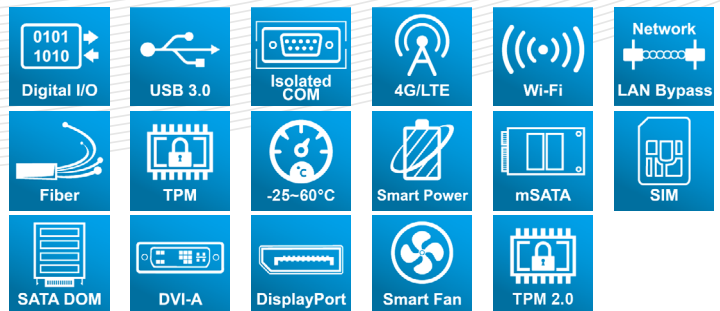


# AND-DNV3Ax

## Networking Micro Box

- Intel® Denverton® SoC
- 6x GbE Copper (1-pair bypass)
- 2x SFP
- 2x SFP+



## User Manual

Acrosser Technology Co., Ltd.  
[www.acrosser.com](http://www.acrosser.com)

## Disclaimer

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The product names appear in this manual are for identification purpose only. The trademarks and product names or brand names appear in this manual are the property of their respective owners.

## Purpose

This document is intended to provide the information about the features and use of the product.

## Audience

The intended audiences are technical personnel, not for general audiences.

## WARNING

Danger of explosion if batteries are incorrectly replaced. Always replace the battery with the same specifications. Dispose of used batteries according to the manufacturer's instructions.

Before running the system, make sure the power cord is firmly plugged into the socket.

## CAUTION



IEC 60417-6042 (2010-11)



IEC 60417-6172 (2012-09)

All power cords must be disconnected during product repair.

Ver: 101-001

Date: May 9, 2023

**To read this User Manual on your smart phone, you will have to install an APP that can read PDF file format first. Please find the APP you prefer from the APP Market.**

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# 1. System Introduction

AND-DNV3A2/A3 is an entry level networking appliance. In a small box, this appliance equip a powerful Intel Atom C3000 SoC. This SoC supports multi-core CPU computing and support QAT, USB 3.0 and LAN controller which can be 10GbE capable. AND-DNV3A2/A3 is an ideal networking appliance for small office. It can support up to 10 LAN ports with both copper and fiber media. Supports two USB 3.0 ports, optional WiFi 5 and 4G or 5G wireless connection. In addition, AND-DNV3A2 consumes only a few power. In this small yet powerful box, the thermal dissipation is really well designed so no fan is needed. This fanless design not only made a quiet office be possible, but also assure the non-stop LAN connection for the business environment. For that no fan means no moving part which is the most vulnerable part in the electronic device. AND-DNV3A3 has a smart fan that can effectively dissipate the massive heat generated by the 8 core CPU with less power and noise that lead to a comfortable operating experience and longer product life.

## 1.1. Specifications

(Specifications are subject to change without notice.)

### General

<b>Thermal Solution</b>	<ul style="list-style-type: none"> <li>Fanless Design (C3558)</li> <li>Smart Fan (C3758)</li> </ul>															
<b>CPU</b>	<ul style="list-style-type: none"> <li>Intel® Denverton® C3758 8 cores, 2.2GHz</li> <li>Intel® Denverton® C3558 4 cores, 2.2GHz</li> </ul>															
<b>Memory</b>	<ul style="list-style-type: none"> <li>1x SO-DIMM DDR4</li> </ul>															
<b>BIOS</b>	<ul style="list-style-type: none"> <li>Support Console Re-direction</li> <li>Support Bypass Setting</li> </ul> <table border="1" data-bbox="468 1029 1064 1189"> <thead> <tr> <th>Scenario</th> <th>Normal</th> <th>Bypass</th> </tr> </thead> <tbody> <tr> <td>SYS (ON)</td> <td>V</td> <td></td> </tr> <tr> <td>SYS (OFF)</td> <td></td> <td>V</td> </tr> <tr> <td>WDT (Timeout)</td> <td></td> <td>V</td> </tr> <tr> <td>PWR (Lost)</td> <td colspan="2">Remained prior status</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>Support PXE boot from all RJ-45 Coppers</li> </ul>	Scenario	Normal	Bypass	SYS (ON)	V		SYS (OFF)		V	WDT (Timeout)		V	PWR (Lost)	Remained prior status	
Scenario	Normal	Bypass														
SYS (ON)	V															
SYS (OFF)		V														
WDT (Timeout)		V														
PWR (Lost)	Remained prior status															

### Network Interface

<b>Ethernet (on-board)</b>	<ul style="list-style-type: none"> <li>6x GbE Copper + 2x GbE Fiber + 2x 10Gb Fiber</li> <li>Intel i210, LAN [1: 6] Copper</li> <li>Intel i210iS, SFP[1:2]</li> <li>SoC embedded SFI, SFP+[1:2]</li> </ul>
<b>LAN bypass (1-pair)</b>	<ul style="list-style-type: none"> <li>LAN bypass by LAN[1: 2]</li> </ul>

## Storage

<b>HDD Bay</b>	<ul style="list-style-type: none"><li>• 1x 2.5" Internal HDD Bay</li></ul>
<b>M.2 B Socket</b>	<ul style="list-style-type: none"><li>• 1x M.2B Socket for 2242 SSD</li></ul>
<b>M.2 M Socket</b>	<ul style="list-style-type: none"><li>• 1x M.2M Socket for NVMe 2242/2260/2280 SSD</li></ul>

## I/O

<b>Front Panel</b>	<ul style="list-style-type: none"><li>• 6x Ethernet Link/Act LED</li><li>• 6x Ethernet 1000M LED</li><li>• 6x Ethernet 100/10M LED</li><li>• 2x SFP Link LED</li><li>• 2x SFP Act LED</li><li>• 2x SFP+ Link LED</li><li>• 2x SFP+ Act LED</li><li>• 1x Sys Power LED</li><li>• 1x Storage LED</li><li>• 1x LAN Bypass LED</li></ul>
<b>Rear Panel</b>	<ul style="list-style-type: none"><li>• Reset button</li><li>• 2x USB 3.0</li><li>• 1x RJ45 Console Port</li><li>• 2x SFP+</li><li>• 2x SFP</li><li>• 6x GbE RJ45</li><li>• 6x Optional SMA for WLAN &amp; WWAN (WiFi 5 &amp; 4G/5G LTE)</li><li>• 1x DC-in Connector (12V)</li></ul>
<b>Internal I/O</b>	<ul style="list-style-type: none"><li>• 1x M.2E Connector (for Wi-Fi 5 2T2R module)</li><li>• 1x M.2B Connector (with USB 2.0+3.0 signal &amp; SATA3, for 4G/5G Module or 2242 SSD) with 2 SIM Sockets</li><li>• 1x M.2M Socket for NVMe SSD</li><li>• 1x SATA3+power Connector</li><li>• Smart Fan Connector (for C3758)</li></ul>

## Other Features

<b>Watchdog Timer</b>	<ul style="list-style-type: none"><li>• Software programmable 0~255 Seconds, 0=disable timer.</li></ul>
<b>Battery</b>	<ul style="list-style-type: none"><li>• Lithium Battery, 3V 220mAH (CR2032), for RTC</li></ul>
<b>Hardware Monitoring</b>	<ul style="list-style-type: none"><li>• CPU Voltage</li><li>• CPU Temperature</li><li>• System Temperature</li><li>• Fan Speed (for C3758)</li></ul>
<b>Security &amp; Mgmt.</b>	<ul style="list-style-type: none"><li>• On-board TPM 2.0</li></ul>

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## Power Requirement

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<b>Power Adapter</b>	• 12VDC, 40W or 60W Adapter (60W for C3758)
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## Software

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<b>OS Support</b>	• Linux Kernel 4.4 & above, (64-bit)
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## Mechanical & Environment

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<b>Dimension</b>	• 270(L) x 160(W) x 44(H) mm
------------------	------------------------------

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<b>Operating Temperature</b>	• 0 ~ 40°C (32 ~ 104°F)
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<b>Storage Temperature</b>	• -20 ~ 80°C (-4 ~ 176°F)
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<b>Relative Humidity</b>	• 0 to 90% @40°C, non-condensing
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## EMC & Safety

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<b>Certification</b>	• CE, FCC Class A, RoHS 2, cULus
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---

<b>Drop Test</b>	• ISTA-2A 2006
------------------	----------------

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## 1.2. Package Contents

Check if the following items are included in the package.

