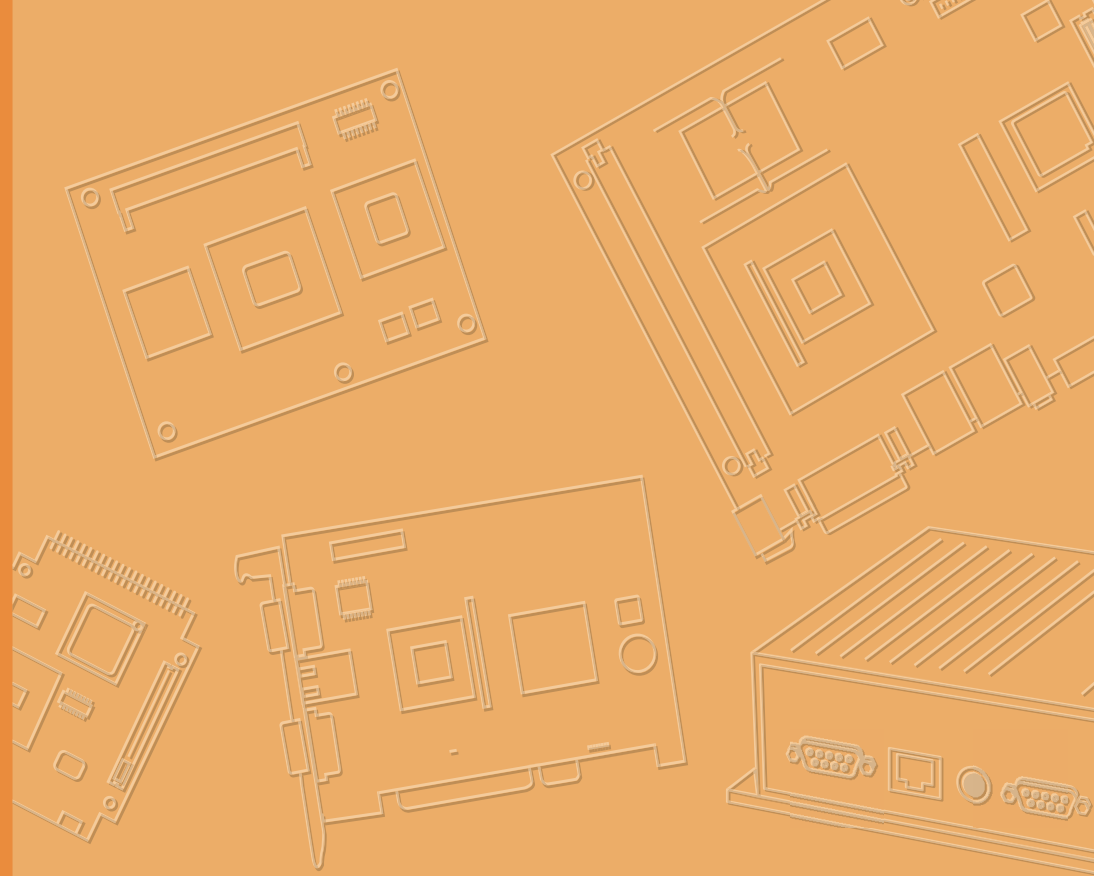


User Manual



UBX-210K

**Multi-Functional Box Computer
with 12th Gen Intel Processor**

ADVANTECH

Enabling an Intelligent Planet

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<http://support.advantech.com.tw/support/>

Product Warranty (2 years)

Advantech warrants the original purchaser that all 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. Under the terms of this warranty, Advantech assumes no liability 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 the cost of replacement materials, service time, and freight. Please consult your dealer for more details.

If you suspect your product is 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 that are displayed when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any relevant information to hand.
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 and ship the package prepaid to your dealer.

