

# Q7M310/311

Intel<sup>®</sup> Celeron<sup>®</sup> N4200/N3350 Intel<sup>®</sup> Atom<sup>™</sup> E3950/E3940/E3930 Qseven Module

**User's Manual** 



### **Disclaimers**

This manual has been carefully checked and believed to contain accurate information. Axiomtek Co., Ltd. assumes no responsibility for any infringements of patents or any third party's rights, and any liability arising from such use.

Axiomtek does not warrant or assume any legal liability or responsibility for the accuracy, completeness or usefulness of any information in this document. Axiomtek does not make any commitment to update the information in this manual.

Axiomtek reserves the right to change or revise this document and/or product at any time without notice.

No part of this document may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of Axiomtek Co., Ltd.

### CAUTION

If you replace wrong batteries, it causes the danger of explosion. It is recommended by the manufacturer that you follow the manufacturer's instructions to only replace the same or equivalent type of battery, and dispose of used ones.

©Copyright 2018 Axiomtek Co., Ltd. All Rights Reserved June 2018, Version A4 Printed in Taiwan

# **ESD Precautions**

Computer boards have integrated circuits sensitive to static electricity. To prevent chipsets from electrostatic discharge damage, please take care of the following jobs with precautions:

- Do not remove modules or integrated circuits from their anti-static packaging until you are ready to install them.
- Before holding the module or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. It discharges static electricity from your body.
- Wear a wrist-grounding strap, available from most electronic component stores, when handling modules and components.

### **Trademarks Acknowledgments**

Axiomtek is a trademark of Axiomtek Co., Ltd.

Intel<sup>®</sup> and Celeron<sup>®</sup> are trademarks of Intel Corporation.

Windows<sup>®</sup> is a trademark of Microsoft Corporation.

AMI is a trademark of American Megatrend Inc.

IBM, PC/AT, PS/2, VGA are trademarks of International Business Machines Corporation.

Other brand names and trademarks are the properties and registered brands of their respective owners.

Discla	aimers		ii
ESD F	Precaution	IS	iii
Cha	pter 1	Introduction	1
1.1	Features		1
1.2	Specifica	tions	2
1.3	Utilities S	Supported	3
Cha	pter 2	Module and Pin Assignments	5
2.1	Module D	imensions and Fixing Holes	5
2.2	Module L	ayout	7
2.3	Installing	Thermal Solution	9
2.4	Switch Se	ettings	10
	2.4.1 A	Auto Power On (SSW1)	10
Cha	pter 3	Hardware Description	11
3.1	Micropro	cessor	11
3.2	BIOS		11
3.3	System M	lemory	11
3.4	I/O Port A	Address Map	12
3.5	Interrupt	Controller (IRQ) Map	14
3.6	Memory I	Мар	20
Cha	pter 4	AMI BIOS Setup Utility	21
4.1	Starting		21
4.2	Navigatio	n Keys	21
4.3	Main Mer	Nu	23
4.4	Advance	d Menu	24
4.5	Chipset M	/lenu	39
4.6	Security	Menu	43
4.7	Boot Men	NU	44
4.8	Save & E	xit Menu	48
Арр	endix A	BIOS Flash Utility	50

Арр	endix B	Watchdog	Timer and	GPIO	 54
B.1	About Wat	chdog Timer			 54
B.2	About GPI	0			 54

This page is intentionally left blank.

# **Chapter 1** Introduction



The Q7M311 is a new Qseven Module supporting  $Intel^{\mbox{\tiny B}}$  Celeron  $^{\mbox{\tiny B}}$  quad/dual core N4200/N3350 processor. Meanwhile, Q7M310 supports  $Intel^{\mbox{\tiny B}}$  Atom  $^{\mbox{\tiny TM}}$  x5 and x7 E3950/E3940/E3930 processor. Both of them deliver outstanding system performance and support excellent multiple I/Os, one DDI, one LVDS, one Gigabit Ethernet, HD Audio interface, two SATA-600, three USB 3.0 and four USB 2.0 ports. For extension purpose, Q7M310/311 provides maximum up to 4 lanes of PCI-Express.

#### 1.1 **Features**

- •
- Q7M311: Intel<sup>®</sup> Celeron<sup>®</sup> N4200/N3350 processor Q7M310: Intel<sup>®</sup> Atom<sup>™</sup> E3950/E3940/E3930 processor •
- DDR3L onboard memory for up to 8GB memory capacity (the default is 4GB) •
- Support max. up to 4 lanes of PCI-Express •
- 2 SATA-600 •
- 3 USB 3.0 and 4 USB 2.0 ports .
- Optional eMMC storage upto 64GB (BOM Optional) .
- Form factor: Qseven Specification v2.1

#### **Specifications** 1.2

- CPU
  - Q7M311
    - Intel<sup>®</sup> Celeron<sup>®</sup> quad core N4200 1.10GHz.
       Intel<sup>®</sup> Celeron<sup>®</sup> dual core N3350 1.10GHz.
  - Q7M310

    - Intel<sup>®</sup> Atom<sup>™</sup> x7-E3950 1.6GHz. Intel<sup>®</sup> Atom<sup>™</sup> x5-E3940 1.6GHz. Intel<sup>®</sup> Atom<sup>™</sup> x5-E3930 1.3GHz.
- BIOS
  - American Megatrends Inc. BIOS.
  - 64Mbit SPI Flash, DMI, Plug and Play.
  - PXE Ethernet Boot ROM, customized default saving features, LPC-free supported, uses SPI type Flash memory.
- System Memory
  - DDR3L 1866MHz onboard memory for up to 8GB capacity (the default is 4GB).
- **Expansion Interface** 
  - Four PCI-Express x1 (Three PCIe x1 if onboard LAN is supported).
  - Three USB ports comply with USB Spec. Rev. 3.0.
  - Four USB ports comply with USB Spec. Rev. 2.0.

#### **SATA Interface**

- Two SATA-600 supported.
- On board Storage
  - 16GB, 32B, 64GB eMMC supported (Not default, only BOM optional)
- Graphics
  - Integrated in processor HD graphics Gen 9.
  - 18/24-bit dual channel LVDS interface.
  - One DDI interface supports DVI/HDMI/DisplayPort.

#### Ethernet

- One 1000/100/10Mbps Base-T provided by Intel<sup>®</sup> I210IT with integrated boot ROM.
- Audio
  - Intel<sup>®</sup> High Definition Audio interface.
- **Form Factor** 
  - Compact module 70mm x 70mm.

#### **Utilities Supported** 1.3

- •
- •
- Chipset driver Graphics driver Ethernet utility and driver •
- Trusted execution engine •
- Sideband fabric device •
- USB 3.0 driver •

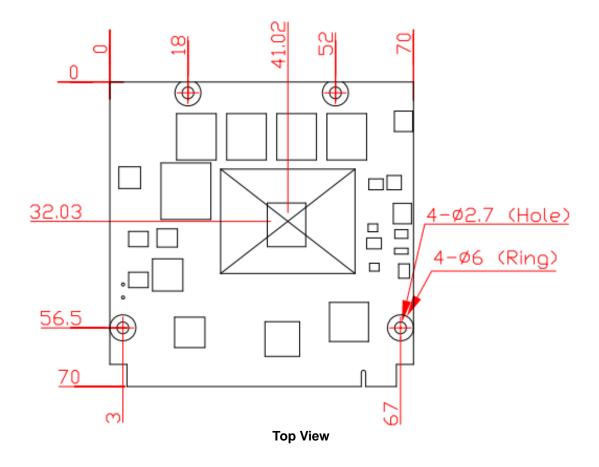


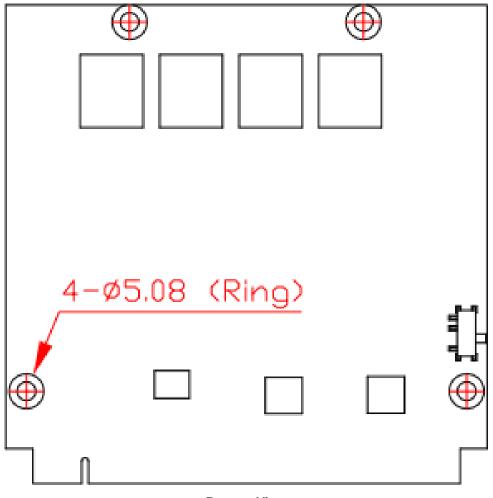
All specifications and images are subject to change without notice.

This page is intentionally left blank.

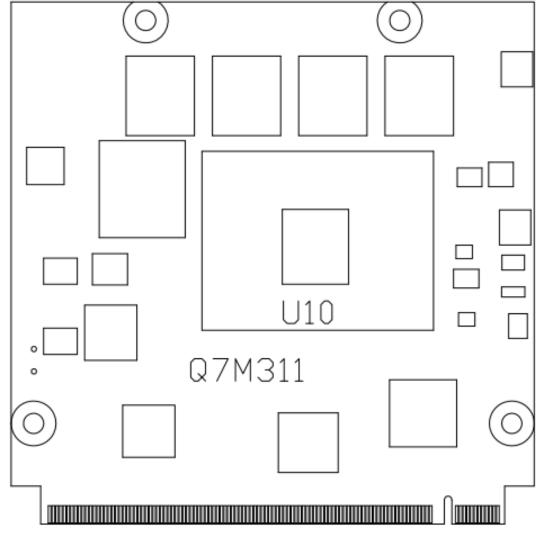
# Chapter 2 Module and Pin Assignments

# 2.1 Module Dimensions and Fixing Holes



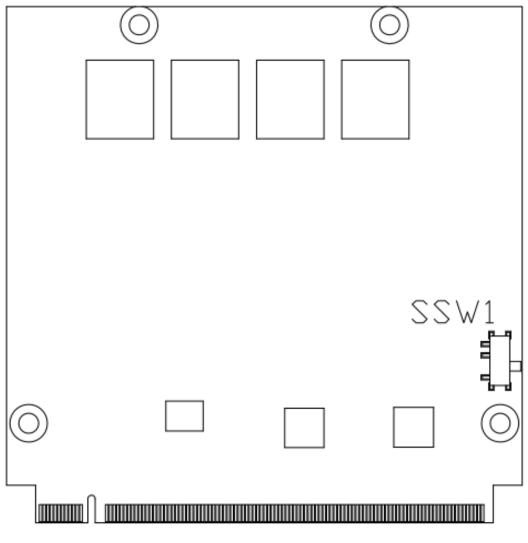


**Bottom View** 



# 2.2 Module Layout

Top View

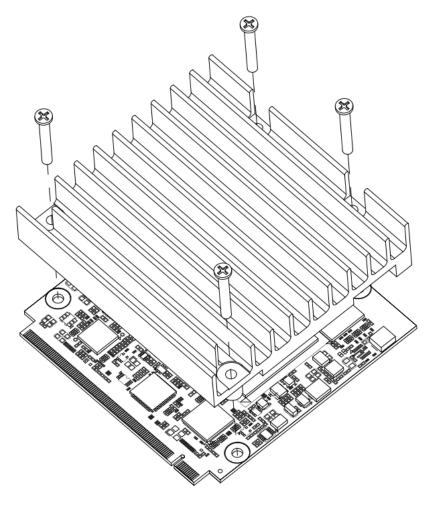


**Bottom View** 

# 2.3 Installing Thermal Solution

For thermal dissipation, a thermal solution enables the Q7M310/311's components to dissipate heat efficiently. All heat generating components are thermally conducted to the heatsink in order to avoid hot spots. Figure below illustrates how to install the thermal solution on Q7M310/311.

