M-Series Box PC

Intel® Atom™ E3845
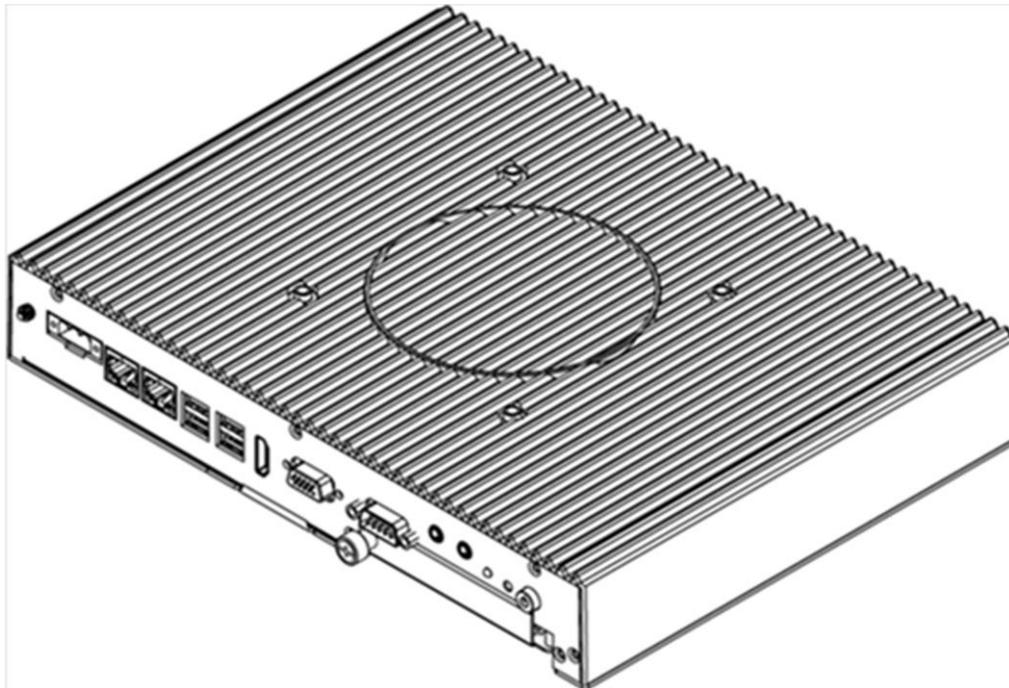
IBMH100

User Manual

Version 1.1

Document Part Number: 915211171010

CONTENTS

PREFACE

Copyright Notice

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Disclaimer

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Warranty

We warrant that each of its products will be free from material and workmanship defects for a period of one year from the invoice date.(Standard is one year, extended warranty will need to discuss with our sales representatives. If the customer discovers a defect, we will, at its option, repair or replace the defective product at no charge to the customer, provided it is returned during the warranty period of one year, with transportation charges prepaid. The returned product must be properly packaged in its original packaging to obtain warranty service.

If the serial number and the product shipping data differ by over 30 days, the in-warranty service will be made according to the shipping date. In the serial numbers the third and fourth two digits give the year of manufacture, and the fifth digit means the month (e. g., with A for October, B for November and C for December).

For example, the serial number 1W16Axxxxxxxx means October of year 2016.\

Customer Service

We provide a service guide as below for any problem by the following steps: First, contact your distributor, sales representative, or our customer service center for technical support if you need additional assistance. You need to prepare the following information before you call:

- Product serial number
- Peripheral attachments
- Software (OS, version, application software, etc.)
- Detailed problem description
- The exact wording of any error messages

In addition, free technical support is available from our engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products. Please do not hesitate to call or e-mail us.

Advisory Conventions

Four types of advisories are used throughout the user manual to provide helpful information or to alert you to the potential for hardware damage or personal injury. These are Notes, Important, Cautions, and Warnings. The following is an example of each type of advisory.

NOTE:
A note is used to emphasize helpful information

IMPORTANT:
An important note indicates information that is important for you to know.

CAUTION
A Caution alert indicates potential damage to hardware and explains how to avoid the potential problem.

WARNING!
An Electrical Shock Warning indicates the potential harm from electrical hazards and how to avoid the potential problem.

Safety Precautions

WARNING!

Always completely disconnect the power from OPS module whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges.

CAUTION

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Safety and Warranty

1. Please read these safety instructions carefully. and keep this user manual for later reference.
2. Please disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.
3. For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
4. Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
5. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
6. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
7. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
8. If any of the following situations arises, get the equipment checked by service personnel:
    A. The power cord or plug is damaged.
    B. Liquid has penetrated into the equipment.
    C. The equipment has been exposed to moisture.
    D. The equipment does not work well, or you cannot get it to work according to the user's manual.
    E. The equipment has been dropped and damaged.
    F. The equipment has obvious signs of breakage

ABOUT THIS USER MANUAL

This User Manual provides information about using the Winmate® M-Series Box PC with Intel® Atom™ E3845 processor. The documentation set for the M -Series Box PC provides information for specific user needs, and includes:

- **M-Series Box PC User Manual** – contains detailed description on how to use the Box PC, its components and features.
- **M-Series HMI Quick Start Guide** - describes how to get the HMI device up and running.

NOTE:
Some pictures in this guide are samples and can differ from actual product.

Document Revision History

Version	Date	Note
1.0	9-Sep-2016	Initial release.
1.1	24-May-2017	Revise mechanical drawing.

GENERAL INFORMATION

This chapter includes IBMH100 Industrial PC background information.

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CHAPTER 1: GENERAL INFORMATION

This chapter includes IBMH100 M-Series Box PC background information such as features, hardware specification, dimensions and appearance.

1.1 Introduction

Thank you for choosing the Winmate® IBMH100 M-Series Box PC. This is versatile and cost-effective solution for your industrial needs. Intel® Atom™ E3845 1.91 GHz processor onboard with fanless cooling system assures steady performance and silent functioning. Motherboard offers various inputs/ output connectors: two Ethernet ports, four USB2.0, HDMI and VGA outputs, serial port COM1 and 2.5" SSD Bay.

PRO Series Industrial PC perfectly fits in applications where total costs of ownership (TCO) and quick recovery of failure is important. The flexible system design provides easy access to components and can be serviced by local maintenance team.

Versatile, easy-to-service and upgradable IBMH100 offers the best solution for industrial and building automation.

1.2 Features

Winmate® M-Series Box PC has the following features:

- Modular design
- Auto-detection of the connected display, No settings necessary.
- Quick & Easy Replaceable Hard Disk Design, No Tools needed
- Support wide range 12-24V DC input
- Optional with Modular front Display as a Panel PC
- One Quick & Easy removable 2.5" SSD Bay Slot

1.3 Package Contents

Carefully remove the box and unpack your IBMH100 Industrial PC. Please check if all the items listed below are inside your package. If any of these items are missing or damaged contact us immediately.

Standard factory shipment list:
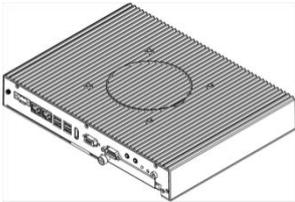
IBMH100 Box PC	Driver CD	Quick Start Guide (Hardcopy)
Varies by product specifications	9171111I102T	915211101023
Open Wire Cable	Power Cord	AC Adapter + Terminal Block (12V/ 80W)
94EL02X020E0	Varies by country	90PO12080007
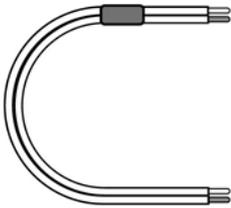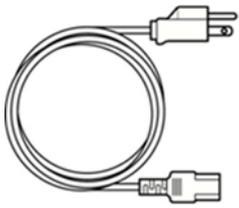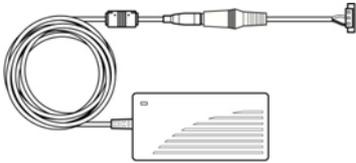
1.4 Physical Description

This section explains physical characteristics of the IBMH100 M-Series Box PC.

1.4.1 Connector Placement and Dimensions

The module front panel consists of 2.5" SSD Bay, power/reset buttons, audio jacks, two RJ45 connectors, HDMI and VGA outputs, and four USB2.0 ports.

