

# USER MANUAL

**MH-5752**

**7" Integrated Handy POS  
with Intel® Atom® x5-Z8550  
Quad Core™ CPU**

**MH-5752 M2**

---

---

# ***MH-5752***

## ***7" Integrated Handy POS with Intel<sup>®</sup> Atom<sup>®</sup> x5-Z8550 Quad Core<sup>™</sup> CPU***

### **COPYRIGHT NOTICE & TRADEMARK**

All trademarks and registered trademarks mentioned herein are the property of their respective owners.

This manual is copyrighted in Aug 2018. You may not reproduce or transmit in any form or by any means, electronic, or mechanical, including photocopying and recording.

### **DISCLAIMER**

This user's manual is meant to assist users in installing and setting up the system. The information contained in this document is subject to change without any notice.

### **CE NOTICE**

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

---

---

---

---

**FCC NOTICE**

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.

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.



**CAUTION:** Danger of explosion may occur when the battery is incorrectly replaced. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.



**WARNING:** Some internal parts of the system may have high electrical voltage. We strongly recommend that only qualified engineers are allowed to service and disassemble the system. If any damages should occur on the system and are caused by unauthorized servicing, it will not be covered by the product warranty.

---

---

---

---

# Contents

<b>1</b>	<b>Introduction .....</b>	<b>1-1</b>
1.1	About This Manual .....	1-2
<b>2</b>	<b>Getting Started .....</b>	<b>2-1</b>
2.1	Package List.....	2-2
2.2	System Overview .....	2-3
2.3	Specifications .....	2-7
2.4	Safety Precautions .....	2-9
<b>3</b>	<b>Hardware Configuration .....</b>	<b>3-1</b>
3.1	Main Board Component Locations.....	3-2
3.1.1	Main Board Component Locations .....	3-2
3.2	Mainboard Connectors Quick Reference Table .....	3-4
3.3	Setting Pad Main Board Connectors.....	3-5
3.3.1	Touch Screen Connector .....	3-5
3.3.2	NFC Connector .....	3-5
3.3.3	LCD Connector .....	3-6
3.3.4	RTC Battery Connector.....	3-7
3.3.5	Battery Connector .....	3-7
3.3.6	Barcode Scanner Connector .....	3-8
3.3.7	Speaker Connector .....	3-8
3.3.8	Power Switch Button.....	3-9
3.3.9	Barcode Switch Button .....	3-9
3.3.10	DC IN USB Type C Connector.....	3-10
3.3.11	Cradle Connector.....	3-11
3.3.12	MCU F/W Update Connector.....	3-11

---

---

3.3.13	MINI-PCIE Connector .....	3-12
3.3.14	CCD Front Camera Connector .....	3-13
3.3.15	MSR Connector .....	3-14
3.3.16	SIM Card Connector .....	3-14
3.3.17	TXE lock for manufactured Connector .....	3-15
3.3.18	Vibrator Connector .....	3-15
<b>4</b>	<b>Software Utilities .....</b>	<b>4-1</b>
4.1	Introduction.....	4-2
4.2	Installing Intel® Chipset Software Installation Utility.....	4-3
4.3	Installing Audio Realtek Software Installation Utility .....	4-5
4.4	Installing G-Sensor Software Installation Utility .....	4-6
4.5	Installing Bluetooth Software Installation Utility .....	4-7
4.6	Installing Light Sensor Software Installation Utility .....	4-8
4.7	Installing Microsoft Hotfix kb3211320 and kb3213986 Driver Utility.....	4-9
<b>5</b>	<b>BIOS SETUP .....</b>	<b>5-1</b>
5.1	Introduction.....	5-2
5.2	Accessing Setup Utility.....	5-3
5.3	Main.....	5-6
5.4	Advanced .....	5-9
5.4.1	Advanced – Security Configuration .....	5-10
5.4.2	Advanced – Chipset Configuration .....	5-12
5.4.3	Advanced – USB Configuration .....	5-13
5.5	Security .....	5-14

---

---

5.6	Boot .....	5-16
5.7	Exit .....	5-18
<b>Appendix A System Diagrams .....</b>		<b>A-1</b>
	Exploded Diagrams.....	A-2
<b>Appendix B Technical Summary .....</b>		<b>B-1</b>
	Interrupt Map .....	B-2
	I/O Map .....	B-20
	DMA Map .....	B-23
	Memory Map .....	B-24
	System BIOS Update Procedure .....	B-27

---

---

## Revision History

The revision history of MH-5752 User Manual is described below:

Version No.	Revision History	Date
M1	Initial Release	08/2018
M2	Modify Software Utilities	02/2020

# 1 Introduction

---

This chapter provides the introduction for the MH-5752 system as well as the framework of the user manual.

The following topic is included:

- About This Manual



## **1.1 About This Manual**

Thank you for purchasing our MH-5752 system. The MH-5752 provides faster processing speed, greater expandability and can handle more tasks than before. This manual is designed to assist you how to install and set up the whole system. It contains 5 chapters and 2 appendixes. Users can configure the system according to their own needs. This user manual is intended for service personnel with strong hardware background. It is not intended for general users.

The following section outlines the structure of this user manual.

### ***Chapter 1 Introduction***

This chapter provides the introduction for the MH-5752 system as well as the framework of the user manual.

### ***Chapter 2 Getting Started***

This chapter describes the package contents and outlines the system specifications. Read the safety reminders carefully on how to take care of your system properly.

### ***Chapter 3 System Configuration***

This chapter outlines the locations of the motherboard components and their respective functions. You will learn how to set the jumpers and configure the system to meet your own needs.

### ***Chapter 4 Software Utilities***

This chapter contains helpful information for proper installations of the Intel Chipset Software Installation Utility, Audio Realtek Driver Utility, G-Sensor Driver Utility, Bluetooth Driver Utility and wireless GSM (3G) Driver Utility.

### ***Chapter 5 BIOS Setup***

This chapter indicates how to change the BIOS configurations.

### ***Appendix A System Assembly Diagrams***

This appendix provides the exploded diagrams and part numbers of the MH-5752.

### ***Appendix B Technical Summary***

This appendix provides the information about the allocation maps for system resources and System BIOS update procedure.

# 2 Getting Started

---

---

This chapter provides the information for the MH-5752 system.

The following topics are included:

- Package List
- System Diagrams
- Specifications
- Safety Precautions

**Experienced users can go to Chapter 3 Hardware Configuration on page 3-1 for a quick start.**

## **2.1 Package List**

If you discover any of the items listed below are damaged or lost, please contact your local distributor immediately.

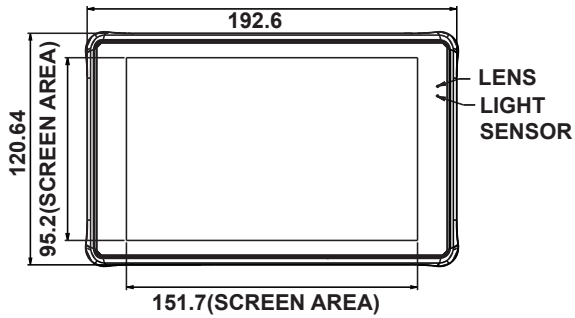
<b>Item</b>	<b>Q'ty</b>
MH-5752 (with battery)	1
Quick Reference Guide	1
AC Power Adapter	1
USB Type-C Cable	1
Hand Strap (optional)	1
Neck Strap (optional)	1
AC Plug (Optional)	1

## 2.2 System Overview

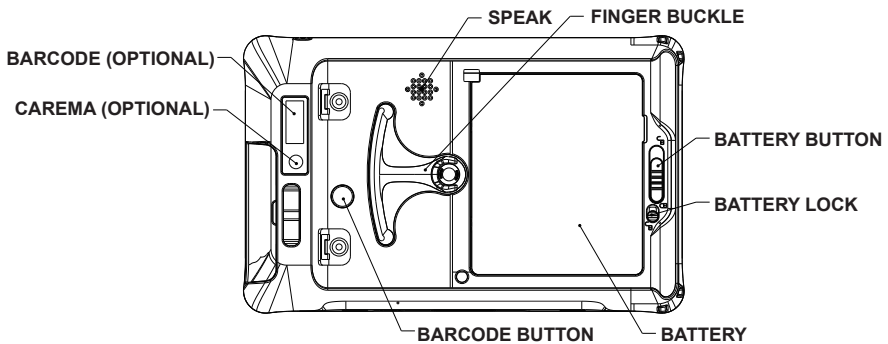
Unit: mm

### Standard

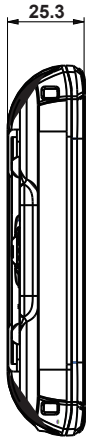
### Front View



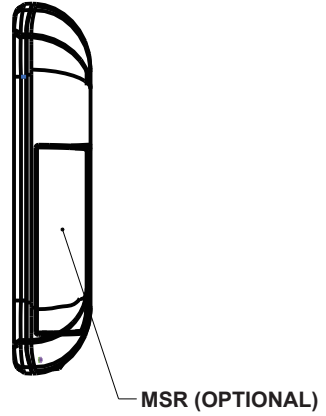
### Rear View



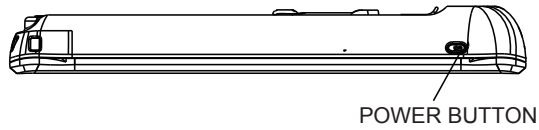
**Left Side**



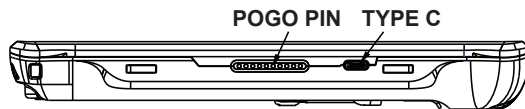
**Right Side**



**Top View**

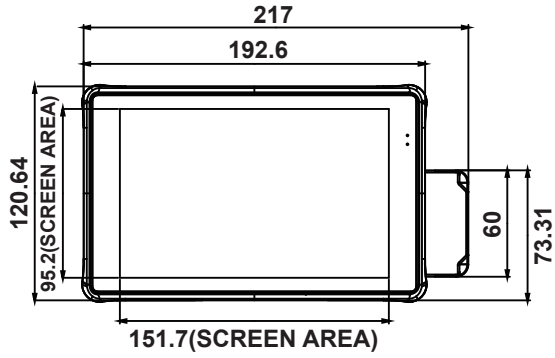


**Bottom View**

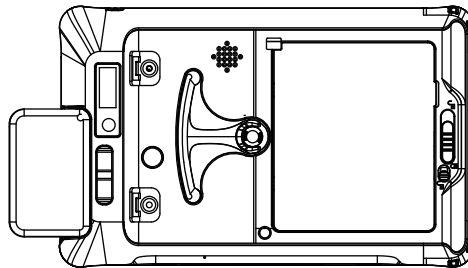


With MSR

Front View



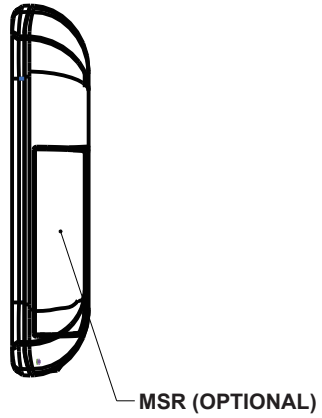
Rear View



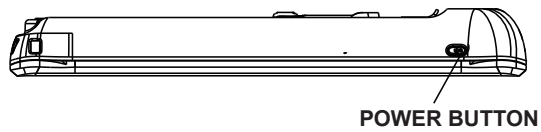
Left Side



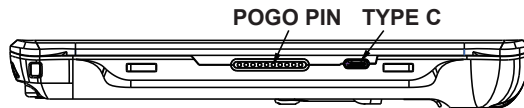
Right Side



Top View



Bottom View



## 2.3 Specifications

<b>System</b>	
CPU Supports	➤ Intel® Atom® x5-Z8550 Quad Core <sup>TM</sup> 1.44GHz up to 2.4GHz
Memory	➤ 1 x DDR3L SO-DIMM socket (up to 2GB / 4GB)
OS support	➤ Windows 10 IoT Enterprise LTSB 2016 OS (64 bits)
Power Requirement	➤ DC 5V
Speaker	➤ 1x 1W speaker
Battery Capacity	➤ 3.7V, 7400mAh replaceable battery
Battery Operation	➤ 8 hours (refer to JEITA battery run time measurement)
G-Sensor	➤ Yes
Flash	➤ eMMC 32GB / 64GB
WLAN	➤ Wi-Fi 802.11 b/g/n, Bluetooth® 4.0
Drop	➤ Up to 4 foot (1.2m) onto concrete
Brightness	➤ 400 cd/m2 (typical)
Weight	➤ 480g (Pad only)
Dimensions (W x H x D)	➤ 124 x 195.9 x (21.2 - 24.4)mm
Certifications	➤ FCC / CE
<b>Display</b>	
LCD Panel	➤ 7" IPS display with 800 x 1280 resolution
Touch Panel	➤ Multi-touch projected capacitive ➤ Anti-Fingerprint ➤ OCA Bonding of touch + panel for Sunlight Readability and antiglare
<b>Integrated Devices (Optional)</b>	
Barcode Scanner	➤ 1D / 2D barcode scanner
NFC Module	➤ NXP N-P300
Rear Camera	➤ 8M pixels camera module
MSR_ Smart Card Reader	➤ Meets ISO 7816 & EMV Level 1 & 2 certification
WWAN	➤ Supports 4G for data transmission
<b>Tablet I/O Ports</b>	
Cradle Connector	➤ 1 x POGO pins for charging and data



	transmission
USB	➤ USB-C for charging and data transmission
SD	➤ Micro SD up to 128GB
SIM Card Slot	➤ 4G SIM card
<b>Environment</b>	
Operating Temp.	➤ 0°C~ 40°C (32°F ~ 104°F)
Storage Temp.	➤ -20°C~ 60°C (-4°F~ 140°F)
Operating Humidity	➤ 10%~ 90%

## **2.4 Safety Precautions**

Before operating this system, read the following information carefully to protect your systems from damages, and extend the life cycle of the system.