- 1. There is a protective plastic covering on the thermal pads. This must be removed before the heatsink can be mounted.
- 2. Each heatsink is designed for a specific Q7M module. The thermal pads on the heatsink are designed to make contact with the necessary components on the Q7M module. When mounting the heatsink you must make sure that the thermal pads on the heatsink make complete contact (no space between thermal pad and component) with the corresponding components on the Q7M module. This is especially critical for Q7M modules that have higher CPU speeds (for example 1.46GHz or more) to ensure that the heatsink acts as a proper thermal interface for cooling solutions.
- 3. This CPU module has four assembly holes for installing heatsink plate. Use the four screws to secure the heatsink plate to the Q7M310/311. Be careful not to over-tighten the screws.



# 2.4 Switch Settings

Properly configure switch settings on the Q7M310/311 to meet your application purpose. Below you can find a summary table of all switches and onboard default settings.

ſ	
N	ote

Once the default switch setting needs to be changed, please do it under power-off condition.

Switch	Description	Setting
SSW1	Auto Power On	ON (Up)
	Default: Enable	

#### 2.4.1 Auto Power On (SSW1)

If SSW1 is set to ON (up) position, the system will be automatically power on without pressing soft power button. If set to OFF (down) position, it is necessary to manually press soft power button to power on the system.

Function	Setting
Enable auto power on (Default)	ON (up)
Disable auto power on	OFF (down)



# Chapter 3 Hardware Description

# 3.1 Microprocessor

The Q7M310/311 supports Intel<sup>®</sup> Celeron<sup>®</sup> N4200/N3350 and Atom<sup>TM</sup> E3950/E3940/E3930 processors which enable your system to operate under Windows<sup>®</sup> 10 and Linux environments. The system performance depends on the microprocessor. You must install the heatsink or cooler carefully and properly to prevent damage.

# 3.2 BIOS

The Q7M310/311 uses AMI Plug and Play BIOS with a single 64Mbit SPI Flash.

# 3.3 System Memory

The Q7M310/311 supports DDR3L memory for maximum capacity up to 8GB (the default is 4GB).

## 3.4 I/O Port Address Map

The I/O port addresses are as follows:

```
    Input/output (IO)

                     🗸 🏣 [000000000000000 - 0000000000006F] PCI Express Root Complex
                                           🛅 [0000000000000020 - 000000000000021] Programmable interrupt controller
                                             [00000000000000024 - 00000000000000025] Programmable interrupt controller
                                                                                        [ [000000000000024 - 0000000000000025] Programmable interrupt controller
                                             Image: www.image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/im
                                                                                        🔚 [000000000000028 - 000000000000029] Programmable interrupt controller
                                             Image: with the second seco
                                                                                        E [00000000000002C - 00000000000002D] Programmable interrupt controller
                                                                 tesources [0000000000002E - 000000000000002F] Motherboard resources
                                           🏣 [0000000000000030 - 0000000000000031] Programmable interrupt controller
                                           [0000000000000034 - 00000000000035] Programmable interrupt controller
                                                                                        🏣 [000000000000034 - 000000000000035] Programmable interrupt controller
                                             Image: www.image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/im
                                                                                        🔚 [000000000000038 - 000000000000039] Programmable interrupt controller
                                             Image: www.image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/im
                                                                                        🛅 [000000000000003C - 000000000000003D] Programmable interrupt controller
                                             [0000000000000040 - 0000000000043] System timer
                                                                                        tesources [0000000000004E - 00000000000004F] Motherboard resources
                                           Image: Straight St
                                                                                        timer [000000000000000 - 00000000000000053] System timer
                                           v 🔤 [00000000000060 - 00000000000060] Standard PS/2 Keyboard
                                                                                        tesources [000000000000061 - 0000000000000061] Motherboard resources
                                                                 To [000000000000062 - 000000000000062] Microsoft ACPI-Compliant Embedded Controller
                                                               to the sources [00000000000063 - 000000000000063] Motherboard resources
                                           [0000000000000064 - 0000000000064] Standard PS/2 Keyboard
                                                                                        [000000000000064 - 00000000000064] Standard PS/2 Keyboard
                                                                 I000000000000065 - 0000000000000651 Motherboard resources
                                                                              [000000000000066 - 000000000000066] Microsoft ACPI-Compliant Embedded Controller
                                                                 [0000000000000067 - 00000000000067] Motherboard resources
                     [00000000000000070 - 000000000000070] Motherboard resources
                     tesources [00000000000080 - 00000000000085] Motherboard resources
                                                                 [0000000000000092 - 000000000000092] Motherboard resources
                                             Image: www.image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/im
                                                                                        뻵 [00000000000000A0 - 0000000000000A1] Programmable interrupt controller
                                             Image: www.image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/im
                                                                                        Image: The second se
                                                                                        Image: with the second seco
                                                                                        🔚 [0000000000000AC - 000000000000AD] Programmable interrupt controller
                                             Image: www.image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/im
                                                                                        📰 [00000000000000B0 - 0000000000000B1] Programmable interrupt controller
                                                                 [000000000000082 - 0000000000083] Motherboard resources
                                           Image: www.image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/image.com/im
```

Image: The second se 🔚 [000000000000088 - 000000000000089] Programmable interrupt controller Image: with the second seco 📗 [0000000000000BC - 000000000000BD] Programmable interrupt controller [000000000000248 - 0000000000024F] Communications Port (COM1) [000000000000258 - 0000000000025F] Communications Port (COM2) tesources [000000000000400 - 00000000000047F] Motherboard resources 늘 [00000000000004D0 - 0000000000004D1] Programmable interrupt controller to the sources [00000000000000 - 00000000000061F] Motherboard resources To [000000000000680 - 0000000000069F] Motherboard resources to the sources [0000000000164E - 00000000000164F] Motherboard resources 🖏 [0000000000000000 - 000000000000001F1 Standard SATA AHCI Controller 📷 [00000000000000020 - 00000000000000023] Standard SATA AHCI Controller ma [00000000000000030 - 000000000000000037] Standard SATA AHCI Controller Intel(R) Celeron(R)/Pentium(R) Processor PCI Express Root Port - 5AD6 Image: www.image.com/im Intel(R) I211 Gigabit Network Connection #3 Intel(R) I211 Gigabit Network Connection Intel(R) HD Graphics Intel(R) HD Graphics [00000000000000000 - 000000000000000503F] Intel(R) HD Graphics Intel(R) Celeron(R)/Pentium(R) Processor SMBUS - 5AD4 To [000000000000000040 - 0000000000000005057] Intel(R) Celeron(R)/Pentium(R) Processor SMBUS - 5AD4 ma [000000000000006060 - 000000000000000076] Standard SATA AHCI Controller 

[0000000000000000090] - 000000000000097] Standard SATA AHCI Controller
[00000000000000090] - 000000000000097] Standard SATA AHCI Controller

# 3.5 Interrupt Controller (IRQ) Map

The interrupt controller (IRQ) mapping list is shown as follows:

<ul> <li>Interrupt request (IRQ)</li> </ul>	
(ISA) 0x00000000 (00)	System timer
iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	System timer
(ISA) 0x00000001 (01)	Standard PS/2 Keyboard
(ISA) 0x00000001 (01)	Standard PS/2 Keyboard
(ISA) 0x00000003 (03)	Intel SD Host Controller
(ISA) 0x00000003 (03)	Standard SATA AHCI Controller
(ISA) 0x00000006 (06)	Communications Port (COM2)
(ISA) 0x00000007 (07)	Communications Port (COM1)
(ISA) 0x00000007 (07)	Intel(R) Celeron(R)/Pentium(R) Processor PCI Express Root Port - 5ADA
(ISA) 0x00000007 (07)	Intel(R) Trusted Execution Engine Interface
(ISA) 0x00000007 (07)	Renesas USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
(ISA) 0x00000008 (08)	High precision event timer
IIII (ISA) 0x00000009 (09)	Intel(R) Celeron(R)/Pentium(R) Processor PCI Express Root Port - 5ADB
(ISA) 0x00000009 (09)	Intel(R) I210 Gigabit Network Connection #2
(ISA) 0x00000009 (09)	Intel(R) I211 Gigabit Network Connection #3
IIII (ISA) 0x0000000A (10)	Intel(R) Celeron(R)/Pentium(R) Processor PCI Express Root Port - 5AD8
(ISA) 0x0000000A (10)	Intel(R) I211 Gigabit Network Connection #2
(ISA) 0x0000000A (10)	Intel(R) I211 Gigabit Network Connection
(ISA) 0x0000000A (10)	Renesas USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
(ISA) 0x0000000A (10)	Renesas USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
(ISA) 0x0000000A (10)	Renesas USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
(ISA) 0x0000000A (10)	Renesas USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
(ISA) 0x0000000A (10)	Standard SATA AHCI Controller
(ISA) 0x0000000B (11)	Intel(R) Celeron(R)/Pentium(R) Processor PCI Express Root Port - 5AD9
(ISA) 0x0000000B (11)	Intel(R) Celeron(R)/Pentium(R) Processor PCI Express Root Port - 5AD7
(ISA) 0x0000000B (11)	Intel(R) Celeron(R)/Pentium(R) Processor PCI Express Root Port - 5AD9
(ISA) 0x000000B (11)	Intel(R) HD Graphics
(ISA) 0x000000B (11)	Intel(R) HD Graphics
(ISA) 0x000000B (11)	Intel(R) HD Graphics
(ISA) 0x000000B (11)	
	Renesas USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
	Standard SATA AHCI Controller
(ISA) 0x000000E (14)	
(ISA) 0x000000E (14)	Intel(R) Serial IO GPIO Host Controller - INT3452
(ISA) 0x000000E (14)	Intel(R) Serial IO GPIO Host Controller - INT3452
(ISA) 0x000000E (14)	Intel(R) Serial IO GPIO Host Controller - INT3452
(ISA) 0x00000011 (17)	Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
(ISA) 0x00000019 (25)	High Definition Audio Controller
(ISA) 0x00000027 (39)	Intel SD Host Controller
(ISA) 0x0000002A (42)	
(ISA) 0x00000036 (54)	Microsoft ACPI-Compliant System
(ISA) 0x00000037 (55)	
(ISA) 0x00000038 (56)	Microsoft ACPI-Compliant System
(ISA) 0x00000039 (57)	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System Microsoft ACPI-Compliant System
(ISA) 0x0000003E (62) (ISA) 0x0000003F (63)	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System
	interest in the inplant system

