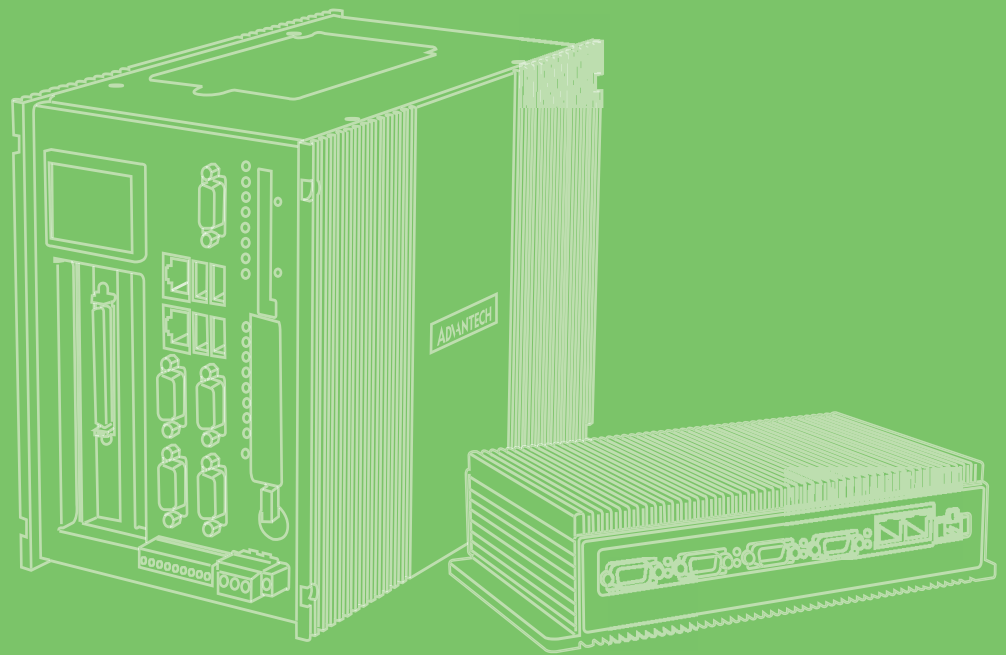# User Manual

UNO-127

Intel® Atom™ Elkhart Lake
x6413E Compact Fanless Edge
Controller

ADVANTECH

Enabling an Intelligent Planet

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For technical support and service, please visit our support website at:

http://support.advantech.com/

*Model name UNO-127
UNO127
*Part number:
UNO-127-E22BA
UNO-127-E23BA

UNO127E22B2201-T, UNO127E22B2202-T, UNO127E22B2203-T,
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UNO127E22B2210-T, UNO127E22B2211-T, UNO127E22B2212-T
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UNO127E23B2510-T, UNO127E23B2511-T, UNO127E23B2512-T

Product Warranty (2 years)

Advantech warrants the original purchaser that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products that have been repaired or altered by persons other than repair personnel authorized by Advantech, or products that have been subject to misuse, abuse, accident, or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced free of charge during the warranty period. For out-of-warranty repairs, customers will be billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details.

If you believe your product to be defective, follow the steps outlined below.

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages displayed when the problem occurs.

2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.

3. If your product is diagnosed as defective, obtain a return merchandise authorization (RMA) number from your dealer. This allows us to process your return more quickly.

4. Carefully pack the defective product, a completed Repair and Replacement Order Card, and a proof of purchase date (such as a photocopy of your sales receipt) into a shippable container. Products returned without a proof of purchase date are not eligible for warranty service.

5. Write the RMA number clearly on the outside of the package and ship the package prepaid to your dealer.

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This type of cable is available from Advantech. Please contact your local supplier for ordering information.

Test conditions for passing also include the equipment being operated within an industrial enclosure. In order to protect the product from damage caused by electrostatic discharge (ESD) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference. In this event, users are required to correct the interference at their own expense.

甲類資訊技術設備

甲類設備為其他符合甲類設備限制值之資訊技術設備，而非符合乙類資訊技術設備的限制值；雖然不可限制此類設備之行銷，但使用場所必須被限制，不得進行居住的環境中，且應於其機器本體及使用說明書中含有下列警語：

> 警告使用者：
>
> 此為甲類資訊技術設備，於居住環境中使用時，可能會造成射頻擾動，在此種情況下，使用者會被要求採取某些適當的對策。

Technical Support and Assistance

1. Visit the Advantech website at www.advantech.com/support to obtain the latest product information.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before calling:
   – Product name and serial number
   – Description of your peripheral attachments
   – Description of your software (operating system, version, application software, etc.)
   – A complete description of the problem
   – The exact wording of any error messages

Safety Precaution - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

■ To avoid electrical shock, always disconnect the power from the PC chassis before manual handling. Do not touch any components on the CPU card or other cards while the PC is powered on.

■ Disconnect the power before making any configuration changes. A sudden rush of power after connecting a jumper or installing a card may damage sensitive electronic components.

Safety Instructions

1. Read these safety instructions carefully.
2. Retain this user manual for future reference.
3. Disconnect the equipment from all power outlets before cleaning. Use only a damp cloth for cleaning. Do not use liquid or spray detergents.
4. For pluggable equipment, the power outlet socket must be located near the equipment and easily accessible.
5. Protect the equipment from humidity.
6. Place the equipment on a reliable surface during installation. Dropping or letting the equipment fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. Do not cover the openings.
8. Ensure that the voltage of the power source is correct before connecting the equipment to a power outlet.
9. Position the power cord away from high-traffic areas. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage from transient overvoltage.
12. Never pour liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If any of the following occurs, have the equipment checked by service personnel:
    – The power cord or plug is damaged.
    – Liquid has penetrated the equipment.
    – The equipment has been exposed to moisture.
    – The equipment is malfunctioning, or does not operate according to the user manual.
    – The equipment has been dropped and damaged.
    – The equipment shows obvious signs of breakage.
15. Do not leave the equipment in an environment with a storage temperature of below -20 °C (-4 °F) or above 50 °C (122 °F) as this may damage the components. The equipment should be kept in a controlled environment.
16. CAUTION: Batteries are at risk of exploding if incorrectly replaced. Replace only with the same or equivalent type as recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.
17. In accordance with IEC 704-1:1982 specifications, the sound pressure level at the operator's position does not exceed 70 dB (A).
18. This product is intended to be supplied by an UL certified power supply or dc source with SELV output, rated 10 Vdc, 4A minimum and Tmax 50 degree. If you need further assistance, please contact Advantech for further information.
19. Ensure that the voltage of the power source is correct before connecting the equipment to a power outlet. The power outlet socket should have a grounded connection.
20. For use in pollution free environments and indoor use.
21. This equipment is not suitable for use in locations where children are likely to be present.
22. If the equipment is used in a manner not specified by the Advantech, the protection provided by the equipment may be impaired.

23. The equipment contains no user-serviceable parts. Do not open, Return to man-ufacturer for servicing.

24. Do not block air ventilation holes.

25. This is open type equipment and should be installed in a suitable enclosure.

DISCLAIMER: These instructions are provided according to IEC 704-1 standards. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Consignes de sécurité

1. Lire attentivement les instructions de sécurité.

2. Conserver ce manuel pour utilisation ultérieure,

3. Débranchez cet équipement de toute prise secteur avant le nettoyer. Utilisez seulement un chiffon humide. N'utilisez pas de détergent liquide ou pulvérisé pour le nettoyage.

4. Gardez cet équipement à l'abri de l'humidité.

5. Placez cet équipement sur une surface fiable pendant l'installation. Le faire ou bien le laisser tomber peut causer des dégâts.

6. Les ouvertures sur l'enceinte servent à la convection de l'air. Protégez l'équipe-ment contre surchauffe. NE COUVREZ PAS LES OUVERTURES.

7. Assurez-vous que la tension de la source d'alimentation est correcte avant de connecter l'équipement à une prise de courant. La prise de courant doit avoir une connexion à la terre.

8. Placez le câble d'alimentation de manière à ce que personne ne puisse marcher dessus. Ne placez rien sur le câble d'alimentation.

9. Toutes les mises en garde et tous les avertissements sur l'équipement doivent être notés.

10. Si l'équipement n'est pas utilisé pendant une longue période, débranchez-le de la source d'alimentation pour éviter tout endommagement dû à une surtension transitoire.

11. Ne jamais verser de liquide dans une ouverture. Cela pourrait provoquer un incendie ou un choc électrique.

12. N'ouvrez jamais l'équipement. Pour des raisons de sécurité, l'équipement doit être ouvert uniquement par du personnel qualifié.

13. Si l'une des situations suivantes se présente, faites vérifier l'équipement par le personnel de service:

■ un liquide a pénétré dans l'équipment

■ L'équipement a été exposé à l'humidité.

■ L'équipement ne fonctionne pas bien, ou vous ne pouvez pas le faire fonction-ner selon le manuel de l'utilisateur.

■ The equipment does not work well, or you cannot get it to work according to the user's manual

■ L'équipement est tombé et endommagé

■ L'équipement présente des signes évidents de rupture.

