➔ **38400** — Sets the serial port transmission speed at 38400.
- ➔ **57600** — Sets the serial port transmission speed at 57600.
- ➔ **115200** **DEFAULT** — Sets the serial port transmission speed at 115200.

➔ Data Bits [8]

Use the **Data Bits** option to specify the number of data bits.

- ➔ **7** — Sets the data bits at 7.
- ➔ **8** **DEFAULT** — Sets the data bits at 8.

➔ Parity [None]

Use the **Parity** option to specify the parity bit that can be sent with the data bits for detecting the transmission errors.

- ➔ **None** **DEFAULT** — No parity bit is sent with the data bits.
- ➔ **Even** — The parity bit is 0 if the number of ones in the data bits is even.
- ➔ **Odd** — The parity bit is 0 if the number of ones in the data bits is odd.
- ➔ **Mark** — The parity bit is always 1. This option does not provide error detection.
- ➔ **Space** — The parity bit is always 0. This option does not provide error detection.

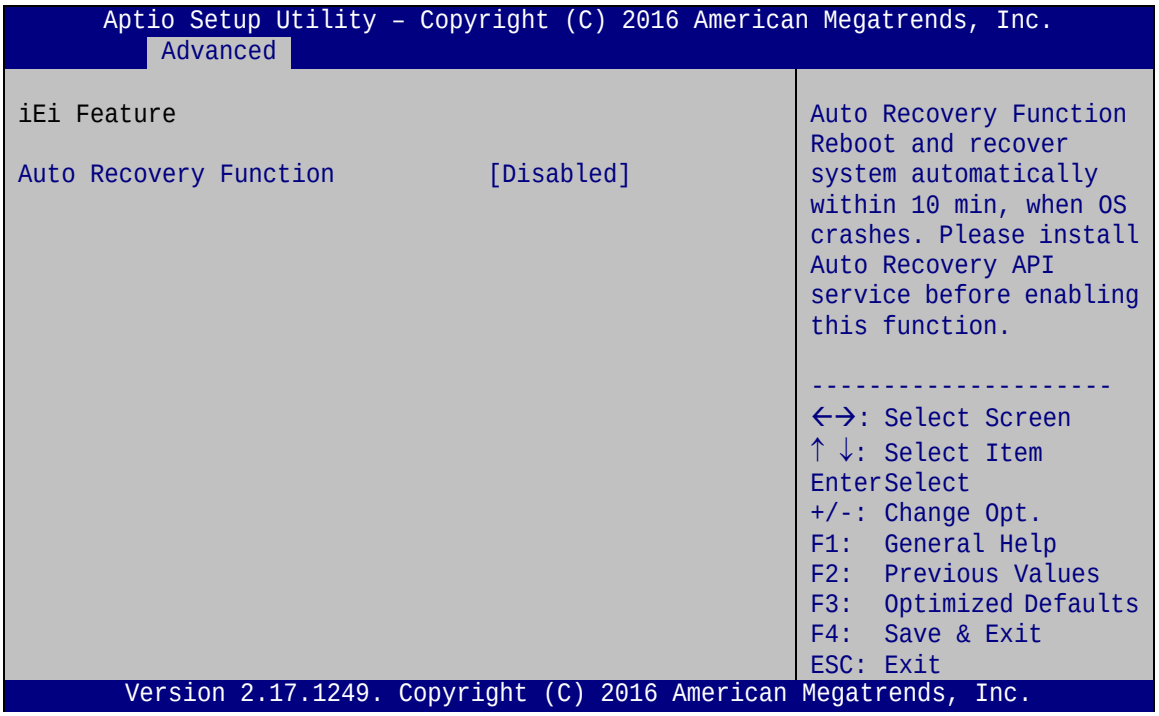
➔ Stop Bits [1]

Use the **Stop Bits** option to specify the number of stop bits used to indicate the end of a serial data packet. Communication with slow devices may require more than 1 stop bit.

- ➔ **1** **DEFAULT** — Sets the number of stop bits at 1.
- ➔ **2** — Sets the number of stop bits at 2.

4.3.6 iEi Feature

Use the **iEi Feature** menu (**BIOS Menu 11**) to configure the iEi features.



BIOS Menu 11: iEi Feature

➔ Auto Recovery Function [Disabled]

