

# FWS-2275

---

Desktop Network Appliance

User's Manual 2<sup>nd</sup> Ed

## Copyright Notice

---

This document is copyrighted, 2025. All rights are reserved. The original manufacturer reserves the right to make improvements to the products described in this manual at any time without notice.

No part of this manual may be reproduced, copied, translated, or transmitted in any form or by any means without the prior written permission of the original manufacturer. Information provided in this manual is intended to be accurate and reliable. However, the original manufacturer assumes no responsibility for its use, or for any infringements upon the rights of third parties that may result from its use.

The material in this document is for product information only and is subject to change without notice. While reasonable efforts have been made in the preparation of this document to assure its accuracy, AAEON assumes no liabilities resulting from errors or omissions in this document, or from the use of the information contained herein.

AAEON reserves the right to make changes in the product design without notice to its users.

## Acknowledgement

---

All other product name or trademarks are properties of their respective owners.

- Microsoft Windows® is a registered trademark of Microsoft Corp.
- Intel®, Celeron® are registered trademarks of Intel Corporation

All other product names or trademarks are properties of their respective owners. The publisher of this document does not assume nor imply ownership of any trademarked product not listed herein.

## Packing List

Before setting up your product, please make sure the following items have been shipped:

| Item |               | Quantity |
|------|---------------|----------|
| ●    | FWS-2275      | 1        |
| ●    | Antenna       | 2        |
| ●    | Power Adapter | 1        |
| ●    | VESA mount    | 1        |

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

## About this Document

---

This User's Manual contains all the essential information, such as detailed descriptions and explanations on the product's hardware and software features (if any), its specifications, dimensions, jumper/connector settings/definitions, and driver installation instructions (if any), to facilitate users in setting up their product.

Users may refer to the product page at [AAEON.com](http://AAEON.com) for the latest version of this document.

## Safety Precautions

---

Please read the following safety instructions carefully. It is advised that you keep this manual for future references

1. All cautions and warnings on the device should be noted.
2. Make sure the power source matches the power rating of the device.
3. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
4. Always completely disconnect the power before working on the system's hardware.
5. No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
6. If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
7. Always disconnect this device from any power supply before cleaning.
8. While cleaning, use a damp cloth instead of liquid or spray detergents.
9. Make sure the device is installed near a power outlet and is easily accessible.
10. Keep this device away from humidity.
11. Place the device on a solid surface during installation to prevent falls.
12. Do not cover the openings on the device to ensure optimal heat dissipation.
13. Watch out for high temperatures when the system is running.
14. Do not touch the heat sink or heat spreader when the system is running
15. Never pour any liquid into the openings. This could cause fire or electric shock.
16. As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded containers.

17. If any of the following situations arises, please the contact our service personnel:
  - i. Damaged power cord or plug
  - ii. Liquid intrusion to the device
  - iii. Exposure to moisture
  - iv. Device is not working as expected or in a manner as described in this manual
  - v. The device is dropped or damaged
  - vi. Any obvious signs of damage displayed on the device
18. Do not leave this device in an uncontrolled environment with temperatures beyond the device's permitted storage temperatures (see chapter 1) to prevent damage.
19. Do NOT disassemble the motherboard so as not to damage the system or void your warranty.
20. If the thermal pad had been damaged, please contact AAEON's salesperson to purchase a new one. Do NOT use those of other brands.
21. The Hex Cylinder Coppers on the front panel are not removable.
22. Repeatedly assemble and disassemble the system may cause damages to the exterior paint and surface and screw holes.
23. Use the right size screwdriver.
24. Use the screwdriver correctly to remove screws from the system.

## FCC Statement

---

### **Warning!**



This device complies with Part 15 FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

### **Caution:**

*There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.*

### **Attention:**

*Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte. Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur. Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.*

China RoHS Requirements (CN)

产品中有毒有害物质或元素名称及含量

AAEON System

QO4-381 Rev.A2

| 部件名称                                                                                                                                                                                                                                                                                                                                                    | 有毒有害物质或元素 |           |           |                 |               |                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|-----------|-----------------|---------------|-----------------|
|                                                                                                                                                                                                                                                                                                                                                         | 铅<br>(Pb) | 汞<br>(Hg) | 镉<br>(Cd) | 六价铬<br>(Cr(VI)) | 多溴联苯<br>(PBB) | 多溴二苯醚<br>(PBDE) |
| 印刷电路板<br>及其电子组件                                                                                                                                                                                                                                                                                                                                         | ×         | ○         | ○         | ○               | ○             | ○               |
| 外部信号<br>连接器及线材                                                                                                                                                                                                                                                                                                                                          | ×         | ○         | ○         | ○               | ○             | ○               |
| 外壳                                                                                                                                                                                                                                                                                                                                                      | ○         | ○         | ○         | ○               | ○             | ○               |
| 中央处理器<br>与内存                                                                                                                                                                                                                                                                                                                                            | ×         | ○         | ○         | ○               | ○             | ○               |
| 硬盘                                                                                                                                                                                                                                                                                                                                                      | ×         | ○         | ○         | ○               | ○             | ○               |
| 液晶模块                                                                                                                                                                                                                                                                                                                                                    | ×         | ○         | ○         | ○               | ○             | ○               |
| 光驱                                                                                                                                                                                                                                                                                                                                                      | ×         | ○         | ○         | ○               | ○             | ○               |
| 触控模块                                                                                                                                                                                                                                                                                                                                                    | ×         | ○         | ○         | ○               | ○             | ○               |
| 电源                                                                                                                                                                                                                                                                                                                                                      | ×         | ○         | ○         | ○               | ○             | ○               |
| 电池                                                                                                                                                                                                                                                                                                                                                      | ×         | ○         | ○         | ○               | ○             | ○               |
| <p>本表格依据 SJ/T 11364 的规定编制。</p> <p>○：表示该有毒有害物质在该部件所有均质材料中的含量均在 GB/T 26572 标准规定的限量要求以下。</p> <p>×：表示该有害物质的某一均质材料超出了 GB/T 26572 的限量要求，然而该部件仍符合欧盟指令 2011/65/EU 的规范。</p> <p>环保使用期限(EFUP (Environmental Friendly Use Period))：10 年</p> <p>备注：</p> <p>一、此产品所标示之环保使用期限，系指在一般正常使用状况下。</p> <p>二、上述部件物质中央处理器、内存、硬盘、光驱、电源为选购品。</p> <p>三、上述部件物质液晶模块、触控模块仅一体机产品适用。</p> |           |           |           |                 |               |                 |

China RoHS Requirement (EN)

Name and content of hazardous substances in product

AAEON System

QO4-381 Rev.A2

| Part Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Hazardous Substances |           |           |                 |               |                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------|-----------|-----------------|---------------|-----------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 铅<br>(Pb)            | 汞<br>(Hg) | 镉<br>(Cd) | 六价铬<br>(Cr(VI)) | 多溴联苯<br>(PBB) | 多溴二苯醚<br>(PBDE) |
| PCB Assemblies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ×                    | ○         | ○         | ○               | ○             | ○               |
| Connector and Cable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ×                    | ○         | ○         | ○               | ○             | ○               |
| Chassis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ○                    | ○         | ○         | ○               | ○             | ○               |
| CPU and Memory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ×                    | ○         | ○         | ○               | ○             | ○               |
| Hard Disk                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ×                    | ○         | ○         | ○               | ○             | ○               |
| LCD Modules                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ×                    | ○         | ○         | ○               | ○             | ○               |
| CD-ROM/DVD-ROM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ×                    | ○         | ○         | ○               | ○             | ○               |
| Touch Modules                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ×                    | ○         | ○         | ○               | ○             | ○               |
| Power                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ×                    | ○         | ○         | ○               | ○             | ○               |
| Battery                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ×                    | ○         | ○         | ○               | ○             | ○               |
| <p>The table is prepared in accordance with the provisions of SJ/T 11364.</p> <p>○ : Indicates that said hazardous substance contained in all of the homogenous materials for this product is below the limit requirement of GB/T 26572.</p> <p>× : Indicates that said hazardous substance contained in at least one of the homogenous materials used for this part is above the limit requirement of GB/T 26572. But this product still be compliance with 2011/65/EU Directive (allowed with 2011/65/EU Annex III of RoHS exemption with number 6(c),7(a),7(c)-1).</p> <p>EFUP (Environment Friendly Use Period) value: 10 years.</p> <p>Notes:</p> <p>1. This product defined period of use is under normal condition.</p> <p>2. In above part, CPU/Memory/ Hard Disk/CD-ROM/DVD-ROM/ Power are optional.</p> <p>3. In above part, LCD Modules/ Touch Modules are for all-in-one product model.</p> |                      |           |           |                 |               |                 |

## Table of Contents

---

|                                                        |           |
|--------------------------------------------------------|-----------|
| <b>Chapter 1 – Product Specifications</b> .....        | <b>14</b> |
| 1.1    Specifications.....                             | 15        |
| <b>Chapter 2 – Hardware Information</b> .....          | <b>18</b> |
| 2.1    Dimensions.....                                 | 19        |
| 2.2    Jumpers and Connectors .....                    | 23        |
| 2.3    List of Jumpers .....                           | 25        |
| 2.3.1    CMOS Setting Selection (CN19).....            | 25        |
| 2.4    List of Connectors .....                        | 26        |
| 2.4.1    SATA Power Connector (CN2).....               | 27        |
| 2.4.2    Serial Port 1 (RS232/422/485) (CN11) .....    | 27        |
| 2.4.3    DIO Connector (CN13) .....                    | 27        |
| 2.5    GPIO Mapping.....                               | 28        |
| 2.5.1    LED GPIO Mapping (LED1, LED2, LED3).....      | 28        |
| 2.5.2    DIO Controller (CN13) GPIO Mapping.....       | 28        |
| 2.5.3    Software Reset Switch (SW2) GPIO Mapping..... | 29        |
| <b>Chapter 3 – AMI BIOS Setup</b> .....                | <b>30</b> |
| 3.1    System Test and Initialization .....            | 31        |
| 3.2    AMI BIOS Setup.....                             | 32        |
| 3.3    Setup Submenu: Main.....                        | 33        |
| 3.4    Setup Submenu: Advanced .....                   | 34        |
| 3.4.1    Advanced: Trusted Computing.....              | 35        |
| 3.4.2    Advanced: CPU Configuration.....              | 37        |
| 3.4.3    Advanced: SATA Drives.....                    | 38        |
| 3.4.4    Advanced: USB Configuration .....             | 39        |
| 3.4.5    Advanced: Hardware Monitor .....              | 40        |
| 3.4.6    Advanced: SIO Configuration .....             | 41        |

|                                                      |                                                          |           |
|------------------------------------------------------|----------------------------------------------------------|-----------|
| 3.4.6.1                                              | Serial Port Configuration.....                           | 42        |
| 3.4.7                                                | Advanced: Serial Port Console Redirection .....          | 45        |
| 3.4.7.1                                              | Console Redirection Settings .....                       | 46        |
| 3.4.7.2                                              | Legacy Console Redirection Settings .....                | 48        |
| 3.4.7.3                                              | Serial Port for Out-of-Band Management/Windows EMS ..... | 49        |
| 3.4.8                                                | Advanced: Power Management.....                          | 51        |
| 3.4.9                                                | Advanced: Digital IO Port Configuration.....             | 53        |
| 3.4.10                                               | Advanced: Status LED Configuration .....                 | 54        |
| 3.5                                                  | Setup submenu: Chipset.....                              | 55        |
| 3.5.1                                                | Chipset: North Bridge.....                               | 56        |
| 3.5.2                                                | Chipset: South Bridge .....                              | 57        |
| 3.5.3                                                | Chipset: SCC Configuration .....                         | 58        |
| 3.6                                                  | Setup submenu: Security .....                            | 59        |
| 3.6.1                                                | Secure Boot.....                                         | 60        |
| 3.6.1.1                                              | Key Management .....                                     | 61        |
| 3.7                                                  | Setup submenu: Boot.....                                 | 63        |
| 3.8                                                  | Setup submenu: Exit.....                                 | 64        |
| <b>Chapter 4 – Drivers Installation .....</b>        |                                                          | <b>65</b> |
| 4.1                                                  | Drivers Download and OS Support .....                    | 66        |
| 4.2                                                  | Drivers Installation.....                                | 67        |
| <b>Appendix A – Watchdog Timer Programming .....</b> |                                                          | <b>69</b> |
| A.1                                                  | Watchdog Timer Initial Program.....                      | 70        |
| <b>Appendix B – I/O Information.....</b>             |                                                          | <b>76</b> |
| B.1                                                  | I/O Address Map.....                                     | 77        |
| B.2                                                  | Memory Address Map .....                                 | 79        |
| B.3                                                  | IRQ Mapping Chart .....                                  | 81        |
| <b>Appendix C – AAEON SDK Hardware Settings.....</b> |                                                          | <b>90</b> |
| C.1                                                  | Status LED.....                                          | 91        |

|       |                                           |    |
|-------|-------------------------------------------|----|
| C.1.1 | Status LED Configuration .....            | 91 |
| C.1.2 | Sample Code .....                         | 92 |
| C.2   | LAN Bypass .....                          | 94 |
| C.2.1 | LAN Bypass .....                          | 94 |
| C.2.2 | Sample Code .....                         | 96 |
| C.3   | Software Reset Button Configuration ..... | 98 |
| C.3.1 | Soft Reset Button Configuration .....     | 98 |
| C.3.2 | Sample Code .....                         | 99 |

# Chapter 1

---

Product Specifications

## 1.1 Specifications

---

### System

|               |                                     |
|---------------|-------------------------------------|
| Form Factor   | Desktop Network Appliance           |
| Processor     | Intel® Celeron® Processor N3350 SoC |
| Chipset       | SoC                                 |
| System Memory | Onboard LPDDR4, 2GB                 |

### Network

|          |                                             |
|----------|---------------------------------------------|
| Ethernet | Intel® i211 GbE x 3 (co-lay with Mini PCIe) |
| Bypass   | —                                           |

### Display

|                    |                               |
|--------------------|-------------------------------|
| Graphic Controller | Intel® HD graphics integrated |
| Connector          | HDMI Connector (Optional)     |

### Storage

|                |                                         |
|----------------|-----------------------------------------|
| HDD            | —                                       |
| CF/CFast/mSATA | Onboard eMMC 16GB (Optional up to 32GB) |

### Internal/ Expansion Interface

|                    |                                              |
|--------------------|----------------------------------------------|
| PCIe Slot          | —                                            |
| Mini-PCIe Slot     | Mini-Card Full Size Slot with SIM Socket x 1 |
| Keyboard and Mouse | —                                            |
| USB                | USB 3.2 Gen 1 x 2                            |

## Miscellaneous

|                 |                                      |
|-----------------|--------------------------------------|
| RTC             | Internal RTC                         |
| Watchdog Timer  | 1~255 steps by software programmable |
| Software Button | —                                    |
| TPM             | (TPM v1.2 9660/TPM2.0 9665 Optional) |
| GPIO            | 4 bits input, 4bits output           |
| Fan             | —                                    |
| MTBF (Hours)    | 550,521 hours                        |
| Color           | Black                                |

## Environmental Parameters and Dimensions

|                       |                                                                                                                            |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------|
| Power Requirement     | 9~24 V DC Power                                                                                                            |
| Operating Temperature | 32°F ~ 122°F (0°C ~ 50°C)                                                                                                  |
| Storage Temperature   | -4°F ~ 140°F (-20°C ~ 60°C)                                                                                                |
| Operating Humidity    | 10%~80% relative humidity, non-condensing                                                                                  |
| Storage Humidity      | 10%~80% @40°C; non-condensing                                                                                              |
| Vibration             | 0.5 Grms/ 5 ~ 500Hz / operation<br>1.5 Grms/ 5 ~ 500Hz / non-operation                                                     |
| Shock                 | 10 G peak acceleration (11 m sec. duration),<br>operation<br>20 G peak acceleration (11 m sec. duration),<br>non-operation |
| Dimension (W X D X H) | 45.3" x 45.3"x 17.3" (115mm x 115mm x 44mm)                                                                                |

## I/O

|             |                                             |
|-------------|---------------------------------------------|
| Front Panel | USB 3.2 Gen 1 Ports x 2                     |
|             | LEDs (3 x Top Row, 2 x Bottom Row) x 6      |
|             | Power Button with LED integrated x 1        |
|             | Micro-USB Console Port x 1                  |
|             | RS-232/422/485 x 1                          |
|             | GPIO 8 bits, 4-bits input, 4-bits output    |
|             | Reset button x 1                            |
| Rear Panel  | 1GbE RJ45 Ports x 3                         |
|             | Power Input connector, lockable x 1         |
| Left I/O    | SIM Slot x 1 + Micro-SD Slot with Cover x 1 |
|             | Wi-Fi Antenna Connector x 1                 |
|             | LTE Antenna Connector                       |
| Right I/O   | Wi-Fi Antenna Connector x 1                 |
|             | LTE Antenna Connector                       |