	Item	Q'ty	Remark
<input type="checkbox"/>	AND-DNV3Ax System	1	
<input type="checkbox"/>	Power Adapter (12V)	1	
<input type="checkbox"/>	Power Cord	1	
<input type="checkbox"/>	Screw Pack	1	

## 1.3. Model Description

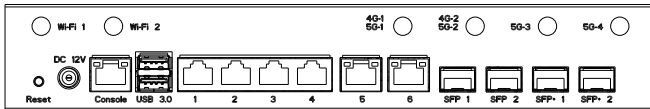
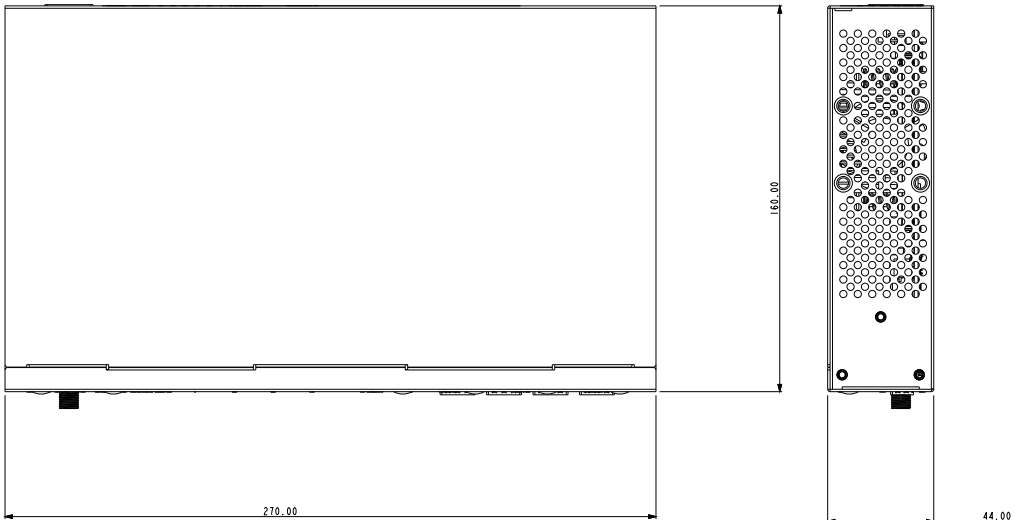
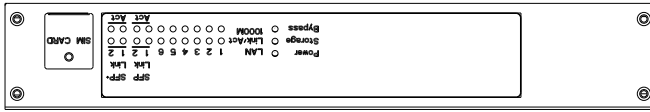
Model Name	Description
<b>AND-DNV3A3</b>	Intel Atom C3758 (8-core) SoC, 6 GbE Copper (1-pair bypass), 2x SFP, 2x SFP+, 2x USB 3.0, 1x 2.5" SATAIII, 1x M.2E socket (for WLAN) and 1x M.2B (for 2x 4G LTE or 2242 SSD), 1x M.2M ( for NVMe 2242/2260/2280 SSD), 1x 12V DC-In. 60W Adapter and Smart fan design.
<b>AND-DNV3A2</b>	Intel Atom C3558 (4-core) SoC, 6 GbE Copper (1-pair bypass), 2x SFP, 2x SFP+, 2x USB 3.0, 1x 2.5" SATAIII, 1x M.2E socket (for WLAN) and 1x M.2B (for 2x 4G LTE or 2242 SSD), and 1x 12V DC-In. 40W adapter and fanless design.



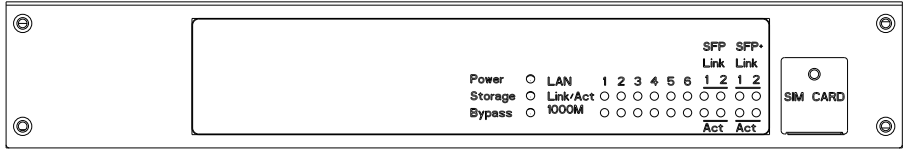
# 1.4. System Dissection

## 1.4.1. Dimensions

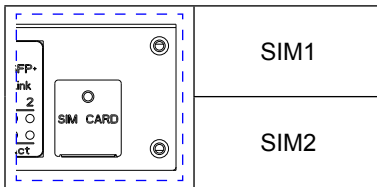
(Unit: mm)



### 1.4.2. Front I/O Panel

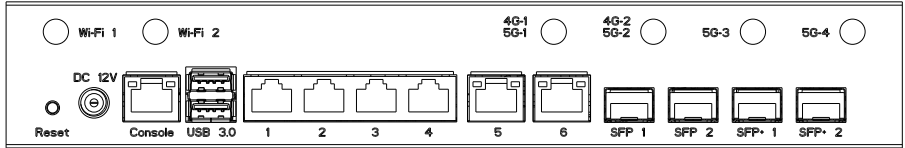


- **Power**  
System Power LED
- **Storage**  
Storage Active LED
- **Bypass**  
LAN Bypass LED
- **LAN 1~6**  
LAN 1~6 Link/Active LED
- **SFP 1~2**  
SFP 1~2 Link/Active LED
- **SFP+ 1~2**  
SFP+ 1~2 Link/Active LED
- **SIM CARD**  
SIM Card Socket



**Note:** If you use a 4G LTE/5G module that only supports one single SIM card, please insert the SIM CARD into the SIM1 slot.

### 1.4.3. Rear I/O Panel



- **ANT1 ~ ANT6**  
SMA Antenna Hole. Reserved for optional WLAN & WWAN (WiFi 5 & 4G/5G LTE)
- **Reset**  
Reset Button
- **DC 12V**  
DC12V Power Input
- **Console:** Console Port (RJ45)

Pin #	Signal	Pin #	Signal
1	RTS	5	GND
2	DTR	6	RxD
3	TxD	7	DSR
4	GND	8	CTS

- **USB 3.0**  
USB 3.0 Port
- **LAN 1 ~ LAN 6:** RJ45 LAN Port

	<b>LED</b>	<b>Light</b>	<b>Status</b>
	<b>Left</b>	Green (Blink)	Link with Activity
		Off	10Mbps
	<b>Right</b>	Yellow	100Mbps
Green		1000Mbps	

- **SFP 1 ~ SFP 2**  
Standard SFP Connector for 1G LAN
- **SFP+ 1 ~ SFP+ 2**  
Standard SFP+ Connector for 10G LAN

## 2. Components Assembly

Please follow the instruction to install the inner modules.

### 2.1. SIM Card Installation

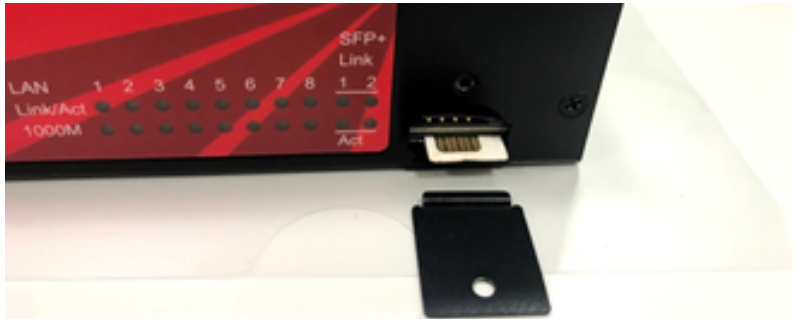
Step 1: Remove the screw on the SIM Card cover plate.



Step 2: Take down the SIM Card cover plate.



Step 3: Insert the SIM card.



Step 4: Push the SIM card into the socket until it docks in locked position.



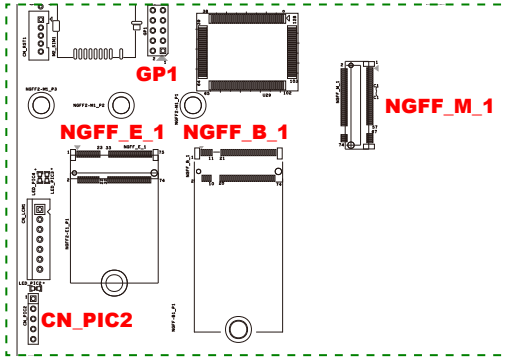
Step 5: Put the the SIM Card cover plate back.



Step 6: Lock the SIM Card cover plate with screw.



## 2.2. PCB Parts Description



### NGFF\_M\_1

M.2M socket for NVMe 2242/2260/2280 SSD (For AND-DNV3A3 only)

There is one screw pre-installed on board to fix your SSD of different length. Please adjust the position of the screw and spacer according to your SSD to fix it on board.

Insert your SSD to NGFF\_M\_1 connector, and fix it onto one of the three holes at left according to its length.

### NGFF\_E\_1

M.2E connector for Wi-Fi 2T2R module

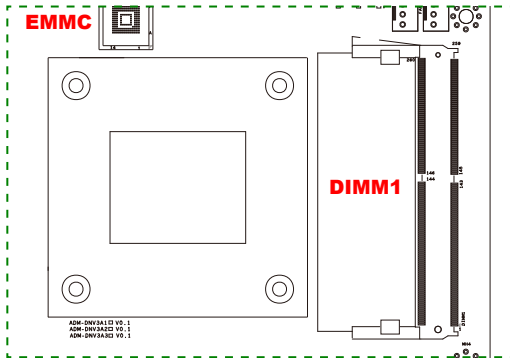
The Wi-Fi antenna is SMA female type. Please connect to the socket marked with Wi-Fi on the panel and have it fastened.

### NGFF\_B\_1

M.2B connector with USB 2.0+3.0 signal & SATA3, for 4G/5G module or 2242 SSD

The 4G/5G antenna is SMA male type. Please connect to the socket marked with 4G/5G on the panel and have it fastened.

## DIMM1



The memory module is DDR4 SO-DIMM type.