14. NE LAISSEZ PAS CET ÉQUIPEMENT DANS UN ENVIRONNEMENT OU LA TEMPÉRATURE DE STOCKAGE PEUT ÊTRE INFÉRIEURE À -20 ° C (-4 ° F) OU BIEN SUPÉRIEURE À 50 ° C (122 ° F). CECI POURRAIT ENDOMMAGER L'EQUIPEMENT. L'ÉQUIPEMENT DEVRAIT ÊTRE DANS UN ENVIRONNE-MENT CONTRÔLÉ.

15. Ce produit est destiné à être alimenté par une source d'alimentation certifiée UL ou par une source cc convenant à une utilisation à une température minimale de 50 degrés Celsius, dont la sortie est conforme à la norme SELV et dont la

puissance nominale est de 10 Vdc, 4 A, en cas de besoin. contactez Advantech pour plus d'informations.

16. Pour une utilisation dans des environnements non polluant et à l'intérieur.

17. C'est appareil ne doit pas être utilisé dans des endroits où se trouvent des enfants.

18. Si l'équipement est utilisé d'une manière non spécifiée par le fabricant, la protection fournie par l'équipement peut être altéré

19. L'équipement ne contient aucune pièce réparable par l'utilisateur. Ne pas ouvrir, retourner au fabricant pour réparation.

20. Ne bloquez pas les ou es de ventilation.

21. Il s'agit d'un équipement de type ouvert et doit être installé dans un boîtier approprié

ATTENTION: Danger d'explosion si la batterie est mal remplace. Remplacer uniquement par le meme type ou equivalent recommandé par le fabricant. Jeter les piles usagées selon les instructions du fabricant.

安全指示

1. 請仔細閱讀此安全操作說明。
2. 請妥善保存此用戶手冊供日後參考。
3. 用濕抹布清洗設備前，請確認拔除電源線。請勿使用液體或去污噴霧劑清洗設備。
4. 對於使用電源線的設備，設備周圍必須有容易接觸到的電源插座。
5. 請勿在潮濕環境中試用設備。
6. 請在安裝前確保設備放置在可靠的平面上，意外摔落可能會導致設備損壞。
7. 設備機殼的開孔適用於空氣對，從而防止設備過熱。請勿覆蓋開孔。
8. 當您連接設備到電源插座前，請確認電源插座的電壓符合要求。
9. 請將電源線佈置在人們不易絆倒的位置，請勿在電源線上覆蓋任何雜物。
10. 請注意設備上所有的警告標示。
11. 如果長時間不使用設備，請拔除與電源插座的連結，避免設備被超標的電壓波動損壞。
12. 請勿讓任何液體流入通風口，以免引起火災或短路。
13. 請勿自行打開設備。為了確保您的安全，請透過經認證的工程師來打開設備。
14. 如遇下列情況，請由專業人員維修：

■ 電源線或插頭損壞；

■ 設備內部有液體流入；

■ 設備曾暴露在過度潮濕環境中使用；

■ 設備無法正常工作，或您無法透過用戶手冊來正常工作；

■ 設備摔落或損壞；

■ 設備有明顯外觀損；

15. 請勿將設備放置在超出建議溫度範圍的環境，即不要低於 -20°C（-4°F）或高於 50°C（122°F），否則可能會造成設備損壞。
16. 注意：若電池更換不正確，將有爆炸危險。因此，只可以使用製造商推薦的同一種或者同等型號的電池進行替換。請按照製造商的指示處理舊電池。
17. 根據 IEC 704 - 1:1982 規定，操作員所在位置音量不可高於 70 分貝。
18. 限制區域：請勿將設備安裝於限制區域使用。
19. 免責聲明：請安全訓示符合 IEC 704 - 1 要求。研華公司對其內容之準確性不承擔任何法律責任。
20. 消费者若使用电源适配器供电，则应购买配套使用获得 CCC 认证并满足标准要求的电源适配器。

Contents

Chapter 1

Overview

This chapter provides an overview of UNO-127 specifications. Sections include:

- Introduction
- Safety Precautions
- Accessories
- Hardware Specifications
- Dimensions

1.1 Introduction

Advantech's UNO-100 series are DIN-rail integrated controller that feature a modular design for flexible configuration according to specific usage requirements.

UNO-127 is equipped with an Intel® Atom® 6413E processor, 4 or 8 GB DDR4 RAM, and 64G eMMC storage, as well as 2 x LAN, 2 x USB and 1 x HDMI. It also supports 1 x full-size mini PCIe for convenient expansion to satisfy diverse industrial applications. Compliant with IEC 61010 certification requirements for industrial use, UNO-127 can be equipped with an optional second-stack extension kit that supports additional 4 x COM ports, 1 x LAN port and 1 x M.2 B key for I/O and wireless connectivity expansion.

1.2 Safety Precautions

Below are a few safety precautions for preventing injury when making connections. In most cases, users can use a standard cable for connection.

Warning! *Always disconnect the power cord from your chassis whenever you are working on it. Do not connect while the power is on. A sudden rush of power can damage sensitive electronic components. Only experienced electronics personnel should open the chassis.*

Warning! *Toujours à la terre pour éliminer toute charge d'électricité statique avant toucher UNO-127. Appareils électroniques modernes sont très sensibles à charges d'électricité statique. Utilisez un bracelet antistatique à tout moment. Placez tous composants électroniques sur une surface antistatique ou dans un statique-sac blindé.*

Caution! *Always ground yourself to remove any static electric charge before touching UNO-127. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag.*

Caution! *Toujours débrancher le cordon d'alimentation de votre boîtier lorsque vous êtes travailler. Ne branchez pas lorsque l'appareil est allumé. Un afflux soudain de puissance peut endommager les composants électroniques sensibles. Seulement connu personnel de l'électronique devraient ouvrir le châssis.*

1.3 Packing List

Please refer below for the packing list:

- UNO-127 (with din-rail mount)
- 1 x 2 PIN Plug-in block for Power
- 1 x Earth-Ground cable
- Quick Start Guide
- Warranty card

If anything is missing or damaged, contact your distributor or sales representative immediately.

1.4 Hardware Specifications

1.4.1 General

Dimensions (W x D x H)	33.5 x 70 x 100 mm
Weight (Net)	0.5 kg
Mounting	DIN-rail
Power Requirement	10 - 30VDC
Power Consumption	15.8W (typical), 35W (Max)

1.4.2 System Hardware

BIOS	AMI EFI X64
Watchdog Timer	Programmable 255 levels timer interval, from 1 to 255 sec
Hardware Security	TPM 2.0
Processor	Intel® Atom® Quad core x6413E, 1.5GHz
Memory	4 GB/8 GB DDR4 2666 MHz onboard (Up to 32GB per Slot, Up to 64 GB totally)
Graphics Engine	Intel® UHD Graphics
Ethernet	2 x i210-IT
LED Indicators	LEDs for Power, RUN (Programmable), LAN (Active, Status)
Storage	Onboard 64GB eMMC (upgradeable up to 256GB by project) Option mSATA shared with mPCIe slot
Expansion	1 x Full-size mPCIe slot (SATA/PCIe/USB2.0 signal)

1.4.3 I/O Interfaces

LAN Ports	2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000BASE-T Fast Ethernet
Speed	2 x 10/100/1000BASE-T Fast Ethernet (RJ45)
USB Ports	2 x USB 3.2 Gen2
Displays	1 x HDMI (1920 x 1080 @60Hz)
Power Connector	1 x 2 Pin (terminal block)

1.4.4 Environment

Operating Temperature*	-20 ~ 60 °C (-4 ~ 140 °F) with 0.7m/s airflow
Storage Temperature	- 40 ~ 85 °C (-40 ~ 185 °F)
Relative Humidity	10~95% RH @ 40 °C/104 °F, non-condensing
Shock Protection	Operating, IEC 60068-2-27, 50G, half sine, 11ms
Vibration Protection	Operating, IEC 60068-2-64, 2 Grms, random, 5 ~ 500 Hz, 1hr/axis (mSATA)

*Note: Operating Temperature to be -20 ~ 50 °C (-4 ~ 122 °F) without airflow.

1.4.5 Certifications

Certification	CE, FCC, CB, UL 61010-2-201, CCC, BSMI

1.4.6 Extension Kit (Optional)

UNO-127 features a modularized design. Advantech offers an optional 2nd extension kit.

