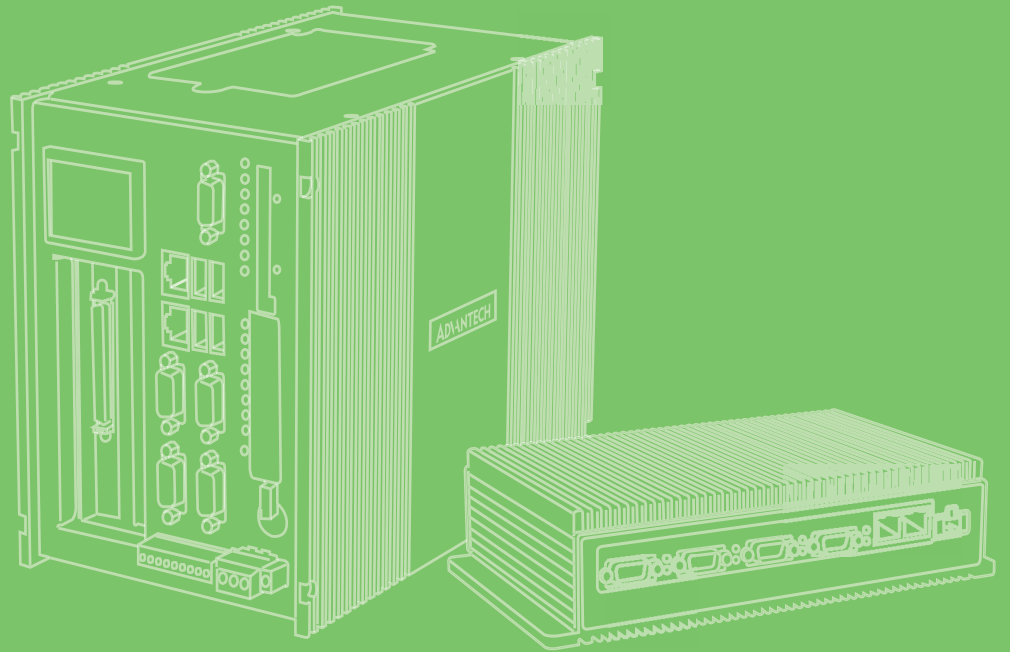


User Manual



UNO-348 電腦

Compact Embedded Edge
Controller

ADVANTECH

Enabling an Intelligent Planet

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For technical support services, please visit our support website at <http://support.advantech.com/>

This manual applies to the following models. These are abbreviated as UNO-348 products in this article.

*Model name UNO-348

*Part number:

UNO-348-A531A

UNO-348-A941A

UNO-348-A533A

UNO-348-A943A

UNO-348-ANN3A

UNO-348-ANN3AW

UNO-348-ANN1A

UNO-348-ANN1AW

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UNO348ANN3A2703-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.

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 Precautions - 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 -40°C (-40°F) or above 85°C (185°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 mating connector, rated 10-36Vdc, 16A-4.44A minimum and Tma 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 manufacturer for servicing.
24. Do not block air ventilation holes.
25. Restricted Access Area: The equipment should only be installed in a Restricted Access Area.

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



Caution: Hot surface. Do not touch for Top Heatsink.

26. Do not modify the construction of equipment or expand any hardware board/ devices. Please return to the authorized dealer for any installation, replacement, repair, update or service.

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'équipement 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'équipement
 - L'équipement a été exposé à l'humidité.
 - L'équipement ne fonctionne pas bien, ou vous ne pouvez pas le faire fonctionner 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 -40° C (-4° F) OU BIEN SUPÉRIEURE À 85° C (185° F). CECI POURRAIT ENDOMMAGER L'EQUIPEMENT. L'ÉQUIPEMENT DEVRAIT ÊTRE DANS UN ENVIRONNEMENT 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 40 degrés Celsius, dont la sortie est conforme à la norme SELV et dont la puissance nominale est de 10 Vdc, 7.7 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.



Attention: Surface chaude, ne pas toucher pour le dissipateur thermique supérieur.

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 -40°C (-40°F) 或高於 85°C (185°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。

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Chapter 1

Overview

This chapter overviews specifications for UNO-348.

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

1.1 Introduction

UNO-348 is a high-performance, fanless, embedded edge controller supports 10th gen. Intel® Core i CPU. Despite its compact size, UNO-348 offers multiple I/O including 4 x USB 3.2, 2 x USB 2.0, 3 x GigaLAN, 2 x RS-232/422/485, and 1 x RS-232 ports, as well as 1 x Line-out, 1 x Mic-in, 1 x DisplayPort, and 1 x HDMI interfaces. Designed to deliver high-performance computing and maximum flexibility for industrial automation applications, UNO-348 also features 2 x internal HDD/SSD bays, 1 x full-size mPCIe, 1 x M.2 B-key, and up to 3 x PCIe/PCI expansion slots (1 x PCIe x16, 2 x PCI) to support the integration of optional peripherals. In addition to dual power inputs that ensure a stable power supply, UNO-348 is equipped with Advantech's iBMC technology to support remote OOB(out-of-band) power management to reduce system downtime and operational costs.

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 the chassis before manual handling. Do not connect the chassis while the system 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-348. 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-348. 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 to below packing list:

- 1 x UNO-348 system
- 1 x UNO-348 Bracket Mounting
- 1 x M.2 Bracket Marked “A” (Support 3042 card,)
- 1 x M.2 Bracket Marked “B” (Support 3052 card)
- 1 x 2P Plug-in block for remote power on/ off function
- 1 x 4P Plug-in block for power connector
- 3 x M3x4L screws for M.2 Bracket
- 8 x M3x4L screw for SSD
- 1 x M2x4L screw for mini PCIE
- 1 x Earth-Ground cable
- Quick Start Guide
- Simplified Chinese manual
- China RoHs sheet
- Warranty card

For UNO-348-ANN1A/ UNO-348-ANN3A, there's an additional accessory bag for post-assemble as below:

- 1 x Grease for CPU
- 17 x M3x6L Screw for Chassis
- 4 x M3x4L Screw for Mother Board

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

1.4 Sku Information

UNO-348 provides pre-configured version of CPU/RAM and barebone version Here's the sku information. You need to purchase CPU and RAM additionally when ordering UNO-348-ANN1A and UNO-348-ANN3A.

# of PCIe/PCI slots	Part number	Description	CPU	PCH	RAM	PCI/PCIE
1 slot ver.	UNO-348-A531A	H420E, I5-10500E 6cores, 8G RAM, 3*COM, 6*USB, 3*LAN, 1*PClex16	Intel® Core™ i5-10500TE	H420E	8G	1*PClex16
	UNO-348-A941A	H420E, I9-10900E 10 cores, 16G RAM, , 3*COM, 6*USB, 3*LAN, 1*PClex16	Intel® Core™ i9-10900TE		16G	
	UNO-348-ANN1A	H420E, 3*COM, 6*USB, 3*LAN, 1*PClex16	X (support Intel® Core™ i9/i7/i5/i3/ Celeron/ Pentium)		X	
3 slot ver.	UNO-348-A533A	H420E, I5-10500E 6 cores, 8G RAM, 3*COM, 6*USB, 3*LAN, 1*PClex16 , 2*PCI	Intel® Core™ i5-10500TE		8G	1*PClex16 , 2*PCI
	UNO-348-A943A	H420E, I9-10900E 10 cores, 16G RAM, , 3*COM, 6*USB, 3*LAN, 1*PClex16, 2*PCI	Intel® Core™ i9-10900TE		16G	
	UNO-348-ANN3A	H420E, 3*COM, 6*USB, 3*LAN, 1*PClex16, 2*PCI	X (support Intel® Core™ i9/i7/i5/i3/ Celeron/ Pentium)		X	

We also provide optional backplane for 3 slot version to upgrade to PCIe spec.

Part number	Description
9893UR05000	1*PClex16, 1*PClex1, 1*PClex1

1.5 Hardware Specifications

1.5.1 General

Dimensions (W x D x H)	UNO-348 (1 slot): 200 x 140 x 120 mm (7.8 x 5.5 x 4.7 in) UNO-348 (3 slot): 200 x 140 x 160 mm (7.8 x 5.5 x 6.3 in)
Weight (Net)	UNO-348 (1 slot): 3.5 kg (7.7 lbs) UNO-348 (3 slot): 4 kg (8.8 lbs)
Mounting	Wall mount, Stand Mount
Power Requirement	10 - 36V _{DC} Power should be fixed at 24VDC (± 20%) when total power consumption exceeds 160W.
Power Rating	16A~4.44A
Power Consumption	59W (typical), 100W (Max) without installing PCIe/PCI card. Note: PCIex16 slot supports up to 75W PCIex 4 slot supports up to 25W PCIex1 slot supports up to 10W PCI slot supports up to 25W

1.5.2 System Hardware

BIOS	AMI UEFI 128Mbit(H420)
Watchdog Timer	Programmable 255 levels timer interval, from 1 to 255 sec
Hardware Security	TPM 2.0
Processor	Intel® 10th Gen Core™ i socket type CPU (LGA1200)
Chipset	Intel H420E (W480 available upon request)
Memory	2 x 260-pin DDR4 SODIMM (up to 32GB per socket) Maximum capacity up to 64GB
Graphics Engine	Intel® HD Graphics
Storage/Expansion	2 x 2.5" SSD/HDD bay 1 x M.2 B-key (SATA/USB 3.0 signal) for 2242/2280 SATA SSD or 3042/3052 LTE/5G module expansion 1 x Full-size mPCIe (PCIe / USB2.0 signal) UNO-348-AXX1A: 1 x PCIex16 UNO-348-AXX3A: 1 x PCIex16, 2 x PCI

1.5.3 I/O Interfaces

Serial Ports	2 x RS-232/422/485, 1 x RS-232. 50bps~115.2 kbps (DB9)
LAN Ports	3 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000BASE-T Fast Ethernet (RJ-45)
USB Ports	4 x USB 3.2 Gen1, and 2 x USB 2.0 (Type A)
Displays	1 x DP 1.4, supports, 4096x2306@60Hz (DP++) 1 x HDMI 1.4 supports 4096x2160@30Hz
Power Connector	1 x 2 Pin (terminal block)

1.5.4 Environment

Operating Temperature	-20 ~ 50 °C (-4 ~ 122 °F) with 0.7m/s airflow environment, with wide-temperature (-40 ~ 85 °C/-40 ~ 185 °F) peripheral (e.g. Memory, 2.5" SSD, wireless modules)
Storage Temperature	-40 ~ 85 °C (-40 ~ 185 °F)
Relative Humidity	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, 4Grms, random, 5 ~500Hz, 1hr/axis (SSD)
Ingress Protection	IP20

1.5.5 Certification

Certification	CE, FCC, CB, UL, CCC, BSMI, CAN ICES-003(A)/NMB-003(A)
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1.6 Dimensions

1.6.1 UNO-348-AXX1A Dimensions

200 x 140 x 120 mm (7.8 x 5.5 x 4.7 in) (W x D x H)

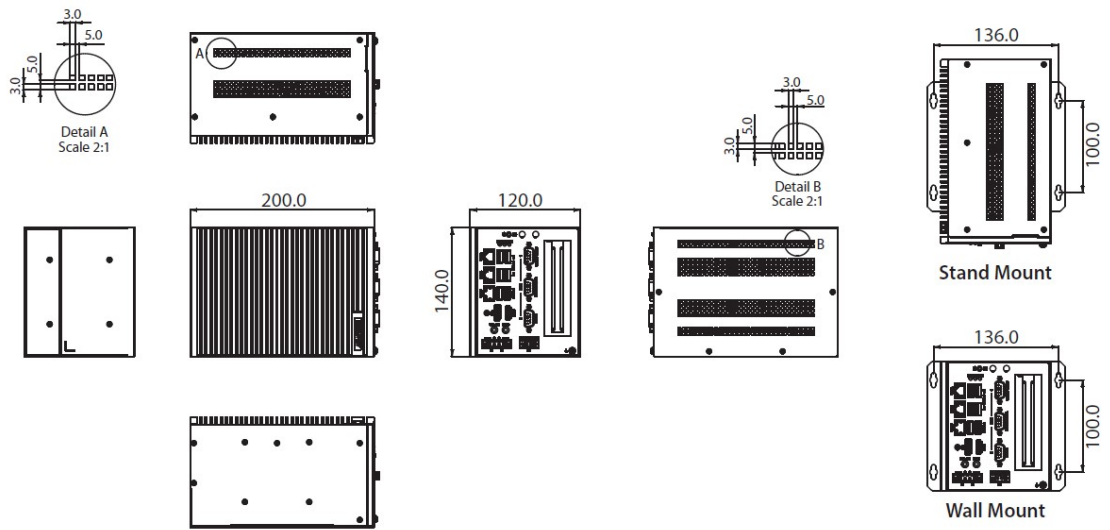


Figure 1.1 UNO-348 (1 Slot) Dimensions

1.6.2 UNO-348-AXX3A Dimensions

200 x 140 x 160 mm (7.8 x 5.5 x 6.3 in) (W x D x H)

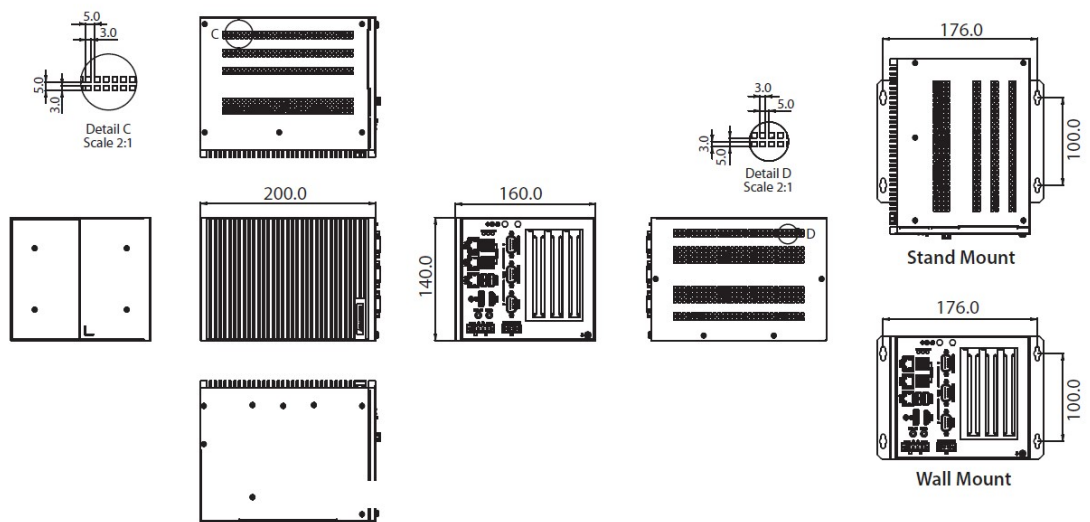


Figure 1.2 UNO-348 (3 slot) Dimensions

Chapter 2

Hardware Functionality

This chapter details setup instructions for UNO-348's hardware functions. It includes connecting peripherals and indicators.

- 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-348's motherboard's key components and internal/external connectors.