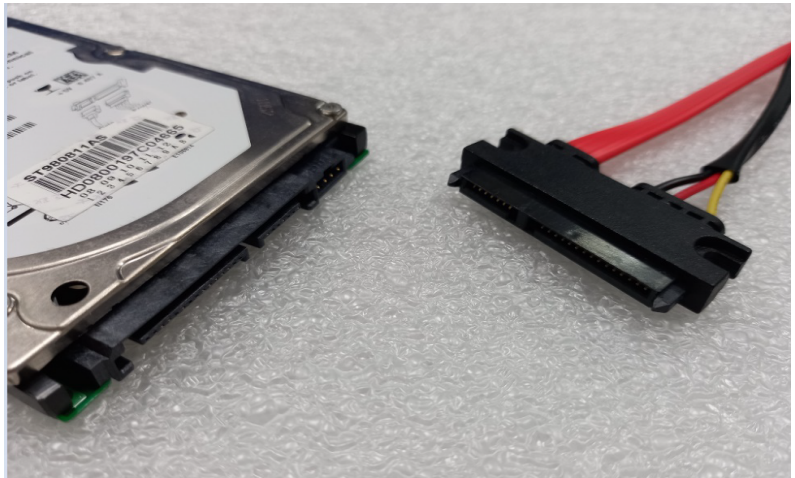
Check if the DIMM keys align correctly with the connector. Firmly press the DIMM straight down to lock into position. The retaining clips snap into the locked position when the DIMM is firmly seated in the connector.

## 2.3. Hard Disk Installation

Step 1: Use a philips screw driver to remove the four screws located at the front panel. Push the body out to open the top cover.

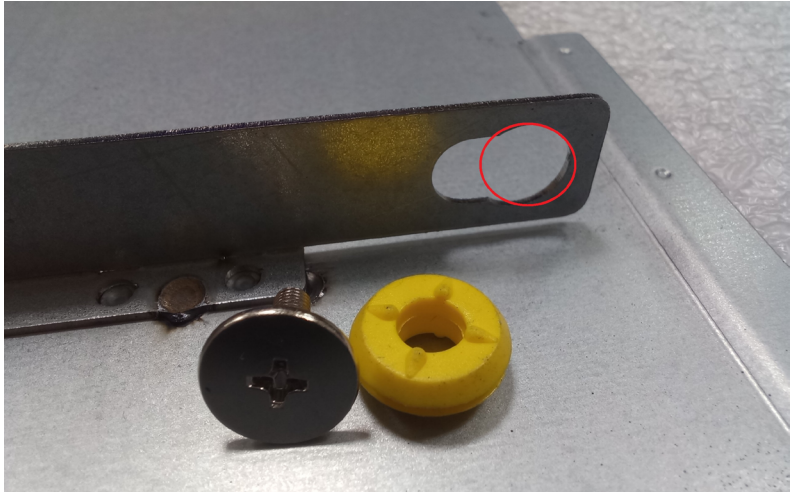


Step 2: The hard drive uses SATA 2.5" type. Connect the hard drive with SATA cable and SATA power cable taken out from the accessory bag, and then fixed it to the top cover. When using HDD 9mm, please place the front side facing the mainboard and fix screws at 4 sides.

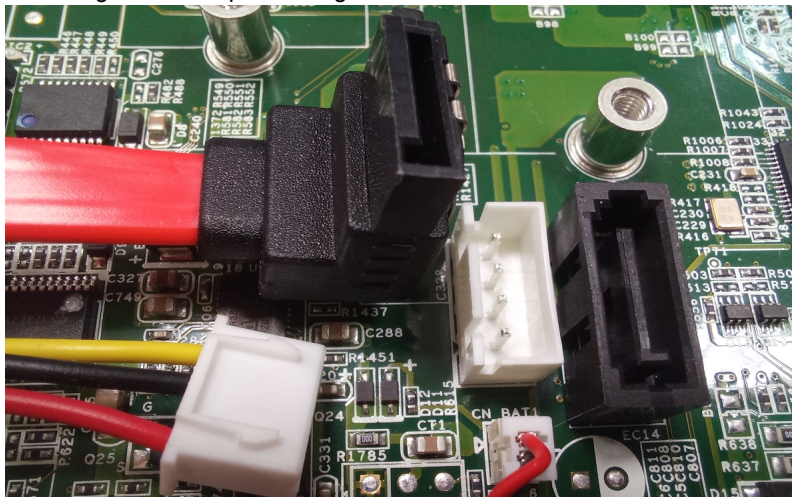




- Step 3: Before fixing the hard disk, stuff the yellow anti-vibration wire loop into the big circle first, and then use a cross screwdriver to fix the hard disk with screws on 4 sides. The yellow anti-vibration wire loop and the screws are included in the accessory bag.



- Step 4: Connect the SATA cable/SATA power cable to the mainboard. The end of SATA cable is black, SATA power cable is white. Please connect it according to the fool-proof design.



## 2.4. RF Cable Installation

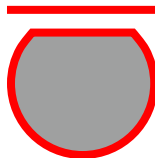
Step 1: Connect the RF plug to the module connector.



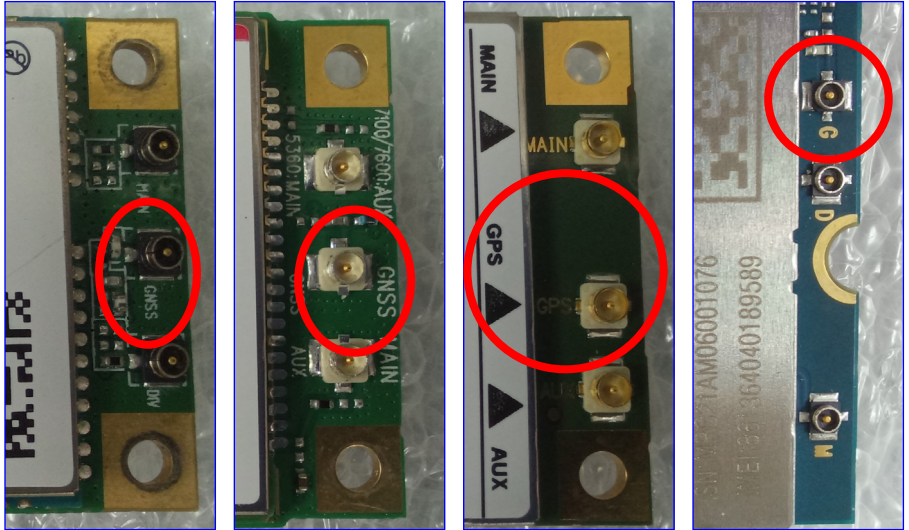
Notes:

- Wi-Fi: Support 2 RF cables at least.
- 4G LTE: Support 1 RF cable at least, up to 3 RF cables.
- 5G: Support 2 RF cables at least.

Step 2: The foolproof position and shape of the joint should correspond with the opening of the system panel.



Step 3: Assemble the SMA end of the RF Cable and lock it with gasket and nut.



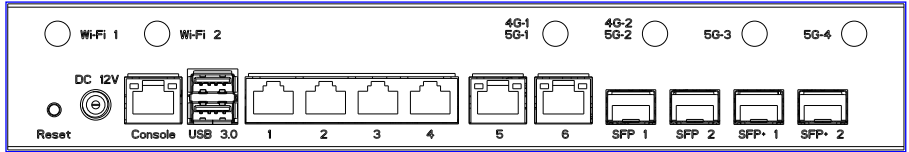
Notes:

- For the connector marked as GNSS or GPS, please install it on the system panel where the GPS antenna is located.
- The connector marked as MAIN or AUX is a 4G connector, please install it on the system panel marked 4G or 5G antenna. Use the MAIN connector first.



## 2.5. Antenna Installation

Connect your antennas according to your system configuration.



### Wi-Fi:

Connect female type antenna to the male type socket **Wi-Fi 2** or **Wi-Fi 1**.

### GPS:

Connect male type antenna tail cable to the female type socket **GPS**.

### 4G/5G:

Connect male type antenna to the female type socket marked with .

For the second 4G or 5G module, connect antenna to the socket located at both sides of the chassis.

---

*Note: If you use a 4G LTE/5G module that only supports one single SIM card, please insert the SIM CARD into the SIM1 slot.*

---

### 3. BIOS Settings

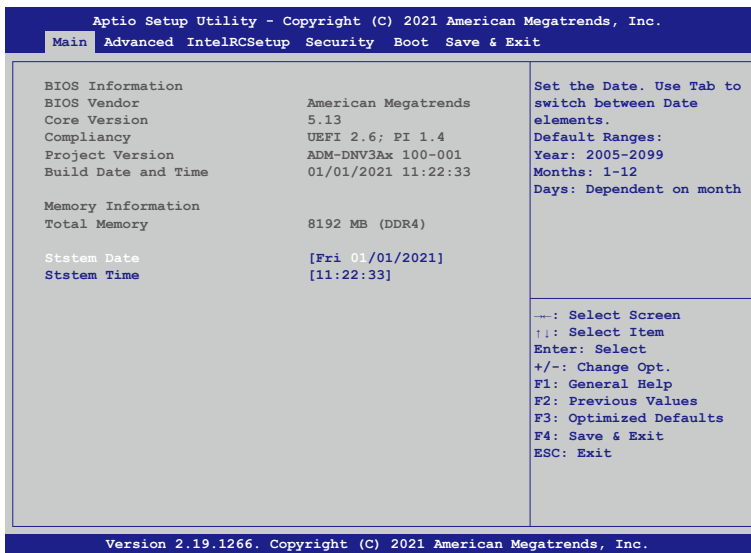
This chapter describes the BIOS menu displays and explains how to perform common tasks needed to get the system up and running. It also gives detailed explanation of the elements found in each of the BIOS menus. The following topics are covered:

- Main Setup
- Advanced Setup
- IntelRCSetup Setup
- Security Setup
- Boot Setup
- Save & Exit Setup

Once you enter the Award BIOS™ CMOS Setup Utility, the Main Menu will appear on the screen. Use the arrow keys to highlight the item and then use the <Pg Up> <Pg Dn> keys to select the value you want in each item.