ኪ (ISA) 0x00000041 (65)	Microsoft ACPI-Compliant System
ኪ (ISA) 0x00000042 (66)	Microsoft ACPI-Compliant System
ኪ (ISA) 0x00000043 (67)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000044 (68)	Microsoft ACPI-Compliant System
to (ISA) 0x0000045 (69)	Microsoft ACPI-Compliant System
ኪ (ISA) 0x0000046 (70)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000047 (71)	Microsoft ACPI-Compliant System
to (ISA) 0x00000048 (72)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000049 (73)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x0000004A (74)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000004B (75)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000004C (76)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000004D (77)	Microsoft ACPI-Compliant System
ኪ (ISA) 0x000004E (78)	Microsoft ACPI-Compliant System
tox000004F (79) 🚛 🚛	Microsoft ACPI-Compliant System
tox (ISA) 0x00000050 (80)	Microsoft ACPI-Compliant System
tin (ISA) 0x00000051 (81)	Microsoft ACPI-Compliant System
tox0000052 (82) 🚛 🚛	Microsoft ACPI-Compliant System
tox00000053 (83) 🚛 🚛	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000054 (84)	Microsoft ACPI-Compliant System
tox00000055 (85) 🚛 🚛	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000056 (86)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000057 (87)	Microsoft ACPI-Compliant System
tisA) 0x00000058 (88) 🚛	Microsoft ACPI-Compliant System
tox00000059 (89) 🚛 🚛	Microsoft ACPI-Compliant System
🏣 (ISA) 0x0000005A (90)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x0000005B (91)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x0000005C (92)	Microsoft ACPI-Compliant System
tox000005D (93) 🚛 🚛	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000005E (94)	Microsoft ACPI-Compliant System
tox000005F (95) 🛅 🚛	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000060 (96)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000061 (97)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x0000062 (98)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x0000063 (99)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000064 (100)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000065 (101)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000066 (102)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000067 (103)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x0000068 (104)	Microsoft ACPI-Compliant System
to (ISA) 0x00000069 (105)	Microsoft ACPI-Compliant System
tion (ISA) 0x0000006A (106)	Microsoft ACPI-Compliant System
tox000006B (107) 🛅	Microsoft ACPI-Compliant System
tion (ISA) 0x000006C (108)	Microsoft ACPI-Compliant System
to (ISA) 0x000006D (109)	Microsoft ACPI-Compliant System
tion (ISA) 0x0000006E (110)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x0000006F (111)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000070 (112)	Microsoft ACPI-Compliant System
tin (ISA) 0x00000071 (113)	Microsoft ACPI-Compliant System
to (ISA) 0x00000072 (114)	Microsoft ACPI-Compliant System
tin (ISA) 0x00000073 (115)	Microsoft ACPI-Compliant System

to (ISA) 0x00000074 (116) Microsoft ACPI-Compliant System IIII (ISA) 0x00000075 (117) Microsoft ACPI-Compliant System Tal: (ISA) 0x00000076 (118) Microsoft ACPI-Compliant System ISA) 0x00000077 (119) Microsoft ACPI-Compliant System tox00000078 (120) Microsoft ACPI-Compliant System Tal: (ISA) 0x00000079 (121) Microsoft ACPI-Compliant System Text (ISA) 0x0000007A (122) Microsoft ACPI-Compliant System to (ISA) 0x0000007B (123) Microsoft ACPI-Compliant System to (ISA) 0x0000007C (124) Microsoft ACPI-Compliant System to (ISA) 0x0000007D (125) Microsoft ACPI-Compliant System Table (ISA) 0x0000007E (126) Microsoft ACPI-Compliant System Microsoft ACPI-Compliant System to (ISA) 0x0000007F (127) Microsoft ACPI-Compliant System To (ISA) 0x0000080 (128) tox0000081 (129) 🛅 Microsoft ACPI-Compliant System Microsoft ACPI-Compliant System Tal (ISA) 0x0000082 (130) to (ISA) 0x0000083 (131) Microsoft ACPI-Compliant System Tal: (ISA) 0x0000084 (132) Microsoft ACPI-Compliant System to (ISA) 0x0000085 (133) Microsoft ACPI-Compliant System La (ISA) 0x0000086 (134) Microsoft ACPI-Compliant System to (ISA) 0x0000087 (135) Microsoft ACPI-Compliant System to (ISA) 0x0000088 (136) Microsoft ACPI-Compliant System Text (ISA) 0x0000089 (137) Microsoft ACPI-Compliant System Microsoft ACPI-Compliant System to (ISA) 0x000008A (138) Tage (ISA) 0x000008B (139) Microsoft ACPI-Compliant System Microsoft ACPI-Compliant System Text (ISA) 0x000008C (140) Table (ISA) 0x000008D (141) Microsoft ACPI-Compliant System to (ISA) 0x000008E (142) Microsoft ACPI-Compliant System Microsoft ACPI-Compliant System Table (ISA) 0x000008F (143) to (ISA) 0x00000090 (144) Microsoft ACPI-Compliant System Table (ISA) 0x00000091 (145) Microsoft ACPI-Compliant System Tal: (ISA) 0x00000092 (146) Microsoft ACPI-Compliant System to (ISA) 0x00000093 (147) Microsoft ACPI-Compliant System Table (ISA) 0x00000094 (148) Microsoft ACPI-Compliant System Microsoft ACPI-Compliant System to (ISA) 0x00000095 (149) Microsoft ACPI-Compliant System Tal: (ISA) 0x00000096 (150) to (ISA) 0x00000097 (151) Microsoft ACPI-Compliant System Microsoft ACPI-Compliant System IIII (ISA) 0x00000098 (152) (ISA) 0x00000099 (153) Microsoft ACPI-Compliant System Microsoft ACPI-Compliant System Tal (ISA) 0x0000009A (154) to (ISA) 0x0000009B (155) Microsoft ACPI-Compliant System to (ISA) 0x0000009C (156) Microsoft ACPI-Compliant System tox000009D (157) Microsoft ACPI-Compliant System (ISA) 0x000009E (158) Microsoft ACPI-Compliant System To (ISA) 0x0000009F (159) Microsoft ACPI-Compliant System to (ISA) 0x000000A0 (160) Microsoft ACPI-Compliant System Tal (ISA) 0x000000A1 (161) Microsoft ACPI-Compliant System (ISA) 0x000000A2 (162) Microsoft ACPI-Compliant System Ta (ISA) 0x000000A3 (163) Microsoft ACPI-Compliant System to (ISA) 0x000000A4 (164) Microsoft ACPI-Compliant System Ta (ISA) 0x000000A5 (165) Microsoft ACPI-Compliant System Text (ISA) 0x000000A6 (166) Microsoft ACPI-Compliant System

tion (ISA) 0x000000A7 (167)	Microsoft ACPI-Compliant System	🏣 (ISA) 0x0000010D (269)	Microsoft ACPI-Compliant System
Text (ISA) 0x000000A8 (168)	Microsoft ACPI-Compliant System	🏣 (ISA) 0x0000010E (270)	Microsoft ACPI-Compliant System
뻱 (ISA) 0x000000A9 (169)	Microsoft ACPI-Compliant System	Text (ISA) 0x0000010F (271)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000AA (170)	Microsoft ACPI-Compliant System	🏣 (ISA) 0x00000110 (272)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000AB (171)	Microsoft ACPI-Compliant System	🏣 (ISA) 0x00000111 (273)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000AC (172)	Microsoft ACPI-Compliant System	Text (ISA) 0x00000112 (274)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000AD (173)	Microsoft ACPI-Compliant System	Text (ISA) 0x00000113 (275)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000AE (174)	Microsoft ACPI-Compliant System	🏣 (ISA) 0x00000114 (276)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000AF (175)	Microsoft ACPI-Compliant System	Text (ISA) 0x00000115 (277)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000B0 (176)	Microsoft ACPI-Compliant System	tisA) 0x00000116 (278) 🚛	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000B1 (177)	Microsoft ACPI-Compliant System	Ten (ISA) 0x00000117 (279)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000B2 (178)	Microsoft ACPI-Compliant System	Ten (ISA) 0x00000118 (280)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000B3 (179)	Microsoft ACPI-Compliant System	Text (ISA) 0x00000119 (281)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000B4 (180)	Microsoft ACPI-Compliant System	🏣 (ISA) 0x0000011A (282)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000B5 (181)	Microsoft ACPI-Compliant System	tisA) 0x0000011B (283) 🚛	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000B6 (182)	Microsoft ACPI-Compliant System	🏣 (ISA) 0x0000011C (284)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000B7 (183)	Microsoft ACPI-Compliant System	🏣 (ISA) 0x0000011D (285)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000B8 (184)	Microsoft ACPI-Compliant System	Text (ISA) 0x0000011E (286)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000B9 (185)	Microsoft ACPI-Compliant System	tisA) 0x0000011F (287) 🚛	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000BA (186)	Microsoft ACPI-Compliant System	Texe (ISA) 0x00000120 (288)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000BB (187)	Microsoft ACPI-Compliant System	Ten (ISA) 0x00000121 (289)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000BC (188)	Microsoft ACPI-Compliant System	Ten (ISA) 0x00000122 (290)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000BD (189)	Microsoft ACPI-Compliant System	tisA) 0x00000123 (291) 🚛	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000BE (190)	Microsoft ACPI-Compliant System	tex (ISA) 0x00000124 (292)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000BF (191)	Microsoft ACPI-Compliant System	tisA) 0x00000125 (293) 🚛	Microsoft ACPI-Compliant System
뻱 (ISA) 0x000000C0 (192)	Microsoft ACPI-Compliant System	🏣 (ISA) 0x00000126 (294)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000C1 (193)	Microsoft ACPI-Compliant System	tisA) 0x00000127 (295) 🚛	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000C2 (194)	Microsoft ACPI-Compliant System	tisA) 0x00000128 (296) 🚛	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000C3 (195)	Microsoft ACPI-Compliant System	tisA) 0x00000129 (297) 🚛	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000C4 (196)	Microsoft ACPI-Compliant System	🏣 (ISA) 0x0000012A (298)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000C5 (197)	Microsoft ACPI-Compliant System	🏣 (ISA) 0x0000012B (299)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000C6 (198)	Microsoft ACPI-Compliant System	tin (ISA) 0x0000012C (300)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000000C7 (199)	Microsoft ACPI-Compliant System	tin (ISA) 0x0000012D (301)	Microsoft ACPI-Compliant System
📘 (ISA) 0x000000C8 (200)	Microsoft ACPI-Compliant System	Text (ISA) 0x0000012E (302)	Microsoft ACPI-Compliant System
📘 (ISA) 0x000000C9 (201)	Microsoft ACPI-Compliant System	tisA) 0x0000012F (303)	Microsoft ACPI-Compliant System
tox(ISA) 0x000000CA (202)	Microsoft ACPI-Compliant System	Table (ISA) 0x00000130 (304)	Microsoft ACPI-Compliant System
Table (ISA) 0x000000CB (203)	Microsoft ACPI-Compliant System	🏣 (ISA) 0x00000131 (305)	Microsoft ACPI-Compliant System
Text (ISA) 0x000000CC (204)	Microsoft ACPI-Compliant System	Text (ISA) 0x00000132 (306)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000100 (256)	Microsoft ACPI-Compliant System	Text (ISA) 0x00000133 (307)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000101 (257)	Microsoft ACPI-Compliant System	Text (ISA) 0x00000134 (308)	Microsoft ACPI-Compliant System
tisA) 0x00000102 (258)	Microsoft ACPI-Compliant System	tin (ISA) 0x00000135 (309)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000103 (259)	Microsoft ACPI-Compliant System	Table (ISA) 0x00000136 (310)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000104 (260)	Microsoft ACPI-Compliant System	Table (ISA) 0x00000137 (311)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000105 (261)	Microsoft ACPI-Compliant System	Text (ISA) 0x00000138 (312)	Microsoft ACPI-Compliant System
声 (ISA) 0x00000106 (262)	Microsoft ACPI-Compliant System	to (ISA) 0x00000139 (313)	Microsoft ACPI-Compliant System
늘 (ISA) 0x00000107 (263)	Microsoft ACPI-Compliant System	Table (ISA) 0x0000013A (314)	Microsoft ACPI-Compliant System
to (ISA) 0x00000108 (264)	Microsoft ACPI-Compliant System	Table (ISA) 0x0000013B (315)	Microsoft ACPI-Compliant System
to (ISA) 0x00000109 (265)	Microsoft ACPI-Compliant System	(ISA) 0x0000013C (316)	Microsoft ACPI-Compliant System
ta (ISA) 0x0000010A (266)	Microsoft ACPI-Compliant System	to (ISA) 0x0000013D (317)	Microsoft ACPI-Compliant System
ta (ISA) 0x0000010B (267)	Microsoft ACPI-Compliant System	To (ISA) 0x0000013E (318)	Microsoft ACPI-Compliant System
to (ISA) 0x0000010C (268)	Microsoft ACPI-Compliant System	(ISA) 0x0000013F (319)	Microsoft ACPI-Compliant System
_			