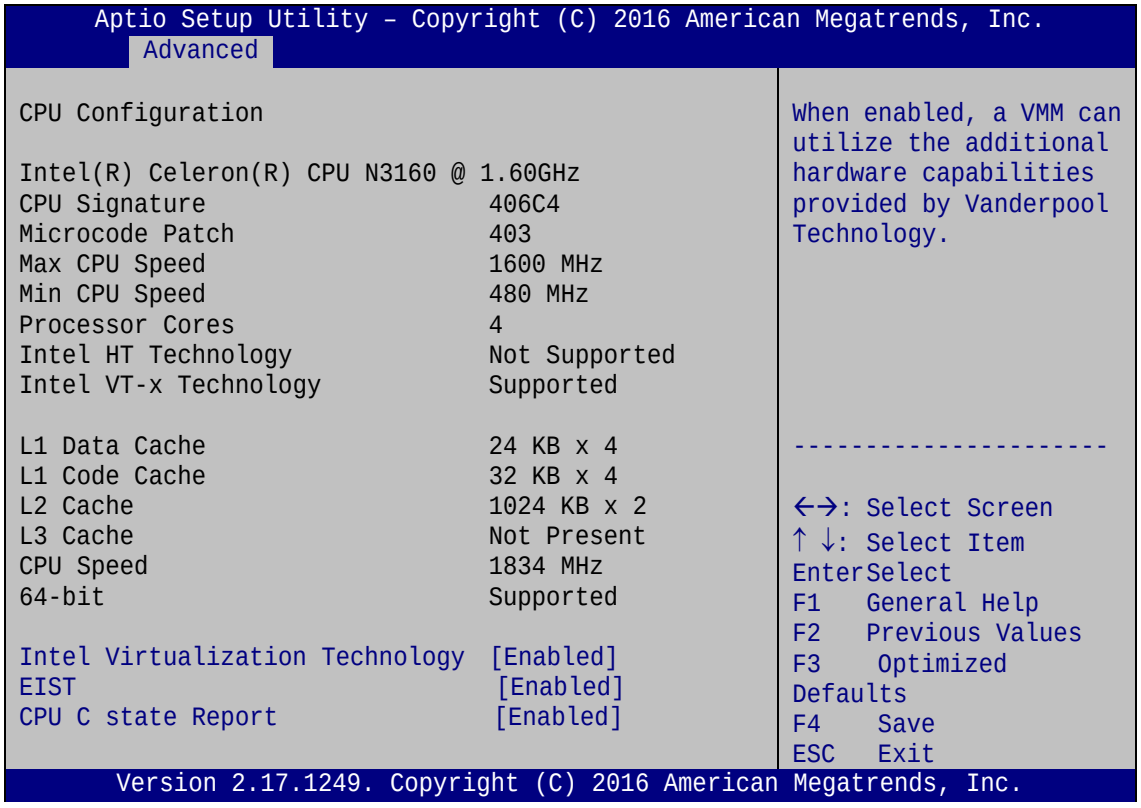
Use **Auto Recovery Function** option to enable or disable the auto recovery function.

➔ **Disabled** **DEFAULT** Disabled the auto recovery function

➔ **Enabled** Enabled the auto recovery function

4.3.7 CPU Configuration

Use the **CPU Configuration** menu (**BIOS Menu 12**) to view detailed CPU specifications and configure the CPU.



BIOS Menu 12: CPU Configuration

➔ 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.

➔ EIST [Enabled]

Use the **EIST** option to enable or disable the Intel Speed Step Technology.

➔ **Disabled** Disables the Intel Speed Step Technology.

➔ **Enabled** **DEFAULT** Enables the Intel Speed Step Technology.

➔ CPU C state Report [Disabled]

Use the **CPU C state Report** option to enable or disable the CPU C state report to OS.

➔ **Disabled** **DEFAULT** Disables the CPU C state report to OS.

➔ **Enabled** Enables the CPU C state report to OS.

4.3.8 SATA Configuration

Use the **SATA Configuration** menu (**BIOS Menu 13**) to change and/or set the configuration of the SATA devices installed in the system.

```
Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc.
Advanced

ATA Configuration                                  Enable/Disable SATA
                                                   Device.
SATA Controller                  [Enabled]
SATA Mode Selection              [ACHI]
                                                   ---------------------
SATA Port1
Not Present                                        ←→: Select Screen
Hot Plug                         [Disabled]        ↑ ↓: Select Item
                                                   EnterSelect
                                                   F1   General Help
                                                   F2   Previous Values
                                                   F3    Optimized
                                                   Defaults
                                                   F4    Save
                                                   ESC   Exit
Version 2.17.1249. Copyright (C) 2016 American Megatrends, Inc.
```

BIOS Menu 13: IDE Configuration

➔ SATA Controller [Enabled]

Use the **SATA Controller** option to enable or disable the SATA device.

➔ **Disabled** Disables the SATA device.

➔ **Enabled** **DEFAULT** Enables the SATA device.

➔ SATA Mode Selection [AHCI]

Use the **SATA Mode Selection** option to configure SATA devices as normal IDE devices.

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

➔ Hot Plug [Disabled]