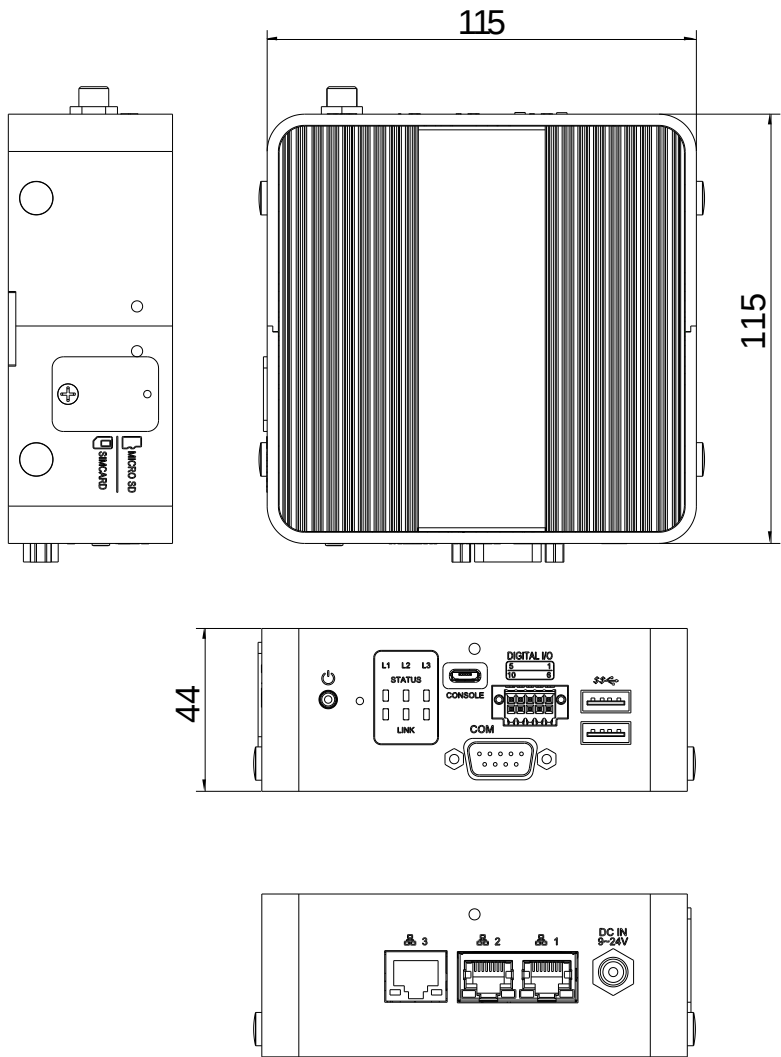
# Chapter 2

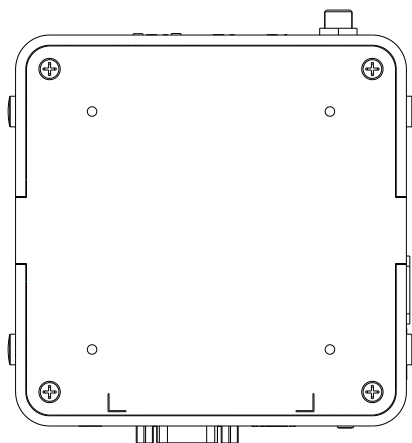
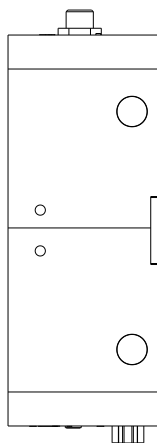
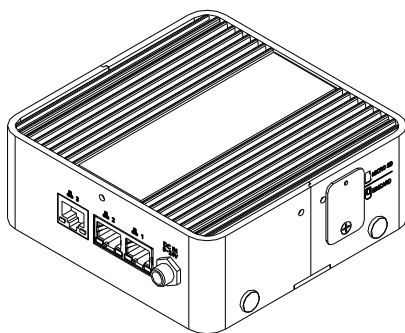
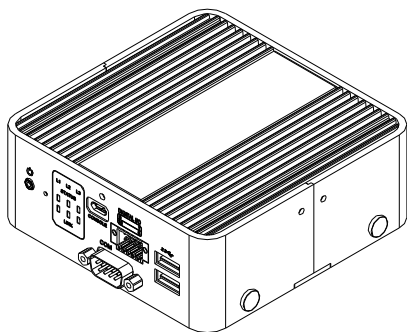
---

Hardware Information

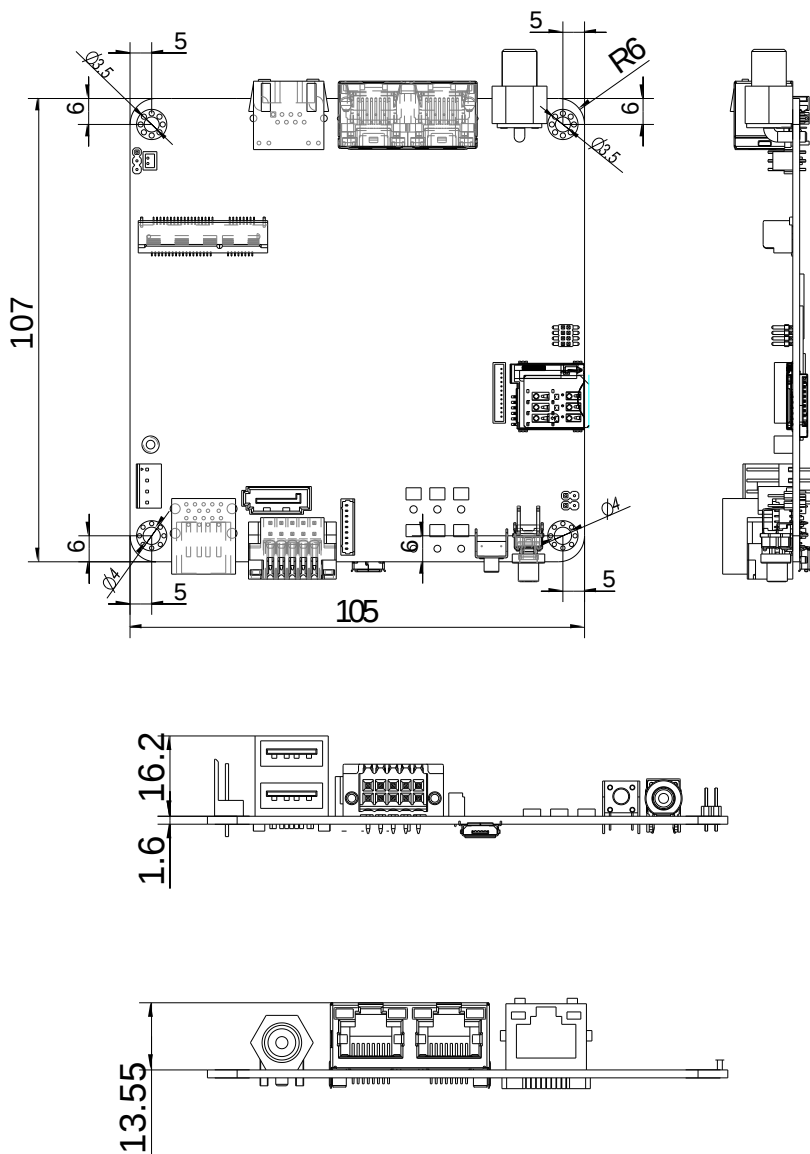
## 2.1 Dimensions

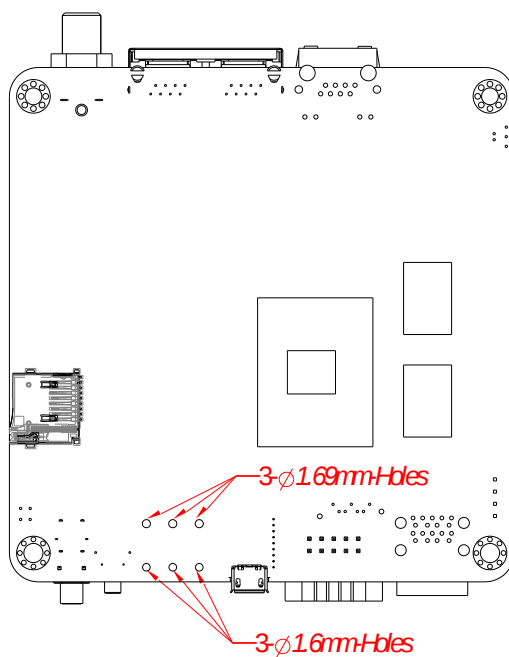
### System





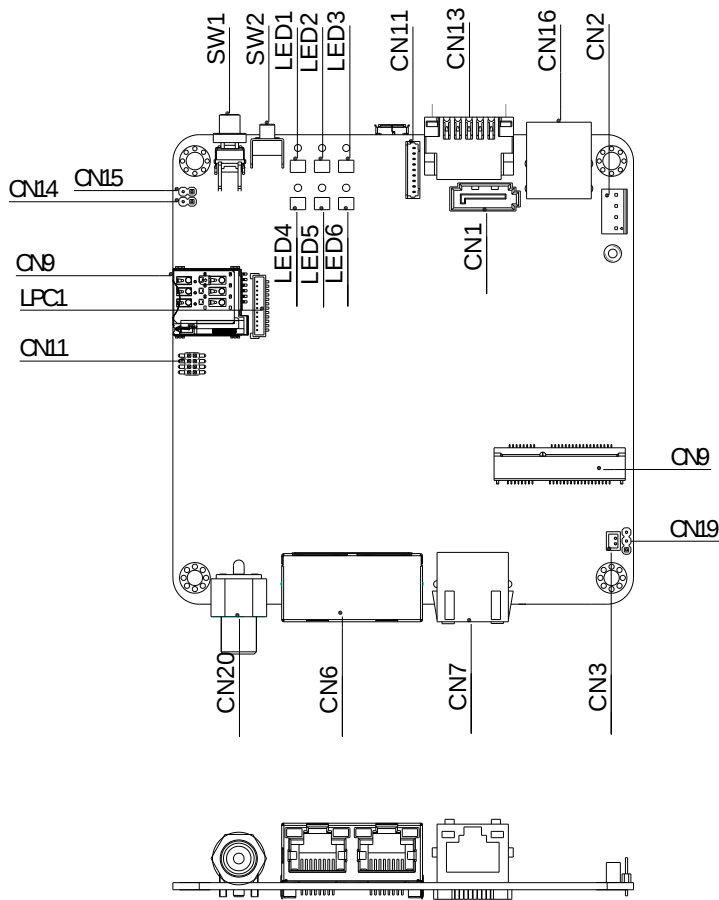
## Board



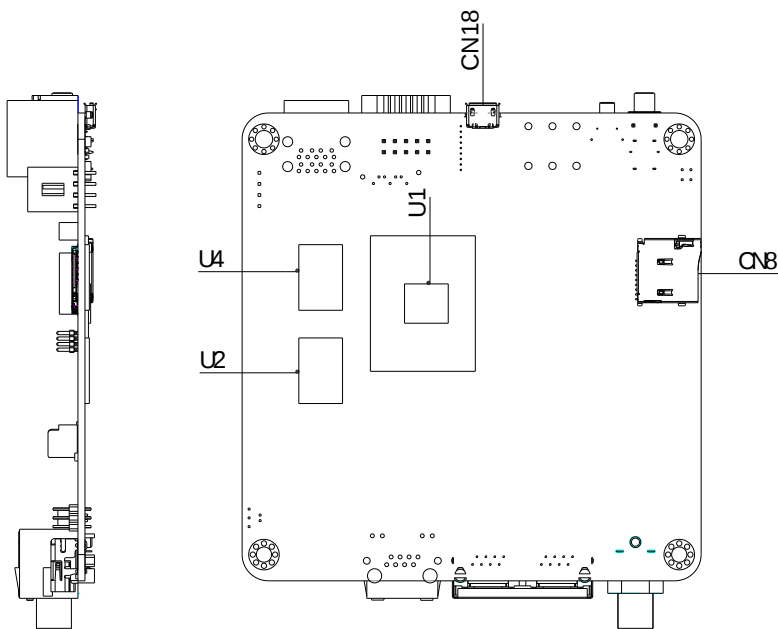


## 2.2 Jumpers and Connectors

### Component Side



## CPU Side

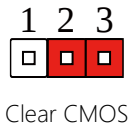
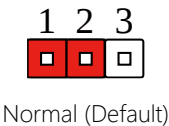


## 2.3 List of Jumpers

Please refer to the table below for all of the board's jumpers that you can configure for your application.

| Label | Function               |
|-------|------------------------|
| CN19  | CMOS Setting Selection |

### 2.3.1 CMOS Setting Selection (CN19)



## 2.4 List of Connectors

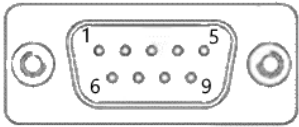
Please refer to the table below for all of the board’s connectors that you can configure for your application.

| Label | Function                          |
|-------|-----------------------------------|
| CN1   | SATA Connector                    |
| CN2   | SATA Power Connector (+5V only)   |
| CN3   | Battery Connector                 |
| CN6   | LAN Port 1 & 2 RJ45               |
| CN7   | LAN Port 3 RJ45                   |
| CN8   | Micro-SD                          |
| CN9   | Mini Card (option) with Micro-SIM |
| CN11  | Serial Port 1                     |
| CN13  | DIO Connector                     |
| CN16  | Dual (2x) USB3.0 Port             |
| CN18  | Micro-USB Console (Serial Port 1) |
| CN20  | DC Jack (9V~24V)                  |
| LED1  | Status LED                        |
| LED2  | Status LED                        |
| LED3  | Status LED                        |
| LED4  | LAN Port 1 Activity               |
| LED5  | LAN Port 2 Activity               |
| LED6  | LAN Port 3 Activity               |
| SW1   | Power Button                      |
| SW2   | Software Reset                    |

2.4.1 SATA Power Connector (CN2)

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1   | NA     | 3   | GND    |
| 2   | GND    | 4   | +5V    |

2.4.2 Serial Port 1 (RS232/422/485) (CN11)



| Pin | Signal                | Pin | Signal       |
|-----|-----------------------|-----|--------------|
| 1   | DCD (485DATA-/422TX-) | 6   | CTS          |
| 2   | DSR                   | 7   | DTR (422RX-) |
| 3   | RXD (422RX+)          | 8   | RI           |
| 4   | RTS                   | 9   | GND          |
| 5   | TXD (485DATA+/422TX+) |     |              |

2.4.3 DIO Connector (CN13)



| Pin | Signal | Pin | Signal            |
|-----|--------|-----|-------------------|
| 1   | GND    | 6   | DC-INPUT (9V~24V) |
| 2   | Bit0   | 7   | Bit4              |
| 3   | Bit1   | 8   | Bit5              |
| 4   | Bit2   | 9   | Bit6              |
| 5   | Bit3   | 10  | Bit7              |

## 2.5 GPIO Mapping

Please see Section 2.4 List of Connectors for connector reference table.

### 2.5.1 LED GPIO Mapping (LED1, LED2, LED3)

| LED  | On SIO81866 | Color | Control                             | Power |
|------|-------------|-------|-------------------------------------|-------|
| LED1 | GP10        | Blue  | Addr 0xA00h[bit0]<br>"0"=on,"1"=off | VSB   |
|      | GP22        | Red   | Addr 0xA01h[bit2]<br>"0"=on,"1"=off | VSB   |
|      | GP23        | Green | Addr 0xA01h[bit3]<br>"0"=on,"1"=off | VSB   |
| LED2 | GP56        | Blue  | Addr 0xA04h[bit6]<br>"0"=on,"1"=off | VCC   |
|      | GP54        | Red   | Addr 0xA04h[bit4]<br>"0"=on,"1"=off | VSB   |
|      | GP40        | Green | Addr 0xA03h[bit0]<br>"0"=on,"1"=off | VSB   |
| LED3 | GP61        | Blue  | Addr 0xA05h[bit1]<br>"0"=on,"1"=off | VCC   |
|      | GP60        | Red   | Addr 0xA05h[bit0]<br>"0"=on,"1"=off | VCC   |
|      | GP57        | Green | Addr 0xA04h[bit7]<br>"0"=on,"1"=off | VCC   |

### 2.5.2 DIO Controller (CN13) GPIO Mapping

| Pin | Signal | GPIO Mapping     | Pin | Signal | GPIO Mapping     |
|-----|--------|------------------|-----|--------|------------------|
| 2   | Bit0   | Mapping SIO GP80 | 7   | Bit4   | Mapping SIO GP84 |
| 3   | Bit1   | Mapping SIO GP81 | 8   | Bit5   | Mapping SIO GP85 |
| 4   | Bit2   | Mapping SIO GP82 | 9   | Bit6   | Mapping SIO GP86 |
| 5   | Bit3   | Mapping SIO GP83 | 10  | Bit7   | Mapping SIO GP87 |

## 2.5.3 Software Reset Switch (SW2) GPIO Mapping

---

### SW2 GPIO Mapping

Mapping SIO GP64

---

# Chapter 3

---

AMI BIOS Setup

## 3.1 System Test and Initialization

---

The system uses certain routines to perform testing and initialization during the boot up sequence. If an error, fatal or non-fatal, is encountered, the system will output a few short beeps or an error message. The board can usually continue the boot up sequence with non-fatal errors.

The system configuration verification routines check the current system configuration against the values stored in the CMOS memory and BIOS NVRAM. If a system configuration is not found or an error is detected, the module will load the default configuration and reboot automatically.

There are four situations in which you will need to setup system configuration:

1. You are starting your system for the first time
2. You have changed the hardware attached to your system
3. The system configuration was reset by the Clear-CMOS jumper
4. The CMOS memory has lost power and the configuration information has been erased.

The system CMOS memory has an integrated lithium battery backup for data retention. The battery unit will need to be replaced when it runs down.

## 3.2 AMI BIOS Setup

---

The AMI BIOS ROM has a pre-installed Setup program that allows users to modify basic system configurations, which is stored in the battery-backed CMOS RAM and BIOS NVRAM so that the information is retained when the power is turned off.

To enter BIOS Setup, power on the computer and immediately press <Del> or <Esc>.

The function for each interface can be found below.