#### 3.1. Main Setup

The BIOS setup main menu includes some options. Use the [Up/Down] arrow key to highlight the option, and then press the <Enter> key to select the item and configure the functions.



*Note:* Listed at the bottom of the menu are the control keys. If you need any help with the item fields, you can press <F1> key, and it will display the relevant information.

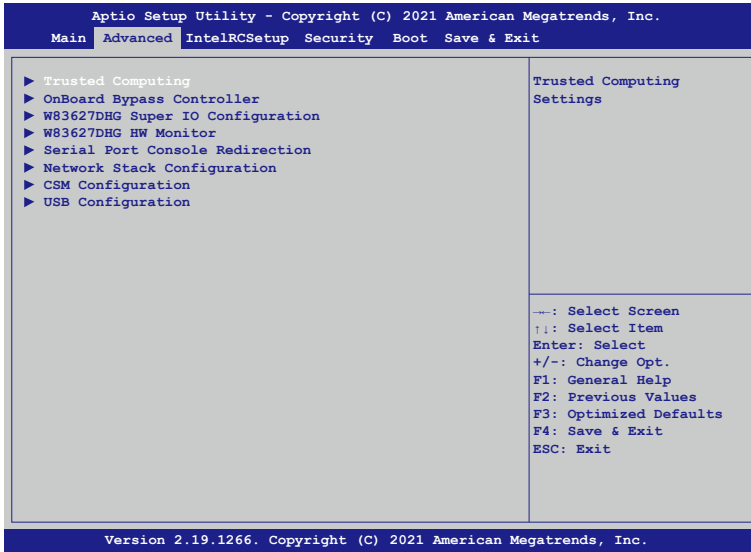
- **Total Memory**

This item displays the total size of memory available in the system.

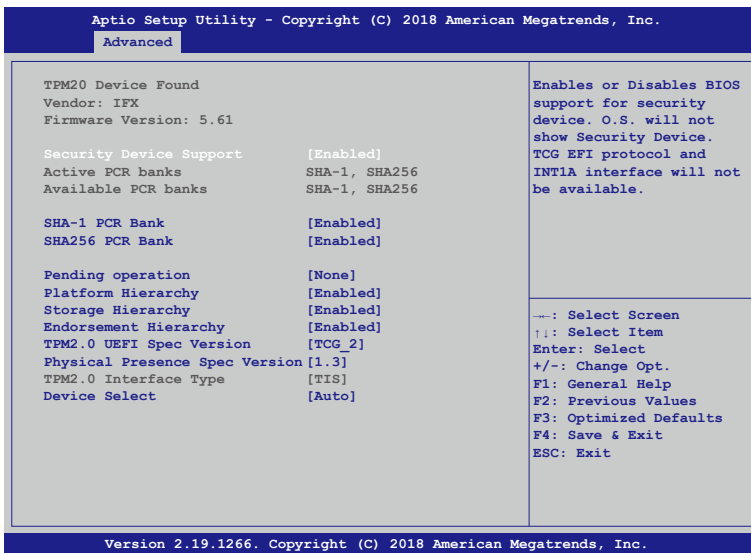
- **System Date/System Time**

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

## 3.2. Advanced Setup



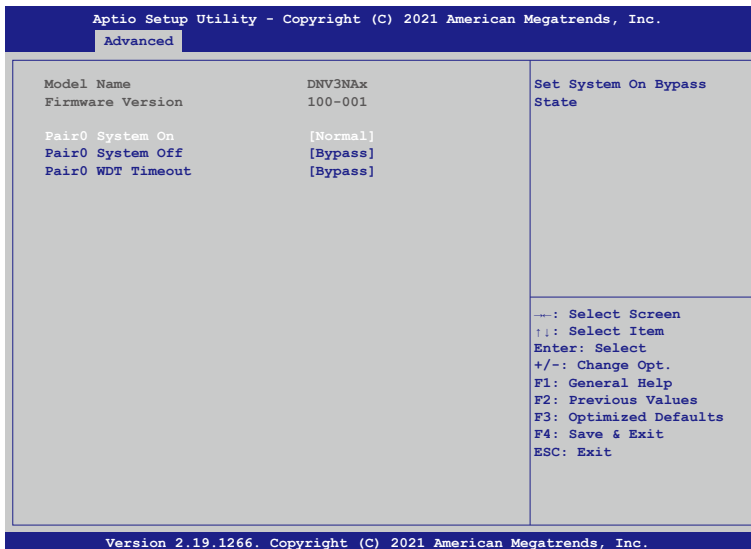
### 3.2.1. Advanced Setup: Trusted Computing



- **Security Device Support**  
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.

- **Pending operation**  
Schedule an Operation for the Security Device. NOTE: Your Computer will reboot during restart in order to change state of Security Device.
- **Platform Hierarchy**  
Enable or Disable Platform Hierarchy.
- **Storage Hierarchy**  
Enable or Disable Storage Hierarchy.
- **Endorsement Hierarchy**  
Enable or Disable Endorsement Hierarchy.
- **TPM2.0 UEFI Spec Version**  
Select the TCG2 Spec Version Support,  
TCG\_1\_2 : the Compatible mode for Win8/Win10.  
TCG\_2 : Support new TCG2 protocol and event.
- **Physical Presence Spec Version**  
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 will restrict support to TPM 1.2 device, 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 device will be enumerated.

### 3.2.2. Advanced Setup: OnBoard Bypass Controller





- **Pair0 System On**

Each Pair Lan[a] and Lan[b] Bypass State Setting, System On /System off /WDT timeout State.

[Normal] Lan[a] and Lan[b] work on normal mode.

[Bypass] Lan[a] data will bypass to Lan[b].

### 3.2.3. Advanced Setup: W83627DHG Super IO Configuration



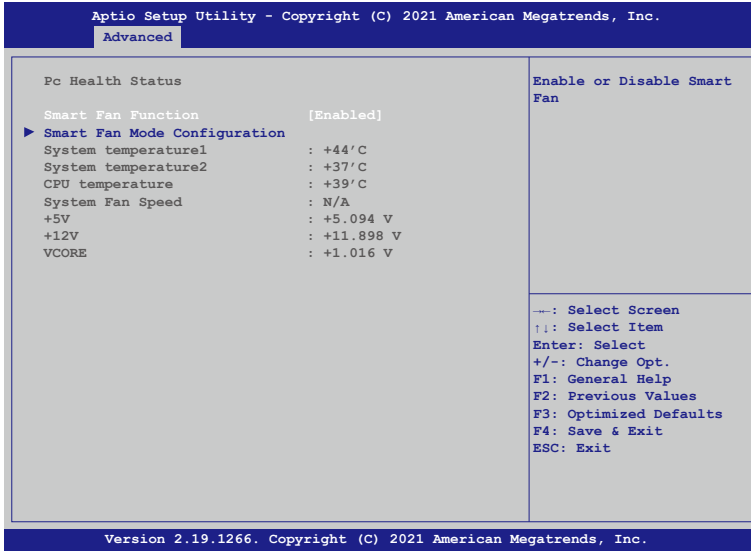
- **Serial Port 1 Configuration**

Set Parameters of Serial Port 1 (COMA).

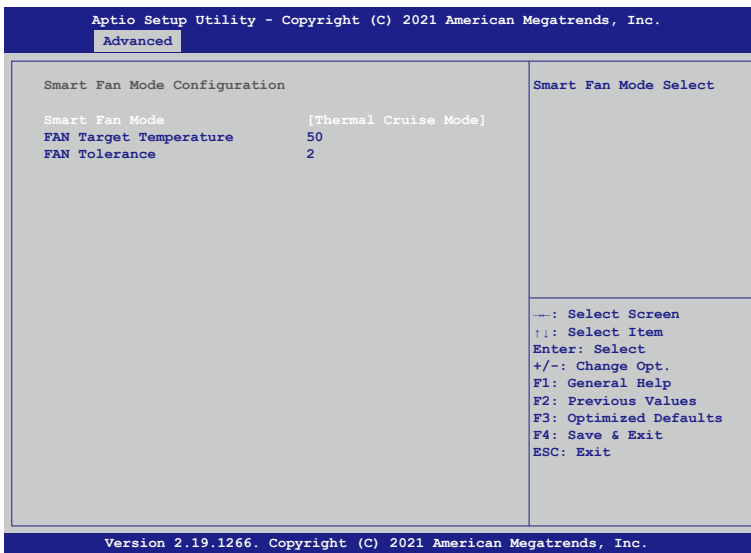


- **Serial Port**  
Select Enabled to enable the onboard serial port.
- **Change Settings**  
This option specifies the base I/O port address and the interrupt Request address of Serial Port.  
Select [Auto] to let the BIOS automatically assign the base I/O and IRQ address.

### 3.2.4. Advanced Setup: W83627DHG HW Monitor



- **Smart Fan Mode Configuration**  
Enable or Disable Smart Fan.