■ UNO-127-RS1EA Extension unit

Part number	UNO-127-RS1EA
Description	2nd stack extension kit to support 1 x M.2 B key Interface
Ports	1 x M.2 B Key
Dimensions (W x D x H)	30 x 70 x 100 mm
Weight	0.145 kg

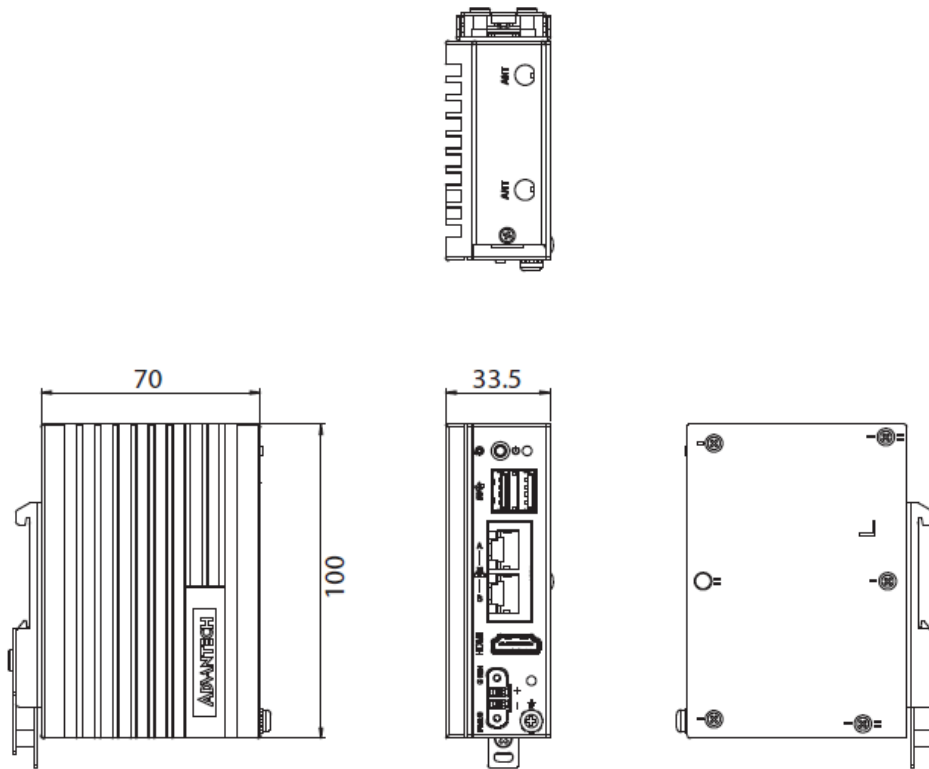## 1.4.7 Dimensions

33.5 x 70 x 100 mm (W x D x H mm)
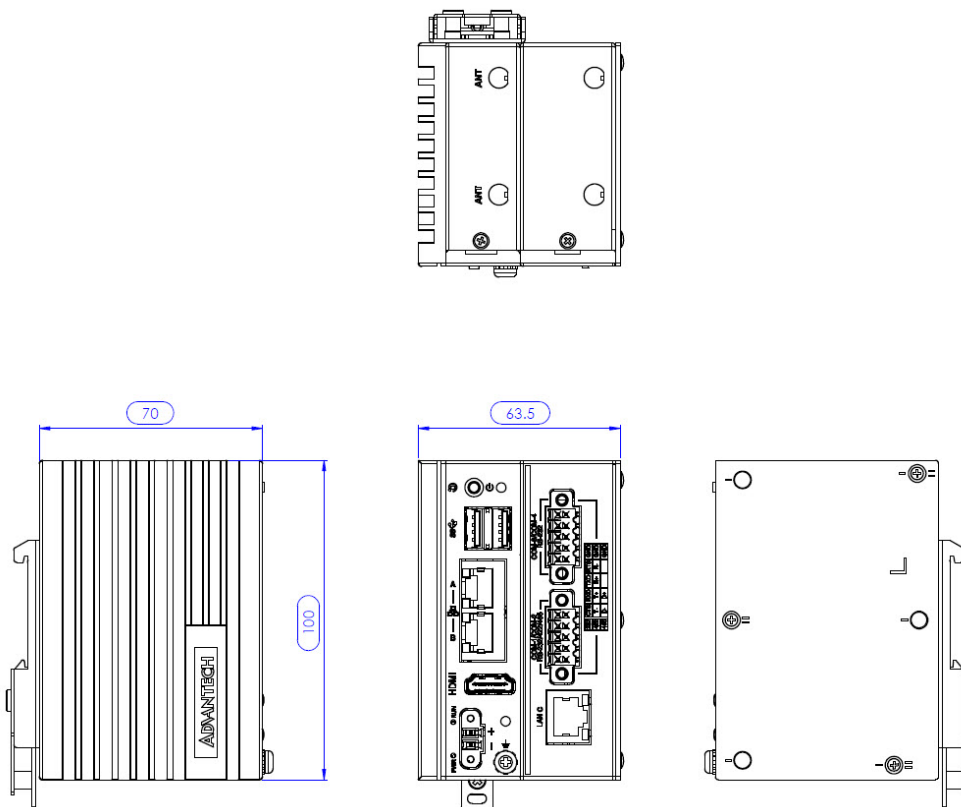

Figure 1.1 UNO-127 Dimensions

Figure 1.2 UNO-127 Dimensions (With UNO-127-RS1EA Optional Extension kit)

Chapter 2

Hardware Functionality

This chapter shows how to setup the UNO-127's hardware functions, including connecting peripherals, setting switches and indicators.

Sections include:

- Introduction
- External I/O Connector
- Internal I/O Connector
- LED Indicators
- Reset Buttons
- Antenna Hole

2.1 Introduction

The following diagram demonstrates the location of UNO-127's motherboard's key components and internal/external connectors.
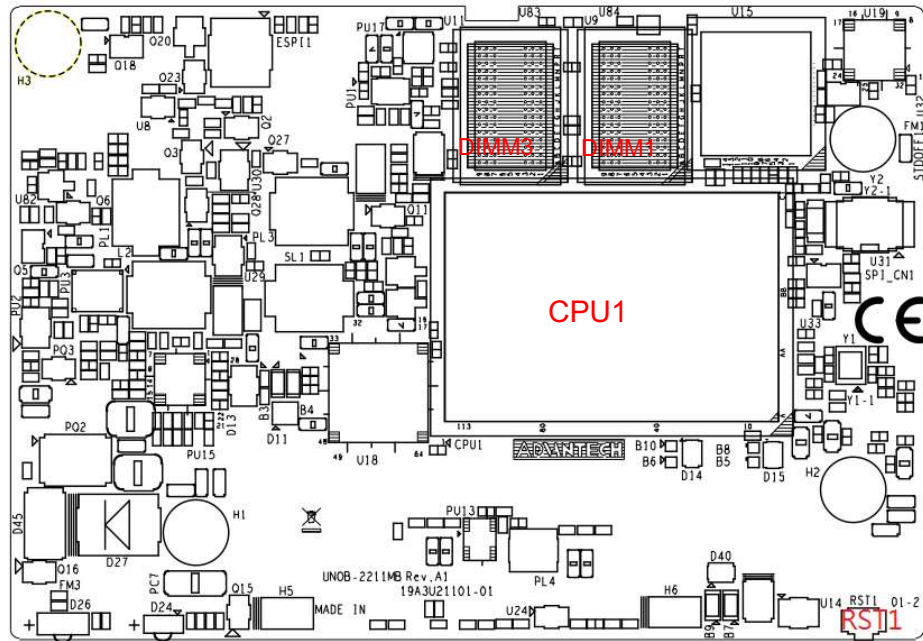

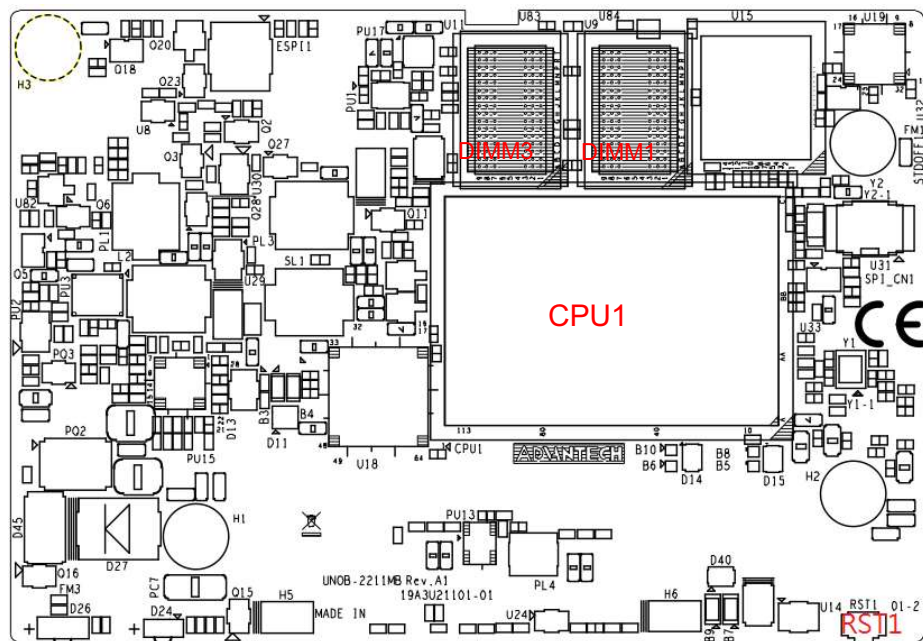**Figure 2.1 Diagram of Connector Locations on UNO-127 (Top Side)**

Figure 2.2 Diagram of Key Components Location on UNO-127 (Bottom Side)

Table 2.1: Key components, Connectors on Board		
Category	**Label**	**Function**
External	DCIN1	Power Connector
	CN1	HDMI Connector
	LAN1	LAN Connector x2
	USB1	USB 3.2 x2 Connector
	SW1	Reset Button + Power Button
	PWR1	LED Indicator
Internal	CN2	Riser Connector
	MINI1	MiniPCIe Connector
	DIMM1	Memory Slot
	DIMM2	Memory Slot
	DIMM3	Memory Slot
	DIMM4	Memory Slot
	CPU	CPU