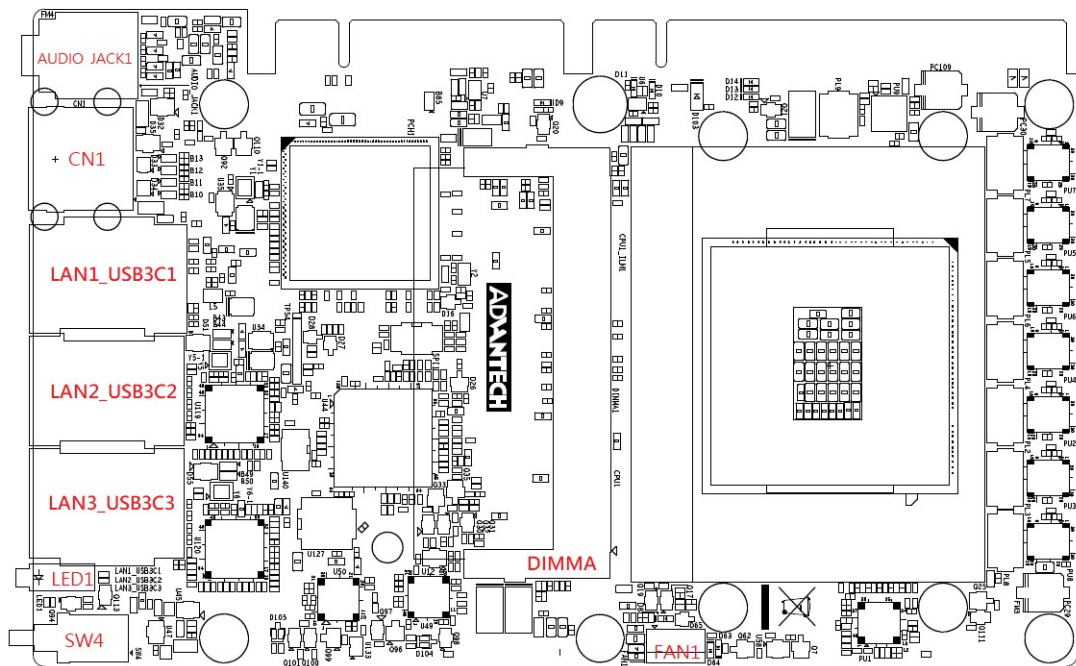


Figure 2.1 Diagram of Connector Locations on UNO-348 of MotherBoard (Top Side)

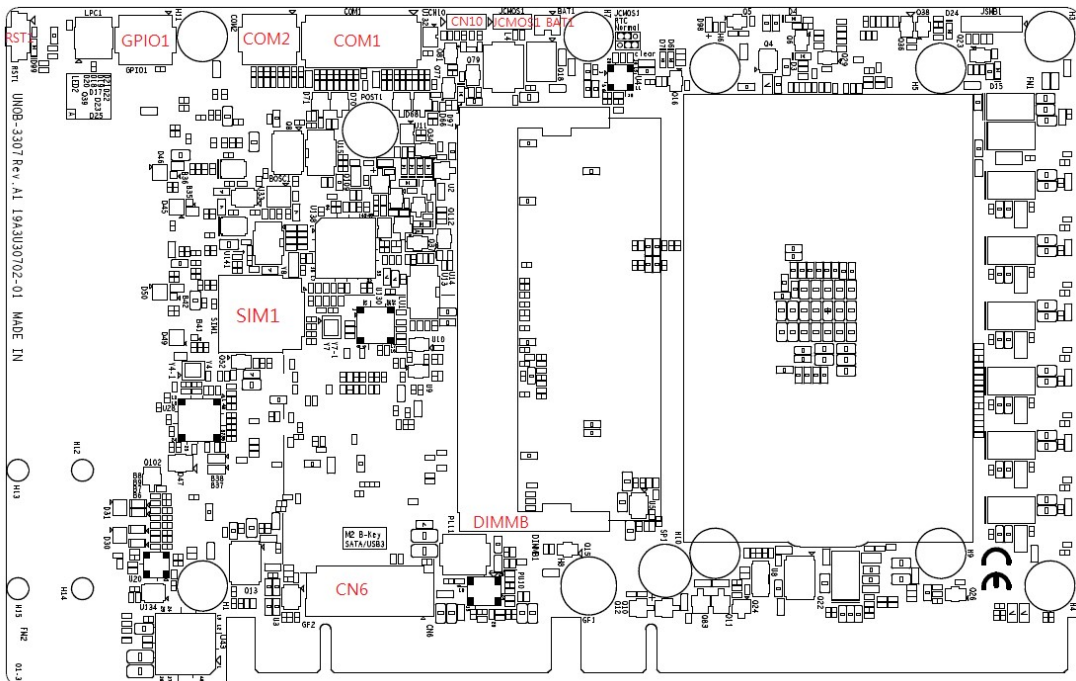
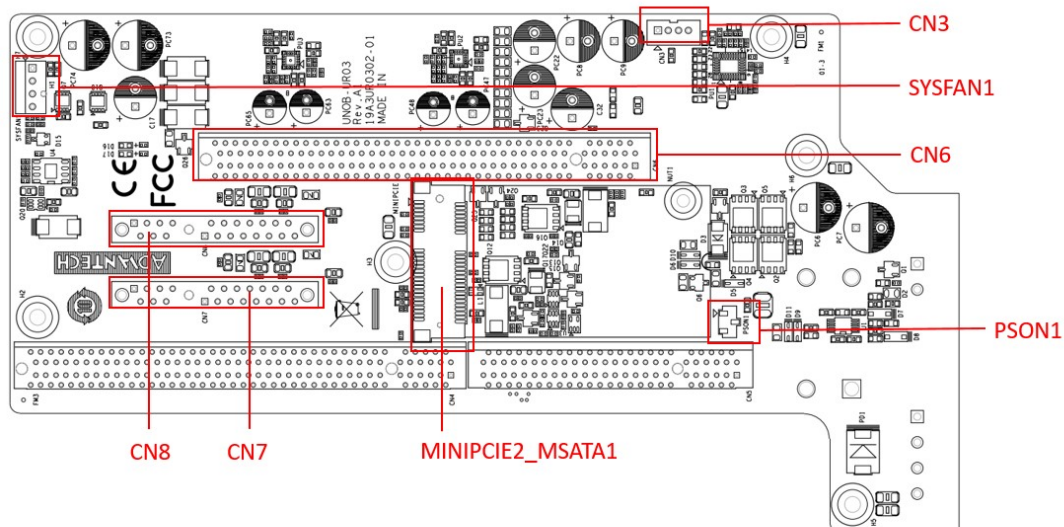


Figure 2.2 Diagram of Key Components Location on UNO-348 of MotherBoard (Bottom Side)

Table 2.1: Key Components, Connectors on Board

Category	Label	Function
External	AUDIO JACK1	Audio Connector and Mic Connector
	CN1	Display Connector and HDMI Connector
	LAN1_USB3C1	LANC port and USB 2.0 Connector *2
	LAN2_USB3C2	LANB port and USB 3.2 Connector *2
	LAN3_USB3C3	LANA port and USB 3.2 Connector *2
	LED1	LED *3
	SW4	Power Button
	RST1	Reset Button
Internal	DIMMA	Memory Slot
	DIMMB	Memory Slot
	SIM1	SIM card slot (Nano)
	CN6	M.2 B Key
	GPIO1	GPIO Connector
	COM1	Serial Port Connector
	COM2	Serial Port Connector
	CN10	ATX/AT Header
	JCMOS1	CMOS Header
	BAT1	Battery Connector

**Figure 2.3 Diagram of Key Components Location on UNO-348-AXX1A (1 Slot) of Backplane Board (TOP Side)**

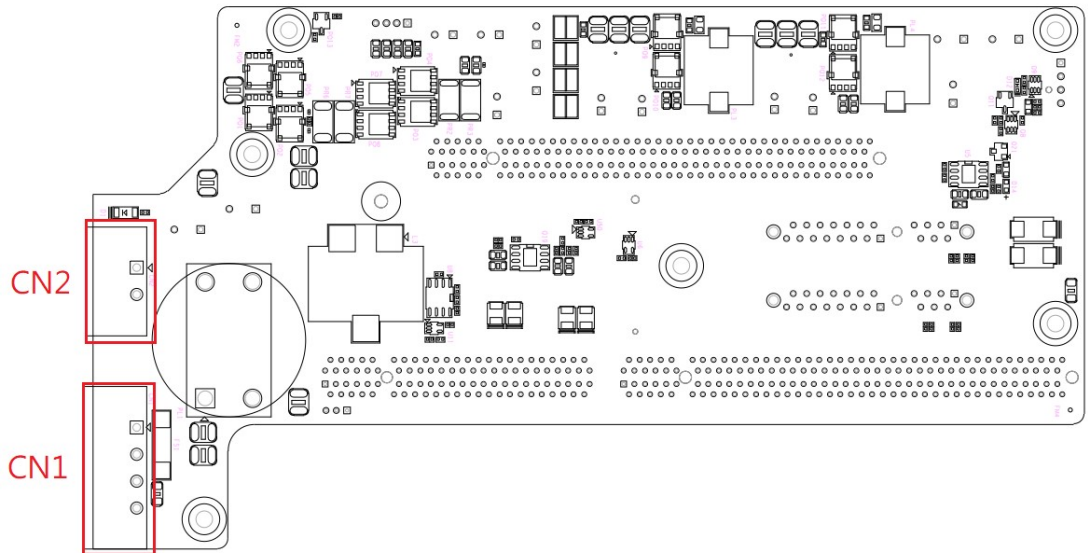


Figure 2.4 Diagram of Key Components Location on UNO-348-AXX1A (1 Slot) of Backplane Board (IO 1-slot Bottom Side)

Table 2.2: Key components, Connectors on IO 1-slot Board

Category	Label	Function
External	CN1	Power Input connector
	CN2	Remote connector
Internal	CN3	iDoor Power connector
	SYSFAN1	External system FAN power connector (reserve)
	CN6	PCIe x16 slot
	CN7	SATA Connector
	CN8	SATA Connector
	MINIPCI2_MSATA1	miniPCIe connector
	CN11	Remote jumper setting connector

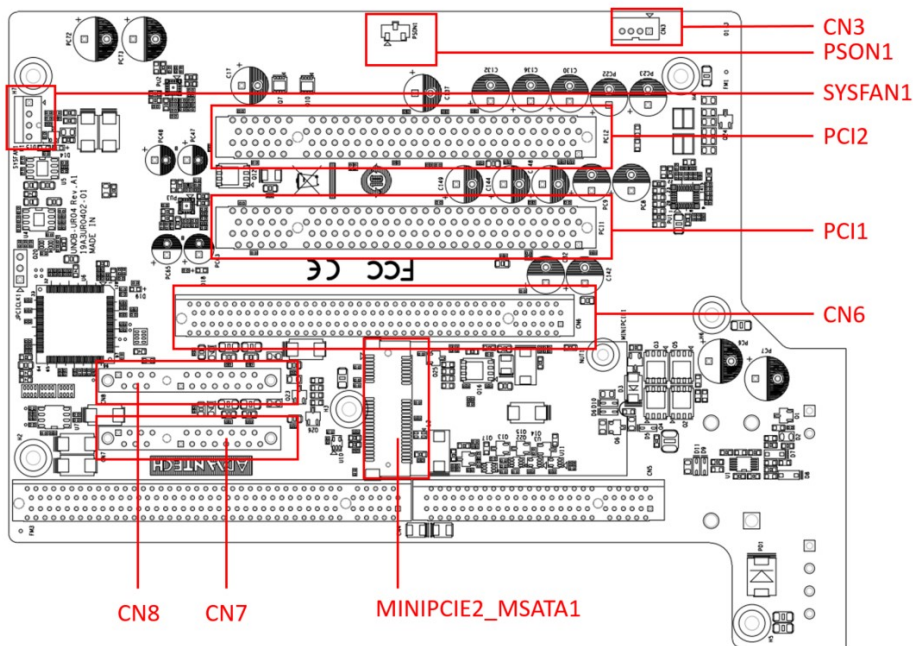


Figure 2.5 Diagram of Key Components Location on UNO-348-AXX3A (3 Slot) of Backplane Board (TOP Side)

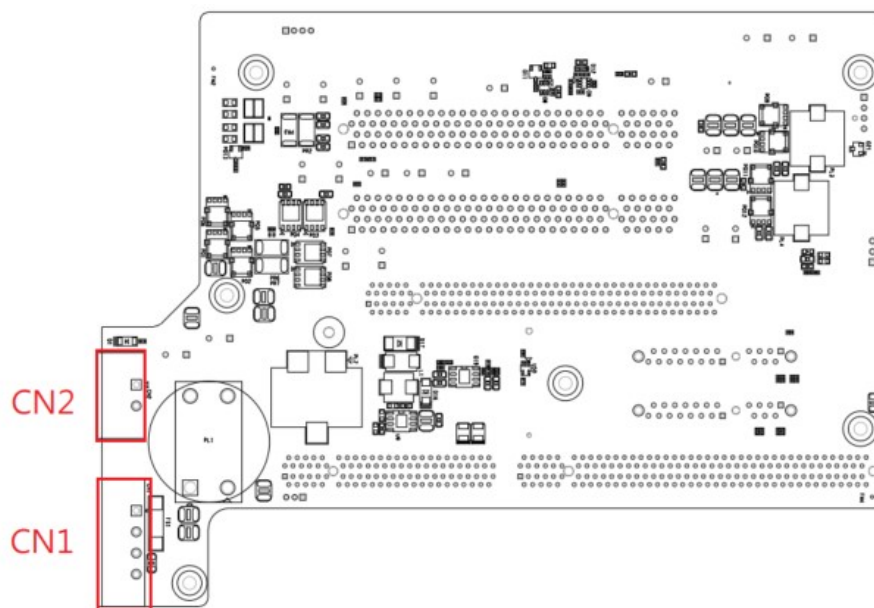


Figure 2.6 Diagram of Key Components Location on UNO-348-AXX3A (3 Slot) of Backplane Board (Bottom Side)

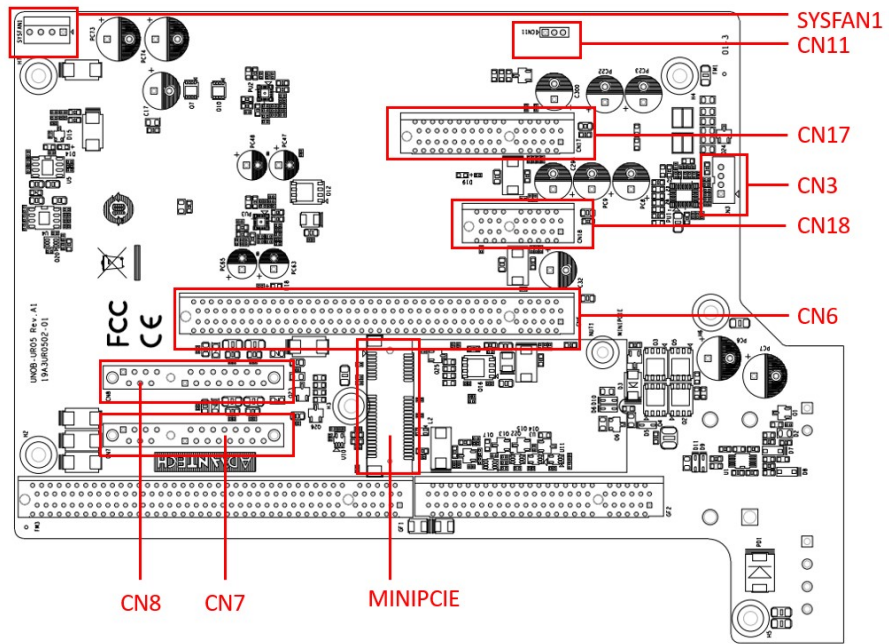


Figure 2.7 Diagram of Key Components Location on UNO-348-AXX3AW (3 Slot) of Backplane Board (TOP Side)

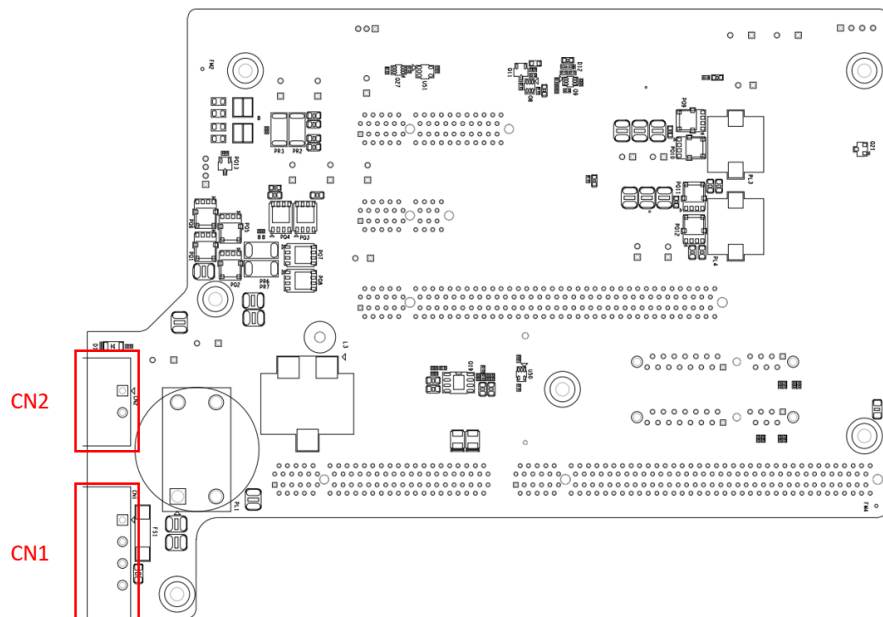


Figure 2.8 Diagram of Key Components Location on UNO-348-AXX3AW (3 Slot) of Backplane Board (Bottom Side)