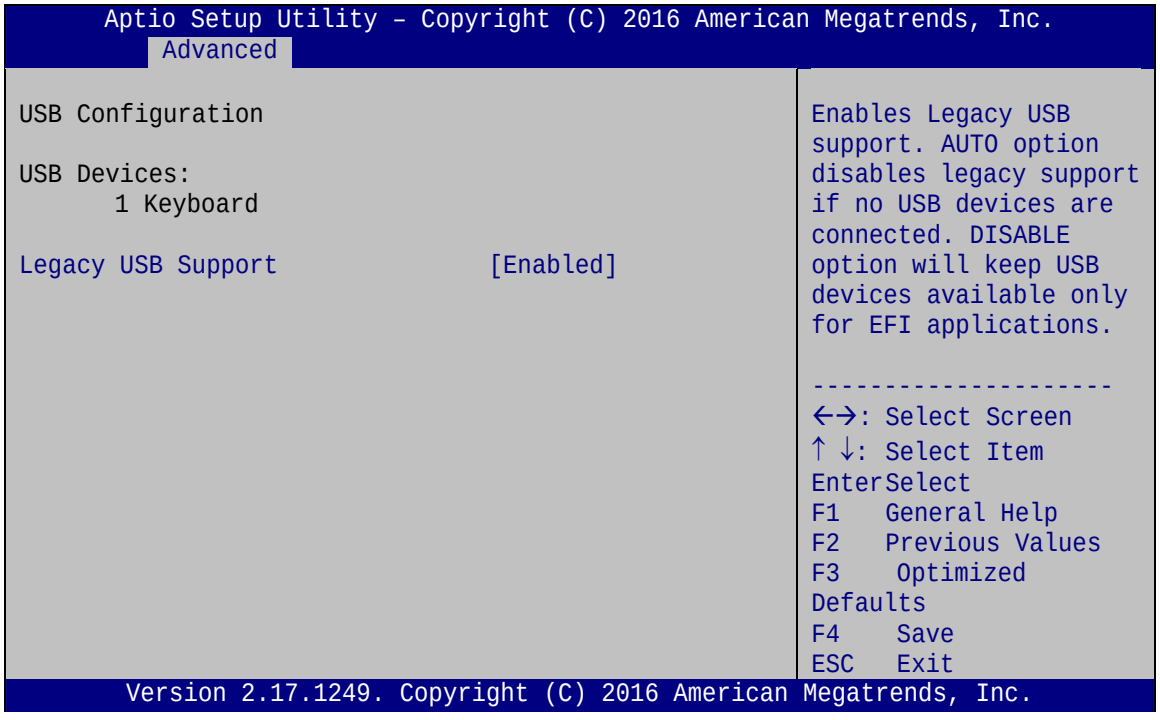
Use the **Hot Plug** option to configure the port as Hot Pluggable.

➔ **Disabled** **DEFAULT** Disables the port as Hot Pluggable.

➔ **Enabled** Enables the port as Hot Pluggable.

4.3.9 USB Configuration

Use the **USB Configuration** menu (**BIOS Menu 14**) to read USB configuration information and configure the USB settings.



BIOS Menu 14: 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.

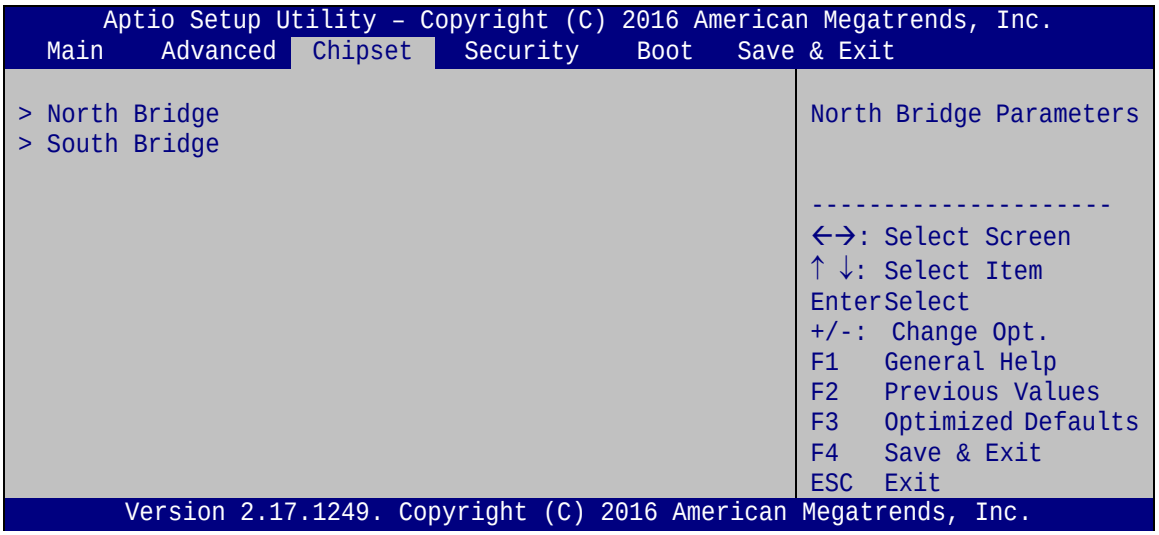
➔	**Enabled**	**DEFAULT**	Legacy USB support enabled
➔	**Disabled**		Legacy USB support disabled
➔	**Auto**		Legacy USB support disabled if no USB devices are connected

4.4 Chipset

Use the **Chipset** menu (**BIOS Menu 15**) to access the Northbridge and Southbridge configuration menus

WARNING!