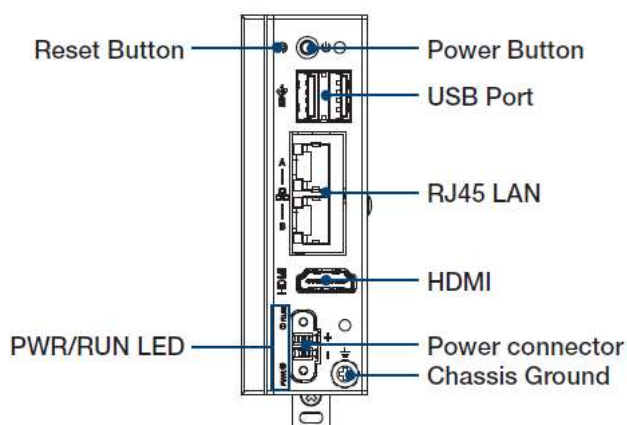## 2.2 External I/O Connector

2.2.1 UNO-127 Base Unit

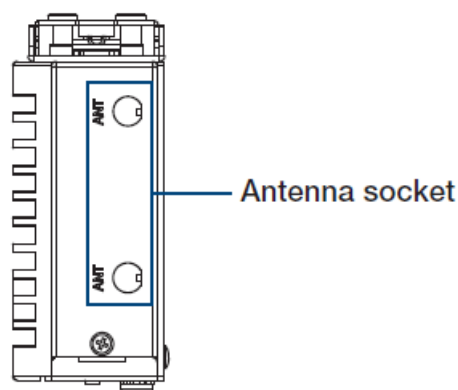**Figure 2.3 Front Panel of UNO-127**

Figure 2.4 Top View of UNO-127

2.2.2 Power Connector

UNO-127 comes with a Phoenix connector that carries 10 - 30 V_{DC} external power input, and features reversed wiring protection. Therefore, the system will not accrue damage from reversed polarity of ground lines and power lines. (Please refer to User Manual - Appendix A.1 for pin assignments)

2.2.3 LAN: Ethernet Connector

UNO-127 is equipped with two 1 Gigabit LAN controllers. Intel i210 Ethernet controller that complies with IEEE 802.3u 10/100/1000 Base-T is used as the controller chip. The Ethernet port is a standard RJ-45 jack. Additionally, LED indicators are provided on the front of the device to indicate the system's Link (off/green/orange) and Active (green) status. (Please refer to User Manual- Appendix A.2 for pin assignments.)

2.2.4 USB Connector

UNO-127 features 2 x USB ports that comply with USB EHCI, 3 for Rev. 3.2 specifications. The USB connectors support plug-and-play and hot-swap- ping functionality for external devices. Additionally, this can be enabled/disabled in the BIOS menu. (Please refer to User Manual- Appendix A.3 for pin assignments.)

2.2.5 Display Connector

The UNO-127 provides 1 x HDMI connector for resolution interface 1920 x 1080 @ 60Hz. (Please refer to User Manual- Appendix A.4 for pin assignments.)

2.2.6 COM Connector

UNO-127-RS1EA has 4 x COM RS232/422/485 ports of terminal block type. They offer trans- mission speeds of 50 ~115.2 kbps. The default mode for both COM ports (COM1&COM2) is RS-232 Mode. Settings can be adjusted via an on-board switch (SW1). (Please refer to User Manual- Appendix A.8 for RS232/422/485 settings).
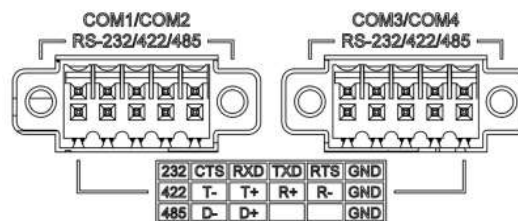

Table 2.2: COM Connector Pin Assignments					
Pin	COM1 Mode	Signal Name	Pin	COM2 Mode	Signal Name
1	RS232	CTS	2	RS232	CTS
	RS422	T-		RS422	T-
	RS485	D-		RS485	D-
3	RS232	RXD	4	RS232	RXD
	RS422	T+		RS422	T+
	RS485	D+		RS485	D+
5	RS232	TXD	6	RS232	TXD
	RS422	R+		RS422	R+
	RS485			RS485	

Table 2.2: COM Connector Pin Assignments					
7	RS232	RTS	8	RS232	RTS
	RS422	R-		RS422	R-
	RS485			RS485	
9	RS232	GND	10	RS232	GND
	RS422	GND		RS422	GND
	RS485	GND		RS485	GND

2.3 Internal I/O Connectors and Switches

The following figure demonstrates the locations of internal connectors and switches on the UNO-127's motherboard.
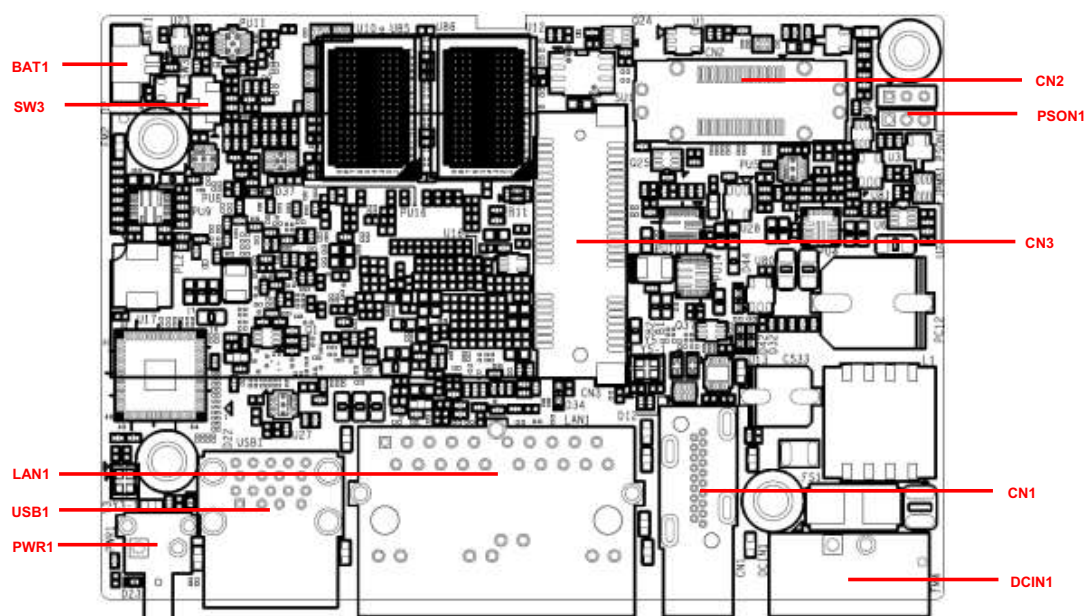

Figure 2.5 Internal I/O Connectors/Switches

Table 2.3: Internal Connectors and Jumper Switches	
Label	**Function**
DCIN1	Power Connector
CN1	HDMI Connector
CN2	Riser Connector
CN3	MiniPCIe Connector
LAN1	LAN Connector x 2
USB1	USB Connector x 2
SW3	Clear CMOS Switch
PWR1	Reset Button + Power Button
PSON1	AT/ATX Connector Pin
BAT1	RTC Battery Connector

Note! *This power is from DC Power inputs*

2.3.1 M.2 Connector

There is one M.2 B Key connector for M.2 cards, This M.2 interface is a SATA signal co-lay with a USB signal. It will automatically detect which device you installed and determine the appropriate SATA or USB signal to use. Therefore, it supports the installation of M.2 2242 (w/SATA signal) or 3042/3052 module (w/ USB Signal).

(Please refer to User Manual- Chapter 3.3 & 3.5 for installation details and User Manual-Appendix A.6 for pin assignments.)

2.3.2 mPCIe Connector

There's one sockets for full size PCI Express mini cards, labeled "MINI1" on the board. It supports iDoor module for diversified applications such as isolated COM port, Profibus, WLAN GPRS, LTE, and MRAM. Users can install the iDoor easily with optional extension kit.

(Please refer to User Manual- Chapter 3.6 for extension kit installation details and User Manual-Appendix A.7 for pin assignments.)

2.3.3 Nano SIM Slot

There's one Nano SIM Slot for supporting LTE function, labeled "CN14-1" on board. In addition to install SIM card on "CN14-1", users are required to install a LTE Module on "CN14" M.2 B Key to enable the functionality.
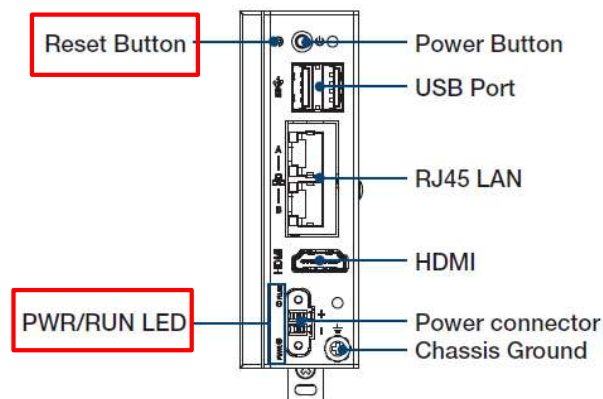
2.4 Others

Figure 2.6 LED Indicators, Reset Buttons, and Antenna Hole

2.4.1 LED Indicators

Two LEDs indicate the status of the system's power and programmable LED for user's configurations.