2.2 External I/O Connector

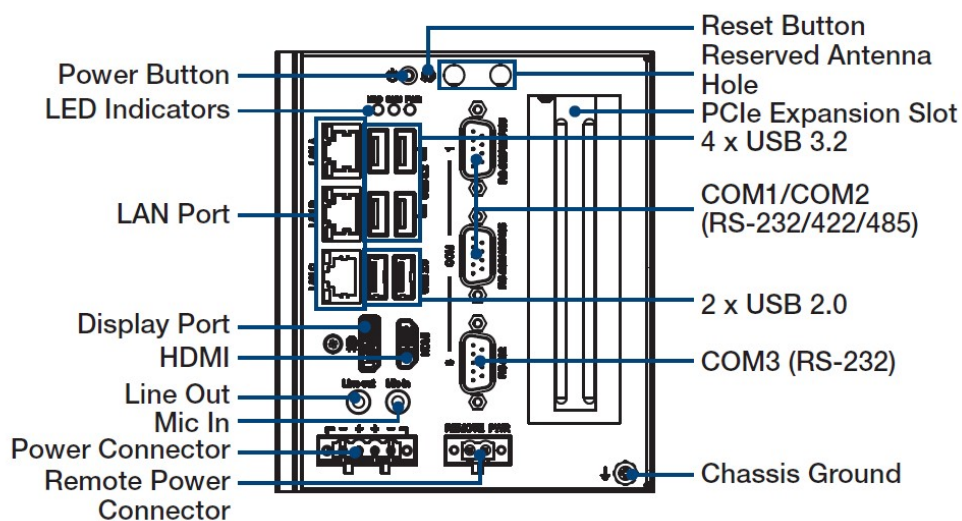


Figure 2.9 Front View of UNO-348-AXX1A (1 Slot)

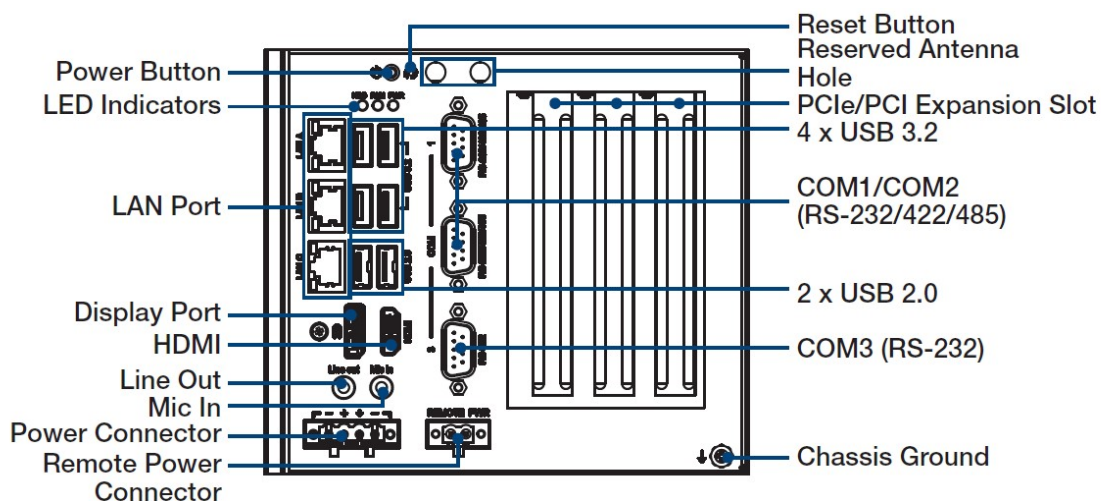


Figure 2.10 Front View of UNO-348-AXX3A (3 Slot)

2.2.1 Power Connector

UNO-348 comes with a terminal block connector that carries 10 - 36 VDC external power input, and features reversed wiring protection. Therefore, the system will not accrue damage from reversed polarity of ground lines and power lines.

2.2.2 LAN: Ethernet Connector

UNO-348 is equipped with three standard RJ-45 Gigabit LAN ports. In addition, LAN B also supports iBMC which provides out-of-band management for remote power on/off/reset/force-shutdown if system crash.

NOTE: WISE-iBMC power control function is operated on Advantech WISEDeviceOn software. Please refer to product support website to download DeviceOn software.

2.2.3 USB Connector

UNO-348 features 6x USB ports that support plug-and-play and hot-swapping functionality for external devices. Additionally, this can be enabled/disabled in the BIOS menu.

2.2.4 Display Connector

The UNO-348 provides 1x DP 1.4 connector for a high resolution interface up to 4096 x 2306 @ 60Hz and provide 1 x HDMI 1.4 connector for a high resolution interface up to 4096 x 2160 @ 30Hz. It also supports DP++ that can be compatible with passive adapter.

2.2.5 COM Connector

UNO-348 has COM1/COM2 (RS232/422/485) ports and COM3 (RS-232). They offer transmission speeds of 50 ~115.2 kbps.

The default mode for both COM ports (COM1&COM2) are RS-232 Mode. Settings can be adjusted in BIOS.

(Please refer to User Manual- Appendix A.8 for RS232/422/485 settings).

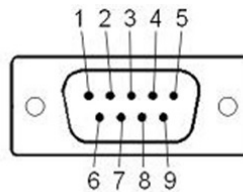


Figure 2.11 DB9 Pin Number (COM/GPIO)

Table 2.3: COM Connector Pin Assignments

Pin	COM1 Mode	Signal Name	COM2 Mode	Signal Name
1	RS232	DCD	RS232	DCD
	RS422	T-	RS422	T-
	RS485	D-	RS485	D-
2	RS232	RXD	RS232	RXD
	RS422	T+	RS422	T+
	RS485	D+	RS485	D+
3	RS232	TXD	RS232	TXD
	RS422	R+	RS422	R+
	RS485		RS485	
4	RS232	DTR	RS232	DTR
	RS422	R-	RS422	R-
	RS485		RS485	
5	RS232	GND	RS232	GND
	RS422	GND	RS422	GND
	RS485	GND	RS485	GND
6	RS232	DSR	RS232	DSR
	RS422		RS422	
	RS485		RS485	
7	RS232	RTS	RS232	RTS
	RS422		RS422	
	RS485		RS485	
8	RS232	CTS	RS232	CTS
	RS422		RS422	
	RS485		RS485	
9	RS232	RI	RS232	RI
	RS422		RS422	
	RS485		RS485	

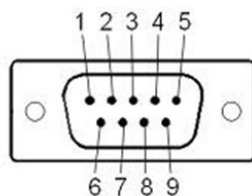
Table 2.3: COM Connector Pin Assignments

Pin	COM3 Mode	Signal Name
1	RS232	DCD
2	RS232	RXD
3	RS232	TXD
4	RS232	DTR
5	RS232	GND
6	RS232	DSR
7	RS232	RTS
8	RS232	CTS
9	RS232	RI

2.2.6 GPIO

We reserve a GPIO connector (labeled “GPIO1”) on board with 8x GPIO pins for on/off triggering and status reading.

Note: Additional GPIO cable shall be purchased (1700030635-01) and swap 1 x RS232 DB9 connector to GPIO connector.



The following table indicates the PIN mapping for GPIO

GPIO	PIN1	PIN2	PIN3	PIN4
	+5V	GPIO0	GPIO1	GPIO2
PIN5	PIN6	PIN7	PIN8	PIN9
GPIO3	GPIO4	GPIO5	GPIO6	GPIO7

2.2.7 Audio

UNO-348 has two audio ports with phone jack connectors, one Line-Out and one Mic-In.

2.2.8 Remote Power Control

UNO-348 provide two pins for remotely control power on/off or reset.

2.3 Internal I/O Connectors and Switches

The following figure demonstrates the locations of internal connectors and switches on the UNO-348's motherboard.

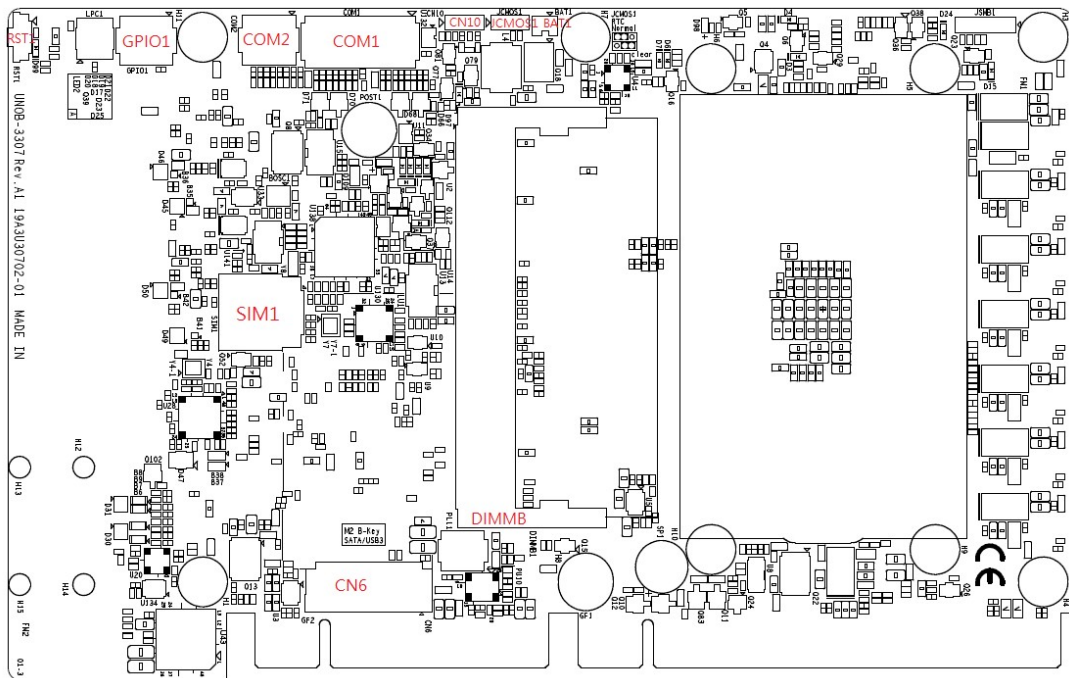
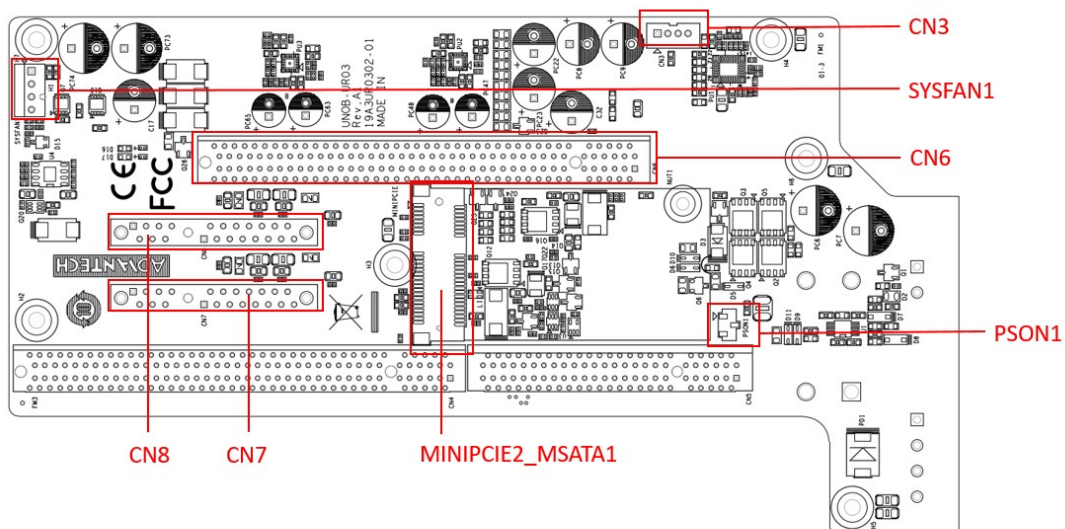


Figure 2.12 Locations Internal I/O Connectors/Switches for UNO-348

Table 2.4: Internal Connectors and Jumper Switches

Label	Function
CN6	M.2 B key for 2280 (support 3042/3052 by bracket)
RST1	Reset Button
GPIO1	GPIO Connector
JCOMS1	Clear CMOS Connector
COM1	COM Port RS232/422/485
COM2	COM Port RS232
CN10	AT/ATX/Remote setting
BAT1	RTC Battery Connector


Table 2.5: Internal Connectors and Jumper Switches

Label	Function
CN3	iDoor Power connector
SYSFAN1	External system FAN power connector (reserve)
CN6	PCIe x16 slot
CN7	SATA Connector
CN8	SATA Connector
MINIPCIE2_MSATA1	miniPCIe connector
PS0N1	Remote jumper setting connector

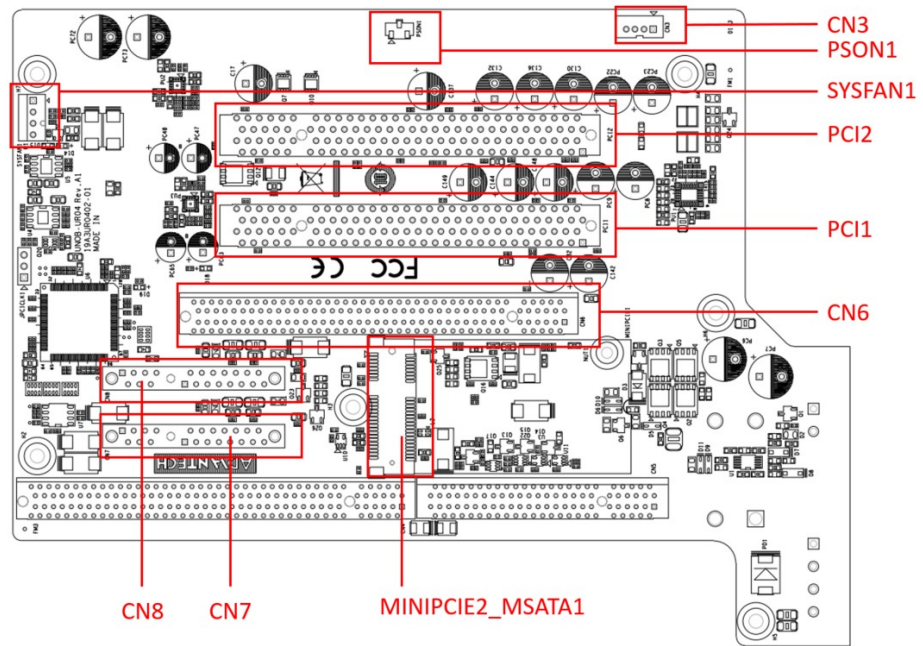


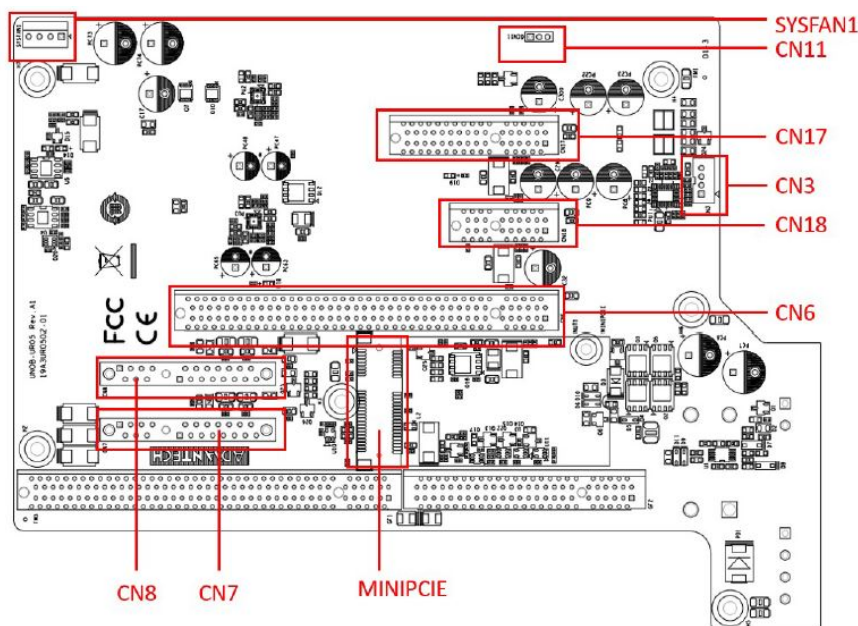
Table 2.6: Internal Connectors and Jumper Switches

Label	Function
CN3	iDoor Power connector
SYSFAN1	External system FAN power connector (reserve)
CN6	PCIe x16 slot
CN7	SATA Connector
CN8	SATA Connector
MINIPCI2_MSATA1	miniPCIe connector
PSON1	Remote jumper setting connector
PCI1	PCI slot connector
PCI2	PCI slot connector

(For UNO-348-AXX3A)

Note! *This power is from DC Power inputs




Table 2.7: Internal Connectors and Jumper Switches

Label	Function
CN3	iDoor Power connector
SYSFAN1	External system FAN power connector (reserve)
CN6	PCIe x16 slot
CN7	SATA Connector
CN8	SATA Connector
MINIPCIE2_MSATA1	miniPCIe connector
CN11	Remote jumper setting connector
PCI1	PCI slot connector
PCI2	PCI slot connector

(For UNO-348-AXX3AW)

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, labeled “CN6” on the board. 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 2242/2280 (w/SATA signal) or 3042/3052 module (w/ USB Signal).

