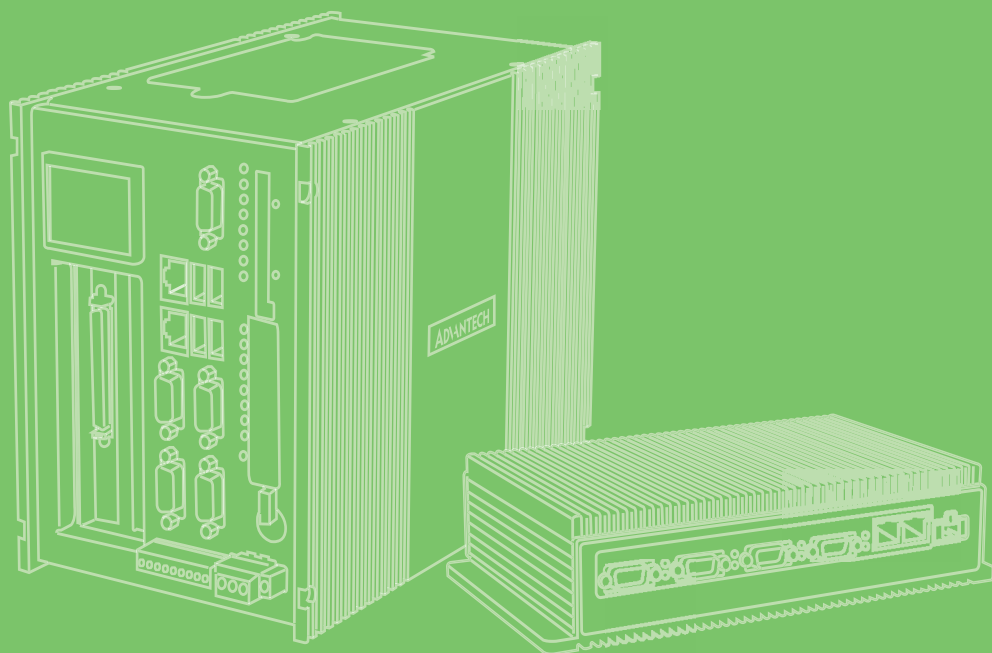




UNO-2372V3

電腦

**Intel® Twin Lake Small-Sized
Automation Computer with
2 x GbE, 1 x M.2 B key,
1 x M.2 M key, 1 x M.2 E key,
2 x USB3.2, 1 x USB2.0,
1 x HDMI 1.4, 1 x DP 1.4a,
and 2 x COM**

ADVANTECH

Enabling an Intelligent Planet

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Support

For more information on this and other Advantech products, please visit our website at <http://www.advantech.com>

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-2372V3 products in this article.

*Model name:

UNO-2372V3

*Part number:

UNO-2372V3-N3N1A	UNO-2372V3-N2N1A
UNO-2372V3-N2N1AU	UNO-2372V3-N3N1AU
UNO2372V3N32501-T	UNO2372V3N22501-T
UNO2372V3N32502-T	UNO2372V3N22502-T
UNO2372V3N32601-T	UNO2372V3N22601-T
UNO2372V3N32602-T	UNO2372V3N22602-T
UNO2372V3N32603-T	UNO2372V3N22603-T
UNO2372V3N32604-T	UNO2372V3N22604-T
UNO2372V3N32605-T	UNO2372V3N22605-T
UNO2372V3N32606-T	UNO2372V3N22606-T
UNO2372V3N32607-T	UNO2372V3N22607-T
UNO2372V3N32608-T	UNO2372V3N22608-T
UNO2372V3N32609-T	UNO2372V3N22609-T
UNO2372V3N32701-T	UNO2372V3N22701-T
UNO2372V3N32702-T	UNO2372V3N22702-T
UNO2372V3N32703-T	UNO2372V3N22703-T
UNO2372V3N32704-T	UNO2372V3N22704-T

UNO2372V3N32705-T	UNO2372V3N22705-T
UNO2372V3N32706-T	UNO2372V3N22706-T
UNO2372V3N32707-T	UNO2372V3N22707-T
UNO2372V3N32708-T	UNO2372V3N22708-T
UNO2372V3N32801-T	UNO2372V3N22801-T
UNO2372V3N32802-T	UNO2372V3N22802-T
UNO2372V3N32803-T	UNO2372V3N22803-T
UNO2372V3N32804-T	UNO2372V3N22804-T
UNO2372V3N32805-T	UNO2372V3N22805-T
UNO2372V3N32806-T	UNO2372V3N22806-T
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UNO2372V3N32905-T	UNO2372V3N22905-T
UNO2372V3N32906-T	UNO2372V3N22906-T
UNO2372V3N3U2501-T	UNO2372V3N2U2501-T
UNO2372V3N3U2502-T	UNO2372V3N2U2502-T
UNO2372V3N3U2601-T	UNO2372V3N2U2601-T
UNO2372V3N3U2602-T	UNO2372V3N2U2602-T
UNO2372V3N3U2603-T	UNO2372V3N2U2603-T
UNO2372V3N3U2604-T	UNO2372V3N2U2604-T
UNO2372V3N3U2605-T	UNO2372V3N2U2605-T
UNO2372V3N3U2701-T	UNO2372V3N2U2701-T
UNO2372V3N3U2702-T	UNO2372V3N2U2702-T
UNO2372V3N3U2703-T	UNO2372V3N2U2703-T
UNO2372V3N3U2704-T	UNO2372V3N2U2704-T
UNO2372V3N3U2705-T	UNO2372V3N2U2705-T
UNO2372V3N3U2801-T	UNO2372V3N2U2801-T
UNO2372V3N3U2802-T	UNO2372V3N2U2802-T
UNO2372V3N3U2803-T	UNO2372V3N2U2803-T
UNO2372V3N3U2901-T	UNO2372V3N2U2901-T
UNO2372V3N3U2902-T	UNO2372V3N2U2902-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.

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 SELV output, rated 10 Vdc, 4.2 A minimum and Tma 40 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. This is open type equipment and should be installed in a suitable enclosure.
26. Restricted Access Area: The equipment should only be installed in a Restricted Access Area.
27. This product is intended to be supplied by an UL Listed power supply suitable for use at Tma 60° C min. whose output meets ES1 (or SELV) is rated: (1) 10-36Vdc, 4.2-1.2A min. (DC IN), if need further assistance, please contact Advantech for further information.



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

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'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.
 - L'équipement ne fonctionne pas bien, ou vous ne pouvez pas le faire fonctionner selon le manuel d'utilisation.
 - 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 (-40° 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, 5.4 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: Surface chaude, ne pas toucher pour le dissipateur thermique supérieur.

22. **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. 請勿將設備儲存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。
20. 消費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。



警告：機殼高溫。請勿在使用過程中觸碰上方散熱鰭片。

21. 警告：為避免電磁干擾，本產品不應安裝或使用於住宅環境。
22. 本產品於國內裝置使用時，其電源僅限使用機架電源模組所提供之直流電源輸入，不得使用交流電源及附加其他電源轉換裝置提供電源，其電源輸入電壓及電流請依說明書規定使用。

設備名稱：電腦		型號（型式）：UNO-2372V3 （系列型號請參見手冊載明型號）				
Equipment name		Type designation (Type)				
單元 Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛 Lead (Pb)	汞 Mercury (Hg)	鎘 Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr ⁺⁶)	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated Diphenyl ethers (PBDE)
電路板	—	○	○	○	○	○
內外殼（ 外殼、內部框架… 等）	○	○	○	○	○	○
其它固定組件（ 螺絲）	—	○	○	○	○	○
配件（ 線材）	○	○	○	○	○	○
記憶卡	—	○	○	○	○	○
備考 1. “超出 0.1 wt %” 及 “超出 0.01 wt %” 係指限用物質之百分比含量超出百分比含量基準值。 Note 1: “Exceeding 0.1 wt %” and “exceeding 0.01 wt %” indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.						
備考 2. “○” 係指該項限用物質之百分比含量未超出百分比含量基準值。 Note 2: “○” indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.						
備考 3. “—” 係指該項限用物質為排除項目。 Note 3: The “—” indicates that the restricted substance corresponds to the exemption.						

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Chapter 1

Overview

This chapter overviews specifications for UNO-2372V3.

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

1.1 Introduction

Advantech's latest UNO-2372V3 series serves as versatile Integrated Edge Controllers, offering customers the flexibility they need to efficiently optimize their services while keeping costs in check. The new integrated Din-rail mounting kit has been designed with enhanced ruggedness and user-friendliness in mind, making it an ideal choice for control cabinets.

The UNO-2372V3 model within this new series boasts a ruggedized design, featuring an industrial-grade Intel® Twin Lake N250 processor clocked at 1.3GHz, along with options for 16GB of DDR5 RAM. It is engineered to operate flawlessly across a wide temperature range (-20 ~ 60°C/-4 ~ 140°F) and offers an array of I/O options, including 2 x LAN, 2 x USB 3.2, 1 x USB 2.0, 1 x HDMI 1.4, 1 x DP 1.4a, 2 x COM ports, and 1 x 2-pin terminal block. Furthermore, it supports B/M/E Key for easy expansion. For those requiring even more versatility, there's an optional 2nd stack extension kit that accommodates 1 x iDoor modules, including industrial Fieldbus options, as well as additional I/O and peripheral modules. This expandability makes Advantech's UNO-2 series a top choice for a wide range of industrial applications. Moreover, the UNO-2 series' flexible expandability and advanced control capabilities are perfectly aligned with the evolving requirements of industry 4.0.

1.2 Safety Precautions

Here are some safety precautions to keep in mind to prevent injuries when making connections. In most situations, standard cables can be used for these connections.

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-2372V3. 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-2372V3. 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-2372V3
- 1 x plug-in block for power wiring
- 4 x screws for attaching SSD (Advantech P/N:1930030800)
- Startup Manual

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

1.4 Hardware Specifications

1.4.1 General

Table 1.1: General Specifications

Dimensions (W x D x H)	150 x 105 x 38 (5.9" x 4.2" x 1.5")
Weight (Net)	0.8 kg (1.8 lbs)
Mounting	Stand/Wall mount, DIN-Rail (Optional)
Power Requirement	10 - 36V _{DC}
Power Consumption	19W (typical), 60W (Max)

1.4.2 System Hardware

Table 1.2: 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® Twin Lake N250
Memory	1 x DDR5 slot (support up to 16GB RAM)
Graphics Engine	Intel® UHD Graphics
Ethernet	Intel i226v Ethernet Controller
LED Indicators	1 x battery, 1 x storage, 1 x power, and LAN (active, status)
Storage	1 x 2.5" SATA (Optional)
Expansion	1 x M.2 B key (3042, 3052, PCIe Gen3 x1, USB 3.2/2.0, SATA 3.0)
	1 x M.2 M key (2242, NVMe, PCIe Gen3 x2)
	1 x M.2 E key (2230, PCIe Gen3 x1, USB2.0)
	1 x external Nano SIM card slot (4FF)

1.4.3 I/O Interfaces

Table 1.3: I/O Interfaces

LAN Ports	2 x RJ45, 2.5Gb Ethernet LAN (10/100/1000/2500 Mbps)
USB Ports	Type-A: 2 x USB3.2 GEN 2, 1 x USB2.0 Type-C: USB3.2 Gen 2, DP1.4a Alt mode (3840x2160@60Hz)
Displays	1 x HDMI (1920x1080@60Hz) 1 x DP 1.4a (3840x2160@60Hz)
Power Connector	1 x 2-pin terminal block

1.4.4 Environment

Table 1.4: Environment

Operating Temperature*	-20 ~ 60°C (-4 ~ 140°F) @5~85% RH with 0.7 m/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, 2Grms, random, 5 ~500Hz, 1hr/axis (SATA)
Ingress Protection	IP40

1.4.5 Certification

Table 1.5: Certification

Certification	CE, FCC, UL, CCC, BSMI
----------------------	------------------------

1.4.6 Extension Kit (Optional)

UNO-2372V3 features a modularized design. Advantech offers two optional 2nd stack extension kits for users to expand the functionality using an Advantech iDoor module.

Table 1.6: Extension Kit (Optional)

Part number	UNO-2372V3-EKA
Description	2nd stack extension kit to support iDoor
Ports	1 x iDoor installation space
Dimensions (W x D x H)	150 x 105 x 37 mm (5.9" x 4.2" x 1.18")
Weight	0.2 kg (0.44 lbs)

Note! Most of the iDoor modules can handle system operating temperatures of 60 °C (140 °F).



1.5 Dimensions

150 x 105 x 38 mm (5.91 x 4.2 x 1.5 in)

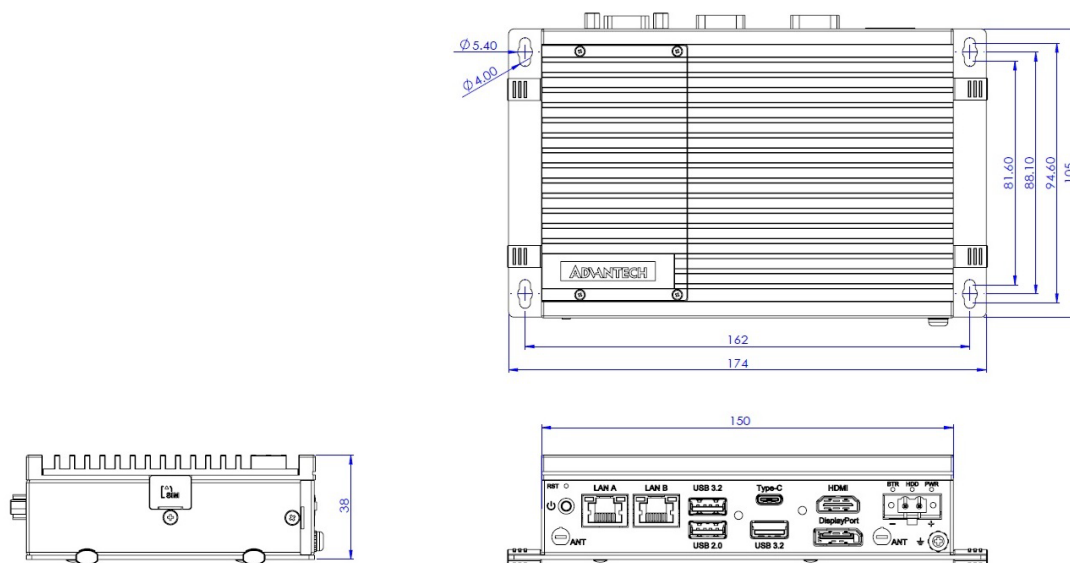


Figure 1.1 UNO-2372V3 Dimensions

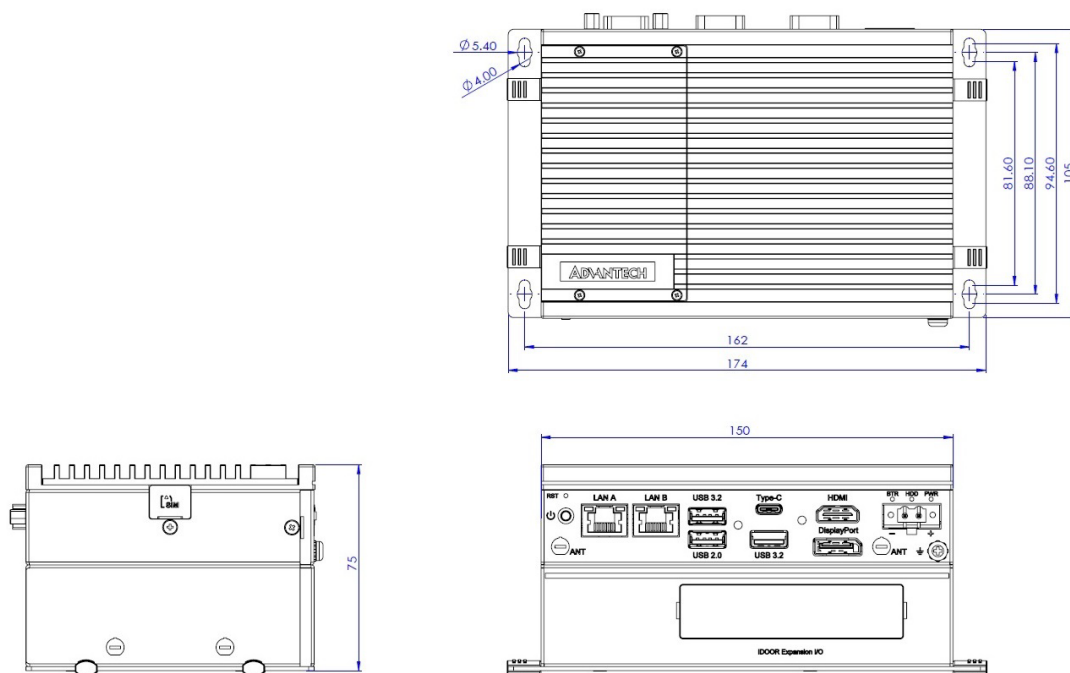


Figure 1.2 UNO-2372V3 Dimensions (with Optional Extension Kit)

Chapter 2

Hardware Functionality

This chapter details setup instructions for UNO-2372V3'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 figures show the connectors on UNO-2372V3. Information regarding each peripheral is provided in the following sections.

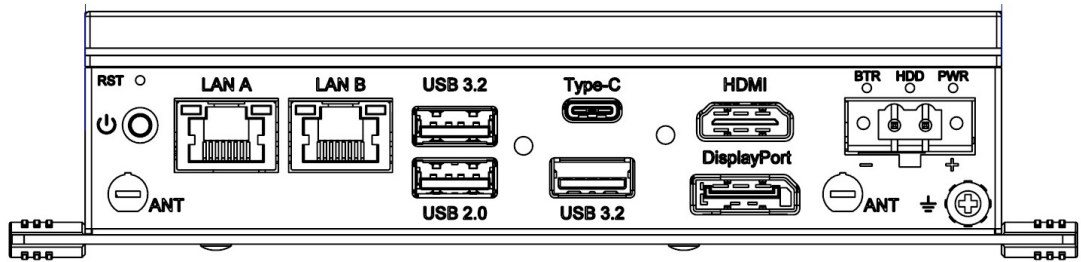


Figure 2.1 Front Panel of UNO-2372V3

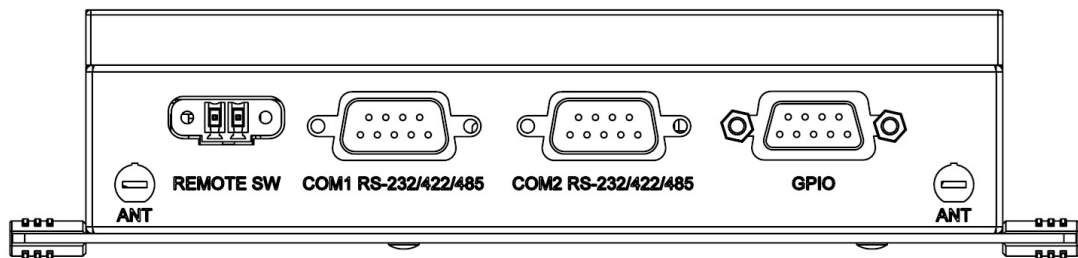


Figure 2.2 Rear Panel of UNO-2372V3

2.2 Serial Communication Ports

The UNO-2372V3 is equipped with two standard COM serial communication ports - COM1, COM2. The port settings can be adjusted from the BIOS menu. Drivers are installed automatically during OS installation.

2.2.1 COM Port Interfaces (COM1, COM2)

The UNO-2372V3 features four RS-232/422/485 ports (DB9, 50 kbps ~ 115.2 kbps). The default setting for COM1 ~ 2 is RS-232. These settings can be adjusted in the BIOS menu. (Please refer to User Manual- Appendix A.8 for RS232/422/485 settings).

2.2.2 Power Connector

UNO-2372V3 comes with a Phoenix 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. (Please refer to User Manual - Appendix A.1 for pin assignments).

2.2.3 LAN: Ethernet Connector

UNO-2372V3 is equipped with two Gigabit LAN controllers. An Intel® i226v Ethernet controller that complies with IEEE 802.3u 10/100/1000/2500 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-2372V3 features 2 x USB ports that comply with USB 3.2 specifications and 1x USB 2.0 port. Besides, it also equipped with 1 x USB Type-C which support DP1.4a as well as Alt. mode. The USB connectors support plug-and-play and hot-swapping functionality for external devices without turning off the computer. It can also be enabled/disabled in the BIOS menu.

2.2.5 HDMI Connector

The UNO-2372V3 provides 1 x HDMI connector for a high resolution interface, 1920x1080@60Hz. (Please refer to User Manual - Appendix A.4 for pin assignments.

2.2.6 DP Connector

The UNO-2372V3 provides 1 x DP 1.4a connector for a high resolution interface, 3840x2160@60Hz. (Please refer to User Manual- Appendix A.4 for pin assignments.)

2.2.7 RTC Battery

The UNO-2372V3 is equipped with an RTC battery to ensure that the system clock and BIOS settings are retained after power disconnections.