Measurements shown in mm

All Dimensions are ± 0.5 mm
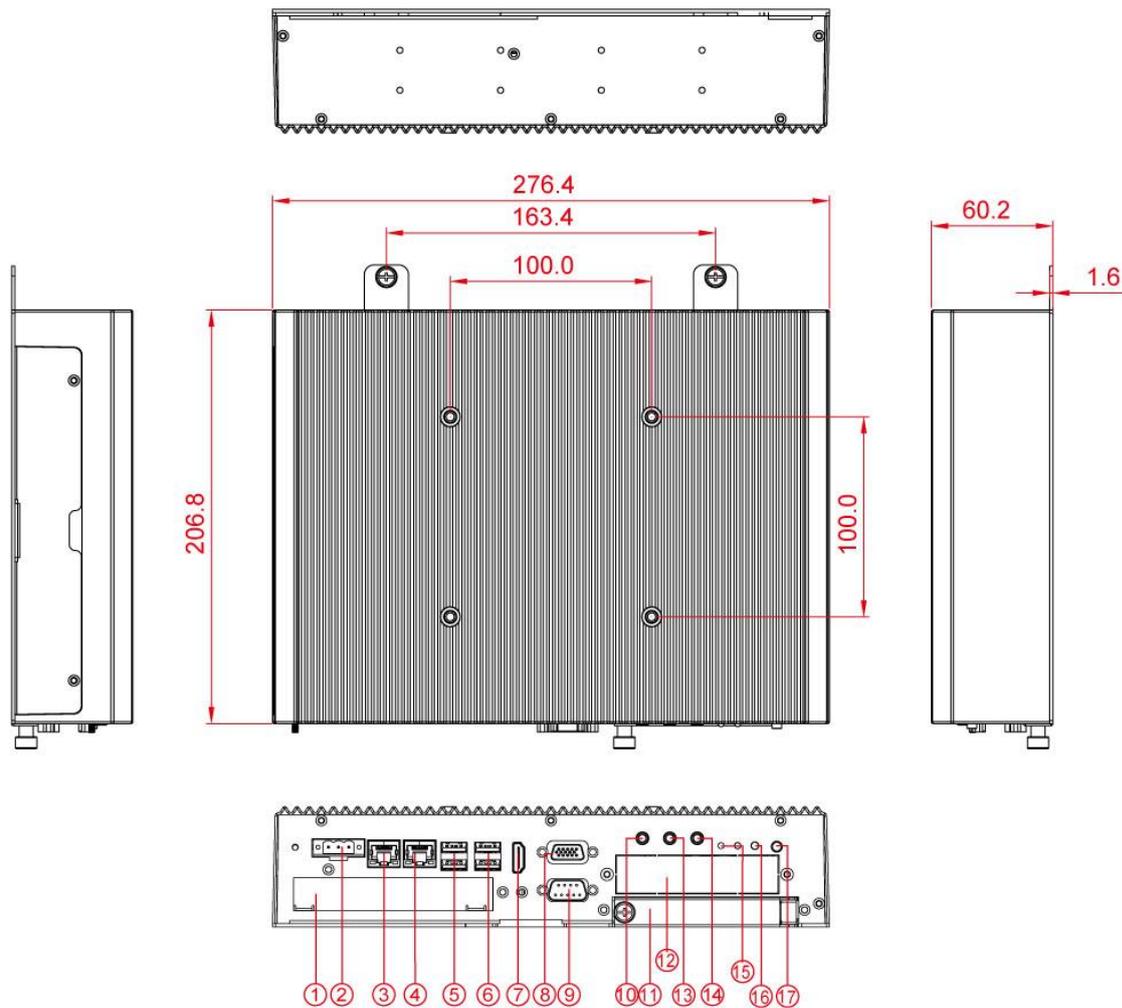
No	Description	No	Description
①	12-24V DC-in	⑧	COM1
②	LAN	⑨	2.5" SSD Bay
③	LAN	⑩	Audio in
④	2 x USB 2.0	⑪	Audio out
⑤	2 x USB 2.0	⑫	HDD indicator
⑥	HDMI output	⑬	Reset Button
⑦	VGA output	⑭	Power Button

HARDWARE INSTALLATION

This chapter provides information on how to use jumpers and connectors on the motherboard, and the IBMH100 Industrial PC hardware specifications and installation instruction.

CHAPTER 2: HARDWARE INSTALLATION

This chapter provides information on external connectors on IBMH100 M-Series Box PC and hardware specifications and installation instruction.

2.1 Connector Pin Assignments

This section includes I/O side connectors and its pinouts.

2.1.1 Isolated DC in Connector

IBMH100 has a 3pin terminal block that accepts DC in 12~24V.
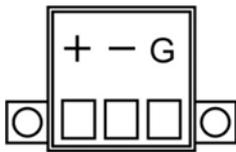
⚡ **Voltage**	Minimum Voltage 12V
	Maximum Voltage 24V
	Maximum Current 6.6A

2.1.2 Audio in / Audio out
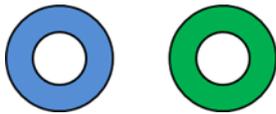
Color	Signal Name
Blue	Line In
Green	Line Out

2.1.3 COM1 Serial Port Connector

The IBMH100 uses D-SUB 9pin connector to connect serial interfaces. Serial COM1 settings can be configured for RS-232, RS-422 or RS-485 by jumpers located on the motherboard.
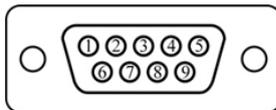
Pin №	RS-232 (Default)	RS-422	RS-485
1	DCD	TxD-	D-
2	RXD	TxD+	D+
3	TXD	RxD+	NC
4	DTR	RxD-	NC
5	GND	GND	GND
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC

2.1.4 HDMI Output Connector

The IBMH100 uses D-SUB 9pin connector to connect serial interfaces.
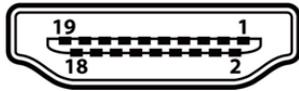
Pin №	Signal Name	Pin №	Signal Name
1	TMDS_DATA2+	2	GND
3	TMDS_DATA2-	4	TMDS_DATA1+
5	GND	6	TMDS_DATA1-
7	TMDS_DATA0+	8	GND
9	TMDS_DATA0-	10	TMDS_CLOCK+
11	GND	12	TMDS_CLOCK-
13	CEC	14	NC
15	DDC_CLOCK	16	DDC_DATA
17	GND	18	5V
19	Hot Plug Detect		

2.1.5 USB 2.0 Connector

Use USB 2.0 connectors to connect external devices such as mouse or keyboard to the device.

Pin №	Signal Name	Pin №	Signal Name
1	+5V	2	Data-
3	Data+	4	GND

2.1.6 VGA Output Connector

The IBMH100 has VGA connector (D-Sub 15pin Female). Use VGA cable to connect the display to the PC system.
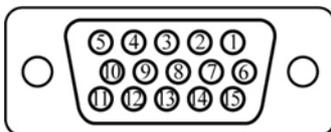
Pin №	Signal Name	Pin №	Signal Name
1	RED	2	GREEN
3	BLUE	4	ID2/RES
5	GND	6	RED_RTN
7	GREEN_RTN	8	BLUE_RTN
9	KEY/PWR	10	GND
11	ID0/RES	12	ID1/SDA
13	HSync	14	VSync
15	ID3/SCL		

2.1.7 LAN Connector

The IBMH100 equipped with one RJ45 10/100/1000 Mbps Ethernet interface for connecting to the internet.
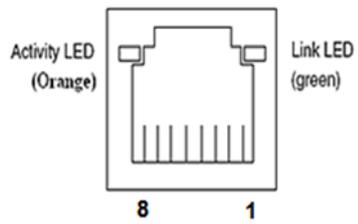
Pin №	Signal Name	Pin №	Signal Name
1	TX1+	2	TX1-
3	TX2+	4	TX2-
5	TX3+	6	TX3-
7	TX4+	8	TX4-

2.2 Hardware Installation

This section explains how to replace HDD/SDD, install PCI Card/ RAM/ Internal SSD, and replace fuses on the IBMH100 M-Series Box PC.

WARNING!

Switch off the power and unplug the power cord. Each time the IBMH100 M-Series Box PC is serviced, users should be aware of this condition.

2.2.1 Hard Disk Replacement

Remove the hard disk:

1. Loosen by hand one thumbscrew on the rear bottom side of the device. In order to loosen the screw slightly push the screw and turn it to the left.
2. Open the cover door.
3. Carefully pull the 2.5" hard disk bay out of the slot.
4. The hard disk bay don't not fall out by itself, the retaining springs hold it in place. Hard disk can't be inserted in the wrong direction.
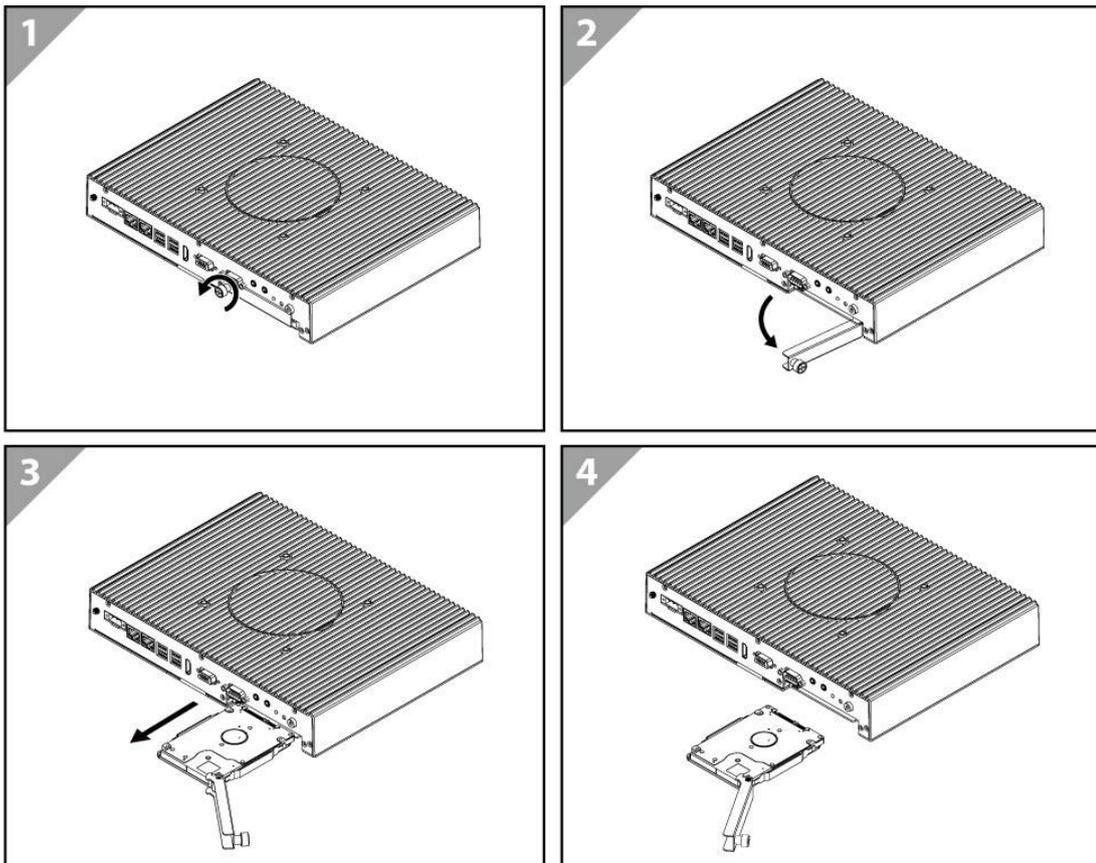
Reverse this procedure to install the hard disk bay.