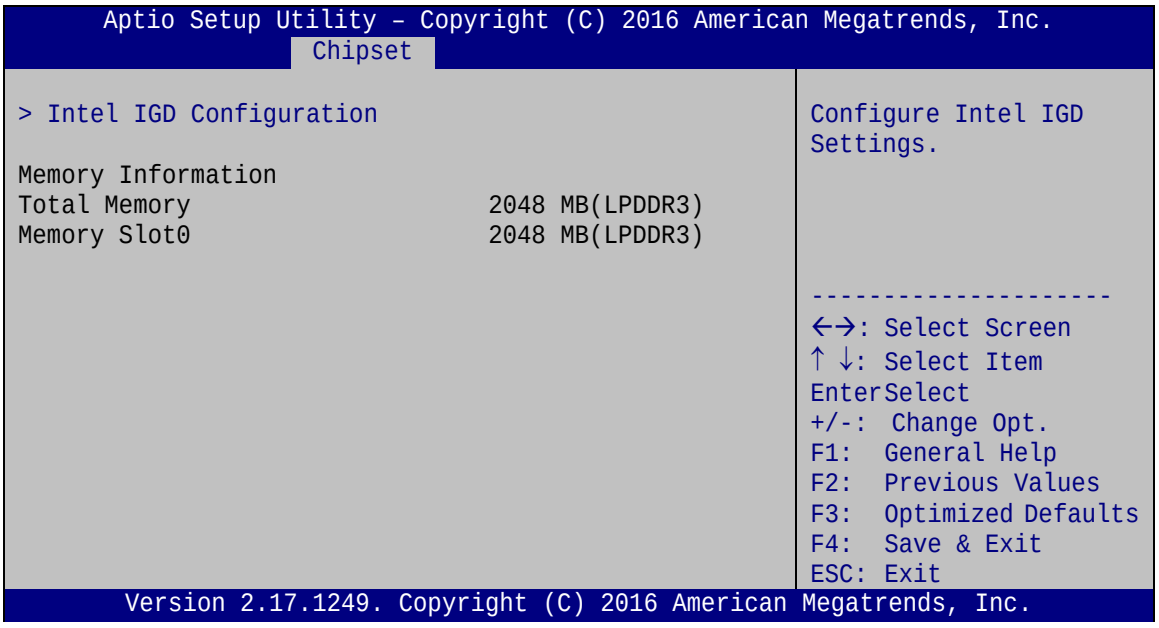
Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.



BIOS Menu 15: Chipset

4.4.1 North Bridge Configuration

Use the **North Bridge Configuration** menu (**BIOS Menu 16**) to configure the Intel IGD settings.



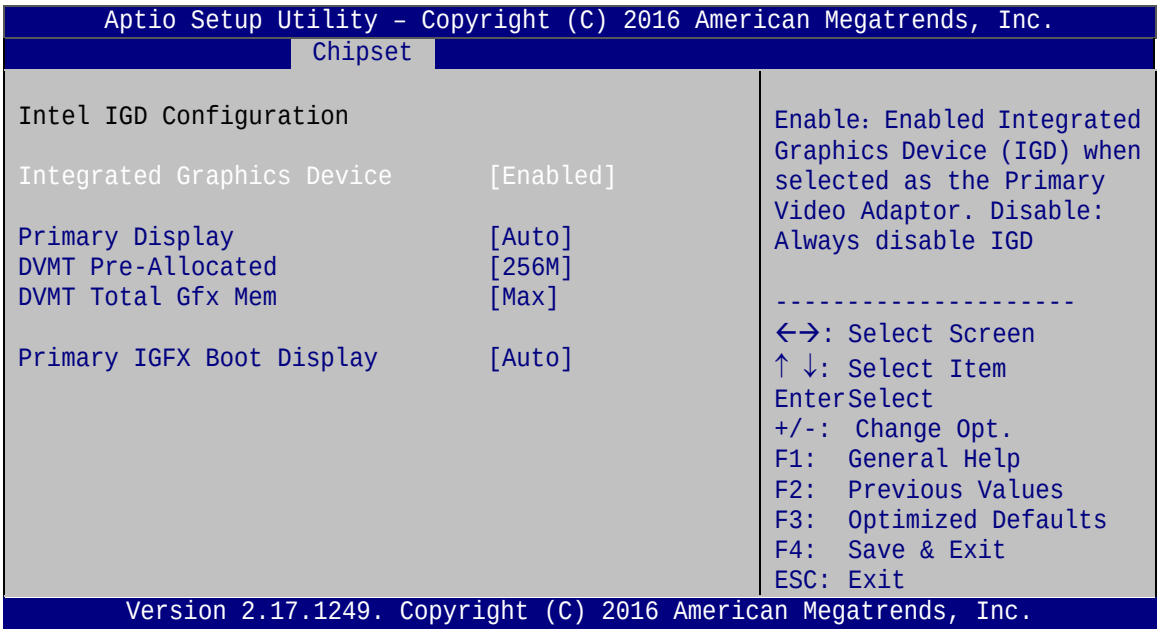
BIOS Menu 16: Northbridge Chipset Configuration

➔ Memory Information

The **Memory Information** lists a brief summary of the on-board memory. The fields in **Memory Information** cannot be changed.

4.4.1.1 Intel IGD Configuration

Use the **Intel IGD Configuration** menu (**BIOS Menu 17**) to configure the video device connected to the system.



BIOS Menu 17: Integrated Graphics

➔ **Integrated Graphics Device** [Enabled]

Use the **Integrated Graphics Device** BIOS option to enable or disable the Integrated Graphics Device (IGD) as the primary video adaptor,

➔	**Enabled**	**DEFAULT**	Enable the Integrated Graphics Device (IGD).
➔	**Disabled**		Disable the Integrated Graphics Device (IGD).