- Type: CR2032
- Output Voltage: 3 V_{DC}

2.2.8 Power Button/Power Management

Press the "PWR" button to power on/off the UNO-2372V3 (ATX type). The system can be configured to AT mode by adjusting the onboard switch to automatically turn the system on when there is power input. (Refer to Appendix A.9 for more information.)

2.2.9 Reset Button

Press the "Reset" button to activate the hardware reset function.

2.2.10 M.2 B-key Connector

There is one M.2 B Key connector for M.2 cards, labeled "M2B1" on the mother board. This M.2 interface is a USB3.2 signal. It supports the installation of M.2 3042/3052 modules (w/ USB 3.2 signals).

(Please refer to user manual Appendix A.5 for pin assignments.)

Note!  In addition to the M.2 B key (M2B1) socket, the system features a micro SIM slot for supporting 5G/LTE function. However, users are required to install a 5G/LTE M.2 B key module to enable this function.

2.2.11 M.2 M-key Connector

There is one M.2 M Key connector for M.2 cards, labeled "M2M1" on the mother board. This M.2 M key interface is a PCIe Gen3 x2 signal, which supports the installation of M.2 2242 storage modules.

2.2.12 M.2 E-key Connector

There is one M.2 E Key connector for M.2 cards, labeled “M2E1” on the motherboard.

This M.2 E key interface provides PCIe Gen3 x1 and USB 2.0 signals, which supports the installation of M.2 2230 wireless communication modules such as Wi-Fi and Bluetooth cards.

2.2.13 Nano SIM Slot

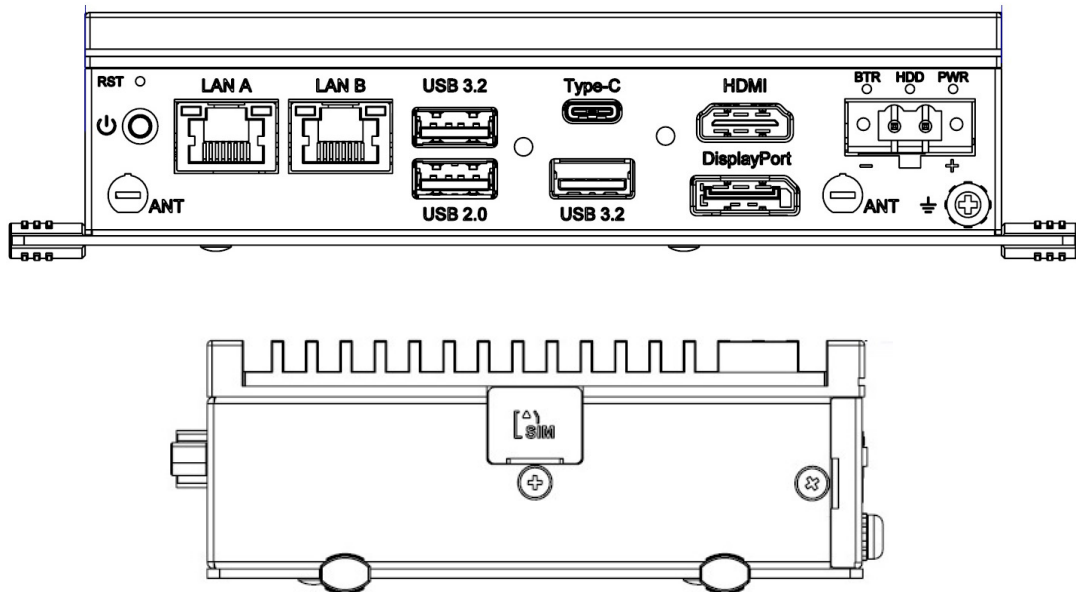
There is one Nano SIM slot for supporting LTE function, labeled “SIM1” on board. In addition to install SIM card on “SIM1”, users are required to install a LTE Module on the “M2B1” M.2 B key to enable the functionality.

2.2.14 LED Indicators

Three LEDs indicate the status of the system's power and RTC battery.

- BTR (RTC Battery): Solid Red indicates the battery voltage has dropped below the operating level, and the battery should be replaced
- HDD: Blinking Green indicates that the M.2 storage device is in read/write operation.
- PWR (Power): Green indicates “normal” and orange indicates “standby”.

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



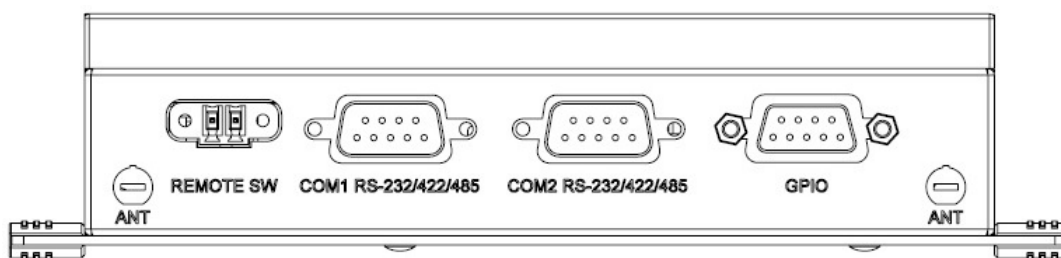


Figure 2.3 LED Indicators, Reset Buttons, SIM Slot and Antenna Hole

Note! Please be aware of the maximum OD value of the antenna hole when selecting antenna.



2.3 Base Unit's Internal Connectors

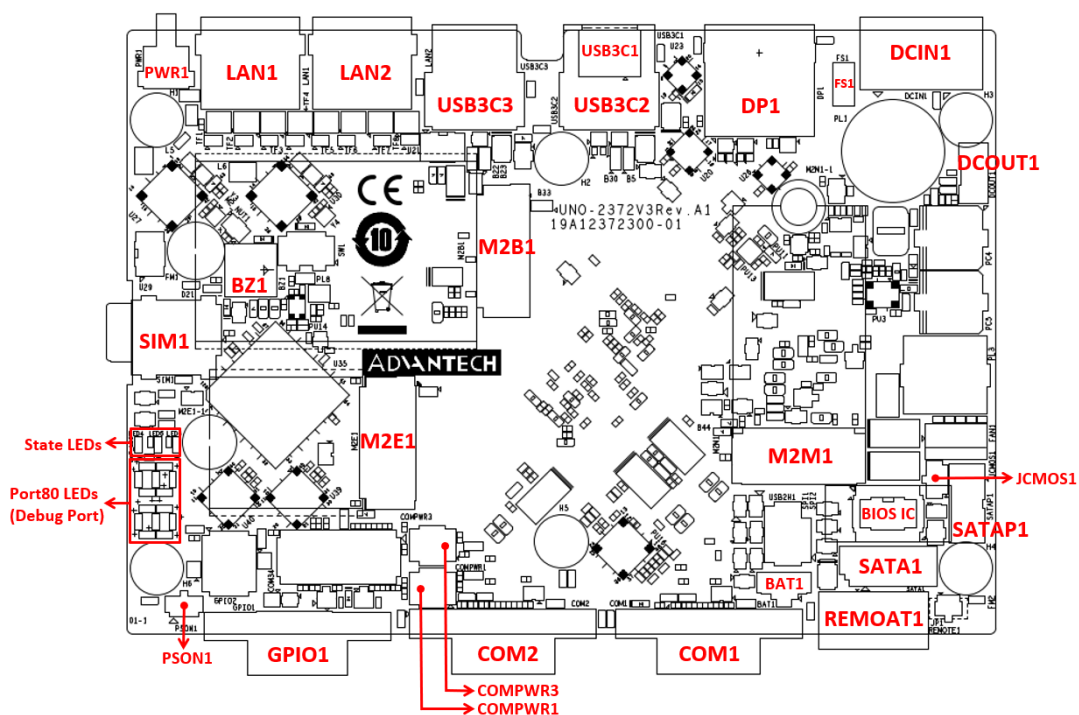


Figure 2.4 Diagram of Connector Locations on UNO-2372V3 (Top Side)

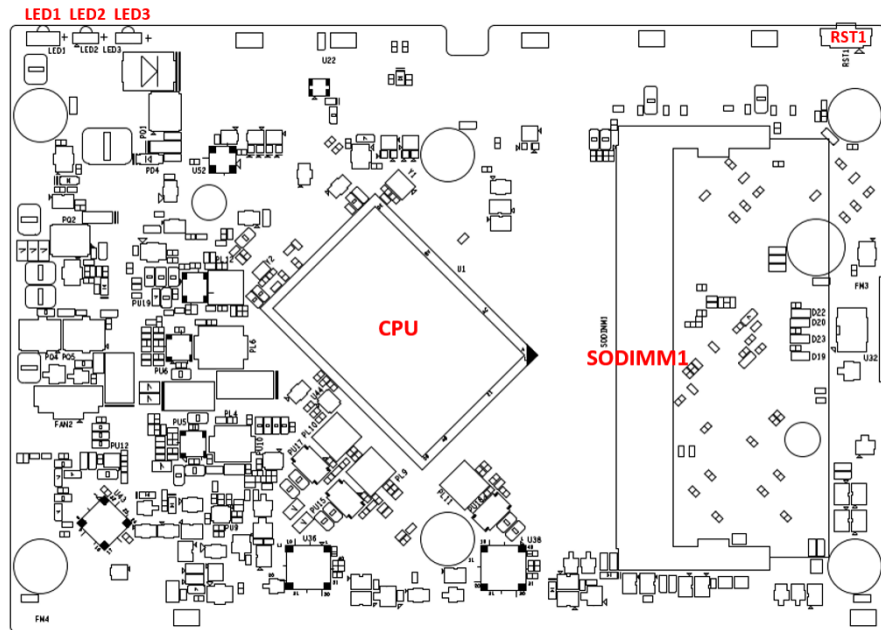


Figure 2.5 Diagram of Key Components Location on UNO-2372V3 (Bottom Side)

Table 2.1: Key Components, Connectors, Jumper Switches on Mother Board on Mother Board

Category	Label	Function
External	PWR1	Power button
	RST1	Reset button
	DP1	HDMI/DP connector
	LAN1	LAN connector
	LAN2	LAN connector
	USB3C1/USB3C2/ USB3C3	USB 3.2 connector
	DCIN1	DC input connector
	COM1/2	COM port (COM1/2), BIOS setting RS-232/RS-422/RS-485
	SIM1	Nano SIM slot for M2B1
Internal	REMOAT1	Remote Power button
	JCMOS1	Clear CMOS Function
	PSON1	Power AT/ATX selectable
	M2B1	M.2 B-Key (3052,3042 PCIe Gen3 x1, USB 3.2/2.0, SATA 3.0)
	M2M1	M.2 M-Key for NVMe (2242) PCIe x2
	M2E1	M.2 E-Key (2230, PCIe Gen3 x1, USB2.0)

Chapter 3

Initial Setup

This chapter explains how to initialize the UNO-2372V3.

- Chassis Grounding
- Connecting Power
- Open and Close Bottom Cover
- Installing a 2nd Stack Extension Kit
- Installing Internal Component
- Antenna Installation (Optional)
- BIOS Settings

3.1 Chassis Grounding

The UNO-2372V3 ensures effective EMI protection and provides a stable grounding platform. To establish proper grounding, there is a convenient chassis grounding point.

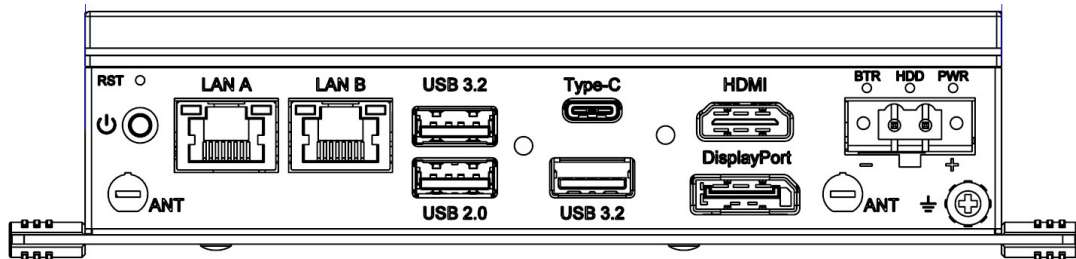


Figure 3.1 Chassis Grounding Connection Diagram

To connect the chassis ground to the Earth ground, utilize the included grounding cable (16 AWG) from the accessory bag.

3.2 Connecting Power

This product requires power from an approved power adapter or DC power source. The recommended power adapter should have a rating of 10-36V DC and 50W, with a maximum temperature (Tmax) of 60°C (140°F). For further assistance or information, please contact Advantech.

Note! When installing an iDoor expansion module (e.g., PCM-24R2PE), it is recommended to use a 60W adapter with the following part number: 96PSA-A120W19T2-3.

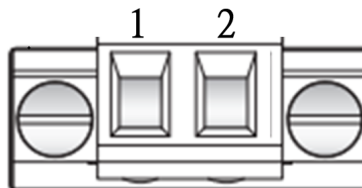


Follow these instructions:

1. Insert the positive and negative wires into the V+ and V- contacts on the terminal block connector.
2. Secure the wire-clamp screws to prevent the DC wires from loosening.

Consider the following guidelines before wiring the device:

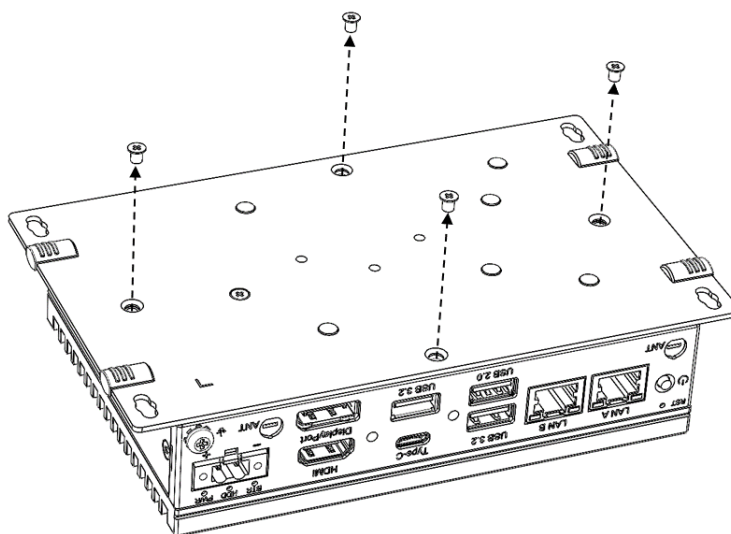
1. The terminal block accommodates wires from 14-24 AWG (8A) with a torque value of 7.0 lb-in and a pitch of 5.08mm. Use copper conductors exclusively.
2. Ensure that the temperature rating of the input connection cable exceeds 105 °C (221 °F).



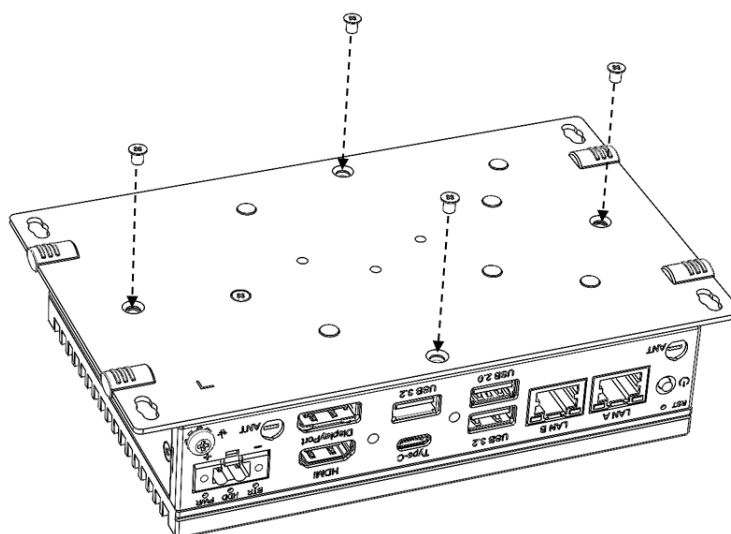
3.3 Open and Close Bottom Cover

These are the steps for opening and closing the bottom cover of the UNO-2372V3:

1. To open the bottom cover, remove the 4 screws from the back cover.



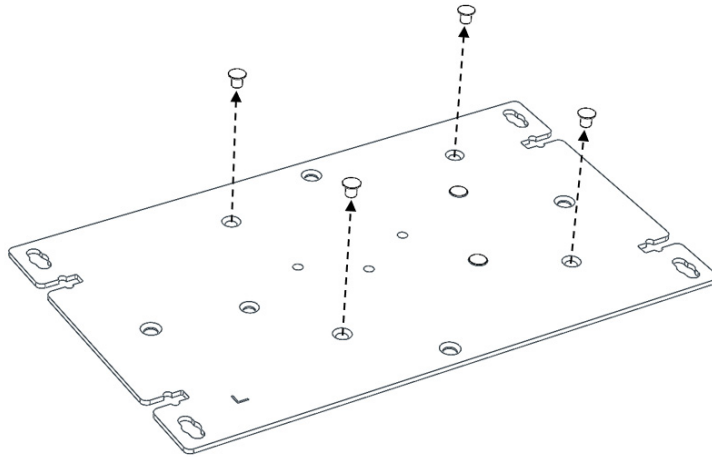
2. To close the bottom cover, place it back and reattach 4 screws.



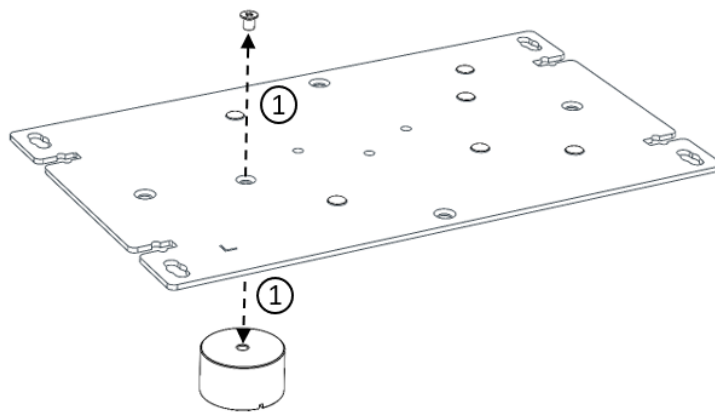
3.4 Installing 2.5" SSD (height within 7mm)

Follow these steps:

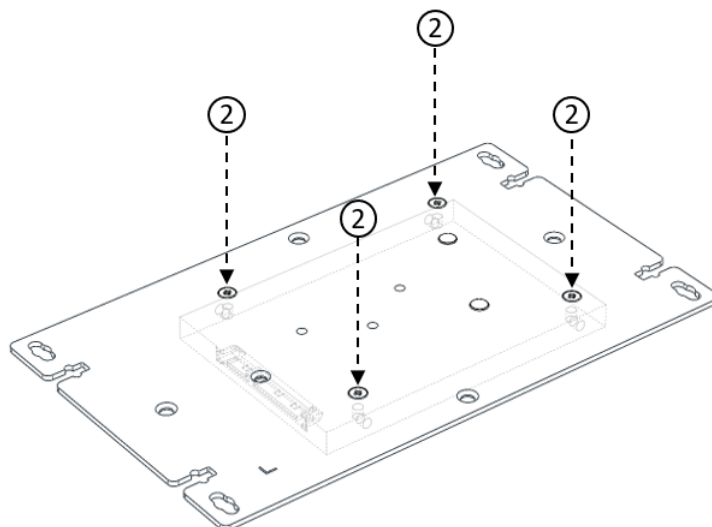
1. Lift the back cover and remove the 4 buttons.



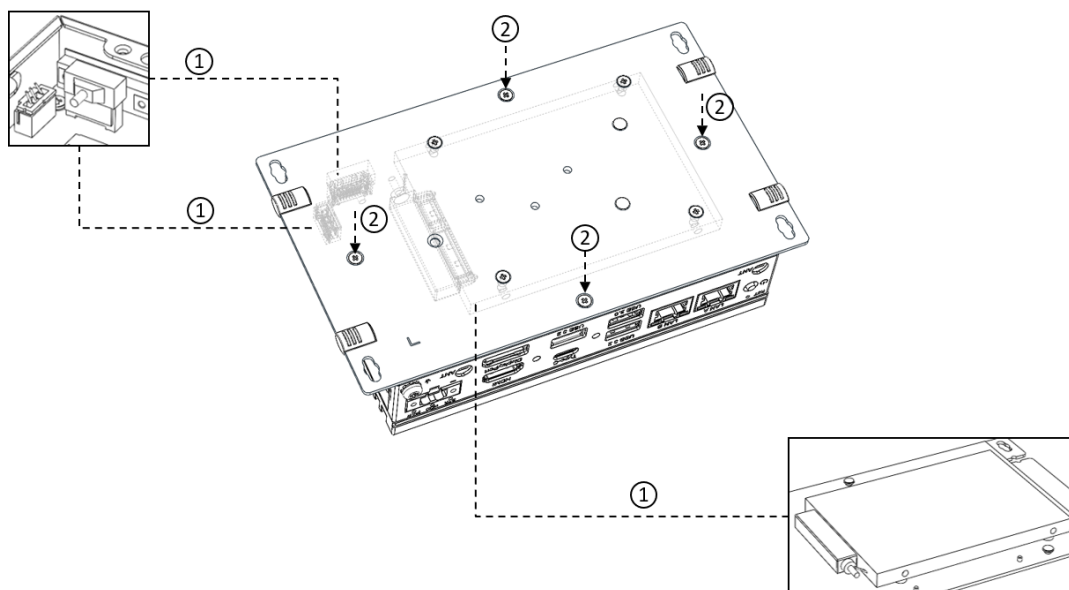
2. Unscrew and remove Aluminum block.