Declaration of Conformity

FCC Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, users are encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult your dealer or an experienced radio/TV technician for help

Technical Support and Assistance

1. Visit the Advantech website at <http://support.advantech.com> 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.)
 - Comprehensive description of the problem
 - The exact wording of any error messages

Warnings, Cautions, and Notes

Warning! *Warnings indicate conditions that if not observed, can cause personal injury!*



Caution! *Cautions are included to help prevent hardware damage or data losses.*



Note! *Notes provide additional optional information.*



Packing List

Before installation, check that the following items were included with the product:

- 1 x UBX-210K multi-functional box computer
- 1 x DC24 V/180 W power adapter or 1x DC19 V/90 W power adapter
- 1 x wall mount kit
- 1 x thermal pad for DDR5 memory
- 2 x thermal pad for SSD

Safety Instructions

1. Read these safety instructions carefully.
2. Retain this user manual for future reference.
3. Disconnect this equipment from all AC outlets before cleaning. Use only a damp cloth to clean. 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 this equipment from humidity.
6. Place this equipment on a reliable surface during installation. Dropping or letting the device 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 the voltage 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 unused for a long time, disconnect the equipment 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 one of the following situations 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 has obvious signs of breakage.
15. Do not leave the equipment in an environment with a storage temperature of below -20°C (-4°F) or above 60°C (140°F) as this may cause damage. The equipment should be stored in a controlled environment.
16. Any unverified component may cause unexpected damage. To ensure correct installation, always use the components (e.g., screws) provided in the accessory box.
17. **CAUTION:** The equipment is equipped with a battery-powered real-time clock circuit. There is a risk of explosion if a battery is incorrectly replaced. Replace only with same or equivalent type as recommended by the manufacturer. Discard all used batteries according to the manufacturer's instructions.
18. Always disconnect the power cord from the chassis before manually handling the hardware. Do not implement connections or configuration changes while the device is powered on. Sudden power surges may damage sensitive electronic components.
19. In accordance with IEC 704-1:1982 specifications, the sound pressure level at the operator's position does not exceed 70 dB (A).
20. The equipment should only be installed in a restricted access area.
21. **DISCLAIMER:** These instructions are provided according to IEC 704-1 specifications. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

22. This model is intended to be supplied by an UL-certified power supply (180 W adapter: Delta/ADP-180WB BE; 60 W adapter: Delta/ADP-60KD BE) suitable for use at TMA 60°C (140°F) min., and the output is rated 24 VDC, 2.5 A min., ES1. If you need further assistance, contact Advantech for additional information.

Consignes de sécurité

1. Veuillez lire attentivement ces instructions de sécurité.
2. Veuillez conserver ce manuel de l'utilisateur pour référence ultérieure.
3. Veuillez débrancher cet équipement de la prise secteur avant le nettoyage. Utilisez un chiffon humide. Ne pas utiliser de détergent liquide ou pulvérisé pour le nettoyage. Utilisez une feuille ou un chiffon humide pour le nettoyage.
4. Pour les équipements enfichables, la prise de courant doit être à proximité de l'équipement et doit être facilement accessible.
5. S'il vous plaît garder cet équipement de l'humidité.
6. Posez cet équipement sur une surface fiable lors de l'installation. Une chute ou une chute pourrait causer des blessures.
7. Les ouvertures sur le boîtier sont destinées à la convection d'air, protégeant ainsi l'équipement de la surchauffe. **NE COUVREZ PAS LES OUVERTURES.**
8. Assurez-vous de la tension de la source d'alimentation lorsque vous connectez l'équipement à la prise secteur.
9. Placez le cordon d'alimentation de sorte que personne ne puisse marcher dessus. Ne placez rien sur le cordon d'alimentation.
10. Tous les avertissements et mises en garde sur l'équipement doivent être notés.
11. Si l'appareil n'est pas utilisé pendant une longue période, débranchez-le du secteur pour ne pas être endommagé par une surtension transitoire.
12. Ne jamais verser de liquide dans les ouvertures de ventilation; Cela pourrait provoquer un incendie ou un choc électrique.
13. N'ouvrez jamais l'équipement. Pour des raisons de sécurité, seul le personnel de maintenance qualifié doit ouvrir l'équipement.
14. Si l'une des situations suivantes se présente, faites vérifier le matériel par le personnel de service:
 - Le cordon d'alimentation ou la prise est endommagé.
 - Du liquide a pénétré dans l'appareil.
 - 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 d'utilisation.
 - L'appareil est tombé et est endommagé.
 - L'équipement présente des signes évidents de casse
15. Ne laissez pas cet équipement dans un environnement où la température de stockage peut être inférieure à -20 °C (-4 °F) ou supérieure à 60 °C (140 °F). Cela pourrait endommager l'équipement. L'équipement doit être dans un environnement contrôlé.
16. Tout composant non vérifié peut causer des dommages inattendus. Pour garantir une installation correcte, veuillez toujours utiliser les composants (ex. Vis) fournis avec la boîte d'accessoires.
17. **ATTENTION:** L'ordinateur est équipé d'un circuit d'horloge temps réel alimenté par batterie. Il y a un risque d'explosion si la batterie est remplacée de manière incorrecte. Remplacez uniquement avec le même type ou un type équivalent recommandé par le fabricant. Jetez les piles usagées conformément aux instructions du fabricant.