➔ Primary Display [Auto]

Use the **Primary Display** option to select the primary graphics controller the system uses. The following options are available:

- Auto **Default**
- IGD
- PCIe

➔ DVMT Pre-Allocated [256MB]

Use the **DVMT Pre-Allocated** option to set the amount of system memory allocated to the integrated graphics processor when the system boots. The system memory allocated can then only be used as graphics memory, and is no longer available to applications or the operating system. Configuration options are listed below:

- 64M
- 128M
- 256M **Default**
- 512M

➔ DVMT Total Gfx Mem [Max]

Use the **DVMT Total Gfx Mem** option to select DVMT5.0 total graphic memory size used by the internal graphic device. The following options are available:

- 128M
- 256M
- Max **Default**

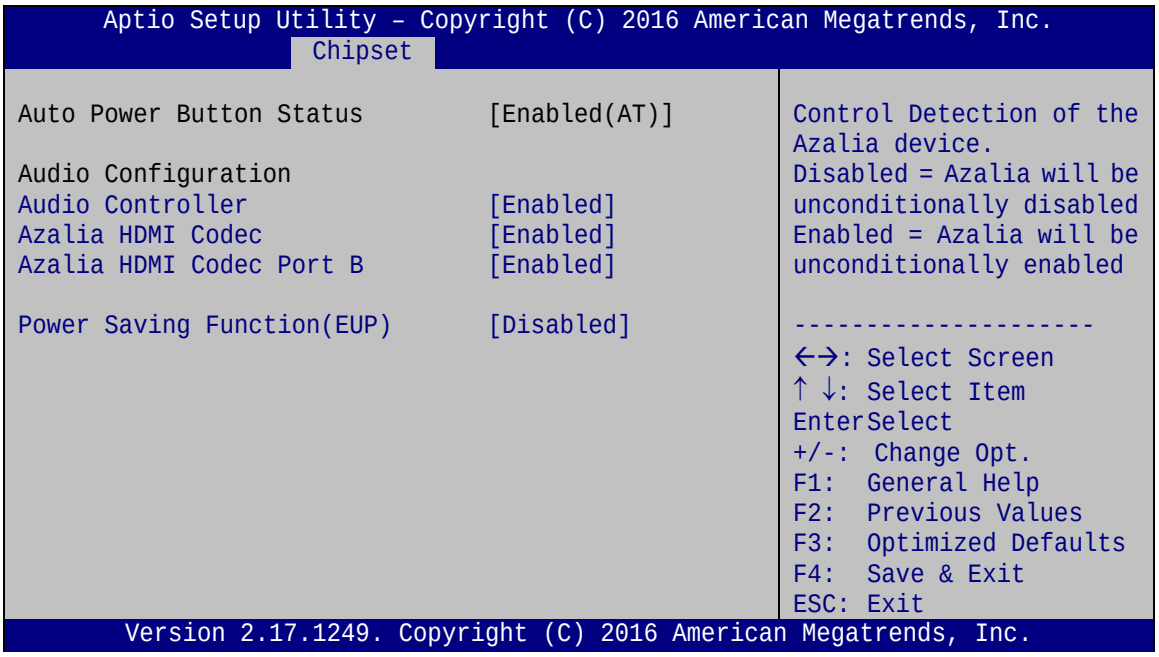
➔ Primary IGFX Boot Display [Auto]

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

- Auto **DEFAULT**
- CRT
- HDMI

4.4.2 Southbridge Configuration

Use the **Southbridge Configuration** menu (**BIOS Menu 18**) to configure the Southbridge chipset.



BIOS Menu 18: Southbridge Chipset Configuration

➔ Audio Controller [Enabled]

Use the **Audio Controller** option to enable or disable the High Definition Audio controller.

➔ **Disabled**		The onboard High Definition Audio controller is disabled
➔ **Enabled**	**DEFAULT**	The onboard High Definition Audio controller is detected automatically and enabled

➔ Azalia HDMI codec [Enabled]

Use the **Azalia HDMI codec** option to enable or disable the internal HDMI codec for Azalia.

➔ **Disabled**		Disable internal HDMI codec for Azalia
➔ **Enabled**	**DEFAULT**	Enable internal HDMI codec for Azalia

➔ Azalia HDMI codec Port B [Enabled]

Use the **Azalia HDMI codec Port B** option to enable or disable the internal HDMI port codec for Azalia.

➔ **Disabled** Disable internal HDMI port codec for Azalia

➔ **Enabled** **DEFAULT** Enable internal HDMI port codec for Azalia

➔ Power Saving Function (EUP) [Disabled]

Use the **Power Saving Function (EUP)** option to enable or disable the power saving function.

➔ **Disabled** **DEFAULT** Power saving function is disabled.

➔ **Enabled** Power saving function is enabled. It will reduce power consumption when the system is off.