2.2.2 PCI Card, RAM, Internal SSD, Fuse Replacement

To replace the PCI card, RAM, Internal SSD, Fuse:

1. Turn the device right-side up, with the back toward you.
2. Loosen two Philips M3x5 screws that secure side cover.
3. Loosen four Philips M3x5 screws that secure top cover.
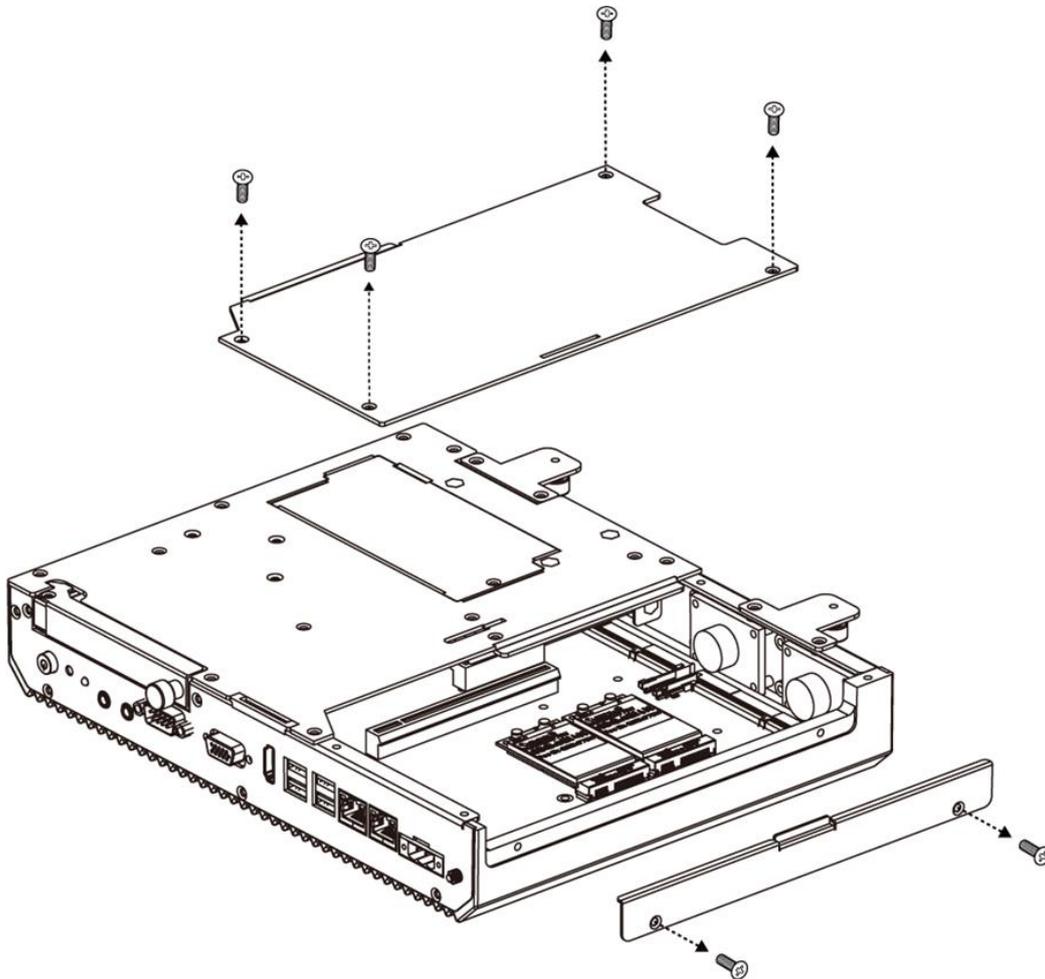
4. Remove PCI card/ RAM/ Internal SSD/ Fuse
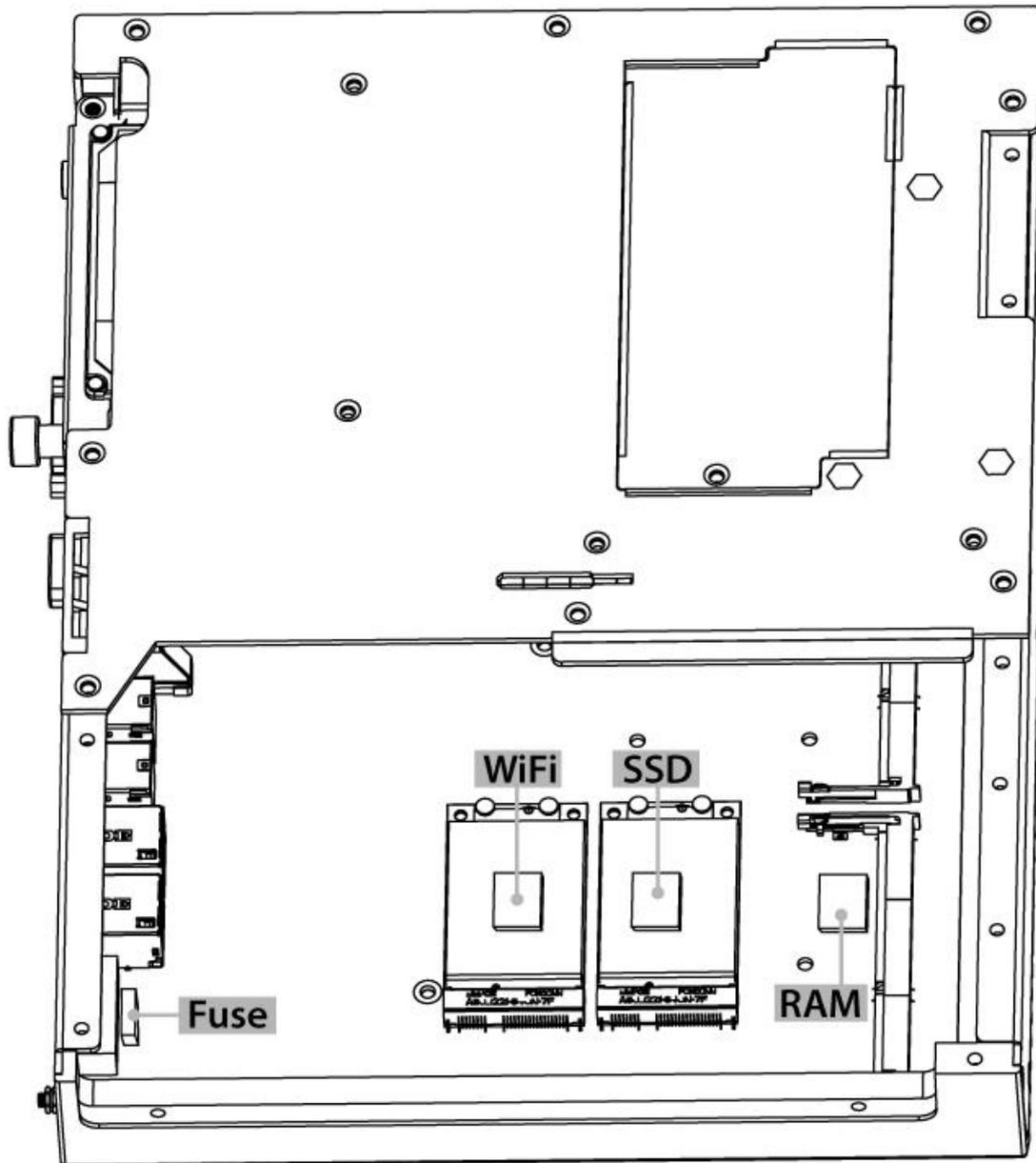
Reverse this procedure to install the PCI card/ RAM/ Internal SSD/ Fuse.

DRIVER INSTALLATION

This chapter provides driver installation instructions.

3

CHAPTER 3: DRIVER INSTALLATION

This chapter provides driver installation instructions.