to (ISA) 0x00000140 (320)	Microsoft ACPI-Compliant System
ኪ (ISA) 0x00000141 (321)	Microsoft ACPI-Compliant System
ኪ (ISA) 0x00000142 (322)	Microsoft ACPI-Compliant System
to (ISA) 0x00000143 (323)	Microsoft ACPI-Compliant System
ኪ (ISA) 0x00000144 (324)	Microsoft ACPI-Compliant System
ኪ (ISA) 0x00000145 (325)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000146 (326)	Microsoft ACPI-Compliant System
ኪ (ISA) 0x00000147 (327)	Microsoft ACPI-Compliant System
tin (ISA) 0x00000148 (328)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000149 (329)	Microsoft ACPI-Compliant System
to (ISA) 0x0000014A (330)	Microsoft ACPI-Compliant System
tin (ISA) 0x0000014B (331)	Microsoft ACPI-Compliant System
to (ISA) 0x0000014C (332)	Microsoft ACPI-Compliant System
to (ISA) 0x0000014D (333)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x0000014E (334)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x0000014F (335)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000150 (336)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000151 (337)	Microsoft ACPI-Compliant System
tox00000152 (338) 📷 🚛	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000153 (339)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000154 (340)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000155 (341)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000156 (342)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000157 (343)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000158 (344)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000159 (345)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x0000015A (346)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x0000015B (347)	Microsoft ACPI-Compliant System
to (ISA) 0x0000015C (348)	Microsoft ACPI-Compliant System
to (ISA) 0x0000015D (349)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x0000015E (350)	Microsoft ACPI-Compliant System
tox0000015F (351)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000160 (352)	Microsoft ACPI-Compliant System
tox00000161 (353) 🛅	Microsoft ACPI-Compliant System
🏣 (ISA) 0x00000162 (354)	Microsoft ACPI-Compliant System
to (ISA) 0x00000163 (355)	Microsoft ACPI-Compliant System
to (ISA) 0x00000164 (356)	Microsoft ACPI-Compliant System
to (ISA) 0x00000165 (357)	Microsoft ACPI-Compliant System
to (ISA) 0x00000166 (358)	Microsoft ACPI-Compliant System
to (ISA) 0x00000167 (359)	Microsoft ACPI-Compliant System
to (ISA) 0x00000168 (360)	Microsoft ACPI-Compliant System
to (ISA) 0x00000169 (361)	Microsoft ACPI-Compliant System
Lacktrian (ISA) 0x0000016A (362)	Microsoft ACPI-Compliant System
to (ISA) 0x0000016B (363)	Microsoft ACPI-Compliant System
tail (ISA) 0x0000016C (364)	Microsoft ACPI-Compliant System
Langle (ISA) 0x0000016D (365)	Microsoft ACPI-Compliant System
to (ISA) 0x0000016E (366)	Microsoft ACPI-Compliant System
to (ISA) 0x0000016F (367)	Microsoft ACPI-Compliant System
to (ISA) 0x00000170 (368)	Microsoft ACPI-Compliant System
to (ISA) 0x00000171 (369)	Microsoft ACPI-Compliant System
Table (ISA) 0x00000172 (370)	Microsoft ACPI-Compliant System

to (ISA) 0x00000173 (371) Microsoft ACPI-Compliant System to (ISA) 0x00000174 (372) Microsoft ACPI-Compliant System to (ISA) 0x00000175 (373) Microsoft ACPI-Compliant System ISA) 0x00000176 (374) Microsoft ACPI-Compliant System to (ISA) 0x00000177 (375) Microsoft ACPI-Compliant System to (ISA) 0x00000178 (376) Microsoft ACPI-Compliant System to (ISA) 0x00000179 (377) Microsoft ACPI-Compliant System 🏣 (ISA) 0x0000017A (378) 🛛 Microsoft ACPI-Compliant System to (ISA) 0x0000017B (379) Microsoft ACPI-Compliant System to (ISA) 0x0000017C (380) Microsoft ACPI-Compliant System to (ISA) 0x0000017D (381) Microsoft ACPI-Compliant System ISA) 0x0000017E (382) Microsoft ACPI-Compliant System to (ISA) 0x0000017F (383) Microsoft ACPI-Compliant System to (ISA) 0x00000180 (384) Microsoft ACPI-Compliant System to (ISA) 0x00000181 (385) Microsoft ACPI-Compliant System to (ISA) 0x00000182 (386) Microsoft ACPI-Compliant System to (ISA) 0x00000183 (387) Microsoft ACPI-Compliant System to stem [ISA] 0x00000184 (388) Microsoft ACPI-Compliant System to (ISA) 0x00000185 (389) Microsoft ACPI-Compliant System to (ISA) 0x00000186 (390) Microsoft ACPI-Compliant System to (ISA) 0x00000187 (391) Microsoft ACPI-Compliant System to (ISA) 0x00000188 (392) Microsoft ACPI-Compliant System to (ISA) 0x00000189 (393) Microsoft ACPI-Compliant System to (ISA) 0x0000018A (394) Microsoft ACPI-Compliant System to (ISA) 0x0000018B (395) Microsoft ACPI-Compliant System 🏣 (ISA) 0x0000018C (396) Microsoft ACPI-Compliant System to (ISA) 0x0000018D (397) Microsoft ACPI-Compliant System to (ISA) 0x0000018E (398) Microsoft ACPI-Compliant System to (ISA) 0x0000018F (399) Microsoft ACPI-Compliant System to (ISA) 0x00000190 (400) Microsoft ACPI-Compliant System to (ISA) 0x00000191 (401) Microsoft ACPI-Compliant System to (ISA) 0x00000192 (402) Microsoft ACPI-Compliant System Tan (ISA) 0x00000193 (403) Microsoft ACPI-Compliant System to (ISA) 0x00000194 (404) Microsoft ACPI-Compliant System to (ISA) 0x00000195 (405) Microsoft ACPI-Compliant System to (ISA) 0x00000196 (406) Microsoft ACPI-Compliant System to (ISA) 0x00000197 (407) Microsoft ACPI-Compliant System to (ISA) 0x00000198 (408) Microsoft ACPI-Compliant System to (ISA) 0x00000199 (409) Microsoft ACPI-Compliant System to (ISA) 0x0000019A (410) Microsoft ACPI-Compliant System Tan (ISA) 0x0000019B (411) Microsoft ACPI-Compliant System to (ISA) 0x0000019C (412) Microsoft ACPI-Compliant System (ISA) 0x0000019D (413) Microsoft ACPI-Compliant System to (ISA) 0x0000019E (414) Microsoft ACPI-Compliant System (ISA) 0x0000019F (415) Microsoft ACPI-Compliant System to (ISA) 0x000001A0 (416) Microsoft ACPI-Compliant System (ISA) 0x000001A1 (417) Microsoft ACPI-Compliant System Microsoft ACPI-Compliant System to (ISA) 0x000001A2 (418) to (ISA) 0x000001A3 (419) Microsoft ACPI-Compliant System 🏣 (ISA) 0x000001A4 (420) 🛛 Microsoft ACPI-Compliant System to (ISA) 0x000001A5 (421) Microsoft ACPI-Compliant System