**Main** – Basic system information. Date and Time can be set here. Press <Tab> to switch between date elements

**Advanced** – Configuration for major system features (CPU, Super IO, Hardware Monitor, Digital I/O, etc.)

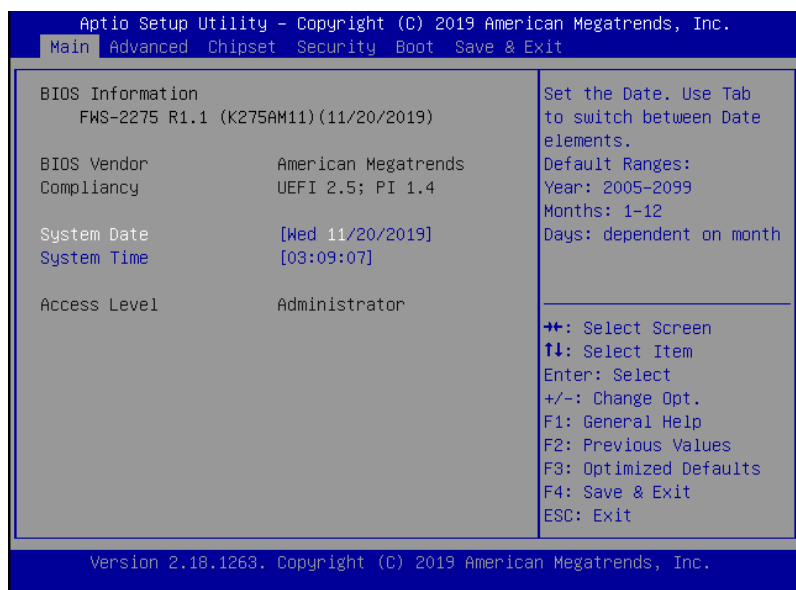
**Chipset** – Configuration for Chipset features.

**Security** – Set BIOS Administrator and User password.

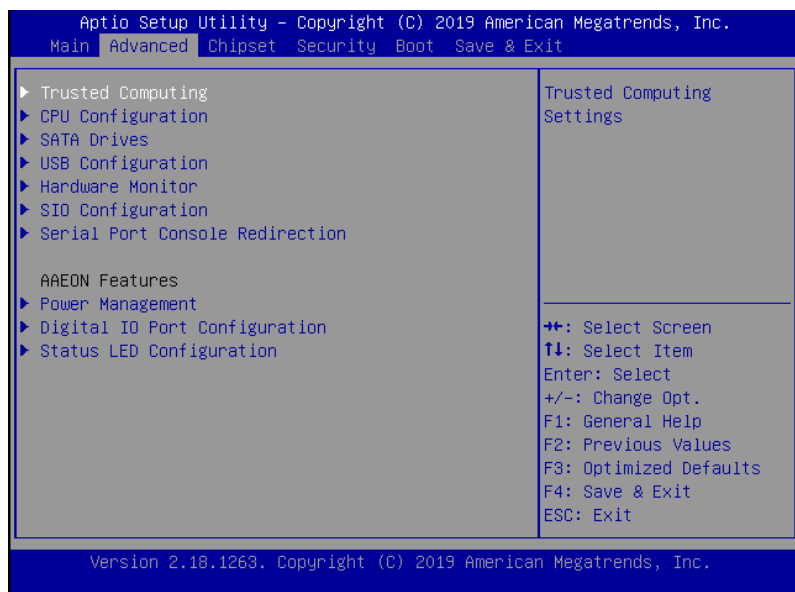
**Boot** – Adjust Boot configuration and priorities.

**Save & Exit** – Save changes or restore default settings, and exit system setup.

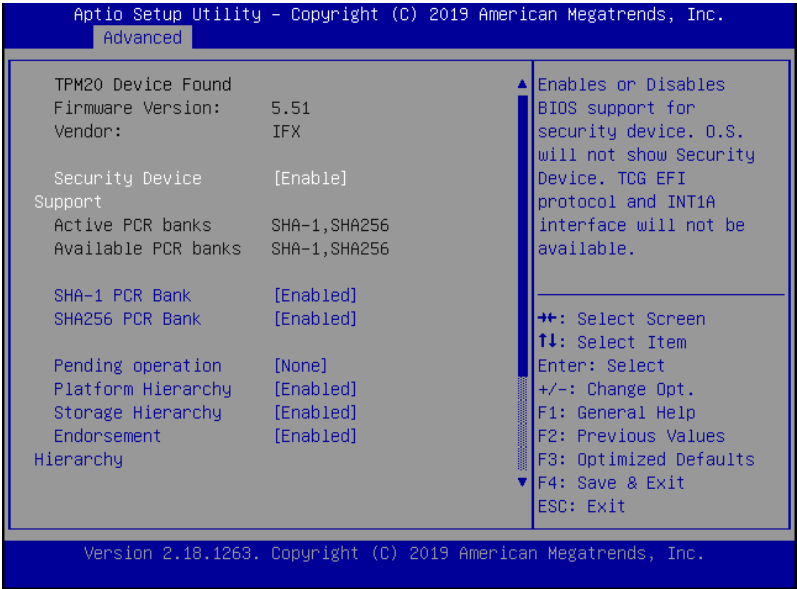
### 3.3 Setup Submenu: Main



### 3.4 Setup Submenu: Advanced



### 3.4.1 Advanced: Trusted Computing



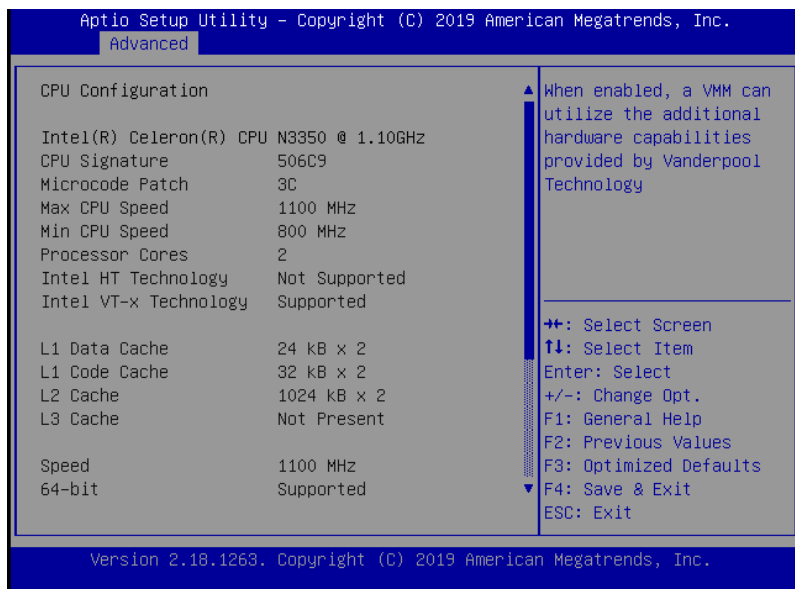
#### Options Summary

|                                                                                                                                                       |           |                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------------|
| Security Device Support                                                                                                                               | Disabled  | Default Setting |
|                                                                                                                                                       | Enabled   |                 |
| Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available. |           |                 |
| SHA-1 PCR Bank                                                                                                                                        | Disabled  | Default Setting |
|                                                                                                                                                       | Enabled   |                 |
| Enable or Disable SHA-1 PCR Bank                                                                                                                      |           |                 |
| SHA256 PCR Bank                                                                                                                                       | Disabled  | Default Setting |
|                                                                                                                                                       | Enabled   |                 |
| Enable or Disable SHA256 PCR Bank                                                                                                                     |           |                 |
| Pending operation                                                                                                                                     | None      | Default Setting |
|                                                                                                                                                       | TPM Clear |                 |
| Schedule an Operation for the Security Device. NOTE: Your Computer will reboot during restart in order to change State of Security Device.            |           |                 |

Table Continues on Next Page...

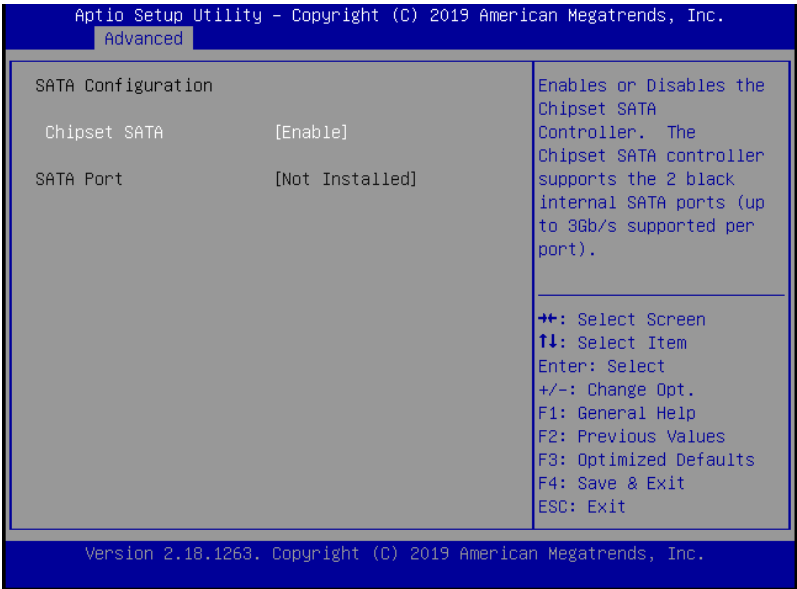
| Options Summary                                                                                                                                                                                                     |          |                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------|
| Platform Hierarchy                                                                                                                                                                                                  | Disabled | Default Setting |
|                                                                                                                                                                                                                     | Enabled  |                 |
| Enable or Disable Platform Hierarchy                                                                                                                                                                                |          |                 |
| Storage Hierarchy                                                                                                                                                                                                   | Disabled | Default Setting |
|                                                                                                                                                                                                                     | Enabled  |                 |
| Enable or Disable Storage Hierarchy                                                                                                                                                                                 |          |                 |
| Endorsement Hierarchy                                                                                                                                                                                               | Disabled | Default Setting |
|                                                                                                                                                                                                                     | Enabled  |                 |
| Enable or Disable Endorsement Hierarchy                                                                                                                                                                             |          |                 |
| TPM2.0 UEFI Spec Version                                                                                                                                                                                            | TCG_1_2  | Default Setting |
|                                                                                                                                                                                                                     | TCG_2    |                 |
| Select the TCG2 Spec Version Support,<br>TCG_1_2: Compatible mode for Win8/Win10,<br>TCG_2: Support new TCG2 protocol and event format for Win10 or later                                                           |          |                 |
| Physical Presence Spec Version                                                                                                                                                                                      | 1.2      | Default Setting |
|                                                                                                                                                                                                                     | 1.3      |                 |
| Select to Tell O.S. to support PPI Spec Version 1.2 or 1.3. Note some HCK tests might not support 1.3.                                                                                                              |          |                 |
| Device Select                                                                                                                                                                                                       | TPM 1.2  | Default Setting |
|                                                                                                                                                                                                                     | TPM 2.0  |                 |
|                                                                                                                                                                                                                     | Auto     |                 |
| TPM 1.2 will restrict support to TPM 1.2 devices, TPM 2.0 will restrict support to TPM 2.0 devices, Auto will support both with the default set to TPM 2.0 devices if not found, TPM 1.2 devices will be enumerated |          |                 |

### 3.4.2 Advanced: CPU Configuration



| Options Summary                                                                                        |          |                 |
|--------------------------------------------------------------------------------------------------------|----------|-----------------|
| Intel Virtualization Technology                                                                        | Disabled | Default Setting |
|                                                                                                        | Enabled  |                 |
| When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology |          |                 |
| VT-d                                                                                                   | Disabled | Default Setting |
|                                                                                                        | Enabled  |                 |
| Enable/Disable CPU VT-d                                                                                |          |                 |
| EIST                                                                                                   | Disabled | Default Setting |
|                                                                                                        | Enabled  |                 |
| Enable/Disable Intel SpeedStep                                                                         |          |                 |
| Power Limit 1 Enable                                                                                   | Disabled | Default Setting |
|                                                                                                        | Enabled  |                 |
| Enable/Disable Power Limit 1                                                                           |          |                 |

### 3.4.3 Advanced: SATA Drives

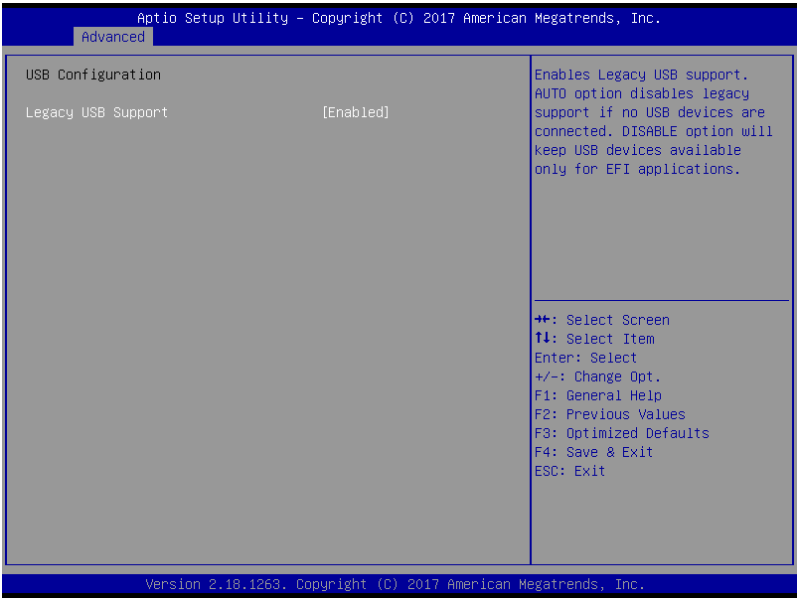


#### Options Summary

|              |          |                 |
|--------------|----------|-----------------|
| Chipset SATA | Disabled | Default Setting |
|              | Enabled  |                 |

Enables or Disables the Chipset SATA Controller. The Chipset SATA controller supports the 2 black internal SATA ports (up to 3Gb/s supported per port).

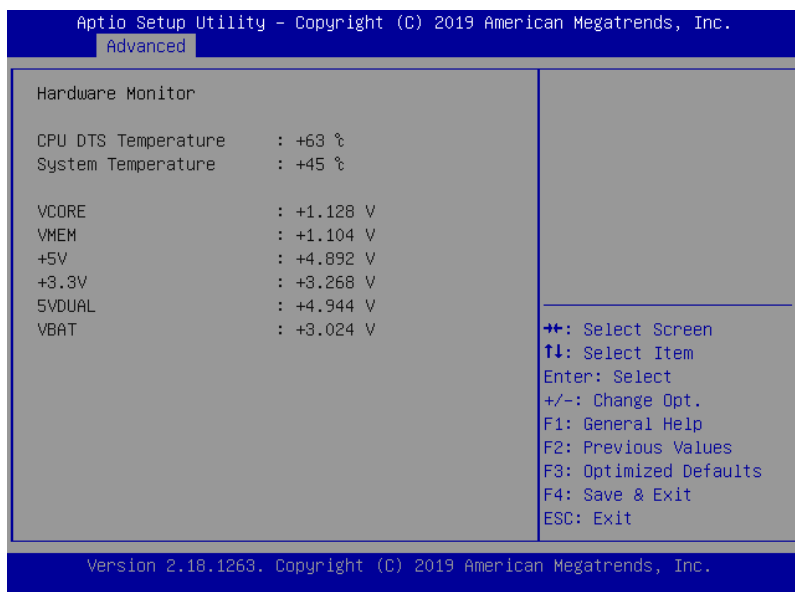
### 3.4.4 Advanced: USB Configuration



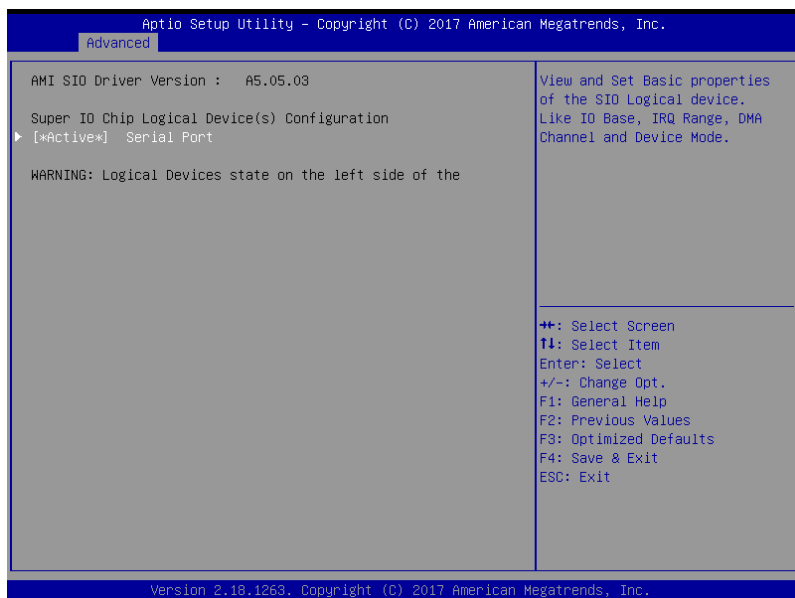
#### Options Summary

|                                                                                                                                                                            |          |                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------|
| Legacy USB Support                                                                                                                                                         | Disabled | Default Setting |
|                                                                                                                                                                            | Enabled  |                 |
| Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications. |          |                 |