3.1 Chipset Driver

Step 1 Insert the CD that comes with the motherboard. Open the file document "Chipset Driver" and click "infinst_auto.exe" to install driver.
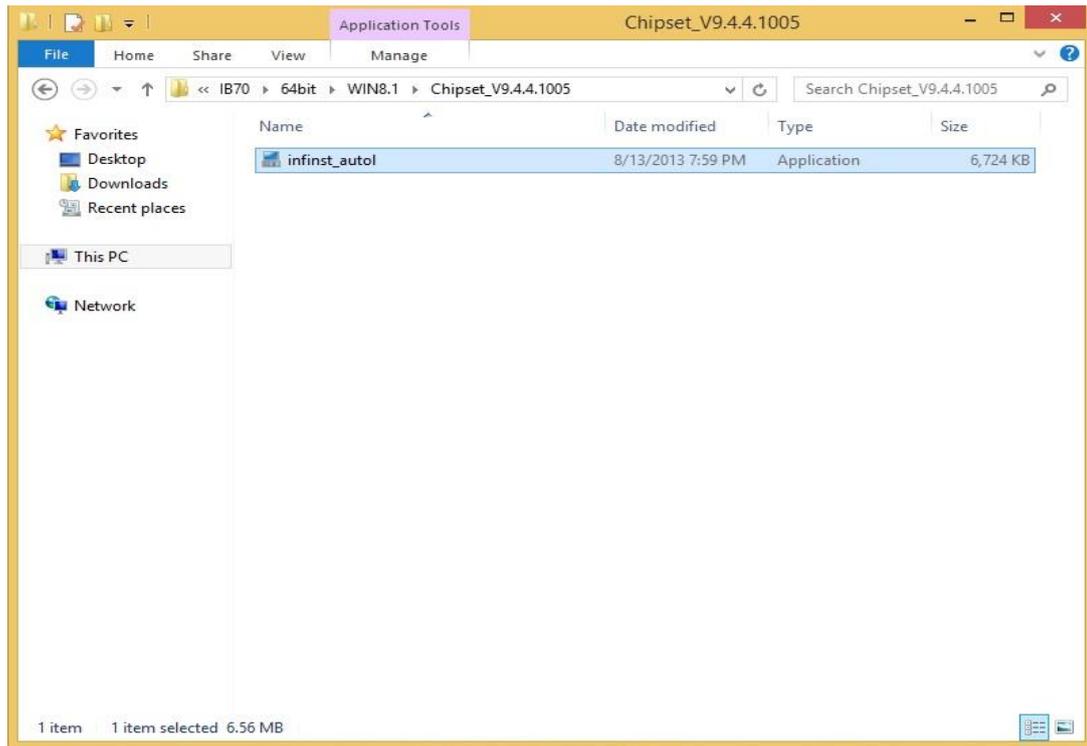
Step 2 Click **Next** to continue.

Step 3 Click Yes to agree the license terms.

Step 4 Click **Next** to install the driver.

Step 5 Software setup progress window will appear, click **Next** to continue.

Step 6 Click **"Yes, I want to restart this computer now"** to finish the installation.

3.2 Graphics Driver

Step 1 Insert the CD that comes with the motherboard. Open the file document
"Graphics Driver" and click **Setup** to execute the setup.

Step 2 Setup Welcome Window will appear, click **Next** to continue the process.
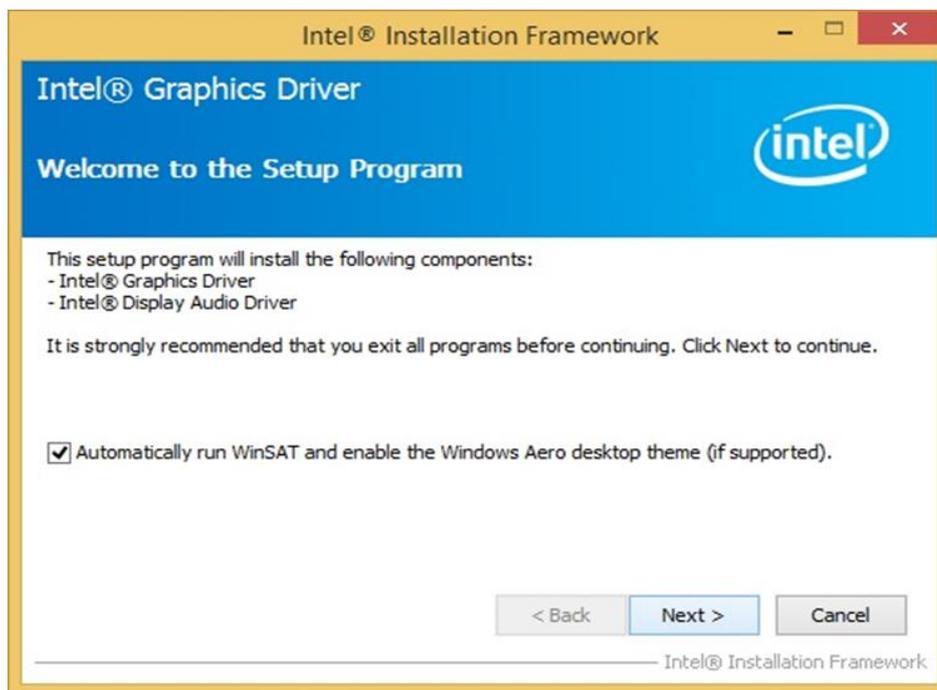
Step 3 Carefully read the license terms and click **Yes** to agree.

Step 4 Check Readme file information, and click **Next** to install driver.

Step 5 Click **Next** to continue.

Step 6 Windows Security window will appear, click **"Install this driver software anyway"** to continue.

Step 7 Setup Progress window will appear, click **Next** to continue the installation.

Step 8 Setup is complete, click **"Yes, I want to restart this computer now"** to finish the installation and restart the computer.

3.3 Audio Driver

The ALC886 series are high-performance 7.1+2 channel high definition audio codecs that provide ten DAC channels for simultaneous support of 7.1 sound playback, plus 2 channels of independent stereo sound output (multiple streaming) through the front panel stereo outputs. The series integrates two stereo ADCs that can support a stereo microphone, and feature Acoustic Echo Cancellation (AEC), Beam Forming (BF), and Noise Suppression (NS) technology.

Step 1 Insert the CD that comes with the motherboard. Open the file document "Audio Driver" and click "Setup.exe" to install the driver.
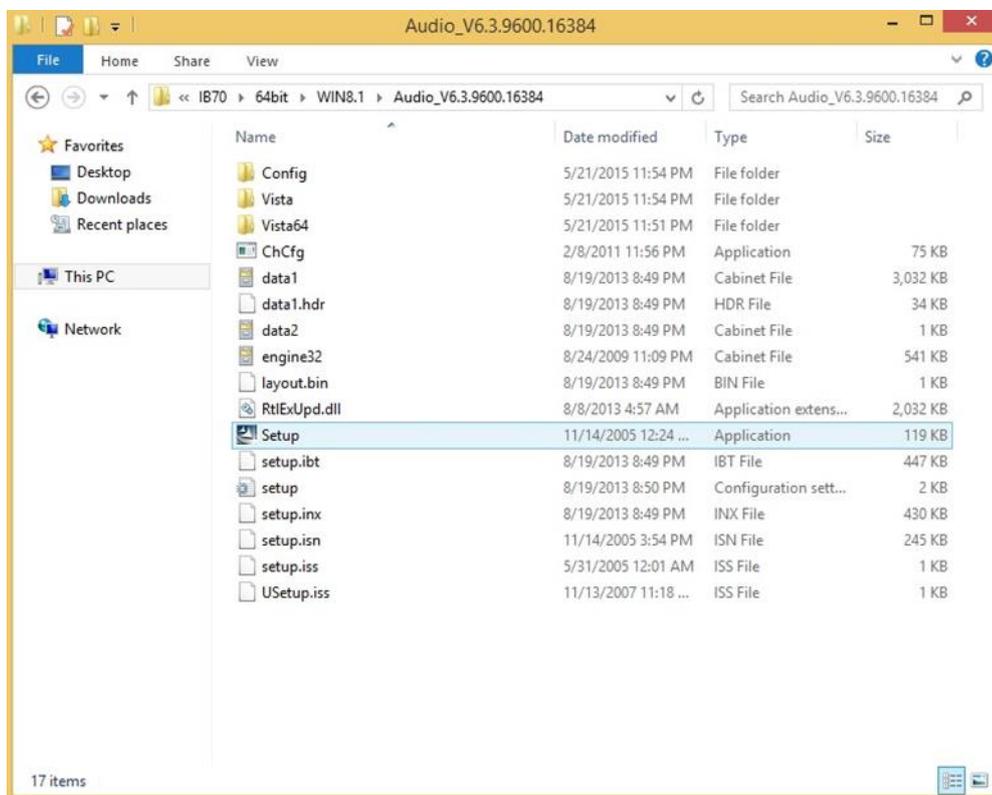
Step 2 Please wait while the InstalShield Wizard prepares the setup.
Step 3 Welcome window will appear, click **Next** to install the driver.
Step 4 It might take some time to configure new software installation. Please wait.
Step 5 Windows security will appear, click **Install** to install the audio driver.
Step 6 The installation is complete, select **"Yes, I want to restart my computer now"**, and click **Finish** to complete the installation.

3.4 Intel MBI Driver (Windows 8)

Step 1 Insert the CD that comes with the motherboard. Open the file document **"MBI"** and click **"Setup.exe"** to install the driver.
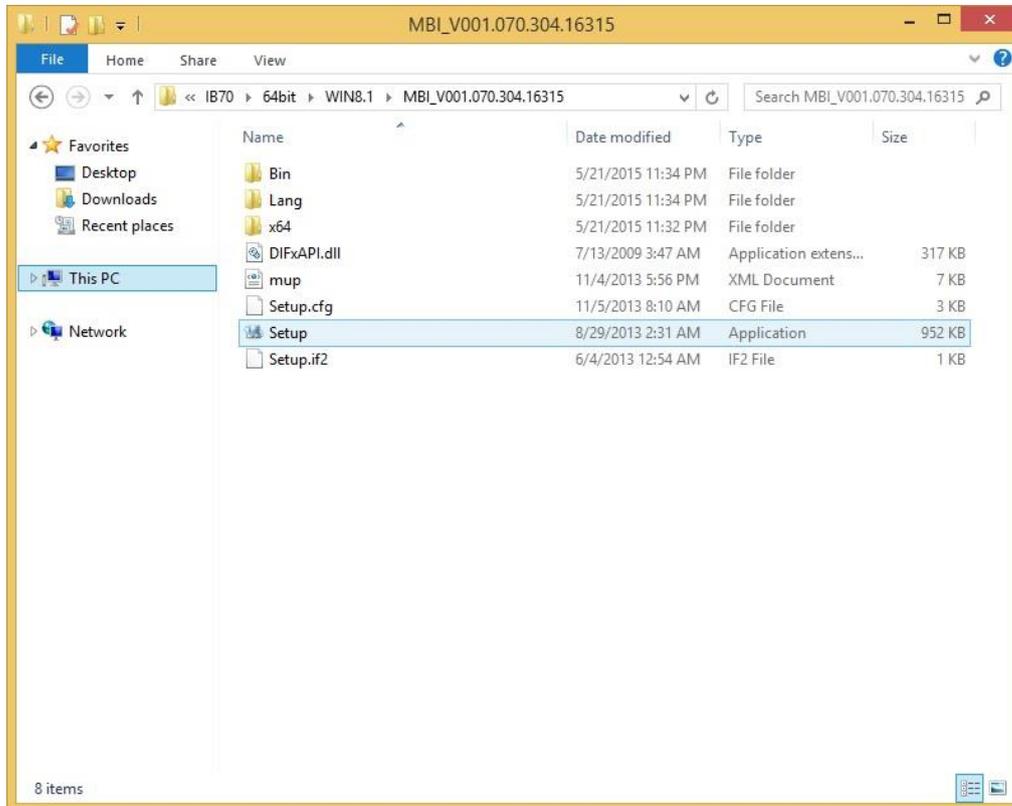
Step 2 Welcome to the setup program window will appear, click **Next** to start the installation.