3. Screw 4 x SSD Screw (P/N:1930030800) on back Cover.



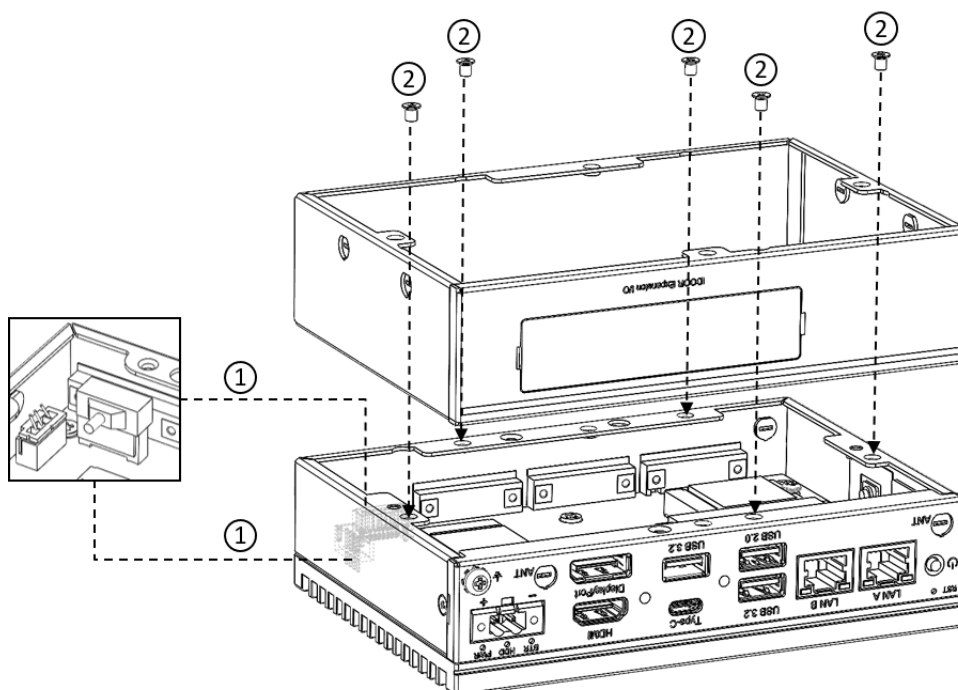
4. Insert the SATA cable and secure it with 4 screws on the back cover.



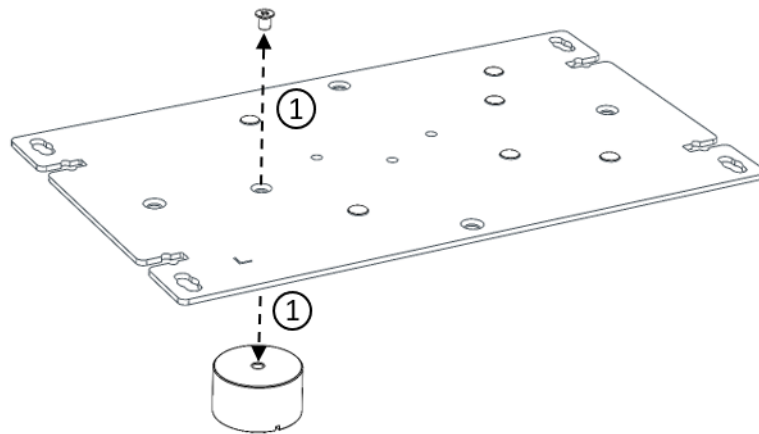
3.5 Installing 2.5" SSD (height within 7mm) on 2nd stack

For this procedure:

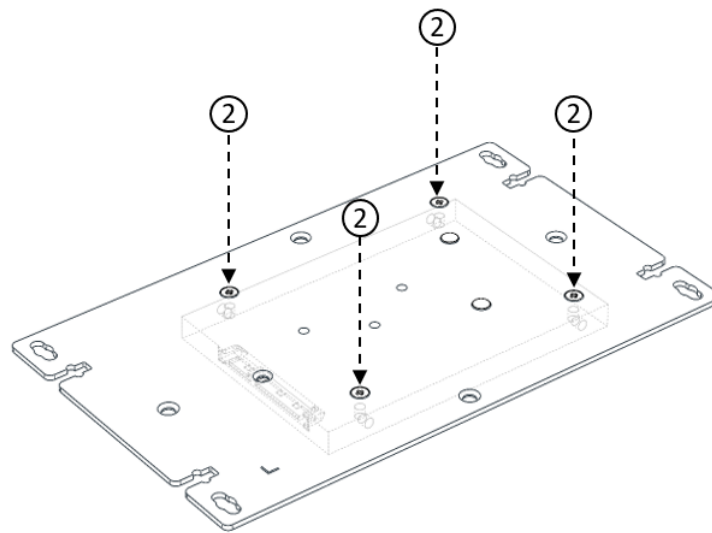
1. Insert the SATA cable in first stack and secure the 2nd stack on the base unit with 5 screws.



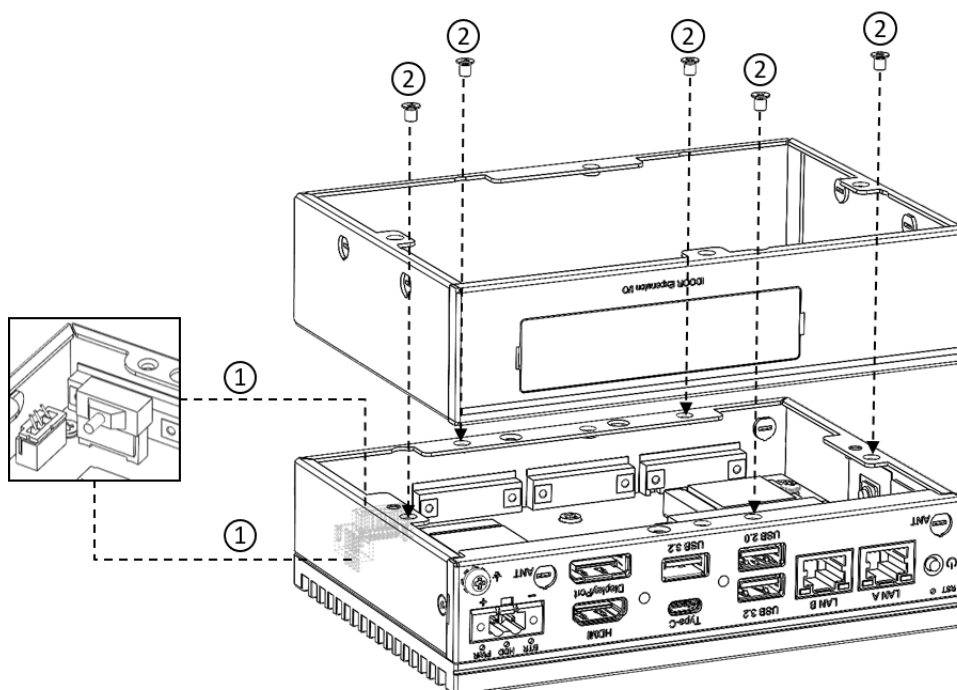
2. Unscrew and remove Aluminum block.



3. Screw SSD with 4 screws (P/N:1930030800) on back cover.



4. Insert SATA Cable on SSD and place back cover back, then secure 5 screws with base unit.

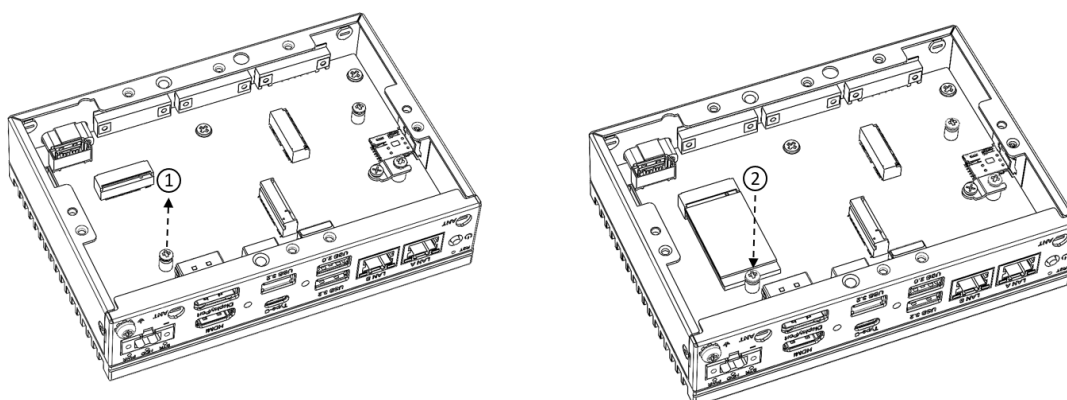


3.6 Installing Internal Components

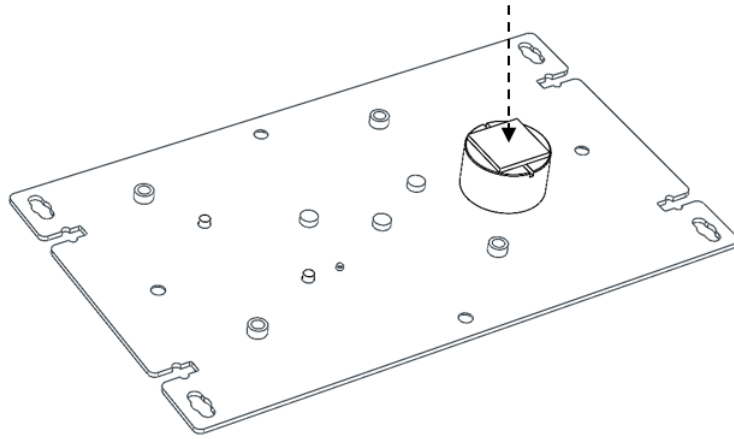
Subsections 3.6.1 to 3.6.5 detail the installation process for various M.2 cards module. The general procedure involves removing the back cover, pre-installed screws, inserting the card/module, and replacing the screws.

3.6.1 Installing M.2 M Key 2242 Card

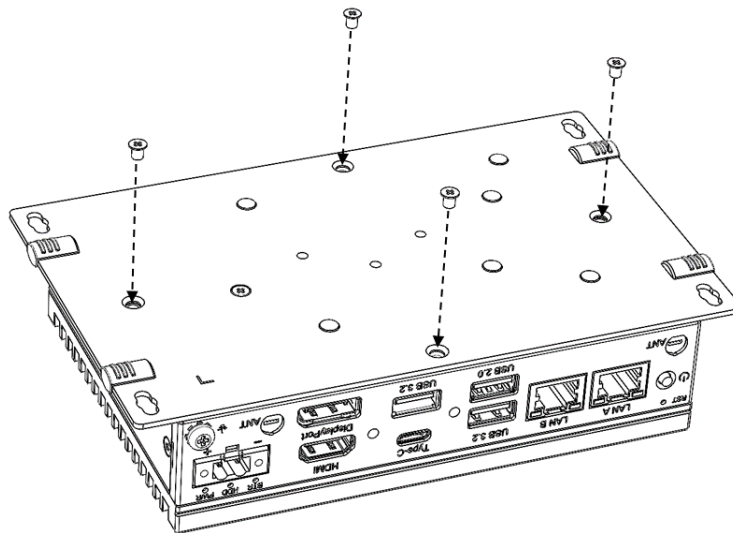
1. Remove the back cover and the pre-installed screws, insert the 2242 card and reattach the screws.



2. Attach Thermal Pad x 1 on aluminum block.

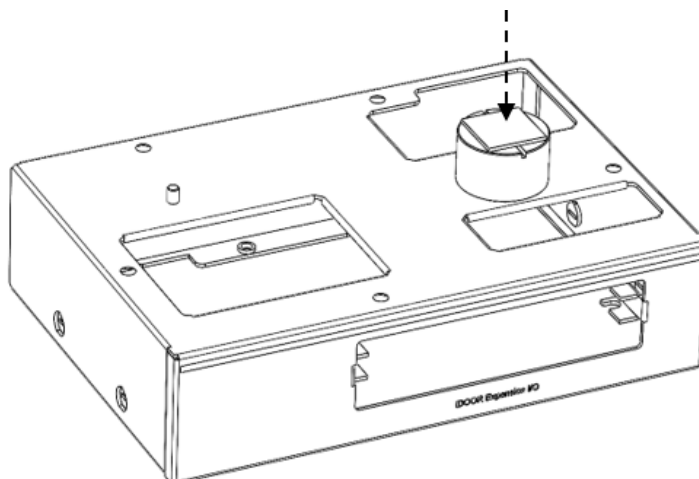


3. Assemble the back cover and reattach 4 screw.

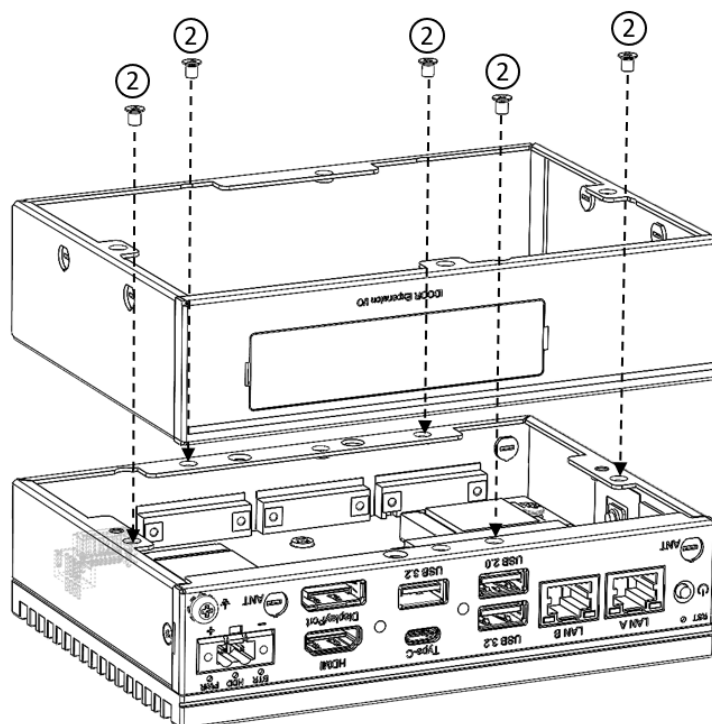


3.6.2 Installing M.2 M Key 2242 Thermal Kit on 2nd Stack

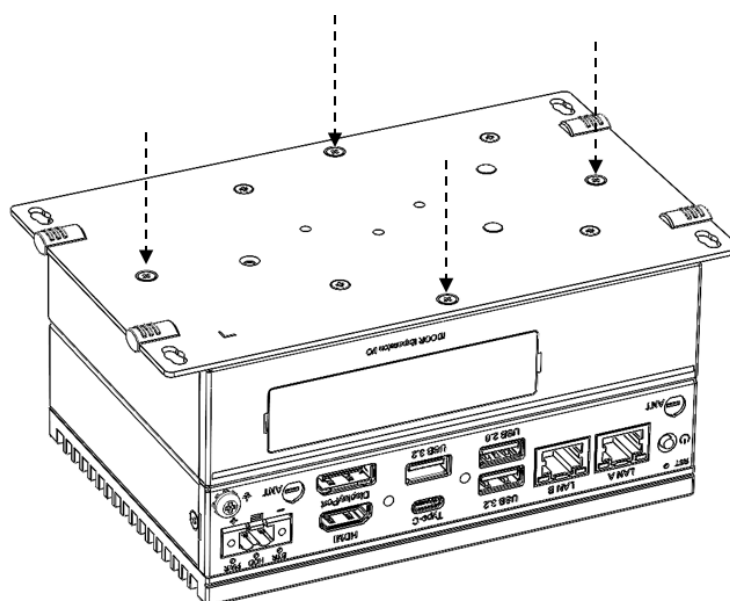
1. Remove Aluminum block from back cover and install it on 2nd stack mechanical, then attach Thermal Pad x 1 on Aluminum block.



2. Secure 5 screws with base unit.

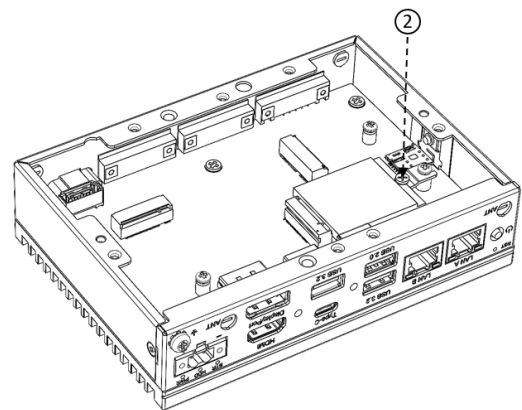
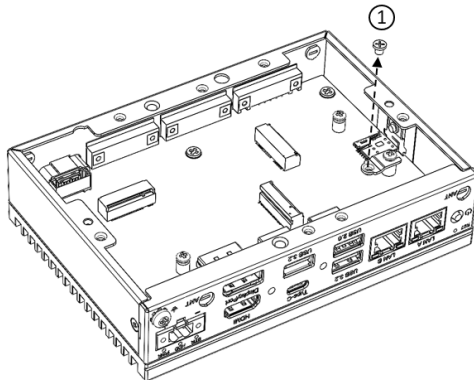


3. Place back cover back and reattach 4 screws.

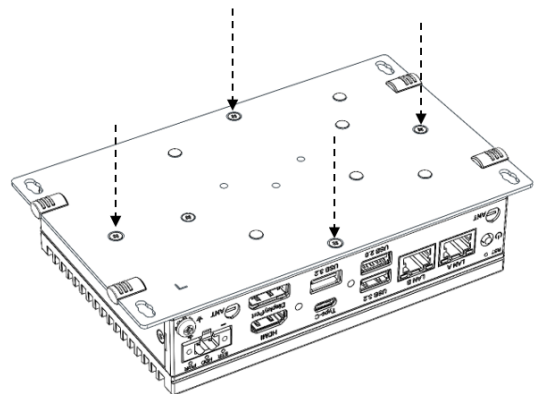
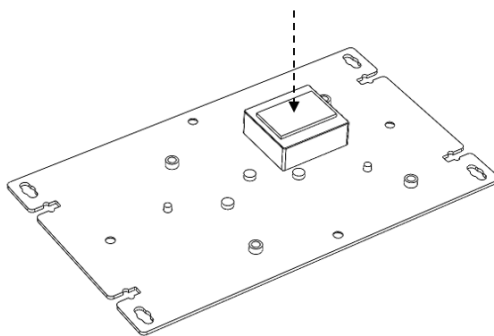


3.6.3 Installing M.2 B Key 3042 Card

1. Remove the back cover and the pre-installed screws, insert the 3042 card and reattach the screws.

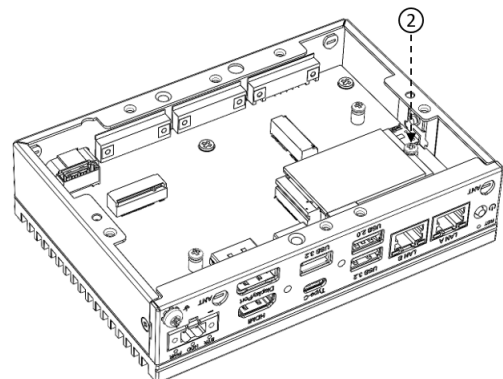
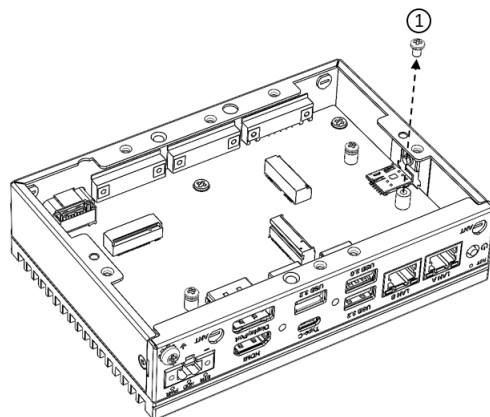


2. Attach Thermal Pad x 1 on Aluminum block, then attach the back cover.
*The installation of a B key module requires an optional thermal kit.