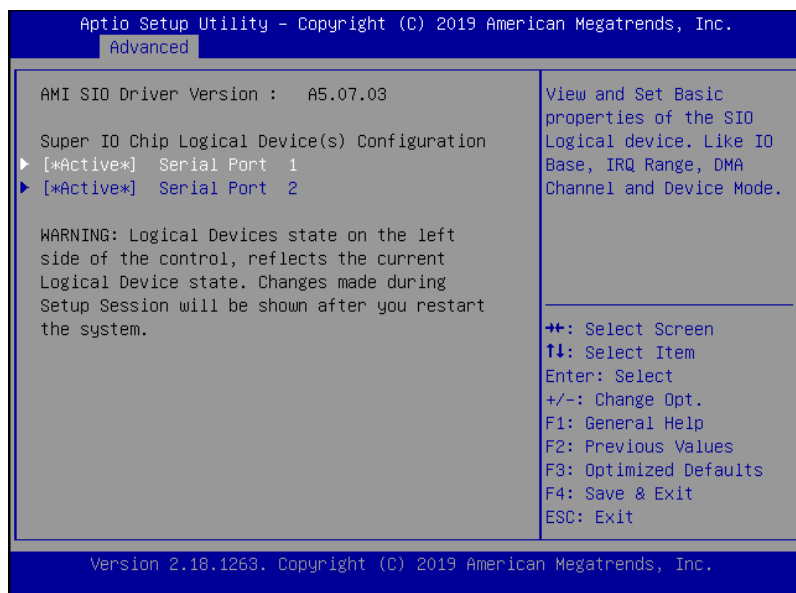
### 3.4.5 Advanced: Hardware Monitor



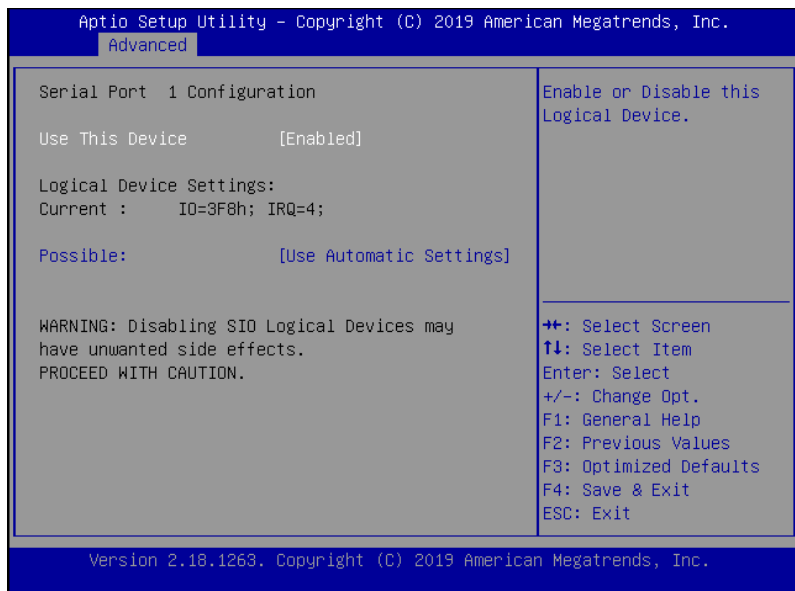
### 3.4.6 Advanced: SIO Configuration



### 3.4.6.1 Serial Port Configuration

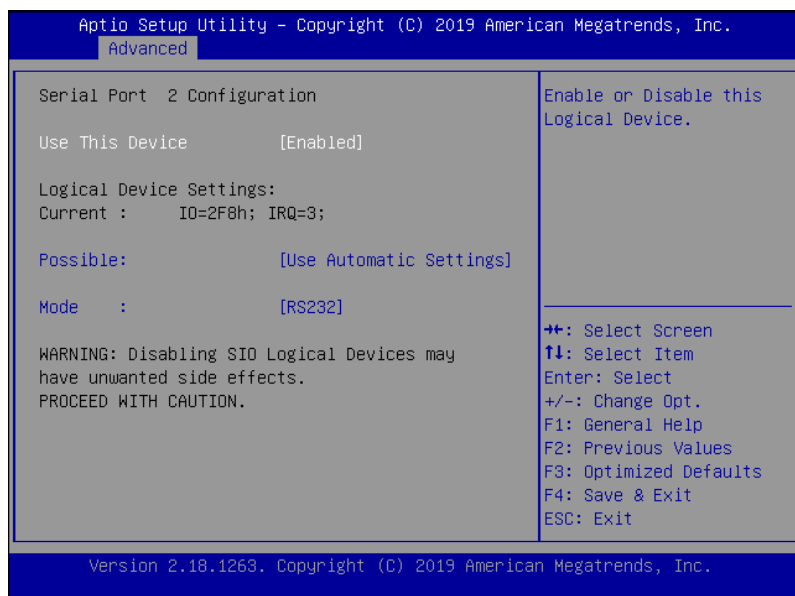


### 3.4.6.1.1 Serial Port 1 Configuration



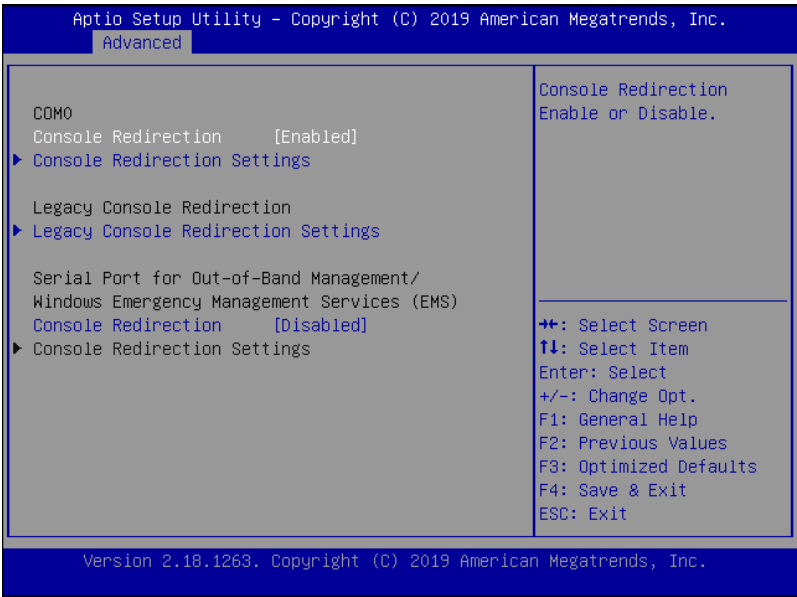
| Options Summary                                                                                                            |                        |                 |
|----------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------|
| Use This Device                                                                                                            | Disabled               | Default Setting |
|                                                                                                                            | Enabled                |                 |
| Enable or Disable this Logical Device.                                                                                     |                        |                 |
| Possible:                                                                                                                  | Use Automatic Settings | Default Setting |
|                                                                                                                            | IO=2F8h; IRQ=3;        |                 |
|                                                                                                                            | IO=3F8h; IRQ=4;        |                 |
| Allows user to change Device's Resource settings. New settings will be reflected on This Setup Page after System restarts. |                        |                 |

### 3.4.6.1.2 Serial Port 2 Configuration



| Options Summary                                                                                                            |                        |                 |
|----------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------|
| Use This Device                                                                                                            | Disabled               | Default Setting |
|                                                                                                                            | Enabled                |                 |
| Enable or Disable this Logical Device.                                                                                     |                        |                 |
| Possible:                                                                                                                  | Use Automatic Settings | Default Setting |
|                                                                                                                            | IO=2F8h; IRQ=3;        |                 |
|                                                                                                                            | IO=3F8h; IRQ=4;        |                 |
| Allows user to change Device's Resource settings. New settings will be reflected on This Setup Page after System restarts. |                        |                 |
| Mode:                                                                                                                      | RS232                  | Default Setting |
|                                                                                                                            | RE422                  |                 |
|                                                                                                                            | RS485                  |                 |
| UART RS232, 422, 485 Selection.                                                                                            |                        |                 |

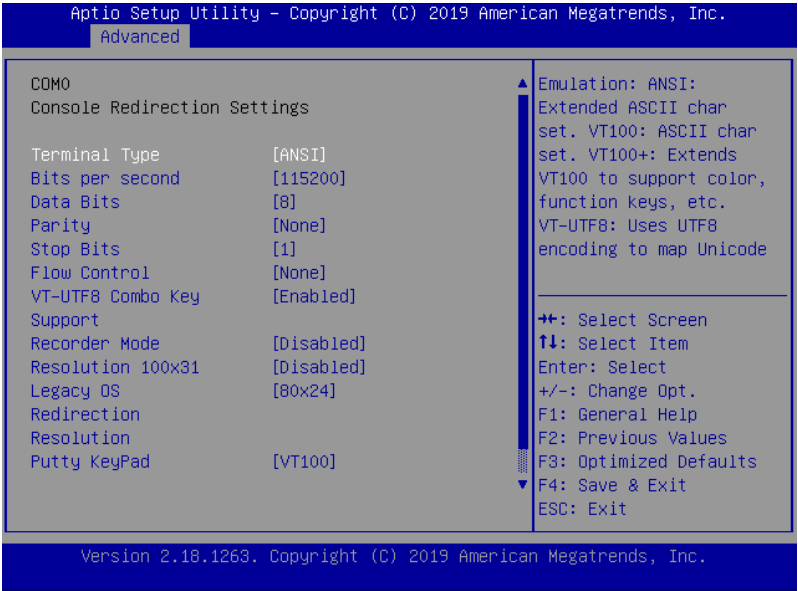
### 3.4.7 Advanced: Serial Port Console Redirection



#### Options Summary

|                                          |          |                 |
|------------------------------------------|----------|-----------------|
| Console Redirection                      | Disabled | Default Setting |
|                                          | Enabled  |                 |
| Console Redirection Enabled or Disabled. |          |                 |
| Console Redirection                      | Disabled | Default Setting |
|                                          | Enabled  |                 |
| Console Redirection Enable or Disable.   |          |                 |

3.4.7.1 Console Redirection Settings



Options Summary

|                                                                                                                                                                                                     |         |                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----------------|
| Terminal Type                                                                                                                                                                                       | VT100   | Default Setting |
|                                                                                                                                                                                                     | VT100+  |                 |
|                                                                                                                                                                                                     | VT-UTF8 |                 |
|                                                                                                                                                                                                     | ANSI    |                 |
| Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes. |         |                 |
| Bits per second                                                                                                                                                                                     | 9600    | Default Setting |
|                                                                                                                                                                                                     | 19200   |                 |
|                                                                                                                                                                                                     | 38400   |                 |
|                                                                                                                                                                                                     | 57600   |                 |
|                                                                                                                                                                                                     | 115200  |                 |
| Selects serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.                                                                  |         |                 |

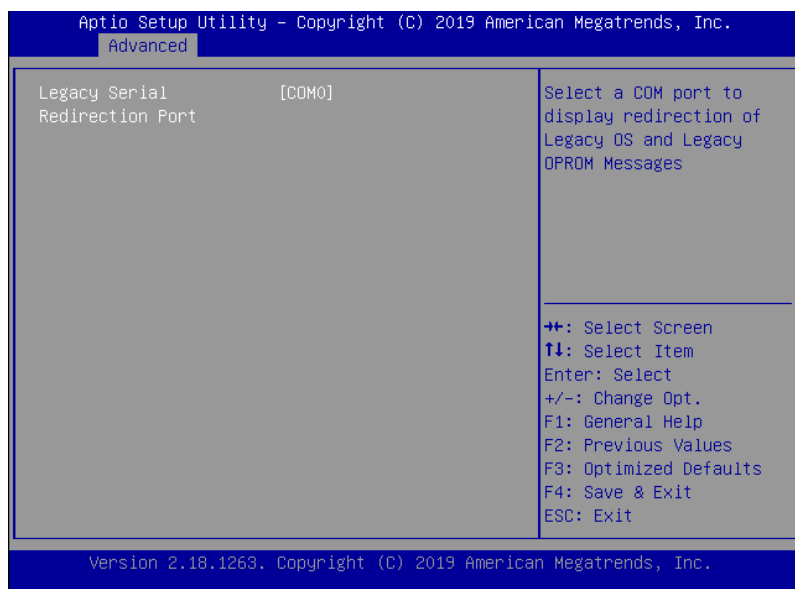
Table Continues on Next Page

| Options Summary                                                                                                                                                                                                                                                                                                                    |                  |                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------|
| Data Bits                                                                                                                                                                                                                                                                                                                          | 7                | Default Setting |
|                                                                                                                                                                                                                                                                                                                                    | 8                |                 |
| Data Bits                                                                                                                                                                                                                                                                                                                          |                  |                 |
| Parity                                                                                                                                                                                                                                                                                                                             | None             | Default Setting |
|                                                                                                                                                                                                                                                                                                                                    | Even             |                 |
|                                                                                                                                                                                                                                                                                                                                    | Odd              |                 |
|                                                                                                                                                                                                                                                                                                                                    | Mark             |                 |
|                                                                                                                                                                                                                                                                                                                                    | Space            |                 |
| A parity bit can be sent with the data bits to detect some transmission errors. Even: parity bit is 0 if the num of 1's in the data bits is even. Odd: parity bit is 0 if num of 1's in the data bits is odd. Mark: parity bit is always 1. Space: Parity bit is always 0. Mark and Space Parity do not allow for error detection. |                  |                 |
| Stop Bits                                                                                                                                                                                                                                                                                                                          | 1                | Default Setting |
|                                                                                                                                                                                                                                                                                                                                    | 2                |                 |
| Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.                                                                                                                                   |                  |                 |
| Flow Control                                                                                                                                                                                                                                                                                                                       | None             | Default Setting |
|                                                                                                                                                                                                                                                                                                                                    | Hardware RTS/CTS |                 |
| Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.                  |                  |                 |
| VT-UTF8 Combo Key Support                                                                                                                                                                                                                                                                                                          | Disabled         | Default Setting |
|                                                                                                                                                                                                                                                                                                                                    | Enabled          |                 |
| Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals                                                                                                                                                                                                                                                                    |                  |                 |
| Recorder Mode                                                                                                                                                                                                                                                                                                                      | Disabled         | Default Setting |
|                                                                                                                                                                                                                                                                                                                                    | Enabled          |                 |
| On this mode enabled only text will be sent. This is to capture Terminal data.                                                                                                                                                                                                                                                     |                  |                 |
| Resolution 100x31                                                                                                                                                                                                                                                                                                                  | Disabled         | Default Setting |
|                                                                                                                                                                                                                                                                                                                                    | Enabled          |                 |
| Enables or disables extended terminal resolution                                                                                                                                                                                                                                                                                   |                  |                 |
| Legacy OS Redirection Resolution                                                                                                                                                                                                                                                                                                   | 80x24            | Default Setting |
|                                                                                                                                                                                                                                                                                                                                    | 80x25            |                 |
| On Legacy OS, the Number of Rows and Columns supported redirection                                                                                                                                                                                                                                                                 |                  |                 |

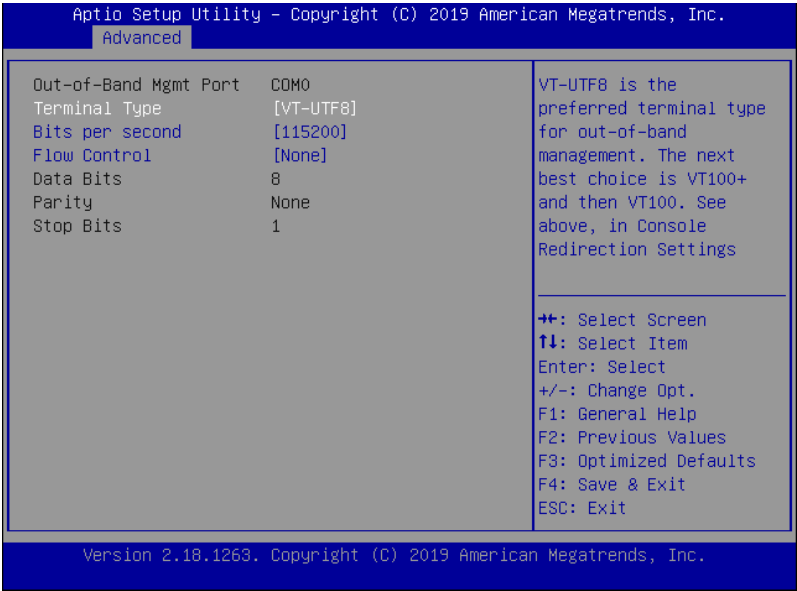
Table Continues on Next Page

| Options Summary                                                                                                                                                                                                        |               |                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|
| Putty KeyPad                                                                                                                                                                                                           | VT100         | Default Setting |
|                                                                                                                                                                                                                        | LINUX         |                 |
|                                                                                                                                                                                                                        | XTERMR6       |                 |
|                                                                                                                                                                                                                        | SCO           |                 |
|                                                                                                                                                                                                                        | ESCN          |                 |
|                                                                                                                                                                                                                        | VT400         |                 |
| Select FunctionKey and KeyPad on Putty.                                                                                                                                                                                |               |                 |
| Redirection After BIOS POST                                                                                                                                                                                            | Always Enable | Default Setting |
|                                                                                                                                                                                                                        | BootLoader    |                 |
| The Setting Specify if BootLoader is selected than Legacy console redirection is disabled before booting to Legacy OS. Default value is Always Enable which means Legacy console Redirection is enabled for Legacy OS. |               |                 |

### 3.4.7.2 Legacy Console Redirection Settings



### 3.4.7.3 Serial Port for Out-of-Band Management/Windows EMS



#### Options Summary

|                                                                                                                                                                                                                |                   |                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------|
| Terminal Type                                                                                                                                                                                                  | VT100             | Default Setting |
|                                                                                                                                                                                                                | VT100+            |                 |
|                                                                                                                                                                                                                | VT-UTF8           |                 |
|                                                                                                                                                                                                                | ANSI              |                 |
| VT-UTF8 is the preferred terminal type for out-of-band management. The next best choice is VT100+ and then VT100. See above, in Console Redirection Settings page, for more Help with Terminal Type/Emulation. |                   |                 |
| Bits per second                                                                                                                                                                                                | 9600              | Default Setting |
|                                                                                                                                                                                                                | 19200             |                 |
|                                                                                                                                                                                                                | 57600             |                 |
|                                                                                                                                                                                                                | 115200            |                 |
| Selects serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.                                                                             |                   |                 |
| Flow Control                                                                                                                                                                                                   | None              | Default Setting |
|                                                                                                                                                                                                                | Hardware RTS/CTS  |                 |
|                                                                                                                                                                                                                | Software Xon/Xoff |                 |

Options Summary

Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.

|           |   |                 |
|-----------|---|-----------------|
| Data Bits | 7 | Default Setting |
|           | 8 |                 |

Data Bits

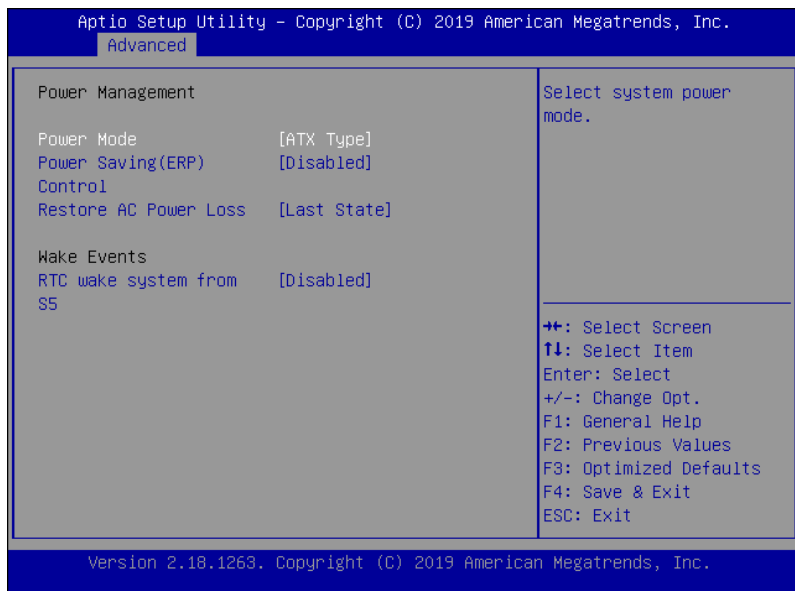
|        |       |                 |
|--------|-------|-----------------|
| Parity | None  | Default Setting |
|        | Even  |                 |
|        | Odd   |                 |
|        | Mark  |                 |
|        | Space |                 |

A parity bit can be sent with the data bits to detect some transmission errors. Even: parity bit is 0 if the num of 1's in the data bits is even. Odd: parity bit is 0 if num of 1's in the data bits is odd. Mark: parity bit is always 1. Space: Parity bit is always 0. Mark and Space Parity do not allow for error detection.

|           |   |                 |
|-----------|---|-----------------|
| Stop Bits | 1 | Default Setting |
|           | 2 |                 |

Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.