1. Check the Line Voltage
  - The operating voltage for the power supply should be within the range of 100V to 240V AC; otherwise the system may be damaged.
  
2. Environmental Conditions
  - Place your MH-5752 on a sturdy, level surface. Be sure to allow enough space around the system to have easy access needs.
  - Avoid installing your MH-5752 system in extremely hot or cold places.
  - Avoid direct sunlight exposure for a long period of time (for example, in a closed car in summer time. Also avoid the system from any heating device.). Or do not use MH-5752 when it has been left outdoors in a cold winter day.
  - Avoid moving the system rapidly from a hot place to a cold place, and vice versa, because condensation may occur inside the system.
  - Protect your MH-5752 from strong vibrations which may cause hard disk failure.
  - Do not place the system too close to any radio-active device. Radio-active device may cause signal interference.
  - Always shut down the operating system before turning off the power.
  
3. Handling
  - Avoid placing heavy objects on the top of the system.
  - Do not turn the system upside down. This may cause the hard drive to malfunction.
  - Do not allow any objects to fall into this device.
  - If water or other liquid spills into the device, unplug the power cord immediately.
  
4. Good Care
  - When the outside case gets stained, remove the stains using neutral washing agent with a dry cloth.
  - Never use strong agents such as benzene and thinner to clean the surface of the case.
  - If heavy stains are present, moisten a cloth with diluted neutral washing agent or alcohol and then wipe thoroughly with a dry cloth.
  - If dust is accumulated on the case surface, remove it by using a special vacuum cleaner for computers.

# 3 **Hardware Configuration**

---

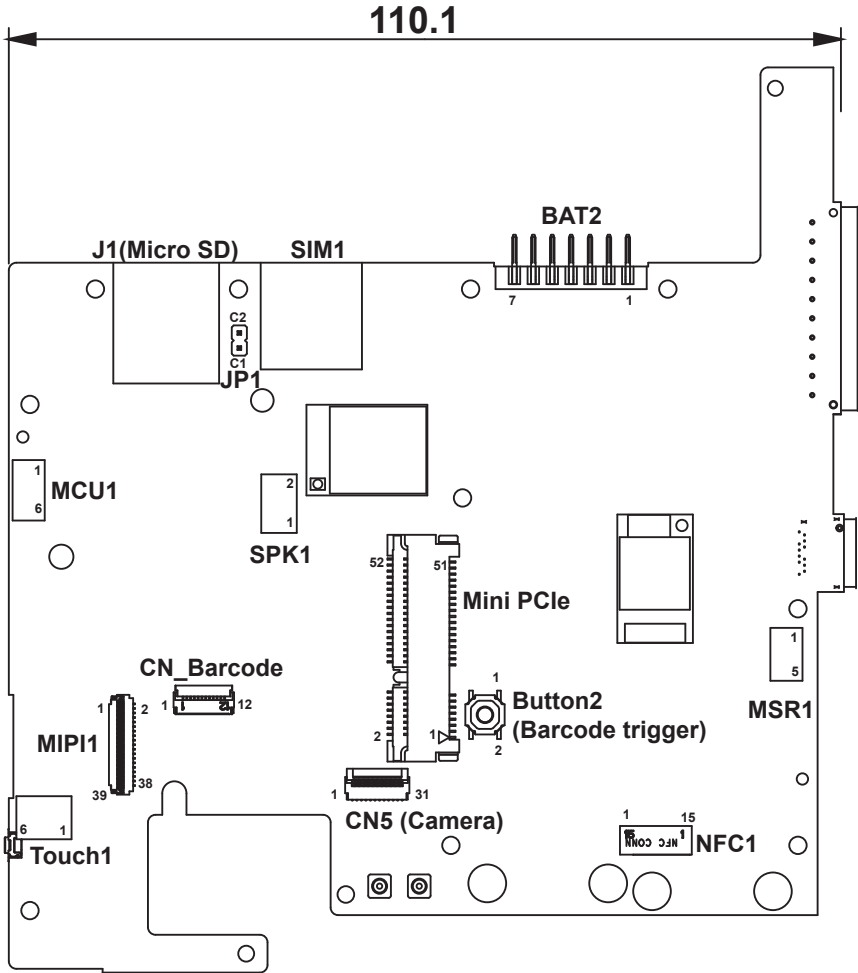
This chapter contains helpful information about the jumper & connector settings, and component locations.

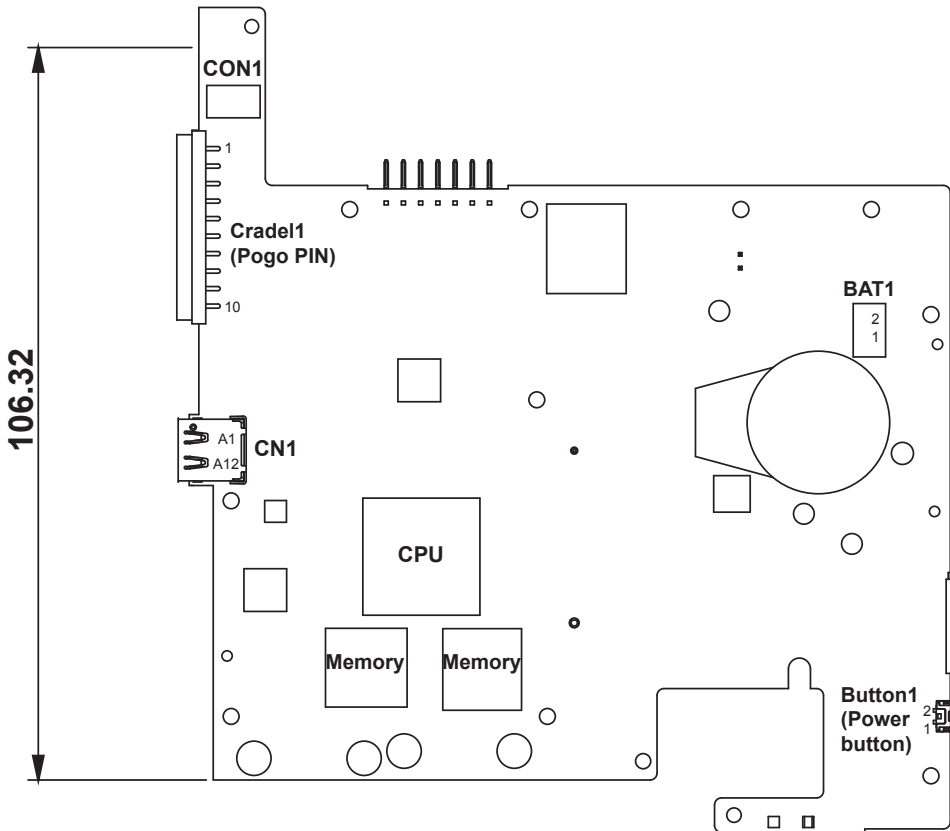
The following sections are included:



- Main Board Component Locations
- Mainboard Connectors Quick Reference Table

### 3.1 Main Board Component Locations

#### 3.1.1 Main Board Component Locations





	<p><b>WARNING:</b> Always disconnect the power cord when you are working with the connectors on the main board. Make sure both the system and the external devices are turned OFF as sudden surge of power could ruin sensitive components. Make sure MH-5752 is properly grounded.</p>
	<p><b>CAUTION:</b> Observe precautions while handling electrostatic sensitive components. Make sure to ground yourself to prevent static charge while configuring the connectors. Use a grounding wrist strap and place all electronic components in any static-shielded devices.</p>

## 3.2 Mainboard Connectors Quick Reference Table

CONNECTOR Description	NAME
Touch Screen Connector	TOUCH1
NFC Connector	NFC1
TXE lock for manufactured	JP1
LCD Connector	MIPI1
RTC Battery Connector	BAT1
Speaker Connector	SPK1
Barcode Connector	CN_BARCODE
Barcode switch Button	Button2
4G MINI-PCIE Connector	M_PCIE1
SIM CARD Connector	SIM1
PWR Button	Button1
Battery Connector	BAT2
DC IN USB Type C Connector	CN1
Cradle Connector	CRADLE1
MCU F/W update Connector	MCU1
Vibrator Connector	CON1
CCD Front Webcam Connector	CN5
MSR Connector	MSR1

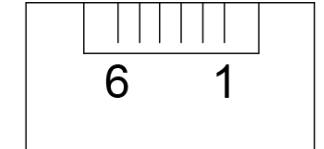
### 3.3 Setting Pad Main Board Connectors

#### 3.3.1 Touch Screen Connector

Connector Location: TOUCH1

Description: Touch Screen Connector

PIN	ASSIGNMENT
1	SCL
2	SDA
3	GND
4	RST
5	INT
6	VCC



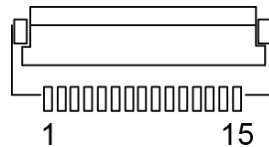
**TOUCH1**

#### 3.3.2 NFC Connector

Connector Location: NFC1

Description: NFC Connector

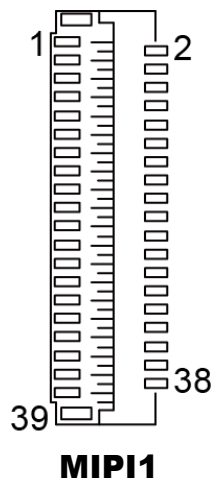
PIN	ASSIGNMENT
1	VDD
2	GND
3	SWP
4	GND
5	IRQ
6	VDD_SIM
7	SDA
8	SCL
9	GND
10	WAKEUP
11	NC
12	SWP_PWR
13	VDD
14	VDD_O
15	GND



**NFC1**

**3.3.3 LCD Connector****Connector Location: MIPI1****Description: LCD Connector**

PIN	ASSIGNMENT
1	NC
2	GND
3	DSI_D3N
4	DSI_D3P
5	GND
6	DSI_D0N
7	DSI_D0P
8	GND
9	DSI_CN
10	DSI_CP
11	GND
12	DSI_D1N
13	DSI_D1P
14	GND
15	NC
16	RESET
17	GND
18	NC
19	MIPI_CSB
20	GND
21	DIMO
22	GND
23	NC
24	MIPI_CSB
25	AVDD+5.5V
26	MIPI_SCL
27	AVDD-5.5V
28	NC
29	NC
30	IF-SEL
31	SDA
32	GND
33	VDD 1.8V
34	VDD 1.8V
35	LEDK-





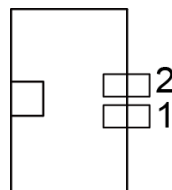
PIN	ASSIGNMENT
36	LEDK-
37	NC
38	LEDA+
39	LEDA+

### 3.3.4 RTC Battery Connector

Connector Location: BAT1

Description: RTC (Real-Time Clock) Battery Connector

PIN	ASSIGNMENT
2	GND
1	VCC



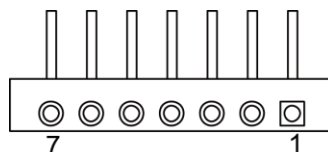
**BAT1**

### 3.3.5 Battery Connector

Connector Location: BAT2

Description: Battery Connector

PIN	ASSIGNMENT
1	BT+
2	BT+
3	BAT1_SENSE
4	BAT_SCL
5	BAT_SDA
6	GND
7	GND



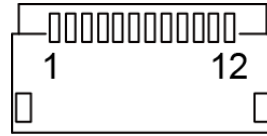
**BAT2**

### 3.3.6 Barcode Scanner Connector

Connector Location: CN\_BARCODE

Description: Barcode Scanner Connector

PIN	ASSIGNMENT
1	NC
2	VCC3_3
3	GND
4	RXD
5	TXD
6	CTS
7	RTS
8	Power Down
9	Buzzer
10	LED_Output
11	Wake up
12	Trigger