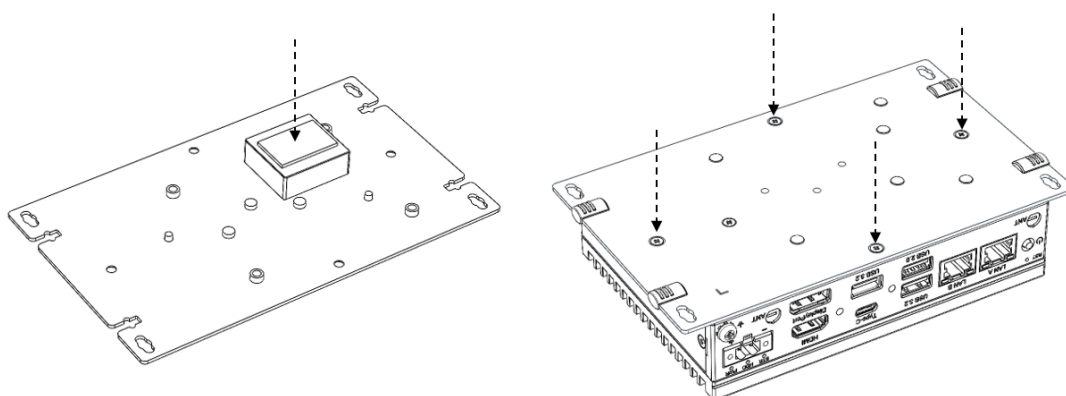


3.6.4 Installing M.2 B Key 3052 Card

1. Remove the back cover and the pre-installed screws, insert the 3052 card and reattach the screws.

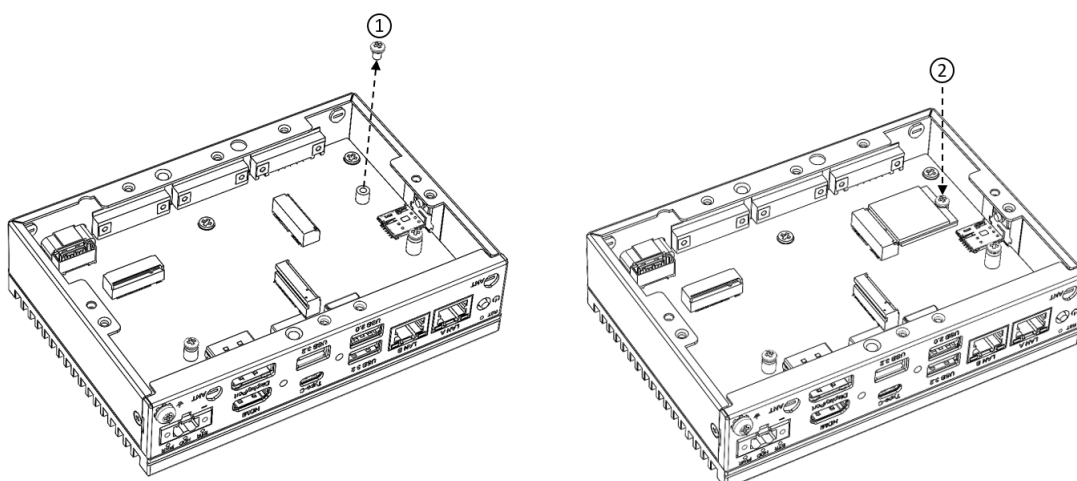


2. Attach Thermal Pad x 1 on Aluminum block, then attach the back cover.
*The installation of a B key module requires an optional thermal kit.

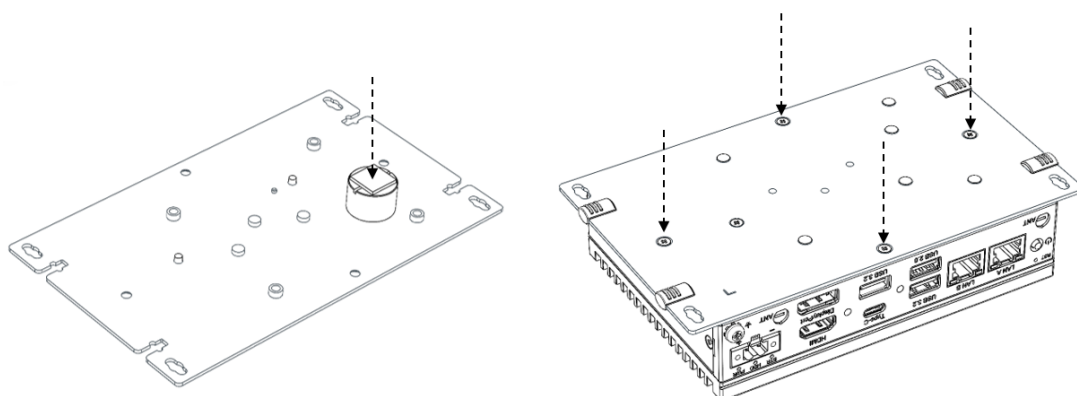


3.6.5 Installing M.2 E Key 2230 Card

1. Remove the back cover, the pre-installed screws and insert the 2230 card and reattach the screws.

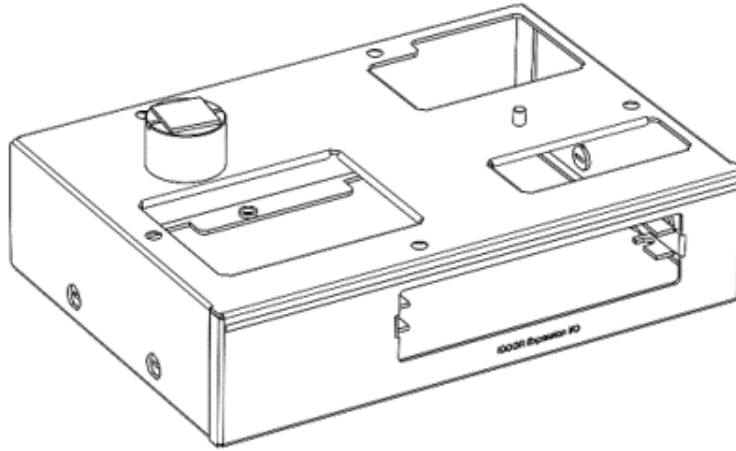


2. Attach Thermal Pad x 1 on Aluminum block, then attach the back cover.
*The installation of a E key module requires an optional thermal kit.

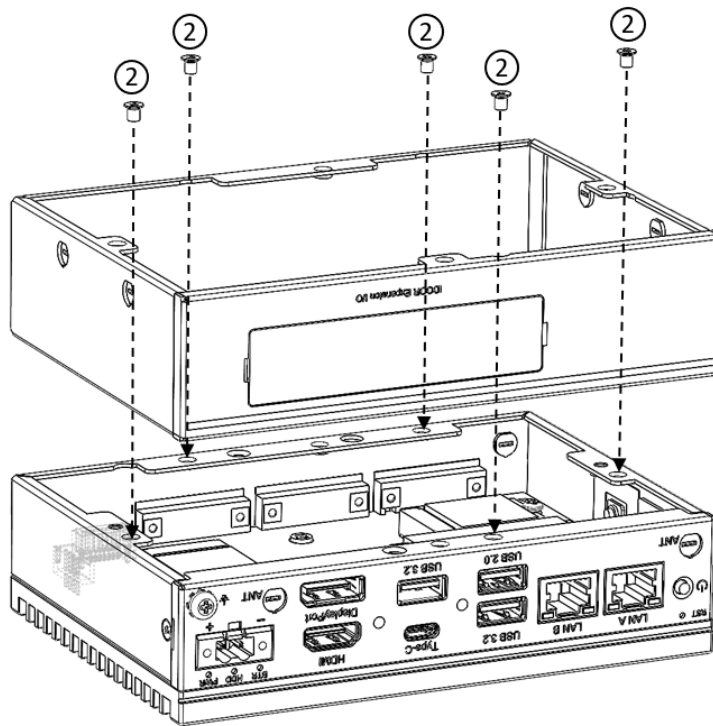


3.6.6 Installing M.2 E Key 2230 Thermal Kit on 2nd Stack

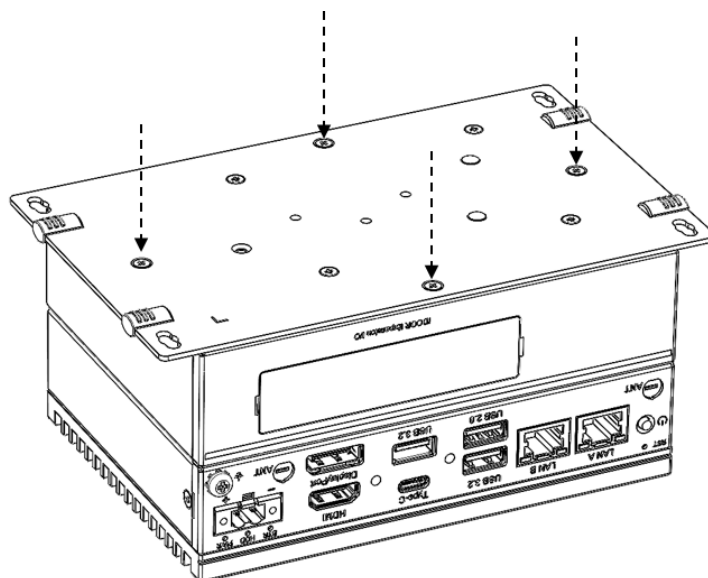
1. Remove Aluminum block from back cover and install it on 2nd stack mechanical, then attach Thermal Pad x 1 on Aluminum block.



2. Secure 5 screws with base unit.

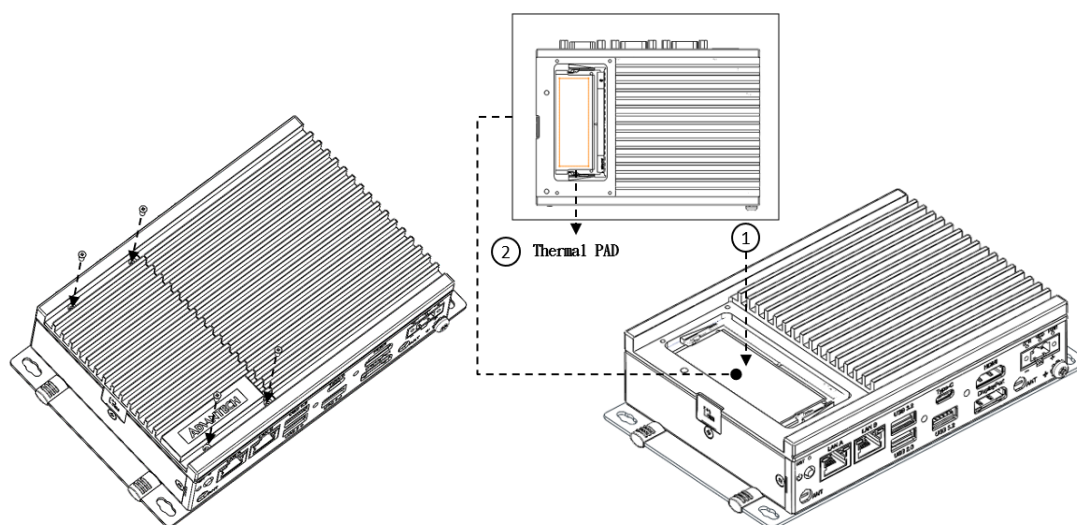


3. Place back cover back and reattach 4 screws.

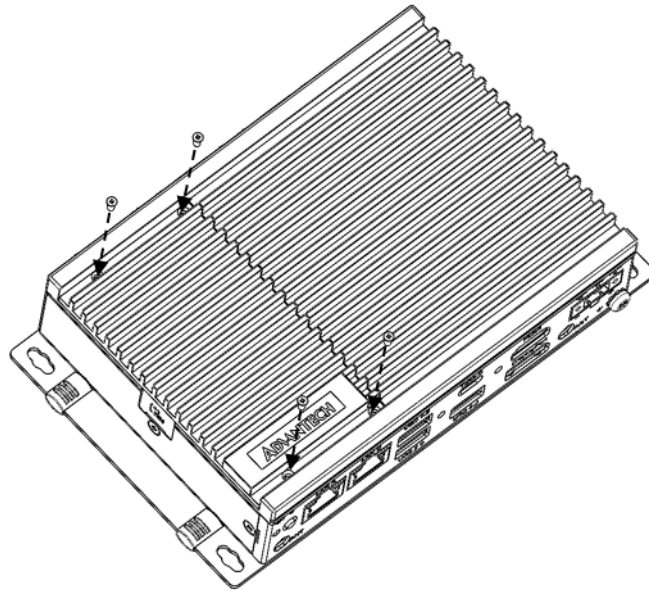


3.6.7 Installing the DIMM Module

1. Remove the back cover and the pre-installed screws, insert the DIMM into the slot, then attach Thermal Pad x1 on it.

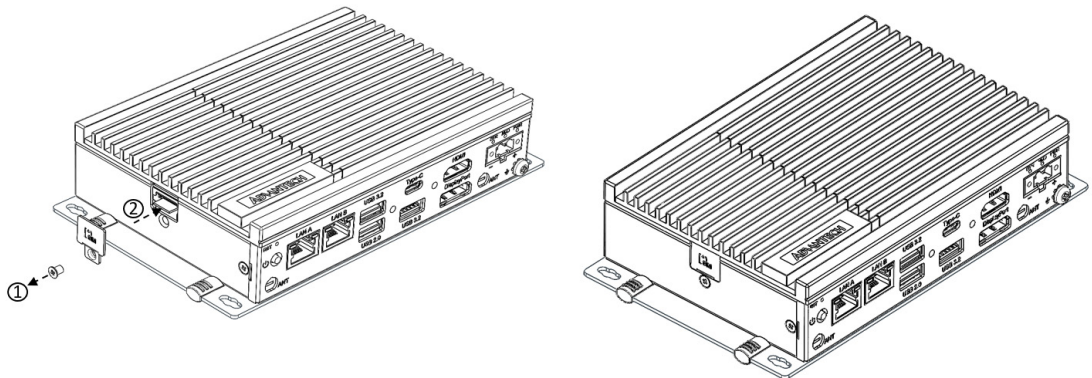


2. Attach DRAM Cover and four screws.



3.7 Installing the SIM Card

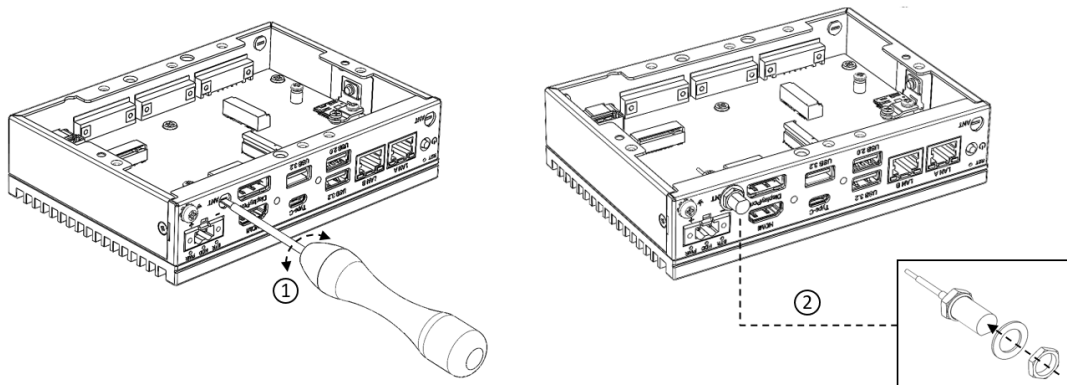
Remove SIM cover and screw, insert the SIM Card, the reattach the SIM Card cover and screw.



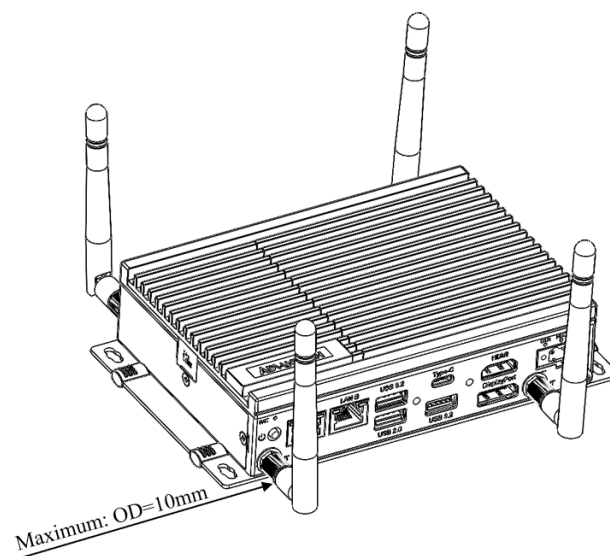
3.8 Antenna Installation (Optional)

UNO-2372V3 includes pre-cut antenna holes for wireless connectivity. Follow these steps for antenna installation:

1. Remove the back cover and plugs in the antenna's pre-cut holes. Assemble the gasket and nuts.



2. Attach the antenna to the pre-cut hole.

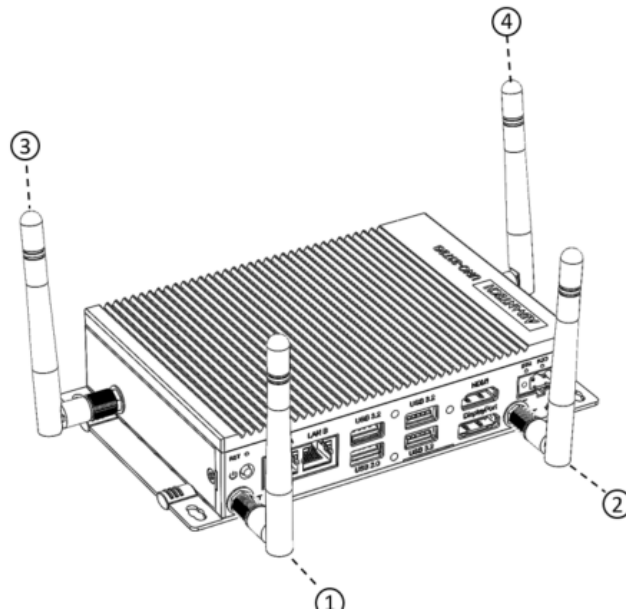


Base unit with 4 antenna

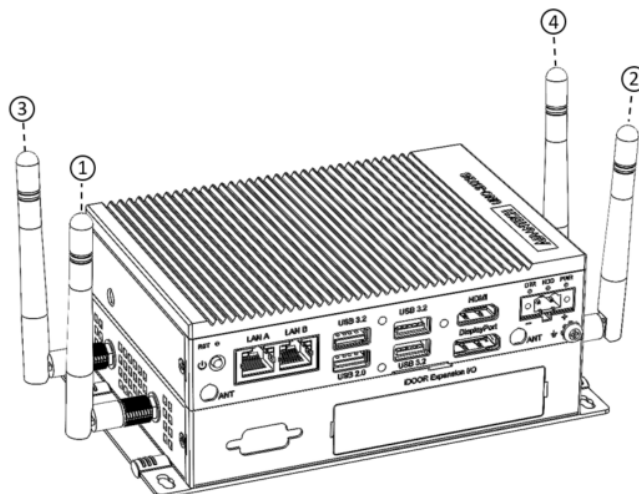
Note! When using the UNO-2372V3 with four antennas, it cannot accommodate a 2.5-inch SSD/HDD.



The 2.5 inch SSD/HDD can be assembled on the double stack SKU with 4pcs antenna.



Base unit with 4 antenna



Double stack with 4 antenna

3.9 BIOS Setting

To modify BIOS settings and control special features, use the BIOS Setup program. Press the "ESC" key upon the first boot to enter the BIOS setup screen or press the "Del" key during the Power On Self Test (POST) process. Detailed instructions are available in the User Manual, specifically in Appendix A.10-A.12.

Appendix **A**

System Settings/Pin Assignments

A.1 Power Connector (DCIN1)

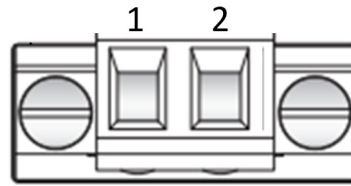


Table A.1: Power Connector Pin Assignments

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

A.2 LAN: Ethernet Connector (LAN1)

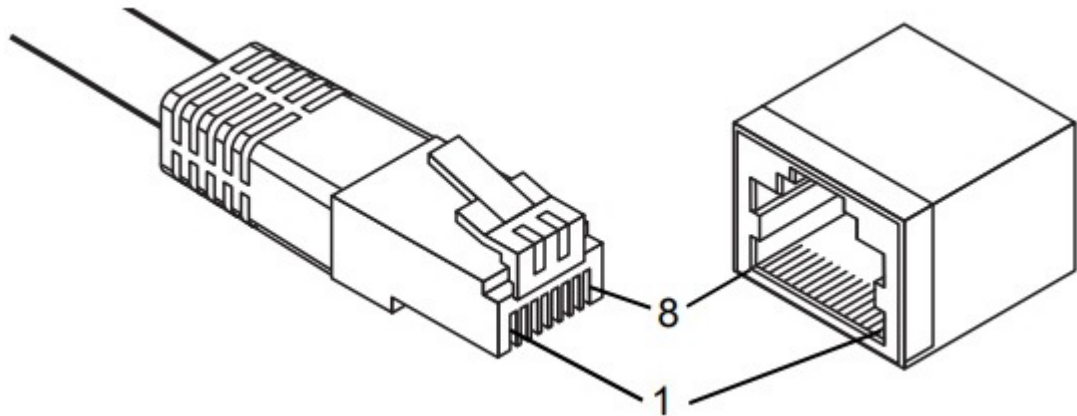


Table A.2: Ethernet Connector Pin Assignments

RJ45 Pin	Signal	Description
1	MDIO+	■ 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+/-. ■ 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. ■ 2500BASE-T: Both MDI and MDIX configurations use all four pairs for simultaneous transmission and reception of data.
2	MDIO-	

Table A.2: Ethernet Connector Pin Assignments

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.
		■	2500BASE-T: Both MDI and MDIX configurations use all four pairs for simultaneous transmission and reception of data.
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+/-.
5	MDI2-		
7	MDI3+	■	100BASE-TX: Unused.
		■	10BASE-T: Unused.
8	MDI3-	■	2500BASE-T: Both MDI and MDIX configurations use all four pairs for simultaneous transmission and reception of data.