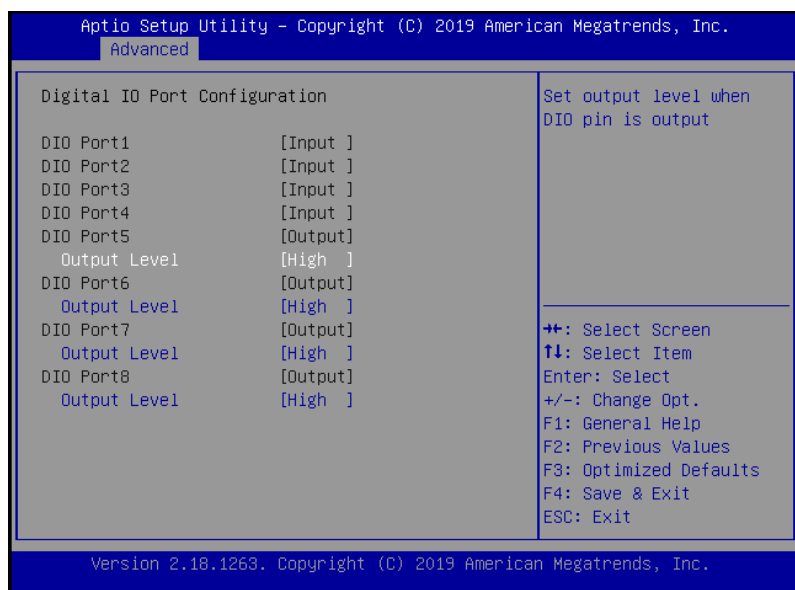
### 3.4.8 Advanced: Power Management



| Options Summary                                                         |              |                 |
|-------------------------------------------------------------------------|--------------|-----------------|
| Power Mode                                                              | ATX Type     | Default Setting |
|                                                                         | AT Type      |                 |
| Select Power Supply Mode.                                               |              |                 |
| Power Saving(ERP) Control                                               | Disabled     | Default Setting |
|                                                                         | Enabled      |                 |
| Configure power mode for power saving function.                         |              |                 |
| Restore AC Power Loss                                                   | Power Off    | Default Setting |
|                                                                         | Power On     |                 |
|                                                                         | Last State   |                 |
| Select AC power state when power is re-applied after a power failure.   |              |                 |
| RTC Wake system from S5                                                 | Disabled     | Default Setting |
|                                                                         | Fixed time   |                 |
|                                                                         | Dynamic time |                 |
| Fixed Time: System will wake on the hr::min::sec specified.             |              |                 |
| Dynamic Time: System will wake on the current time + Increase minute(s) |              |                 |

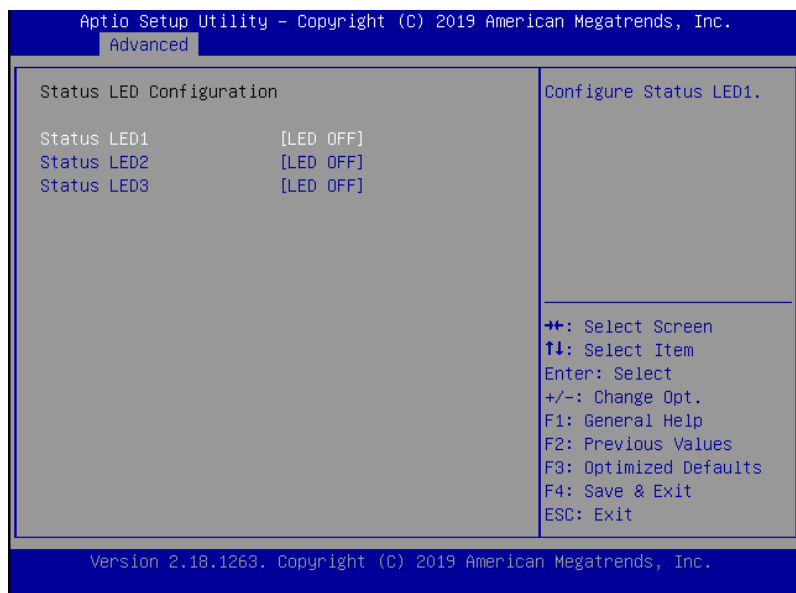
| Options Summary                                                                                           |   |                 |
|-----------------------------------------------------------------------------------------------------------|---|-----------------|
| Wake up day (Fixed time option)                                                                           | 0 | Default Setting |
| Select 0 for daily system wake up, 1-31 for which day of month that you would like the system to wake up. |   |                 |
| Wake up hour (Fixed time option)                                                                          | 0 | Default Setting |
| Select 0-23 For example enter 3 for 3am and 15 for 3pm.                                                   |   |                 |
| Wake up minute (Fixed time option)                                                                        | 0 | Default Setting |
| 0-59                                                                                                      |   |                 |
| Wake up second (Fixed time option)                                                                        | 0 | Default Setting |
| 0-59                                                                                                      |   |                 |
| Wake up minute increase (Dynamic time option)                                                             | 1 | Default Setting |
| 1-5                                                                                                       |   |                 |

### 3.4.9 Advanced: Digital IO Port Configuration



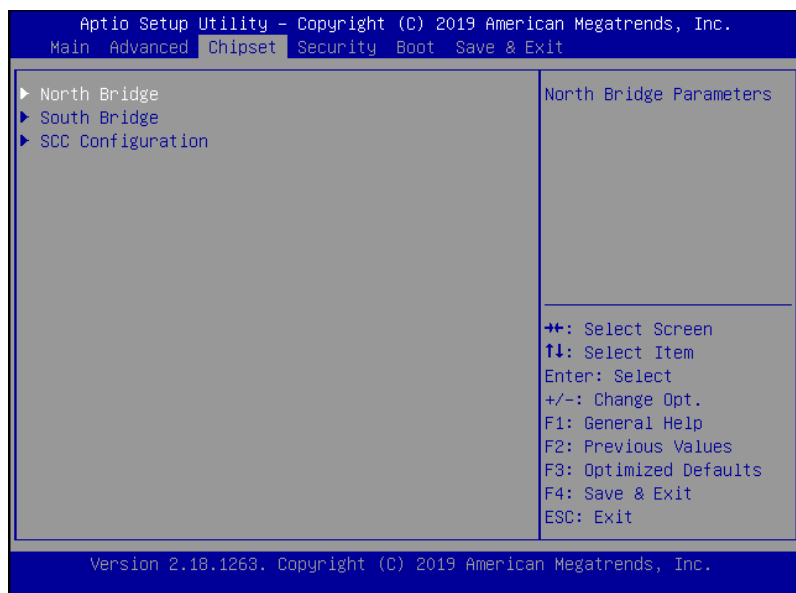
| Options Summary                         |        |                 |
|-----------------------------------------|--------|-----------------|
| DIO Port 1~4                            | Input  | Default Setting |
|                                         |        |                 |
| Set DIO as Input                        |        |                 |
| DIO Port 5~8                            | Output | Default Setting |
|                                         |        |                 |
| Set DIO as Output                       |        |                 |
| DIO Port 5~8 Level                      | Low    | Default Setting |
|                                         | High   |                 |
| Set output level when DIO pin is output |        |                 |

### 3.4.10 Advanced: Status LED Configuration

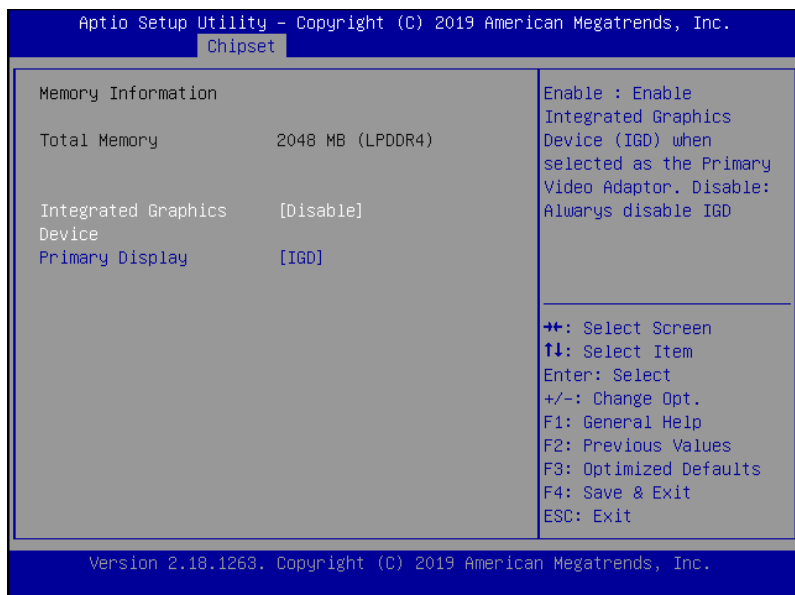


| Options Summary        |              |                 |
|------------------------|--------------|-----------------|
| Status LED 1           | LED Off      | Default Setting |
|                        | BLUE LED ON  |                 |
|                        | RED LED ON   |                 |
|                        | GREEN LED ON |                 |
| Configure Status LED1. |              |                 |
| Status LED 2           | LED Off      | Default Setting |
|                        | BLUE LED ON  |                 |
|                        | RED LED ON   |                 |
|                        | GREEN LED ON |                 |
| Configure Status LED2. |              |                 |
| Status LED 2           | LED Off      | Default Setting |
|                        | BLUE LED ON  |                 |
|                        | RED LED ON   |                 |
|                        | GREEN LED ON |                 |
| Configure Status LED3. |              |                 |

### 3.5 Setup submenu: Chipset

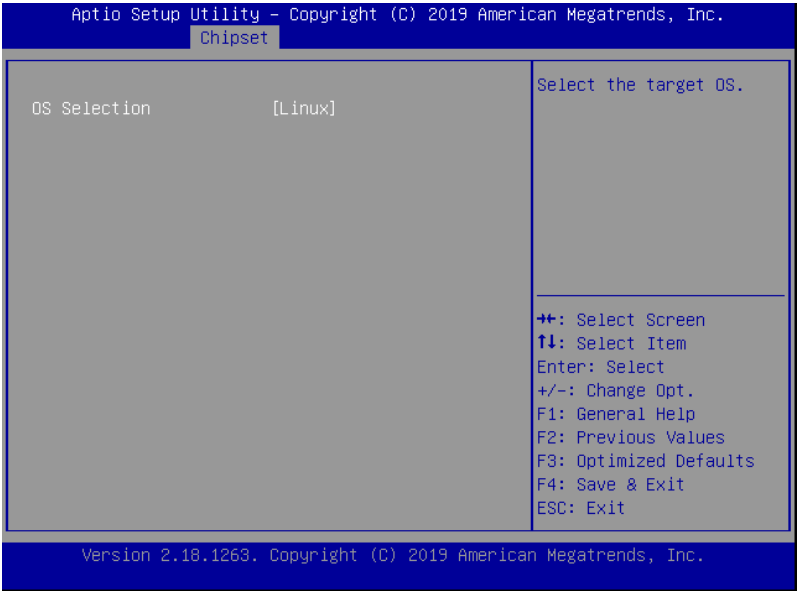


### 3.5.1 Chipset: North Bridge



| Options Summary                                                                                                            |          |                 |
|----------------------------------------------------------------------------------------------------------------------------|----------|-----------------|
| Integrated Graphics Device                                                                                                 | Disabled | Default Setting |
|                                                                                                                            | Enabled  |                 |
| Enable: Enable Integrated Graphics Device (IGD) when selected as the Primary Video Adaptor.<br>Disable: Always disable IGD |          |                 |
| Primary Display                                                                                                            | IGD      | Default Setting |
|                                                                                                                            | PCIe     |                 |
| Select which of IGD/PCI Graphics device should be Primary Display                                                          |          |                 |

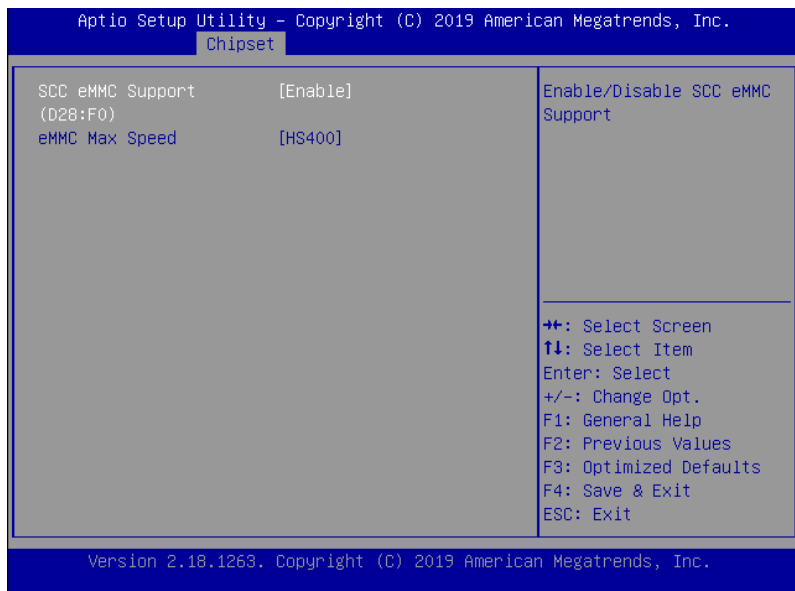
### 3.5.2 Chipset: South Bridge



#### Options Summary

|                       |         |                 |
|-----------------------|---------|-----------------|
| OS Selection          | Linux   | Default Setting |
|                       | Windows |                 |
| Select the target OS. |         |                 |

### 3.5.3 Chipset: SCC Configuration



| Options Summary                    |          |                 |
|------------------------------------|----------|-----------------|
| SCC eMMC Support (D28:F0)          | Enabled  | Default Setting |
|                                    | Disabled |                 |
| Enable/Disable SCC eMMC Support    |          |                 |
| eMMC Max Speed                     | HS400    | Default Setting |
|                                    | HS200    |                 |
|                                    | DDR50    |                 |
| Select the eMMC max Speed allowed. |          |                 |

### 3.6 Setup submenu: Security



#### Change User/Supervisor Password

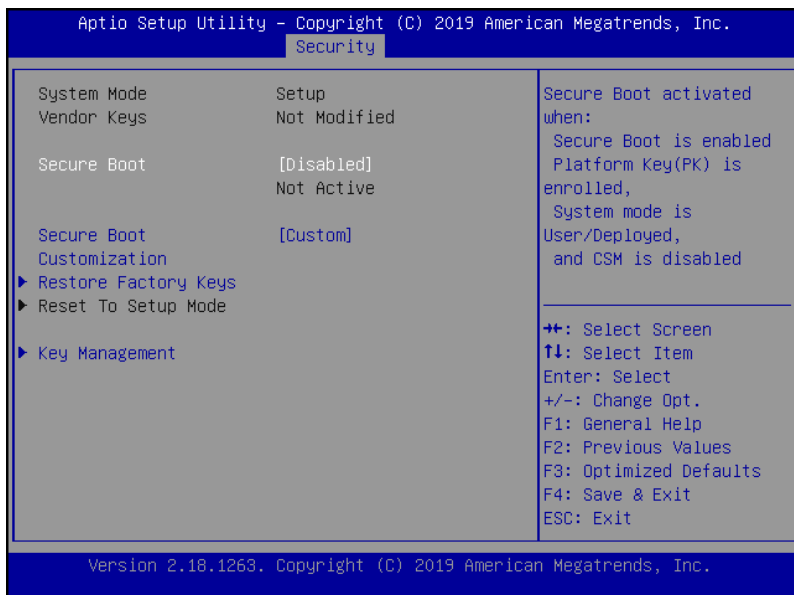
You can install a Supervisor password, and if you install a supervisor password, you can then install a user password. A user password does not provide access to many of the features in the Setup utility.

If you highlight these items and press Enter, a dialog box appears which lets you enter a password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. A second dialog box asks you to retype the password for confirmation. Press Enter after you have retyped it correctly. The password is required at boot time, or when the user enters the Setup utility.