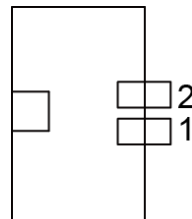
**CN\_BARCODE**

### 3.3.7 Speaker Connector

Connector Location: SPK1

Description: Speaker Connector

PIN	ASSIGNMENT
1	SPO_LIN
2	SPO_LP



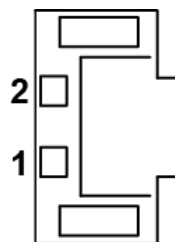
**SPK1**

### 3.3.8 Power Switch Button

Connector Location: Button1

Description: Power Switch Button

PIN	ASSIGNMENT
1	GND
2	PWRBTN_N_R



**BUTTON1**

### 3.3.9 Barcode Switch Button

Connector Location: Button2

Description: Barcode Switch Button

PIN	ASSIGNMENT
1	SCAN_EN_SW
2	SCAN_EN_SW
3	GND
4	GND



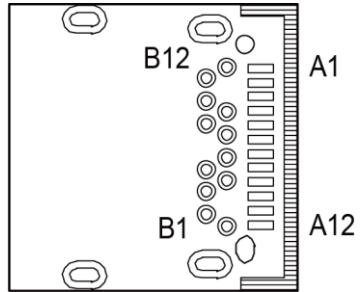
**BUTTON2**

**3.3.10 DC IN USB Type C Connector**

**Connector Location: CN1**

**Description:** DC IN USB Type C Connector

PIN	ASSIGNMENT
A1	GND
A2	SSTXP1
A3	SSTXN1
A4	VBUS
A5	CC1
A6	D+
A7	D-
A9	VBUS
A10	SSRXN2
A11	SSRXP2
G1	GND
G2	GND
B1	GND
B2	SSTXP2
B3	SSTXN2
B4	VBUS
B5	CC1
B6	D+
B7	D-
B9	VBUS
B10	SSRXN1
B11	SSRXP1
G3	GND
G4	GND



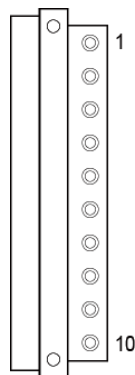
**CN1**

### 3.3.11 Cradle Connector

Connector Location: CRADLE1

Description: Cradle Connector

PIN	ASSIGNMENT
1	CRA_DCIN
2	CRA_DCIN
3	GND
4	USB_DP
5	USB_DP
6	GND
7	TPC_SSRXP3
8	TPC_SSRXN3
9	TPC_SSTXP3
10	TPC_SSTXN3



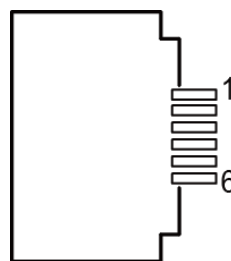
**CRADLE1**

### 3.3.12 MCU F/W Update Connector

Connector Location: MCU1

Description: MCU Firmware Update Connector

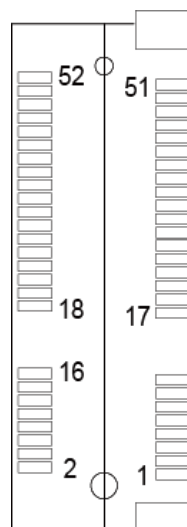
PIN	ASSIGNMENT
1	MCU_MISO_LED_R
2	MCU_ADC
3	MCU_SCK
4	MCU_MOSI_LED_G
5	MCU_RST
6	GND



**MCU1**

**3.3.13 MINI-PCIE Connector****Connector Location: M\_PCIE1****Description: MINI-PCIE Connector**

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	4G_WAKE_N	2	V3P3A_4G
3	NC	4	GND
5	NC	6	+1.5V
7	CLKREQ#	8	VSIM
9	GND	10	SIM_IO
11	REFCLK-	12	SIM_CLK
13	REFCLK+	14	SIM_RST
15	GND	16	UIM_VPP
17	NC	18	GND
19	NC	20	W_4G_DISABLE_N
21	GND	22	PERST_N
23	PERn0	24	+3.3Vaux
25	PREp0	26	GND
27	GND	28	NC
29	GND	30	SMB_CLK
31	PETn0	32	SMB_DATA
33	PETp0	34	GND
35	GND	36	USB_D-
37	NC	38	USB_D+
39	V3P3A_4G	40	GND
41	V3P3A_4G	42	LED_WWAM#
43	NC	44	LED_WLAN#
45	NC	46	LED_WPAN#
47	NC	48	+1.5V
49	NC	50	GND
51	NC	52	+3.3V

**M\_PCIE1**

**3.3.14 CCD Front Camera Connector****Connector Location: CN5****Description:** CCD (Charge-coupled Device) Front Camera Connector

PIN	ASSIGNMENT
1	GND
2	CAM_1_R_RST_N
3	NC
4	I2C_CAM_SDA
5	I2C_CAM_SCL
6	GND
7	MF_PLT_CLK0
8	GND
9	MCSI_CCD_D0_DN
10	MCSI_CCD_D0_DP
11	GND
12	MCSI_CCD_D1_DN
13	MCSI_CCD_D1_DP
14	GND
15	MCSI_CCD_CLK_DN
16	MCSI_CCD_CLK_DP
17	GND
18	MCSI_CCD_D2_DN
19	MCSI_CCD_D2_DP
20	GND
21	MCSI_CCD_D3_DN
22	MCSI_CCD_D3_DP
23	GND
24	CCD_AVDD
25	AGND
26	DVDD
27	DOVDD
28	VCM_GND
29	VCM_VDD
30	VCM_VDD
31	GND
G1	NC
G2	NC

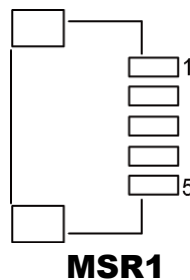
**CN5**

### 3.3.15 MSR Connector

Connector Location: MSR1

Description: MSR (Magnetic-Stripe Card Reader) Connector

PIN	ASSIGNMENT
1	VMSR
2	MSR_DN
3	MSR_DP
4	GND
5	GND

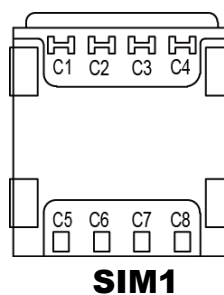


### 3.3.16 SIM Card Connector

Connector Location: SIM1

Description: SCR Connector

PIN	ASSIGNMENT
C1	VCC
C2	RST
C3	CLK
C4	RSV
C5	GND
C6	VPP
C7	DATA
C8	RSV



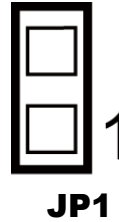


**3.3.17 TXE lock for manufactured Connector**

**Connector Location:** JP1

**Description:** TXE lock for manufactured Connector

PIN	ASSIGNMENT
1	TOUCH_RESET_N
2	GND

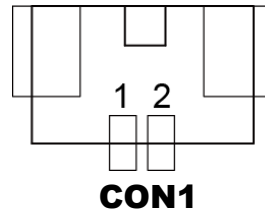


**3.3.18 Vibrator Connector**

**Connector Location:** CON1

**Description:** Vibrator Connector

PIN	ASSIGNMENT
C1	V3P3A_VB
C2	GND



# 4 Software Utilities

---

This chapter provides the detailed information that guides users to install driver utilities for the system. The following topics are included:

- Installing Intel® Chipset Software Installation Utility
- Installing Audio Realtek Software Installation Utility
- Installing G-Sensor Software Installation Utility
- Installing Bluetooth Software Installation Utility
- Installing Light Sensor Software Installation Utility
- Installing Microsoft Hotfix kb3211320 and kb3213986 Driver Utility

### 4.1 Introduction

MH-5752 Driver Utilities have been stored in the Integrated Pad system:

**File Path: C:\MH-5752\_v1.0**

Filename (Assume that drive is C:)	Purpose	Win10 32-bit OS
D:\MH-5752_V1.0\Driver\Platform\1_Chipset\Win10-64Bit\Installer\PlatformInstaller	Intel® Chipset Device Software installer	✓
D:\MH-5752_V1.0\Driver\Platform\2_Audio\Win10-64Bit\10_0_10586_4492_Win10_DRM_WH_QL_103117\X64	Realtek High Definition Audio System Software	✓
D:\MH-5752_V1.0\Driver\Platform\3_G-sensor\Win10-64Bit\4.22.0063_signed	ST Microelectronics 3 Axis Digital Accelerometer Installer	✓
D:\MH-5752_V1.0\Driver\Platform\4_BlueTooth\Win10-64Bit\AW-NB177NF	AzureWave AW-NB177NF M.2 1216 module (802.11 b/g/n+ BT 4.0 , with RTL8723BS)	✓
D:\MH-5752_V1.0\Driver\Platform\5_Light Sensor\Win10-64Bit\20170411_1_x64_v68.74.1.7_MSFT_test2	DYNA IMAGE Ambient light sensor AL3320A	✓
D:\MH-5752_V1.0\Platform\6_Hot Fix\Win10-64Bit	Microsoft Hotfix kb3211320 and kb3213986 for Windows10 64-bit critical security update	✓

✓: Support

**Note:** After the OS installation is completed, the driver utilities will also be installed at the same time.

## 4.2 Installing Intel® Chipset Software Installation Utility

### Introduction

The Intel® Chipset Software Installation Utility installs the Windows \*.INF files to the target system. These files outline to the operating system how to configure the Intel chipset components in order to ensure that the following functions work properly:

- Core PCI and ISAPNP Services
- PCIe Support
- SATA Storage Support
- USB Support
- Identification of Intel® Chipset Components in the Device Manager

The utility pack is to be installed only for Windows® 10 series (64-bit). Please follow the steps below to install:

- 1** Enter the **D:\MH-5752\_V1.0\Driver\Platform\1\_Chipset\Win10-64Bit\Installer\PlatformInstaller** folder where the Chipset driver is located.
- 2** Click **Setup.exe** file for driver installation.
- 3** Once the installation is completed, restart MH-5752 for the changes to take effect.

After the Chipset driver is installed, the following driver utilities will also be installed at the same time:

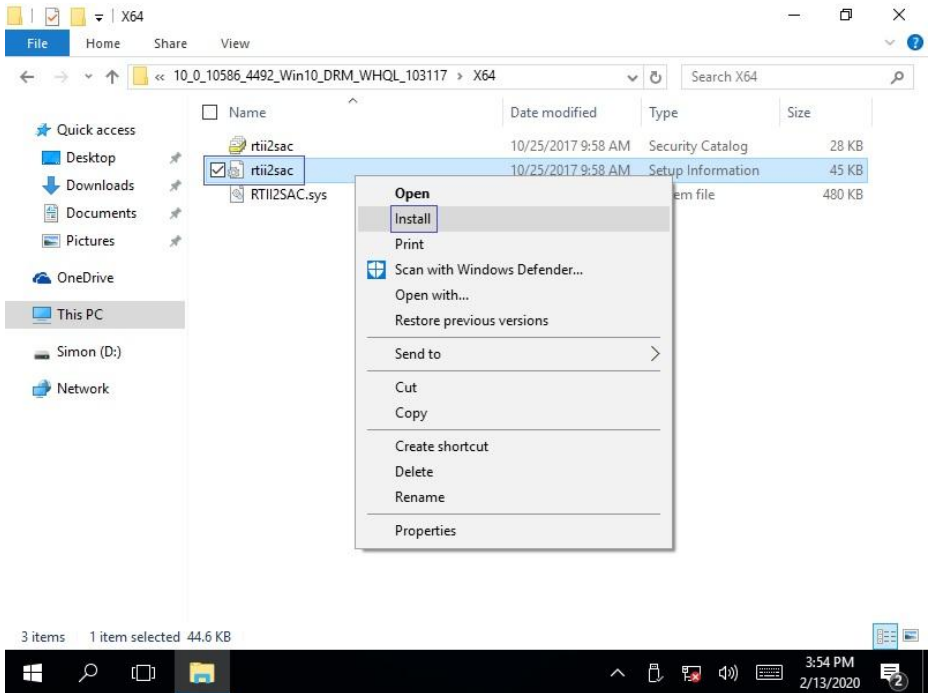
- Audio driver utility
- Camera driver utility
- DPTF driver utility
- GPIO driver utility
- Graphics driver utility
- I2C driver utility
- ISH driver utility
- MBI driver utility
- NFC driver utility
- PMIC driver utility
- PSS driver utility
- TXEI driver utility
- UART driver utility

For more details on the installation procedure, refer to the **MH-5752 README V1.0.pdf** file located under **C:\MH-5752\_v1.0**.

### 4.3 Installing Audio Realtek Software Installation Utility

After the default Audio driver utility has been installed in the procedure above, it will not function until you have installed Realtek driver utilities. Please follow the steps below:

- 1 Enter the **D:\MH-5752\_V1.0\Driver\Platform\2\_Audio\Win10-64Bit\10\_0\_10586\_4492\_Win10\_DRM\_WHQL\_103117\X64** folder where the Audio Realtek ALC5640-VB-CG driver is located.
- 2 Click the file "**rtii2sac.inf**" and then right-click the mouse and select "**install**" from the drop-down list.



- 3 Once the installation is completed, restart MH-5752 for the changes to take effect, and the audio function can start to work normally.