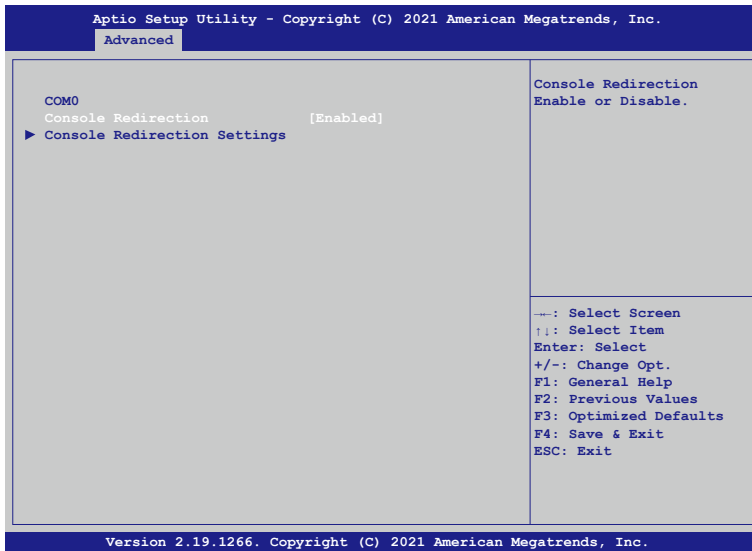
- **Smart Fan Mode**  
[Thermal Cruise Mode] : You can adjust FAN Target Temperatur and FAN Tolerance manually. If CPU temp is lower than target temp-tolerance, the fan will run at low fan

speed. If CPU temp is higher than target temp+tolerance, the fan will run at full fan speed.

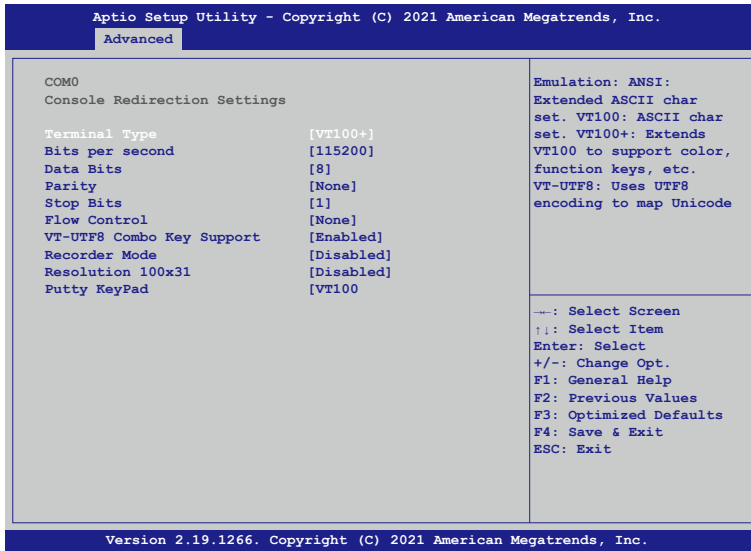
[Manual Mode] : You can set fixed fan speed.

- **FAN Target Temperature**  
Input a target temperature between 0 ~ 127°C.
- **FAN Tolerance**  
Input a target temperature tolerance.

### 3.2.5. Advanced Setup: Serial Port Console Redirection



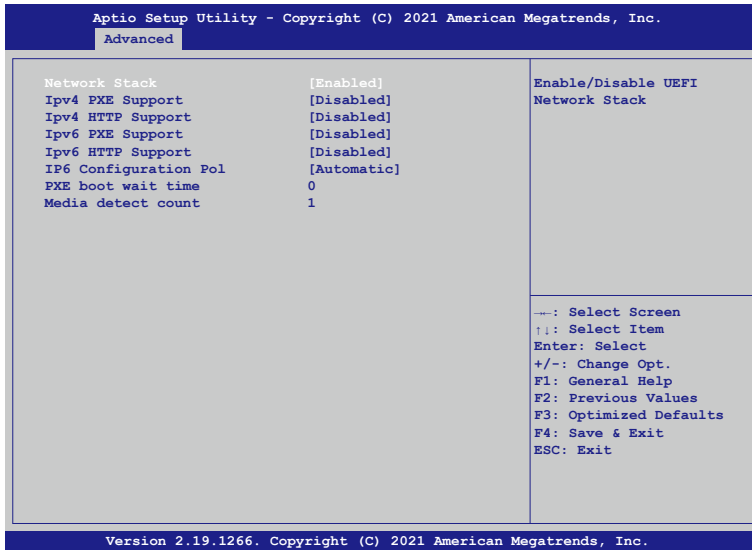
- **Console Redirection**  
Use this option to enable or disable Console Redirection. If this item is set to Enabled, you can select a COM Port to be used for Console Redirection.



- Terminal Type**  
 Use this item to select the preferred terminal emulation type for out-of-band management.
- Bits per second**  
 Use this item to select the serial port transmission speed. The speed used in the hostcomputer and the client computer must be the same. Long or noisy lines may require lower transmission speed. The options include [9600], [19200], [57600] and [115200].
- Data Bits**  
 Use this item to set the data transmission size. The options include [7] and [8] (Bits).
- Parity**  
 Use this item to select the parity bit. The options include [None], [Even], [Odd], [Mark] and [Space].
- Stop Bits**  
 The item indicates the end of a serial data packet. The standard setting is [1] Stop Bit. Select [2] Stop Bits for slower devices.
- Flow Control**  
 Use this item to set the flow control to 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 restart the flow. Hardware flow uses two wires to send start/stop signals. The options include [None] and [HardwareRTS/CTS].

- **VT-UTF8 Combo Key Support**  
Use this item to enable or disable the VT-UTF8 Combo Key Support for ANSI/VT100 terminals.
- **Recorder Mode**  
Use this item to enable or disable Recorder Mode to capture terminal data and send it astext messages.
- **Resolution 100x31**  
Use this item to enable or disable extended terminal resolution support.
- **Putty KeyPad**  
Use this item to select Function Key and Keypad on Putty.

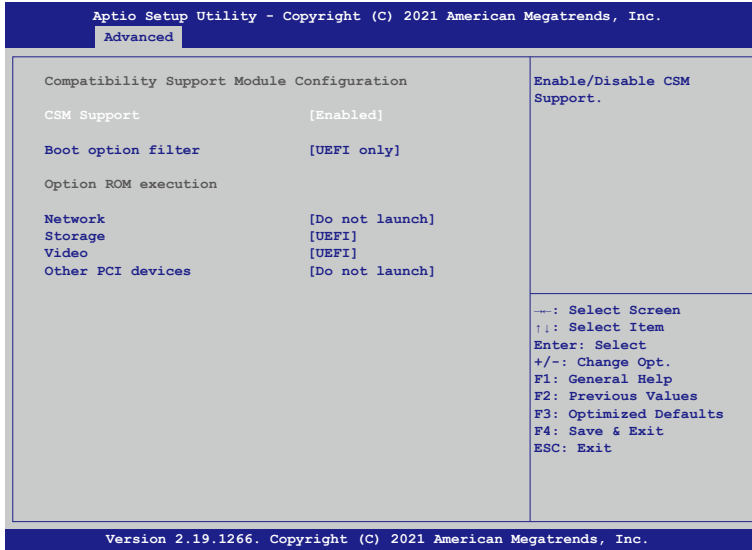
### 3.2.6. Advanced Setup: Network Stack Configuration



- **Ipv4 PXE Support**  
Enable or disable the Ipv4 PXE support.
- **Ipv4 HTTP Support**  
Enable or disable the Ipv4 HTTP support.
- **Ipv6 PXE Support**  
Enable or disable the Ipv6 PXE support.
- **Ipv6 HTTP Support**  
Enable or disable the Ipv6 HTTP support.
- **PXE boot wait time**  
Click ESC key to cancel the PXE boot wait time.

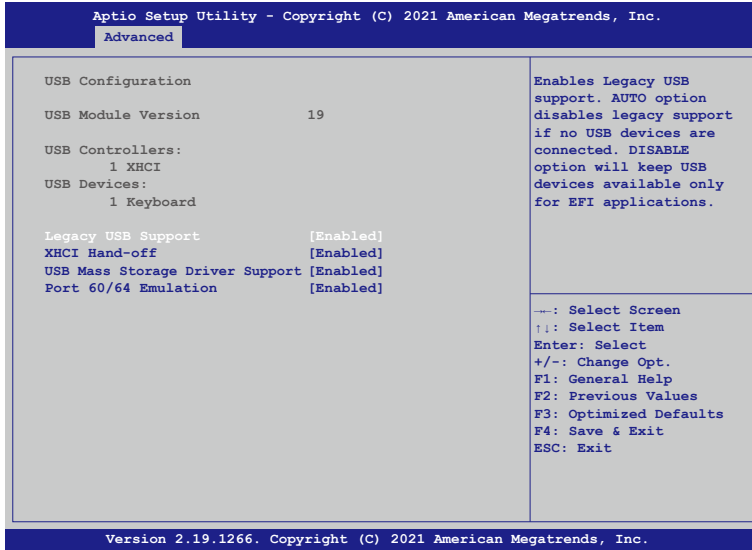
- **Media detect count**  
Set up the media detecting wait time by seconds.

### 3.2.7. Advanced Setup: CSM Configuration



- **CSM Support**  
Use this feature to set the compatibility Option ROM. The options are Enabled, and Disabled. Disabled is the default option.
- **Boot option filter**  
Use this item to control the Legacy/UEFI memory sequence. Options are: [UEFI and Legacy], [Legacy only], [UEFI only].
- **Network**  
This item provides control of the operation UEFI and regular PXE/Storage/Video, randomly read memory (OpROM). Options are: [UEFI], [Legacy], [Do not Launch].