- ((CA) 0.000001AC (422)	
(ISA) 0x000001A6 (422)	Microsoft ACPI-Compliant System
(ISA) 0x000001A7 (423)	Microsoft ACPI-Compliant System
(ISA) 0x000001A8 (424)	Microsoft ACPI-Compliant System
(ISA) 0x000001A9 (425)	Microsoft ACPI-Compliant System
(ISA) 0x000001AA (426)	Microsoft ACPI-Compliant System
(ISA) 0x000001AB (427)	Microsoft ACPI-Compliant System
(ISA) 0x000001AC (428)	Microsoft ACPI-Compliant System
(ISA) 0x000001AD (429)	Microsoft ACPI-Compliant System
E (ISA) 0x000001AE (430)	Microsoft ACPI-Compliant System
tail (ISA) 0x000001AF (431)	Microsoft ACPI-Compliant System
ta (ISA) 0x000001B0 (432)	Microsoft ACPI-Compliant System
tailed (ISA) 0x000001B1 (433)	Microsoft ACPI-Compliant System
tai (ISA) 0x000001B2 (434)	Microsoft ACPI-Compliant System
tai (ISA) 0x000001B3 (435)	Microsoft ACPI-Compliant System
ኪ (ISA) 0x000001B4 (436)	Microsoft ACPI-Compliant System
ኪ (ISA) 0x000001B5 (437)	Microsoft ACPI-Compliant System
ኪ (ISA) 0x000001B6 (438)	Microsoft ACPI-Compliant System
ኪ (ISA) 0x000001B7 (439)	Microsoft ACPI-Compliant System
ኪ (ISA) 0x000001B8 (440)	Microsoft ACPI-Compliant System
ኪ (ISA) 0x000001B9 (441)	Microsoft ACPI-Compliant System
ኪ (ISA) 0x000001BA (442)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000001BB (443)	Microsoft ACPI-Compliant System
ኪ (ISA) 0x000001BC (444)	Microsoft ACPI-Compliant System
ኪ (ISA) 0x000001BD (445)	Microsoft ACPI-Compliant System
ኪ (ISA) 0x000001BE (446)	Microsoft ACPI-Compliant System
ኪ (ISA) 0x000001BF (447)	Microsoft ACPI-Compliant System
to (ISA) 0x000001C0 (448)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000001C1 (449)	Microsoft ACPI-Compliant System
🏣 (ISA) 0x000001C2 (450)	Microsoft ACPI-Compliant System
tail (ISA) 0x000001C3 (451)	Microsoft ACPI-Compliant System
tox000001C4 (452) 🗽 🚛	Microsoft ACPI-Compliant System
to (ISA) 0x000001C5 (453)	Microsoft ACPI-Compliant System
Langle (ISA) 0x000001C6 (454)	Microsoft ACPI-Compliant System
to (ISA) 0x000001C7 (455)	Microsoft ACPI-Compliant System
to (ISA) 0x000001C8 (456)	Microsoft ACPI-Compliant System
Table (ISA) 0x000001C9 (457)	Microsoft ACPI-Compliant System
ta (ISA) 0x000001CA (458)	Microsoft ACPI-Compliant System
(ISA) 0x000001CB (459)	Microsoft ACPI-Compliant System
(ISA) 0x000001CC (460)	Microsoft ACPI-Compliant System
Table (ISA) 0x000001CD (461)	Microsoft ACPI-Compliant System
(ISA) 0x000001CE (462)	Microsoft ACPI-Compliant System
(ISA) 0x000001CF (463)	Microsoft ACPI-Compliant System
to (ISA) 0x000001D0 (464)	Microsoft ACPI-Compliant System
La (ISA) 0x000001D1 (465)	Microsoft ACPI-Compliant System
La (ISA) 0x000001D2 (466)	Microsoft ACPI-Compliant System
La (ISA) 0x000001D3 (467)	Microsoft ACPI-Compliant System
(ISA) 0x000001D4 (468)	Microsoft ACPI-Compliant System
(ISA) 0x000001D5 (469)	Microsoft ACPI-Compliant System
(ISA) 0x000001D5 (409) (ISA) 0x000001D6 (470)	Microsoft ACPI-Compliant System
La (ISA) 0x000001D7 (471)	Microsoft ACPI-Compliant System
(ISA) 0x000001D7 (477) (ISA) 0x000001D8 (472)	Microsoft ACPI-Compliant System

(ISA) 0x000001D9 (473) Microsoft ACPI-Compliant System	
[ISA] 0x000001DA (474) Microsoft ACPI-Compliant System	
Image: (ISA) 0x000001DB (475) Microsoft ACPI-Compliant System	
ISA) 0x000001DC (476) Microsoft ACPI-Compliant System	
(ISA) 0x000001DD (477) Microsoft ACPI-Compliant System	
(ISA) 0x000001DE (478) Microsoft ACPI-Compliant System	
ticrosoft ACPI-Compliant System [479] Microsoft ACPI-Compliant System	
ten (ISA) 0x000001E0 (480) Microsoft ACPI-Compliant System	
to (ISA) 0x000001E1 (481) Microsoft ACPI-Compliant System	
🏣 (ISA) 0x000001E2 (482) 🛛 Microsoft ACPI-Compliant System	
🏣 (ISA) 0x000001E3 (483) 🛛 Microsoft ACPI-Compliant System	
🏣 (ISA) 0x000001E4 (484) 🛛 Microsoft ACPI-Compliant System	
🏣 (ISA) 0x000001E5 (485) 🛛 Microsoft ACPI-Compliant System	
🏣 (ISA) 0x000001E6 (486) 🛛 Microsoft ACPI-Compliant System	
🏣 (ISA) 0x000001E7 (487) 🛛 Microsoft ACPI-Compliant System	
ticrosoft ACPI-Compliant System [488] Microsoft ACPI-Compliant System	
ticrosoft ACPI-Compliant System [489] Microsoft ACPI-Compliant System	
🏣 (ISA) 0x000001EA (490) 🛛 Microsoft ACPI-Compliant System	
🔚 (ISA) 0x000001EB (491) Microsoft ACPI-Compliant System	
ISA) 0x000001EC (492) Microsoft ACPI-Compliant System	
ISA) 0x000001ED (493) Microsoft ACPI-Compliant System	
ISA) 0x000001EE (494) Microsoft ACPI-Compliant System	
ISA) 0x000001EF (495) Microsoft ACPI-Compliant System	
ISA) 0x000001F0 (496) Microsoft ACPI-Compliant System	
III (ISA) 0x000001F1 (497) Microsoft ACPI-Compliant System	
ISA) 0x000001F2 (498) Microsoft ACPI-Compliant System	
ISA) 0x000001F3 (499) Microsoft ACPI-Compliant System	
[ISA) 0x000001F5 (501) Microsoft ACPI-Compliant System (ISA) 0x000001F5 (502) Microsoft ACPI Compliant System	
[ISA) 0x000001F6 (502) Microsoft ACPI-Compliant System	
[ISA) 0x000001F7 (503) Microsoft ACPI-Compliant System (ISA) 0x000001F8 (504) Microsoft ACPI Compliant System	
[ISA) 0x000001F8 (504) Microsoft ACPI-Compliant System	
[ISA] 0x000001F9 (505) Microsoft ACPI-Compliant System	
ISA) 0x000001FA (506) Microsoft ACPI-Compliant System	
(ISA) 0x000001FB (507) Microsoft ACPI-Compliant System	
(ISA) 0x000001FC (508) Microsoft ACPI-Compliant System	
(ISA) 0x000001FD (509) Microsoft ACPI-Compliant System	
(ISA) 0x000001FE (510) Microsoft ACPI-Compliant System	
(ISA) 0x000001FF (511) Microsoft ACPI-Compliant System	
Intel SD Host Controller	
tigh Definition Audio Controller (25) High Definition Audio Controller	
(PCI) 0x00000027 (39) Intel SD Host Controller	
(PCI) 0x0000002A (42) Intel SD Host Controller	
(PCI) 0x00000400 (1024) Intel SD Host Controller	
PCI) 0xFFFFFF0 (-16) Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Mic	rosoft)
🏣 (PCI) 0xFFFFFFF7 (-9) Intel(R) Trusted Execution Engine Interface	
🖙 (PCI) 0xFFFFFF8 (-8) Intel(R) HD Graphics	
📹 (PCI) 0xFFFFFF9 (-7) Standard SATA AHCI Controller	
(PCI) 0xFFFFFFA (-6) Intel(R) Celeron(R)/Pentium(R) Processor PCI Express	Root Port - 5AD6
(PCI) 0xFFFFFFB (-5) Intel(R) Celeron(R)/Pentium(R) Processor PCI Express	
(PCI) 0xFFFFFFC (-4) Intel(R) Celeron(R)/Pentium(R) Processor PCI Express	Root Port - 5ADA
(PCI) 0xFFFFFFD (-3) Intel(R) Celeron(R)/Pentium(R) Processor PCI Express	Root Port - 5AD9
(PCI) 0xFFFFFFE (-2) Intel(R) Celeron(R)/Pentium(R) Processor PCI Express	Root Port - 5AD8
• • • •	

## 3.6 Memory Map

The memory mapping list is shown as follows:

```
V Memory
        to [0000000000000000 - 0000000000BFFFF] PCI Express Root Complex
       [000000007B800001 - 00000007BFFFFF] PCI Express Root Complex
       E [00000007C000001 - 00000007FFFFFF] PCI Express Root Complex
    [0000000080000000 - 00000000CFFFFFF] PCI Express Root Complex
           [000000080000000 - 00000008FFFFFF] Intel(R) HD Graphics
            [000000080000000 - 00000008FFFFFF] Intel(R) HD Graphics
                [00000008000000 - 00000008FFFFFFF] Intel(R) HD Graphics
                         [0000000080000000 - 00000008FFFFFF] Intel(R) HD Graphics
        [000000000000000 - 0000000090FFFFF] Intel(R) HD Graphics
                [000000000000000 - 0000000090FFFFF] Intel(R) HD Graphics
                       [000000000000000 - 0000000090FFFFFF] Intel(R) HD Graphics
        🗸 🏣 [000000091000000 - 0000000910FFFFF] High Definition Audio Controller
                늘 [0000000091000000 - 0000000910FFFFF] High Definition Audio Controller
        v 🏣 10000000091100000 - 00000000911FFFFF] Intel(R) Celeron(R)/Pentium(R) Processor PCI Express Root Port - 5AD6
            Image: The second se
                 Intel(R) Celeron(R)/Pentium(R) Processor PCI Express Root Port - 5ADB
        v 🏣 [000000091200000 - 0000000912FFFF] Intel(R) Celeron(R)/Pentium(R) Processor PCI Express Root Port - 5AD9

    [000000091200000 - 00000009120FFFF] Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)

                   iii [0000000091200000 - 000000009120FFFF] Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
                        0000000091200000 - 0000000091201FFF] Renesas USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
                           🖗 [000000091200000 - 000000091201FFF] Renesas USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
                                [000000091200000 - 000000091201FFF] Renesas USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
                                    [0000000091200000 - 000000091201FFF] Renesas USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
           🗸 🏣 [000000091210000 - 000000091213FFF] High Definition Audio Controller
                 🖌 🛅 [0000000091210000 - 0000000091213FFF] High Definition Audio Controller
                        - 10000000091210000 - 00000000912107FF] Standard SATA AHCI Controller
            I000000091214000 - 000000091215FFF] Standard SATA AHCI Controller
                     0000000091214000 - 000000091215FFF1 Standard SATA AHCI Controller
            [0000000091216000 - 0000000912160FF] Intel(R) Celeron(R)/Pentium(R) Processor SMBUS - 5AD4
                   10000000091216000 - 00000000912160FF] Intel(R) Celeron(R)/Pentium(R) Processor SMBUS - 5AD4
               I0000000091217000 - 0000000091217FFF] Intel SD Host Controller
                     [0000000091217000 - 0000000091217FFF] Intel SD Host Controller
               Intel SD Host Controller
                    I [0000000091218000 - 0000000091218FFF] Intel SD Host Controller
               I [000000091219000 - 000000091219FFF] Intel SD Host Controller
                      [0000000091219000 - 000000091219FFF] Intel SD Host Controller
            [000000009121A000 - 00000009121AFFF] Intel SD Host Controller
                     [000000009121A000 - 00000009121AFFF] Intel SD Host Controller
               [000000009121B000 - 000000009121BFFF] Intel SD Host Controller
                     [0000000091218000 - 0000000091218FFF1 Intel SD Host Controller
            [000000009121C000 - 000000009121CFFF] Intel SD Host Controller
                    [000000009121C000 - 000000009121CFFF] Intel SD Host Controller
                T [000000009121D000 - 000000009121D7FF] Standard SATA AHCI Controller
                    [000000009121D000 - 000000009121D7FF] Standard SATA AHCI Controller
                [000000009121E000 - 000000009121E0FF] Standard SATA AHCI Controller
                    [000000009121E000 - 000000009121E0FF] Standard SATA AHCI Controller
               Table [000000091221000 - 000000091221FFF] Intel(R) Trusted Execution Engine Interface
                    [0000000091221000 - 0000000091221FFF] Intel(R) Trusted Execution Engine Interface
             [0000000091310000 - 00000000913107FF] Standard SATA AHCI Controller
            [00000000C0000000 - 0000000CFFFFFFF] Intel(R) HD Graphics
                 [000000000000000 - 00000000CFFFFFF] Intel(R) HD Graphics
        Tel [0000000000C40000 - 000000000C40763] Intel(R) Serial IO GPIO Host Controller - INT3452
        [00000000E0000000 - 0000000EFFFFFF] Motherboard resources
    [00000000FC000000 - 00000000FCFFFFF] Intel(R) HD Graphics
              [00000000FC000000 - 0000000FCFFFFFF] Intel(R) HD Graphics
        [00000000FD000000 - 0000000FD01FFFF] Intel(R) I211 Gigabit Network Connection #3
            [0000000FD020000 - 0000000FD023FFF] Intel(R) I211 Gigabit Network Connection #3
        I00000000EEA00000 - 00000000EEAEEEE1 Motherboard resources
        i [00000000FED00000 - 00000000FED003FF] High precision event times
        i [00000000FED01000 - 00000000FED01FFF] Motherboard resources
        to interboard resources [0000000FED03FFF] Motherboard resources
        [00000000FED06000 - 00000000FED06FFF] Motherboard resources
        [00000000FED08000 - 00000000FED09FFF] Motherboard resources
        [00000000FED1C000 - 00000000FED1CFFF] Motherboard resources
        I00000000FED80000 - 00000000FEDBFFFF1 Motherboard resources
        [00000000FEE00000 - 00000000FEEFFFF] Motherboard resources
```