- PWR (Power): Green indicates "normal" and orange indicates "standby".
- RUN (Programmable): Users can configure the LED indicator's behavior through GPIO signal controls. Green indicates under programming.

2.4.2 Reset Buttons

Press the "Reset" button to initiate a hardware reset.

Chapter 3

Initial Setup

This chapter introduces how to initialize the UNO-127.

Sections include:

- Chassis Grounding
- Connecting Power
- Wireless Module Installation (Optional)
- Extension Module Installation (Optional)
- Remote Power/On & Reset Setting
- BIOS Settings

3.1 Chassis Grounding

The UNO-127 provides good EMI protection and a stable grounding base. There is an easy-to-connect chassis grounding point.
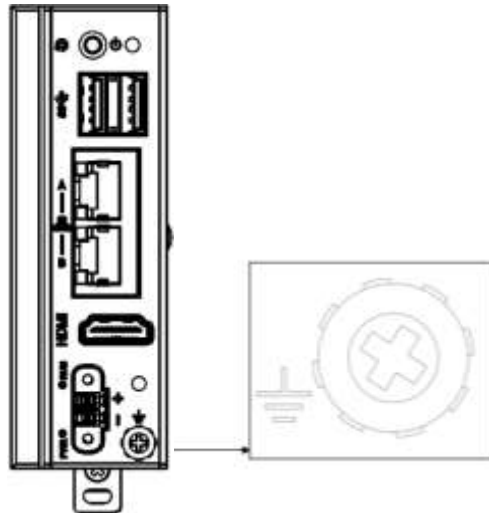

Figure 3.1 Chassis Grounding Connection Diagram

Earth terminal shall be used 16 AWG minimum size with green and yellow conductor to connector to earth.

Note! When installed mPCIe interface, due to screw contact the chassis of base unit, the chassis ground functionality would be invalid.

3.2 Connecting Power

This product is intended to be supplied by an approved power adapter or DC power source. This adapter is rated at 10 - 30Vdc, 4 - 1.33A and has a Tmax of 60 °C (140°F). If you need further assistance or information, please contact Advantech.

Follow the following instructions:

1. Insert the positive and negative wires into the V+ and V- contacts on the terminal block connector.
2. Tighten the wire-clamps' screws to prevent the DC wires from coming loose.

Take the following guidelines into consideration before wiring the device:

1. The terminal block is suitable for 12-24 AWG (12A). Torque value 7 lb-in. Use copper conductors only.
2. The temperature rating of the input connection cable should higher than 95 °C (203 °F)
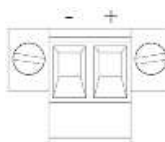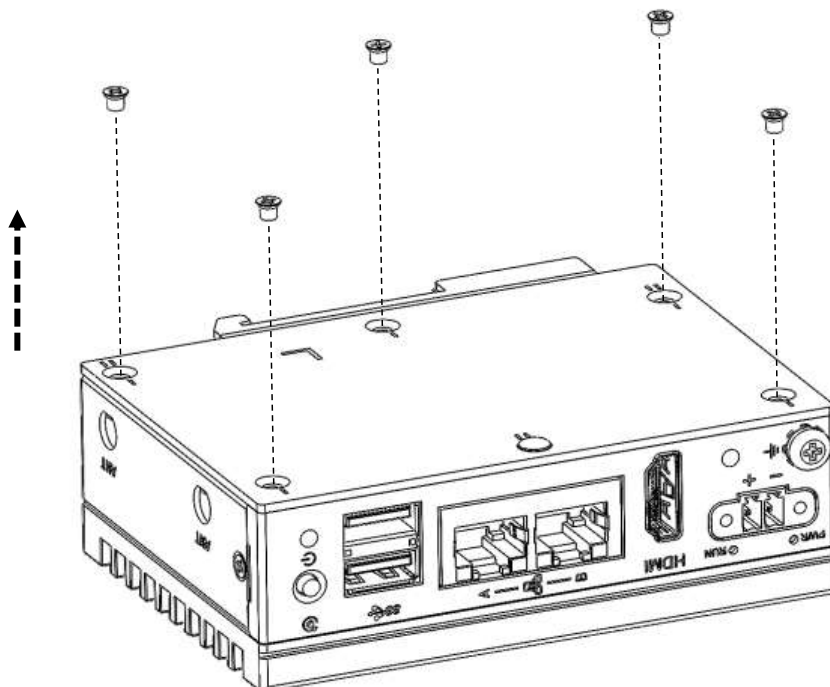
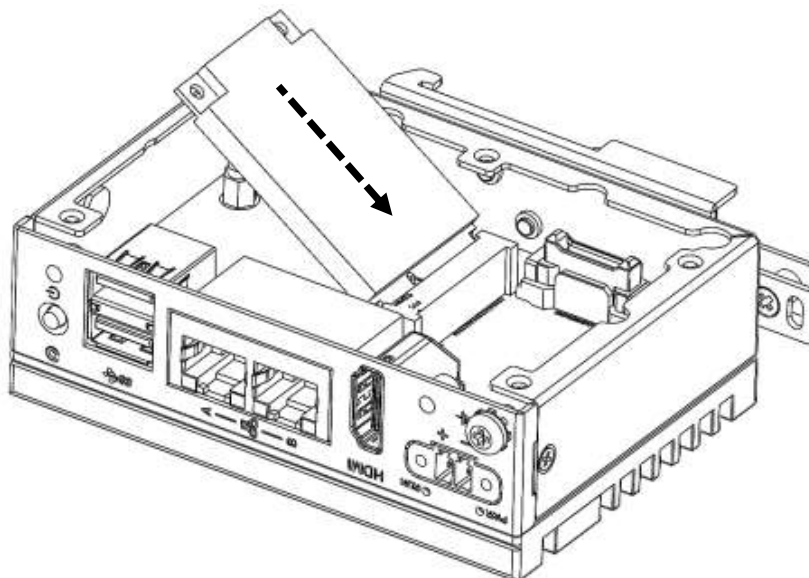## 3.3 Storage Installation (Optional)

UNO-127 supports the installation of one mPCIe mSATA SSD. The installation is
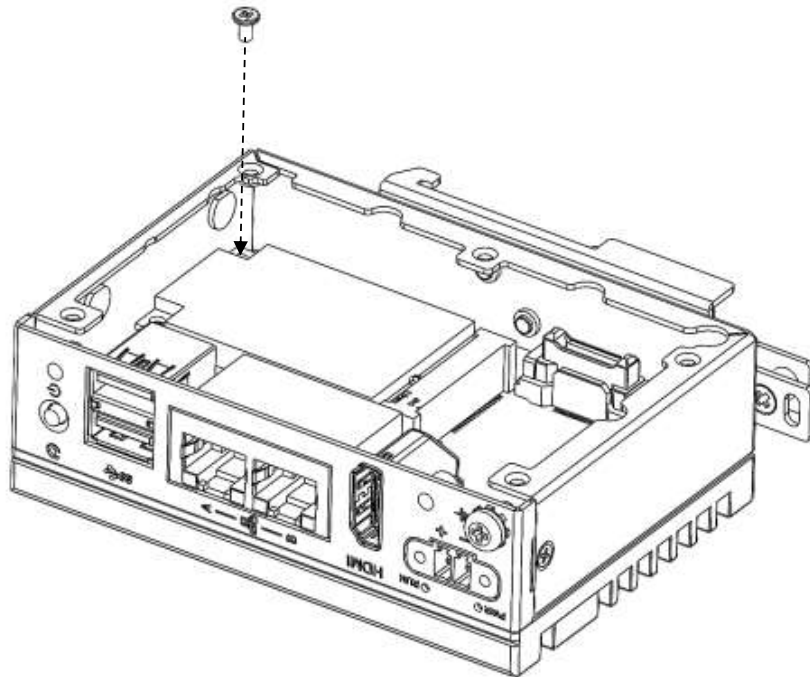
3.3.1 Installing mPCIE

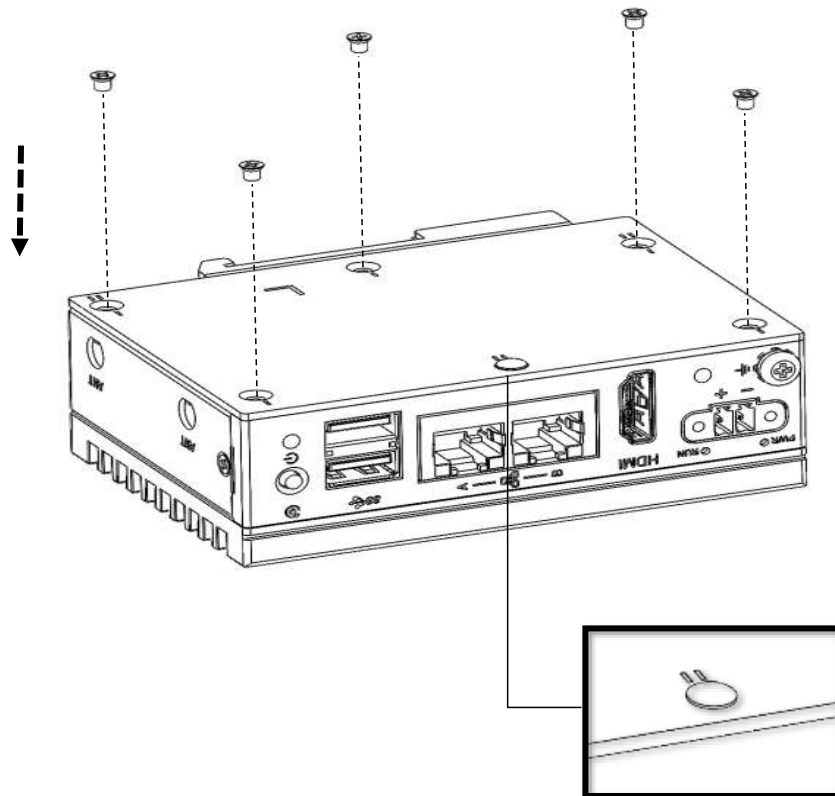1. Remove the five screws from UNO's back cover.