## 4.4 Installing G-Sensor Software Installation Utility

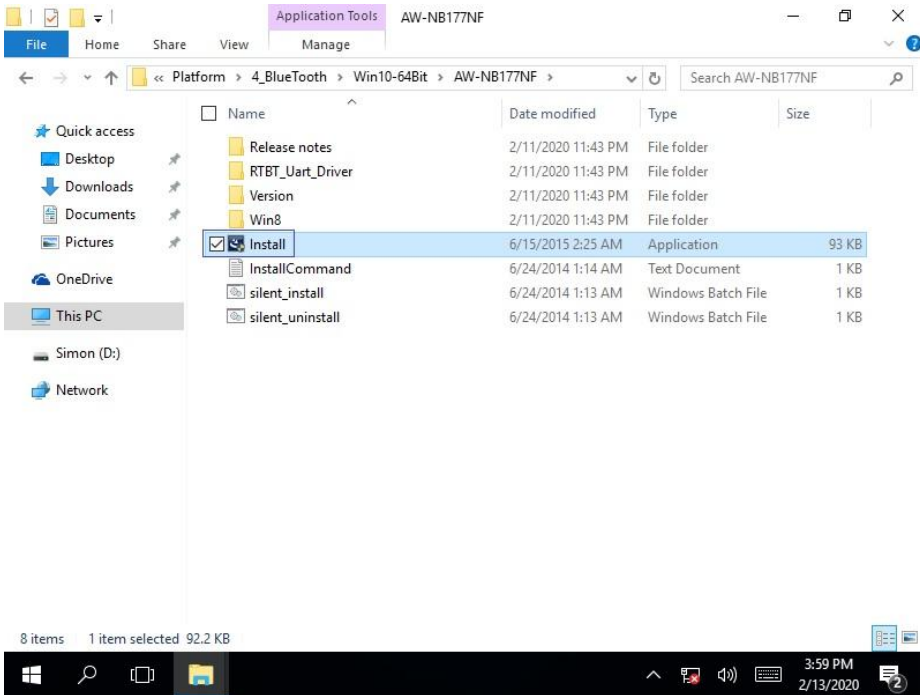
The G-Sensor driver utility provided allows users to turn the touch screen horizontally or vertically. Please follow the steps below to install G-Sensor driver utilities:

- 1 Enter the **D:\MH-5752\_V1.0\Driver\Platform\3\_G-sensor\Win10-64Bit\4.22.0063\_signed** folder.
- 2 Click **setup.exe** file for driver installation.
- 3 Once the installation is completed, restart MH-5752 for the changes to take effect.

## 4.5 Installing Bluetooth Software Installation Utility

Please follow the steps below to install Bluetooth driver utilities:

- 1 Enter the **D:\MH-5752\_V1.0\Driver\Platform\4\_BlueTooth\Win10-64Bit\AW-NB177NF** folder.
- 2 Click “**install**” file for driver installation.



Follow the on-screen instructions to install the Bluetooth driver.

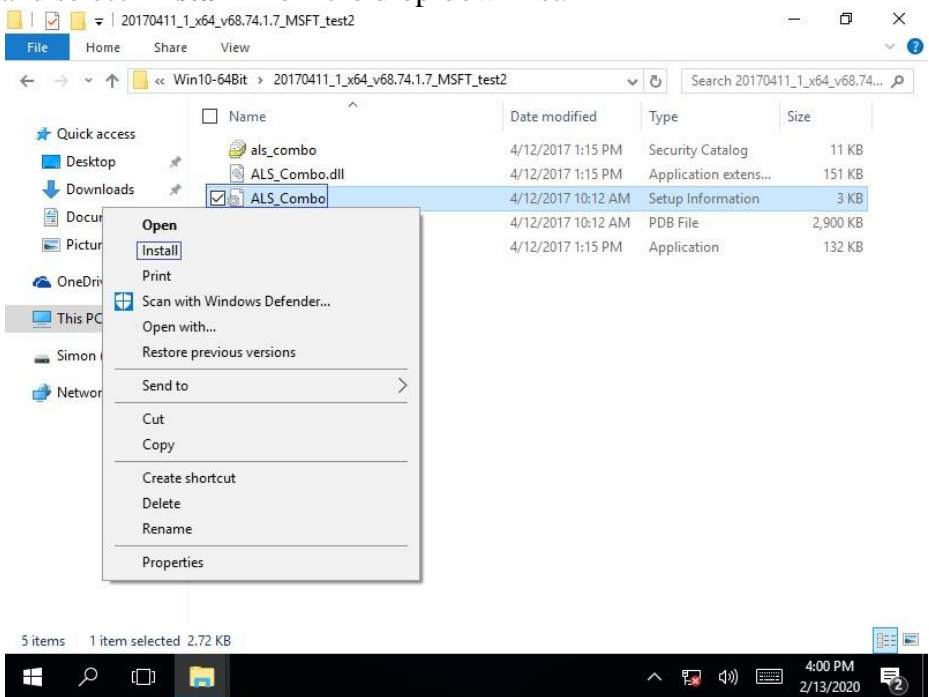
- 3 Once the installation is completed, restart MH-5752 for the changes to take effect.



## 4.6 Installing Light Sensor Software Installation Utility

Please follow the steps below to install Light Sensor driver utilities:

- 1 Enter the **D:\MH-5752\_V1.0\Driver\Platform\5\_Light Sensor\Win10-64Bit\20170411\_1\_x64\_v68.74.1.7\_MSFT\_test2** folder where the driver is located.
- 2 Click the file "**ALS\_Combo.inf** " and then right-click the mouse and select "**install**" from the drop-down list.



- 3 Once the installation is completed, restart MH-5752 for the changes to take effect, and the audio function can start to work normally.

## 4.7 Installing Microsoft Hotfix kb3211320 and kb3213986 Driver Utility

To install the Hotfix driver utility, follow the steps below:

**1** Enter the **D:\MH-5752\_V1.0\Platform\6\_Hot Fix\Win10-64Bit** folder.

**2** Click the **windows10.0-kb3211320-x64** and **windows10.0-kb3213986-x64** files for critical security update.

**3** Follow the on-screen instructions to complete the installation.

Once the installation is completed, shut down the system and restart MH-5752 for the changes to take effect.

# 5 BIOS SETUP

---

This chapter guides users how to configure the basic system configurations via the BIOS Setup Utilities. The information of the system configuration is saved in BIOS NVRAM so that the Setup information is retained when the system is powered off. The BIOS Setup Utilities consist of the following menu items:

- Accessing Setup Utilities
- Main Menu
- Advanced Menu
- Security Menu
- Boot Menu
- Exit Menu

## 5.1 Introduction

The board MH-5752 < CherryTrail > uses an Insyde BIOS that is stored in the Serial Peripheral Interface Flash Memory (SPI Flash) and can be updated. The SPI Flash contains the BIOS Setup program, Power-on Self-Test (POST), the PCI auto-configuration utility, LAN EEPROM information, and Plug and Play support.

Insyde BIOS firmware is based on the UEFI (Unified Extensible Firmware Interface) Specifications and the Intel Platform Innovation Framework for EFI. The UEFI specification defines an interface between an operating system and platform firmware. The interface consists of data tables that contain platform-related information, boot service calls, and runtime service calls that are available to the operating system and its loader. These provide standard environment for booting an operating system and running pre-boot applications.

The diagram below shows the Extensible Firmware Interface's location in the software stack.

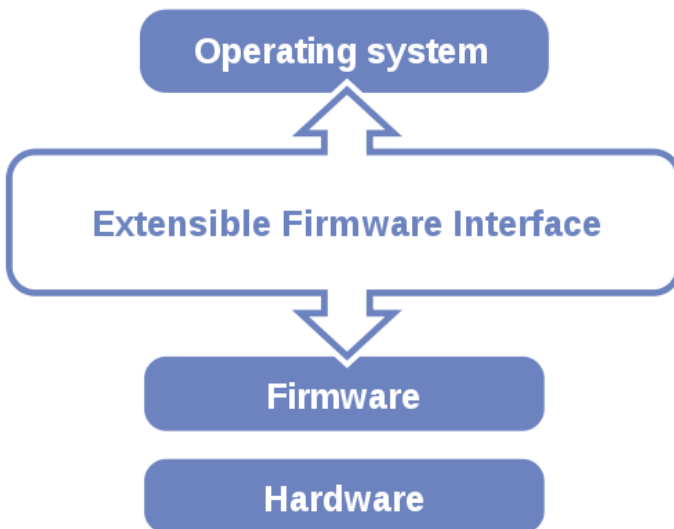


Figure 5-1. Extensible Firmware Interface Diagram

EFI BIOS provides an user interface that allows you to modify hardware configuration, e.g. change the system date and time, enable or disable a system component, determine bootable device priority, set up personal password, etc., which is convenient for engineers to perform modifications and customize the computer system and allows technicians to troubleshoot the occurred errors when the hardware is faulty.

The BIOS setup menu allows users to view and modify the BIOS settings for the computer. After the system is powered on, users can access the BIOS setup menu by pressing <Del> or <Esc> immediately while the POST message is running before the operating system is loading.

All the menu settings are described in details in this chapter.

## **5.2 Accessing Setup Utility**

After the system is powered on, BIOS will enter the Power-On Self-Test (POST) routines and the POST message will be displayed:

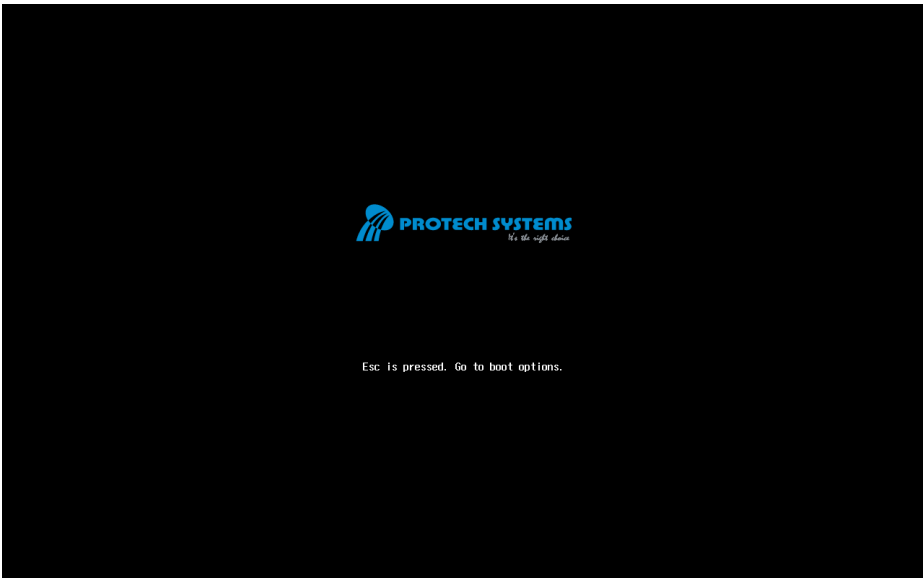


Figure 5-2. POST Screen



Figure 5-3. Front Page Screen

Press <Esc> (the one that shares the decimal point at the bottom of the number keypad) to select SCU icon to access the Setup program. In a moment, the main menu of the Insyde Setup Utility will appear on the screen:



BIOS Setup Menu Initialization Screen

You may move the cursor by <↑> and <↓> keys to highlight the individual menu items. As you highlight each item, a brief description of the highlighted selection will appear at the bottom of the screen.

The language of the BIOS setup menu interface and help messages are shown in US English. You may use <↑> or <↓> key to select among the items and press <Enter> to confirm and enter the sub-menu. The following table provides the list of the navigation keys that you can use while operating the BIOS setup menu.

<b>BIOS Setup Navigation Key</b>	<b>Description</b>
<←> and <→>	Select a different menu screen (move the cursor from the selected menu to the left or right).
<↑> and <↓>	Select a different item (move the cursor from the selected item upwards or downwards)
<Enter>	Execute the command or select the sub-menu.
<F1>	Help
<F5/F6>	Change values.
<F9>	Load the default configuration values.
<F10>	Save the current values and exit the BIOS setup menu.
<Esc>	Close the sub-menu. Trigger the confirmation to exit BIOS setup menu.

## 5.3 Main

Menu Path *Main*

The **Main** menu allows you to view the BIOS Information, change the system date and time, and view the user access privilege level. Use tab to switch between date elements. Use <↑> or <↓> arrow keys to highlight the item and enter the value you want in each item. This screen also displays the BIOS version (project) and BIOS Build Date and Time.



**Main Screen**

BIOS Setting	Options	Description/Purpose
BIOS Version	No changeable options	Displays the BIOS Version.
Build Date	No changeable options	Displays the current Build Date.
Build Time	No changeable options	Displays the current Build Time.
Processor Type	No changeable options	SOC Type on the platform.
System Bus Speed	No changeable options	Displays Bus speed.
eMMC Total Size	No changeable options	Displays eMMC memory size.
MCU Version	No changeable options	Displays the MCU version.
System Memory Speed	No changeable options	Displays Memory Speed.
Cache RAM	No changeable options	Displays Cache RAM size.
Total Memory	No changeable options	Displays Total memory size.
DIMM 0	No changeable option	Displays the DIMM 0 channel size.