Step 3 Carefully read the License Agreement terms and click **Yes** to agree.

Step 4 Setup progress will appear, please wait for the operations to be performed, then click **Next** to continue.

Step 5 The installation is complete, click "**Yes, I want to restart this computer now**" to finish and restart the computer.

3.5 Intel Trusted Engine Interface (Intel TXE) Driver

Step 1 Insert the CD that comes with the motherboard. Open the file document "TXE" and click "Setup TXE.exe" to install the driver.
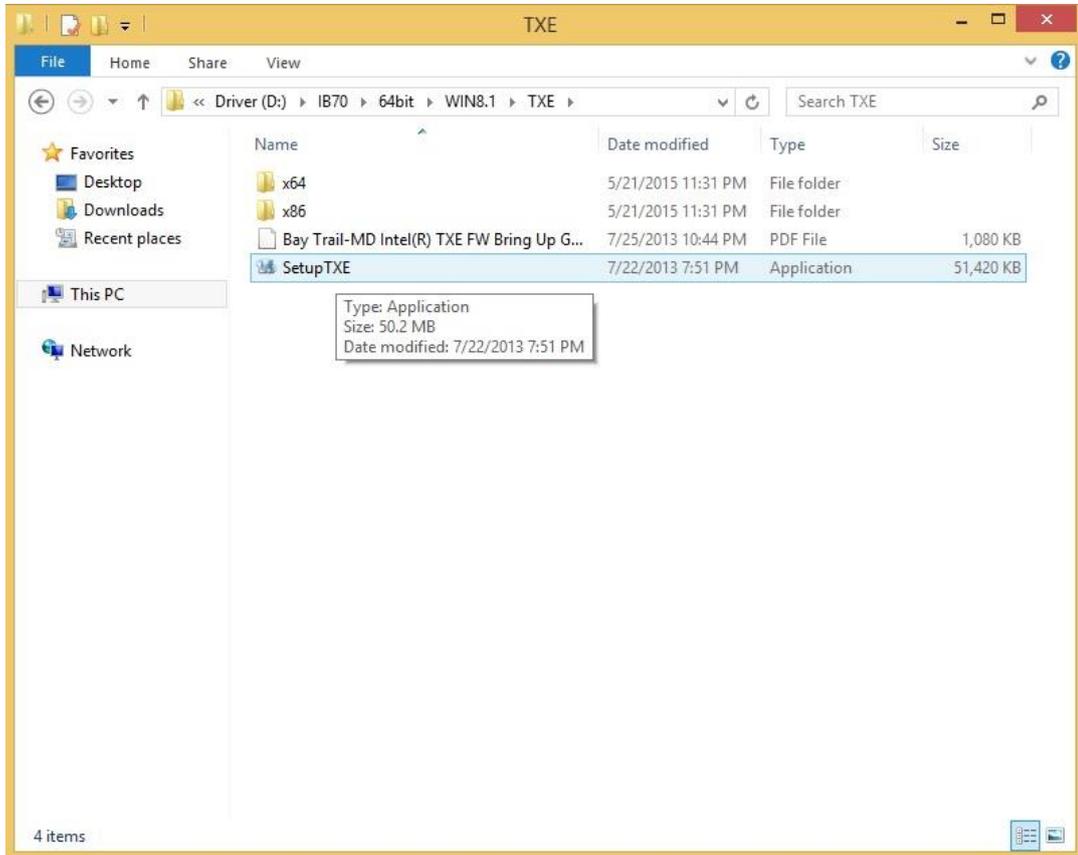
Step 2 Welcome to the setup program window will appear, click **Next** to start the installation.

Step 3 Carefully read the license terms and click **Yes** to agree.

Step 4 Confirmation window will appear, click **Next** to continue the driver installation.

Step 5 Please wait while the product is being installed.

Step 6 The installation is complete, click **Finish** to complete the installation and restart the computer.

3.6 Intel Network Connections

User must confirm the type of operating system is being used before installing Intel Network Connections. Follow the steps below to complete the installation.

Step 1 Click "PROWin64.exe"

Step 2 Click **Yes** to start the installation.
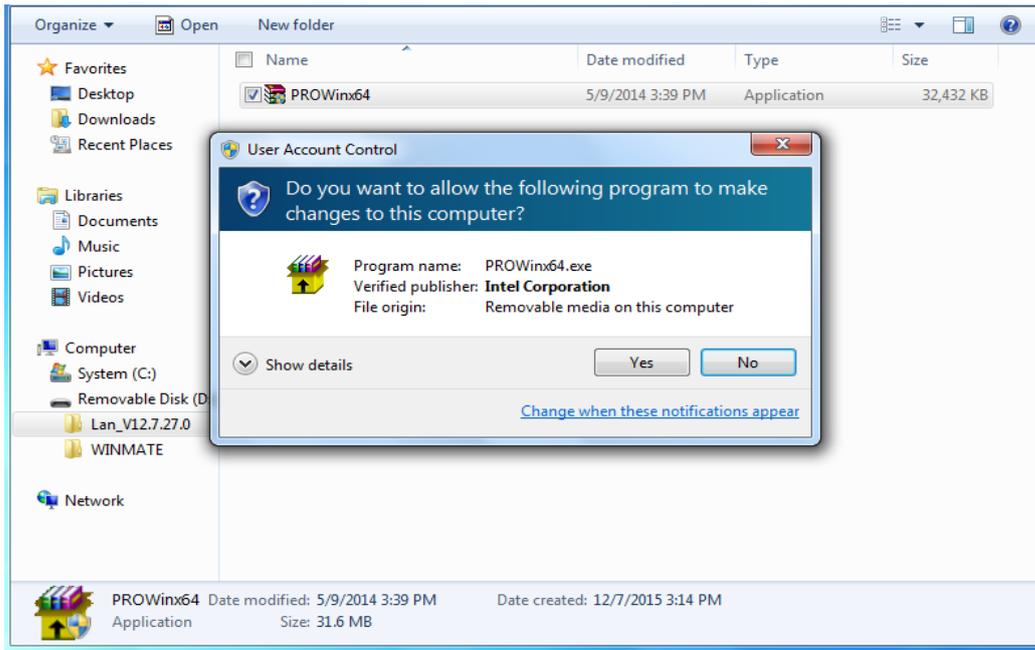
Step 3 Welcome window will appear, click **Next** to install the driver.

Step 4 In the program maintenance window you will see two options available. "Remove" is to remove Intel Networks Connections from your computer, and "Modify" is to make any changes. Choose **Modify** to continue.

Step 5 In the **Setup Options** window choose "**Intel® PRO Set for Windows® Device Manger**", "**Intel ® Network Connections SNMP Agent**" and "**Advanced Network Services**".

Step 6 The wizard is ready to begin installation, click **Install** to continue.

Step 7 Install wizard completed, click **Finish** to complete the installation.

3.7 USB 3.0 Driver (Windows 7)

NOTE:

If your operation system is Windows Embedded 8.1 Industry or Windows Embedded 8 Standard, you should skip the USB 3.0 driver installation.

You need to install the Intel® USB 3.0 extensible Host Controller driver to enable the function.

Step 1 Locate the hard drive directory where the driver files are stored with the browser or the explore feature of Windows*.

Step 2 Double-click the **"Setup.exe"** from this directory.
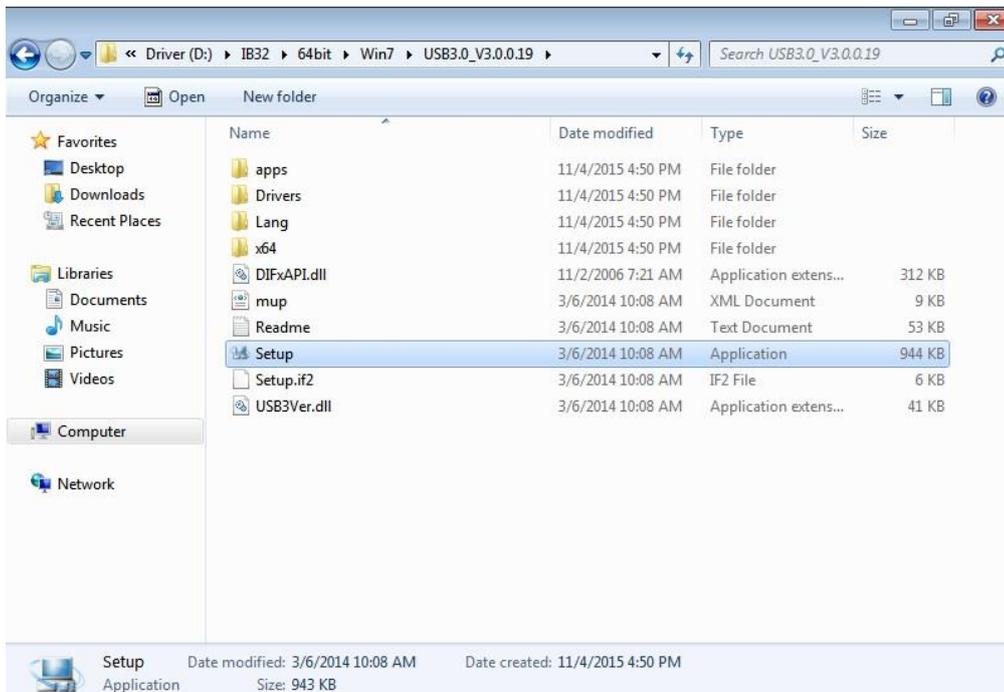
Step 3 Welcome window will appear, Click **Next** to install the driver.