Table A.3: LEDs

Left LED			Right LED
10/100 Link	1000 Link	2500 Link	Active
Off	Orange	Green	Green

A.3 USB Connector (USB3C1/USB3C2/USB3C3)

A.3.1 USB 3.0 Connector

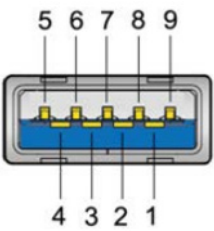


Table A.4: USB 3.0 Connector Pin Assignments		
Pin	Signal Name	Description
1	VBUS	Power
2	D-	USB 2.0 differential pair
3	D+	
4	GND	Ground for power return
5	StdA_SSRX-	SuperSpeed receiver differential pair
6	StdA_SSRX+	
7	GND_DRIAN	Ground for signal return
8	StdA_SSTX-	SuperSpeed transmitter differential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

A.4 HDMI Connector (DP1)

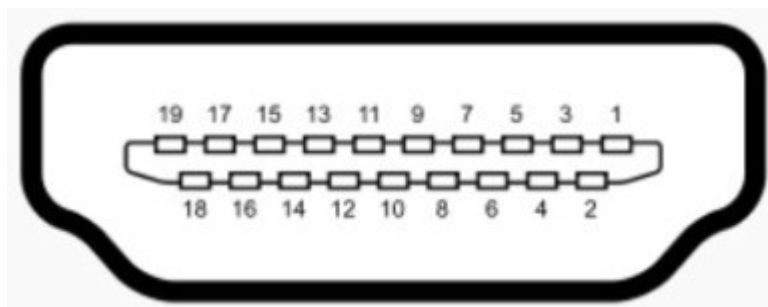


Table A.5: Display Port Adapter Cable Pin Assignments

Pin	Signal Name
1	TMDS1_P2
2	GND
3	TMDS1_N2
4	TMDS1_P1
5	GND
6	TMDS1_N1
7	TMDS1_P0
8	GND
9	TMDS1_N0
10	TMDS1_CLK_P
11	GND
12	TMDS1_CLK_N
13	NC
14	NC
15	TMDS1_DDCCLK
16	TMDS1_DDCDAT
17	GND
18	+V5
19	TMDS1_HPD

A.5 M.2 B-key Connector (M2B1)

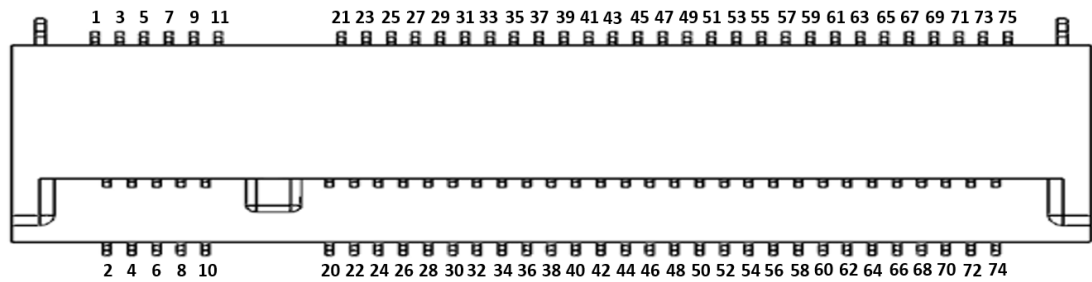


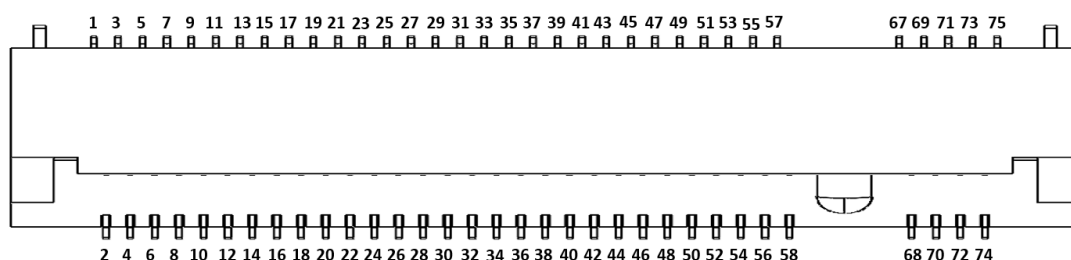
Table A.6: M.2 B Key Connector Pin Assignments

Pin	Signal Name	Pin	Signal Name
1	M2_CFG3	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	M2B1_LED#
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	NC	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	NC
41	PCIE-SATA_RX_P	42	NC
43	PCIE-SATA_RX_P	44	NC
45	GND	46	NC
47	PCIE-SATA_RX_P	48	NC
49	PCIE-SATA_RX_P	50	M2B1_PLTRST#
51	GND	52	M2B1_PLTRST#
53	PCIE-SATA_RX_P	54	M2B1_PLTRST#

Table A.6: M.2 B Key Connector Pin Assignments

55	PCIE-SATA_RX_P	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	M2_CFG1	70	+V3.3_M2
71	GND	72	+V3.3_M2
73	GND	74	+V3.3_M2
75	M2_CFG2		

A.6 M.2 M-Key Connector (M2M1)

**Table A.7: M.2 M key Connector Pin Assignments**

Pin	Signal Name	Pin	Signal Name
1	GND	2	+V3.3_MKEY
3	GND	4	+V3.3_MKEY
5	NC	6	NC
7	NC	8	NC
9	GND	10	M2M1_LED#
11	NC	12	+V3.3_MKEY
13	NC	14	+V3.3_MKEY
15	GND	16	+V3.3_MKEY
17	NC	18	+V3.3_MKEY
19	NC	20	NC
21	GND	22	NC
23	NC	24	NC
25	NC	26	NC
27	GND	28	NC

Table A.7: M.2 M key Connector Pin Assignments

29	PCIE_PCH_M2M1_RX_N2	30	NC
31	PCIE_PCH_M2M1_RX_P2	32	NC
33	GND	34	NC
35	PCIE_PCH_M2M1_TX_N2	36	NC
37	PCIE_PCH_M2M1_TX_P2	38	NC
39	GND	40	NC
41	PCIE_PCH_M2M1_RX_N1	42	NC
43	PCIE_PCH_M2M1_RX_P1	44	NC
45	GND	46	NC
47	PCIE_PCH_M2M1_TX_N1	48	NC
49	PCIE_PCH_M2M1_TX_P1	50	PLTRST_MKEY#
51	GND	52	M2_E_CLKREQ0#
53	CLK100M_PCH_M2_E1_K_N	54	NC
55	CLK100M_PCH_M2_E1_K_P	56	NC
57	GND	58	NC
59	Mechanical notch E	60	Mechanical notch E
61	Mechanical notch E	62	Mechanical notch E
63	CLK100M_PCH_M2M1_N	64	Mechanical notch E
65	CLK100M_PCH_M2M1_P	66	Mechanical notch E
67	NC	68	PMC_SUSCLK
69	NC	70	+V3.3_MKEY
71	GND	72	+V3.3_MKEY
73	GND	74	+V3.3_MKEY
75	GND		

A.7 M.2 E-key Connector (M2E1)

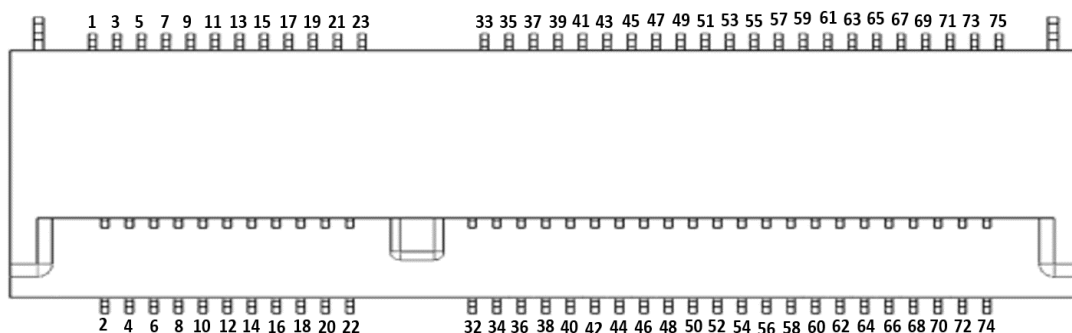


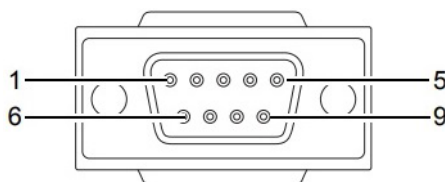
Table A.8: M.2 E key Connector Pin Assignments

Pin	Signal Name	Pin	Signal Name
1	GND	2	+V3.3SB_M2E
3	M2E_USB_D+	4	+V3.3SB_M2E
5	M2E_USB_D-	6	NC
7	GND	8	NC
9	NC	10	NC
11	NC	12	NC
13	NC	14	NC
15	NC	16	NC
17	NC	18	GND
19	NC	20	NC
21	NC	22	NC
23	NC	24	Mechanical notch E
25	Mechanical notch E	26	Mechanical notch E
27	Mechanical notch E	28	Mechanical notch E
29	Mechanical notch E	30	Mechanical notch E
31	Mechanical notch E	32	NC
33	GND	34	NC
35	PCIE_M2_TX1+	36	NC
37	PCIE_M2_TX1-	38	NC
39	GND	40	NC
41	PCIE_M2_RX1+	42	NC
43	PCIE_M2_RX1-	44	NC
45	GND	46	NC
47	CLK_M2_PCIE1+	48	NC
49	CLK_M2_PCIE1-	50	M2E_SUSCLK
51	GND	52	M2E_PERST0#
53	M2E_CLKREQ0#	54	M2E_z_W_DISABLE2#
55	M2E_PEWAKE0#	56	M2E_z_W_DISABLE1#
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	GND	64	NC
65	NC	66	NC

Table A.8: M.2 E key Connector Pin Assignments			
67	NC	68	NC
69	GND	70	M2E_PEWAKE1#
71	NC	72	+V3.3SB_M2E
73	NC	74	+V3.3SB_M2E
75	GND		

A.8 COM Port RS232/422/485 Settings

Table A.9: COM Port RS232/422/485 Settings			
Pin	RS232	RS422	RS485
1	DCD	TX-	D-
2	RX	TX+	D+
3	TX	RX+	
4	DTR	RX-	
5	GND	GND	GND
6	DSR		
7	RTS		
8	CTS		
9	RI		

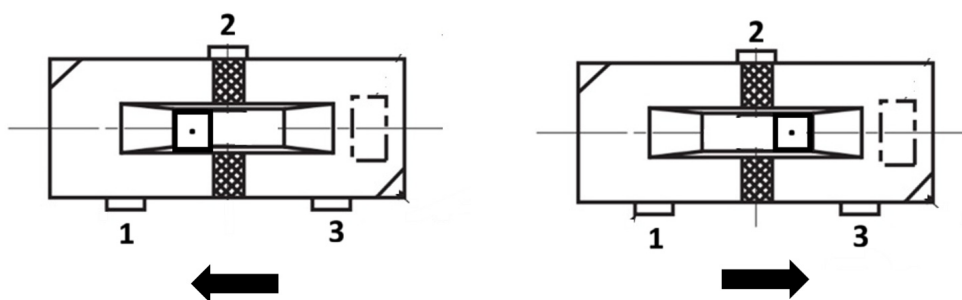


A.9 AT/ATX Setting (PSON1)

PSON1 can be used for AT/ATX setting. The default setting is ATX mode. See the following table for jumper configuration

Table A.10: AT/ATX Setting (PSON1)

AT	1-2	
ATX	2-3	Default

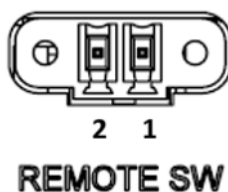


A.10 Remote1

Remote1 for remote Power button setting. Pin define of Remote is listed below:

Table A.11: Pin Define

Pin	Signal Name
1	BTN
2	GND

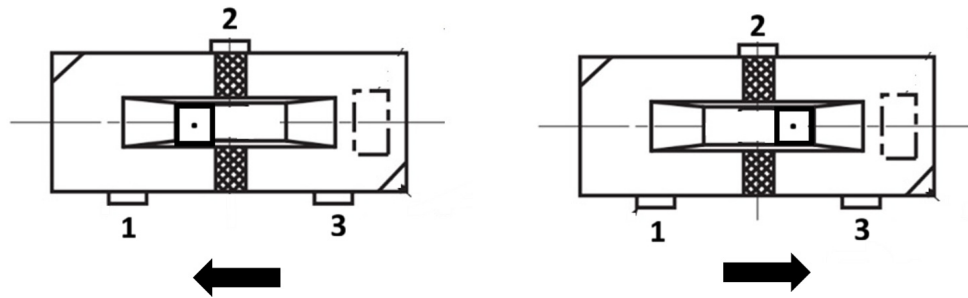


A.11 JCMOS Clear Function

The JCMOS jumper is used to select CMOS clear Enable or Disable.

Table A.12: CMOS CLR Jumper

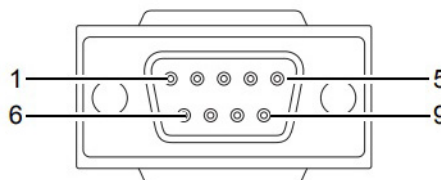
Mode	Jumper Setting
Normal (default)	1-2
CLR COMS	2-3



A.12 GPIO Pin Assignment

Table A.13: GPIO Pin Assignment

PIN	Signal Name
1	GND
2	GPIO1_0
3	GPIO1_1
4	GPIO1_2
5	GPIO1_3
6	GPIO1_4
7	GPIO1_5
8	GPIO1_6
9	GPIO1_7



A.13 BIOS Operation

A.13.1 Introduction

With the AMI BIOS Setup Utility, you can modify BIOS settings and control the specific features of your computer. The Setup Utility uses a number of menus for making changes and turning the specific features on or off. This chapter describes the basic navigation of the UNO-2372V3 setup screens.

AMI's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This information is stored in the NVRAM area so it retains the setup information when the power is turned off.

A.13.2 Entering BIOS Setup

Press to enter AMI BIOS Setup Utility, the Main Menu will appear on the screen. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

When users first enter the BIOS Setup Utility, they enter the Main setup screen.

Users can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options described in this section. The Main BIOS Setup screen is shown below.

Press to enter AMI BIOS Setup Utility, the Main Menu will appear on the screen. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.



The Main BIOS setup screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured; options in blue can be. The right frame displays the key legend.

The key legend above is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

- **System time/System date**
End user can use System time/System date options to change the system time and date. Highlight System Time or System Date using the keys. Enter new values through the keyboard, press the key or the keys to move between fields. The date must be entered in MM/DD/YY format. The time must be entered in HH:MM:SS format

A.14 Advanced BIOS Features

Setup Select the Advanced tab from the UNO-2372V3 setup screen to enter the Advanced BIOS setup screen. You can select any of the items in the left frame of the screen, such as CPU configuration, to go to the sub menu for that item. You can display an Advanced BIOS Setup option by highlighting it using the keys. All Advanced BIOS Setup options are described in this section. The Advanced BIOS Setup screens are shown below. The sub menus are described on the following pages.