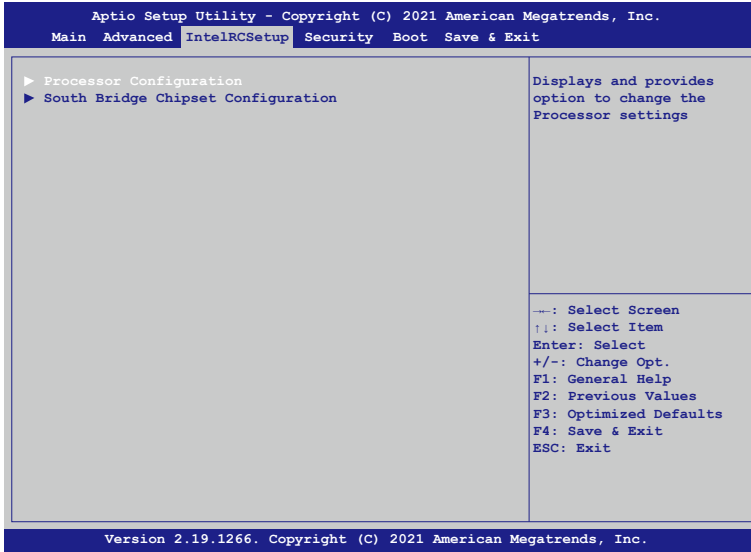
### 3.2.8. Advanced Setup: USB Configuration



- Legacy USB Support**  
 Select Enabled to support onboard legacy USB devices. Select Auto to disable legacy support if there are no legacy USB devices present. Select Disable to have all USB devices available for EFI applications only.
- XHCI Hand-off**  
 This is a work-around solution for operating systems that do not support XHCI (Extensible Host Controller Interface) hand-off. The XHCI ownership change should be claimed by the XHCI driver.
- USB Mass Storage Driver Support**  
 Select Enabled for USB Mass Storage Driver support.
- Port 60/64 Emulation**  
 Select Enabled for I/O port 60h/64h emulation support, which in turn, will provide complete legacy USB keyboard support for the operating systems that do not support legacy USB devices.

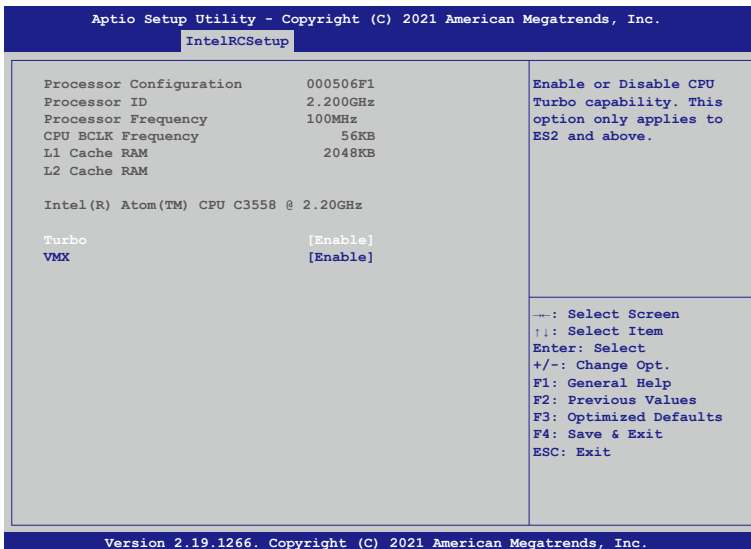


### 3.3. IntelRCSetup



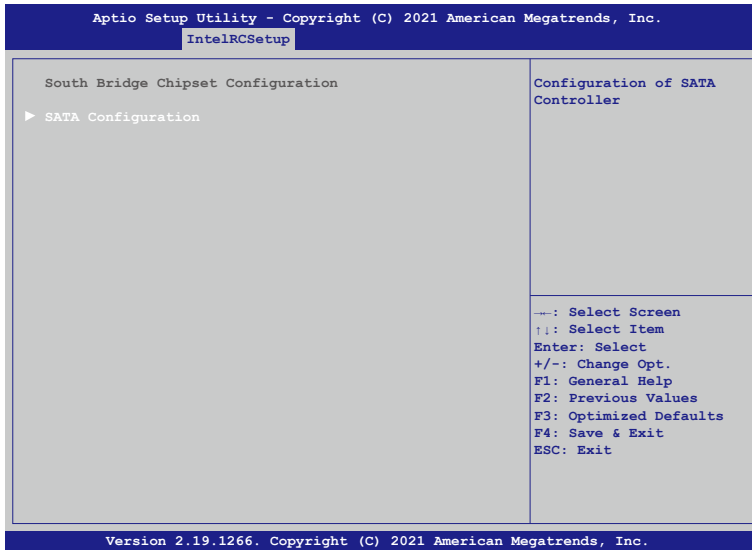
- **Processor Configuration**  
Displays and provides option to change the Processor Settings.

#### 3.3.1. IntelRCSetup: Processor Configuration

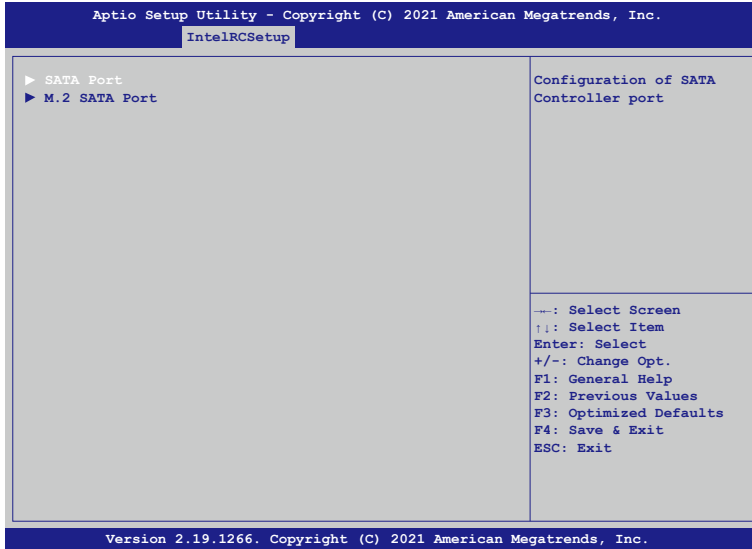


- **Turbo**  
This feature allows processor cores to run faster than marked frequency in specific conditions.
- **VMX**  
Enable or Disable Intel Virtual Machine Extensions (VMX) for IA-32 processors that support Intel® Vanderpool Technology.

### 3.3.2. IntelRCSetup: South Bridge Chipset Configuration

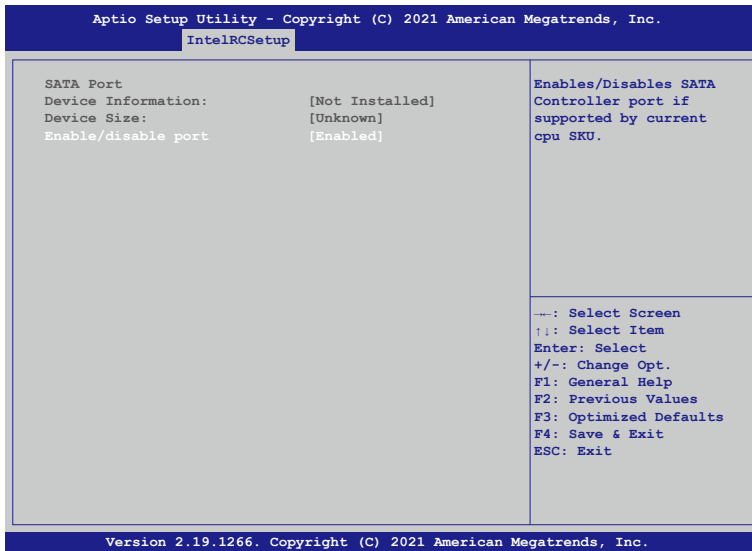


- **SATA Configuration**  
Configuration of SATA Controller.



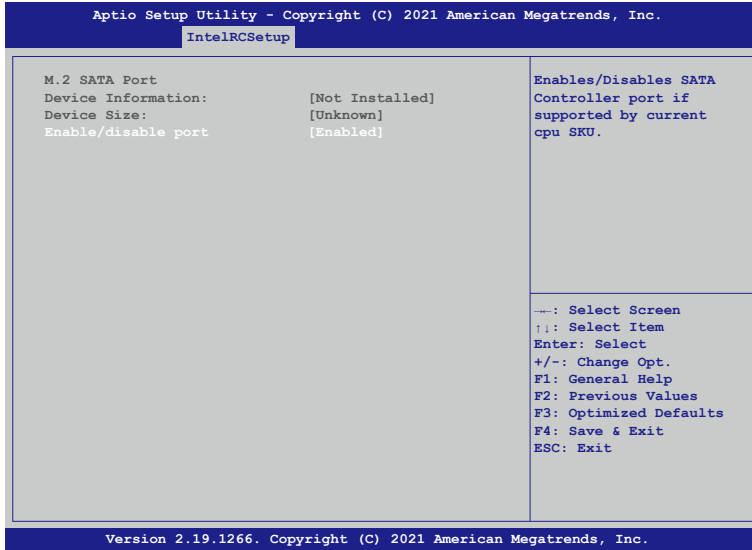
- **SATA Port**  
Configuration of SATA Controller port.