2. Insert the mSATA storage in the location "CN15".

3. Secure it with the screws from accessories box..

4. Install the 5 screws onto the back cover. (Note. The sign "II" always faces to the front IO).

3.4 Mounting type: Din-rail

UNO-127 supports WiFi modules. Follow the steps below for installation:

1. Remove five screws from the back cover of UNO.
2. Remove the plug of antenna pre-cut hole(s) on the top panel for antenna installation
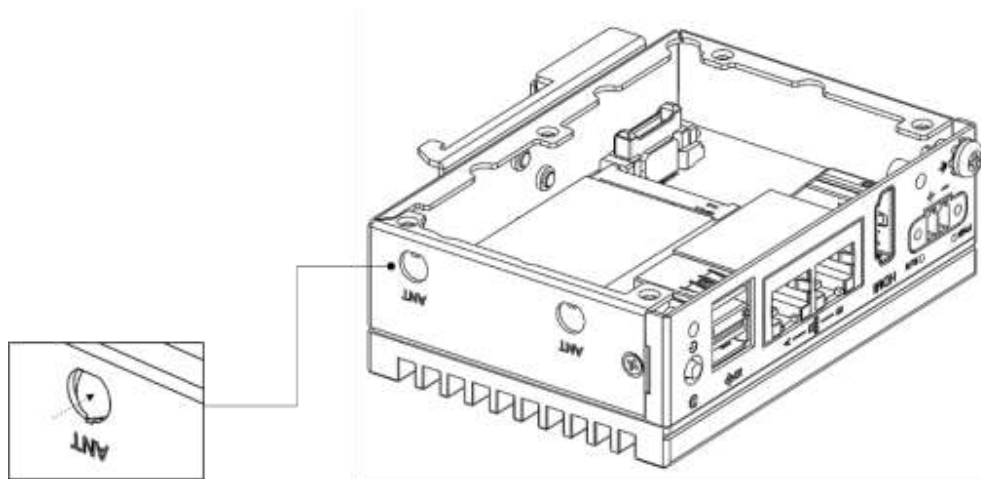
3. Install the SMA connector of Antenna cable onto the Antenna hole
4. Connect the MHF of Antenna cable with the module
5. Fix the washers and screw nut.
6. Return the back cover and gently attach it into position
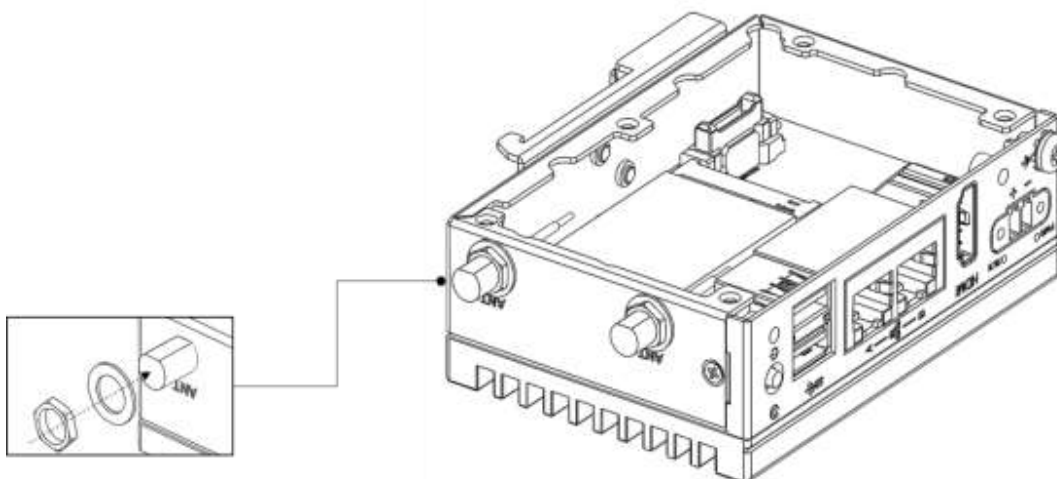
3.5 Extension Kit Installation (Optional)

3.5.1 4 x COM & 1 x LAN extension kit (UNO-127-RS1EA)

You can additionally install a 2nd stack 4 x COM & 1xLAN extension kit (PN: UNO-127-RS1EA) on UNO-127 to expand its functionality:

The accessory list for iDoor extension kit (PN: UNO-127-RS1EA)
3 x M2.5x4L screws for back cover installation
2 x plugs for hollow holes installation

Follow the steps below for extension kit Installation:

1. Remove M2.5 x4L x 5 screws from the back cover of UNO-127.
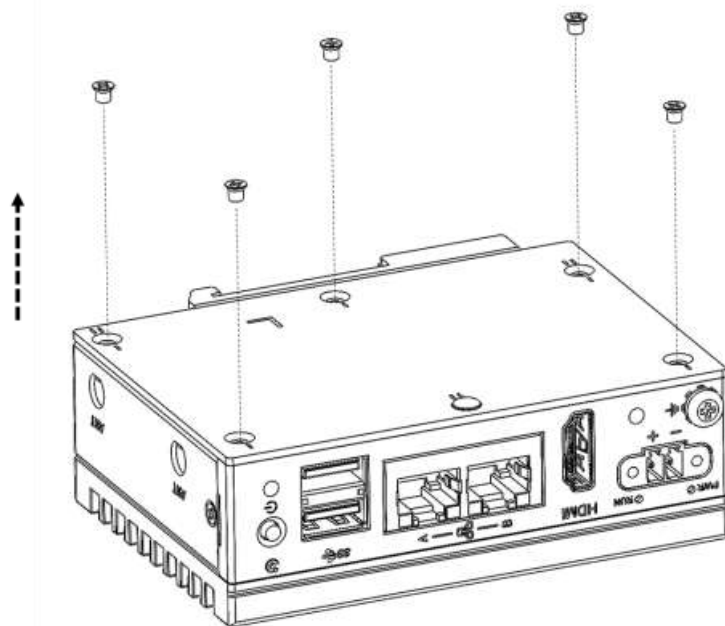
2. Aligned the BTB (board to board) connector #1 and attach it with connectors, then installed M3 x4L x 3 screws #2 for attaching the base unit and extension kit.
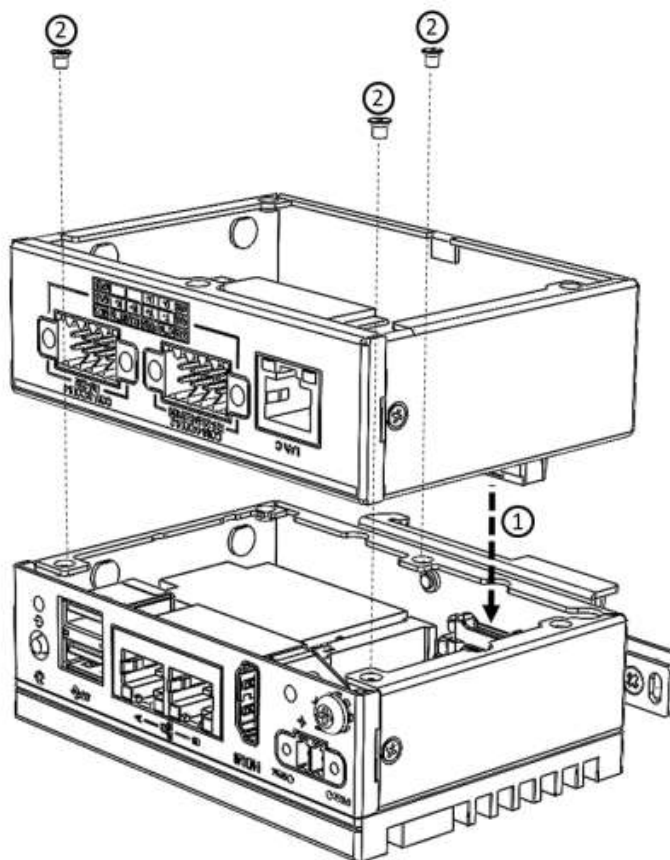
3. Re-attached 3 screws back into the position labeled "II", and installed the plugs in the hollow holes. (Note. Sign "II" always faces to the front IO)
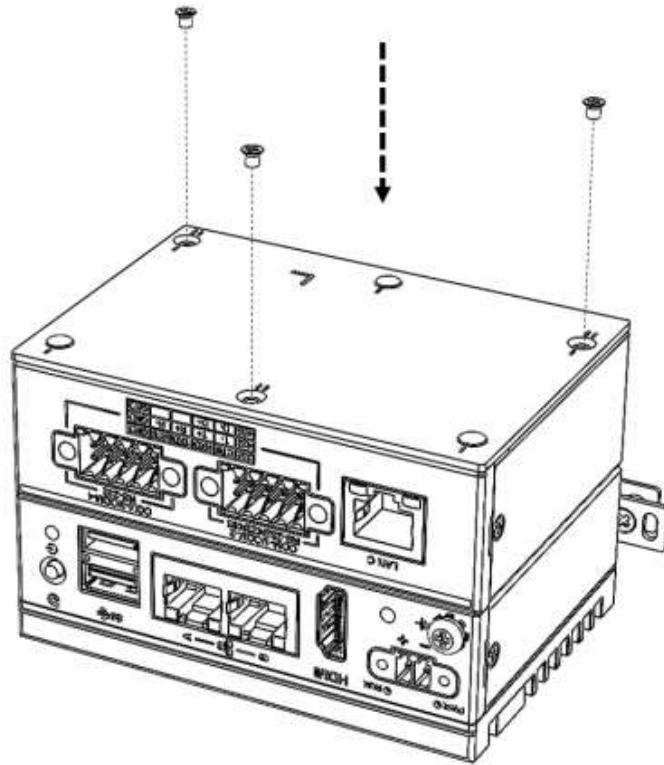
3.6 BIOS Setting