2.3.2 mPCIe Connector

There’s one sockets for full size PCI Express mini cards, labeled “MINIPCIE2_MSA-TA1” on the board.

It supports iDoor module for diversified applications such as isolated COM port, Pro-fibus, WLAN GPRS, LTE, and MRAM. Users can install the iDoor easily with optional extension kit.

2.3.3 PCIe x16 Connector

There's one sockets for full size PCI Express cards, labeled "CN6" on the I/O board. (PCIe card support 75W Max.)

2.3.4 PCI Connector

For the 3 slot version UNO-348 (UNO-348-AXX3A), there are two sockets for half length PCI cards, labeled "PCI1 and PCI2" on the I/O board. (PCI card support 25W Max.)

2.4 Others

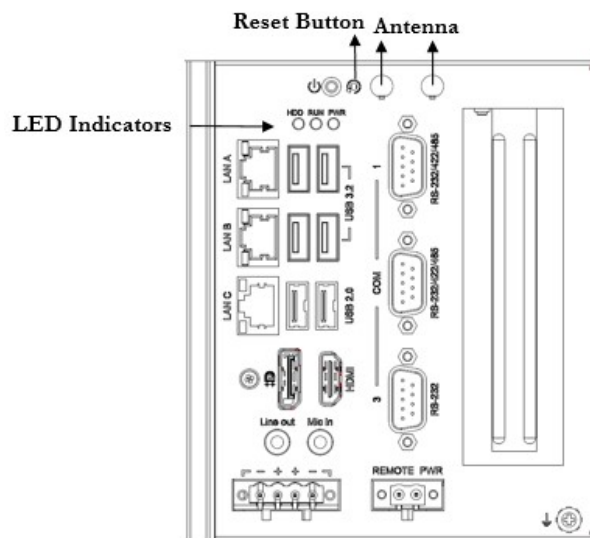


Figure 2.13 LED Indicators, Reset Buttons, and Antenna Hole of UNO-348-AXX1A (1 Slot)

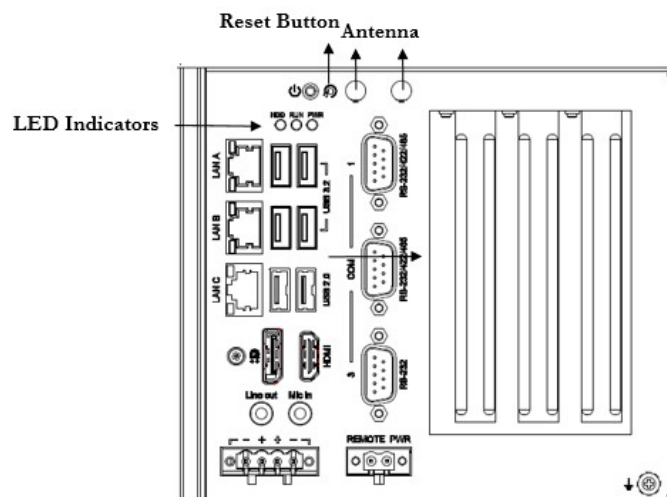


Figure 2.14 LED Indicators, Reset Buttons, and Antenna Hole of UNO-348-AXX3A (3 Slot)

2.4.1 LED Indicators

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

- HDD(2.5" HDD/SSD): Shining on working.
- PWR(Power): Green indicates "normal" and orange indicates "standby".
- RUN(Programmable): Users can configure the LED indicator's behavior through GPO signal controls. Green indicates under programming.

2.4.2 Reset Buttons

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

2.4.3 Antenna Hole

This product offers two antenna mounting holes covered by pre-cut holes for users to install an antenna kit for LTE or wireless functions.

Note! Please be aware of the Maximum OD value of the Antenna Hole when selecting antenna

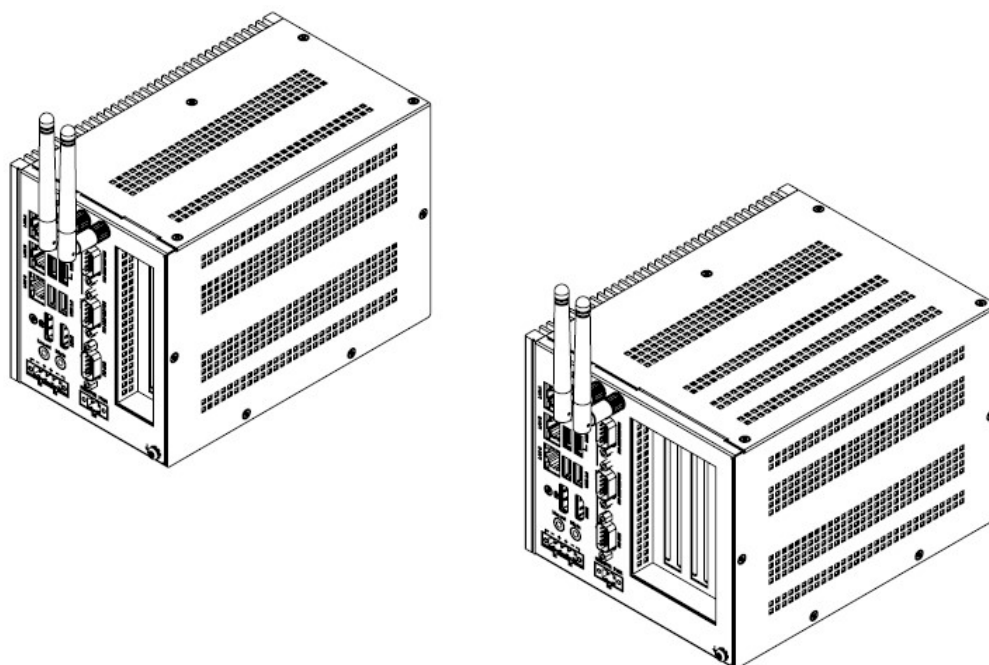


Figure 2.15 Illustration of antenna installed

Chapter 3

Initial Setup

This chapter explains how to initialize the UNO-348.

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

3.1 Chassis Grounding

The UNO-348 provides good EMI protection and a stable grounding base. There is an easy-to-connect chassis grounding point.

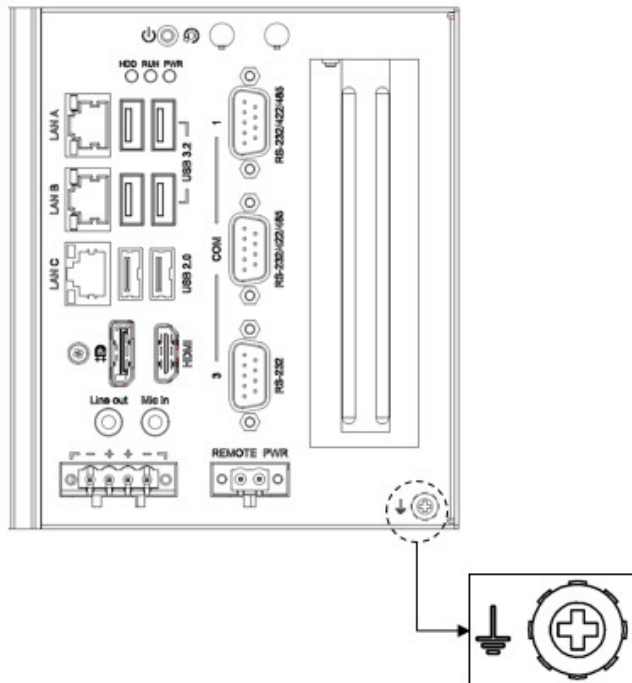


Figure 3.1 Chassis Grounding Connection Diagram of UNO-348-AXX1A (1 Slot)

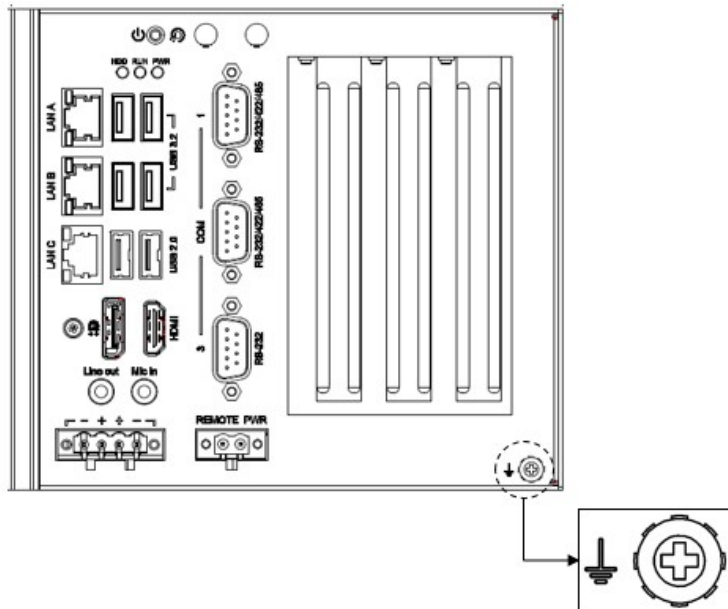


Figure 3.2 Chassis Grounding Connection Diagram of UNO-348-AXX3A (3 Slot)

Use the Grounding cable (16 AWG) from the accessory bag to connect the chassis ground with the Earth ground.

3.2 Connecting Power

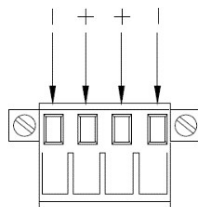
This product is intended to be supplied by an approved power adapter or DC power source. This adapter is rated at 10 - 36Vdc, 16A~4.44A and has a T_{max} of 50 °C (158 °F). If you need further assistance or information, please contact Advantech.

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 (16A). Torque value 7 lb-in. Use copper conductors only.
2. The temperature rating of the input connection cable should be higher than 80 °C (176 °F).

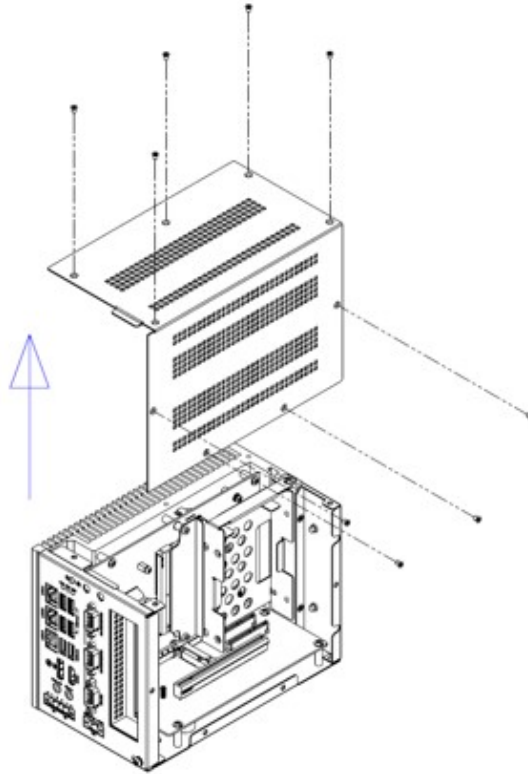


3.3 Storage Installation (Optional)

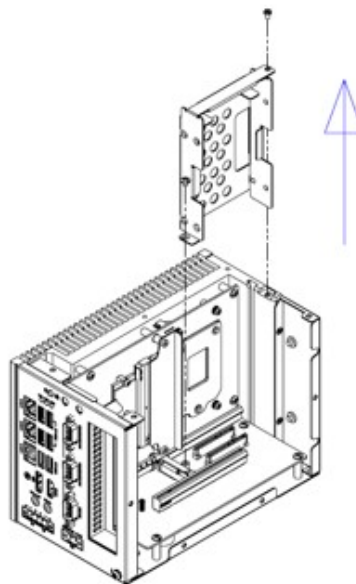
UNO-348 supports the installation of one 2.5" HDD/ SDD and one M.2 2280 SSD. The installation is demonstrated in the following steps.

3.3.1 Installing a 2.5" HDD/SSD

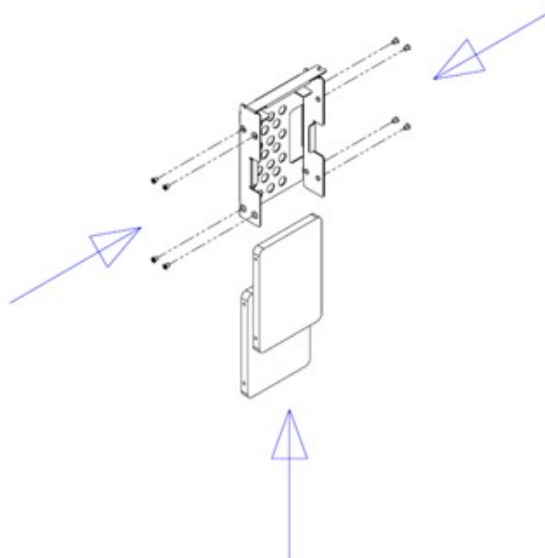
1. Remove 9 x screws(M3x4L) from UNO's top cover.



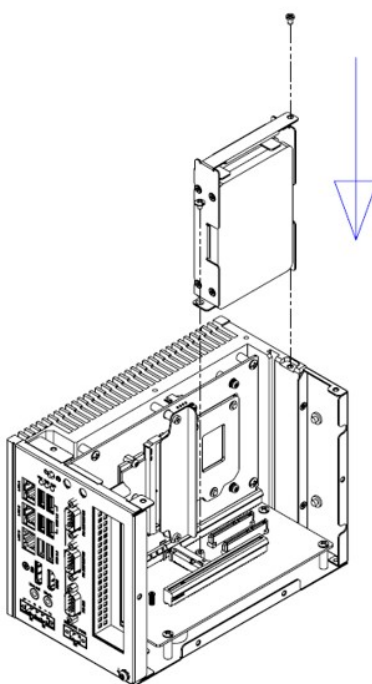
2. Remove 2 screws (M3x4L) to take out the SSD Bracket.