Step 4 Carefully read the license terms and click **Yes** to agree.

Step 5 Review Readme file information and click **Next** to continue the installation.

Step 6 When the Setup Progress is complete click **Next** to continue.

Step 7 Click **"Yes, I want to restart this computer now"** to finish and then restart your computer

AMI UEFI BIOS SETUP

BIOS Setup Utility is a program for configuration basic Input / Output system settings of the computer for optimum use. This chapter provides information on how to use BIOS setup, its functions and menu.

CHAPTER 4: AMI UEFI BIOS SETUP

BIOS Setup Utility is a program for configuration basic Input / Output system settings of the computer for optimum use. This chapter provides information on how to use BIOS setup, its functions and menu.

4.1 When and How to Use BIOS Setup

To enter the BIOS setup, you need to connect an external USB keyboard, press **<Del>** key when the prompt appears on the screen during start up. The prompt screen shows only few seconds, you need to press **<Del>** key quickly. If the message disappears before your respond, restart the system by turning it OFF and ON, and enter the BIOS again.

IMPORTANT:
Updated BIOS version may be published after the manual released. Check the latest version of BIOS on the website.

Run BIOS setup utility for:
1.   Error message on screen indicates to check BIOS setup
2.   Restoring the factory default settings.
3.   Modifying the specific hardware specifications
4.   Necessity to optimize specifications

4.2 BIOS Functions

BIOS Navigation Keys

BIOS navigation keys for keyboard control are listed below.

The following keys are enabled during Power-On Self-Test (POST):

Key	Function
Del	Enters the BIOS setup menu.
F7	Display the boot menu. Lists all bootable devices that are connected to the system. With cursor ↑and cursor ↓and by pressing <ENTER>, select the device used for the boot.
Pause	Pressing the [Pause] key stops the POST. Press any other key to resume the POST.

The following Keys can be used after entering the BIOS Setup.

Key	Function
F1	General Help
F2	Previous Values
F3	Optimized Defaults
F4	Save & Exit
Esc	Exit
+/-	Change Opt.
Enter	Select or execute command
Cursor ↑	Moves to the previous item
Cursor ↓	Goes to the next item
Cursor ←	Moves to the previous item
Cursor →	Goes to the next item

NOTE:
You can press the F1, F2, F3, F4, –/+, and Esc keys by connecting a USB keyboard to your device.

For items marked ► press <Enter> for more options.

4.2.1 Main Menu

When you enter BIOS setup, the first menu that appears on the screen is the main menu .It contains the system information including BIOS version, processor RC version, system language, time, and date. Immediately after the **[DEL]** key is pressed during startup, the main BIOS setup menu appears:

```
         Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
         Main  Advanced  Chipset  Security  Boot  Save & Exit

  BIOS Information                                                 Set the Time. Use Tab to
  BIOS Vendor                     American Megatrends              switch between Time elements.
  Core Version                    5.009
  Compliancy                      UEFI 2.3; PI 1.2
  Project Version                 IBWWV 006 x64
  Build Date and Time             04/18/2014 09:20:23

  CPU Configuration
  Microcode Patch                 31e
  BayTrail SoC                    B3 Stepping

  Memory Information
  Total Memory                    4096 MB (LPDDR3)

  System Language                 [English]                        →←: Select Screen
                                                                   ↑↓: Select Item
  System Date                     [Wed 04/23/2014]                 Enter: Select
  System Time                     [13:44:49]                       +/-: Change Opt.
                                                                   F1: General Help
  Access Level                    Administrator                    F2: Previous Values
                                                                   F3: Optimized Defaults
                                                                   F4: Save & Exit
                                                                   ESC: Exit

         Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Setting	Description	Setting Option	Effect
System Language	Displays the system language. [English] is set up by default.	Adjustment of the language	Set the language in other language. The language in this device is English.
System Date/Time	This is current date setting. The time is maintained by the battery when the device is turned off.	Date and time changes.	Set the date in the format [mm/dd/yyyy]; The time in the format: [hh/mm/ss]
Access Level	The current user access settings	Changes to the level of access	Administrator is set up by the default

4.2.2 Advanced Menu

The advanced menu also uses to set configuration of the CPU and other system devices. There are sub menus on the left frame of the screen.

IMPORTANT:

Handle advanced BIOS settings page with caution. Any changes can affect the operation of your computer.

Advanced Configuration and Power Interface (ACPI) settings allow to control how the power switch operates. The power supply can be adjusted for power requirements. You can use the screen to select options of ACPI configuration. A description of the selected items will appear on the right side of the screen.

```
         Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
          Main  Advanced  Chipset  Security  Boot  Save & Exit

       ▶ ACPI Settings                                      System ACPI Parameters.
       ▶ SMART Settings
       ▶ Super IO Configuration
       ▶ Hardware Monitor
       ▶ CPU Configuration
       ▶ PPM Configuration
       ▶ Thermal Configuration
       ▶ IDE Configuration
       ▶ LPSS & SCC Configuration
       ▶ Network Stack Configuration
       ▶ CSM Configuration
       ▶ CMOS
       ▶ Trusted Computing
       ▶ USB Configuration                                  →←: Select Screen
       ▶ Platform Trust Technology                          ↑↓: Select Item
                                                            Enter: Select
       ▶ Intel(R) I211 Gigabit  Network Connection - 00:00:00:00:...   +/-: Change Opt.
       ▶ Intel(R) I211 Gigabit  Network Connection - 00:00:00:00:...   F1: General Help
                                                            F2: Previous Values
                                                            F3: Optimized Defaults
                                                            F4: Save & Exit
                                                            ESC: Exit



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```

BIOS Setting	Description	Setting options	Effect
ACPI Settings	Configures ACPI settings	Enter	Opens submenu
SMART Settings	Configures SMART settings	Enter	Opens submenu
Super IO Configuration	Configures System Super IO Chip parameters	Enter	Opens submenu
Hardware Monitor	Monitor hardware status	Enter	Opens submenu
CPU Configuration	Configures CPU settings	Enter	Opens submenu
PPM Configuration	Configures PPM Parameters	Enter	Opens submenu
Thermal Configuration	Configures Thermal Parameters	Enter	Opens submenu
IDE Configuration	Configures IDE devices	Enter	Opens submenu
LPSS & SCC Configuration	Configures LPSS & SCC	Enter	Opens submenu
Network Stack Configuration	Configures network stack	Enter	Opens submenu
CSM Configuration	Configures CSM: Enable/Disable, Option ROM execution settings, etc.	Enter	Opens submenu
CMOS	CMOS settings / Information	Enter	Opens submenu
Trusting Computing	Trusted computing settings	Enter	Opens submenu
USB Configuration	Configures USB settings	Enter	Opens submenu
Platform Trust Technology	Platform trust technology	Enter	Opens submenu

4.2.3 USB Configuration

```
              Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
        Advanced

   USB Configuration                                          Enables Legacy USB support.
                                                              AUTO option disables legacy
   USB Module Version              8.10.27                    support if no USB devices are
                                                              connected. DISABLE option will
   USB Devices:                                               keep USB devices available
        1 Drive, 1 Keyboard, 2 Hubs                           only for EFI applications.

   Legacy USB Support              [Enabled]
   USB3.0 Support                  [Disabled]
   XHCI Hand-off                   [Disabled]
   EHCI Hand-off                   [Enabled]
   USB Mass Storage Driver Support [Enabled]

   USB hardware delays and time-outs:                        →←: Select Screen
   USB transfer time-out           [20 sec]                  ↑↓: Select Item
   Device reset time-out           [20 sec]                  Enter: Select
   Device power-up delay           [Auto]                    +/-: Change Opt.
                                                             F1: General Help
   Mass Storage Devices:                                     F2: Previous Values
   N/A                             [Auto]                    F3: Optimized Defaults
                                                             F4: Save & Exit
                                                             ESC: Exit




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```

BIOS Setting	Description	Setting options	Effect
Legacy USB Support	User can enable or disable USB port.	Disable	Will keep USB devices available only for EFI applications.
		Enable	Enable all the USB devices
USB 3.0 Support	User can enable or disable USB 3.0 (XHCI) controller support.	Enable	USB 3.0 is enable
		Disable	USB 3.0 is disable
XHCI Hand-off	This is a workaround for OSs without XHCI hand-off support.	Disable	Disables this function
		Enable	Enables this function
EHCI Hand-off	This is a workaround for OSs without ECHI hand-off support.	Disable	Disables this function
		Enable	Enables this function
USB mass storage driver support	User can Enable or disable USB mass storage driver support.	Disable	Disables this function
		Enable	Enables this function
USB Transfer time-out	The time-out value for control, bulk, and interrupt transfers.	1 Sec 5 Sec 10 Sec 20 Sec	Depends on the time-out value
Device Reset time-out	USB mass storage device start unit command time-out.	10 Sec 20 Sec 30 Sec 40 Sec	Depends on the time-out value
Device power-up delay	Maximum time the device will take before it properly reports itself to the host controller.	Auto	Uses default value: for a root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor

4.2.4 Chipset