#### Removing the Password

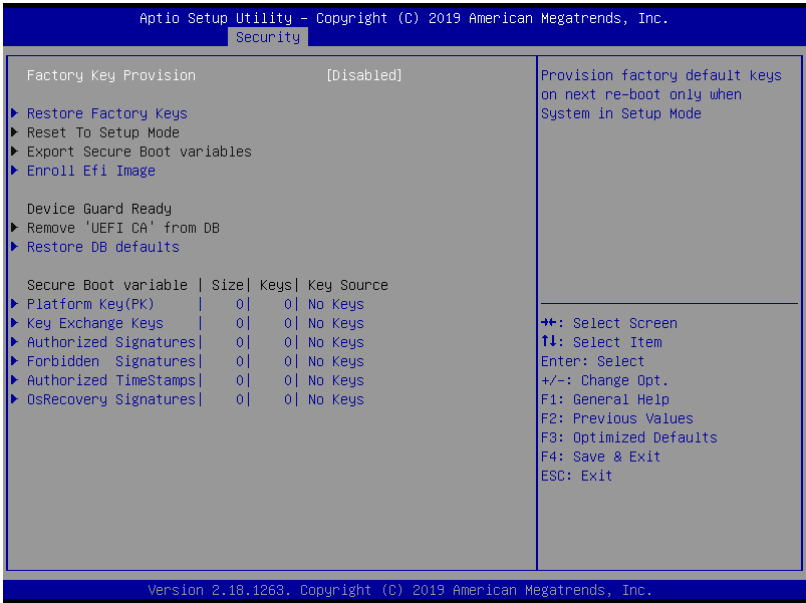
Highlight this item and type in the current password. At the next dialog box press Enter to disable password protection.

### 3.6.1 Secure Boot



| Options Summary                                                                                                                                          |          |                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------------------|
| Secure Boot                                                                                                                                              | Disabled | Default Setting                         |
|                                                                                                                                                          | Enabled  |                                         |
| Secure Boot activated when: Secure Boot is enabled<br>Platform Key(PK) is enrolled, System mode is User/Deployed, and CSM is disabled                    |          |                                         |
| Secure Boot Customization                                                                                                                                | Custom   | Default Setting                         |
|                                                                                                                                                          | Standard |                                         |
| Customizable Secure Boot mode:<br>In Custom mode Secure Boot Policy variables can be configured by a physically present user without full authentication |          |                                         |
| Restore Factory Keys                                                                                                                                     | Yes      | Select 'Yes' to Restore<br>Factory Keys |
|                                                                                                                                                          | No       |                                         |
| Force System to User Mode.<br>Configure NVRAM to contain OEM-defined factory default Secure Boot keys                                                    |          |                                         |
| Reset To Setup Mode                                                                                                                                      | Yes      | Select 'Yes' to Reset to<br>Setup Mode  |
|                                                                                                                                                          | No       |                                         |
| Delete NVRAM content of all UEFI Secure Boot key databases                                                                                               |          |                                         |

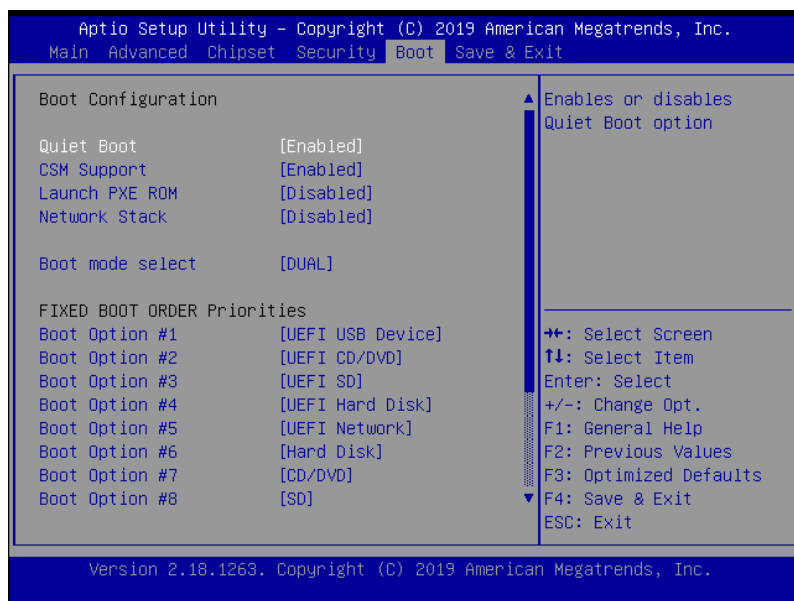
### 3.6.1.1 Key Management



| Options Summary                                                                               |          |                          |
|-----------------------------------------------------------------------------------------------|----------|--------------------------|
| Factory Key Provision                                                                         | Disabled | Default Setting          |
|                                                                                               | Enabled  |                          |
| Provision factory default keys on next re-boot only when System in Setup Mode                 |          |                          |
| Restore Factory Keys                                                                          | Yes      | Select 'Yes' to Restore  |
|                                                                                               | No       | Factory Keys             |
| Force System to User Mode.                                                                    |          |                          |
| Configure NVRAM to contain OEM-defined factory default Secure Boot keys                       |          |                          |
| Reset To Setup Mode                                                                           | Yes      | Select 'Yes' to Reset to |
|                                                                                               | No       | Setup Mode               |
| Delete NVRAM content of all UEFI Secure Boot key databases                                    |          |                          |
| Export Secure Boot variables                                                                  | OK       |                          |
| Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device |          |                          |
| Enroll Efi Image                                                                              | OK       |                          |
| Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device |          |                          |

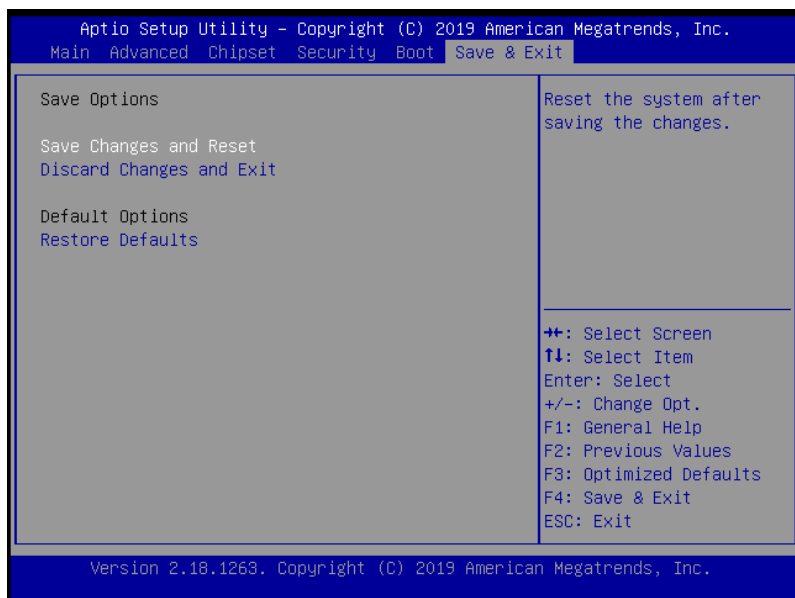
| Options Summary                                                                                                                                                                                                                                                                                                                                                                                                         |     |                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------------------------------------|
| Remove 'UEFI CA' from DB                                                                                                                                                                                                                                                                                                                                                                                                | Yes | Select 'Yes' to Remove UEFI-CA from DB |
|                                                                                                                                                                                                                                                                                                                                                                                                                         | No  |                                        |
| Device Guard ready system must not list 'Microsoft UEFI CA' Certificate in Authorized Signature database (db)                                                                                                                                                                                                                                                                                                           |     |                                        |
| Restore DB defaults                                                                                                                                                                                                                                                                                                                                                                                                     | Yes | Select 'Yes' to Restore DB defaults    |
|                                                                                                                                                                                                                                                                                                                                                                                                                         | No  |                                        |
| Restore DB variable to factory defaults                                                                                                                                                                                                                                                                                                                                                                                 |     |                                        |
| <b>Secure Boot variable   Size   Keys   Key Source</b>                                                                                                                                                                                                                                                                                                                                                                  |     |                                        |
| <p>Enroll Factory Defaults or load certificates from a file:</p> <p>1.Public Key Certificate in:</p> <ul style="list-style-type: none"> <li>a) EFI_SIGNATURE_LIST</li> <li>b) EFI_CERT_X509 (DER encoded)</li> <li>c) EFI_CERT_RSA2048 (bin)</li> <li>d) EFI_CERT_SHA256,384,512</li> </ul> <p>2.Authenticated UEFI Variable</p> <p>3.EFI PE/COFF Image (SHA256)</p> <p>Key Source:</p> <p>Factory, External, Mixed</p> |     |                                        |

### 3.7 Setup submenu: Boot



| Options Summary                                      |          |                 |
|------------------------------------------------------|----------|-----------------|
| Quiet Boot                                           | Disabled | Default Setting |
|                                                      | Enabled  |                 |
| Enables or disables Quiet Boot option.               |          |                 |
| CSM Support                                          | Enabled  | Default Setting |
|                                                      | Disabled |                 |
| Enable/Disable CSM Support.                          |          |                 |
| Launch PXE ROM                                       | Disabled | Default Setting |
|                                                      | Enabled  |                 |
| Controls the execution of UEFI and Legacy PXE OpROM. |          |                 |
| Network Stack                                        | Disabled | Default Setting |
|                                                      | Enabled  |                 |
| Enable/Disable UEFI Network Stack                    |          |                 |
| Boot mode select                                     | DUAL     | Default Setting |
|                                                      | LEGACY   |                 |
|                                                      | UEFI     |                 |
| Select boot mode LEGACY/UEFI                         |          |                 |

### 3.8 Setup submenu: Exit



# Chapter 4

---

Drivers Installation

## 4.1 Drivers Download and OS Support

Drivers for the FWS-2275 can be downloaded from the product page on the AAEON website by following this link:

<https://www.aaeon.com/en/p/desktop-network-appliance-fws-2275>

Drivers for the FWS-2275 are designed to work with specific operating systems, and may not work with every OS supported by the FWS-2275. The following chart details which drivers to install for each supported OS.

| FWS-2275 OS/Driver Support |           |           |       |
|----------------------------|-----------|-----------|-------|
| Driver                     | Win10_X64 | Win10_X86 | Linux |
| Step 1 Chipset             | Yes       |           |       |
| Step 2 Serial IO           | Yes       |           |       |
| Step 3 Graphics            | Yes       |           |       |
| Step 4 TXE                 | Yes       |           |       |
| Step 5 LAN                 | Yes       |           | Yes   |
| Step 6 WLAN                | Yes       | Yes       |       |
| Step 7 Console Driver      | Yes       | Yes       |       |

If you have any questions or need assistance, contact your AAEON sales representative for support.

## 4.2 Drivers Installation

---

Follow the steps below to install the drivers for FWS-2275.

### Step 1 – Install Chipset Driver

1. Open the **Step1 - Chipset** folder and select your OS
2. Run the **SetupChipset.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

### Step 2 – Install Serial IO Driver

1. Open the **Step2 – Serial IO** folder and select your OS
2. Run the **SetupSerialIO.exe.** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

### Step 3 – Install Graphics Driver

1. Open the **Step3 - Graphic** folder and select your OS
2. Run the **Setup.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

### Step 4 – TXE Driver

1. Open the **Step4 - TXE** folder and select your OS
2. Run the **SetupTXE.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

### Step 5 – LAN Driver

1. Open the **Step5 – LAN** folder and select your OS
2. For Windows, run the **PROWinx64.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically
5. For Linux, use command line to install from **igb-5.3.5.10.tar.gz**

### Step 6 – Install WLAN Driver

1. Open the **Step6 – WLAN** folder and select your OS
2. Right click on the **.inf** file and select 'Install'
3. Drivers will be installed automatically

### Step 7 – Install Console Driver

1. Open the **Step7 – Console Driver** folder
2. Run the **2500\_installer.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

# Appendix A

---

## Watchdog Timer Programming

## A.1 Watchdog Timer Initial Program

**Table 1: SuperIO relative register table**

|       | Default Value | Note                                           |
|-------|---------------|------------------------------------------------|
| Index | 0x2E(Note1)   | SIO MB PnP Mode Index Register<br>0x2E or 0x4E |
| Data  | 0x2F(Note2)   | SIO MB PnP Mode Data Register<br>0x2F or 0x4F  |

**Table 2: Watchdog relative register table**

|                        | LDN          | Register     | BitNum    | Value     | Note                                                           |
|------------------------|--------------|--------------|-----------|-----------|----------------------------------------------------------------|
| Timer Counter          | 0x07(Note3)  | 0x73(Note4)  |           | (Note24)  | Time of watchdog timer (0~255)<br>This register is byte access |
| Counting Unit          | 0x07(Note5)  | 0x72(Note6)  | 7(Note7)  | 1(Note8)  | Select time unit.<br>1: second<br>0: minute                    |
| Watchdog Enable (KRST) | 0x07(Note9)  | 0x72(Note10) | 6(Note11) | 1(Note12) | 0: Disable<br>1: Enable                                        |
| Timeout Status         | 0x07(Note13) | 0x71(Note14) | 0(Note15) | 1         | 1: Clear timeout status                                        |

```

*****
// SuperIO relative definition (Please reference to Table 1)
#define byte   SIOIndex   //This parameter is represented from Note1
#define byte   SIODData   //This parameter is represented from Note2
#define void    IOWriteByte(byte IOPort, byte Value);
#define byte   IOReadByte(byte IOPort);
// Watch Dog relative definition (Please reference to Table 2)
#define byte   TimerLDN   //This parameter is represented from Note3
#define byte   TimerReg   //This parameter is represented from Note4
#define byte   TimerVal   // This parameter is represented from Note24
#define byte   UnitLDN    //This parameter is represented from Note5
#define byte   UnitReg    //This parameter is represented from Note6
#define byte   UnitBit    //This parameter is represented from Note7
#define byte   UnitVal    //This parameter is represented from Note8
#define byte   EnableLDN  //This parameter is represented from Note9
#define byte   EnableReg  //This parameter is represented from Note10
#define byte   EnableBit  //This parameter is represented from Note11
#define byte   EnableVal  //This parameter is represented from Note12
#define byte   StatusLDN  // This parameter is represented from Note13
#define byte   StatusReg  // This parameter is represented from Note14
#define byte   StatusBit  // This parameter is represented from Note15
*****

```

```
*****
VOID  Main() {
    // Procedure : AaeonWDTConfig
    // (byte)Timer : Time of WDT timer.(0x00~0xFF)
    // (boolean)Unit : Select time unit(0: second, 1: minute).
    AaeonWDTConfig();

    // Procedure : AaeonWDTEnable
    // This procedure will enable the WDT counting.
    AaeonWDTEnable();
}
*****
```

```

*****
// Procedure : AaeonWDTEnable
VOID  AaeonWDTEnable (){
    WDTEnableDisable(EnableLDN, EnableReg, EnableBit, 1);
}

// Procedure : AaeonWDTConfig
VOID  AaeonWDTConfig (){
    // Disable WDT counting
    WDTEnableDisable(EnableLDN, EnableReg, EnableBit, 0);
    // Clear Watchdog Timeout Status
    WDTClearTimeoutStatus();
    // WDT relative parameter setting
    WDTParameterSetting();
}

VOID  WDTEnableDisable(byte LDN, byte Register, byte BitNum, byte Value){
    SIOBitSet(LDN, Register, BitNum, Value);
}

VOID  WDTParameterSetting(){
    // Watchdog Timer counter setting
    SIOByteSet(TimerLDN, TimerReg, TimerVal);
    // WDT counting unit setting
    SIOBitSet(UnitLDN, UnitReg, UnitBit, UnitVal);
}

VOID  WDTClearTimeoutStatus(){
    SIOBitSet(StatusLDN, StatusReg, StatusBit, 1);
}
*****

```

```

*****
VOID  SIOEnterMBPnPMode(){
    Switch(SIOIndex){
        Case 0x2E:
            IOWriteByte(SIOIndex, 0x87);
            IOWriteByte(SIOIndex, 0x01);
            IOWriteByte(SIOIndex, 0x55);
            IOWriteByte(SIOIndex, 0x55);
            Break;
        Case 0x4E:
            IOWriteByte(SIOIndex, 0x87);
            IOWriteByte(SIOIndex, 0x01);
            IOWriteByte(SIOIndex, 0x55);
            IOWriteByte(SIOIndex, 0xAA);
            Break;
    }
}

VOID  SIOExitMBPnPMode(){
    IOWriteByte(SIOIndex, 0x02);
    IOWriteByte(SIOData, 0x02);
}

VOID  SIOSelectLDN(byte LDN){
    IOWriteByte(SIOIndex, 0x07); // SIO LDN Register Offset = 0x07
    IOWriteByte(SIOData, LDN);
}
*****

```

\*\*\*\*\*

VOID **SIOBitSet**(byte LDN, byte Register, byte BitNum, byte Value){

Byte TmpValue;

SIOEnterMBPnPMode();

SIOSelectLDN(byte LDN);

IOWriteByte(SIOIndex, Register);

TmpValue = IOReadByte(SIOData);

TmpValue &= ~(1 << BitNum);

TmpValue |= (Value << BitNum);

IOWriteByte(SIOData, TmpValue);

SIOExitMBPnPMode();

}

VOID **SIOByteSet**(byte LDN, byte Register, byte Value){

SIOEnterMBPnPMode();

SIOSelectLDN(LDN);

IOWriteByte(SIOIndex, Register);

IOWriteByte(SIOData, Value);

SIOExitMBPnPMode();