3. Fix the 2.5" SSD to SSD Bracket with the 8 x (M3x4L) screws for each SSD provided in accessory bag.

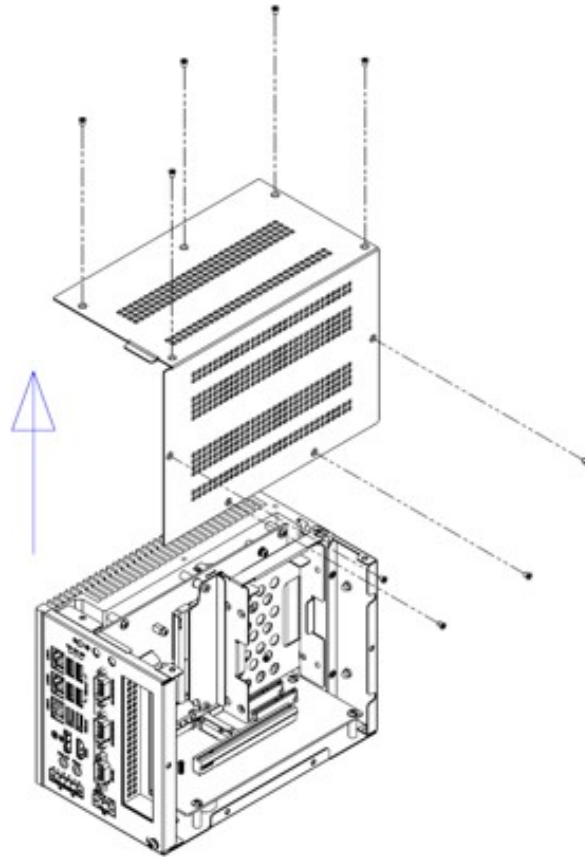


4. Fix back the SSD bracket onto to the UNO-348 product with the screw from step 2.

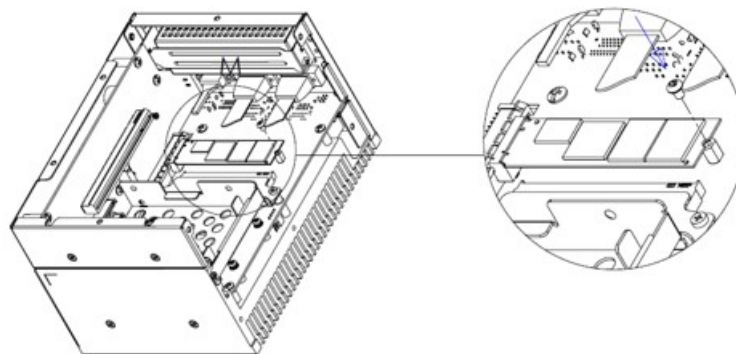


3.3.2 Installing M.2 2280 Module

1. Remove 9 x screws(M3x4L) from the top cover of UNO.

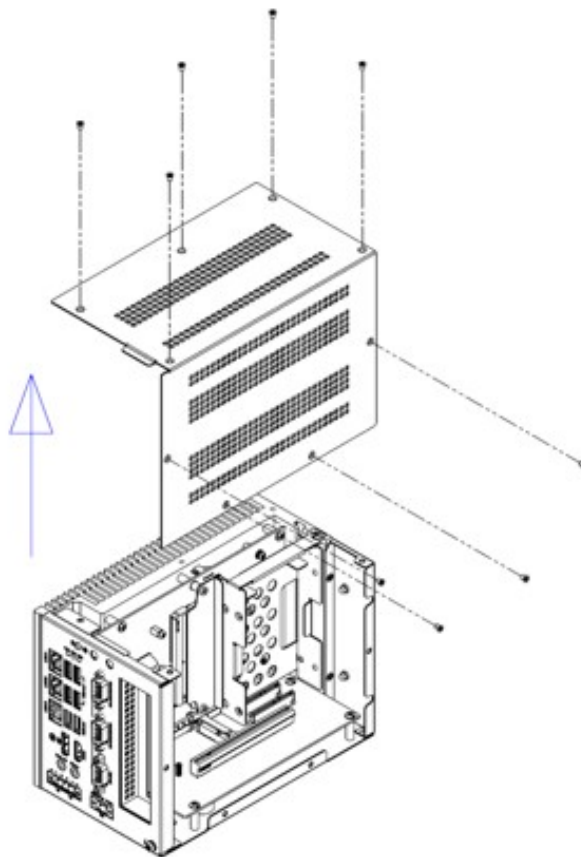


2. Insert the M.2 2280 card on the location: "CN6". Secure it with 1pc (M3x4L) screw provided in accessory bag.

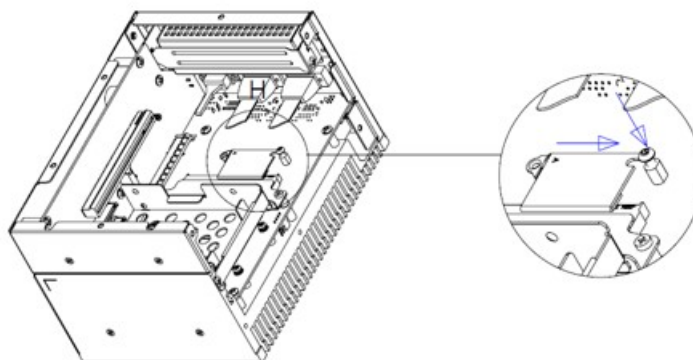


3.3.3 Installing M.2 3042/2242 Module

1. Remove 9 x screws(M3x4L) from the top cover of UNO.

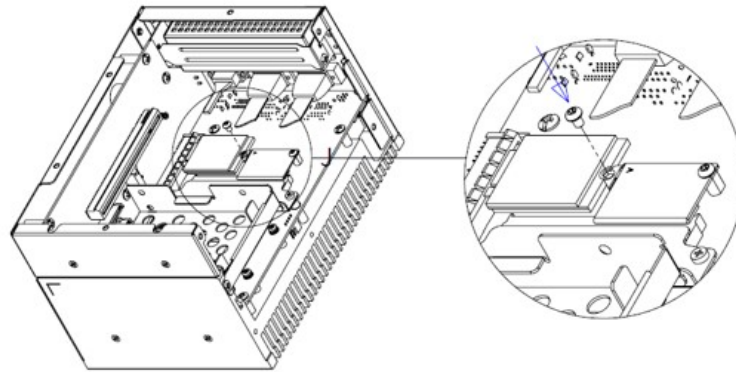


2. Screw 1 x M3x4L screw on the standoff (POST1) but not tighten it. Place M.2 adapter bracket to align with the screw then tighten it.



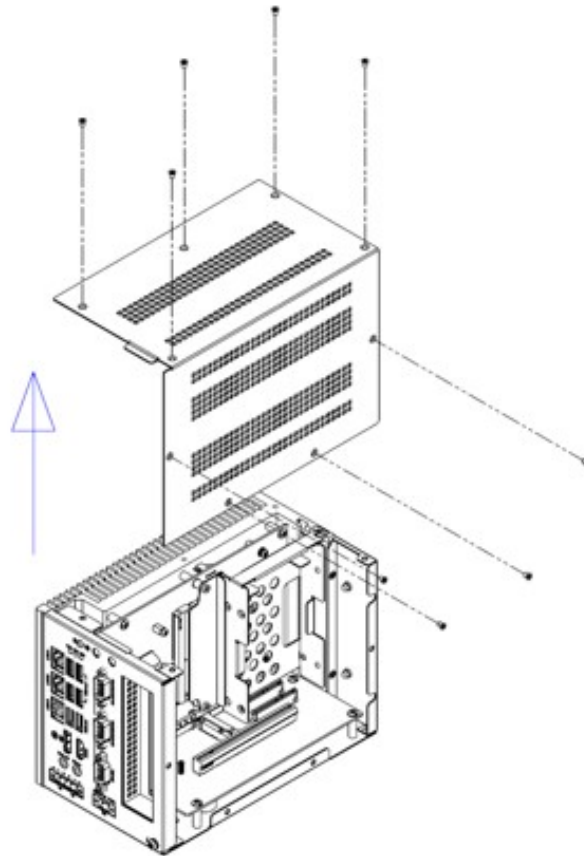
* M3x4L screw and M.2 adapter bracket is provided in accessory bag. The M.2 adapter bracket is marked "A" on it.

3. Insert the M.2 3042 or 2242 card on the location: "CN6" and secure it with the M.2 Bracket with 1 x M3x4L screws provided in accessory bag.

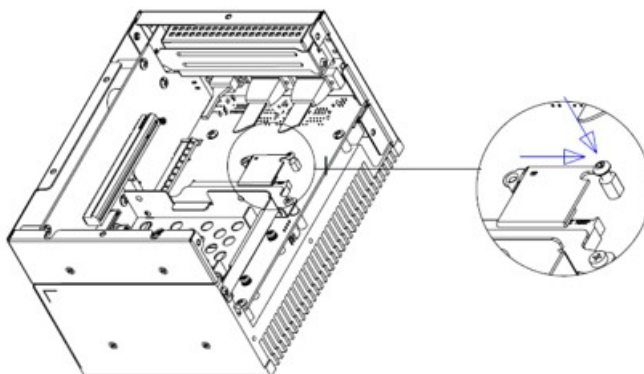


3.3.4 Installing M.2 3052 Module

1. Remove 9 x screws(M3x4L) from the top cover of UNO.

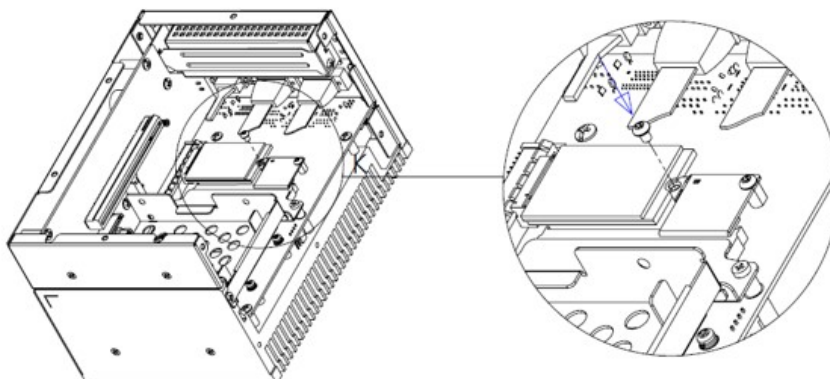


2. Screw 1 x M3x4L screw on the standoff (POST1) but not tighten it. Place M.2 adapter bracket to align with the screw then tighten it.



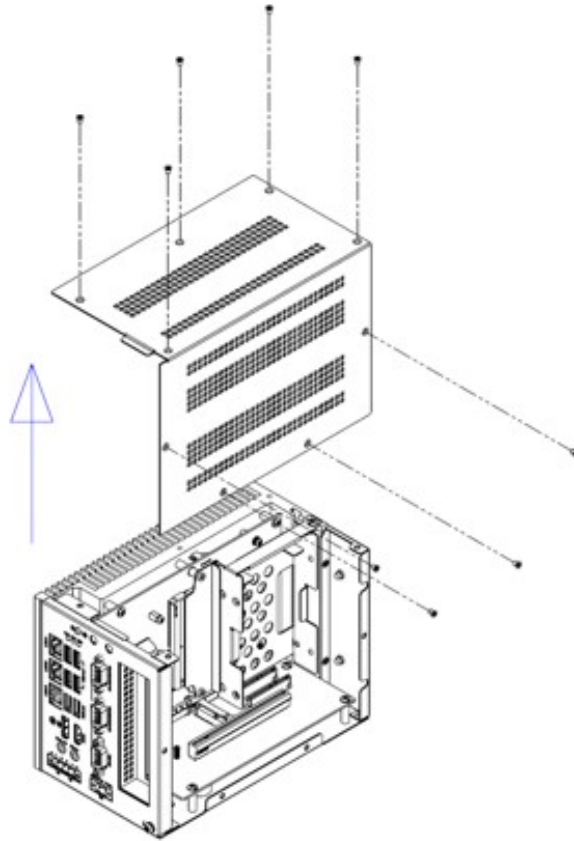
* M3x4L screw and M.2 adapter bracket is provided in accessory bag. The M.2 adapter bracket is marked "B" on it.

3. Insert the M.2 3052 card on the location: "CN6" and secure it with the M.2 Bracket with 1 x M3x4L screws provided in accessory bag.

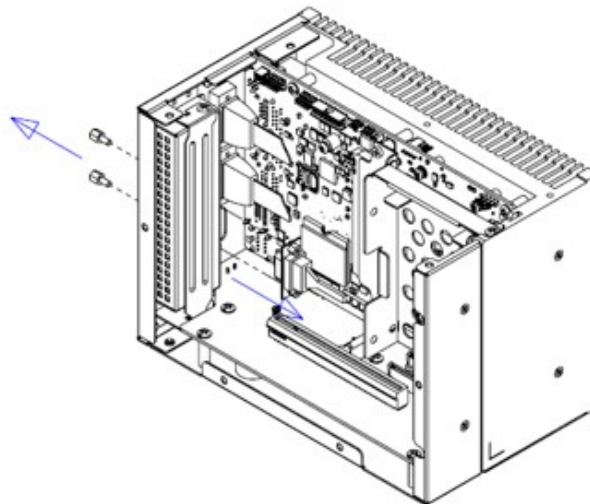


3.3.5 Installing GPIO

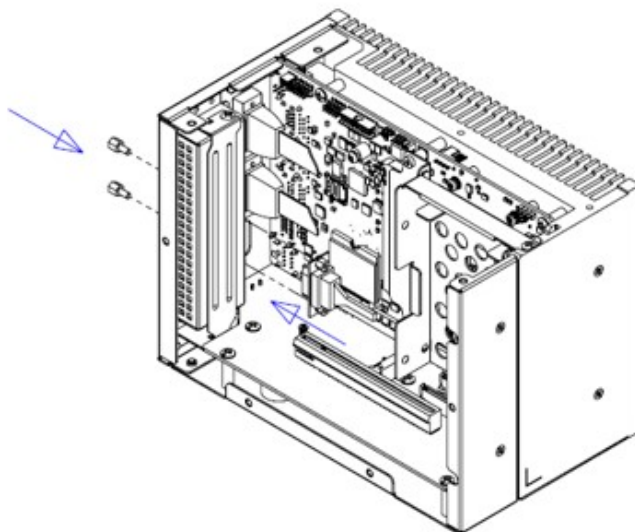
1. Remove 9 x (M3x4L) screws from the top cover of UNO.



2. Remove RS232 DB9 cable with 2 Hex Head screw

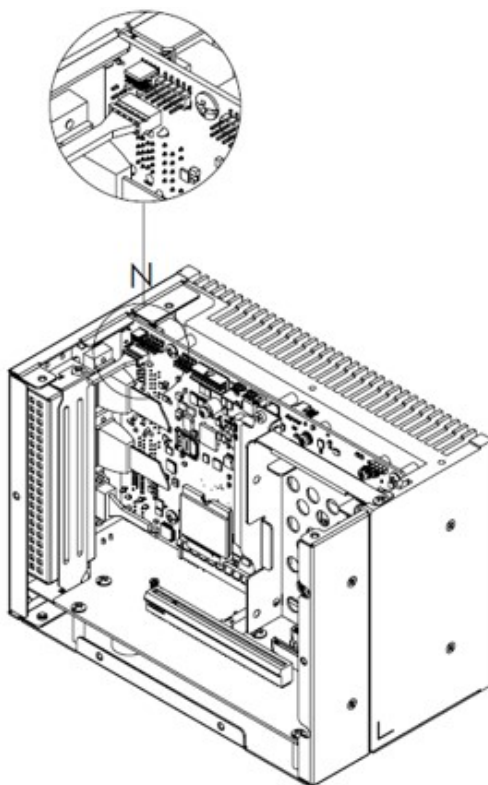


3. Fix the GPIO cable with 2 Hex Head screw



*GPIO Cable is optional, the recommended PN is 170030635-01.

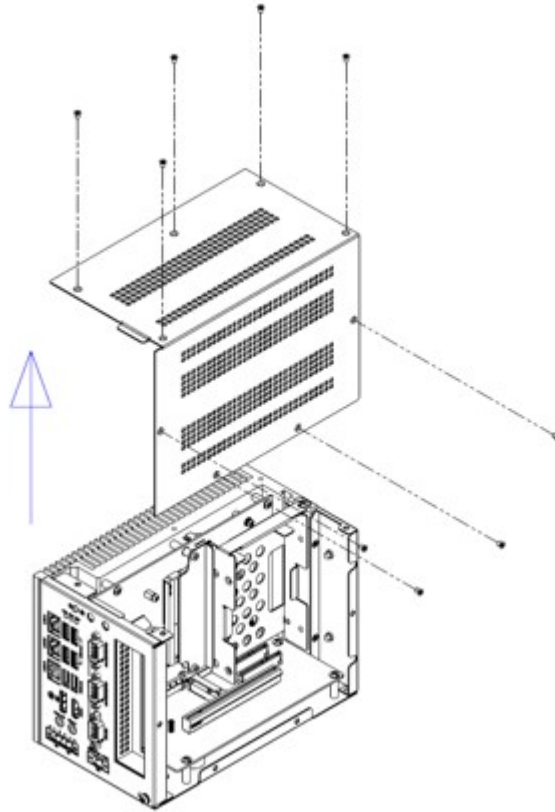
4. Cable connect the board on the location: "GPIO1".