### 3.3.3. IntelRCSetup: SATA Port



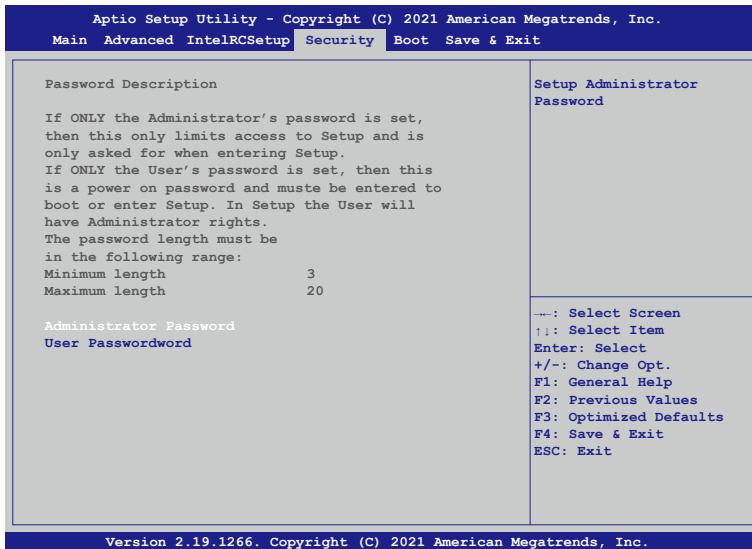
- **Enable/disable port**  
Enables/Disables SATA Controller port if supported by current cpu SKU.

### 3.3.4. IntelRCSetup: M.2 SATA Port



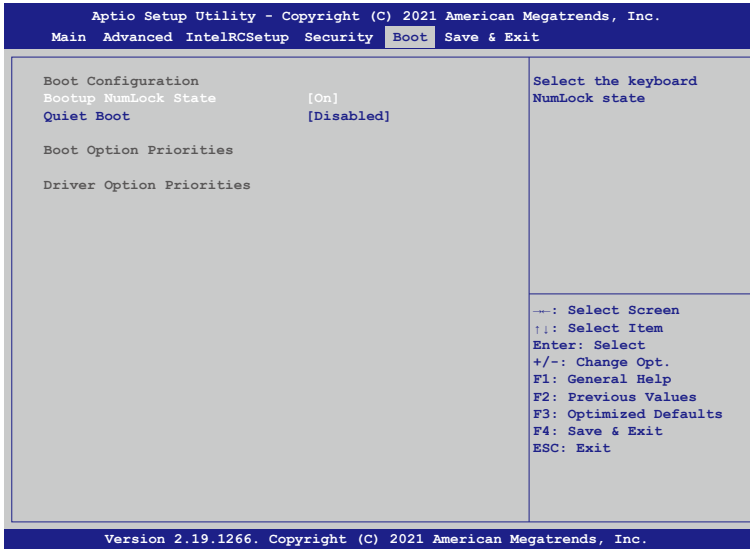
- **Enable/disable port**  
 Enables/Disables SATA Controller port if supported by current cpu SKU.

## 3.4. Security Setup



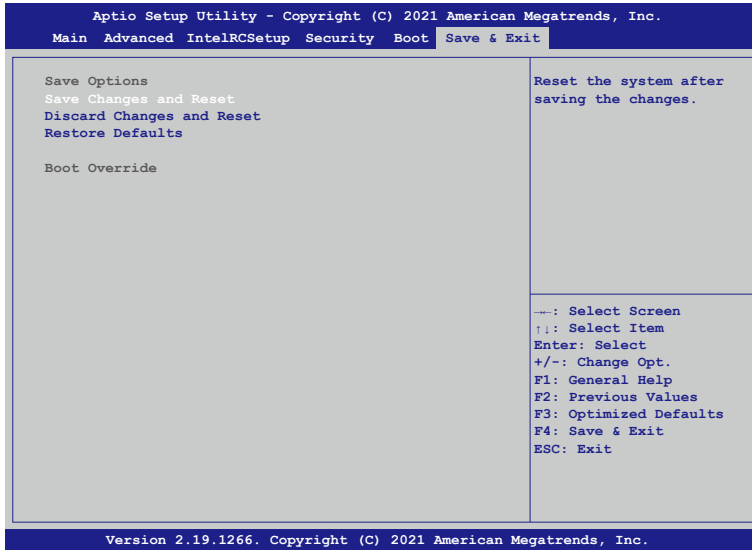
- **Setup Administrator Password**  
Press Enter to create a new, or change an existing Administrator password.
- **User Password**  
Press Enter to create a new, or change an existing User password.

### 3.5. Boot Setup



- **Bootup NumLock State**  
This feature selects the Power-on state for the Numlock key.
- **Quiet Boot**  
Use this feature to select the screen display between POST messages or the OEM logo at bootup. Select Disabled to display the POST messages. Select Enabled to display the OEM logo instead of the normal POST messages.
- **Boot Option Priorities**  
This feature allows the user to specify which devices are boot devices and the order of priority from which the systems boots from during startup.

### 3.6. Save & Exit Setup



- Save Changes and Reset**  
When you have completed the system configuration changes, select this option to save all changes made and reset the system.
- Discard Changes and Exit**  
Select this option to quit the BIOS Setup without making any permanent changes to the system configuration and reboot the computer. Select Discard Changes and Exit from the Exit menu and press <Enter>.
- Restore Optimized Defaults**  
To set this feature, select Restore Optimized Defaults and press <Enter>. These are factory settings designed for maximum system performance but not for maximum stability.
- Boot Override**  
This feature allows the user to override the Boot Option Priorities sequence in the Boot menu and immediately boot the system with another device specified by the user. This is a onetime override.

## 4. Software Installation and Programming Guide

### 4.1. Introduction

#### 4.1.1. Environment

This test utility develop is based on kernel 4.4 above (Ubuntu 18.04.1 Server 64bit) and pfsense 2.5.2 (FreeBSD Version 12.2-STABLE)

#### 4.1.2. GPIO

The AND-DNV3Ax provides GPIO interface. Users can use the GPIO APIs to control GPO Pin.

#### 4.1.3. Watchdog

The AND-DNV3Ax provides a Watchdog Timer. Users can use the Watchdog APIs to configure and to access the Watchdog timer. The Watchdog timer can be set to 1~255 seconds. Setting the timer to zero disables the timer. The remaining seconds of the timer to reboot can be read from the timer.

#### 4.1.4. LAN Bypass Subsystem

Two pairs of LAN ports on AND-DNV3Ax implements the bypass function. Users can invoke the LAN Bypass APIs to control the bypass states of the LAN ports.

1. Get bypass firmware version.
2. Set bypass wdt.
3. Set bypass wdt action.
4. Get bypass wdt action.
5. Set bypass power on action.
6. Get bypass power on action.
7. Set bypass power off action.
8. Get bypass power off action.
9. Set bypass current action.
10. Get bypass current action.

## 4.2. File Descriptions

### 4.2.1. GPIO/Watchdog/LAN Bypass Subsystem Module

**1. TestUtility.exe**

The GPIO, Watchdog, Lan Bypass, Console user interface bin binary.

**2. Libw83627.h**

This file includes the declarations of the APIs and macro definitions.

**3. Libw83627.a**

The static library for linux.

**4. Libw83627.so**

The dynamic library for linux.

**5. Install\_driver**

This file is linux shell script file. Run this file can help you install environment and modprobe driver on linux.

**6. readme**

Use this utility first. Please read the readme file first.

## 4.3. API List and Descriptions

### 4.3.1. GPIO

<b>Syntax:</b>	<b>Get_gpi_status(int pin)</b>
<b>Description:</b>	Get the status of GPIO input pins status.
<b>Parameters:</b>	This function fills in an integer variable as the parameter. The pin0 ~ pin1 is the status of the input pins.
<b>Return Value:</b>	1: HIGH, 0: LOW.

<b>Syntax:</b>	<b>Get_gpo_status(int pin)</b>
<b>Description:</b>	Get the status of GPIO output pins status.
<b>Parameters:</b>	This function fills in an integer variable as the parameter. The pin0 ~ pin1 is the status of the output pins.
<b>Return Value:</b>	1: HIGH, 0: LOW.



<b>Syntax:</b>	<b>Set_gpo(int pin, int value)</b>
<b>Description:</b>	Set the status of GPIO output value.
<b>Parameters:</b>	Set value 0 is Low, 1 is High
<b>Return Value:</b>	If the function sets the values successfully, it returns 0 or -1, any other returned value stands for error.

### 4.3.2. Watchdog

<b>Syntax:</b>	<b>Void wdt_start(int _timevalue)</b>
<b>Description:</b>	This function gets the watchdog timer register to the timevalue and starts to count down.
<b>Parameters:</b>	The parameter 'val' is the value to set to watchdog timer register. The range is 1 ~ 255.
<b>Return Value:</b>	This function returns the value of the time counter and returns it to the caller as an unsigned integer.

<b>Syntax:</b>	<b>Void wdt_stop(void)</b>
<b>Description:</b>	This function sets the watchdog timer stop.
<b>Parameters:</b>	None.
<b>Return Value:</b>	None.

### 4.3.3. LAN Bypass Subsystem

<b>Syntax:</b>	<b>int get_bypass_firmware_ver(char *ver)</b>
<b>Description:</b>	This function can get bypass firmware version and data to save in char pointer.
<b>Parameters:</b>	char pointer, this pointer to 16 character array.
<b>Return Value:</b>	0: Successful, -1: fail.