Main Screen

BIOS Setting	Options	Description/Purpose
SODIMM 1	No changeable options	Displays the DODIMM 1 size.
SODIMM 0	No changeable options	Displays the DODIMM 0 size.
SODIMM 0	No changeable options	Displays the DODIMM 1 size.
CHV SOC	No changeable options	Displays the CPU's stepping information.
MRC Version	No changeable options	Displays the MRC Version.
PUNIT FW	No changeable options	Displays the PUNIT FW Version.
PMC FW Patch	No changeable options	Displays the PMC FW Patch version.
TXE FW Version	No changeable options	Displays TXE FW Version.
GOP	No changeable options	Displays the GOP version.
Microcode Revision	No changeable options	Displays the Microcode FW version.
CPU Flavor	No changeable options	Displays the CPU's flavor type.



Main Screen

BIOS Setting	Options	Description/Purpose
Board ID	No changeable options	Displays the Board ID of the SoC.
Fab ID	No changeable options	Displays the Fab ID.
Language	- English - Francais - 中文 - 日文	Select the current default language used by the BIOS.
System Time	- hour - minute - Second	Specifies the current time.
System Date	- month - day - year	Specifies the current date.
About this Software	No changeable options	Displays this Software information.

## 5.4 Advanced

Menu Path *Advanced*

This menu provides advanced configurations for setting Security Configuration and Chipset Configuration.



**Advanced Menu Screen**

BIOS Setting	Options	Description/Purpose
Security Configuration	Sub-Menu	Security Configuration.
Chipset Configuration	Sub-Menu	Advanced Chipset Configuration Options.

## 5.4.1 Advanced – Security Configuration

Menu Path *Advanced > Security Configuration*



**Security Configuration Screen**

BIOS Setting	Options	Description/Purpose
TXE FW version	No changeable options	TXE FW Version
TXE FW Capabilities	No changeable options	TXE FW Capabilities
TXE FW Features	No changeable options	TXE FW Features
TXE FW OEM Tag	No changeable options	TXE FW OEM Tag
TXE Firmware Mode	No changeable options	TXE Firmware Mode
TXE HMRFPO	- Enabled - Disabled	TXE HMRFPO
TXE Firmware Update	- Enabled - Disabled	TXE Firmware Update
TXE EOP Message	- Enabled - Disabled	TXE EOP Message
TXE Unconfiguration Perform	- YES - No	Send EOP Message before Enter OS.

<b>BIOS Setting</b>	<b>Options</b>	<b>Description/Purpose</b>
Measured Boot	- Enabled - Disabled	Measured Boot
Target TPM device	- fTPM - dTPM	Target TPM device

5.4.2 Advanced – Chipset Configuration

Menu Path *Advanced > Chipset Configuration*



Security Configuration Screen

BIOS Setting	Options	Description/Purpose
NFC Switch	- Enabled - Disabled	To control the NFC function on the O.S.
Camera Switch	- Enabled - Disabled	To control camera function on the O.S.
Light-Sensor Switch	- Enabled - Disabled	To control the Light-Sensor function on the O.S.
USB Configuration	Sub-Menu	USB Configuration Settings

## 5.4.3 Advanced – USB Configuration

Menu Path *Advanced > USB Configuration*



**Security Configuration Screen**

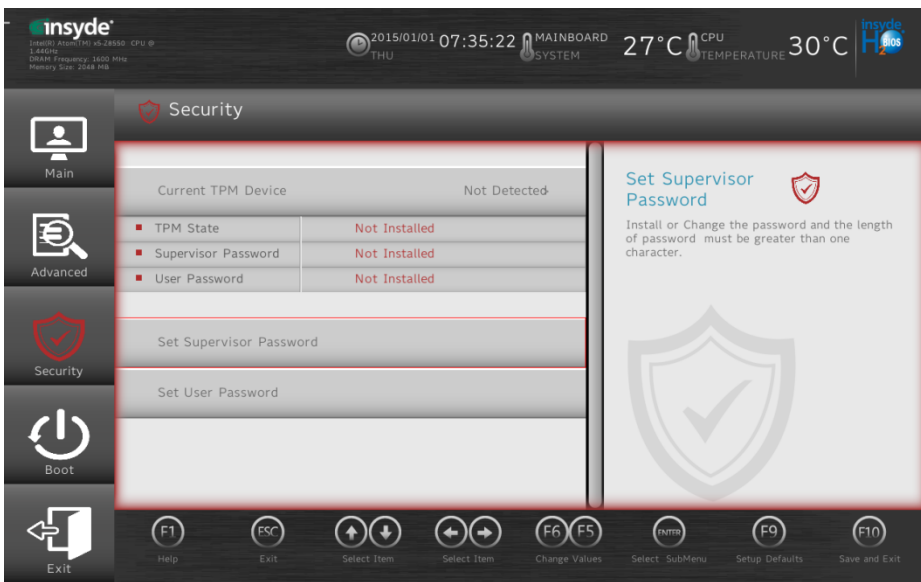
BIOS Setting	Options	Description/Purpose
USB Per-Post Control	- Enabled - Disabled	Control each of the USB ports (0 ~ 9) disabling.
USB Port #0	- Enabled - Disabled	Disable USB port #0.
USB Port #1	- Enabled - Disabled	Disable USB port #1.
USB Port #2	- Enabled - Disabled	Disable USB port #2.
USB Port #3	- Enabled - Disabled	Disable USB port #3.
USB Port #4	- Enabled - Disabled	Disable USB port #4.

## 5.5 Security

Menu Path                      *Security*

From the **Security** menu, you are allowed to create, change or clear the supervisor password. You will be asked to enter the configured supervisor password before you can access the Setup Utility.

By setting a supervisor password, you will prevent other users from changing your BIOS settings. You can configure a supervisor password and then configure a user password. A supervisor has much more privileges over the settings in the Setup utility than a user. Heed that a user password does not provide access to most of the features in the Setup utility.



**Security Screen**

BIOS Setting	Options	Description/Purpose
TPM State	No changeable options	Displays the TPM state.
Supervisor Password	No changeable options	Displays the Supervisor Password state.
User Password	No changeable options	Displays the User Password state.



<b>BIOS Setting</b>	<b>Options</b>	<b>Description/Purpose</b>
Supervisor Password	Password can be 3-20 alphanumeric characters.	Specifies the administrator password.
User Password	Password can be 3-20 alphanumeric characters.	Specifies the user password.

## 5.6 Boot

Menu Path *Boot*

This menu provides control items for system boot configuration such as setting setup prompt timeout, enabling/disabling quick boot, quiet boot, Network Stack and PXE Boot capability, configuring ACPI (Advanced Configuration and Power Management Interface) settings and USB boot.



Boot Screen

BIOS Setting	Options	Description/Purpose
Quick Boot	- Enabled - Disabled	This will decrease the time needed to boot the system.
Quiet Boot	- Enabled - Disabled	Enabled or Disabled booting in Text Mode.
Network Stack	- Enabled - Disabled	Network Stack support Windows 8 BitLocker Unlock / UEFI IPv4 / IPv6 PXE / Legacy PXE OPROM.
PXE Boot capability	- Enabled - Disabled	<b>Disabled:</b> Support Network Stack. <b>UEFI PXE:</b> IPv4 / IPv6 <b>Legacy:</b> Legacy PXE OPROM only.

<b>BIOS Setting</b>	<b>Options</b>	<b>Description/Purpose</b>
ACPI Selection	- Acpi 1.0B - Acpi 3.0 - Acpi 4.0 - Acpi 5.0	Select booting to ACPI
USB Boot	- Enabled - Disabled	Disabled or Enabled booting to USB boot devices.
Timeout	- second	The number of seconds that the firmware will wait before booting the original default boot selection.

## 5.7 Exit

Menu Path *Exit*

The **Exit** allows users to save or discard changed BIOS settings as well as load the optimized defaults for BIOS settings.



Exit Screen

BIOS Setting	Options	Description/Purpose
Exit Saving Changes	No changeable options	Exits and saves the changes in NVRAM.
Save Change without Exit	No changeable options	Save your changes and without exiting system.
Exit Discarding Changes	No changeable options	Exits without saving any changes made in BIOS settings.
Load Option Defaults	No changeable options	Loads the optimized defaults for BIOS settings.
Load Custom Defaults	No changeable options	Loads Custom Defaults.
Save Custom Defaults	No changeable options	Save Custom Defaults.

<b>BIOS Setting</b>	<b>Options</b>	<b>Description/Purpose</b>
Discard Changes	No changeable options	Discard changes.

# Appendix A System Diagrams

---

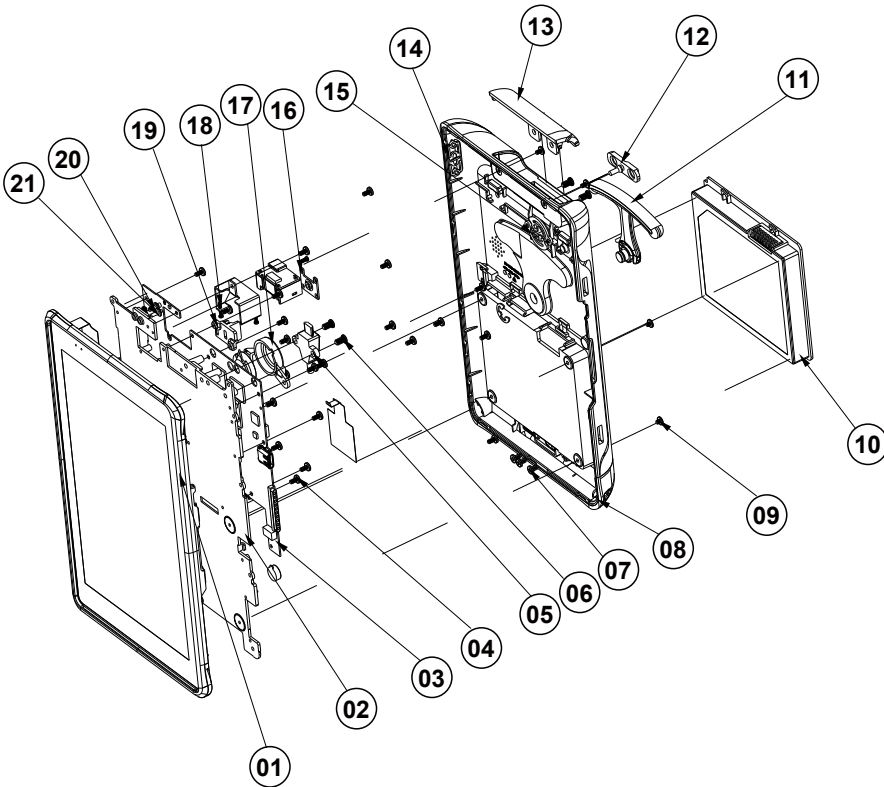
This appendix contains exploded diagrams and part numbers of the Pad and Lite Cradle for MH-5752 system.

The following topics are included:

## **Exploded Diagrams for Integrated Pad**

- MH-5752 Exploded Diagram

Exploded Diagrams



TEM	Description	Part No.	Q'ty
1	Front Cover (Black)	30-002-12310436	1
2	PCBA Plate	20-005-34001436	1
3	MH-5752-PCBA	-	1
4	Fillister Head Screw #1 / M2x0.4Px4mm	22-272-20004011	25
5	Micro USB-Cable	-	1
6	Fillister Head Screw #1 / M3x0.5Px5mm	22-275-30005011	4
7	Fillister Head Screw #0 / T2x4mm	22-175-20004011	8
8	Rear Cover (Black)	30-002-12210436	1
9	Fillister Head Screw #1 / M2x0.4Px3mm	22-275-20003011	6
10	MH-5752 Battery	-	1

<b>TEM</b>	<b>Description</b>	<b>Part No.</b>	<b>Q'ty</b>
11	Finger Buckle (Black)	30-002-12410436	1
12	Card Reader Cover Rubber	30-013-01200436	1
13	Card Reader Cover (Black)	30-002-12110436	1
14	Power Button (Gary)	30-046-28210436	1
15	Barcode Button (Gary)	30-046-28110436	1
16	Glove Bracket	20-106-03004436	2
17	Speaker Stand (Gary)	30-068-28110436	1
18	Pan Head Screw T1.7x5mm	22-732-17005011	2
19	Camera Stand (Black)	30-068-28210436	1
20	Lens	30-021-02130436	1
21	Lightpipe	30-021-02230436	1



# **Appendix B Technical Summary**

---

This appendix will give you a brief introduction of the allocation maps for MH-5752 resources.