With the BIOS Setup program, you can modify BIOS settings and control the special features of your computer. The Setup program uses a number of menus for making changes and turning special features on or off.

Press the "ESC" key upon the first boot up to enter the BIOS setup screen, after then,

press the "Del" key during the Power On Self Test (POST) process to enter the BIOS setup screen, otherwise the system will continue the POST process.

(Please refer to User Manual- Appendix A.10/ A.11 for more settings)

Appendix A

System Settings & Pin Defs

A.1 Power Connector (DCIN1)

Table A.1: Power connector pin assignments

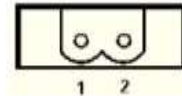| Pin	Signal	Description
1	Power IN V+	10 ~ 30V$_{DC}$
2	Power IN V- (GND)	

A.2 LAN: Ethernet Connector (LAN1)
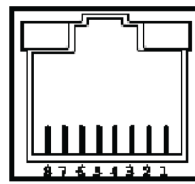
Table A.2: Ethernet Connector Pin Assignments

RJ45 Pin	Signal	Description
1	MDI0+	■ In BASE-T: Media Dependent Interface[0]: ■ 1000BASE-T: In MDI configuration, MDI[0]+/- corresponds to BI_DA+/- and in MDI-X configuration MDI[0]+/- corresponds to BI_DB+/-.
2	MDI0-	■ 10BASE-T and 100BASE-TX: In MDI configuration, MDI[0]+/- is used for the transmit pair and in MDIX configuration MDI[0]+/- is used for the receive pair.
3	MDI1+	■ In BASE-T: Media Dependent Interface[1]: ■ 1000BASE-T: In MDI configuration, MDI[1]+/- corresponds to BI_DB+ and in MDI-X configuration MDI[1]+/- corresponds to BI_DA+/-.
6	MDI1-	■ 10BASE-T and 100BASE-TX: In MDI configuration, MDI[1]+/- is used for the receive pair and in MDI-X configuration MDI[1]+/- is used for the transmit pair.
4	MDI2+	■ In BASE-T: Media Dependent Interface[3:2]: ■ 1000BASE-T: In MDI and in MDI-X configuration, MDI[2]+/- corresponds to BI_DC+/- and MDI[3]+/- corresponds to BI_DD+/-. ■ 100BASE-TX: Unused. ■ 10BASE-T: Unused.
5	MDI2-	
7	MDI3+	
8	MDI3-	

Left LED			Right LED
10Link	**100Link**	**1000 Link**	**Active**
Off	Orange	Green	Green

A.3 USB Connector (USB1)

A.3.1 USB 3.0 Connector
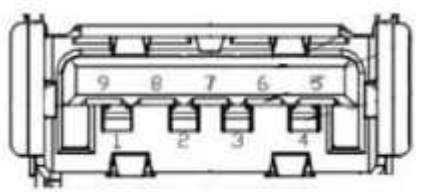
Table A.3: USB 3.0 Connector Pin Assignments		
Pin	**Signal Name**	**Description**
1	VBUS	Power
2	D-	USB 2.0 differential pair
3	D+	
4	GND	Ground for power return
5	StdA_SSRX-	SuperSpeed receiver differential pair
6	StdA_SSRX+	
7	GND_DRIAN	Ground for signal return
8	StdA_SSTX-	SuperSpeed transmitter differential pair
9	StdA_SSTX+	

A.4 HDMI Connector (CN1)
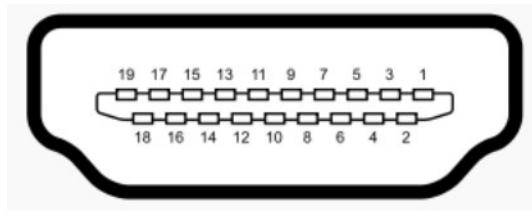
Table A.4: HDMI Display Connector			
Pin	**Signal**	**Pin**	**Signal**
1	TMDS Data2+	2	TMDS Data2 Shield
3	TMDS Data2-	4	TMDS Data1+
5	TMDS Data1 Shield	6	TMDS Data1-
7	TMDS Data0+	8	TMDS Data0 Shield
9	TMDS Data0-	10	TMDS Clock+
11	TMDS Clock Shield	12	TMDS Clock-
13	CEC	14	Reserved
15	SCL	16	SDA
17	DDC/CEC/HEC Ground	18	+5 V Power (max 50 mA)
19	Hot Plug Detect		

A.5 M.2 Connector
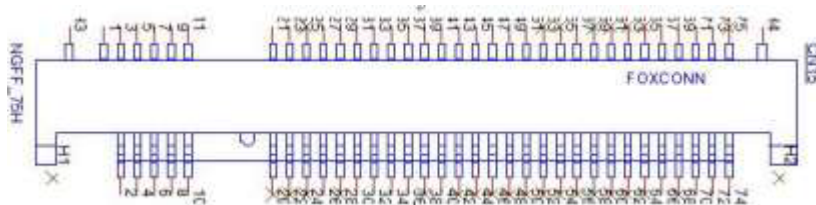
Table A.5: M.2 B Key Connector Pin Assignments			
Pin	**Signal Name**	**Pin**	**Signal Name**
1	M2_SATA1_DET	2	+V3.3_M2
3	GND	4	+V3.3_M2
5	GND	6	M2_LTE_PWR_OFF#
7	M2_LTE_USB_DP	8	M2_LTE_W1_DISABLE_N
9	M2_LTE_USB_DN	10	+V3.3_M2
11	GND	12	Mechanical notch B
13	Mechanical notch B	14	Mechanical notch B
15	Mechanical notch B	16	Mechanical notch B
17	Mechanical notch B	18	Mechanical notch B
19	Mechanical notch B	20	NC
21	NC	22	NC
23	WAKE_ON_WAN#	24	NC
25	NC	26	M2_LTE_W2_DISABLE_N
27	GND	28	NC

Table A.5: M.2 B Key Connector Pin Assignments			
29	USB_Z_SSRX1-	30	M2_SIM1_RESET
31	USB_Z_SSRX1+	32	M2_SIM1_CLK
33	GND	34	M2_SIM1_DATA
35	USB_C_SSTX1-	36	M2_SIM1_PWR
37	USB_C_SSTX1+	38	NC
39	GND	40	M2_SIM2_DET
41	SATA1_RX+	42	NC
43	SATA1_RX-	44	NC
45	GND	46	NC
47	SATA1_C_TX-	48	NC
49	SATA1_C_TX+	50	NC
51	GND	52	NC
53	NC	54	NC
55	NC	56	NC
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	M2_SIM1_DET
67	LTE_RST#_P67	68	NC
69	NC	70	+V3.3_M2
71	GND	72	+V3.3_M2
73	GND	74	+V3.3_M2
75	NC		

A.6 mPCIe Connector (MINI1)
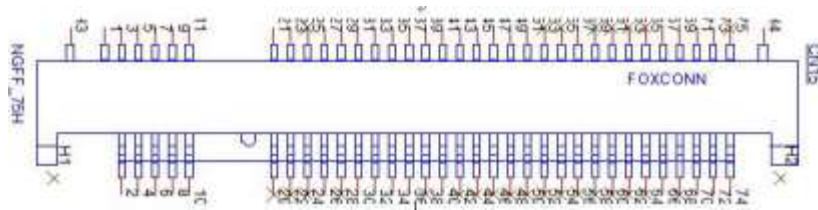
Table A.6: mPCIe Connector Pin Assignments

| Pin	Signal Name	Pin	Signal Name
1	PCIE_WAKE#_3.3	2	+V3.3_MINI
3	NC	4	GND
5	NC	6	+V1.5
7	+V3.3	8	NC
9	GND	10	NC
11	CLK_PCIE_mPCIe1-	12	NC
13	CLK_PCIE_mPCIe1+	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	WIFI_DISABLE#
21	NC	22	MINI_PLTRST#
23	PCIE_mPCIe_RX4-	24	+V3.3_MINI
25	PCIE_mPCIe_RX4+	26	GND
27	GND	28	+V1.5
29	GND	30	NC
31	PCIE_TX2-_Z	32	NC
33	PCIE_TX2+Z	34	GND
35	GND	36	USB_Z_P0-
37	GND	38	USB_Z_P0+
39	+V3.3_MINI	40	GND
41	+V3.3_MINI	42	NC
43	MPCIE_PWRSEL	44	NC
45	NC	46	NC
47	NC	48	+V1.5
49	NC	50	GND
51	NC	52	+V3.3_MINI

A.7 COM Port RS232/422/485 Settings

The default setting for the COM port is RS-232. This can be changed to RS-422 or RS-485 modes can be configured by adjusting switch on the motherboard.