# Chapter 4 AMI BIOS Setup Utility

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

# 4.1 Starting

To enter the setup screens, follow the steps below:

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

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

# 4.2 Navigation Keys

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



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

Hot Keys	Description
→← Left/Right	The Left and Right < Arrow> keys allow you to select a setup screen.
<b>↑</b> ↓ Up/Down	The Up and Down <arrow> keys allow you to select a setup screen or sub-screen.</arrow>
+- Plus/Minus	The Plus and Minus <arrow> keys allow you to change the field value of a particular setup item.</arrow>
Tab	The <tab> key allows you to select setup fields.</tab>
F1	The <f1> key allows you to display the General Help screen.</f1>
F2	The <f2> key allows you to Load Previous Values.</f2>
F3	The <f3> key allows you to Load Optimized Defaults.</f3>
F4	The <f4> key allows you to save any changes you have made and exit Setup. Press the <f4> key to save your changes.</f4></f4>
Esc	The <esc> key allows you to discard any changes you have made and exit the Setup. Press the <esc> key to exit the setup without saving your changes.</esc></esc>
Enter	The <enter> key allows you to display or change the setup option listed for a particular setup item. The <enter> key can also allow you to display the setup sub- screens.</enter></enter>

## 4.3 Main Menu

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

Aptio Setup Ut Main Advanced Chipset	ility - Copyright (C) 2017 American Security Boot Save & Exit	Megatrends, Inc.
BIOS Information Project Version Build Date and Time EC Information Firmware Version System Date System Time Access Level	Q7M311 V101 01/24/2018 15:28:54 Q7M311 V02 [Mon 01/09/2012] [00:47:35] Administrator	Set the Date. Use Tab to switch between Date elements. Default Ranges: Year: 2005-2099 Months: 1-12 Days: dependent on month
	.1263 Copyright (C) 2017 American M	<pre>++: Select Screen  \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$</pre>

#### **BIOS and EC Information**

Display BIOS and EC firmware information.

#### System Date/Time

Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.

#### Access Level

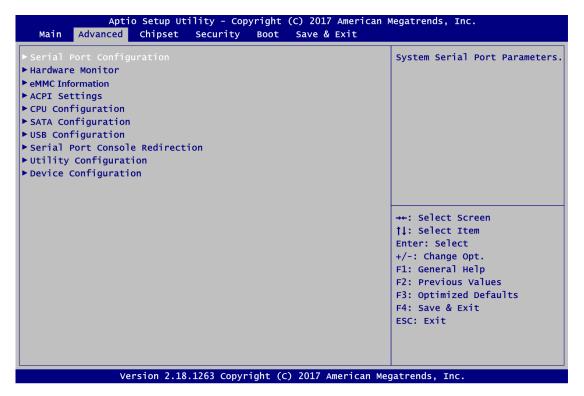
Display the access level of current user.

# 4.4 Advanced Menu

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

- Serial Port Configuration
- Hardware Monitor
- eMMC Information
- ACPI Settings
- CPU Configuration
- SATA Configuration
- ► USB Configuration
- Serial Port Console Redirection
- Utility Configuration
- Device Configuration

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



#### • Serial Port Configuration

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

Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc. Advanced		
Serial Port Configuration		Set Parameters of Serial Port 1 (UART1)
Super IO Chip ▶ Serial Port 1 (UARTI)	IT8528SEC	
		<pre>→+: Select Screen  ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.18.	1263 Copyright (C) 2017 Amer	rican Megatrends, Inc.

**Serial Port Configuration** Set parameters related to serial ports.

#### • Serial Port 1 Configuration

Aptio Setup Utilit Advanced	y - Copyright (C) 2017 Ameri	ican Megatrends, Inc.
Serial Port 1 (UART1)		Enable or Disable Serial Port (COM)
Serial Port Device Settings	[Enabled] IO=248h; IRQ=7;	
		<pre>++: Select Screen  1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit</pre>
Version 2.18.126	3 Copyright (C) 2017 America	ESC: Exit an Megatrends, Inc.

Serial Port 1 (UART1) Enable or disable serial port 1. The optimal setting for base I/O address is 248h and for interrupt request address is IRQ7.

#### • Hardware Monitor

This screen is for hardware health status monitoring.

Advanced		
c Health Status		
PU Temperature	: +54 C	
ystem Temperature	: +42 C	
BAT	: +2.97 V	
3.3v	: +3.29 V	
3.3VSB	: +3.29 V	
5VSB	: +4.99 V	
		<pre>→+: Select Screen  †↓: Select Item Enter: Select </pre>
		+/-: Change Opt. F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit

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

• **eMMC Information(option)** This screen is for show the eMMC information.

Aptio Advanced	Setup Utility - Copyright (C) 2017 American M	legatrends, Inc.
eMMC Information		
	Generic R1J : 13GB	
		<pre> ++: Select Screen  ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
	ion 2.18.1263 convright (C) 2017 American Med	

#### • ACPI Settings

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

ACPI Settings		Select the highest ACPI slee state the system will enter
		when the SUSPEND button is pressed.
	ACPI Sleep State Suspend Disabled S3 (Suspend to RAM)	
		<pre>→+: Select Screen  11: Select Item</pre>
		Enter: Select
		+/-: Change Opt. F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit ESC: Exit

#### **ACPI Sleep State**

Select the ACPI (Advanced Configuration and Power Interface) sleep state. Configuration options are Suspend Disabled and S3 (Suspend to RAM). The S3 (Suspend to RAM) option selects ACPI sleep state the system will enter when suspend button is pressed.

#### • CPU Configuration

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

Aptio Setup Ut Advanced	ility - Copyright (C) 20	17 American Megatrends, Inc.
CPU Configuration		When enabled, a VMM can
Intel(R) Celeron(R) CPU N3350 @	1 10047	
CPU Signature	50609	hardware capabilities provided
Microcode Patch	2E	by Vanderpool Technology
Max CPU Speed	1100 MHz	
Min CPU Speed	800 MHz	
Processor Cores	2	
Intel HT Technology	Not Supported	
Intel VT-x Technology	Supported	
	intel Virtualization Tech	
D	isabled nabled	
L2 Cache		→+: Select Screen
L3 Cache	Not Present	<pre> fl: Select Item </pre>
	Not Tresent	Enter: Select
Intel Virtualization Technology		+/-: Change Opt.
Turbo Mode	[Disabled]	F1: General Help
	201000	F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit
		ESC: EXIL
Version 2.18.1263 Copyright (C) 2017 American Megatrends, Inc.		

#### Intel Virtualization Technology

Enable or disable Intel Virtualization Technology. When enabled, a VMM can utilize the additional hardware capabilities. It allows a platform to run multiple operating systems and applications independently, hence enabling a computer system to work as several virtual systems.

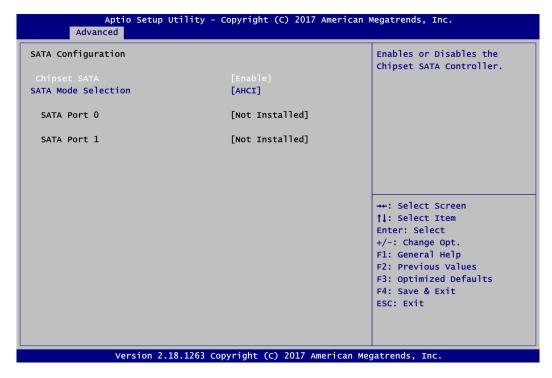
Advanced	
CPU Configuration	
Intel(R) Celeron(R) CPU N3350 @ 1	.10GHz
CPU Signature	506C9
Microcode Patch	2E
Max CPU Speed	1100 MHz
Min CPU Speed	800 MHz
Processor Cores	2
Intel HT Technology	Not Supported
Intel VT-x Technology	Supported
64-bit	Turbo Mode —
	Disabled
L1 Data Cache	Enabled
L1 Code Cache	
L2 Cache	
L3 Cache	Not Present
Intel Virtualization Technology	[Enabled]

#### Turbo Mode

Enable or disable turbo mode. The default setting is Disabled.