```
                 Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
      Main  Advanced  Chipset  Security  Boot  Save & Exit

   ▶ North Bridge                                              North Bridge Parameters
   ▶ South Bridge





                                                              ↔: Select Screen
                                                              ↑↓: Select Item
                                                              Enter: Select
                                                              +/-: Change Opt.
                                                              F1: General Help
                                                              F2: Previous Values
                                                              F3: Optimized Defaults
                                                              F4: Save & Exit
                                                              ESC: Exit



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```

4.2.4.1 Chipset – North Bridge Parameters

```
                 Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
                      Chipset

   ▶ Intel IGD Configuration                                  Config Intel IGD Settings.
   ▶ IGD – LCD Control
   ▶ Graphics Power Management Control

     Memory Information

     Total Memory                    4096 MB (LPDDR3)

     Memory Slot0                    4096 MB (LPDDR3)
     Memory Slot2                    Not Present

     Max TOLUD                       [Dynamic]
                                                              ↔: Select Screen
                                                              ↑↓: Select Item
                                                              Enter: Select
                                                              +/-: Change Opt.
                                                              F1: General Help
                                                              F2: Previous Values
                                                              F3: Optimized Defaults
                                                              F4: Save & Exit
                                                              ESC: Exit



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```

BIOS Setting	Description	Setting options	Effect
Intel IGD Configuration	Provides onboard graphics-related configuration options.	Enter	Opens submenu
IGD – LCD Control	Configures IGD – LCD setting	Enter	Opens submenu
Graphic Power Management Control	Provides power saving configuration options for the onboard graphics.	Enter	Opens submenu

4.2.4.2 Chipset – South Bridge Parameters

```
         Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
          Chipset

▶ Azalia HD Audio                                    Azalia HD Audio Options
▶ USB Configuration
▶ PCI Express Configuration

  High Precision Timer              [Enabled]
  Restore AC Power Loss             [Power On]

  Serial IRQ Mode                   [Quiet]


                                                    ──────────────────────────
                                                    ←→: Select Screen
                                                    ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F2: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Exit
                                                    ESC: Exit




         Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Setting	Description	Setting options	Effect
Azalia HD Audio	Configures onboard audio function.	Disable	Disables this function
		Enable	Enables this function
USB Configuration	Provides user with configuration options for the USB controller, such as enabling/disabling a specific USB port and support for certain features.	USB 2.0(EHCI)	Enable / Disable this function
		USB Port 0	Enable / Disable this function
		USB Port 1	Enable / Disable this function
		USB Port 2	Enable / Disable this function
		USB Port 3	Enable / Disable this function
PCI Express Configuration	Provides user with configuration options for the PCI Express bus, such as enabling/disabling a specific PCI Express channel and speed configuration.	PCI Express port 0	Enable / Disable this function
		PCI Express port 1	Enable / Disable this function
		PCI Express port 2	Enable / Disable this function
		PCI Express port 3	Enable / Disable this function
High Precision Timer	Configures high precision timer (HPET) in the operating system.	Disable	Disables this function
		Enable	Enables this function
Restore AC Power Loss	Configures the state of the system after return of power on AC power loss.	Power Off	The System stays off upon the return of the AC power
		Power On	The System is turned on upon the return of the AC power
		Last State	The system returns to its last known awake state upon the return of the AC power
Serial IRQ Mode	Configures IRQ mode.	Quite	Entering quite (active) mode
		Continuous	Entering Continuous (idle) mode

4.2.5 Security

Allows user to configure an administration or user password, user must enter the administrator or user password at system startup and when entering   BIOS setup.

```
            Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
     Main  Advanced  Chipset  Security  Boot  Save & Exit

     Password Description                          Customizable Secure Boot
                                                   settings
     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:
     Minimum length              3
     Maximum length             20
                                                   _____
                                                   ↔: Select Screen
                                                   ↑↓: Select Item
     Administrator Password                        Enter: Select
     User Password                                 +/-: Change Opt.
                                                   F1: General Help
                                                   F2: Previous Values
   ▶ Secure Boot menu                              F3: Optimized Defaults
                                                   F4: Save & Exit
                                                   ESC: Exit



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```

BIOS Setting	Description	Setting options	Effect
Administrator Password	Displays whether or not an administrator password has been set.	Enter	Enter Password
User Password	Display whether or not a user password has been set.	Enter	Enter Password

4.2.5.1 Security – Secure Boot Menu

```
              Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
              Security

    System Mode                    Setup                      Secure Boot can be enabled if
    Secure Boot                    Not Active                 1.System running in User mode
                                                              with enrolled Platform Key(PK)
    Secure Boot                    [Disabled]                 2.CSM function is disabled
    Secure Boot Mode               [Custom]
  ▶ Key Management



                                                              →←: Select Screen
                                                              ↑↓: Select Item
                                                              Enter: Select
                                                              +/-: Change Opt.
                                                              F1: General Help
                                                              F2: Previous Values
                                                              F3: Optimized Defaults
                                                              F4: Save & Exit
                                                              ESC: Exit


              Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Setting	Description	Setting options	Effect
Secure Boot	Displays the current boot state.	Disable	Disables this function
		Enable	Enables this function
Secure Boot Mode	Allows user to configure the secure boot mode.	Disable	Disables this function
		Enable	Enables this function
Key Management	Provides user with configuration options for secure boot key management.	Enroll all factory default keys, Platform key, key exchange key, Authorized signatures, Authorized timestamps, Forbidden signatures	Select the desired key

4.2.6 Boot

```
                Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
         Main  Advanced  Chipset  Security  Boot  Save & Exit

         Boot Configuration                                           Number of seconds to wait for
         Setup Prompt Timeout                      1                  setup activation key.
         Bootup NumLock State                      [On]               65535(0xFFFF) means indefinite
                                                                      waiting.
         Quiet Boot                                [Disabled]
         Fast Boot                                 [Disabled]


         Boot Option Priorities
         Boot Option #1                            [UEFI: MultipleCard ...]
         Boot Option #2                            [MultipleCard Reader...]
         Boot Option #3                            [IBA GE Slot 0100 v1550]
         Boot Option #4                            [UEFI: Built-in EFI ...]
                                                                      →←: Select Screen
         Network Device BBS Priorities                                ↑↓: Select Item
         Hard Drive BBS Priorities                                    Enter: Select
                                                                      +/-: Change Opt.
                                                                      F1: General Help
                                                                      F2: Previous Values
                                                                      F3: Optimized Defaults
                                                                      F4: Save & Exit
                                                                      ESC: Exit




                Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Setting	Description	Setting options	Effect
Setup Prompt Timeout	Allows user to configure the number of seconds to stay in BIOS setup prompt screen.	Enter	Set the prompt timeout
Boot NumLock State	Enables or disables NumLock feature on the numeric keypad of the keyboard after the POST (Default: On).	On	Remains On
		Off	Remains Off
Quite Boot	Determines if POST message or OEM logo (default = Black background) is displayed.	Disabled	Disables this function
		Enabled	Enables this function
Fast Boot	Enables or disables Fast Boot to shorten the OS boot process. (Default: Disabled).	Disable	Disables this function
		Enable	Enables this function
Boot Option Priority	Specifies the overall boot order from the available devices.	Ex: Boot Option#1 (hard drive)	Hard drive as the first priority
Hard Drive BBS Priority	Specifies the boot order for a specific device type, such as hard drives, optical drives, floppy disk drives, and devices that support Boot from LAN function.	Enter	Enter the submenu that present the devices of the same type are connected.

4.2.7 Save & Exit

```
             Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
    Main  Advanced  Chipset  Security  Boot  Save & Exit

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

    Save Options
    Save Changes
    Discard Changes

    Restore Defaults
    Save as User Defaults
    Restore User Defaults

    Boot Override                                       ↔: Select Screen
    IBA GE Slot 0100 v1550                              ↑↓: Select Item
    UEFI: Built-in EFI Shell                            Enter: Select
    UEFI: MultipleCard Reader 1.00                      +/-: Change Opt.
    MultipleCard Reader 1.00                            F1: General Help
                                                        F2: Previous Values
    Launch EFI Shell from filesystem device            F3: Optimized Defaults
  ▶ Reset System with ME disable ModeMEUD000            F4: Save & Exit
                                                        ESC: Exit



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```

BIOS Setting	Description	Setting options	Effect
Save Changes and Exit	This saves the changes to the CMOS and exits the BIOS Setup program.	Enter <Yes>	Saves the changes
		Esc <No>	Return to the BIOS Setup Main Menu
Discard Changes and Exit	This exits the BIOS Setup without saving the changes made in BIOS Setup to the CMOS.	Enter <Yes>	Saves the changes
		Esc <No>	Return to the BIOS Setup Main Menu
Save Changes and Reset	Reset the system after saving the changes.	Enter <Yes>	Saves the changes
		Esc <No>	Return to the BIOS Setup Main Menu
Discard Changes and Reset	Reset system setup without saving any changes.	Enter <Yes>	Saves the changes
		Esc <No>	Return to the BIOS Setup Main Menu
Save Changes	Save changes done so far to any of the setup options.	Enter <Yes>	Saves the changes
		Esc <No>	Return to the BIOS Setup Main Menu
Discard Changes	Discard changes done so far to any of the setup options.	Enter <Yes>	Saves the changes
		Esc <No>	Return to the BIOS Setup Main Menu
Restore Default	Restore/load default values for all the setup options.	Enter <Yes>	Saves the changes
		Esc <No>	Return to the BIOS Setup Main Menu
Save as User Defaults	Save the changes done so far as User defaults.	Enter <Yes>	Saves the changes
		Esc <No>	Return to the BIOS Setup Main Menu
Restore User Defaults	Restore the User Defaults to all the setup options.	Enter <Yes>	Saves the changes
		Esc <No>	Return to the BIOS Setup Main Menu

4.3 Using Recovery Wizard to Restore Computer

Note:

Before starting the recovery process, make sure to backup all user data. The data will be lost after the recovery process.