<b>Syntax:</b>	<b>int set_bypass_wdt(int pair, int time)</b>
<b>Description:</b>	This function can set which pair bypass Wdt timer.
<b>Parameters:</b>	pair: 1-4 , time: 1-255(sec), 0:stop.
<b>Return Value:</b>	0: Successful, -1: fail.

**Syntax:** `int set_bypass_wdt_action(int pair, int action)`

**Description:** This function can set which pair bypass Wdt time up action.

**Parameters:** pair: 1-4 , action: 0:bypass, 1:normal

**Return Value:** 0: bypass, 1: normal, -1: fail.

**Syntax:** `int get_bypass_wdt_action(int pair)`

**Description:** This function can get which pair bypass Wdt time up action.

**Parameters:** pair: 1-4

**Return Value:** 0: bypass, 1: normal, -1: fail.

**Syntax:** `int set_bypass_poweron_action(int pair, int action)`

**Description:** This function can set which pair bypass power on action.

**Parameters:** pair: 1-4, action: 0: bypass, 1: normal.

**Return Value:** 0: Successful, -1: fail.

**Syntax:** `int get_bypass_poweron_action(int pair)`

**Description:** This function can get which pair bypass power on action.

**Parameters:** pair: 1-4.

**Return Value:** 0: bypass, 1: normal, -1: fail.

**Syntax:** `int set_bypass_poweroff_action(int pair, int action)`

**Description:** This function can set which pair bypass power off action.

**Parameters:** pair: 1-4, action: 0: bypass, 1: normal.

**Return Value:** 0: Successful, -1: fail.

**Syntax:** `int get_bypass_poweroff_action(int pair)`

**Description:** This function can get which pair bypass power off action.

**Parameters:** pair: 1-4.

**Return Value:** 0: bypass, 1: normal, -1: fail.

<b>Syntax:</b>	<b>int set_bypass_current_action(int pair, int action)</b>
<b>Description:</b>	This function can set which pair bypass current action.
<b>Parameters:</b>	pair: 1-4, action: 0: bypass, 1: normal.
<b>Return Value:</b>	0: bybpass, -1: fail.

<b>Syntax:</b>	<b>int get_bypass_current_action(int pair)</b>
<b>Description:</b>	This function can get which pair bypass current action.
<b>Parameters:</b>	pair: 1-4.
<b>Return Value:</b>	0: bybpass, 1: normal, -1: fail.

#### 4.3.4. Notes

<b>Syntax:</b>	<b>int libw83627_init(void)</b>
<b>Description:</b>	use the watchdog, gpio function before, must be call this function first.
<b>Parameters:</b>	None.
<b>Return Value:</b>	0: Successful, -1: Fail

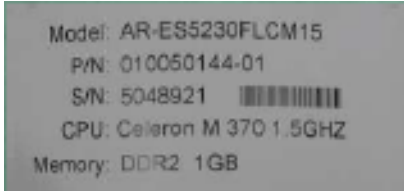
<b>Syntax:</b>	<b>void lib_close(void)</b>
<b>Description:</b>	if watchdog, gpio fuction not use on your program, please call this function.
<b>Parameters:</b>	None.
<b>Return Value:</b>	None.

*Note: If you want to control the LAN module bypass on the LAN card purchased from Accrosser, be sure to take "7" Module H as the module reference for programming.*

## 5. FAQ

### Q 1. *Where is the serial number located on my system ?*

- The serial number (S/N) is an alpha-numeric character located on the bottom or side chassis.



(for reference only)

### Q 2. *How to active the second SIM card Quectel EM06-A/EM06-E 4G ?*

- **AT+QDSIM=?**  
+QDSIM: (0,1) //List the number of currently supported card slots  
OK
- **AT+QDSIM?**  
+QDSIM: 0 //The current card slot is 1  
OK
- **AT+QDSIM=1** //Switch to card slot 2  
OK
- The configuration will be automatically saved to NVRAM.
- This function takes effect after restart.

### Q 3. *How to active the second SIM card Quectel EM12-G 4G ?*

- **AT+QUIMSLLOT=?**  
+QUIMSLLOT: (1,2) //List the number of currently supported card slots  
OK
- **AT+QUIMSLLOT?**  
+QUIMSLLOT: 1 //The current card slot is 1  
OK
- **AT+QUIMSLLOT=2** //Switch to card slot 2  
OK
- The configuration will be automatically saved to NVRAM.
- This function takes effect after restart.

### Q 4. *How to active the second SIM card SIMCOM SIM8202G 5G ?*

- **AT+SMSIMCFG=1,1** //The current card slot is 1  
OK
- **AT+SMSIMCFG=1,2** //Switch to card slot 2  
OK
- The configuration will be automatically saved to NVRAM.
- This function takes effect after restart.

**Q 5. How to switch over Sierra Module Dual SIM Setting ?**

**AT Command:**

1. Make sure UIM2 is enabled by check AT!CUSTOM?

UIM2ENABLE	0-1	Disable/Enable UIM2 slot support 0 - Not enabled (default) 1 - Enabled
------------	-----	--

2. Make sure SIM hot swap for both SIMs (UIM1 & UIM2).

SIMHOTSWAPDIS	0-3	Configure SIM hotswap feature on UIM1 and/or UIM2 <b>0 - enable UIM1 and UIM2</b> 1 - disable UIM1 while enable UIM2 2 - disable UIM2 while enable UIM1 3 - disable UIM1 and UIM2
---------------	-----	---

3. Use AT!UIMS to select active SIM between the two SIM cards.

Argument Description:

Argument	Range	Description
<uim_slot>	0-1	Selection of active SIM Card: 0 - UICC1: External UIM Interface 1 1 - UICC2: External UIM Interface 2

**Example:**

ATI

Manufacturer: Sierra Wireless, Incorporated

Model: EM7455

Revision: SWI9X30C\_02.08.02.00 r5428 CARMD-EV-FRMWR2 2016/01/06

20:38:53

MEID: 35399007023784

IMEI: 353990070237842

IMEI SV: 4

FSN: LF543632720310

+GCAP: +CGSM

OK

AT!ENTERCND="A710" → Enable access to password-protected commands

OK

AT!CUSTOM? → Display customizations that are currently enabled

!CUSTOM:

GPSENABLE0x01  
GPSSSEL0x01  
SIMLPM0x01  
USBSERIALENABLE0x01  
SINGLEAPNSWITCH0x01

OK

AT!CUSTOM=?

!CUSTOM:

"GPSENABLE"  
"GPSLPM"  
"GPIOSARENABLE"  
"GPSSSEL"  
"GPSREFLOC"  
"IMSWITCHHIDE"  
"IMCONFIG"  
"IPV6ENABLE"  
"WAKEHOSTEN"  
"SIMHOTSWAPDIS"  
"CFUNPERSISTEN"  
"QMIDETACHEN"  
"UIM2ENABLE"  
"NETWORKNAMEFMT"  
"SIMLPM"  
"USBSERIALENABLE"  
"PCSCDISABLE"  
"DHCPRELAYENABLE"  
"FLOWNOTIDISABLE"  
"FASTENUMEN"  
"CSVOICEREJECT"  
"IPCHANNELRATEEN"  
"SINGLEAPNSWITCH"

OK

AT!CUSTOM="UIM2ENABLE",1 → Enable USIM2 identity

OK

AT!CUSTOM?

!CUSTOM:

GPSENABLE0x01  
GPSSELOx01  
UIM2ENABLE0x01  
SIMLPM0x01  
USBSERIALENABLE0x01  
SINGLEAPNSWITCH0x01

OK

AT+CPIN?

+CPIN: READY

OK

AT!UIMS? → Request USIM setting (USIM1 or USIM2)

!UIMS: 0 → USIM1 is active

OK

AT+CIMI → Request international mobile subscriber

466924000182599

OK

AT!UIMS=1 → Active USIM2

OK

AT!UIMS? → Request USIM setting (USIM1 or USIM2)

!UIMS: 1 → USIM2 is active

OK

AT+CPIN?

+CPIN: READY

OK

AT+CIMI → Request international mobile subscribe

222013068883994

OK



## Technical Support Form

We deeply appreciate your purchase of Acrosser products. Please find the “**tech\_form.doc**” file in our utility CD. If you have any questions or problems about Acrosser products, please fill in the following information. We will answer your questions in the shortest time possible.

### Describe Your Info and Acrosser System Info

- Your Company Name: \_\_\_\_\_
- Your Contact Info: \_\_\_\_\_ Phone Number: \_\_\_\_\_
- Your E-Mail Address: \_\_\_\_\_
- Your Company Address: \_\_\_\_\_  
\_\_\_\_\_
- Acrosser Model Name: \_\_\_\_\_
- Acrosser Serial Number: \_\_\_\_\_

### Describe System Configuration

- CPU Type: \_\_\_\_\_
- Memory Size: \_\_\_\_\_
- Storage Device (e.g. HDD, CF, or SSD): \_\_\_\_\_
- Additional Peripherals (e.g. Graphic Card): \_\_\_\_\_
- Operating System & Version (e.g. Windows 7 Embedded): \_\_\_\_\_
- Special API or Driver: \_\_\_\_\_  
(If yes, please provide it for debug.)
- Running Applications: \_\_\_\_\_
- Others: \_\_\_\_\_

### Describe Your Problems or Questions:

### Send the above information to one of the following Acrosser contacts:

- Acrosser Local Sales Representative
- Acrosser Authorized Sales Channels
- Acrosser Inquiry --- <http://www.acrosser.com/inquiry.html>
- Acrosser FAX Number --- 886-2-29992887

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