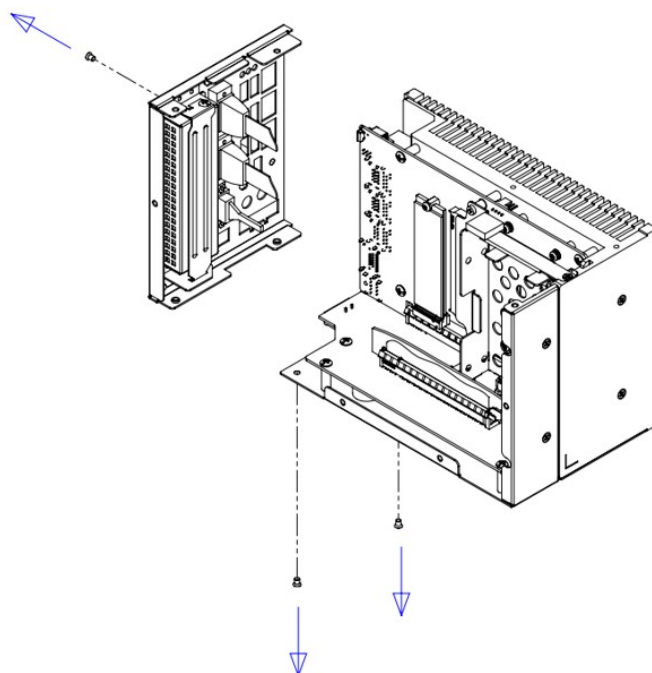
3.3.6 Installing IDOOR

To install iDoor module, please purchase an additional iDoor PCIe I/O plate for iDoor module installation. The PN is PCM-28P1BK-AE

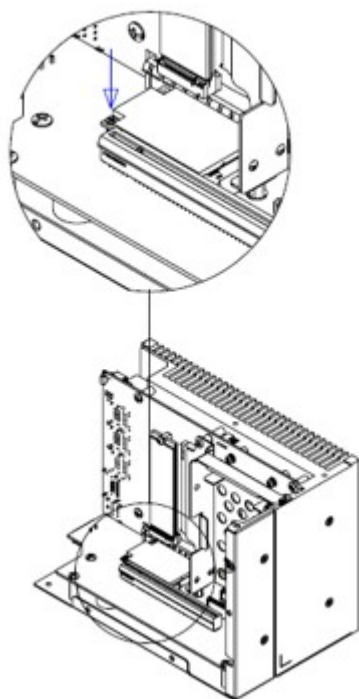
1. Remove 9 x screws(M3x4L) from the top cover of UNO.



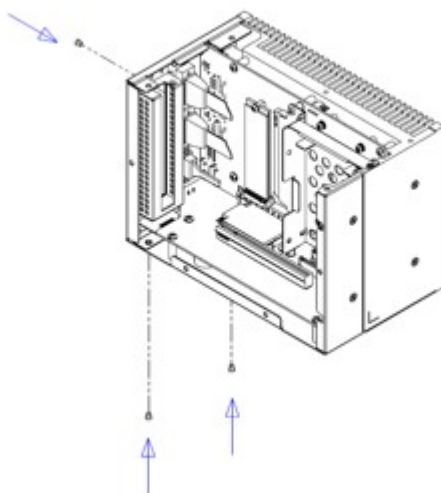
2. Remove 3 x screws(M3x4L) to take off the front panel of UNO-348 and remove 1 x screw (M3x4L) to take off the dummy PCIe/PCI bracket.



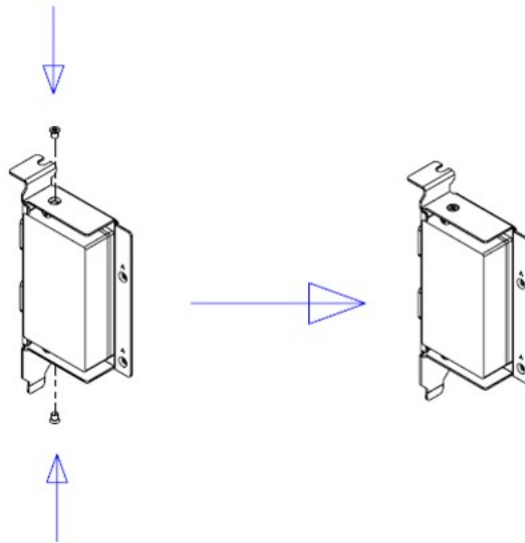
3. Insert the mPCIe card of iDoor module to the location: "MINIPCIE2_MSATA1" and secure it with the 1 (M2x4L)screw provided in accessory bag.



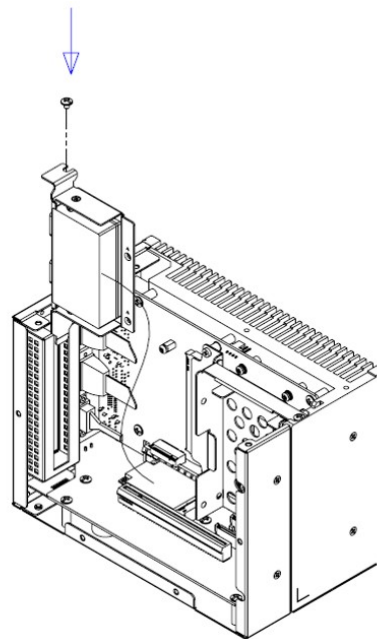
4. Fix the front cover back with the screw from step 2.



5. **(IDoor Module)** Fix the IDOOR Module and the “iDoor PCIe I/O plate” with 2pcs (M3x5L)screw provide in accessory bag.



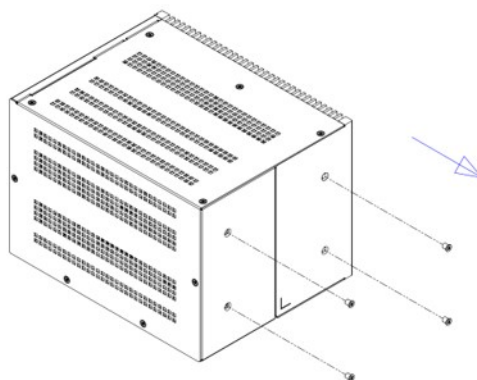
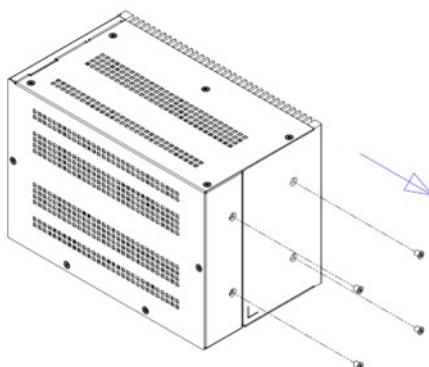
6. Insert the Module to the UNO-348 product and fix the iDoor Module with 1pc (M3x4L) screw from step 2.



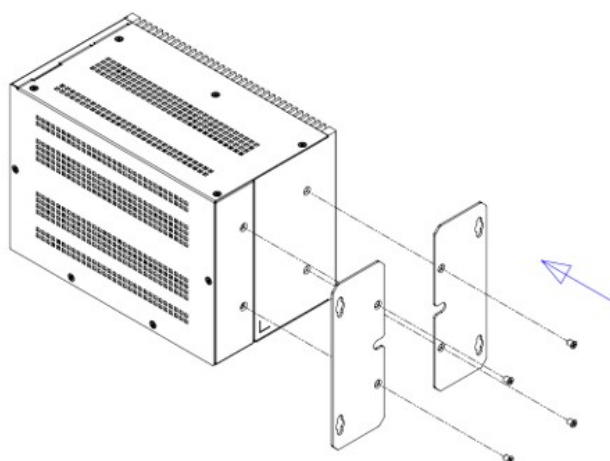
3.4 Wall Mount and Stand Mount Installation

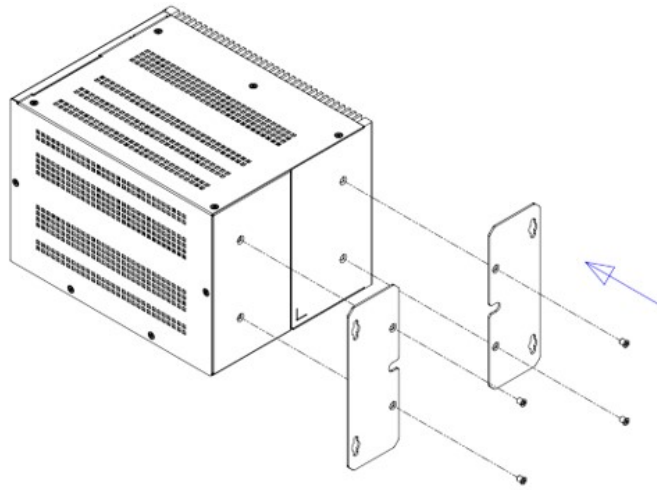
3.4.1 Wall mount

1. Remove 4pcs M4x5 screws.

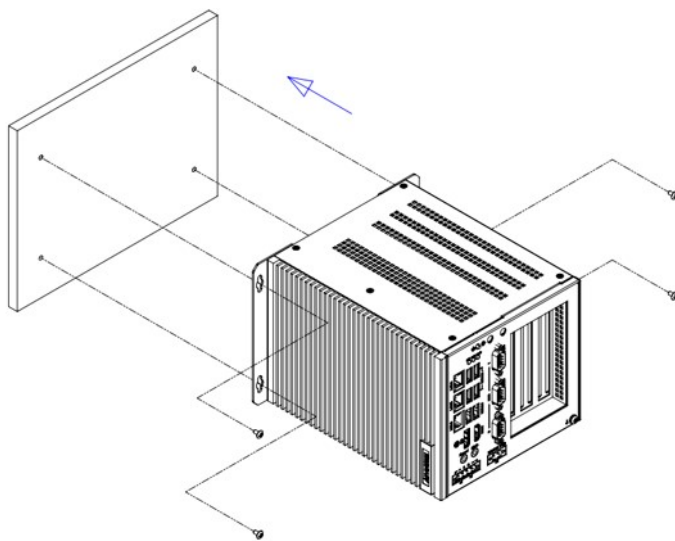
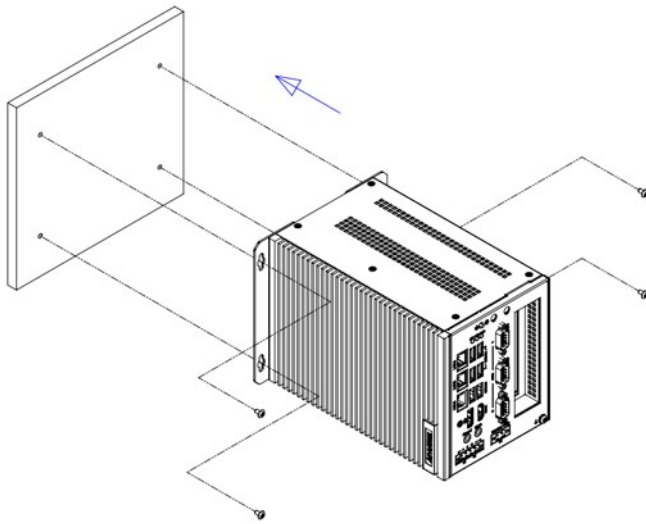


2. Screw the wall mount kit on UNO-348 with the 4pcs screws from step1.



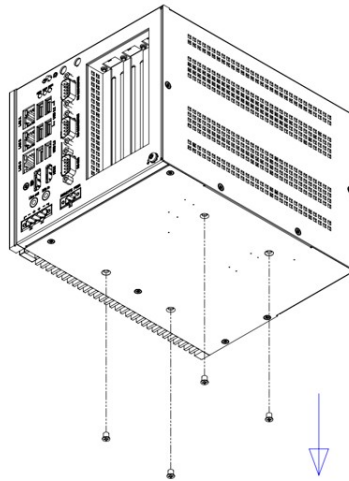
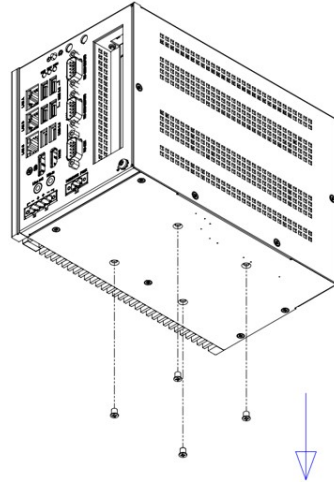


3. Mount UNO-348 on wall by 4 (M4x5L) screws.

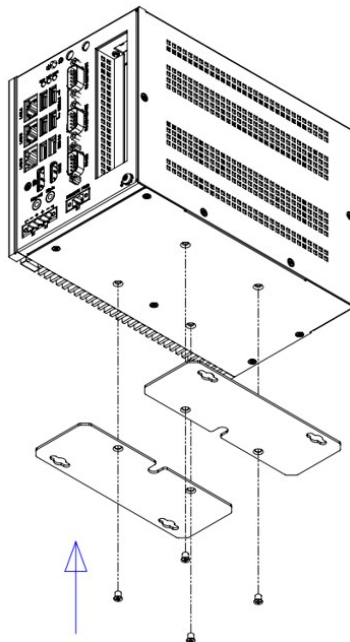


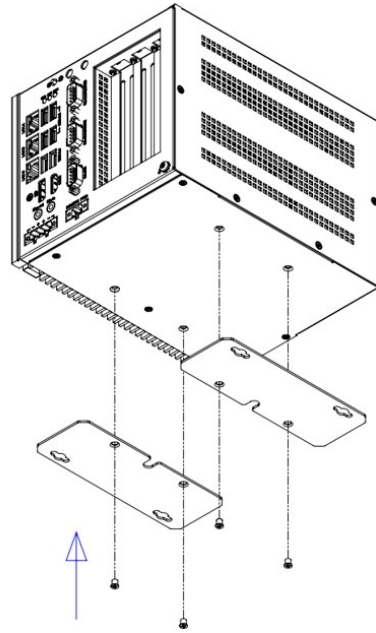
3.4.2 Stand mount

1. Remove 4pcs M4x5 screws.

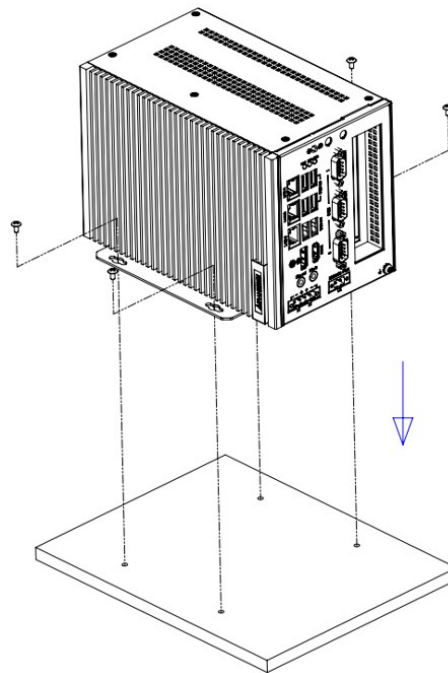


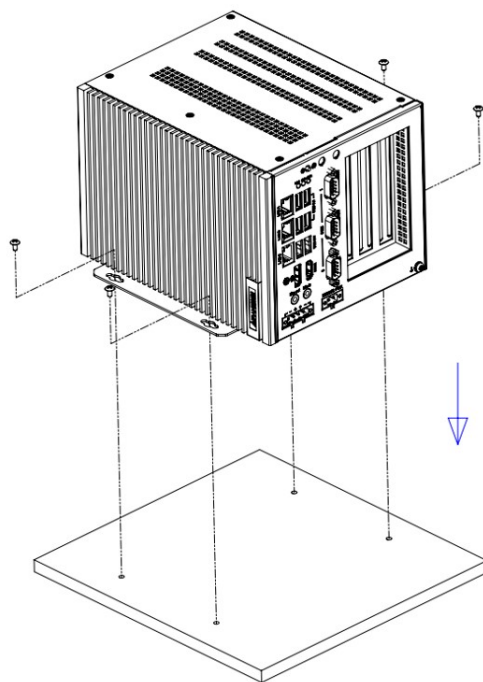
2. Screw the wall mount kit on UNO-348 with the 4pcs screws from step1.





3. Mount UNO-348 on wall by 4 (M4x5L) screws





3.5 Remote Power/Reset Setting

UNO-348 supports remote power/ reset function, and it can be adjusted via PSON1 on the I/O board. The default setting is for remote power function.