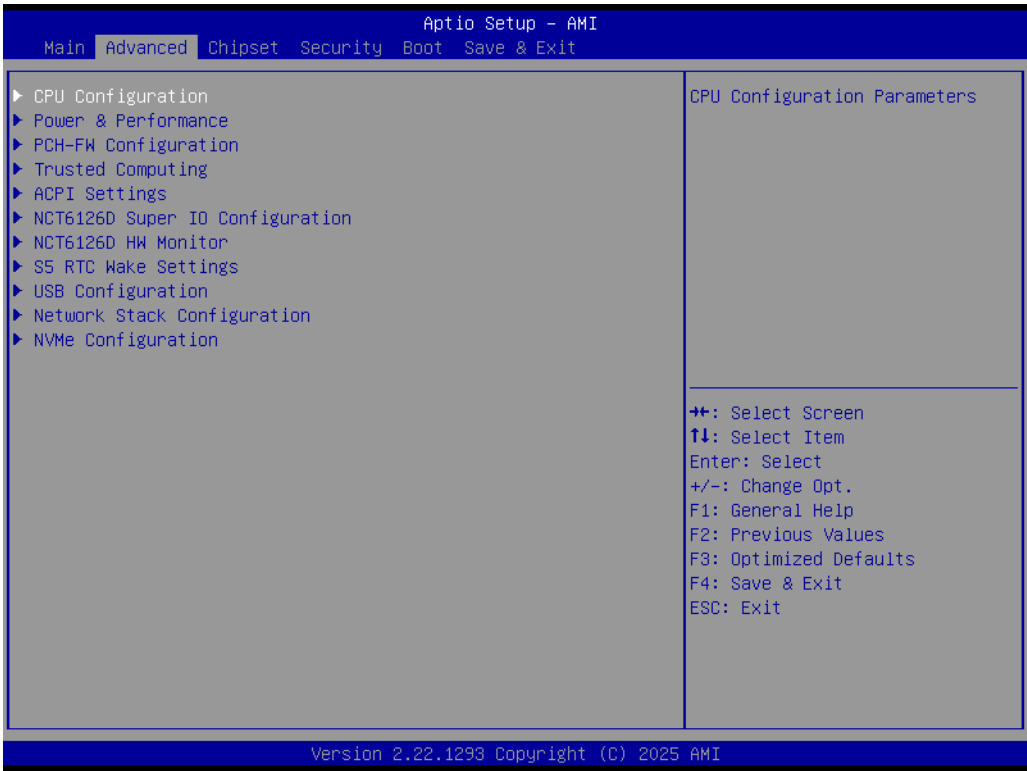


Figure A.1 Advanced BIOS Features Setup Screen

A.14.1 CPU Configuration

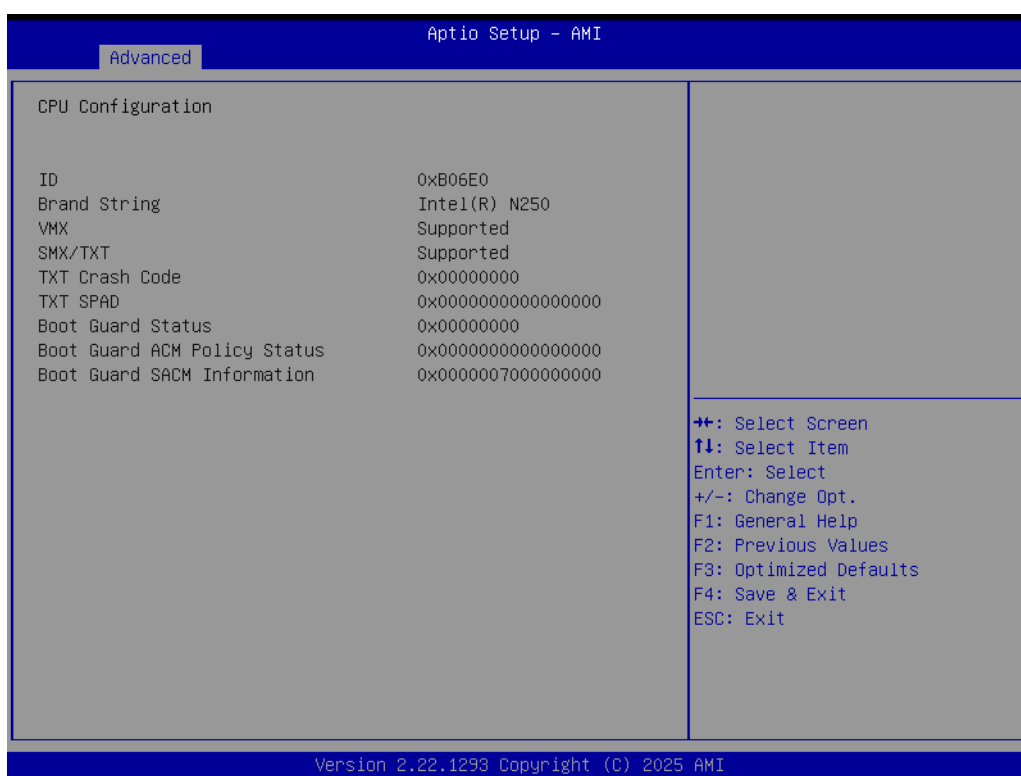


Figure A.2 CPU Configuration

A.14.2 Power & Performance

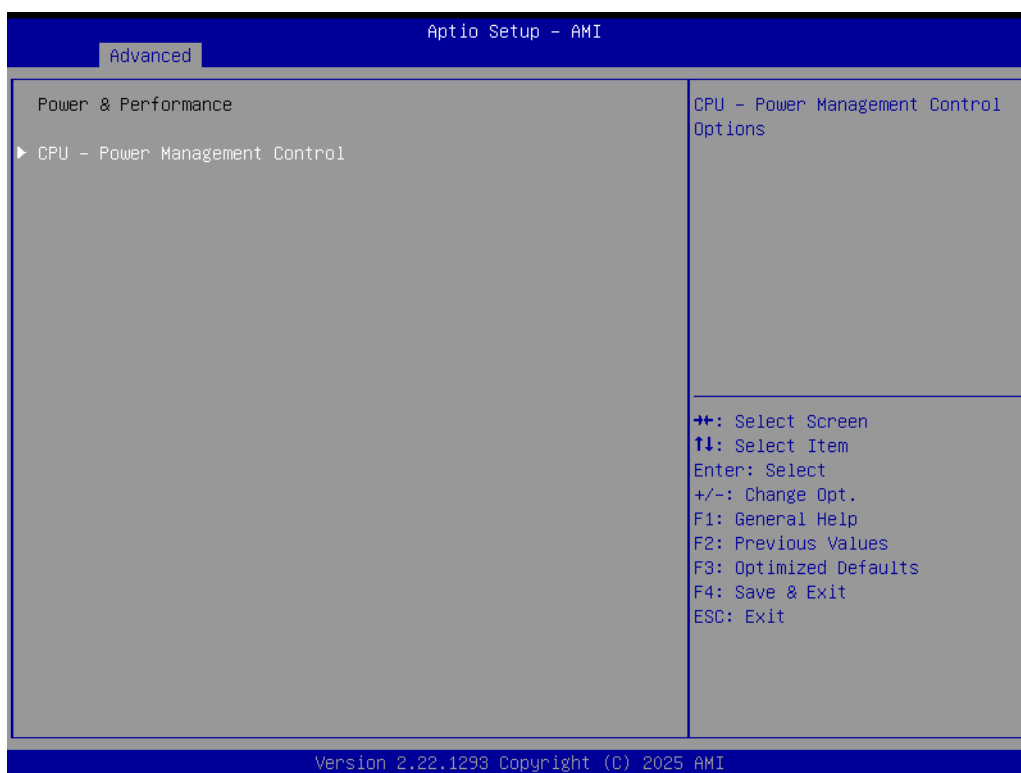


Figure A.3 Power & Performance

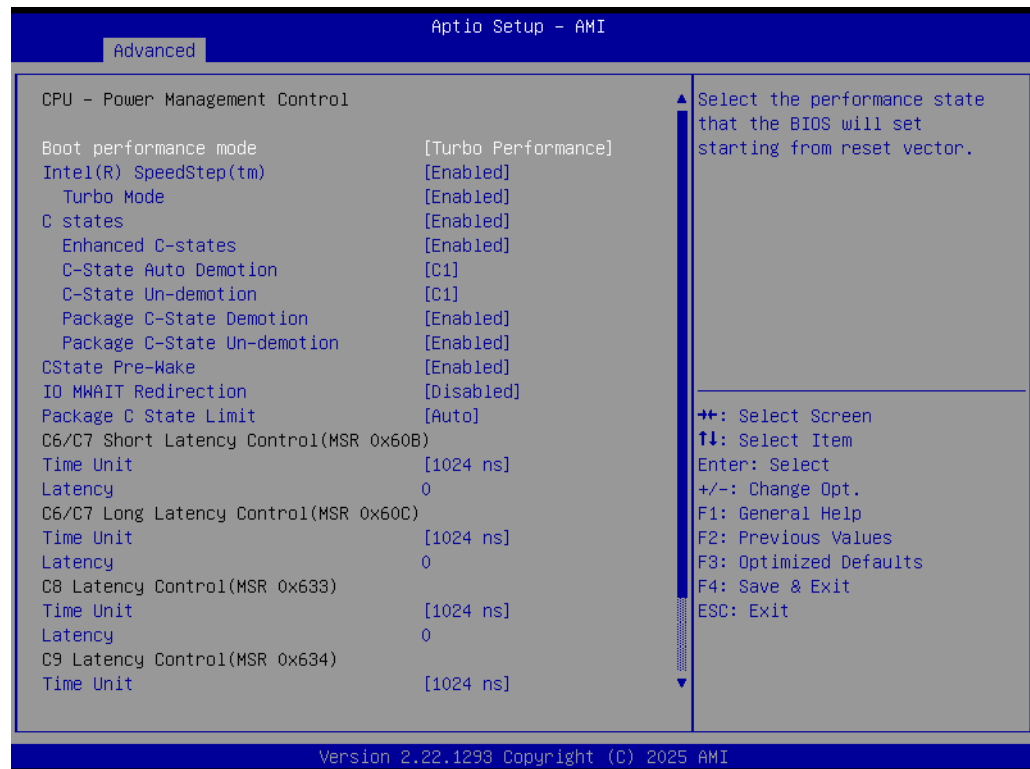


Figure A.4 CPU-Boot Performance Mode

CPU Power Management Control:

- **Boot performance mode**
Select the performance state that the BIOS will set starting from reset vector.
- **Intel® SpeedStep(tm)**
Allows more than two frequency ranges to be supported
- **Turbo mode**
- **C states**
Enable/Disable CPU Power Management. Allows CPU to go to C states when it's not 100% utilized.

A.14.3 PCH-FW Configuration



Figure A.5 PCH-FW Configuration

A.14.4TPM Device Selection

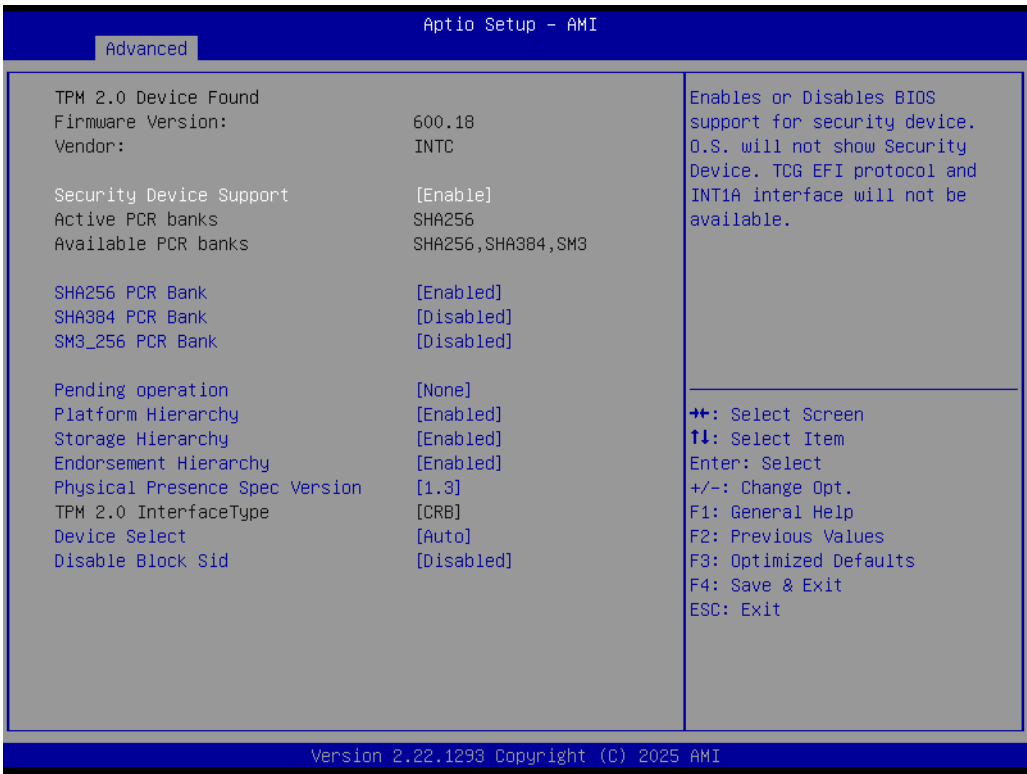


Figure A.6 TPM Device Selection

- Select TPM Device (fTPM or dTPM)
- TPM – Enables fTPM. dTPM – Disables fTPM and enables dTPM.

Warning! fTPM/dTPM will be disabled, and all data saved on it will be lost.



A.14.5 NCT6126D Super IO Configuration

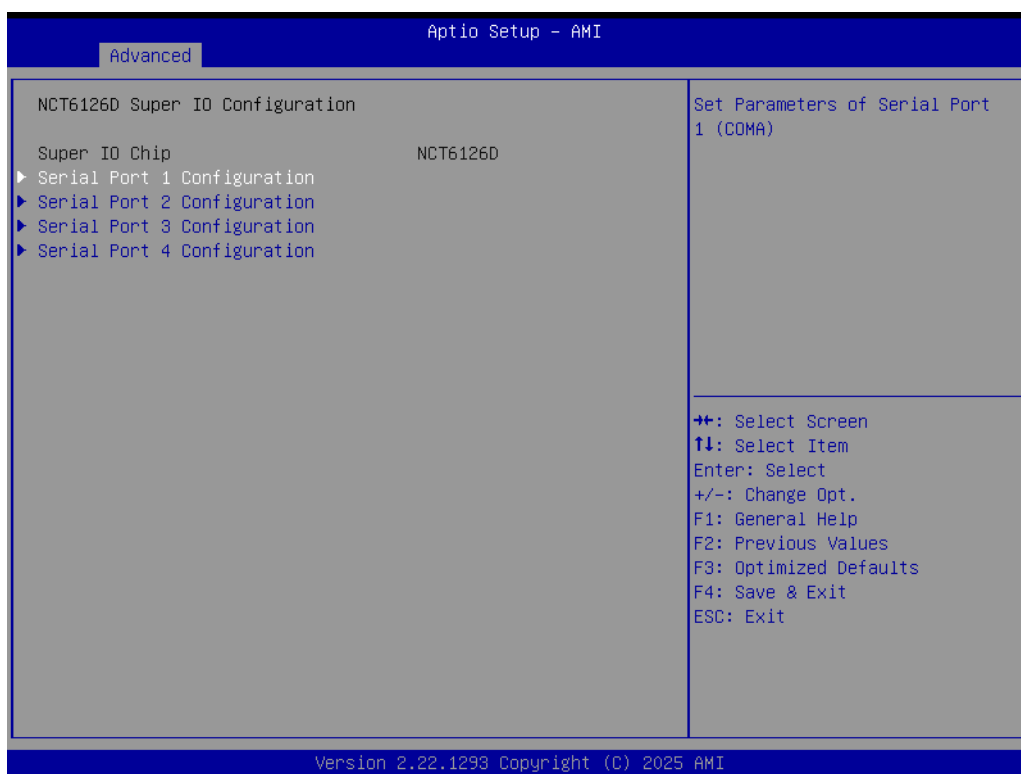


Figure A.7 NCT6126D Super IO Configuration

A.14.6ACPI Settings

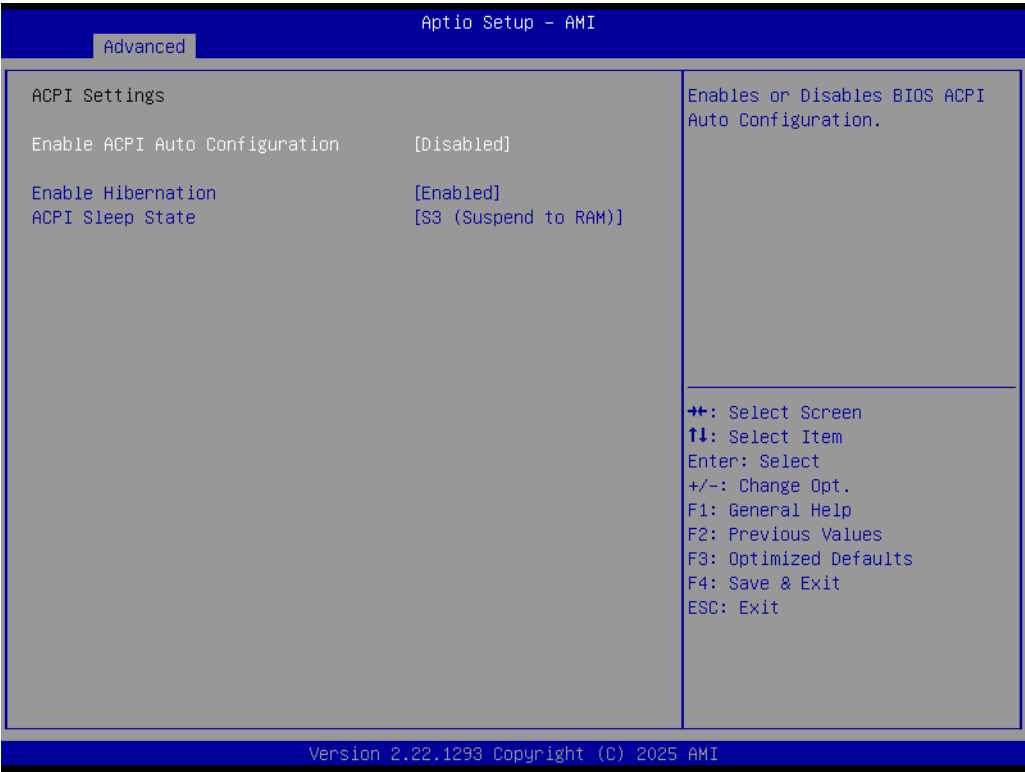


Figure A.8 ACPI Settings

- **Serial Port 1 Configuration**
Set Parameters of Serial Port 1.



Figure A.9 Serial Port 1 Configuration

■ **Serial Port 2 Configuration**
Set Parameters of Serial Port 2.

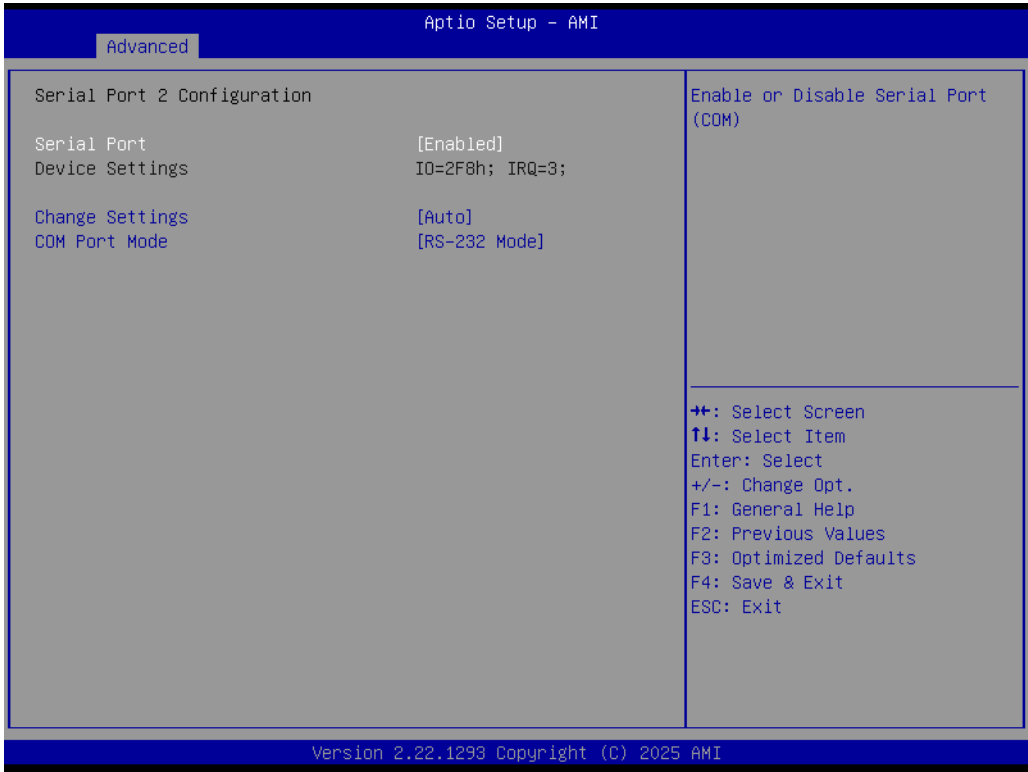


Figure A.10 Serial Port 2 Configuration

■ **Serial Port 3 Configuration**
Set Parameters of Serial Port 3.

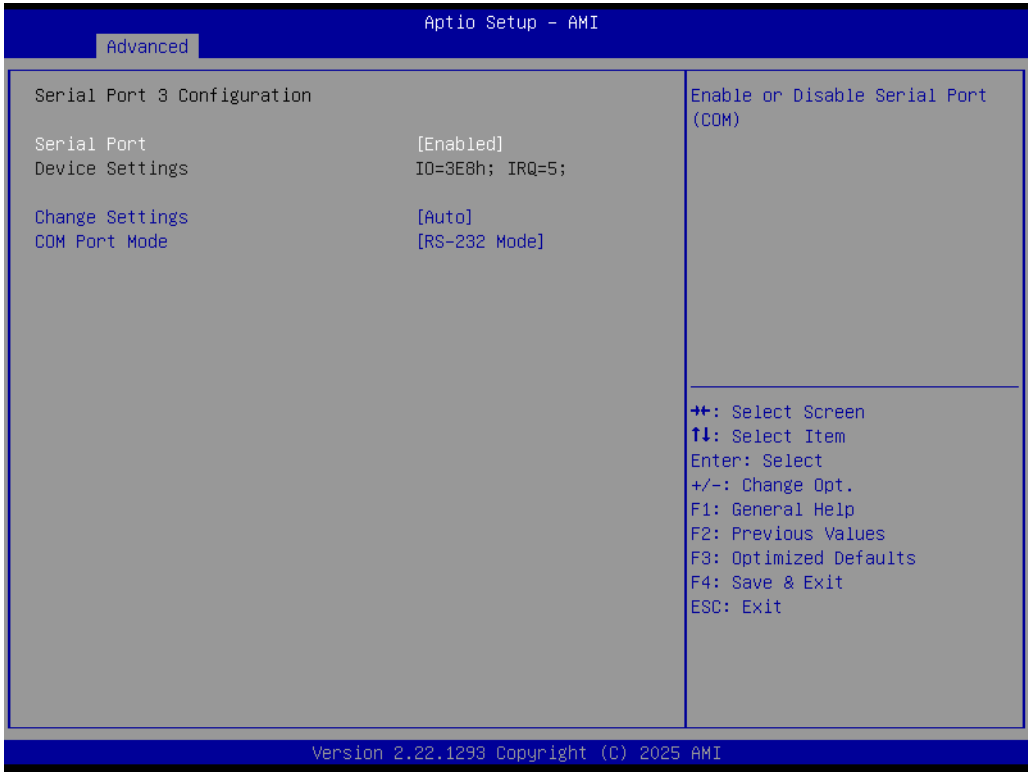


Figure A.11 Serial Port 3 Configuration

- **Serial Port 4 Configuration**
Set Parameters of Serial Port 4.