### • SATA Configuration

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



### Chipset SATA

Enable or disable SATA controller.

Advanced	
SATA Configuration	
Chipset SATA SATA Mode Selection	[Enable] [AHCI]
SATA Port 0	[Not Installed]
SATA Port 1	[Not Installed]
	AHCI

### **SATA Mode Selection**

The SATA operating mode is AHCI.

### • USB Configuration

Aptio Setup Ut Advanced	ility - Copyright (C) 2017	′American Megatrends, Inc.
USB Configuration		Mass storage device emulation type. 'AUTO' enumerates
USB Module Version	16	devices according to their media format. Optical drives
USB Controllers: 1 XHCI		are emulated as 'CDROM', drives with no media will be
USB Devices:		emulated according to a drive
1 Drive, 1 Keyboard, 1	Mouse	type.
Mass Storage Devices:		
NEXS IFLASH P1 PMAP		
		→+: Select Screen
		<pre> \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$</pre>
		Enter: Select
		+/-: Change Opt.
		F1: General Help F2: Previous Values
		F2: Previous values F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit
Version 2.18	.1263 Copyright (C) 2017 A	merican Megatrends, Inc.

### **USB** Devices

Display all detected USB devices.

#### Mass Storage Devices

Mass storage device emulation type. Auto option enumerates devices according to their media format. Optical drives are emulated as CDROM, drives with no media will be emulated according to a drive type.

### • Serial Port Console Redirection

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

Aptio Advanced	Setup Utility - Copyright (C) 2017 Am	erican Megatrends, Inc.
UART1 Console Redirection ► Console Redirection	[Disabled] Settings	Console Redirection Enable or Disable.
		<pre>++: Select Screen  \$</pre>
Vers	sion 2.18.1263 Copyright (C) 2017 Amer	ican Megatrends, Inc.

#### **UART1 Console Redirection**

Enable or disable UART1 console redirection settings.

Console Redirection Settings		Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends
Terminal Type Bits per second Data Bits Parity Stop Bits Flow Control VT-UTF8 Combo Key Support Recorder Mode Resolution 100x31 Legacy OS Redirection Resolution Putty KeyPad Redirection After BIOS POST	[ANSI] [115200] [8] [None] [1] [None] [Enabled] [Disabled] [Disabled] [80x24] [VT100] [Always Enable]	<pre> char set. V1100+: Extends VT100 to support color, function keys, etc. VT-UTF8 Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.  ++: Select screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit</pre>

### **UART1 Console Redirection Settings**

When enabled, the settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.

### • Utility Configuration

Aptio Setup Utility - Copyright (C) 2017 Americ Advanced	an Megatrends, Inc.
Utility Configuration	BIOS Flash Utility
▶BIOS Flash Utility	
Select File from a File system           Acpi(a0341d0, 0)\PCI(15 0)\USB(4,0)\HD(Part1	
	<pre>++: Select Screen  \$ 1\$: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.18.1263 Copyright (C) 2017 American	Megatrends, Inc.

### **BIOS Flash Utility**

BIOS flash utility configuration. For more detailed information, please refer to Appendix A.

#### • Device Configuration

A description of selected item appears on the right side of the screen. For items marked with "▶", please press <Enter> for more options.

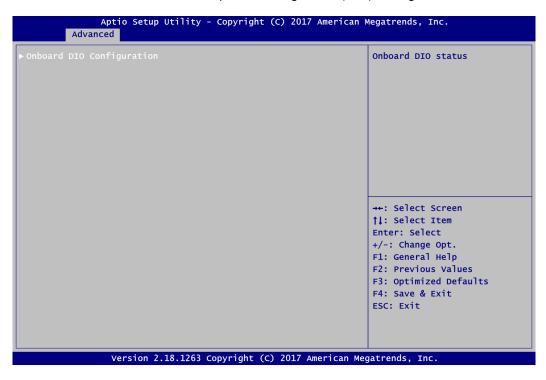
Aptio Setup Utility - Copyright (C) 2017 American M Advanced	egatrends, Inc.
▶ Onboard Device Configuration	Onboard Device Configuration status
	<pre>++: Select Screen  †↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.18.1263 Copyright (C) 2017 American Meg	atrends, Inc.

### **Onboard Device Configuration**

Use this option to configure onboard device (e.g., Digital I/O setting).

• Onboard DIO Configuration

You can use this screen to select options for Digital I/O (DIO) Configuration.



Onboard DIO Configuration DIO Modification		Enabled or Disabled DIO Modification
▶DIO port 1-8		
		<pre>→+: Select Screen  ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults</pre>
	53 Copyright (C) 2017 Ame	F4: Save & Exit ESC: Exit

### **DIO Modification**

Enable or disable digital I/O modification. The default is Disabled.

### DIO port 1-8

Select this option to open DIO status sub screen.

6. Input/Output Status

High/Low Setting

7. Input/Output Status

High/Low Setting

8. Input/Output Status

High/Low Setting

Input/Output Setting

Input/Output Setting

Input/Output Setting

If DIO Modification is disabled, you are not allowed to change inputs/outputs setting. The DIO status sub screen is as follows:

Advanced	
DIO Status 1. Input/Output Status	In & High
<ol> <li>Input/Output Status</li> <li>Input/Output Status</li> <li>Input/Output Status</li> </ol>	In & High
4. Input/Output Status	In & High In & High
<ol> <li>5. Input/Output Status</li> <li>6. Input/Output Status</li> </ol>	Out & Low Out & Low
<ol> <li>7. Input/Output Status</li> <li>8. Input/Output Status</li> </ol>	Out & Low Out & Low

After enabling, you can load manufacture default and access to the DIO status sub screen to change inputs/outputs setting, see images below.

Advanced	
Onboard DIO Configuration DIO Modification > Load Manufacture Default > DIO port 1-8	[Enabled]
Advanced	
DIO Status	
1. Input/Output Status	In & High
Input/Output Setting	
<ol><li>Input/Output Status</li></ol>	In & High
Input/Output Setting	[Input]
<ol><li>Input/Output Status</li></ol>	In & High
Input/Output Setting	[Input]
4. Input/Output Status	In & High
Input/Output Setting	[Input]
5. Input/Output Status	Out & Low
Input/Output Setting	[Output]
High/Low Setting	[Low]

Out & Low

[Output]

Out & Low

[Output]

Out & Low

[Output]

[Low]

[Low]

[Low]

### 4.5 Chipset Menu

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

- North Bridge
- South Bridge

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

orth Bridge outh Bridge	North Bridge Parameters
	<pre>→+: Select Screen  ↑↓: Select Item Enter: Select</pre>
	+/-: Change Opt. F1: General Help F2: Previous Values
	F3: Optimized Defaults F4: Save & Exit ESC: Exit
	ESC. EXIL

#### North Bridge

This screen shows system memory information and allows users to configure parameters of North Bridge chipset.

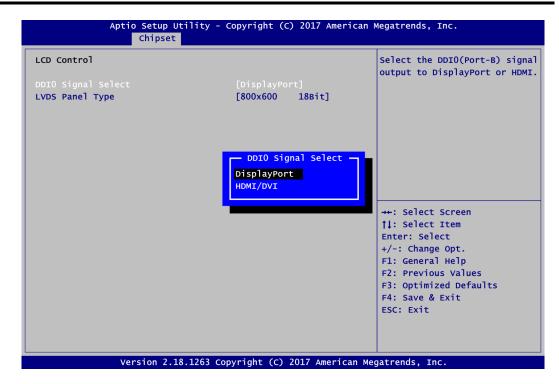
	Aptio Setup Utility - Copyright (C) 2017 Americ Chipset	an Megatrends, Inc.
►LCD Control		LCD Control
Memory Informa	ation	
Total Memory	4096 мв	
Memory Slot1	4096 мв	
		→+: Select Screen
		<pre> \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$</pre>
		+/-: Change Opt.
		F1: General Help
		F2: Previous Values F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit
	Version 2.18.1263 Copyright (C) 2017 Americar	Megatrends, Inc.

#### LCD Control

This item allows you to select LCD panel control options. Please press <Enter> to go to the sub menus.

### **Memory Information**

Display system memory information.



#### **DDI0 Signal Select**

Select the DDI0 signal output to DisplayPort or HDMI/DVI.

[DisplayPort]	Device by selecting the appropriate setup item.
800x600         18Bit           1024x768         18Bit           1024x768         24Bit           1280x768         18Bit           1280x768         18Bit           1280x800         18Bit	
1280x960 1881t 1280x1024 486it 1366x768 186it 1366x768 248it 1440x900 488it 1440x1050 488it 1600x900 488it 1600x1200 488it 1920x1080 488it 1920x1200 488it	<pre>++: Select Screen  \$\$\\$ Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
	1024x768 248it 1280x768 18Bit 1280x800 18Bit 1280x800 18Bit 1280x1024 488it 1366x768 18Bit 1366x768 24Bit 1440x1050 48Bit 1600x900 48Bit 1680x1050 48Bit 1600x1200 48Bit 1920x1080 48Bit

#### LVDS Panel Type

Select LVDS panel resolution for the display device by selecting the appropriate setup item.

• South Bridge This screen allows users to configure parameters of South Bridge chipset.

Aptio Setup Chipse	Utility - Copyright (C) 2017 Ame t	erican Megatrends, Inc.
TXE Information		Enable or Disable the Wake on Lan.
MRC Version	0.56	
PMC FW	03.24	
TXE FW	3.1.50.2222	
Wake On Lan		
		→+: Select Screen
		†↓: Select Item Enter: Select
		+/-: Change Opt.
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit
Version 2	.18.1263 Copyright (C) 2017 Ameri	can Megatrends, Inc.

### Wake on LAN

Enable or disable integrated LAN to wake the system.

### 4.6 Security Menu

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

Aptio Setup Main Advanced Chipset	<u></u>	(C) 2017 American Megatrends, Inc. Save & Exit
Password Description If ONLY the Administrator' then this only limits acce only asked for when enteri If ONLY the User's passwor	ss to Setup and is ng Setup.	Set Setup Administrator Password
is a power on password and boot or enter Setup. In Se have Administrator rights. The password length must b in the following range: Minimum length	must be entered to tup the User will	
Maximum length Setup Administrator Passwo User Password	20 rd	<pre>++: Select Screen  ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.	18.1263 Copyright (C	) 2017 American Megatrends, Inc.

- Setup Administrator Password Set setup administrator password.
- User Password Set user password.