PSON1	Description	Instruction
(1-2) (Default)	Remote power function	
(2-3)	Remote reset function	

UNO-348 supports remote power/ reset function, and it can be adjusted via CN11 on the I/O board. The default setting is for remote power function.(for UNO-348-ANN3AW)

CN11	Description	Instruction
(1-2) (Default)	Remote power function	 (1-2)
(2-3)	Remote reset function	 (2-3)

3.6 AT/ATX Setting (CN10)

There's a CN10 on motherboard can be used for AT/ATX setting. The default setting is AT mode. See the following table for switch configuration.

 (1-2) AT Mode
 (2-3) ATX mode

3.7 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.11/ A.12 for more settings)

Appendix **A**

System Settings/Pin
Assignment

A.1 Power Connector (BP_CN1)

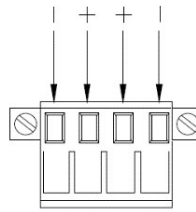


Table A.1: Power Connector Pin Assignments

Pin	Signal	Description
1	Power IN V- (GND)	10 - 36 V _{DC}
2	Power IN V+	
3	Power IN V+	
4	Power IN V- (GND)	

A.2 LAN: Ethernet Connector (LAN1, LAN2, LAN3)

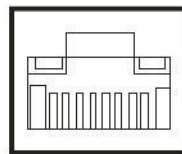


Table A.2: Ethernet Connector Pin Assignments

RJ45 Pin	Signal	Description	
1	MDI0+	<ul style="list-style-type: none"> 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-	<ul style="list-style-type: none"> 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+	<ul style="list-style-type: none"> 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-	<ul style="list-style-type: none"> 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+	<ul style="list-style-type: none"> 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 +/-. 	
5	MDI2-		
7	MDI3+		
8	MDI3-	<ul style="list-style-type: none"> 100BASE-TX: Unused. 10BASE-T: Unused. 	
Left LED		Right LED	
10 Link	100 Link	1000 Link	Active
Off	Orange	Green	Green

A.3 USB Connector (LAN1_USB3C1, LAN2_USB3C2, LAN3_USB3C3)

A.3.1 USB 2.0 Connector

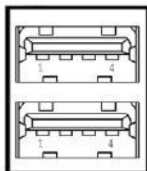


Table A.3: Connector Pin Assignments

Pin	Signal Name	Description
1	VBUS	Power
2	D-	USB2.0 differential pair
3	D+	
4	GND	Ground for power return

A.3.2 USB 3.0 Connector

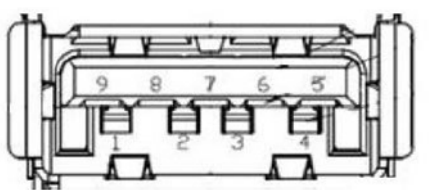


Table A.4: USB 3.0 Connector Pin Assignments

Pin	Signal Name	Description
1	VBUS	Power
2	D-	USB2.0 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 Display Connector (CN1), HDMI Connector (CN1)

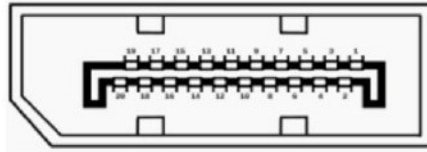
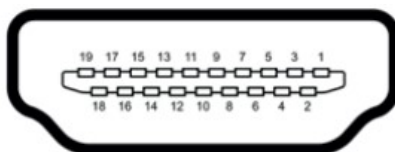


Table A.5: DisplayPort Adapter Cable Pin Assignments

Pin	Signal Name
1	ML_Lane 0 (p)
2	GND
3	ML_Lane 0 (n)
4	ML_Lane 1 (p)
5	GND
6	ML_Lane 1 (n)
7	ML_Lane 2 (p)
8	GND
9	ML_Lane2 (2)
10	ML_Lane 3 (p)
11	GND
12	ML_Lane 3 (n)
13	CONFIG1
14	CONFIG2
15	AUX CH (p)
16	GND
17	AUX CH (n)
18	Hot Plug
19	Return
20	DP_PWR


Table A.6: HDMI Adapter cable Pin Assignments

Pin	Signal Name
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	NC
14	NC
15	SCL
16	SDA
17	DDC/CEC Ground
18	+5V
19	Hot Plug Detect

A.5 M.2 Connector (CN6)

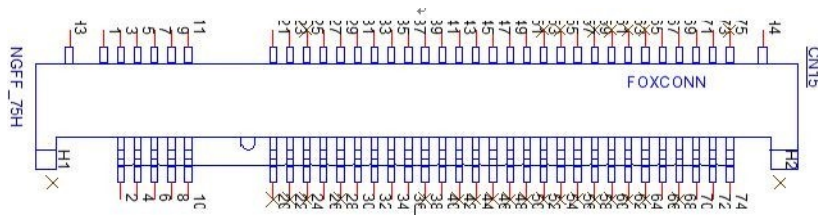


Table A.7: M.2 B Key Connector Pin Assignments

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
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

Table A.7: M.2 B Key Connector Pin Assignments

73	GND	74	+V3.3_M2
75	NC		

A.6 mPCIe Connector (MINIPCI2_MSATA1)

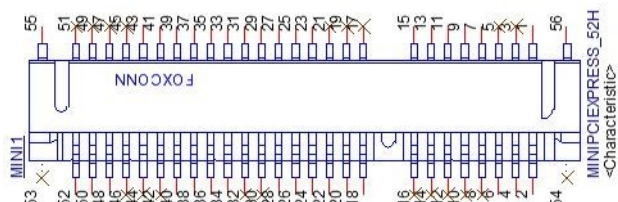
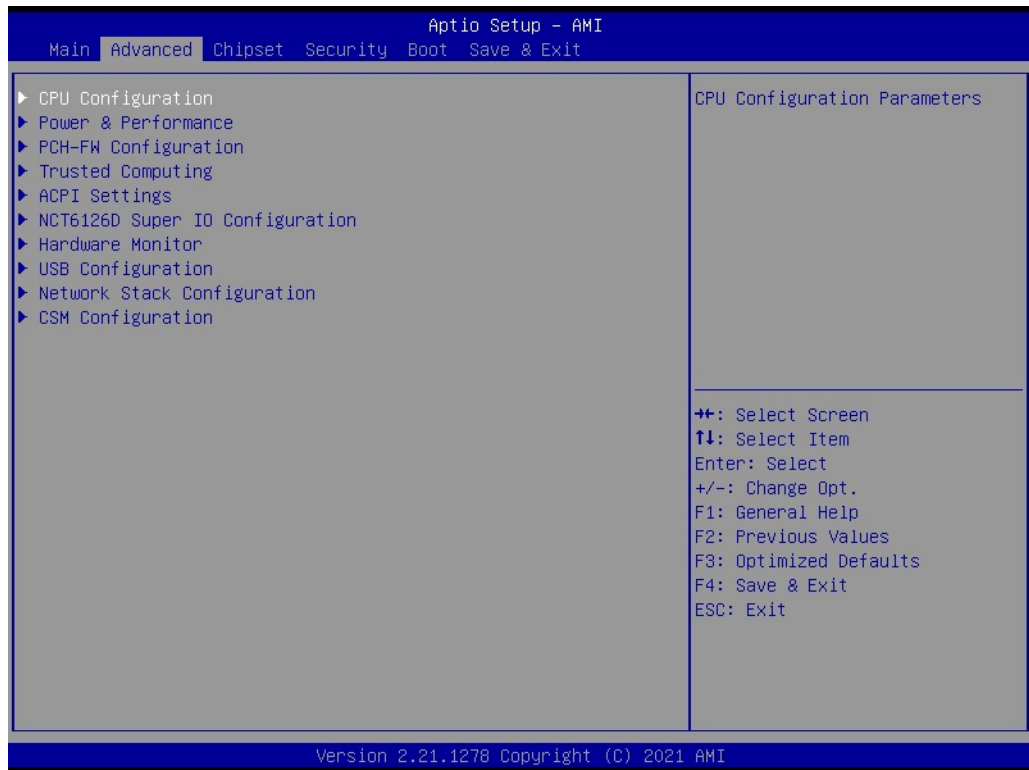


Table A.8: mPCIe Connector Pin Assignments

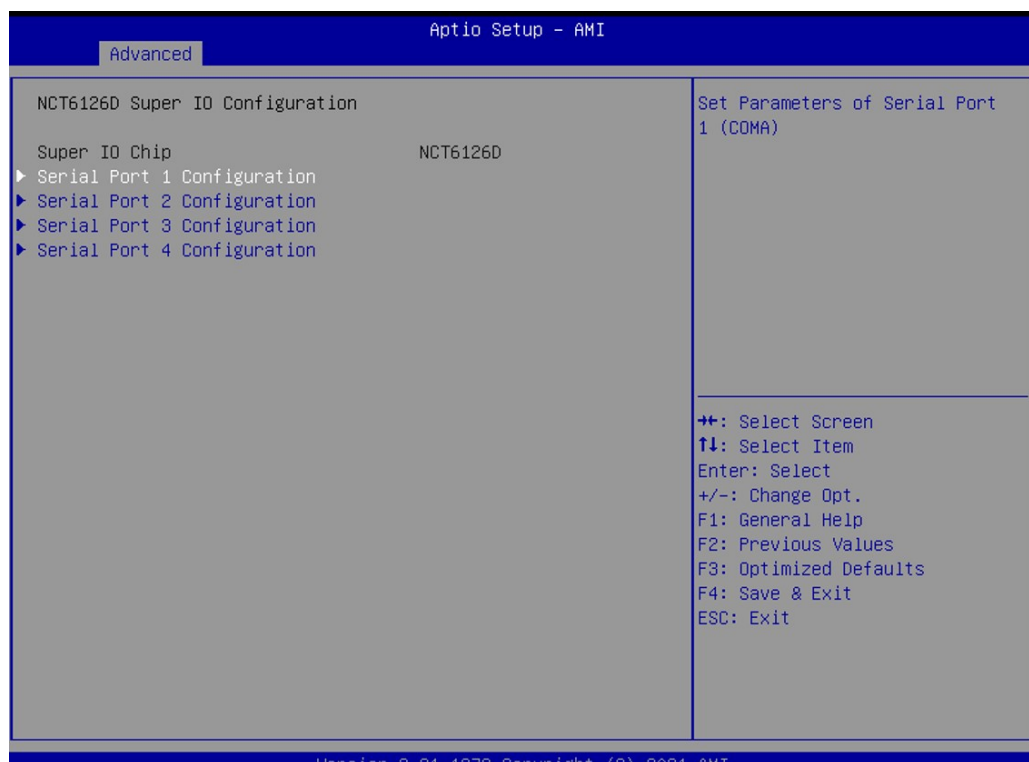
Pin	Signal Name	Pin	Signal Name
1	PCIE_WAKE#_3.3	2	+V3.3_MINI
3	NC	4	GND
5	NC	6	+V1.5
7	+V3.3	8	NC
9	GND	10	NC
11	CLK_PCIE_mPCIe1-	12	NC
13	CLK_PCIE_mPCIe1+	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	WIFI_DISABLE#
21	NC	22	MINI_PLTRST#
23	PCIE_mPCIe_RX4-	24	+V3.3_MINI
25	PCIE_mPCIe_RX4+	26	GND
27	GND	28	+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

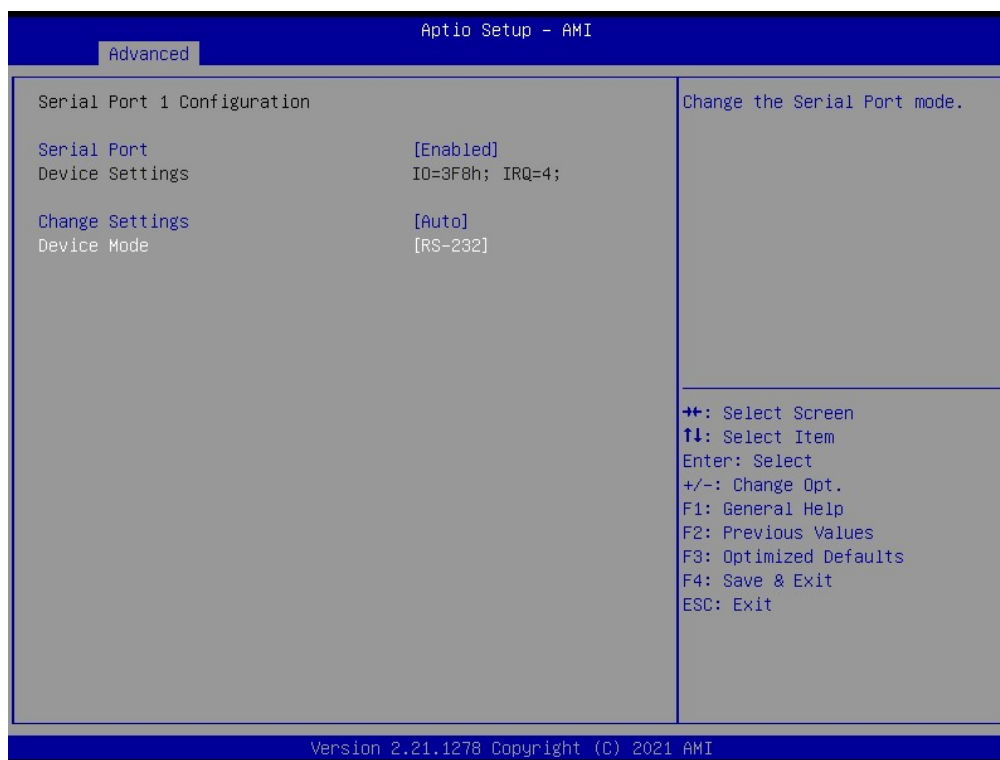
1. Power on the UNO-348 system and press "Delete" to enter the BIOS configuration menu.
2. On the "Advanced" tab, select the "NCT6126D Super IO" item.



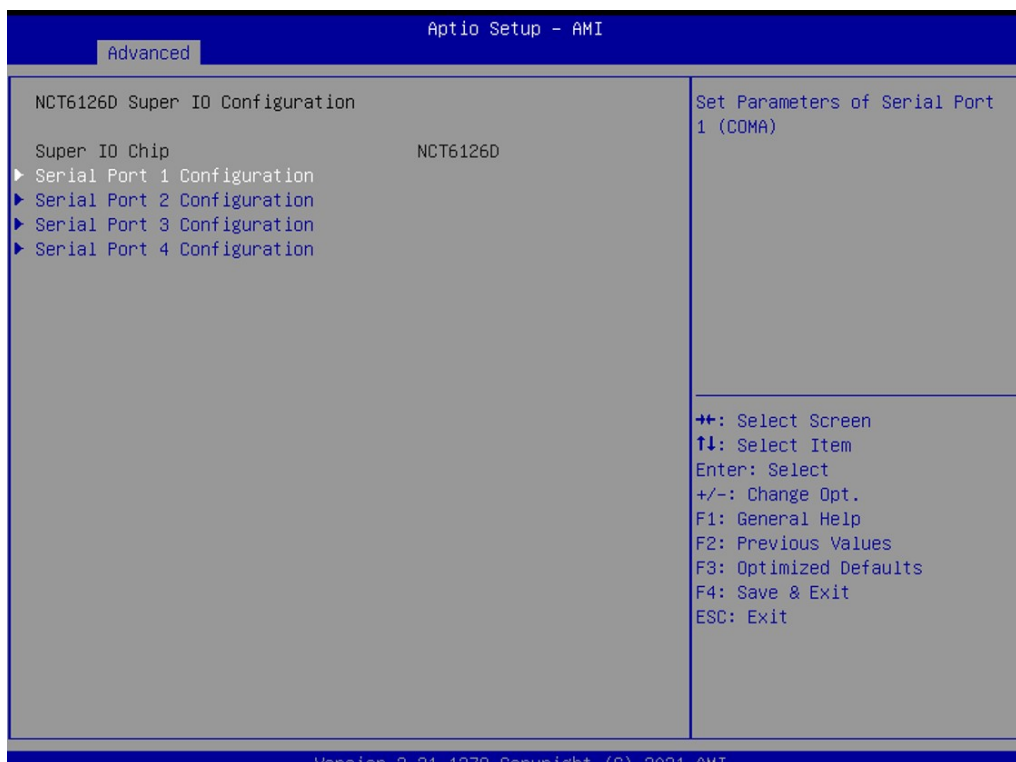
Select the "Serial Port 1/Port 2" item.