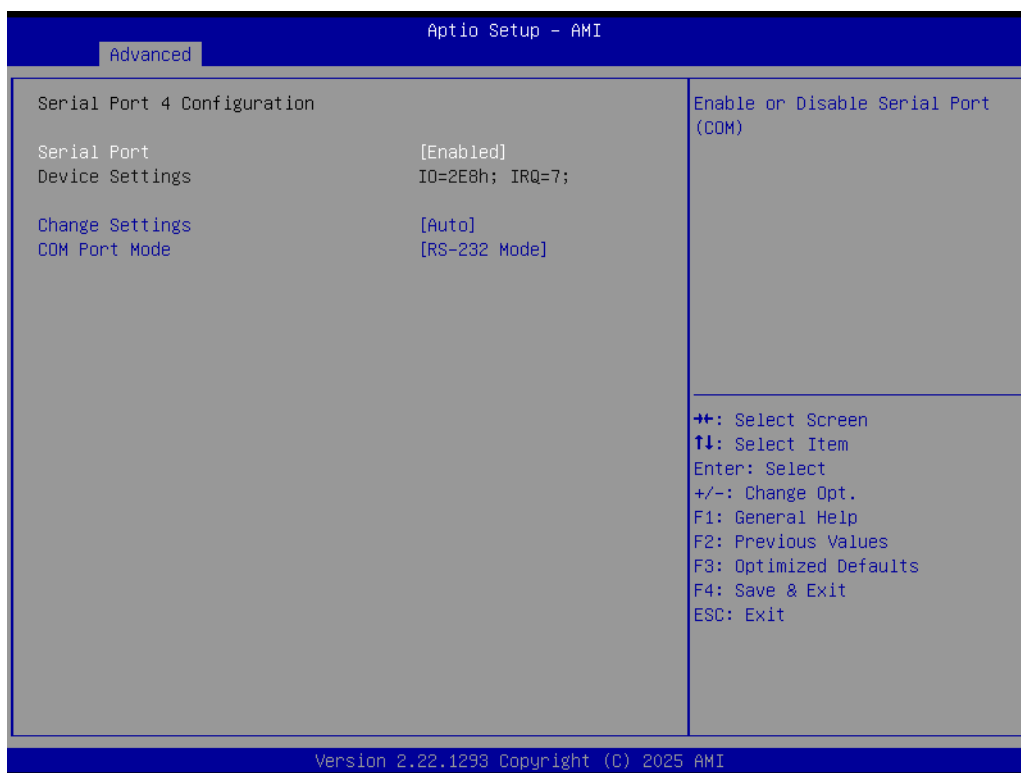


Figure A.12 Serial Port 4 Configuration

- **Serial Port RS422/485 Termination Setting**
Set Parameters of Termination



Figure A.13 Serial Port Termination Setting

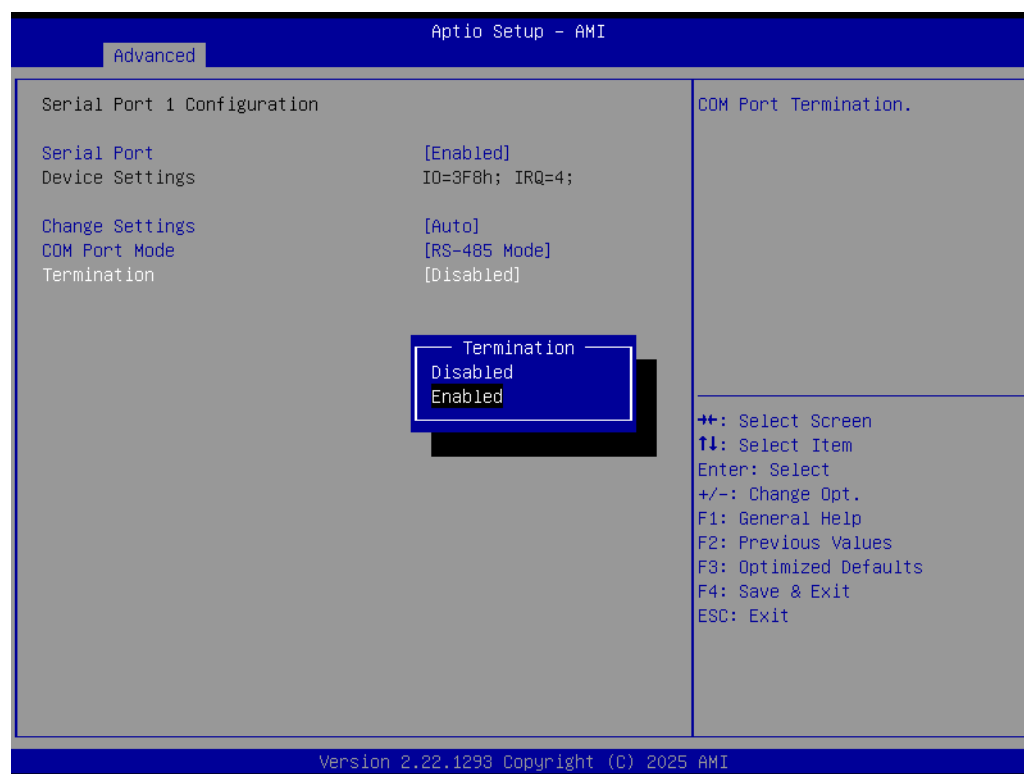
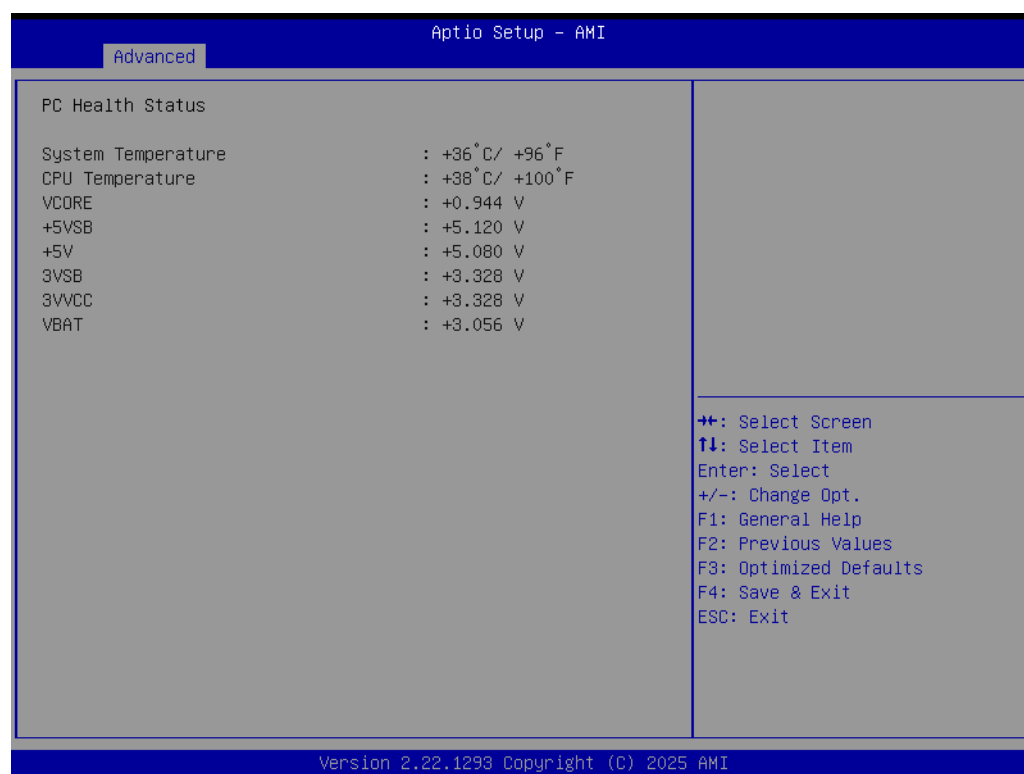


Figure A.14 Serial Port Termination Setting

A.14.7 S5 RTC Wake Settings



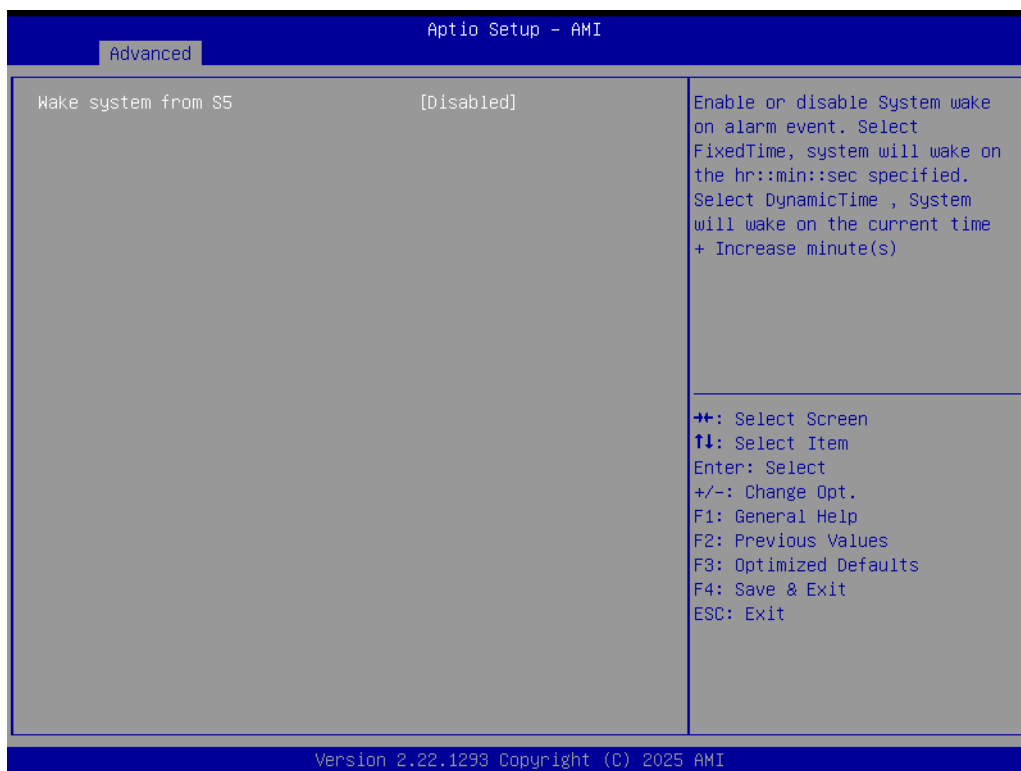


Figure A.15 S5 RTC Wake Settings

- **Wake System from S5**
Enable or disable System wake on alarm event. Select FixedTime, system will wake on the hr:min:sec specified. Select DynamicTime, System will wake on current time + Increase minute(s).

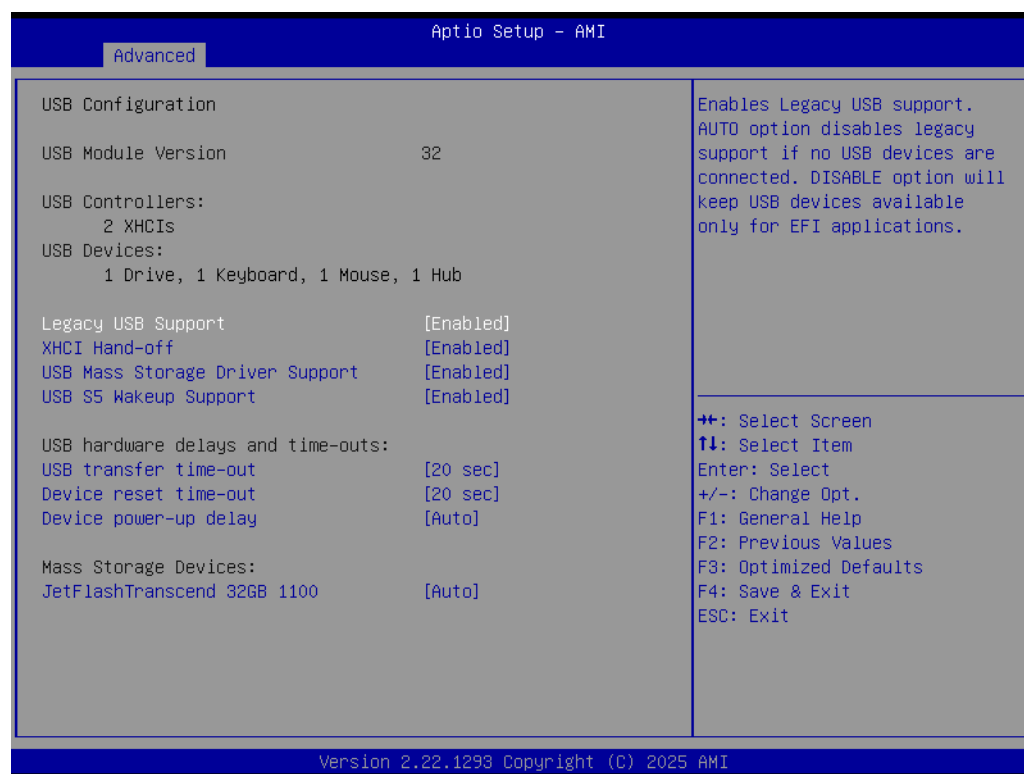


Figure A.16 USB Configuration

- **XHCI Hand-Off**
This is a workaround for OS without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
- **USB Mass Storage Driver Support**
Enable/ Disable USB Mass Storage Driver Support.
- **USB Hardware Delays and Time-Outs, USB transfer time-out**
The time-out value for Control, Bulk, and Interrupt transfers.
- **Device reset time-out**
USB mass storage device Start Unit command timeout.
- **Device power-up delay**
Maximum time the device will take before it properly reports itself to the Host Controller. "Auto" uses default value: for a Root port it is 100ms, for a Hub port the delay is taken from hub descriptor.
- **Mass Storage Devices**
Mass storage device emulation type. "AUTO" enumerates devices according to their media format. Optical drives are emulated as "CDROM", drives with no media will be emulated according to a drive type.

A.14.8 Network Stack Settings



Figure A.17 Network Stack Configuration

A.15 Chipset



Figure A.18 Chipset

A.15.1 System Agent (SA) Configuration

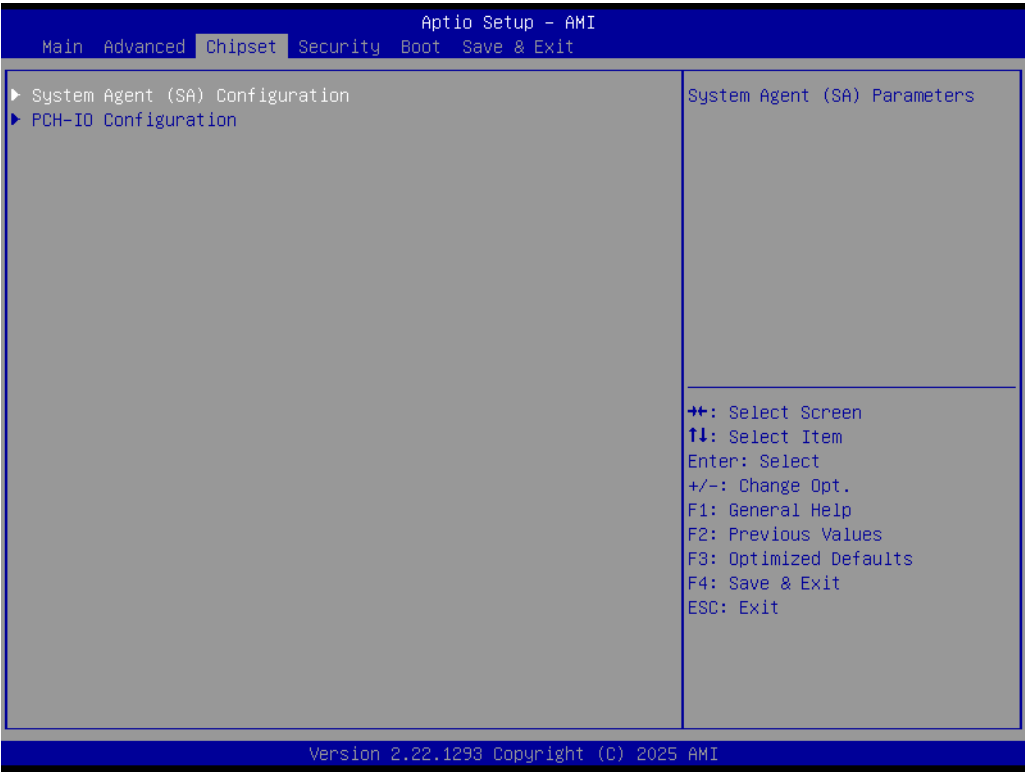


Figure A.19 System Agent (SA) Configuration

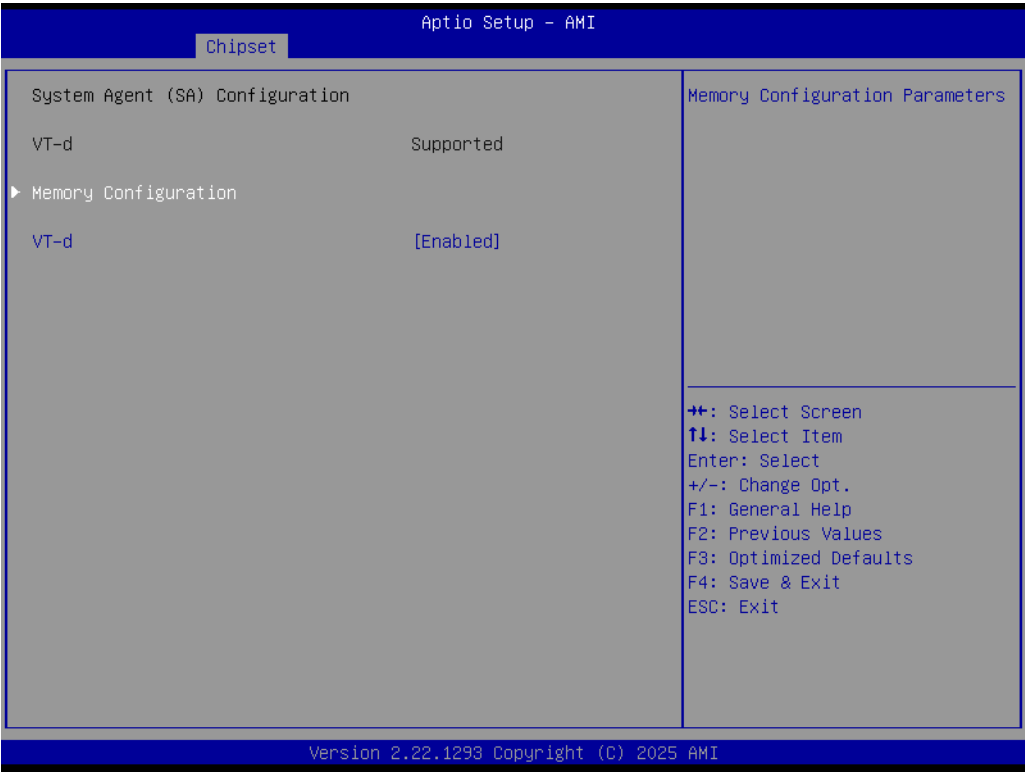


Figure A.20 Memory Configuration

A.15.2 PCH-IO Configuration

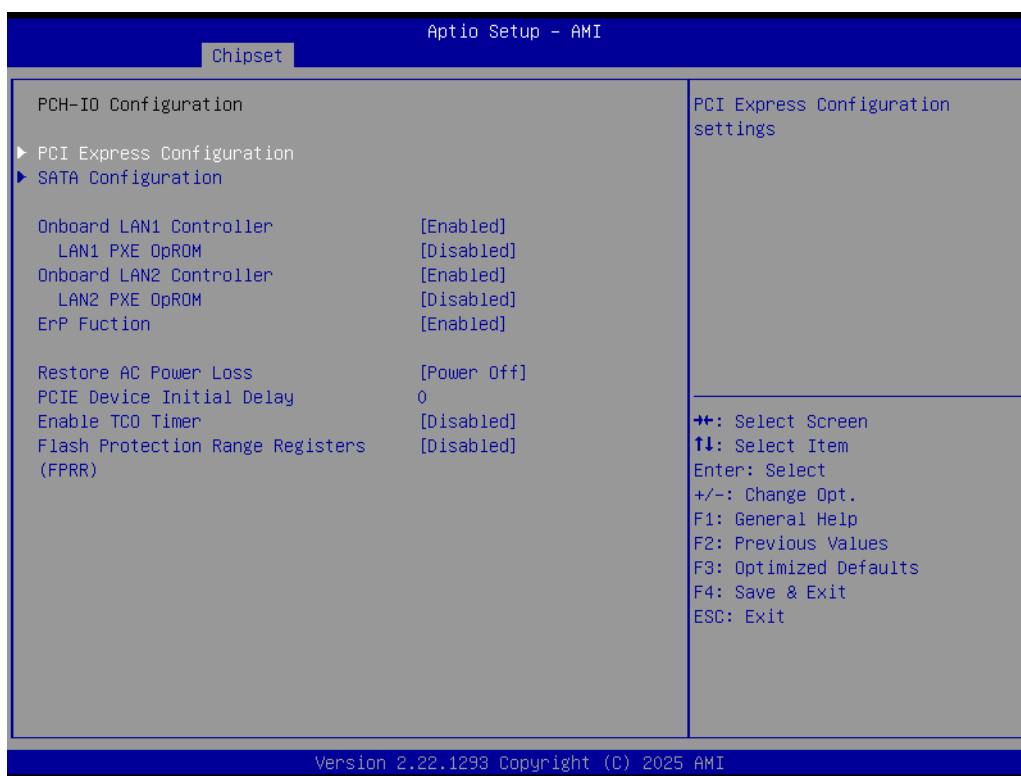


Figure A.21 PCH-IO Configuration

- **PCI Express Configuration**
 - M.2 M-key for Base Unit
 - LAN 1: for Base Unit
 - LAN 2: for Base Unit
 - M.2 E-key: for Base Unit
 - M.2 B-key: for Base Unit