The following topics are included:

- Interrupt Map
- I/O Map
- Memory Map
- System BIOS Update Procedure

## Interrupt Map

IRQ	Assignment
IRQ 0	System timer
IRQ 4	Communications Port (COM1)
IRQ 8	High precision event timer
IRQ 24	Intel SST Audio Device (WDM)
IRQ 25	Intel SST Audio Device (WDM)
IRQ 26	Intel SST Audio Device (WDM)
IRQ 27	Intel SST Audio Device (WDM)
IRQ 28	Intel SST Audio Device (WDM)
IRQ 29	Intel SST Audio Device (WDM)
IRQ 32	Intel(R) Serial IO I2C ES Controller
IRQ 33	Intel(R) Serial IO I2C ES Controller
IRQ 34	Intel(R) Serial IO I2C ES Controller
IRQ 35	Intel(R) Serial IO I2C ES Controller
IRQ 36	Intel(R) Serial IO I2C ES Controller
IRQ 37	Intel(R) Serial IO I2C ES Controller
IRQ 38	Intel(R) Serial IO I2C ES Controller
IRQ 39	Intel(R) Serial IO UART Controller
IRQ 40	Intel(R) Serial IO I2C ES Controller
IRQ 41	Intel(R) Serial IO SPI Controller
IRQ 42	Intel(R) Serial IO DMA Controller
IRQ 43	Intel(R) Serial IO DMA Controller
IRQ 45	Intel SD Host Controller
IRQ 46	Intel SD Host Controller
IRQ 47	Intel SD Host Controller
IRQ 48	Intel Serial IO GPIO Controller
IRQ 49	Intel Serial IO GPIO Controller
IRQ 50	Intel Serial IO GPIO Controller

<b>IRQ</b>	<b>Assignment</b>
IRQ 54	Microsoft ACPI-Compliant System
IRQ 55	Microsoft ACPI-Compliant System
IRQ 56	Microsoft ACPI-Compliant System
IRQ 57	Microsoft ACPI-Compliant System
IRQ 58	Microsoft ACPI-Compliant System
IRQ 59	Microsoft ACPI-Compliant System
IRQ 60	Microsoft ACPI-Compliant System
IRQ 61	Microsoft ACPI-Compliant System
IRQ 62	Microsoft ACPI-Compliant System
IRQ 63	Microsoft ACPI-Compliant System
IRQ 64	Microsoft ACPI-Compliant System
IRQ 65	Microsoft ACPI-Compliant System
IRQ 66	Microsoft ACPI-Compliant System
IRQ 67	Microsoft ACPI-Compliant System
IRQ 68	Microsoft ACPI-Compliant System
IRQ 69	Microsoft ACPI-Compliant System
IRQ 70	Microsoft ACPI-Compliant System
IRQ 71	Microsoft ACPI-Compliant System
IRQ 72	Microsoft ACPI-Compliant System
IRQ 73	Microsoft ACPI-Compliant System
IRQ 74	Microsoft ACPI-Compliant System
IRQ 75	Microsoft ACPI-Compliant System
IRQ 76	Microsoft ACPI-Compliant System
IRQ 77	Microsoft ACPI-Compliant System
IRQ 78	Microsoft ACPI-Compliant System
IRQ 79	Microsoft ACPI-Compliant System
IRQ 80	Microsoft ACPI-Compliant System
IRQ 81	Microsoft ACPI-Compliant System

<b>IRQ</b>	<b>Assignment</b>
IRQ 82	Microsoft ACPI-Compliant System
IRQ 83	Microsoft ACPI-Compliant System
IRQ 84	Microsoft ACPI-Compliant System
IRQ 85	Microsoft ACPI-Compliant System
IRQ 86	Microsoft ACPI-Compliant System
IRQ 87	Microsoft ACPI-Compliant System
IRQ 88	Microsoft ACPI-Compliant System
IRQ 89	Intel(R) Serial IO SPI Controller
IRQ 89	Microsoft ACPI-Compliant System
IRQ 90	Intel(R) Serial IO SPI Controller
IRQ 90	Microsoft ACPI-Compliant System
IRQ 91	Intel Serial IO GPIO Controller
IRQ 91	Microsoft ACPI-Compliant System
IRQ 92	Microsoft ACPI-Compliant System
IRQ 93	Microsoft ACPI-Compliant System
IRQ 94	Microsoft ACPI-Compliant System
IRQ 95	Microsoft ACPI-Compliant System
IRQ 96	Microsoft ACPI-Compliant System
IRQ 97	Microsoft ACPI-Compliant System
IRQ 98	Microsoft ACPI-Compliant System
IRQ 99	Microsoft ACPI-Compliant System
IRQ 100	Microsoft ACPI-Compliant System
IRQ 101	Microsoft ACPI-Compliant System
IRQ 102	Microsoft ACPI-Compliant System
IRQ 103	Microsoft ACPI-Compliant System
IRQ 104	Microsoft ACPI-Compliant System
IRQ 105	Microsoft ACPI-Compliant System
IRQ 106	Microsoft ACPI-Compliant System

<b>IRQ</b>	<b>Assignment</b>
IRQ 107	Microsoft ACPI-Compliant System
IRQ 108	Intel Serial IO GPIO Controller
IRQ 109	Microsoft ACPI-Compliant System
IRQ 110	Microsoft ACPI-Compliant System
IRQ 111	Microsoft ACPI-Compliant System
IRQ 112	Microsoft ACPI-Compliant System
IRQ 113	Microsoft ACPI-Compliant System
IRQ 114	Microsoft ACPI-Compliant System
IRQ 115	Microsoft ACPI-Compliant System
IRQ 116	Microsoft ACPI-Compliant System
IRQ 117	Microsoft ACPI-Compliant System
IRQ 118	Microsoft ACPI-Compliant System
IRQ 119	Microsoft ACPI-Compliant System
IRQ 120	Microsoft ACPI-Compliant System
IRQ 121	Microsoft ACPI-Compliant System
IRQ 122	Microsoft ACPI-Compliant System
IRQ 123	Microsoft ACPI-Compliant System
IRQ 124	Microsoft ACPI-Compliant System
IRQ 125	Microsoft ACPI-Compliant System
IRQ 126	Microsoft ACPI-Compliant System
IRQ 127	Microsoft ACPI-Compliant System
IRQ 128	Microsoft ACPI-Compliant System
IRQ 129	Microsoft ACPI-Compliant System
IRQ 130	Microsoft ACPI-Compliant System
IRQ 131	Microsoft ACPI-Compliant System
IRQ 132	Microsoft ACPI-Compliant System
IRQ 133	Microsoft ACPI-Compliant System
IRQ 134	Microsoft ACPI-Compliant System

<b>IRQ</b>	<b>Assignment</b>
IRQ 135	Microsoft ACPI-Compliant System
IRQ 136	Microsoft ACPI-Compliant System
IRQ 137	Microsoft ACPI-Compliant System
IRQ 138	Microsoft ACPI-Compliant System
IRQ 139	Microsoft ACPI-Compliant System
IRQ 140	Microsoft ACPI-Compliant System
IRQ 141	Microsoft ACPI-Compliant System
IRQ 142	Microsoft ACPI-Compliant System
IRQ 143	Microsoft ACPI-Compliant System
IRQ 144	Microsoft ACPI-Compliant System
IRQ 145	Microsoft ACPI-Compliant System
IRQ 146	Microsoft ACPI-Compliant System
IRQ 147	Microsoft ACPI-Compliant System
IRQ 148	Microsoft ACPI-Compliant System
IRQ 149	Microsoft ACPI-Compliant System
IRQ 150	Microsoft ACPI-Compliant System
IRQ 151	Microsoft ACPI-Compliant System
IRQ 152	Microsoft ACPI-Compliant System
IRQ 153	Microsoft ACPI-Compliant System
IRQ 154	Microsoft ACPI-Compliant System
IRQ 155	Microsoft ACPI-Compliant System
IRQ 156	Microsoft ACPI-Compliant System
IRQ 157	Microsoft ACPI-Compliant System
IRQ 158	Microsoft ACPI-Compliant System
IRQ 159	Microsoft ACPI-Compliant System
IRQ 160	Microsoft ACPI-Compliant System
IRQ 161	Microsoft ACPI-Compliant System
IRQ 162	Microsoft ACPI-Compliant System

<b>IRQ</b>	<b>Assignment</b>
IRQ 163	Microsoft ACPI-Compliant System
IRQ 164	Microsoft ACPI-Compliant System
IRQ 165	Microsoft ACPI-Compliant System
IRQ 166	Microsoft ACPI-Compliant System
IRQ 167	Microsoft ACPI-Compliant System
IRQ 168	Microsoft ACPI-Compliant System
IRQ 169	Microsoft ACPI-Compliant System
IRQ 170	Microsoft ACPI-Compliant System
IRQ 171	Microsoft ACPI-Compliant System
IRQ 172	Microsoft ACPI-Compliant System
IRQ 173	Microsoft ACPI-Compliant System
IRQ 174	Microsoft ACPI-Compliant System
IRQ 175	Microsoft ACPI-Compliant System
IRQ 176	Microsoft ACPI-Compliant System
IRQ 177	Microsoft ACPI-Compliant System
IRQ 178	Microsoft ACPI-Compliant System
IRQ 179	Microsoft ACPI-Compliant System
IRQ 180	Microsoft ACPI-Compliant System
IRQ 181	Microsoft ACPI-Compliant System
IRQ 182	Microsoft ACPI-Compliant System
IRQ 183	Microsoft ACPI-Compliant System
IRQ 184	Microsoft ACPI-Compliant System
IRQ 185	Microsoft ACPI-Compliant System
IRQ 186	Microsoft ACPI-Compliant System
IRQ 187	Microsoft ACPI-Compliant System
IRQ 188	Microsoft ACPI-Compliant System
IRQ 189	Microsoft ACPI-Compliant System
IRQ 190	Microsoft ACPI-Compliant System

<b>IRQ</b>	<b>Assignment</b>
IRQ 191	Microsoft ACPI-Compliant System
IRQ 192	Microsoft ACPI-Compliant System
IRQ 193	Microsoft ACPI-Compliant System
IRQ 194	Microsoft ACPI-Compliant System
IRQ 195	Microsoft ACPI-Compliant System
IRQ 196	Microsoft ACPI-Compliant System
IRQ 197	Microsoft ACPI-Compliant System
IRQ 198	Microsoft ACPI-Compliant System
IRQ 199	Microsoft ACPI-Compliant System
IRQ 200	Microsoft ACPI-Compliant System
IRQ 201	Microsoft ACPI-Compliant System
IRQ 202	Microsoft ACPI-Compliant System
IRQ 203	Microsoft ACPI-Compliant System
IRQ 204	Microsoft ACPI-Compliant System
IRQ 205	Microsoft ACPI-Compliant System
IRQ 206	Microsoft ACPI-Compliant System
IRQ 207	Microsoft ACPI-Compliant System
IRQ 208	Microsoft ACPI-Compliant System
IRQ 209	Microsoft ACPI-Compliant System
IRQ 210	Microsoft ACPI-Compliant System
IRQ 210	Microsoft ACPI-Compliant System
IRQ 211	Microsoft ACPI-Compliant System
IRQ 212	Microsoft ACPI-Compliant System
IRQ 213	Microsoft ACPI-Compliant System
IRQ 214	Microsoft ACPI-Compliant System
IRQ 215	Microsoft ACPI-Compliant System
IRQ 216	Microsoft ACPI-Compliant System
IRQ 217	Microsoft ACPI-Compliant System



<b>IRQ</b>	<b>Assignment</b>
IRQ 218	Microsoft ACPI-Compliant System
IRQ 219	Microsoft ACPI-Compliant System
IRQ 220	Microsoft ACPI-Compliant System
IRQ 221	Microsoft ACPI-Compliant System
IRQ 222	Microsoft ACPI-Compliant System
IRQ 223	Microsoft ACPI-Compliant System
IRQ 224	Microsoft ACPI-Compliant System
IRQ 225	Microsoft ACPI-Compliant System
IRQ 226	Microsoft ACPI-Compliant System
IRQ 227	Microsoft ACPI-Compliant System
IRQ 228	Microsoft ACPI-Compliant System
IRQ 229	Microsoft ACPI-Compliant System
IRQ 230	Microsoft ACPI-Compliant System
IRQ 231	Microsoft ACPI-Compliant System
IRQ 232	Microsoft ACPI-Compliant System
IRQ 233	Microsoft ACPI-Compliant System
IRQ 234	Microsoft ACPI-Compliant System
IRQ 235	Microsoft ACPI-Compliant System
IRQ 236	Microsoft ACPI-Compliant System
IRQ 237	Microsoft ACPI-Compliant System
IRQ 238	Microsoft ACPI-Compliant System
IRQ 239	Microsoft ACPI-Compliant System
IRQ 240	Microsoft ACPI-Compliant System
IRQ 241	Microsoft ACPI-Compliant System
IRQ 242	Microsoft ACPI-Compliant System
IRQ 243	Microsoft ACPI-Compliant System
IRQ 244	Microsoft ACPI-Compliant System
IRQ 245	Microsoft ACPI-Compliant System