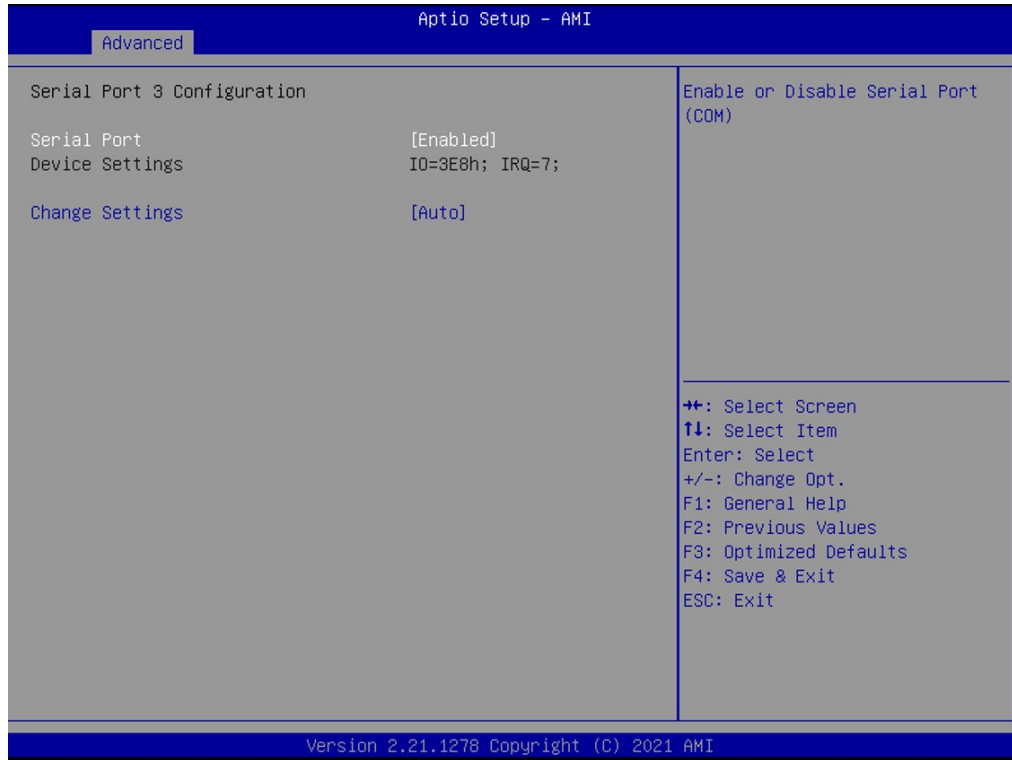
Select the “Device Mode” item to choose Com port mode (RS-232/RS-422/RS485), default RS-232 mode.



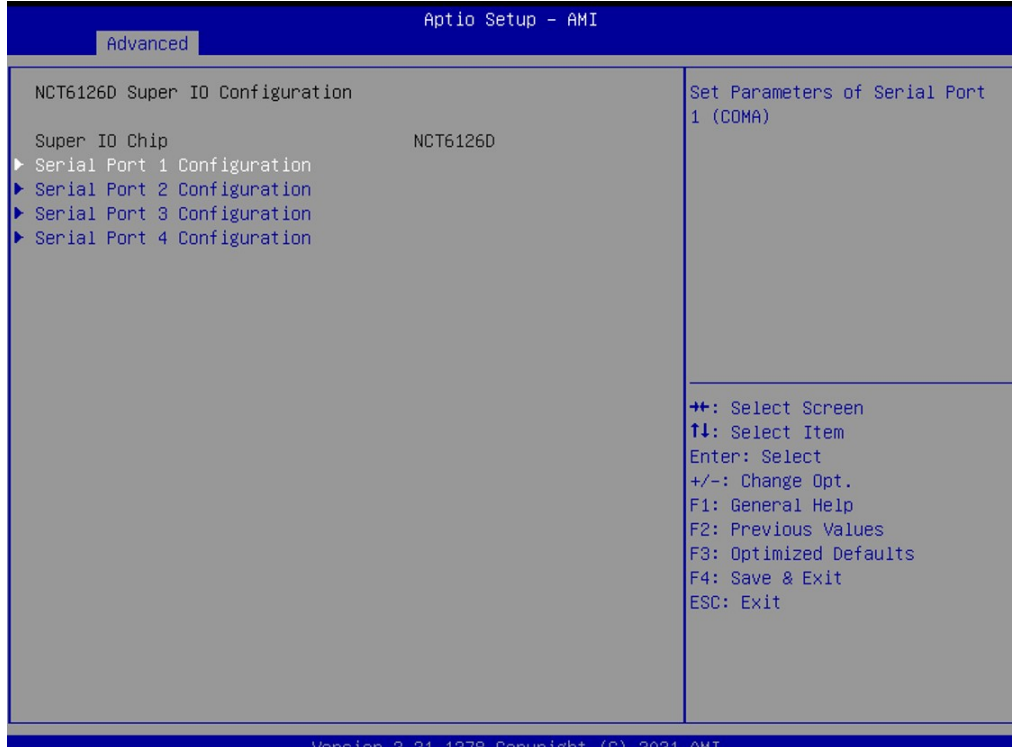
Select the “Serial Port 3” item.



Serial Port 3 only support RS-232 mode.



Select the "Serial Port 4" item.



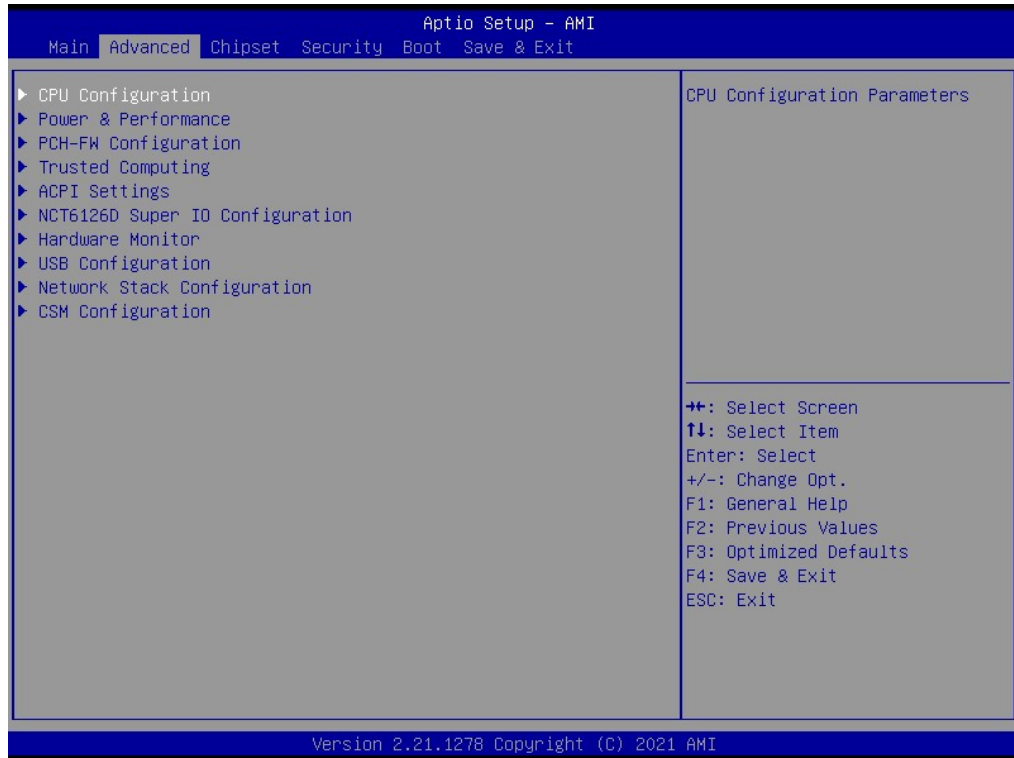
Serial Port 4 for iBMC debug port (default is disable).



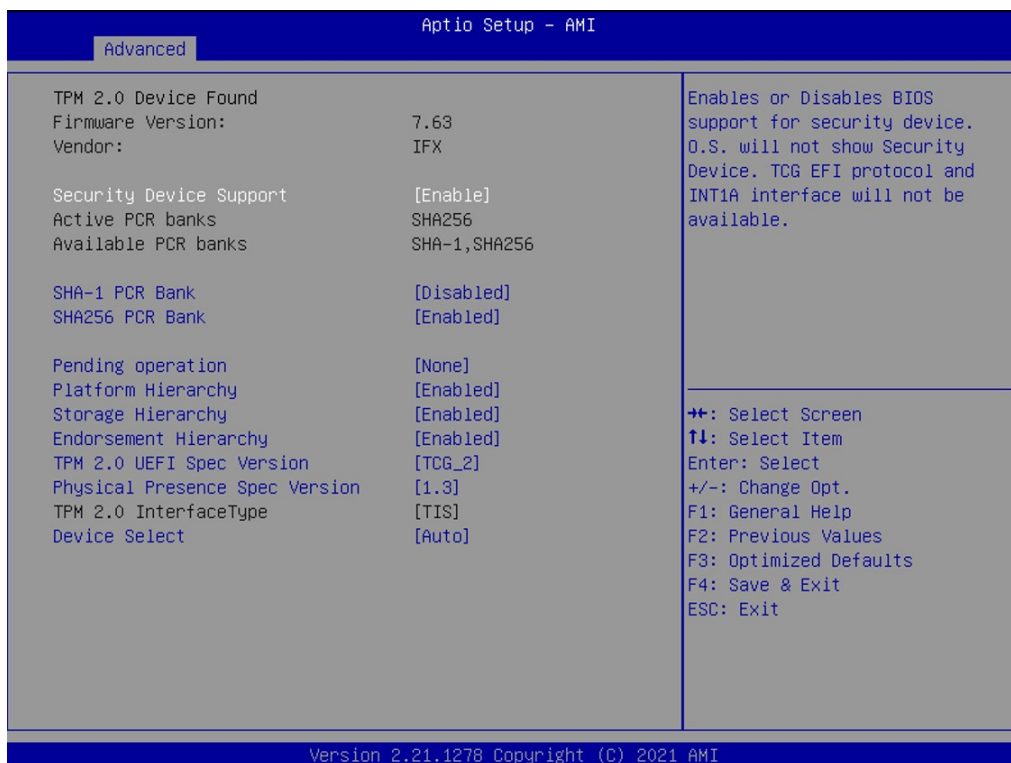
A.8 TPM 2.0 BIOS Setting

The UNO-348 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-348 system and press “Delete” to enter the BIOS configuration menu.
2. On the “Advanced” tab, select the “Trusted Computing” item.



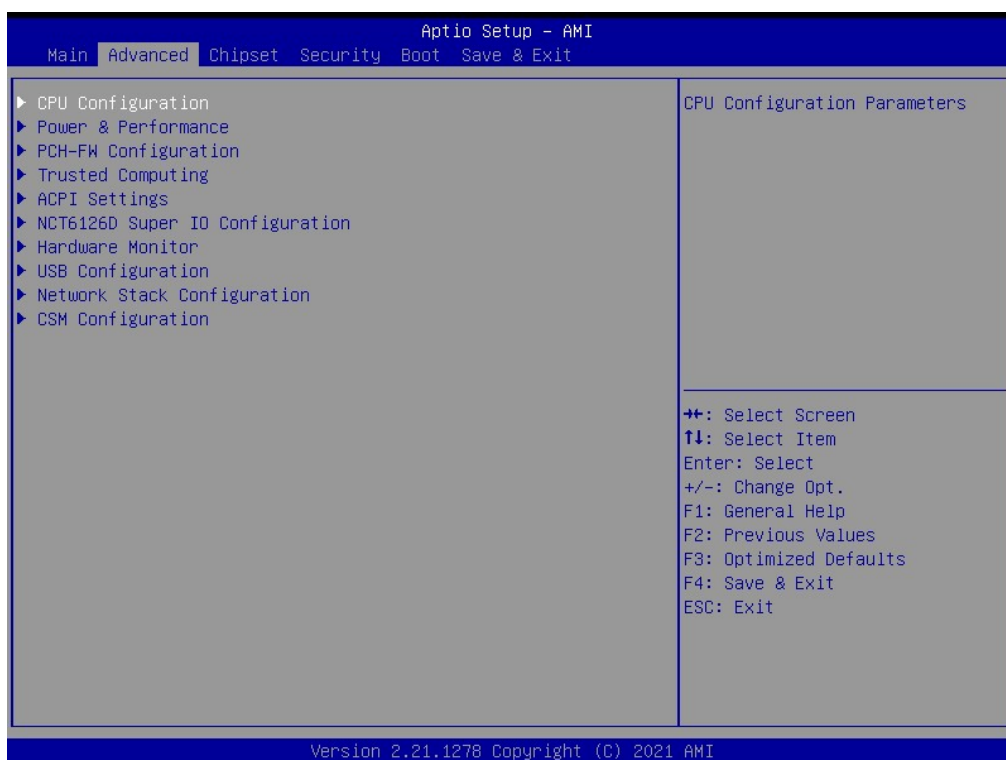
3. Then select the “Security Device Support” item.
4. Choose “enable/disable” to enable or disable the TPM 2.0 function (The default setting is to enable this function).



A.9 CPU Turbo Mode BIOS Setting

The UNO-348 systems support CPU Turbo mode. This can be enabled or disabled in the BIOS menu by following the instructions:

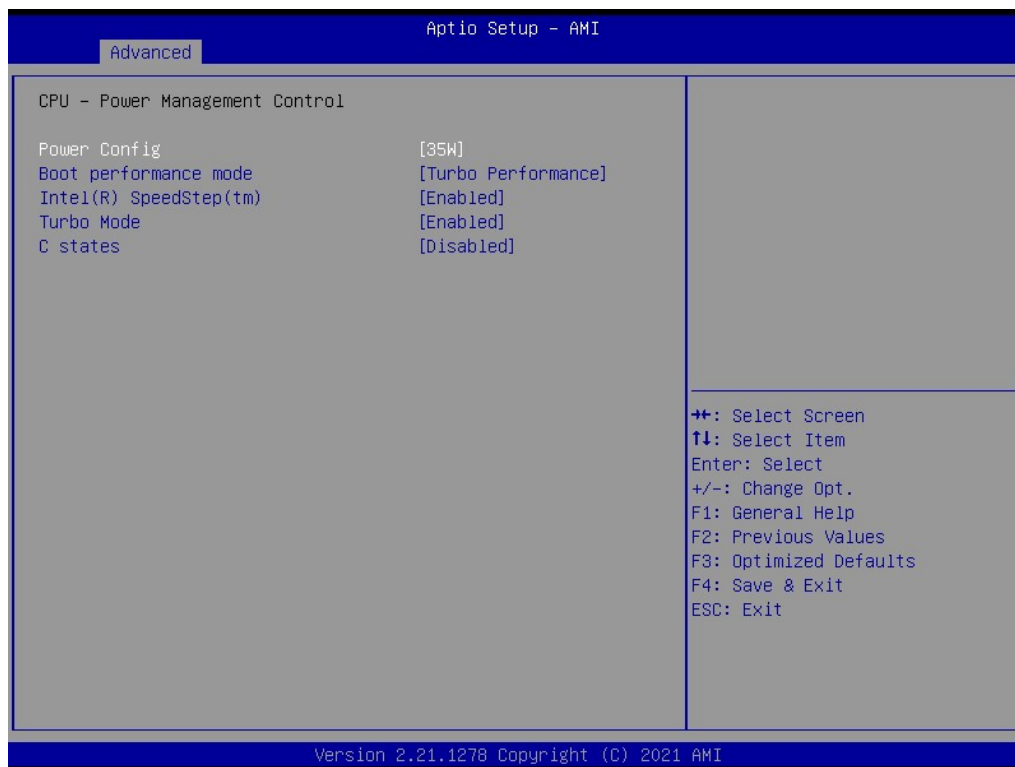
1. Power on the UNO-348 system and press “Delete” to enter the BIOS configuration menu.
2. On the “Advanced” tab, select the “Power & Performance” item.



3. Then select the “CPU Power Management” item.



4. Choose “enable/disable” to enable or disable the CPU Turbo mode (The default setting is to enable this function).



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Please verify specifications before quoting. This guide is intended for reference purposes only.

All product specifications are subject to change without notice.

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