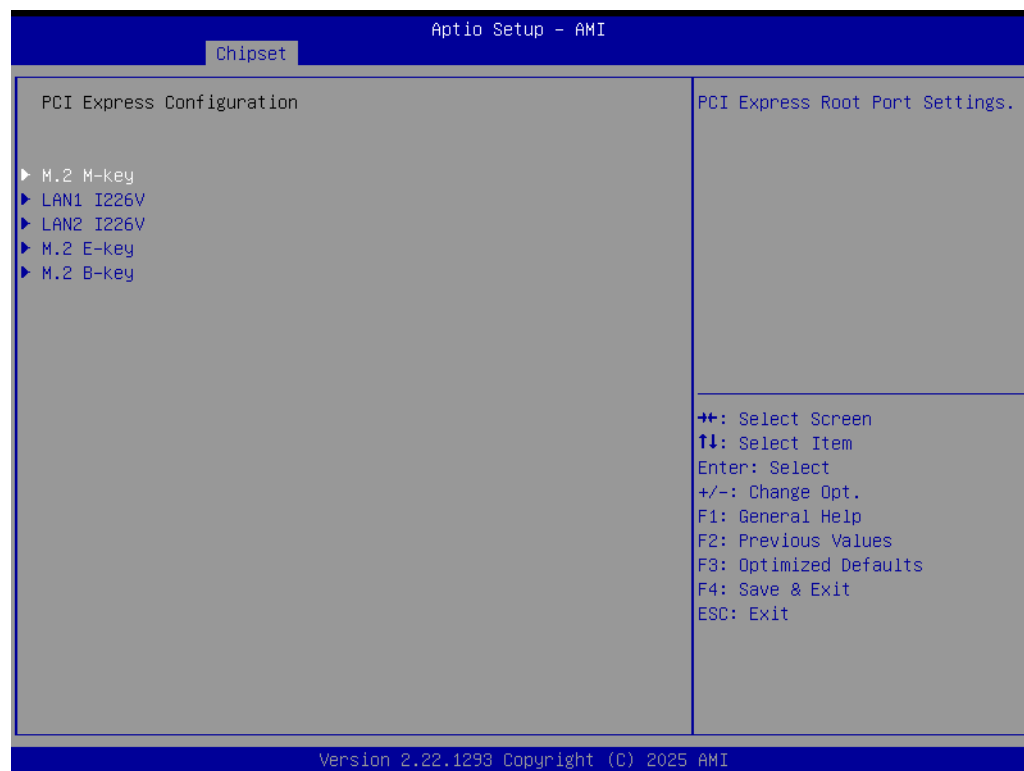


Figure A.22 M.2 M-Key



Figure A.23 LAN1

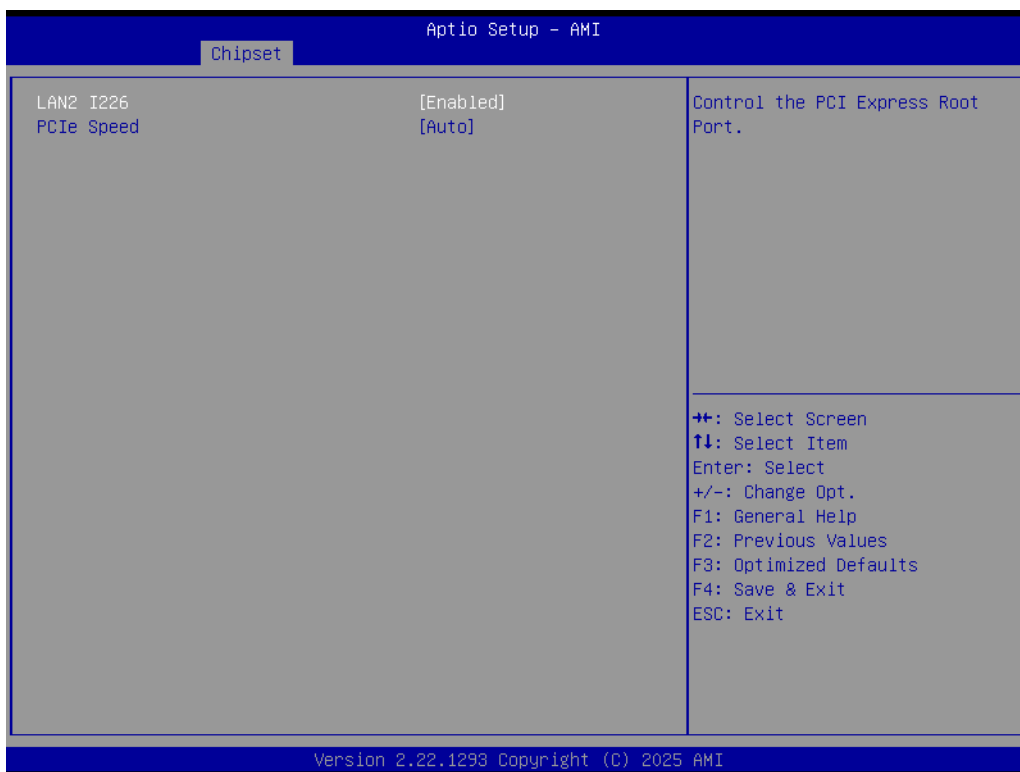


Figure A.24 LAN2

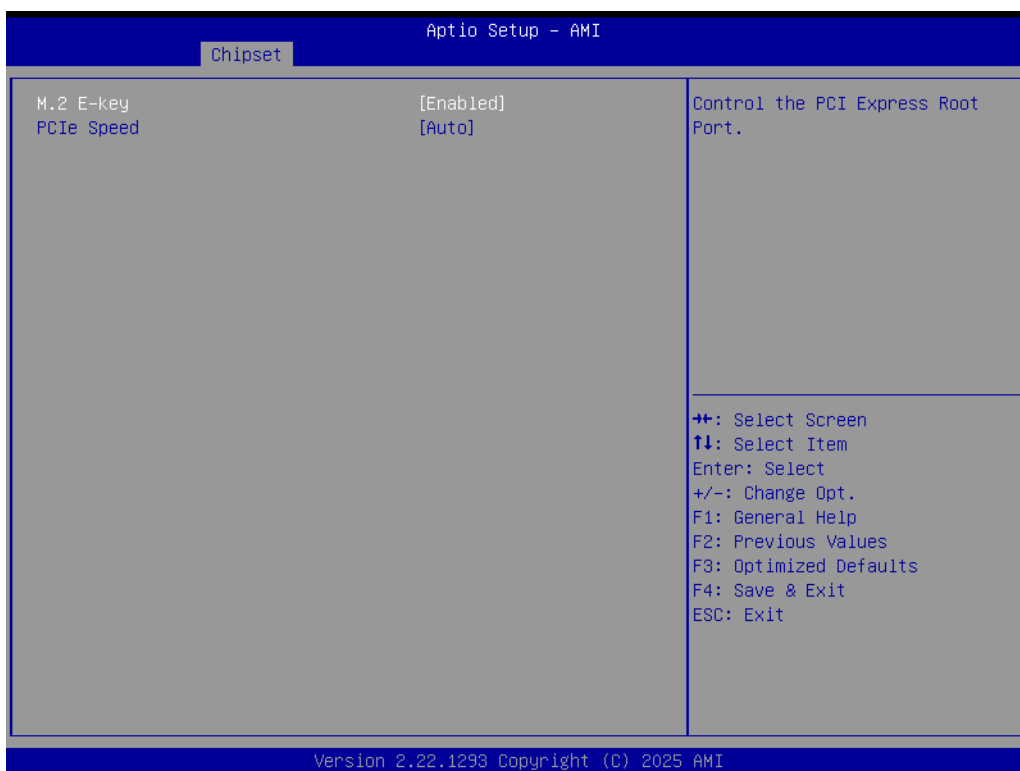


Figure A.25 M.2 E-Key

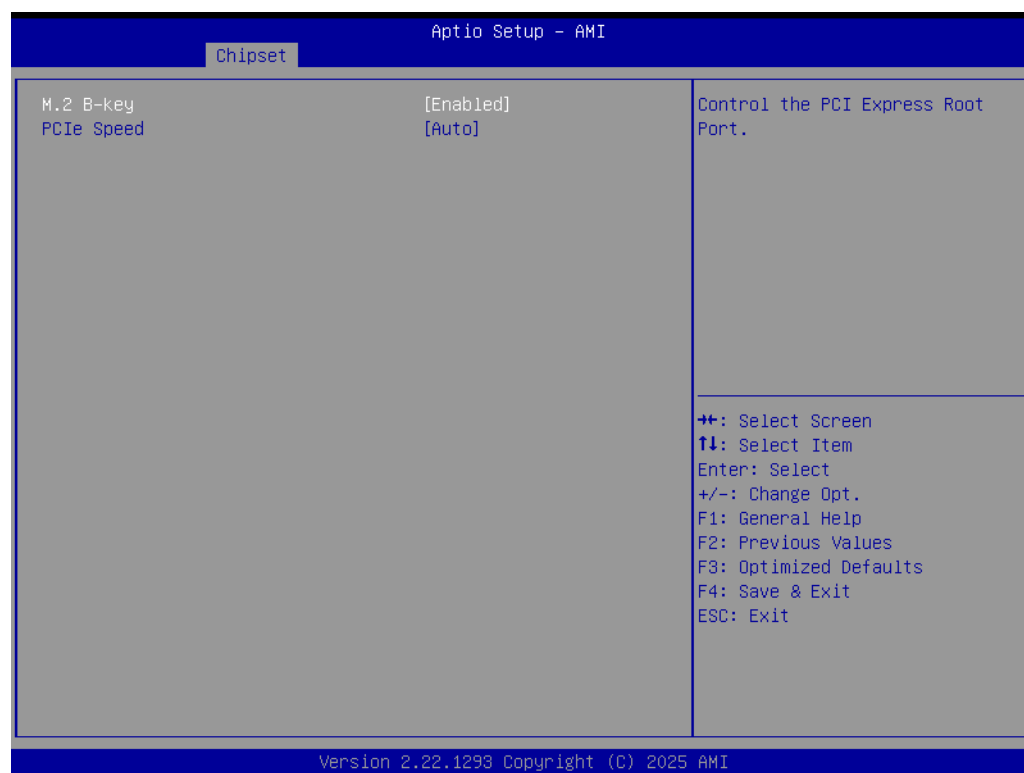


Figure A.26 M.2 B-Key

A.15.2.1 SATA Configuration

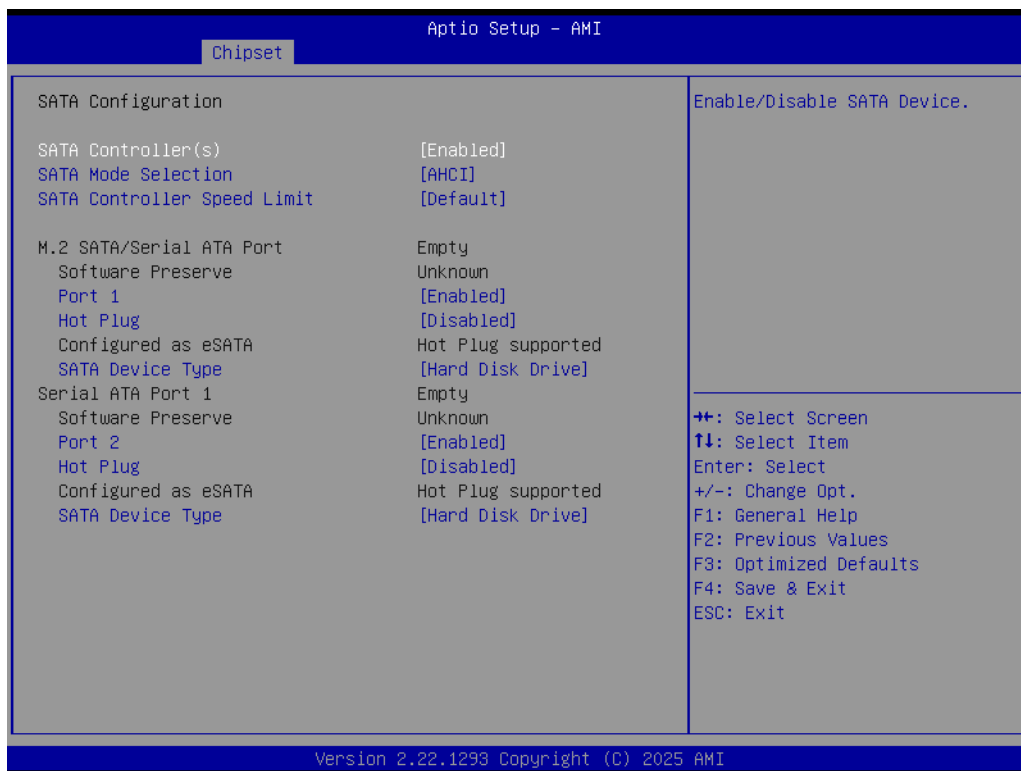


Figure A.27 SATA Configuration

- **SATA Controller(s)**
Enable/Disable SATA Device.
- **SATA Mode Selection**
Determines how SATA controller (s) operate.
- **LPM Support**
Enable PCH to aggressively enter link power state.

A.16 Security

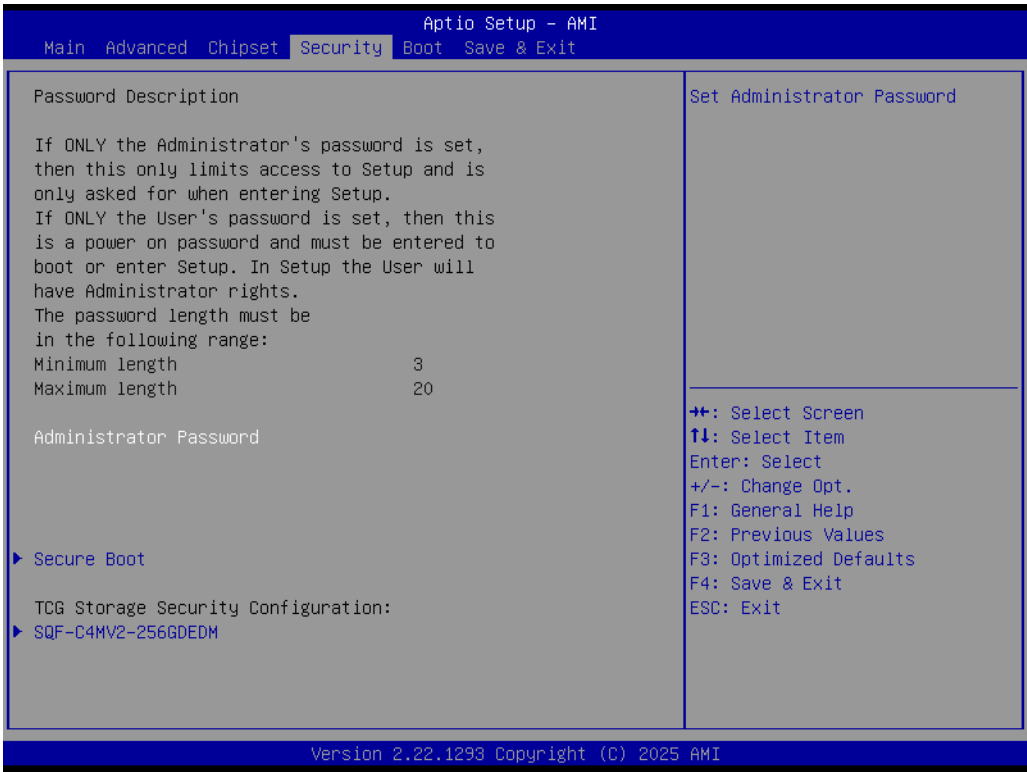


Figure A.28 Security



Figure A.29 Security Boot

- **Secure Boot**
Secure Boot feature is Active if Secure Boot is Enabled. Platform Key (PK)s

enrolled and the System is in User mode. The mode change requires platform reset.

- **Secure Boot Mode**
Secure Boot mode options: Standard or Custom. In Custom mode, Secure Boot Policy Variables can be configured by a physically present user without full authentication.
- **Restore Factory Keys**
Force System to User Mode. Install factory default Secure Boot key databases.
- **Key Management**
Enables expert users

A.17 Boot Options

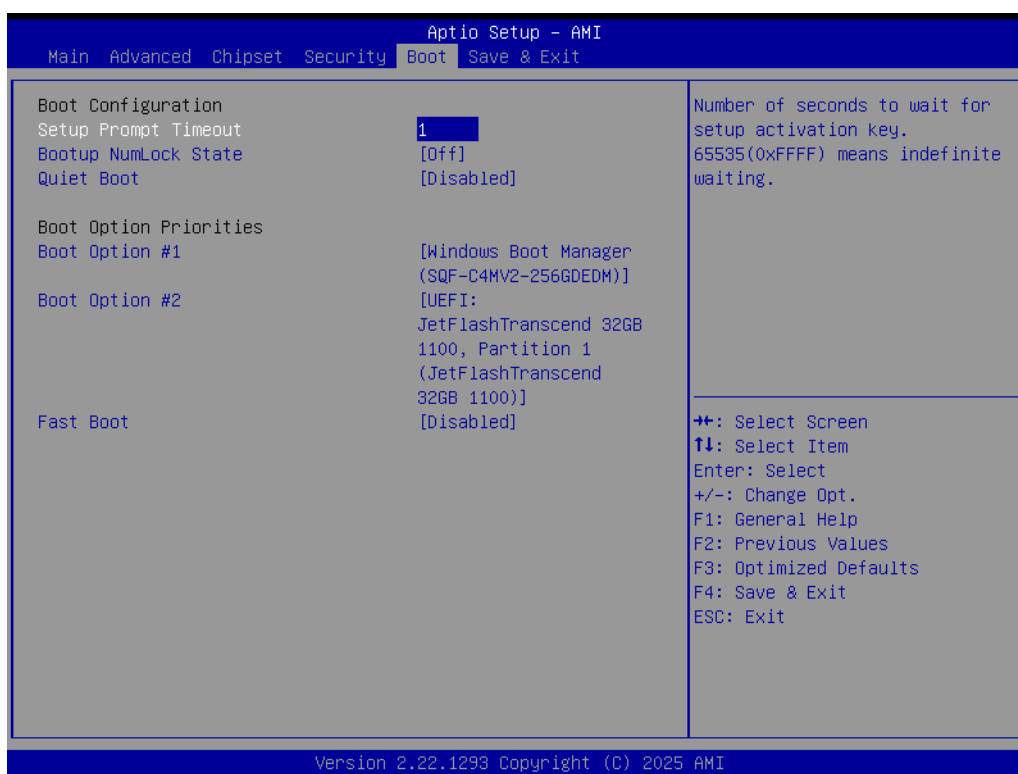


Figure A.30 Boot Options

A.18 Save and Exit

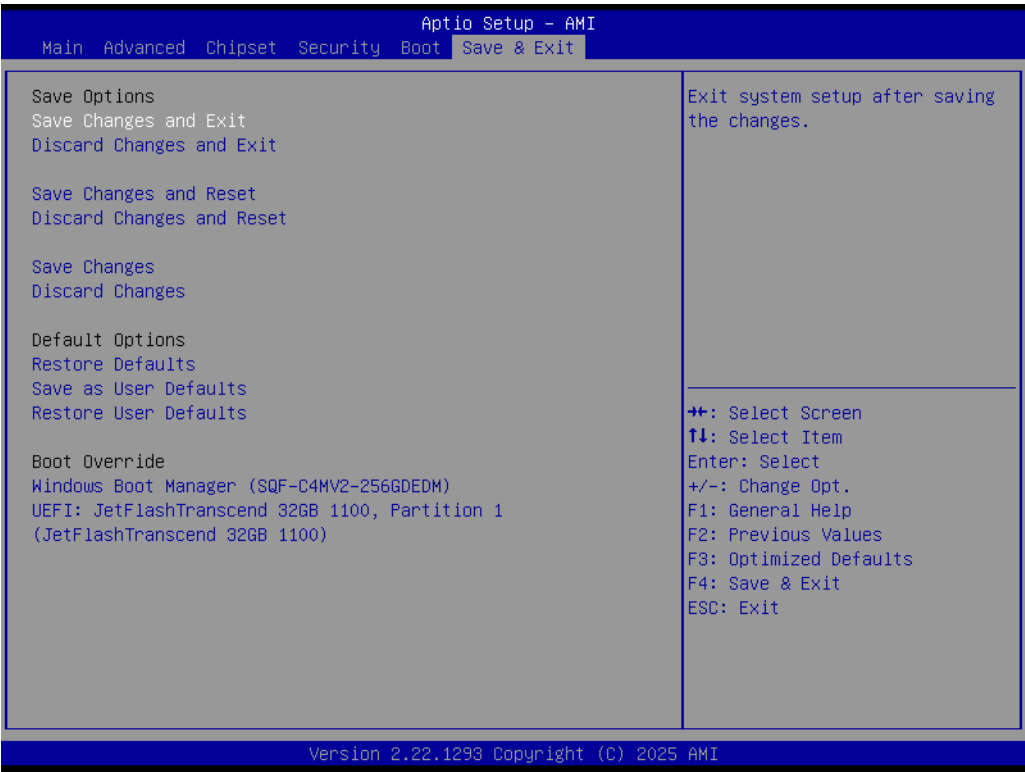


Figure A.31 Save and Exit

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