A.7.1 COM1/COM2 RS232/422/485 Settings
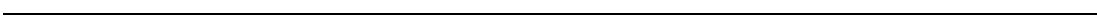
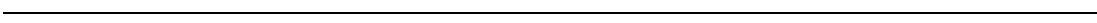|	
SW1 Default	
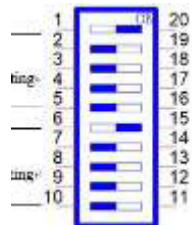
Description	This switch is used to select RS232/422/485 mode settings
Default	RS232 mode

A.7.2 COM3/COM4 RS232/422/485 Setting

SW2 Default	
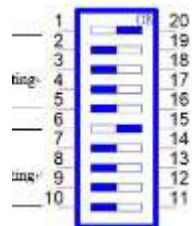
Description	This switch is used to select RS232/422/485 mode settings
Default	RS232 mode
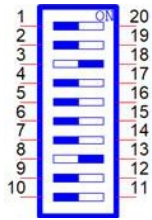
COM1	RS232 Mode	Bit 1 ON	
		Bit 2,3,4,5,6,7,8,9,10 OFF	
	RS485 Mode	Bit 2,4,5 ON	
		Bit 1,3,6,7,8,9,10 OFF	
	RS422 Mode	Bit 1,2,4,5 ON	
		Bit 3,6,7,8,9,10 OFF	
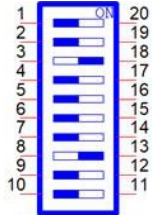
COM2	RS232 Mode	Bit 6 ON	
		Bit 1,2,3,4,5,7,8,9,10 OFF	
	RS485 Mode	Bit 7,9,10 ON	
		Bit 1,2,3,4,5,7,8 OFF	
	RS422 Mode	Bit 6,7,9,10 ON	
		Bit 1,2,3,4,5,8 OFF	

COM3	RS232 Mode	Bit 1 ON	
		Bit 2,3,4,5,6,7,8,9,10 OFF	
	RS485 Mode	Bit 2,4,5 ON	
		Bit 1,3,6,7,8,9,10 OFF	
	RS422 Mode	Bit 1,2,4,5 ON	
		Bit 3,6,7,8,9,10 OFF	

COM4	RS232 Mode	Bit 6 ON	
		Bit 1,2,3,4,5,7,8,9,10 OFF	
	RS485 Mode	Bit 7,9,10 ON	
		Bit 1,2,3,4,5,7,8 OFF	
	RS422 Mode	Bit 6,7,9,10 ON	
		Bit 1,2,3,4,5,8 OFF	
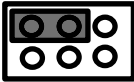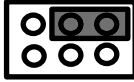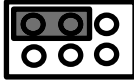
A.7.3 COM Port RS422/485 Termination Resistor Setting

SW1	Termination Resistor setting
Description	This switch is used to select Termination Resistor (120 ohm) forlong distance transmissions or device matching.
Default	Bit3 off & Bit8 off
COM1	Bit3 on
COM2	Bit8 on

SW2	Termination Resistor setting
Description	This switch is used to select Termination Resistor (120 ohm) forlong distance transmissions or device matching.
Default	Bit3 off & Bit8 off
COM3	Bit3 on
COM4	Bit8 on

A.8 AT/ATX Setting (PSON1)

PSON1 using jumper for setting AT/ATX mode. The default setting is AT mode. See the follow- ing table for jumper installation for mode.

	PIN 1 2 3	
Default		

Description	Instruction	PSON1
ATX Mode	Closed 2-3	
AT Mode (Default)	Closed 1-2	

A.9 Riser Connector

Pin	Signal Name	Pin	Signal Name
A1	DCIN	B1	GND
A2	DCIN	B2	GND
A3	DCIN	B3	GND
A4	DCIN	B4	GND
A5	N/A	B5	SMB_CLK
A6	GND	B6	SMB_DAT
A7	GND	B7	GND
A8	GND	B8	+V5
A9	USB+	B9	+V5
A10	USB-	B10	+V5
A11	GND	B11	+V5
A12	GND	B12	PCIeX4_EN
A13	CLK+	B13	GND
A14	CLK-	B14	RX0+
A15	GND	B15	RX0-
A16	TX0+	B16	GND
A17	TX0-	B17	SLP_S3
A18	GND	B18	GND
A19	N/A	B19	RX1+
A20	GND	B20	RX1-
A21	TX1+	B21	GND
A22	TX1-	B22	GND
A23	GND	B23	RX2+
A24	GND	B24	RX2-
A25	TX2+	B25	GND
A26	TX2-	B26	GND
A27	GND	B27	RX3+
A28	GND	B28	RX3-
A29	TX3+	B29	GND
A30	TX3-	B30	PLTRST
A31	GND	B31	SATA0_DET
A32	SATA1_DET	B32	GND

A.10 TPM 2.0 BIOS Setting

The UNO-127 systems support TPM 2.0 functionality. This can be enabled or disabled in the BIOS menu by following the instructions provided below:

1. Power on the UNO-127 system and press "Delete" to enter the BIOS configuration menu.
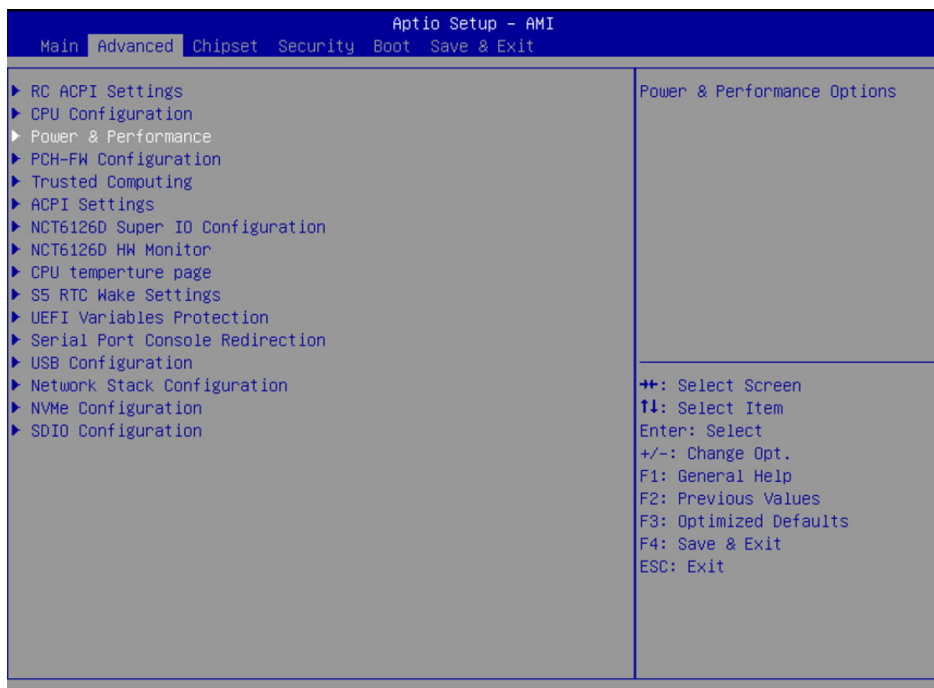2. On the "Advanced" tab, select the "Trusted Computing" item.

3. Then select the "Security Device Support" item.
4. Choose "enable/disable" to enable or disable the TPM 2.0 function (The default setting is to enable this function)

A.11 CPU Turbo Mode BIOS Setting

The UNO-127 systems support CPU Turbo mode. This can be enabled or disabled in the BIOS menu by following the instructions:

1. Power on the UNO-127 system and press "Delete" to enter the BIOS configuration menu.
2. On the "Advanced" tab, select the "CPU Configuration" item.

```
                          Aptio Setup - AMI
     Main  Advanced  Chipset  Security  Boot  Save & Exit

 ▶ RC ACPI Settings                             Power & Performance Options
 ▶ CPU Configuration
 ▶ Power & Performance
 ▶ PCH-FW Configuration
 ▶ Trusted Computing
 ▶ ACPI Settings
 ▶ NCT6126D Super IO Configuration
 ▶ NCT6126D HW Monitor
 ▶ CPU temperture page
 ▶ S5 RTC Wake Settings
 ▶ UEFI Variables Protection
 ▶ Serial Port Console Redirection
 ▶ USB Configuration
 ▶ Network Stack Configuration             ←→: Select Screen
 ▶ NVMe Configuration                      ↑↓: Select Item
 ▶ SDIO Configuration                      Enter: Select
                                           +/-: Change Opt.
                                           F1: General Help
                                           F2: Previous Values
                                           F3: Optimized Defaults
                                           F4: Save & Exit
                                           ESC: Exit
```

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