To enable quick one-key recovery procedure:

- Plug-in the AC adapter to the computer. Make sure the computer stays plugged in to power source during the recovery process.
- Turn on the computer, and when the boot screen shows up, press the **F6** to initiate the Recovery Wizard.
- The following screen shows the Recovery Wizard. Click **Recovery** button to continue.

A warning message about data loss will show up. Make sure the data is backed up before recovery, and click **Yes** to continue.

Wait the recovery process to complete. During the recovery process, a command prompt will show up to indicate the percent of recovery process complete. The system will restart automatically after recovery completed.

4.4 How to Enable Watchdog

To enable Watchdog, you need to download Winmate Watchdog utility. Find more information on Watchdog in "Watchdog Guide" that you can download from Winmate Download Center or File Share.

To enable watchdog in Watchdog AP follow the instructions below:

1. On the right bottom side of the desktop screen, click ⬆️ **triangle button** to show hidden icons.

2. Click W icon to open Watchdog utility.
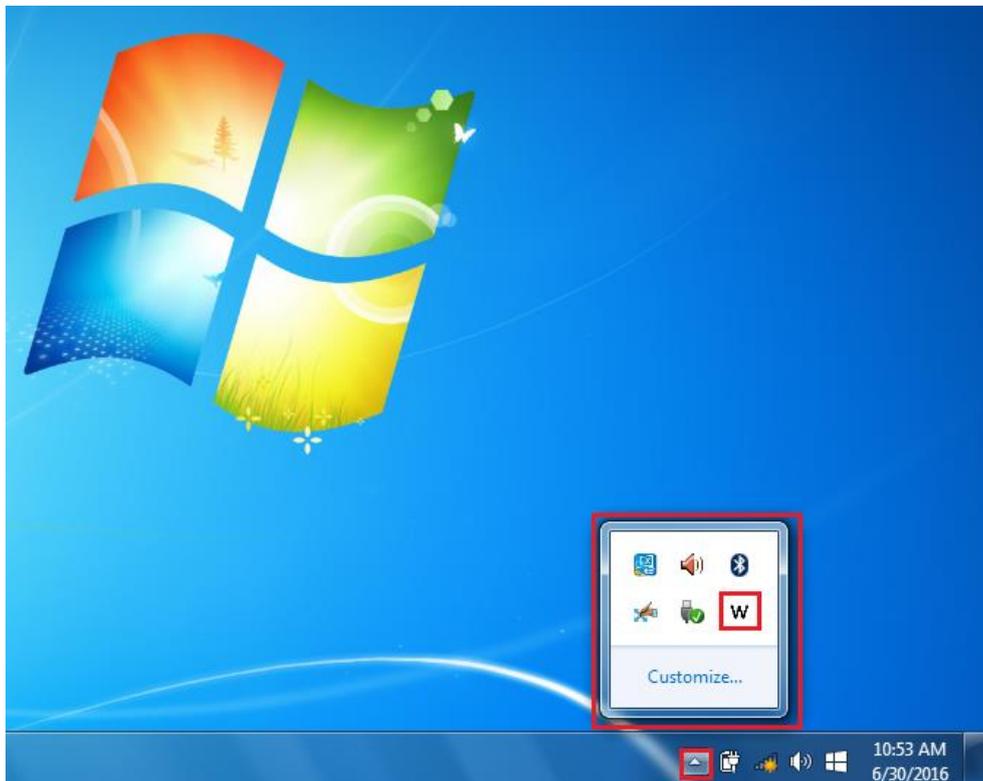
3. In Watchdog utility window set countdown time and periodically feed time, or disable watchdog.
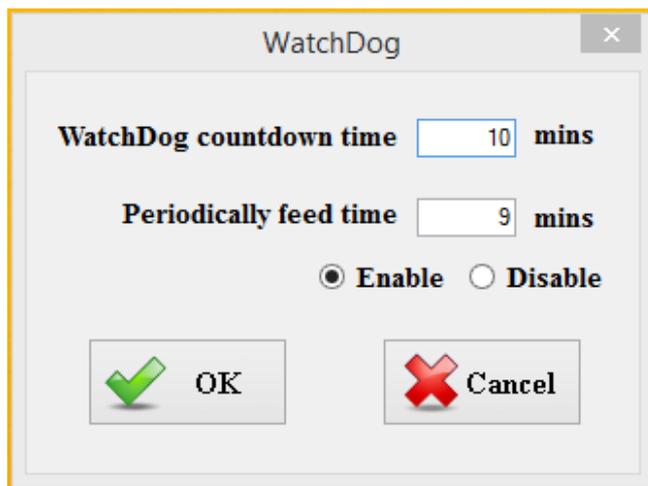
Example:

Every 10 min watchdog will monitor the system, in case any error occurs the system will restart automatically when the countdown time reaches 0.

Every 9 min watchdog timer will be reset to 10 min.

Settings	Description
Watchdog Countdown Time	The system automaticity restarts when this countdown time reaches zero. *Default: 10 min*
Periodically Feed Time	To set a cycle time to automatically reset watchdog timer. *Default: 9 min*
Enable / Disable	Enable or disable watchdog. *Default: Enable*

TECHNICAL SUPPORT

This chapter contains directory to technical support.

5

CHAPTER 5: TECHNICAL SUPPORT

This chapter includes technical support documents and software developing kit (SDK). If any problem occurs fill in problem report form enclosed and immediately contact us.

5.1 Software Developer Support

Winmate provides the following development kits (SDK) for IBMH100 M-Series Box PC:

Item	File Type	Description
1	Watchdog SDK & AP	Watchdog SDK and AP

You can download SDK and Drivers from Winmate Download Center or Winmate File Share.

Winmate Download Center:
http://www.winmate.com/DownCenter/DownLoadCenter.asp?DownType=2905

Winmate File Share: https://winmate.box.com/v/Winmate-M-Series-Box-IBMH100

5.2 Problem Report Form

M-Series Box PC (Modular Design)

Customer name:	
Company:	
Tel.:	Fax:
E-mail:	Date:

Product Serial Number:

_____

Problem Description: Please describe the problem as clearly as possible. Detailed description of the occurred problem will allow us to find the best solution to solve the problem as soon as possible.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
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_____
_____
_____
_____
_____
_____

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PRODUCT SPECIFICATIONS

This section includes IBMH100

technical specifications.

Appendix

A

APPENDIX A: PRODUCT SPECIFICATIONS

Hardware Specifications

	Model Name	
	IBMH100	
System Specifications	CPU	Intel® Atom™ E3845 Processor; 2M Cache up to 1.91 GHz
	BIOS	AMI UEFI BIOS
	Graphic Chipset	Intel® HD graphics
	System Memory	SODIMM DDR3L-1600 4GB, Option up to 8GB (2 slots)
	Main Storage	Default 2.5" 64GB SSD
	Second Storage (Optional)	One Removable 2.5" SSD
	Ethernet	1000 Base-Tx Gigabit Ethernet Compatible
	Audio	Realtek ALC886 codec
I/O Interface	Front I/O	1 x DC in 12-24V (Terminal Block 3pin) 2 x Gigabite LAN 4 x USB2.0 1 x HDMI Output 1 x D-Sub15 (VGA) Output 1 x RS232/422/485 selectable serial port 1 x Audio in Jack 1 x Audio out Jack
	Physical Buttons	1 x Reset Key 1 x Power Button
	Indicator	2.5" SSD indicator
Power Supply	Power Input	12-24V DC in with protection Fuse
	Power Adapter	110-240 AC to 12V DC out 80W power Adapter
Mechanical Specifications	Housing	Aluminum housing
	Mounting	Desktop/Wall Mount (Optional Panel Mount with Front Display)
	Dimensions	276.18(L) x 228.80(W) x 45.20(H)
Environmental Specifications	Operating Temp.	0°C~+50°C
	Operating Humidity	30%-95% at 40 (non-condensing, RH)
Optional Operating System	Operating System	Windows 10 IoT Enterprise Windows Embedded 8 Standard Windows Embedded Standard 7

Software Support

The following drivers are available for the IBMH100 PRO Series Industrial PC:

Item	Driver	Windows 7	Windows 8	Windows 10
1	Chipset Driver	☑	☑	☑
2	Graphics Driver	☑	☑	☑
3	Audio Driver	☑	☑	☑
4	Ethernet Driver	☑	☑	☑
5	Intel Sideband Fabric Device (Intel MBI) Driver	☒	☑	☑
6	Intel Trusted Engine Interface (Intel TXE) Driver	☑	☑	☑
7	USB 3.0 Driver	☑	☒	☒
9	Winmate Watchdog Driver	☑	☑	☑

Winmate provides the following development kits (SDK) for IBMH100 PRO Series Industrial PC:

Item	File Type	Description
1	Watchdog SDK & AP	Watchdog SDK and AP

Winmate Inc.

9F, No.111-6, Shing-De Rd., San-Chung District,
New Taipei City 24158, Taiwan, R.O.C
Tel: 886-2-8511-0288
Fax: 886-2-8511-0211
Email: sales@winmate.com.tw
Official website: www.winmate.com