4.5 Security

Use the **Security** menu (**BIOS Menu 19**) to set system and user passwords.

```
     Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc.
  Main    Advanced   Chipset   Security    Boot    Save & Exit

Password Description                          Set Setup 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            ←→: Select Screen
If ONLY the User's password is set, then this ↑ ↓: Select Item
is a power on password and must be entered to EnterSelect
boot or enter Setup. In Setup the User will   F1   General Help
have Administrator rights.                    F2   Previous Values
The password length must be:                  F3    Optimized
Minimum length                  3             Defaults
Maximum length                  20            F4    Save
                                              ESC   Exit
Administrator Password
User Password

       Version 2.17.1249. Copyright (C) 2016 American Megatrends, Inc.
```

BIOS Menu 19: Security

➔ Administrator Password

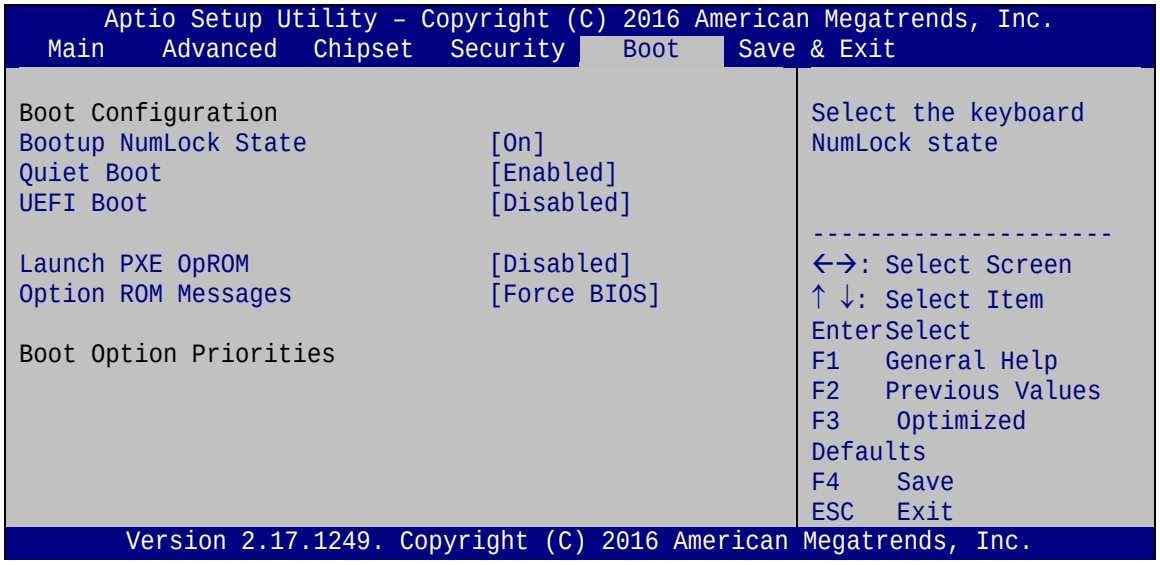
Use the **Administrator Password** to set or change a administrator password.

➔ User Password

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

4.6 Boot

Use the **Boot** menu (**BIOS Menu 20**) to configure system boot options.



BIOS Menu 20: 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

➔ 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.

➔ Launch PXE OpROM [Disabled]

Use the **Launch PXE OpROM** option to enable or disable boot option for legacy network devices.

➔ **Disabled**	**DEFAULT**	Ignore all PXE Option ROMs
➔ **Enabled**		Load PXE Option ROMs.

➔ 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.

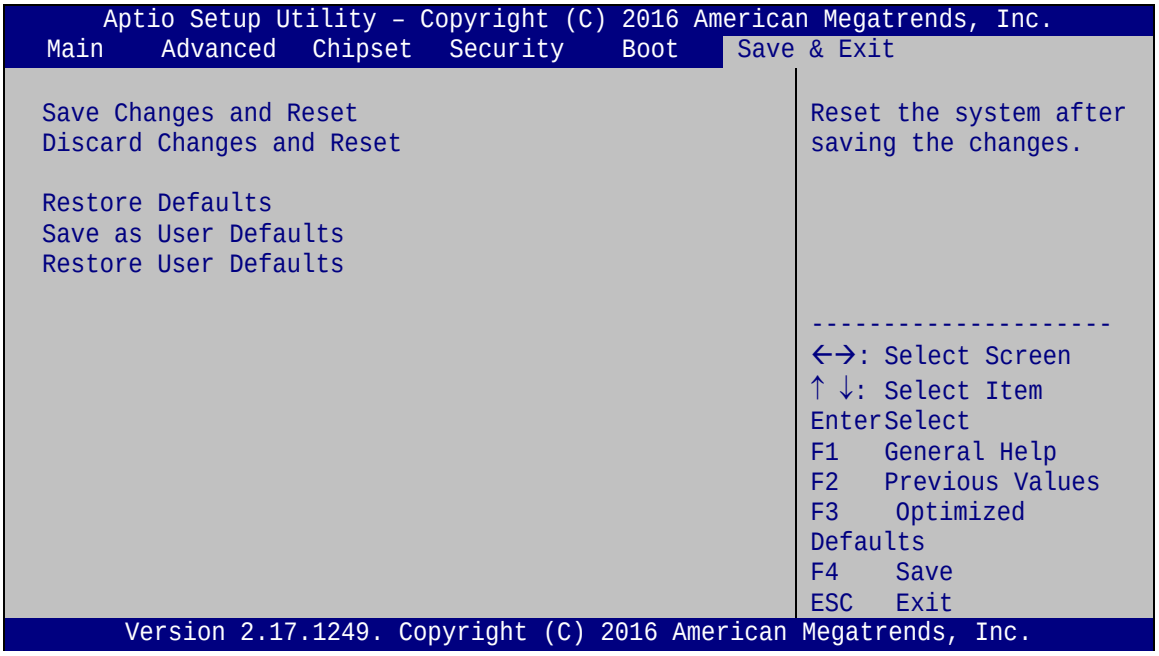
➔ **Keep Current** Sets display mode to current.