<b>IRQ</b>	<b>Assignment</b>
IRQ 246	Microsoft ACPI-Compliant System
IRQ 247	Microsoft ACPI-Compliant System
IRQ 248	Microsoft ACPI-Compliant System
IRQ 249	Microsoft ACPI-Compliant System
IRQ 250	Microsoft ACPI-Compliant System
IRQ 251	Microsoft ACPI-Compliant System
IRQ 252	Microsoft ACPI-Compliant System
IRQ 253	Microsoft ACPI-Compliant System
IRQ 254	Microsoft ACPI-Compliant System
IRQ 255	Microsoft ACPI-Compliant System
IRQ 256	Microsoft ACPI-Compliant System
IRQ 257	Microsoft ACPI-Compliant System
IRQ 258	Microsoft ACPI-Compliant System
IRQ 259	Microsoft ACPI-Compliant System
IRQ 260	Microsoft ACPI-Compliant System
IRQ 261	Microsoft ACPI-Compliant System
IRQ 262	Microsoft ACPI-Compliant System
IRQ 263	Microsoft ACPI-Compliant System
IRQ 264	Microsoft ACPI-Compliant System
IRQ 265	Microsoft ACPI-Compliant System
IRQ 266	Microsoft ACPI-Compliant System
IRQ 267	Microsoft ACPI-Compliant System
IRQ 268	Microsoft ACPI-Compliant System
IRQ 269	Microsoft ACPI-Compliant System
IRQ 270	Microsoft ACPI-Compliant System
IRQ 271	Microsoft ACPI-Compliant System
IRQ 272	Microsoft ACPI-Compliant System
IRQ 273	Microsoft ACPI-Compliant System

<b>IRQ</b>	<b>Assignment</b>
IRQ 274	Microsoft ACPI-Compliant System
IRQ 275	Microsoft ACPI-Compliant System
IRQ 276	Microsoft ACPI-Compliant System
IRQ 277	Microsoft ACPI-Compliant System
IRQ 278	Microsoft ACPI-Compliant System
IRQ 279	Microsoft ACPI-Compliant System
IRQ 280	Microsoft ACPI-Compliant System
IRQ 281	Microsoft ACPI-Compliant System
IRQ 282	Microsoft ACPI-Compliant System
IRQ 283	Microsoft ACPI-Compliant System
IRQ 284	Microsoft ACPI-Compliant System
IRQ 285	Microsoft ACPI-Compliant System
IRQ 286	Microsoft ACPI-Compliant System
IRQ 287	Microsoft ACPI-Compliant System
IRQ 288	Microsoft ACPI-Compliant System
IRQ 289	Microsoft ACPI-Compliant System
IRQ 290	Microsoft ACPI-Compliant System
IRQ 291	Microsoft ACPI-Compliant System
IRQ 292	Microsoft ACPI-Compliant System
IRQ 293	Microsoft ACPI-Compliant System
IRQ 294	Microsoft ACPI-Compliant System
IRQ 295	Microsoft ACPI-Compliant System
IRQ 296	Microsoft ACPI-Compliant System
IRQ 297	Microsoft ACPI-Compliant System
IRQ 298	Microsoft ACPI-Compliant System
IRQ 299	Microsoft ACPI-Compliant System
IRQ 300	Microsoft ACPI-Compliant System
IRQ 301	Microsoft ACPI-Compliant System

<b>IRQ</b>	<b>Assignment</b>
IRQ 302	Microsoft ACPI-Compliant System
IRQ 303	Microsoft ACPI-Compliant System
IRQ 304	Microsoft ACPI-Compliant System
IRQ 305	Microsoft ACPI-Compliant System
IRQ 306	Microsoft ACPI-Compliant System
IRQ 307	Microsoft ACPI-Compliant System
IRQ 308	Microsoft ACPI-Compliant System
IRQ 309	Microsoft ACPI-Compliant System
IRQ 310	Microsoft ACPI-Compliant System
IRQ 311	Microsoft ACPI-Compliant System
IRQ 312	Microsoft ACPI-Compliant System
IRQ 313	Microsoft ACPI-Compliant System
IRQ 314	Microsoft ACPI-Compliant System
IRQ 315	Microsoft ACPI-Compliant System
IRQ 316	Microsoft ACPI-Compliant System
IRQ 317	Microsoft ACPI-Compliant System
IRQ 318	Microsoft ACPI-Compliant System
IRQ 319	Microsoft ACPI-Compliant System
IRQ 320	Microsoft ACPI-Compliant System
IRQ 321	Microsoft ACPI-Compliant System
IRQ 322	Microsoft ACPI-Compliant System
IRQ 323	Microsoft ACPI-Compliant System
IRQ 324	Microsoft ACPI-Compliant System
IRQ 325	Microsoft ACPI-Compliant System
IRQ 326	Microsoft ACPI-Compliant System
IRQ 327	Microsoft ACPI-Compliant System
IRQ 328	Microsoft ACPI-Compliant System
IRQ 329	Microsoft ACPI-Compliant System

<b>IRQ</b>	<b>Assignment</b>
IRQ 330	Microsoft ACPI-Compliant System
IRQ 331	Microsoft ACPI-Compliant System
IRQ 332	Microsoft ACPI-Compliant System
IRQ 333	Microsoft ACPI-Compliant System
IRQ 334	Microsoft ACPI-Compliant System
IRQ 335	Microsoft ACPI-Compliant System
IRQ 336	Microsoft ACPI-Compliant System
IRQ 337	Microsoft ACPI-Compliant System
IRQ 338	Microsoft ACPI-Compliant System
IRQ 339	Microsoft ACPI-Compliant System
IRQ 340	Microsoft ACPI-Compliant System
IRQ 341	Microsoft ACPI-Compliant System
IRQ 342	Microsoft ACPI-Compliant System
IRQ 343	Microsoft ACPI-Compliant System
IRQ 344	Microsoft ACPI-Compliant System
IRQ 345	Microsoft ACPI-Compliant System
IRQ 346	Microsoft ACPI-Compliant System
IRQ 347	Microsoft ACPI-Compliant System
IRQ 348	Microsoft ACPI-Compliant System
IRQ 349	Microsoft ACPI-Compliant System
IRQ 350	Microsoft ACPI-Compliant System
IRQ 351	Microsoft ACPI-Compliant System
IRQ 352	Microsoft ACPI-Compliant System
IRQ 353	Microsoft ACPI-Compliant System
IRQ 354	Microsoft ACPI-Compliant System
IRQ 355	Microsoft ACPI-Compliant System
IRQ 356	Microsoft ACPI-Compliant System
IRQ 357	Microsoft ACPI-Compliant System

<b>IRQ</b>	<b>Assignment</b>
IRQ 358	Microsoft ACPI-Compliant System
IRQ 359	Microsoft ACPI-Compliant System
IRQ 360	Microsoft ACPI-Compliant System
IRQ 361	Microsoft ACPI-Compliant System
IRQ 362	Microsoft ACPI-Compliant System
IRQ 363	Microsoft ACPI-Compliant System
IRQ 364	Microsoft ACPI-Compliant System
IRQ 365	Microsoft ACPI-Compliant System
IRQ 366	Microsoft ACPI-Compliant System
IRQ 367	Microsoft ACPI-Compliant System
IRQ 368	Microsoft ACPI-Compliant System
IRQ 369	Microsoft ACPI-Compliant System
IRQ 370	Microsoft ACPI-Compliant System
IRQ 371	Microsoft ACPI-Compliant System
IRQ 372	Microsoft ACPI-Compliant System
IRQ 373	Microsoft ACPI-Compliant System
IRQ 374	Microsoft ACPI-Compliant System
IRQ 375	Microsoft ACPI-Compliant System
IRQ 376	Microsoft ACPI-Compliant System
IRQ 377	Microsoft ACPI-Compliant System
IRQ 378	Microsoft ACPI-Compliant System
IRQ 379	Microsoft ACPI-Compliant System
IRQ 380	Microsoft ACPI-Compliant System
IRQ 381	Microsoft ACPI-Compliant System
IRQ 382	Microsoft ACPI-Compliant System
IRQ 383	Microsoft ACPI-Compliant System
IRQ 384	Microsoft ACPI-Compliant System
IRQ 385	Microsoft ACPI-Compliant System

<b>IRQ</b>	<b>Assignment</b>
IRQ 386	Microsoft ACPI-Compliant System
IRQ 387	Microsoft ACPI-Compliant System
IRQ 388	Microsoft ACPI-Compliant System
IRQ 389	Microsoft ACPI-Compliant System
IRQ 390	Microsoft ACPI-Compliant System
IRQ 391	Microsoft ACPI-Compliant System
IRQ 392	Microsoft ACPI-Compliant System
IRQ 393	Microsoft ACPI-Compliant System
IRQ 394	Microsoft ACPI-Compliant System
IRQ 395	Microsoft ACPI-Compliant System
IRQ 396	Microsoft ACPI-Compliant System
IRQ 397	Microsoft ACPI-Compliant System
IRQ 398	Microsoft ACPI-Compliant System
IRQ 399	Microsoft ACPI-Compliant System
IRQ 400	Microsoft ACPI-Compliant System
IRQ 401	Microsoft ACPI-Compliant System
IRQ 402	Microsoft ACPI-Compliant System
IRQ 403	Microsoft ACPI-Compliant System
IRQ 404	Microsoft ACPI-Compliant System
IRQ 405	Microsoft ACPI-Compliant System
IRQ 406	Microsoft ACPI-Compliant System
IRQ 407	Microsoft ACPI-Compliant System
IRQ 408	Microsoft ACPI-Compliant System
IRQ 409	Microsoft ACPI-Compliant System
IRQ 410	Microsoft ACPI-Compliant System
IRQ 411	Microsoft ACPI-Compliant System
IRQ 412	Microsoft ACPI-Compliant System
IRQ 413	Microsoft ACPI-Compliant System

<b>IRQ</b>	<b>Assignment</b>
IRQ 414	Microsoft ACPI-Compliant System
IRQ 415	Microsoft ACPI-Compliant System
IRQ 416	Microsoft ACPI-Compliant System
IRQ 417	Microsoft ACPI-Compliant System
IRQ 418	Microsoft ACPI-Compliant System
IRQ 419	Microsoft ACPI-Compliant System
IRQ 420	Microsoft ACPI-Compliant System
IRQ 421	Microsoft ACPI-Compliant System
IRQ 422	Microsoft ACPI-Compliant System
IRQ 423	Microsoft ACPI-Compliant System
IRQ 424	Microsoft ACPI-Compliant System
IRQ 425	Microsoft ACPI-Compliant System
IRQ 426	Microsoft ACPI-Compliant System
IRQ 427	Microsoft ACPI-Compliant System
IRQ 428	Microsoft ACPI-Compliant System
IRQ 429	Microsoft ACPI-Compliant System
IRQ 430	Microsoft ACPI-Compliant System
IRQ 431	Microsoft ACPI-Compliant System
IRQ 432	Microsoft ACPI-Compliant System
IRQ 433	Microsoft ACPI-Compliant System
IRQ 434	Microsoft ACPI-Compliant System
IRQ 435	Microsoft ACPI-Compliant System
IRQ 436	Microsoft ACPI-Compliant System
IRQ 437	Microsoft ACPI-Compliant System
IRQ 438	Microsoft ACPI-Compliant System
IRQ 439	Microsoft ACPI-Compliant System
IRQ 440	Microsoft ACPI-Compliant System
IRQ 441	Microsoft ACPI-Compliant System



<b>IRQ</b>	<b>Assignment</b>
IRQ 442	Microsoft ACPI-Compliant System
IRQ 443	Microsoft ACPI-Compliant System
IRQ 444	Microsoft ACPI-Compliant System
IRQ 445	Microsoft ACPI-Compliant System
IRQ 446	Microsoft ACPI-Compliant System
IRQ 447	Microsoft ACPI-Compliant System
IRQ 448	Microsoft ACPI-Compliant System
IRQ 449	Microsoft ACPI-Compliant System
IRQ 450	Microsoft ACPI-Compliant System
IRQ 451	Microsoft ACPI-Compliant System
IRQ 452	Microsoft ACPI-Compliant System
IRQ 453	Microsoft ACPI-Compliant System
IRQ 454	Microsoft ACPI-Compliant System
IRQ 455	Microsoft ACPI-Compliant System
IRQ 456	Microsoft ACPI-Compliant System
IRQ 457	Microsoft ACPI-Compliant System
IRQ 458	Microsoft ACPI-Compliant System
IRQ 459	Microsoft ACPI-Compliant System
IRQ 460	Microsoft ACPI-Compliant System
IRQ 461	Microsoft ACPI-Compliant System
IRQ 462	Microsoft ACPI-Compliant System
IRQ 463	Microsoft ACPI-Compliant System
IRQ 464	Microsoft ACPI-Compliant System
IRQ 465	Microsoft ACPI-Compliant System
IRQ 466	Microsoft ACPI-Compliant System
IRQ 467	Microsoft ACPI-Compliant System
IRQ 468	Microsoft ACPI-Compliant System
IRQ 469	Microsoft ACPI-Compliant System