}

\*\*\*\*\*

# Appendix B

---

I/O Information

## B.1 I/O Address Map

| Input/output (I/O)                        |                                                                       |
|-------------------------------------------|-----------------------------------------------------------------------|
| [0000000000000000 - 000000000000006F]     | PCI Express Root Complex                                              |
| [0000000000000020 - 0000000000000021]     | Programmable interrupt controller                                     |
| [0000000000000024 - 0000000000000025]     | Programmable interrupt controller                                     |
| [0000000000000028 - 0000000000000029]     | Programmable interrupt controller                                     |
| [000000000000002C - 000000000000002D]     | Programmable interrupt controller                                     |
| [000000000000002E - 000000000000002F]     | Motherboard resources                                                 |
| [0000000000000030 - 0000000000000031]     | Programmable interrupt controller                                     |
| [0000000000000034 - 0000000000000035]     | Programmable interrupt controller                                     |
| [0000000000000038 - 0000000000000039]     | Programmable interrupt controller                                     |
| [000000000000003C - 000000000000003D]     | Programmable interrupt controller                                     |
| [0000000000000040 - 0000000000000043]     | System timer                                                          |
| [000000000000004E - 000000000000004F]     | Motherboard resources                                                 |
| [0000000000000050 - 0000000000000053]     | System timer                                                          |
| [0000000000000060 - 0000000000000060]     | Standard PS/2 Keyboard                                                |
| [0000000000000061 - 0000000000000061]     | Motherboard resources                                                 |
| [0000000000000063 - 0000000000000063]     | Motherboard resources                                                 |
| [0000000000000064 - 0000000000000064]     | Standard PS/2 Keyboard                                                |
| [0000000000000065 - 0000000000000065]     | Motherboard resources                                                 |
| [0000000000000067 - 0000000000000067]     | Motherboard resources                                                 |
| [0000000000000070 - 0000000000000070]     | Motherboard resources                                                 |
| [0000000000000070 - 0000000000000077]     | System CMOS/real time clock                                           |
| [0000000000000078 - 00000000000000CF7]    | PCI Express Root Complex                                              |
| [0000000000000080 - 000000000000008F]     | Motherboard resources                                                 |
| [0000000000000092 - 0000000000000092]     | Motherboard resources                                                 |
| [00000000000000A0 - 00000000000000A1]     | Programmable interrupt controller                                     |
| [00000000000000A4 - 00000000000000A5]     | Programmable interrupt controller                                     |
| [00000000000000A8 - 00000000000000A9]     | Programmable interrupt controller                                     |
| [00000000000000AC - 00000000000000AD]     | Programmable interrupt controller                                     |
| [00000000000000B0 - 00000000000000B1]     | Programmable interrupt controller                                     |
| [00000000000000B2 - 00000000000000B3]     | Motherboard resources                                                 |
| [00000000000000B4 - 00000000000000B5]     | Programmable interrupt controller                                     |
| [00000000000000B8 - 00000000000000B9]     | Programmable interrupt controller                                     |
| [00000000000000BC - 00000000000000BD]     | Programmable interrupt controller                                     |
| [000000000000003F8 - 000000000000003FF]   | Communications Port (COM1)                                            |
| [00000000000000400 - 0000000000000047F]   | Motherboard resources                                                 |
| [000000000000004D0 - 000000000000004D1]   | Programmable interrupt controller                                     |
| [00000000000000500 - 000000000000005FE]   | Motherboard resources                                                 |
| [00000000000000680 - 0000000000000069F]   | Motherboard resources                                                 |
| [00000000000000A00 - 00000000000000A2F]   | Motherboard resources                                                 |
| [00000000000000A30 - 00000000000000A3F]   | Motherboard resources                                                 |
| [00000000000000A40 - 00000000000000A4F]   | Motherboard resources                                                 |
| [00000000000000D00 - 00000000000000FFF]   | PCI Express Root Complex                                              |
| [000000000000009000 - 0000000000000090FF] | PCI-to-PCI Bridge                                                     |
| [000000000000009000 - 00000000000000BFFF] | Intel(R) Celeron(R)/Pentium(R) Processor PCI Express Root Port - 5ADB |
| [000000000000009000 - 00000000000000BFFF] | PCI-to-PCI Bridge                                                     |
| [00000000000000A000 - 00000000000000AFF]  | PCI-to-PCI Bridge                                                     |
| [00000000000000B000 - 00000000000000BFFF] | PCI-to-PCI Bridge                                                     |
| [00000000000000C000 - 00000000000000CFFF] | Intel(R) Celeron(R)/Pentium(R) Processor PCI Express Root Port - 5ADA |
| [00000000000000D000 - 00000000000000DFFF] | Intel(R) Celeron(R)/Pentium(R) Processor PCI Express Root Port - 5AD9 |
| [00000000000000E000 - 00000000000000EFFF] | Intel(R) Celeron(R)/Pentium(R) Processor PCI Express Root Port - 5AD8 |
| [00000000000000F000 - 00000000000000F03F] | Intel(R) HD Graphics                                                  |

 [000000000000F000 - 000000000000F03F] Intel(R) HD Graphics  
 [000000000000F040 - 000000000000F05F] Intel(R) Celeron(R)/Pentium(R) Processor SMBUS - 5AD4  
 [000000000000F060 - 000000000000F07F] Standard SATA AHCI Controller  
 [000000000000F080 - 000000000000F083] Standard SATA AHCI Controller  
 [000000000000F090 - 000000000000F097] Standard SATA AHCI Controller  
--

## B.2 Memory Address Map

|                                                                                     |                                                                                                             |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| ▼ Memory                                                                            |                                                                                                             |
|    | [000000007B800001 - 000000007BFFFFFF] PCI Express Root Complex                                              |
|    | [000000007C000001 - 000000007CFFFFFF] PCI Express Root Complex                                              |
|    | [0000000080000000 - 0000000080FFFFFF] Intel(R) HD Graphics                                                  |
|    | [0000000080000000 - 0000000080FFFFFF] Intel(R) HD Graphics                                                  |
|    | [0000000080000000 - 00000000CFFFFFFF] PCI Express Root Complex                                              |
|    | [0000000081000000 - 00000000810FFFFF] High Definition Audio Controller                                      |
|    | [0000000081100000 - 00000000811FFFFF] PCI-to-PCI Bridge                                                     |
|    | [0000000081100000 - 00000000813FFFFF] Intel(R) Celeron(R)/Pentium(R) Processor PCI Express Root Port - 5ADB |
|    | [0000000081100000 - 00000000813FFFFF] PCI-to-PCI Bridge                                                     |
|    | [00000000811DC000 - 00000000811DFFFF] Intel(R) I211 Gigabit Network Connection #6                           |
|    | [00000000811E0000 - 00000000811FFFFF] Intel(R) I211 Gigabit Network Connection #6                           |
|    | [0000000081200000 - 00000000812FFFFF] PCI-to-PCI Bridge                                                     |
|    | [00000000812DC000 - 00000000812DFFFF] Intel(R) I211 Gigabit Network Connection #2                           |
|    | [00000000812E0000 - 00000000812FFFFF] Intel(R) I211 Gigabit Network Connection #2                           |
|    | [0000000081300000 - 00000000813FFFFF] PCI-to-PCI Bridge                                                     |
|    | [00000000813DC000 - 00000000813DFFFF] Intel(R) I211 Gigabit Network Connection #5                           |
|    | [00000000813E0000 - 00000000813FFFFF] Intel(R) I211 Gigabit Network Connection #5                           |
|    | [0000000081400000 - 00000000814FFFFF] Intel(R) Celeron(R)/Pentium(R) Processor PCI Express Root Port - 5ADA |
|    | [00000000814DC000 - 00000000814DFFFF] Intel(R) I211 Gigabit Network Connection                              |
|    | [00000000814E0000 - 00000000814FFFFF] Intel(R) I211 Gigabit Network Connection                              |
|    | [0000000081500000 - 00000000815FFFFF] Intel(R) Celeron(R)/Pentium(R) Processor PCI Express Root Port - 5AD9 |
|    | [00000000815DC000 - 00000000815DFFFF] Intel(R) I211 Gigabit Network Connection #4                           |
|    | [00000000815E0000 - 00000000815FFFFF] Intel(R) I211 Gigabit Network Connection #4                           |
|    | [0000000081600000 - 00000000816FFFFF] Intel(R) Celeron(R)/Pentium(R) Processor PCI Express Root Port - 5AD8 |
|    | [00000000816DC000 - 00000000816DFFFF] Intel(R) I211 Gigabit Network Connection #3                           |
|    | [00000000816E0000 - 00000000816FFFFF] Intel(R) I211 Gigabit Network Connection #3                           |
|    | [0000000081700000 - 000000008170FFFF] Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)         |
|    | [0000000081710000 - 0000000081713FFF] High Definition Audio Controller                                      |
|    | [0000000081714000 - 0000000081715FFF] Standard SATA AHCI Controller                                         |
|    | [0000000081716000 - 00000000817160FF] Intel(R) Celeron(R)/Pentium(R) Processor SMBUS - 5AD4                 |
|    | [0000000081717000 - 00000000817177FF] Standard SATA AHCI Controller                                         |
|    | [0000000081718000 - 00000000817180FF] Standard SATA AHCI Controller                                         |
|   | [000000008171B000 - 000000008171BFFF] Intel(R) Trusted Execution Engine Interface                           |
|  | [0000000090000000 - 000000009FFFFFFF] Intel(R) HD Graphics                                                  |
|  | [0000000090000000 - 000000009FFFFFFF] Intel(R) HD Graphics                                                  |
|  | [00000000D0C00000 - 00000000D0C00653] Intel(R) Serial IO GPIO Host Controller - INT3452                     |
|  | [00000000D0C40000 - 00000000D0C40763] Intel(R) Serial IO GPIO Host Controller - INT3452                     |
|  | [00000000D0C50000 - 00000000D0C5076B] Intel(R) Serial IO GPIO Host Controller - INT3452                     |
|  | [00000000D0C70000 - 00000000D0C70673] Intel(R) Serial IO GPIO Host Controller - INT3452                     |
|  | [00000000E0000000 - 00000000EFFFFFFF] Motherboard resources                                                 |
|  | [00000000E0000000 - 00000000EFFFFFFF] PCI Express Root Complex                                              |
|  | [00000000FEA00000 - 00000000FEAFFFFF] Motherboard resources                                                 |
|  | [00000000FED00000 - 00000000FED003FF] High precision event timer                                            |
|  | [00000000FED01000 - 00000000FED01FFF] Motherboard resources                                                 |
|  | [00000000FED03000 - 00000000FED03FFF] Motherboard resources                                                 |
|  | [00000000FED06000 - 00000000FED06FFF] Motherboard resources                                                 |
|  | [00000000FED08000 - 00000000FED09FFF] Motherboard resources                                                 |
|  | [00000000FED1C000 - 00000000FED1CFFF] Motherboard resources                                                 |



[00000000FED40000 - 00000000FED44FFF] Trusted Platform Module 2.0



[00000000FED80000 - 00000000FEDBFFFF] Motherboard resources



[00000000FEE00000 - 00000000FEEFFFFF] Motherboard resources

---

## B.3 IRQ Mapping Chart

| Interrupt request (IRQ)                                                             |                       |                                                   |
|-------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------|
|    | (ISA) 0x00000000 (00) | System timer                                      |
|    | (ISA) 0x00000001 (01) | Standard PS/2 Keyboard                            |
|    | (ISA) 0x00000004 (04) | Communications Port (COM1)                        |
|    | (ISA) 0x00000008 (08) | High precision event timer                        |
|    | (ISA) 0x0000000C (12) | PS/2 Port Compatible Pointing Device              |
|    | (ISA) 0x0000000E (14) | Intel(R) Serial IO GPIO Host Controller - INT3452 |
|    | (ISA) 0x0000000E (14) | Intel(R) Serial IO GPIO Host Controller - INT3452 |
|    | (ISA) 0x0000000E (14) | Intel(R) Serial IO GPIO Host Controller - INT3452 |
|    | (ISA) 0x0000000E (14) | Intel(R) Serial IO GPIO Host Controller - INT3452 |
|    | (ISA) 0x00000036 (54) | Microsoft ACPI-Compliant System                   |
|    | (ISA) 0x00000037 (55) | Microsoft ACPI-Compliant System                   |
|    | (ISA) 0x00000038 (56) | Microsoft ACPI-Compliant System                   |
|    | (ISA) 0x00000039 (57) | Microsoft ACPI-Compliant System                   |
|    | (ISA) 0x0000003A (58) | Microsoft ACPI-Compliant System                   |
|    | (ISA) 0x0000003B (59) | Microsoft ACPI-Compliant System                   |
|    | (ISA) 0x0000003C (60) | Microsoft ACPI-Compliant System                   |
|    | (ISA) 0x0000003D (61) | Microsoft ACPI-Compliant System                   |
|    | (ISA) 0x0000003E (62) | Microsoft ACPI-Compliant System                   |
|    | (ISA) 0x0000003F (63) | Microsoft ACPI-Compliant System                   |
|    | (ISA) 0x00000040 (64) | Microsoft ACPI-Compliant System                   |
|    | (ISA) 0x00000041 (65) | Microsoft ACPI-Compliant System                   |
|    | (ISA) 0x00000042 (66) | Microsoft ACPI-Compliant System                   |
|    | (ISA) 0x00000043 (67) | Microsoft ACPI-Compliant System                   |
|    | (ISA) 0x00000044 (68) | Microsoft ACPI-Compliant System                   |
|    | (ISA) 0x00000045 (69) | Microsoft ACPI-Compliant System                   |
|   | (ISA) 0x00000046 (70) | Microsoft ACPI-Compliant System                   |
|  | (ISA) 0x00000047 (71) | Microsoft ACPI-Compliant System                   |
|  | (ISA) 0x00000048 (72) | Microsoft ACPI-Compliant System                   |
|  | (ISA) 0x00000049 (73) | Microsoft ACPI-Compliant System                   |
|  | (ISA) 0x0000004A (74) | Microsoft ACPI-Compliant System                   |
|  | (ISA) 0x0000004B (75) | Microsoft ACPI-Compliant System                   |
|  | (ISA) 0x0000004C (76) | Microsoft ACPI-Compliant System                   |
|  | (ISA) 0x0000004D (77) | Microsoft ACPI-Compliant System                   |
|  | (ISA) 0x0000004E (78) | Microsoft ACPI-Compliant System                   |
|  | (ISA) 0x0000004F (79) | Microsoft ACPI-Compliant System                   |
|  | (ISA) 0x00000050 (80) | Microsoft ACPI-Compliant System                   |
|  | (ISA) 0x00000051 (81) | Microsoft ACPI-Compliant System                   |
|  | (ISA) 0x00000052 (82) | Microsoft ACPI-Compliant System                   |
|  | (ISA) 0x00000053 (83) | Microsoft ACPI-Compliant System                   |
|  | (ISA) 0x00000054 (84) | Microsoft ACPI-Compliant System                   |
|  | (ISA) 0x00000055 (85) | Microsoft ACPI-Compliant System                   |
|  | (ISA) 0x00000056 (86) | Microsoft ACPI-Compliant System                   |
|  | (ISA) 0x00000057 (87) | Microsoft ACPI-Compliant System                   |
|  | (ISA) 0x00000058 (88) | Microsoft ACPI-Compliant System                   |
|  | (ISA) 0x00000059 (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                   |
|  | (ISA) 0x0000005D (93) | Microsoft ACPI-Compliant System                   |
|  | (ISA) 0x0000005E (94) | Microsoft ACPI-Compliant System                   |
|  | (ISA) 0x0000005F (95) | Microsoft ACPI-Compliant System                   |

|                                                                                     |                        |                                 |
|-------------------------------------------------------------------------------------|------------------------|---------------------------------|
|    | (ISA) 0x00000060 (96)  | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000061 (97)  | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000062 (98)  | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000063 (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) 0x00000068 (104) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000069 (105) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000006A (106) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000006B (107) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000006C (108) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000006D (109) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000006E (110) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000006F (111) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000070 (112) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000071 (113) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000072 (114) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000073 (115) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000074 (116) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000075 (117) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000076 (118) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000077 (119) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000078 (120) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000079 (121) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000007A (122) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000007B (123) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000007C (124) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000007D (125) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000007E (126) | Microsoft ACPI-Compliant System |
|   | (ISA) 0x0000007F (127) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000080 (128) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000081 (129) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000082 (130) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000083 (131) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000084 (132) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000085 (133) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000086 (134) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000087 (135) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000088 (136) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000089 (137) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000008A (138) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000008B (139) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000008C (140) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000008D (141) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000008E (142) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000008F (143) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000090 (144) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000091 (145) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000092 (146) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000093 (147) | Microsoft ACPI-Compliant System |

|                                                                                     |                        |                                 |
|-------------------------------------------------------------------------------------|------------------------|---------------------------------|
|    | (ISA) 0x00000094 (148) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000095 (149) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000096 (150) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000097 (151) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000098 (152) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000099 (153) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000009A (154) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000009B (155) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000009C (156) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000009D (157) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000009E (158) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000009F (159) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000A0 (160) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000A1 (161) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000A2 (162) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000A3 (163) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000A4 (164) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000A5 (165) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000A6 (166) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000A7 (167) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000A8 (168) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000A9 (169) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000AA (170) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000AB (171) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000AC (172) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000AD (173) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000AE (174) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000AF (175) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000B0 (176) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000B1 (177) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000B2 (178) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000B3 (179) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000000B4 (180) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000000B5 (181) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000000B6 (182) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000000B7 (183) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000000B8 (184) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000000B9 (185) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000000BA (186) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000000BB (187) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000000BC (188) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000000BD (189) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000000BE (190) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000000BF (191) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000000C0 (192) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000000C1 (193) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000000C2 (194) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000000C3 (195) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000000C4 (196) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000000C5 (197) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000000C6 (198) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000000C7 (199) | Microsoft ACPI-Compliant System |

|                                                                                     |                        |                                 |
|-------------------------------------------------------------------------------------|------------------------|---------------------------------|
|    | (ISA) 0x000000C8 (200) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000C9 (201) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000CA (202) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000CB (203) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000000CC (204) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000100 (256) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000101 (257) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000102 (258) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000103 (259) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000104 (260) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000105 (261) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000106 (262) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000107 (263) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000108 (264) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000109 (265) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000010A (266) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000010B (267) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000010C (268) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000010D (269) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000010E (270) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000010F (271) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000110 (272) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000111 (273) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000112 (274) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000113 (275) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000114 (276) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000115 (277) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000116 (278) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000117 (279) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000118 (280) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000119 (281) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000011A (282) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000011B (283) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000011C (284) | Microsoft ACPI-Compliant System |
|   | (ISA) 0x0000011D (285) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000011E (286) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000011F (287) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000120 (288) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000121 (289) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000122 (290) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000123 (291) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000124 (292) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000125 (293) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000126 (294) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000127 (295) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000128 (296) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000129 (297) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000012A (298) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000012B (299) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000012C (300) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000012D (301) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000012E (302) | Microsoft ACPI-Compliant System |