### 4.7 Boot Menu

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

	Copyright (C) 2017 American	Megatrends, Inc.
Main Advanced Chipset Securi	ty Boot Save & Exit	
Boot Configuration		Number of seconds to wait for setup activation key.
Setup Prompt Timeout	1	65535(0xFFFF) means indefinite
Bootup Numlock State	[On]	waiting.
Quiet Boot	[Disabled]	
Launch UEFI PXE OpROM policy	[Disabled]	
Boot Option Priorities		
Boot Option #1	[Windows Boot Manager]	
Boot Option #2	[UEFI: SanDisk Cruze]	
Boot Mode	[UEFI Mode]	→+: Select Screen
		→+: Select Screen 11: Select Item
		Finter: Select
		+/-: Change Opt.
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit
Version 2,18,1263 C	opyright (C) 2017 American Me	matrends Inc

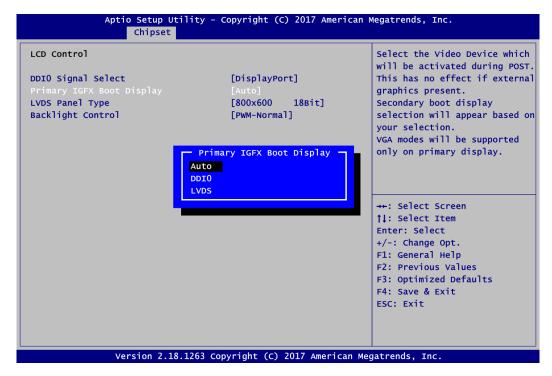
- Setup Prompt Timeout Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
- **Bootup NumLock State** Use this item to select the power-on state for the keyboard NumLock.
- Quiet Boot Select to display either POST output messages or a splash screen during boot up.
- Launch UEFI PXE OpROM policy Control the execution of UEFI PXE OpROM.
- Boot Option Priorities [Boot Option #1, ...] These are settings for boot priority. Specify the boot device priority sequence from the available devices.

### Boot Mode

- Use this item for boot mode settings.
  UEFI Boot: Select support to boot any UEFI-capable OS.
  Legacy Boot: Select support to boot non UEFI-capable OS that expects a legacy BIOS interface.

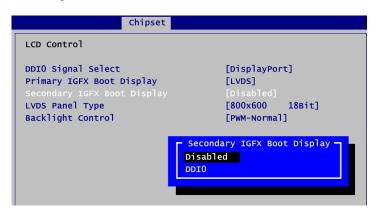
	ility - Copyright (C) 2017 American	Megatrends, Inc.
Main Advanced Chipset	Security Boot Save & Exit	
Boot Configuration		Select the boot mode. [UEFI Boot]
Setup Prompt Timeout	1	Support to boot any
Bootup Numlock State	[On]	UEFI-capable OS.
		[Legacy Boot]
Quiet Boot	[Disabled]	Support to boot non
Launch UEFI PXE OpROM policy	[Disabled]	UEFI-capable OS that expects a
		legacy BIOS interface.
Boot Option Priorities		
Boot Option #1	[Windows Boot Manager]	
Boot Option #2	Boot Mode	
Boot Mode	UEFI Mode Legacy Mode	<pre> ++: Select Screen  ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.18.1263 Copyright (C) 2017 American Megatrends, Inc.		

Note that the Primary IGFX Boot Display option appears only if Legacy Mode is selected, see image below.



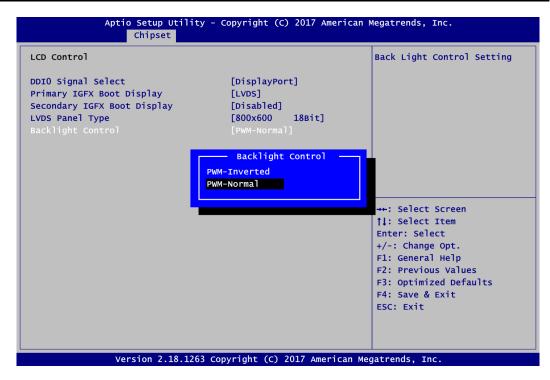
#### **Primary IGFX Boot Display**

Select the video device which will be activated during POST (Power-On Self Test). The secondary boot display item appears based on your Primary IGFX Boot Display selection, see images below.



### Secondary IGFX Boot Display

Select secondary boot display device.



### **Backlight Control**

Use this item to select backlight control mode.

### 4.8 Save & Exit Menu

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

Main Advanced chinese Convertex Death Cover & Swith	
Main Advanced Chipset Security Boot Save & Exit	
Save Options Save Changes and Exit Discard Changes and Exit Save Changes and Reset Discard Changes and Reset Save Changes Discard Changes	Exit system setup after saving the changes.
Default Options Restore Defaults Save as User Defaults Restore User Defaults Boot Override UEFI: NEXS IFLASH P1 PMAP, Partition 1 NEXS IFLASH P1 PMAP Version 2.18.1263 Copyright (C) 2017 American M	<pre>→+: Select Screen  ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

### • Save Changes and Exit

When you have completed the system configuration changes, select this option to leave Setup and continue to boot to operating system. Select Save Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to save changes and exit.

### • Discard Changes and Exit

Select this option to quit Setup without making any permanent changes to the system configuration and continue to boot to operating system. Select Discard Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to discard changes and exit.

### • Save Changes and Reset

When you have completed the system configuration changes, select this option to leave Setup and reboot the computer so the new system configuration parameters can take effect. Select Save Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to save changes and reset.

### • Discard Changes and Reset

Select this option to quit Setup without making any permanent changes to the system configuration and reboot the computer. Select Discard Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to discard changes and reset.

### • Save Changes

When you have completed the system configuration changes, select this option to save changes. Select Save Changes from the Save & Exit menu and press <Enter>. Select Yes to save changes.

### • Discard Changes

Select this option to quit Setup without making any permanent changes to the system configuration. Select Discard Changes from the Save & Exit menu and press <Enter>. Select Yes to discard changes.

### • Restore Defaults

It automatically sets all Setup options to a complete set of default settings when you select this option. Select Restore Defaults from the Save & Exit menu and press <Enter>.

### • Save as User Defaults

Select this option to save system configuration changes done so far as User Defaults. Select Save as User Defaults from the Save & Exit menu and press <Enter>.

### • Restore User Defaults

It automatically sets all Setup options to a complete set of User Defaults when you select this option. Select Restore User Defaults from the Save & Exit menu and press <Enter>.

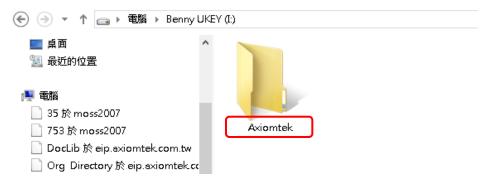
### Boot Override

Select a drive to immediately boot that device regardless of the current boot order.

# Appendix A BIOS Flash Utility

The BIOS Flash utility is a new helpful function in BIOS setup program. With this function you can easily update system BIOS without having to enter operating system. In this appendix you may learn how to do it in just a few steps. Please read and follow the instructions below carefully.

1. In your USB flash drive, create a new folder and name it "Axiomtek", see figure below.



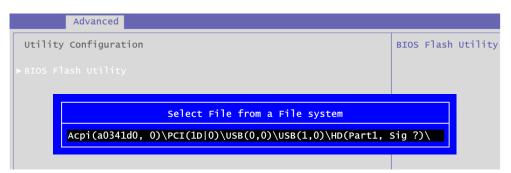
2. Copy BIOS ROM file (e.g. Q7M310X.005) to "Axiomtek" folder.



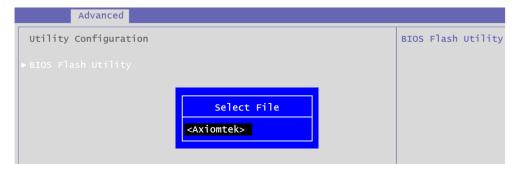
- 3. Insert the USB flash drive to your system.
- 4. Enter BIOS setup menu and go to Advanced\Utility Configuration. Select BIOS Flash Utility and press <Enter>.

Advanced	
Utility Configuration	BIOS Flash Utility
▶BIOS Flash Utility	

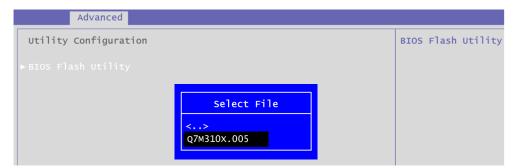
5. BIOS automatically detect all USB drive(s) attached to the system. In this example only one USB drive is attached to the system. That's why, you can see only one device is displayed in figure below.



6. Select the USB drive containing BIOS ROM file you want to update using the  $<\uparrow>$  or  $<\psi>$  key. Then press <Enter> to get into "Axiomtek" folder.



7. Now you can see the BIOS ROM file on the screen, press <Enter> to select.



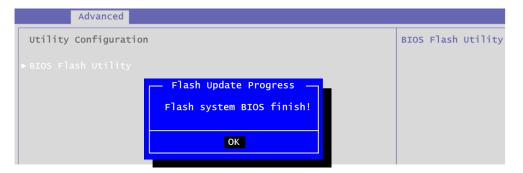
8. Select Start to flash system BIOS option to begin updating procedure.

Advanced			
Utility Configuration		BIOS Flash	Utility
► BIOS Flash Utility			
	BIOS Flash Utility		
	Return to BIOS Setup Menu		
	Start to flash system BIOS		

9. Please wait while BIOS completes the entire flash update process: erase data, write new data and verify data.

ion Flash Update Erase 13%	data
ion Flash Update Write ne 4%	w data
ion	BIOS Fla
Flash Update verify 109	data

10. When you see the following figure, press <Enter> to finish the update process. After that the system will shut down and restart immediately.



This page is intentionally left blank.

## Appendix B Watchdog Timer and GPIO

### B.1 About Watchdog Timer

After the system stops working for a while, it can be auto-reset by the watchdog timer. The integrated watchdog timer can be set up in the system reset mode by program.

	sample code : dx,fa10	; 5 seconds (Maximum is 65535 seconds; fill in ; 0xFA10 and 0xFA11 register, ex: 0xFA11=0x01, ; 0xFA10=0x68 means 360 seconds)
mo∨ out	al,05 dx,al	
mov mov out	dx,fa12 al,01 dx,al	; Enable WDT

## B.2 About GPIO

The onboard GPIO or digital I/O has 8 bits (DIO0~7). Each bit can be set to function as input or output by software programming. In default, all pins are pulled high with +3.3V level (according to main power). The BIOS default settings are 4 inputs and 4 outputs where all of these pins are set to 1.

Assembly mov mov out	sample code : dx,fa18 al,00 dx,al	; Set DIO 0-7 to Output
mov mov out	dx,fa19 al,f0 dx,al	; Set DIO 4-7 to High
mov mov out	dx,fa18 al,ff dx,al	; Set DIO 0-7 to Input
mo∨ in	dx,fa19 al,dx	; Get DIO 0-7 status
mov mov out	dx,fa18 al,1f dx,al	; Set DIO 0-4 to Input, 5-7 to Output ; al = 1F => 00011111
mov mov out	dx,fa19 al,40 dx,al	; Set DIO 6 to High ; al = 40 => 01000000
in	al,dx	; Get DIO 0-7 status