<b>IRQ</b>	<b>Assignment</b>
IRQ 470	Microsoft ACPI-Compliant System
IRQ 471	Microsoft ACPI-Compliant System
IRQ 472	Microsoft ACPI-Compliant System
IRQ 473	Microsoft ACPI-Compliant System
IRQ 474	Microsoft ACPI-Compliant System
IRQ 475	Microsoft ACPI-Compliant System
IRQ 476	Microsoft ACPI-Compliant System
IRQ 477	Microsoft ACPI-Compliant System
IRQ 478	Microsoft ACPI-Compliant System
IRQ 479	Microsoft ACPI-Compliant System
IRQ 480	Microsoft ACPI-Compliant System
IRQ 481	Microsoft ACPI-Compliant System
IRQ 482	Microsoft ACPI-Compliant System
IRQ 483	Microsoft ACPI-Compliant System
IRQ 484	Microsoft ACPI-Compliant System
IRQ 485	Microsoft ACPI-Compliant System
IRQ 486	Microsoft ACPI-Compliant System
IRQ 487	Microsoft ACPI-Compliant System
IRQ 488	Microsoft ACPI-Compliant System
IRQ 489	Microsoft ACPI-Compliant System
IRQ 490	Microsoft ACPI-Compliant System
IRQ 491	Microsoft ACPI-Compliant System
IRQ 492	Microsoft ACPI-Compliant System
IRQ 493	Microsoft ACPI-Compliant System
IRQ 494	Microsoft ACPI-Compliant System
IRQ 495	Microsoft ACPI-Compliant System
IRQ 496	Microsoft ACPI-Compliant System
IRQ 497	Microsoft ACPI-Compliant System

<b>IRQ</b>	<b>Assignment</b>
IRQ 498	Microsoft ACPI-Compliant System
IRQ 499	Microsoft ACPI-Compliant System
IRQ 500	Microsoft ACPI-Compliant System
IRQ 501	Microsoft ACPI-Compliant System
IRQ 502	Microsoft ACPI-Compliant System
IRQ 503	Microsoft ACPI-Compliant System
IRQ 504	Microsoft ACPI-Compliant System
IRQ 505	Microsoft ACPI-Compliant System
IRQ 506	Microsoft ACPI-Compliant System
IRQ 507	Microsoft ACPI-Compliant System
IRQ 508	Microsoft ACPI-Compliant System
IRQ 509	Microsoft ACPI-Compliant System
IRQ 510	Microsoft ACPI-Compliant System
IRQ 511	Microsoft ACPI-Compliant System
IRQ 1024	Intel(R) Dynamic Platform & Thermal Framework Generic Participant Driver
IRQ 1025	Intel SST Audio Device (WDM)
IRQ 1031	NXP NearFieldProximity Provider
IRQ 1032	Realtek Bluetooth UART Bus Driver
IRQ 1033	Realtek I2S Audio Codec
IRQ 1034	Intel(R) Power Management IC Device
IRQ 1035	HID Button over Interrupt Driver
IRQ 1036	HID Button over Interrupt Driver
IRQ 1037	HID Button over Interrupt Driver
IRQ 1038	HID Button over Interrupt Driver
IRQ 1039	HID Button over Interrupt Driver
IRQ 1040	Intel(R) Dynamic Platform & thermal Framework Generic Participant Driver

IRQ	Assignment
IRQ 1041	Intel(R) Dynamic Platform & thermal Framework Generic Participant Driver
IRQ 1042	Realtek RTL8723BS Wireless LAN 802.11n SDIO Network Adapter
IRQ 1043	Intel SD Host Controller
IRQ 1044	I2C HID Device
IRQ -6	Intel(R) HD Graphics
IRQ -5	Intel(R) Dynamic Platform & Thermal Framework Processor Participant Driver
IRQ -4	Intel(R) Trusted Execution Engine Interface
IRQ -3	Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
IRQ -2	Intel(R) Imaging Signal Processor 2401

**Note:** These resource information were gathered using Windows 10 (the IRQ could be assigned differently depending on OS).

### I/O Map

I/O Map	Assignment
0x00000000-0x0000006F	PCI Express Root Complex
0x00000020-0x00000021	Programmable interrupt controller
0x00000024-0x00000025	Programmable interrupt controller
0x00000028-0x00000029	Programmable interrupt controller
0x0000002C-0x0000002D	Programmable interrupt controller
0x00000030-0x00000031	Programmable interrupt controller
0x00000034-0x00000035	Programmable interrupt controller
0x00000038-0x00000039	Programmable interrupt controller

<b>I/O Map</b>	<b>Assignment</b>
0x0000003C-0x0000003D	Programmable interrupt controller
0x00000040-0x00000043	System timer
0x0000004E-0x0000004F	Motherboard resources
0x00000050-0x00000053	System timer
0x00000061-0x00000061	Motherboard resources
0x00000063-0x00000063	Motherboard resources
0x00000065-0x00000065	Motherboard resources
0x00000067-0x00000067	Motherboard resources
0x00000070-0x00000070	Motherboard resources
0x00000070-0x00000070	System CMOS/real time clock
0x00000078-0x000000CF	PCI Express Root Complex
0x00000080-0x0000008F	Motherboard resources
0x00000092-0x00000092	Motherboard resources
0x000000A0-0x000000A1	Programmable interrupt controller
0x000000A4-0x000000A5	Programmable interrupt controller
0x000000A8-0x000000A9	Programmable interrupt controller
0x000000AC-0x000000AD	Programmable interrupt controller
0x000000B0-0x000000B1	Programmable interrupt controller
0x000000B2-0x000000B3	Motherboard resources
0x000000B4-0x000000B5	Programmable interrupt controller
0x000000B8-0x000000B9	Programmable interrupt controller
0x000000BC-0x000000BD	Programmable interrupt controller
0x000003F8-0x000003FF	Communications Port (COM1)
0x00000400-0x0000047F	Motherboard resources
0x000004D0-0x000004D1	Programmable interrupt controller
0x00000500-0x000005FE	Motherboard resources
0x00000680-0x0000069F	Motherboard resources
0x00000D00-0x0000FFFF	PCI Express Root Complex

<b>I/O Map</b>	<b>Assignment</b>
0x00001000-0x0000103F	Intel(R) HD Graphics

## DMA Map

DMA Map	Assignment
0	Intel(R) Serial IO I2C ES Controller
0	Intel(R) Serial IO I2C ES Controller
0	Intel(R) Serial IO SPI Controller
1	Intel(R) Serial IO I2C ES Controller
1	Intel(R) Serial IO I2C ES Controller
1	Intel(R) Serial IO SPI Controller
2	Intel(R) Serial IO I2C ES Controller
2	Intel(R) Serial IO I2C ES Controller
2	Intel(R) Serial IO UART Controller
3	Intel(R) Serial IO I2C ES Controller
3	Intel(R) Serial IO I2C ES Controller
3	Intel(R) Serial IO UART Controller
4	Intel(R) Serial IO I2C ES Controller
4	Intel(R) Serial IO I2C ES Controller
4	Intel(R) Serial IO UART Controller
5	Intel(R) Serial IO I2C ES Controller
5	Intel(R) Serial IO I2C ES Controller
5	Intel(R) Serial IO UART Controller
6	Intel(R) Serial IO I2C ES Controller
6	Intel(R) Serial IO SPI Controller
7	Intel(R) Serial IO I2C ES Controller
7	Intel(R) Serial IO SPI Controller
8	Intel(R) Serial IO SPI Controller
9	Intel(R) Serial IO SPI Controller

**Memory Map**

<b>Memory Map</b>	<b>Assignment</b>
0x000A0000-0x000BFFFF	PCI Express Root Complex
0x000C0000-0x000DFFFF	PCI Express Root Complex
0x000E0000-0x000FFFFFF	PCI Express Root Complex
0x20000000-0x201FFFFFF	Intel SST Audio Device (WDM)
0x7CC00001-0x7EC00000	PCI Express Root Complex
0x80000000-0x8FFFFFFF	Intel(R) HD Graphics
0x90000000-0x90FFFFFF	Intel(R) HD Graphics
0x91000000-0x913FFFFFF	Intel(R) Imaging Signal Processor 2401
0x91400000-0x915FFFFFF	Intel SST Audio Device (WDM)
0x91600000-0x916FFFFFF	Intel(R) Trusted Execution Engine Interface
0x91700000-0x917FFFFFF	Intel(R) Trusted Execution Engine Interface
0x91800000-0x9180FFFF	Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
0x91810000-0x91813FFF	Intel(R) Serial IO DMA Controller
0x91814000-0x91817FFF	Intel(R) Serial IO DMA Controller
0x91818000-0x91818FFF	Intel(R) Dynamic Platform & Thermal Framework Processor Participant Driver
0x91819000-0x91819FFF	Motherboard resources
0x9181A000-0x9181AFFF	Intel(R) Serial IO SPI Controller
0x9181B000-0x9181BFFF	Motherboard resources
0x9181C000-0x9181CFFF	Intel(R) Serial IO SPI Controller
0x9181D000-0x9181DFFF	Motherboard resources
0x9181E000-0x9181EFFF	Intel(R) Serial IO SPI Controller
0x9181F000-0x9181FFFF	Motherboard resources



<b>Memory Map</b>	<b>Assignment</b>
0x91820000-0x91820FFF	Intel(R) Serial IO UART Controller
0x91821000-0x91821FFF	Motherboard resources
0x91822000-0x91822FFF	Intel(R) Serial IO UART Controller
0x91823000-0x91823FFF	Motherboard resources
0x91824000-0x91824FFF	Motherboard resources
0x91825000-0x91825FFF	Intel(R) Serial IO I2C ES Controller
0x91826000-0x91826FFF	Motherboard resources
0x91827000-0x91827FFF	Intel(R) Serial IO I2C ES Controller
0x91828000-0x91828FFF	Motherboard resources
0x91829000-0x91829FFF	Intel(R) Serial IO I2C ES Controller
0x9182A000-0x9182AFFF	Motherboard resources
0x9182B000-0x9182BFFF	Intel(R) Serial IO I2C ES Controller
0x9182C000-0x9182CFFF	Motherboard resources
0x9182D000-0x9182DFFF	Intel(R) Serial IO I2C ES Controller
0x9182E000-0x9182EFFF	Motherboard resources
0x9182F000-0x9182FFFF	Intel(R) Serial IO I2C ES Controller
0x91830000-0x91830FFF	Motherboard resources
0x91831000-0x91831FFF	Intel(R) Serial IO I2C ES Controller
0x91832000-0x91832FFF	Motherboard resources
0x91833000-0x91833FFF	Intel SST Audio Device (WDM)
0x91834000-0x91834FFF	Motherboard resources
0x91835000-0x91835FFF	Intel SD Host Controller
0x91836000-0x91836FFF	Motherboard resources
0x91837000-0x91837FFF	Intel SD Host Controller
0x91838000-0x91838FFF	Motherboard resources
0x91839000-0x91839FFF	Intel SD Host Controller
0xE0000000-EFFFFFFF	Intel(R) Sideband Fabric Device
0xFE000000-0xFEFFFFFF	Motherboard resources

<b>Memory Map</b>	<b>Assignment</b>
0xFED00000-FED003FF	High precision event timer
0xFED01000-0xFED01FFF	Motherboard resources
0xFED03000-0xFED03FFF	Motherboard resources
0xFED06000-0xFED06FFF	Motherboard resources
0xFED08000-0xFED09FFF	Motherboard resources
0xFED1C000-FED1CFFF	Motherboard resources
0xFED80000-FED87FFF	Intel Serial IO GPIO Controller
0xFED88000-FED8FFFF	Intel Serial IO GPIO Controller
0xFED90000-FED97FFF	Intel Serial IO GPIO Controller
0xFED98000-0xFED9FFFF	Intel Serial IO GPIO Controller
0xFEDA0000-FEDA7FFF	Intel Serial IO GPIO Controller
0xFEE00000-FEEFFFFFFF	Motherboard resources
0xFF000000-0xFFFFFFFF	Legacy device

## **System BIOS Update Procedure**

### **System BIOS Update from O.S.**

- 1** Prepare a bootable media (e.g. USB storage device) which can boot the system to UEFI32 prompt.
- 2** Download and save the BIOS file (e.g. MH57520PTx.exe) to the bootable device.
- 3** Press the Power Button to boot up the system into the O.S with USB storage device (Windows 10 32 bits)
- 4** Run the BIOS file (e.g. MH57520PTx.exe) in USB storage device on O.S (Windows 10 32 bits)
- 5** During the update procedure, you will see the BIOS update process status and its percentage. Beware! Do not turn off system power or reset your computer if the whole update procedure is not complete yet; otherwise, it may crash the BIOS ROM and the system will be unable to boot up next time.
- 6** After the BIOS update procedure is completed, the following message will be shown (e.g. Updating Block at FFFFFFFFh (100%):

C:\Users\pp\AppData\Local\Temp\7zS438C.tmp\H2OFFT-W.exe

Read file successfully. (path="platform.ini")  
Read file successfully. (path="message.ini")

Please do not remove the AC power

Insyde H2OFFT (Flash Firmware Tool) Version (SEG) 100.00.08.04  
Copyright(c) 2012 - 2015, Insyde Software Corp. All Rights Reserved.

Initializing

File loading 100 %

Current BIOS Model name: 5100  
New BIOS Model name: 5100

Current BIOS version: 5100PT6  
New BIOS version: 5100PT6

[ ] Updating Block at FF80F000h ( 0%)