➔ Boot Option Priority

Use the **Boot Option Priority** function to set the system boot sequence from the available devices. The drive sequence also depends on the boot sequence in the individual device section.

4.7 Exit

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



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.

Appendix

A

Regulatory Compliance

DECLARATION OF CONFORMITY

CE

This equipment is in conformity with the following EU directives:

- EMC Directive (2004/108/EC, 2014/30/EU)
- Low-Voltage Directive (2006/95/EC, 2014/35/EU)
- RoHS II Directive (2011/65/EU, 2015/863/EU)
- Ecodesign Directive 2009/125/EC

If the user modifies and/or install other devices in the equipment, the CE conformity declaration may no longer apply.

If this equipment has telecommunications functionality, it also complies with the requirements of the Radio Equipment Directive 2014/53/EU.

	English IEI Integration Corp declares that this equipment is in compliance wi the essential requirements and other relevant provisions of Directive 2014/53/EU.
	Български [Bulgarian] IEI Integration Corp. декларира, че този оборудване е в съответствие със съществените изисквания и другите приложим правила на Директива 2014/53/EU.
	Česky [Czech] IEI Integration Corp tímto prohlašuje, že tento zařízení je ve shodě s základními požadavky a dalšími příslušnými ustanoveními směrnice 2014/53/EU.
	Dansk [Danish] IEI Integration Corp erklærer herved, at følgende udstyr overholder de væsentlige krav og øvrige relevante krav i direktiv 2014/53/EU.

	Deutsch [German] IEI Integration Corp, erklärt dieses Gerät entspricht den grundlegenden Anforderungen und den weiteren entsprechenden Vorgaben der Richtlinie 2014/53/EU.
	Eesti [Estonian] IEI Integration Corp deklareerib seadme seadme vastavust direktiivi 2014/53/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
	Español [Spanish] IEI Integration Corp declara que el equipo cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 2014/53/EU.
	Ελληνική [Greek] IEI Integration Corp ΔΗΛΩΝΕΙ ΟΤΙ ΕΞΟΠΛΙΣΜΟΣ ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 2014/53/EU.
	Français [French] IEI Integration Corp déclare que l'appareil est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 2014/53/EU.
	Italiano [Italian] IEI Integration Corp dichiara che questo apparecchio è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 2014/53/EU.
	Latviski [Latvian] IEI Integration Corp deklarē, ka iekārta atbilst būtiskajām prasībām un citiem ar to saistītajiem noteikumiem Direktīvas 2014/53/EU.

	Lietuvių [Lithuanian] IEI Integration Corp deklaruoja, kad šis įranga atitinka esminius reikalavimus ir kitas 2014/53/EU Direktyvos nuostatas.
	Nederlands [Dutch] IEI Integration Corp dat het toestel toestel in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 2014/53/EU.
	Malti [Maltese] IEI Integration Corp jiddikjara li dan prodott jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 2014/53/EU.
	Magyar [Hungarian] IEI Integration Corp nyilatkozom, hogy a berendezés megfelel a vonatkozó alapvetõ követelményeknek és az 2014/53/EU irányelv egyéb elõírásainak.
	Polski [Polish] IEI Integration Corp oświadcza, że wyrobu jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 2014/53/EU.
	Português [Portuguese] IEI Integration Corp declara que este equipamento está conforme com os requisitos essenciais e outras disposições da Directiva 2014/53/EU.
	Româna [Romanian] IEI Integration Corp declară că acest echipament este in conformitate cu cerințele esențiale şi cu celelalte prevederi relevante ale Directivei 2014/53/EU.

	Slovensko [Slovenian] IEI Integration Corp izjavlja, da je ta opreme v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 2014/53/EU.
	Slovensky [Slovak] IEI Integration Corp týmto vyhlasuje, že zariadenia spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 2014/53/EU.
	Suomi [Finnish] IEI Integration Corp vakuuttaa täten että laitteet on direktiivin 2014/53/EU oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
	Svenska [Swedish] IEI Integration Corp förklarar att denna utrustningstyp står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 2014/53/EU.

FCC WARNING

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Federal Communication Commission Interference Statement

This equipment has been assembled with components that comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Appendix

B

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 uIBX-250-BW.

B.1 Safety Precautions

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

B.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 device is opened.
- ***Make sure the power is turned off and the power cord is disconnected*** whenever the uIBX-250-BW is being installed, moved or modified.
- ***To prevent the risk of electric shock, make sure power cord is unplugged from wall socket.*** To fully disengage the power to the unit, please disconnect the power cord from the AC outlet. Refer servicing to qualified service personnel. The AC outlet shall be readily available and accessible.
- ***Do not apply voltage levels that exceed the specified voltage range***. Doing so may cause fire and/or an electrical shock. Use a power cord that matches the voltage of the power outlet, which has been approved and complies with the safety standard of your particular country.
- ***Electric shocks can occur*** if the uIBX-250-BW chassis is opened when it is running. To avoid risk of electric shock, this device must only be connected to a supply mains with protective earth.
- ***Do not drop or insert any objects*** into the ventilation openings of the uIBX-250-BW.