|                                                                                     |                        |                                 |
|-------------------------------------------------------------------------------------|------------------------|---------------------------------|
|    | (ISA) 0x0000012F (303) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000130 (304) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000131 (305) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000132 (306) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000133 (307) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000134 (308) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000135 (309) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000136 (310) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000137 (311) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000138 (312) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000139 (313) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000013A (314) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000013B (315) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000013C (316) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000013D (317) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000013E (318) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000013F (319) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000140 (320) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000141 (321) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000142 (322) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000143 (323) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000144 (324) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000145 (325) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000146 (326) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000147 (327) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000148 (328) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000149 (329) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000014A (330) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000014B (331) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000014C (332) | Microsoft ACPI-Compliant System |
|   | (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 |
|  | (ISA) 0x00000152 (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 |
|  | (ISA) 0x0000015C (348) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000015D (349) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000015E (350) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000015F (351) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000160 (352) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000161 (353) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000162 (354) | Microsoft ACPI-Compliant System |

|                                                                                     |                        |                                 |
|-------------------------------------------------------------------------------------|------------------------|---------------------------------|
|    | (ISA) 0x00000163 (355) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000164 (356) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000165 (357) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000166 (358) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000167 (359) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000168 (360) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000169 (361) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000016A (362) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000016B (363) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000016C (364) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000016D (365) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000016E (366) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000016F (367) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000170 (368) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000171 (369) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000172 (370) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000173 (371) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000174 (372) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000175 (373) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000176 (374) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000177 (375) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000178 (376) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000179 (377) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000017A (378) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000017B (379) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000017C (380) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000017D (381) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000017E (382) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000017F (383) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000180 (384) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000181 (385) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000182 (386) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000183 (387) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000184 (388) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000185 (389) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000186 (390) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000187 (391) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000188 (392) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000189 (393) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000018A (394) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000018B (395) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000018C (396) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000018D (397) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000018E (398) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x0000018F (399) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000190 (400) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000191 (401) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000192 (402) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000193 (403) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000194 (404) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000195 (405) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000196 (406) | Microsoft ACPI-Compliant System |

|                                                                                     |                        |                                 |
|-------------------------------------------------------------------------------------|------------------------|---------------------------------|
|    | (ISA) 0x00000197 (407) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000198 (408) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00000199 (409) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000019A (410) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000019B (411) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000019C (412) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000019D (413) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000019E (414) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x0000019F (415) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001A0 (416) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001A1 (417) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001A2 (418) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001A3 (419) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001A4 (420) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001A5 (421) | Microsoft ACPI-Compliant System |
|    | (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 |
|    | (ISA) 0x000001AE (430) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001AF (431) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001B0 (432) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001B1 (433) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001B2 (434) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001B3 (435) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001B4 (436) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001B5 (437) | Microsoft ACPI-Compliant System |
|   | (ISA) 0x000001B6 (438) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001B7 (439) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001B8 (440) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001B9 (441) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001BA (442) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001BB (443) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001BC (444) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001BD (445) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001BE (446) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001BF (447) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001C0 (448) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001C1 (449) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001C2 (450) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001C3 (451) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001C4 (452) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001C5 (453) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001C6 (454) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001C7 (455) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001C8 (456) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001C9 (457) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001CA (458) | Microsoft ACPI-Compliant System |

|                                                                                     |                        |                                 |
|-------------------------------------------------------------------------------------|------------------------|---------------------------------|
|    | (ISA) 0x000001CB (459) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001CC (460) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001CD (461) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001CE (462) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001CF (463) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001D0 (464) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001D1 (465) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001D2 (466) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001D3 (467) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001D4 (468) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001D5 (469) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001D6 (470) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001D7 (471) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001D8 (472) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001D9 (473) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001DA (474) | Microsoft ACPI-Compliant System |
|    | (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 |
|    | (ISA) 0x000001DF (479) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001E0 (480) | Microsoft ACPI-Compliant System |
|    | (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 |
|  | (ISA) 0x000001E8 (488) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001E9 (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 |
|  | (ISA) 0x000001F1 (497) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001F2 (498) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001F3 (499) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001F4 (500) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001F5 (501) | 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) 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                               |
|    | (PCI) 0x00000019 (25)  | High Definition Audio Controller                              |
|    | (PCI) 0xFFFFFD7 (-41)  | Intel(R) I211 Gigabit Network Connection #2                   |
|    | (PCI) 0xFFFFFD8 (-40)  | Intel(R) I211 Gigabit Network Connection #2                   |
|    | (PCI) 0xFFFFFD9 (-39)  | Intel(R) I211 Gigabit Network Connection #2                   |
|    | (PCI) 0xFFFFFDA (-38)  | Intel(R) I211 Gigabit Network Connection #2                   |
|    | (PCI) 0xFFFFFDB (-37)  | Intel(R) I211 Gigabit Network Connection #2                   |
|    | (PCI) 0xFFFFFDC (-36)  | Intel(R) I211 Gigabit Network Connection #2                   |
|    | (PCI) 0xFFFFFDD (-35)  | Intel(R) I211 Gigabit Network Connection #5                   |
|    | (PCI) 0xFFFFFDE (-34)  | Intel(R) I211 Gigabit Network Connection #5                   |
|    | (PCI) 0xFFFFFDF (-33)  | Intel(R) I211 Gigabit Network Connection #5                   |
|    | (PCI) 0xFFFFFE0 (-32)  | Intel(R) I211 Gigabit Network Connection #5                   |
|    | (PCI) 0xFFFFFE1 (-31)  | Intel(R) I211 Gigabit Network Connection #5                   |
|    | (PCI) 0xFFFFFE2 (-30)  | Intel(R) I211 Gigabit Network Connection #5                   |
|    | (PCI) 0xFFFFFE3 (-29)  | Intel(R) I211 Gigabit Network Connection                      |
|    | (PCI) 0xFFFFFE4 (-28)  | Intel(R) I211 Gigabit Network Connection                      |
|    | (PCI) 0xFFFFFE5 (-27)  | Intel(R) I211 Gigabit Network Connection                      |
|    | (PCI) 0xFFFFFE6 (-26)  | Intel(R) I211 Gigabit Network Connection                      |
|    | (PCI) 0xFFFFFE7 (-25)  | Intel(R) I211 Gigabit Network Connection                      |
|    | (PCI) 0xFFFFFE8 (-24)  | Intel(R) I211 Gigabit Network Connection                      |
|    | (PCI) 0xFFFFFE9 (-23)  | Intel(R) I211 Gigabit Network Connection #4                   |
|    | (PCI) 0xFFFFFEA (-22)  | Intel(R) I211 Gigabit Network Connection #4                   |
|    | (PCI) 0xFFFFFEB (-21)  | Intel(R) I211 Gigabit Network Connection #4                   |
|    | (PCI) 0xFFFFFEC (-20)  | Intel(R) I211 Gigabit Network Connection #4                   |
|    | (PCI) 0xFFFFFED (-19)  | Intel(R) I211 Gigabit Network Connection #4                   |
|    | (PCI) 0xFFFFFEE (-18)  | Intel(R) I211 Gigabit Network Connection #4                   |
|    | (PCI) 0xFFFFFEF (-17)  | Intel(R) I211 Gigabit Network Connection #3                   |
|   | (PCI) 0xFFFFFFF0 (-16) | Intel(R) I211 Gigabit Network Connection #3                   |
|  | (PCI) 0xFFFFFFF1 (-15) | Intel(R) I211 Gigabit Network Connection #3                   |
|  | (PCI) 0xFFFFFFF2 (-14) | Intel(R) I211 Gigabit Network Connection #3                   |
|  | (PCI) 0xFFFFFFF3 (-13) | Intel(R) I211 Gigabit Network Connection #3                   |
|  | (PCI) 0xFFFFFFF4 (-12) | Intel(R) I211 Gigabit Network Connection #3                   |
|  | (PCI) 0xFFFFFFF5 (-11) | Intel(R) I211 Gigabit Network Connection #6                   |
|  | (PCI) 0xFFFFFFF6 (-10) | Intel(R) I211 Gigabit Network Connection #6                   |
|  | (PCI) 0xFFFFFFF7 (-9)  | Intel(R) I211 Gigabit Network Connection #6                   |
|  | (PCI) 0xFFFFFFF8 (-8)  | Intel(R) I211 Gigabit Network Connection #6                   |
|  | (PCI) 0xFFFFFFF9 (-7)  | Intel(R) I211 Gigabit Network Connection #6                   |
|  | (PCI) 0xFFFFFFFA (-6)  | Intel(R) I211 Gigabit Network Connection #6                   |
|  | (PCI) 0xFFFFFFFB (-5)  | Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft) |
|  | (PCI) 0xFFFFFFFC (-4)  | Intel(R) Trusted Execution Engine Interface                   |
|  | (PCI) 0xFFFFFFFD (-3)  | Intel(R) HD Graphics                                          |
|  | (PCI) 0xFFFFFFFE (-2)  | Standard SATA AHCI Controller                                 |

# Appendix C

---

AAEON SDK Hardware Settings

## C.1 Status LED

FWS-2275 provides a LED indicator which can change the LED status by AAEON SDK. User is able to program the LED status to express different status.

### C.1.1 Status LED Configuration

The LED status indicator of FWS-2275 is programmable with AAEON SDK for your application.

Table1: LED Status

|                          | STA_LED2 | STA_LED1 | STA_LED0 |
|--------------------------|----------|----------|----------|
| LED Off                  | 0        | 0        | 0        |
| Red                      | 0        | 0        | 1        |
| Red Blinking (Slowly)    | 0        | 1        | 0        |
| Red Blinking (Quickly)   | 0        | 1        | 1        |
| Reserved                 | 1        | 0        | 0        |
| Green Blinking (Slowly)  | 1        | 0        | 1        |
| Green Blinking (Quickly) | 1        | 1        | 0        |
| Green                    | 1        | 1        | 1        |

Table2: Status LED and register mapping table

| CPLD Slave Address 0x90 (Note1) |           |               |        |           |
|---------------------------------|-----------|---------------|--------|-----------|
|                                 | Attribute | Offset(SMBUS) | BitNum | Value     |
| STA_LED2                        | R/W       | 0x00 (Note2)  | 2      | (Table 1) |
| STA_LED1                        | R/W       | 0x00 (Note2)  | 1      | (Table 1) |
| STA_LED0                        | R/W       | 0x00 (Note2)  | 0      | (Table 1) |

## C.1.2 Sample Code

---

```

*****
****
#define ByteCPLD_SLAVE_ADDRESS //This parameter is represented from Note1
#define ByteOFFSET //This parameter is represented from Note2
*****
****
bData = aaeonSmbusReadByte(CPLD_SLAVE_ADDRESS, OFFSET);

switch( LED_FLAG)
{
case 0:
{
//LED Off
//BIT2=0, BIT1=0, BIT0=0
bData = bData & 0xF8;
break;
}
case 1:
{
//Red LED On
//BIT2=0, BIT1=0, BIT0=1
bData = (bData & 0xF8) | 0x01;
break;
}
case 2:
{
//Red LED Blink
//BIT2=0, BIT1=1, BIT0=0
bData = (bData & 0xF8) | 0x02;
break;
}
case 3:
{
//Red LED Fast Blink
//BIT2=0, BIT1=1, BIT0=1
bData = (bData & 0xF8) | 0x03;
break;
}
case 4:

```

```
{
    //Green LED On
    //BIT2=1, BIT1=1, BIT0=1
    bData = (bData & 0xF8) | 0x07;
    break;
}
case 5:
{
    //Green LED Blink
    //BIT2=1, BIT1=0, BIT0=1
    bData = (bData & 0xF8) | 0x05;
    break;
}
case 6:
{
    //Green LED Fast Blink
    //BIT2=1, BIT1=1, BIT0=0
    bData = (bData & 0xF8) | 0x06;
    break;
}
default:
    break;
}
SmbusWriteByte(CPLD_SLAVE_ADDRESS, 0x00, bData);
*****
*****
```

## C.2 LAN Bypass

FWS-2275 provides LAN Bypass kit and allow uninterrupted network traffic even if a single in-line appliance is shut down or hangs.

### C.2.1 LAN Bypass

Table1: LAN Kit ID Select

| LAN_ID2 | LAN_ID1 | LAN_ID0 | LAN kit selected   |
|---------|---------|---------|--------------------|
| 0       | 0       | 0       | LAN Kit 1 Selected |
| 0       | 0       | 1       | LAN Kit 2 Selected |

Table2: LAN Bypass register table

| Function | Description                                                                                                                              |
|----------|------------------------------------------------------------------------------------------------------------------------------------------|
| LAN_ID3  |                                                                                                                                          |
| LAN_ID2  | Use for selecting which LAN kit will be configured, refer to Table 1 of ID Select table of LAN kit.                                      |
| LAN_ID1  | They should be set before ACT_EN.                                                                                                        |
| LAN_ID0  |                                                                                                                                          |
| PWR_ON   | Use for configuring LAN Bypass function behavior to LAN kit, when system power on.<br>1: Bypass<br>0: Pass Through                       |
| PWR_OFF  | Use for configuring LAN Bypass function behavior to LAN kit, when system power off.<br>1: Bypass<br>0: Pass Through                      |
| WDT_EN   | Use for configuring WDT function behavior to LAN kit, when WDT triggered.<br>0: Normal WDT reset (Default)<br>1: Force Bypass            |
| ACT_EN   | Use for activating programming of LAN kit. It is edge triggering (falling edge 1 to 0) and should be set to high(1) as its normal state. |

Table3: LAN Bypass register mapping table

| CPLD Slave Address 0x90 (Note1) |           |               |        |           |
|---------------------------------|-----------|---------------|--------|-----------|
|                                 | Attribute | Offset(SMBUS) | BitNum | Value     |
| LAN_ID3                         | R/W       | 0x01(Note2)   | 3      | (Table 1) |
| LAN_ID2                         | R/W       | 0x01(Note2)   | 2      | (Table 1) |
| LAN_ID1                         | R/W       | 0x01(Note2)   | 1      | (Table 1) |
| LAN_ID0                         | R/W       | 0x01(Note2)   | 0      | (Table 1) |
| PWR_ON                          | R/W       | 0x01(Note2)   | 6      | (Table 2) |
| PWR_OFF                         | R/W       | 0x01(Note2)   | 5      | (Table 2) |
| WDT_EN                          | R/W       | 0x01(Note2)   | 4      | (Table 2) |
| ACT_EN                          | R/W       | 0x01(Note2)   | 7      | (Table 2) |

## C.2.2 Sample Code

---

```
*****
****
#define ByteCPLD_SLAVE_ADDRESS //This parameter is represented from Note1
#define ByteOFFSET //This parameter is represented from Note2
*****

// Select Lan Pair
BYTE bLanSel = LAN_PAIR;

BYTE bData = SmbusReadByte(CPLD_SLAVE_ADDRESS, OFFSET);
// Set Reg01h bit3
if(bLanSel & 0x08)
    bData = bData | 0x08;
else
    bData = bData & 0xF7;
// Set Reg01h bit2
if(bLanSel & 0x04)
    bData = bData | 0x04;
else
    bData = bData & 0xFB;
// Set Reg01h bit1
if(bLanSel & 0x02)
    bData = bData | 0x02;
else
    bData = bData & 0xFD;
// Set Reg01h bit0
if(bLanSel & 0x01)
    bData = bData | 0x01;
else
    bData = bData & 0xFE;

// Power On Action (Reg01h bit6)
if(SET_PASS_THROUGH) // Pass Through
    bData = bData & 0xBF;
else // Bypass
    bData = bData | 0x40;

// Power Off Action (Reg01h bit5)
if(SET_PASS_THROUGH) // Pass Through
```

```
        bData = bData & 0xDF;
else // Bypass
    bData = bData | 0x20;

// WDT Action (Reg01h bit4)
if(SET_WDT_RESET)// Reset
    bData = bData & 0xEF;
else // Bypass
    bData = bData | 0x10;

SmbusWriteByte(CPLD_SLAVE_ADDRESS, OFFSET, bData);

// Apply Settings (Reg01h bit7)
bData = SmbusReadByte(CPLD_SLAVE_ADDRESS, OFFSET);
SmbusWriteByte(CPLD_SLAVE_ADDRESS, OFFSET, bData & 0x7F);
Sleep(500);
bData = SmbusReadByte(CPLD_SLAVE_ADDRESS, OFFSET);
SmbusWriteByte(CPLD_SLAVE_ADDRESS, OFFSET, bData | 0x80);
*****
```

### C.3 Software Reset Button Configuration

FWS-2275 provides a general propose input button which status get by AAEON SDK.

#### C.3.1 Soft Reset Button Configuration

Table 2 : LAN Bypass relative register table

| Function | Description                                                                                                                                  |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------|
| BTN_STS  | Reading this register returns the pin level status which is normal high active low.<br>0: Pin Level States Low.<br>1: Pin Level States High. |

Table 1 : Soft Reset Button register mapping table

|         | Attribute | Register(I/O) | BitNum   | Value   | Attribute |
|---------|-----------|---------------|----------|---------|-----------|
| BTN_STS | R         | 0xA05(Note1)  | 4(Note2) | (Note3) | BTN_STS   |

## C.3.2 Sample Code

---

```
*****
#define Word      BTN_STS      //This parameter is represented from Note1
#define ByteBTN_STS_R      //This parameter is represented from Note2
*****

Byte  GET_Value (Word IoAddr, Byte BitNum,Byte Value){
    BYTE  TmpValue;

    TmpValue = inportb (IoAddr);
    return  (TmpValue & (1 < BitNum))
}
*****
VOID  Main(){
    Byte RstBtn;

    RstBtn = GET_Value (BTN_STS, BTN_STS_R); // Active Low
}
*****
```