- ***If considerable amounts of dust, water, or fluids enter the* device**, turn off the power supply immediately, unplug the power cord, and contact the uIBX-250-BW vendor.
- **DO NOT**:
  - Drop the device against a hard surface.
  - Strike or exert excessive force onto the LCD panel.
  - Touch any of the LCD panels with a sharp object
  - In a site where the ambient temperature exceeds the rated temperature

B.1.2 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the uIBX-250-BW may result in permanent damage to the uIBX-250-BW and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the uIBX-250-BW. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the uIBX-250-BW 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 anti-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.

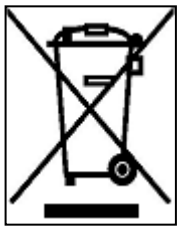
B.1.3 Product Disposal

CAUTION:

Risk of explosion if battery is replaced by an 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 – The device that produces less waste and is easier to recycle is classified as electronic device in terms of the European Directive 2012/19/EU (WEEE), and must not be disposed of as domestic garbage.



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.

B.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the uIBX-250-BW, please follow the guidelines below.

WARNING:

- For safety reasons, turn-off the power and unplug the panel PC before cleaning.
- If you dropped any material or liquid such as water onto the panel PC when cleaning, unplug the power cable immediately and contact your dealer or the nearest service center. Always make sure your hands are dry when unplugging the power cable.

B.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the uIBX-250-BW, 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 of the device does not require cleaning. Keep fluids away from the device interior.
- Be cautious of all small removable components when vacuuming the device.
- Never drop any objects or liquids through the openings of the device.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the device.
- Avoid eating, drinking and smoking within vicinity of the device.

B.2.2 Cleaning Tools

Some components in the uIBX-250-BW 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 when cleaning the uIBX-250-BW.

- ***Cloth*** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the device.

- ***Water or rubbing alcohol*** – A cloth moistened with water or rubbing alcohol can be used to clean the device.
- ***Using solvents*** – The use of solvents is not recommended when cleaning the device as they may damage the plastic parts.
- ***Vacuum cleaner*** – Using a vacuum specifically designed for computers is one of the best methods of cleaning the device. Dust and dirt can restrict the airflow in the device and cause its 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

C

BIOS Menu Options

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

- System Date [xx/xx/xx] 29
- System Time [xx:xx:xx] 30
- ACPI Sleep State [S3 only (Suspend to RAM)] 31
- Serial Port [Enabled] 33
- Change Settings [Auto] 33
- Device Mode [RS232] 33
- Serial Port [Enabled] 34
- Change Settings [Auto] 34
- Device Mode [RS232] 34
- PC Health Status 35
- CPU Smart Fan control [Auto PWM Mode] 36
- Temperature of Off [75] 37
- Temperature of Start [80 37
- Start PWM [30] 37
- Slope (Duty Cycle) [4] 38
- Wake system with Fixed Time [Disabled] 39
- Console Redirection [Disabled] 40
- Terminal Type [ANSI] 41
- Bits per second [115200] 41
- Data Bits [8] 42
- Parity [None] 42
- Stop Bits [1] 42
- Auto Recovery Function [Disabled] 43
- Intel® Virtualization Technology [Disabled] 44
- EIST [Enabled] 44
- CPU C state Report [Disabled] 45
- SATA Controller [Enabled] 45
- SATA Mode Selection [AHCI] 46
- Hot Plug [Disabled] 46
- USB Devices 47
- Legacy USB Support [Enabled] 47
- Memory Information 49
- Integrated Graphics Device [Enabled] 49

- ➔ Primary Display [Auto] 49
- ➔ DVMT Pre-Allocated [256MB] 50
- ➔ DVMT Total Gfx Mem [Max] 50
- ➔ Primary IGFX Boot Display [Auto] 50
- ➔ Audio Controller [Enabled] 51
- ➔ Azalia HDMI codec [Enabled] 51
- ➔ Azalia HDMI codec Port B [Enabled] 51
- ➔ Power Saving Function (EUP) [Disabled] 52
- ➔ Administrator Password 52
- ➔ User Password 53
- ➔ Bootup NumLock State [On] 53
- ➔ Quiet Boot [Enabled] 54
- ➔ UEFI Boot [Disabled] 54
- ➔ Launch PXE OpROM [Disabled] 54
- ➔ Option ROM Messages [Force BIOS] 54
- ➔ Boot Option Priority 55
- ➔ Save Changes and Reset 55
- ➔ Discard Changes and Reset 56
- ➔ Restore Defaults 56
- ➔ Save as User Defaults 56
- ➔ Restore User Defaults 56

Appendix

D

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 D-sub 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 Controll 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

E

Hazardous Materials Disclosure

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 following table.

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 (now replaced by GB/T 26572-2011).

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 (now replaced by GB/T 26572-2011).

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/T 11363-2006 (现由 GB/T 26572-2011 取代) 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/T 11363-2006 (现由 GB/T 26572-2011 取代) 标准规定的限量要求。