18. Débranchez toujours complètement le cordon d'alimentation de votre châssis lorsque vous utilisez du matériel. Ne faites pas de connexion quand l'appareil est sous tension. Les composants électroniques sensibles peuvent être endommagés par des surtensions soudaines.
19. Niveau de pression acoustique au poste de l'opérateur selon la norme CEI 704-1: 1982 n'est pas supérieur à 70 dB (A).
20. L'équipement ne doit être installé que dans une zone d'accès restreint.
21. **AVERTISSEMENT:** Cet ensemble d'instructions est donné conformément à la norme CEI 704-1. Advantech décline toute responsabilité quant à l'exactitude des déclarations contenues dans ce.
22. Ce modèle est destiné à être alimenté par une alimentation certifiée UL (180W adaptateur: Delta/ADP-180WB BE; 60W adaptateur: Delta/ADP-60KD BE), adaptée à une utilisation à 60 degrés Celsius. et la sortie est nominale 24Vcc, 2,5A min., ES1, si vous avez besoin d'une assistance supplémentaire, veuillez contacter Advantech pour plus.

Ordering Information

Part Number	Description
UBX-210K-BN100	UBX-210K ADL-N N97, 3PUSB, 3Powered COM barebone
UBX-210K-BN200	UBX-210K Core i3 N305, 3PUSB, 3Powered COM barebone
UBX-210K-BN101	UBX-210K ADL-N N97, 8USB, 4COM barebone
UBX-210K-BN201	UBX-210K Core i3 N305, 8USB, 4COM barebone
UBX-210K-UN100	UBX-210K ADL-N N97, 3PUSB, 3Powered COM barebone, Made in TW
UBX-210K-UN200	UBX-210K Core i3 N305, 3PUSB, 3Powered COM barebone, Made in TW
UBX-210K-UN101	UBX-210K ADL-N N97, 8USB, 4COM barebone, Made in TW
UBX-210K-UN201	UBX-210K Core i3 N305, 8USB, 4COM barebone, Made in TW

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Chapter 1

General Information

This chapter provides basic information regarding UBX-210K

- Introduction
- Specifications
- Dimensions

1.1 Introduction

The Advantech UBX-210K is a multi-functional box computer used for retail, semi-industry applications, etc. It features an Intel Tiger Lake series processor to boost system performance and working efficiency. The UBX-210K supports modular I/O boards to offer flexible installation. It has built-in rich I/O types and quantities to be compatible with different connected peripherals instead of additional converters. Advantech's unique X-typed fins greatly enhance heat dissipation for the UBX-210K's fanless design. The mounting direction is not limited by airflow direction. The UBX-210K is not only suitable for retail applications but also satisfies semi-industry scenarios. Because of the usage scenario of the UBX-210K, users should not touch the top cover of the device. However if touching the top cannot be avoided, refrain from touching the top cover for over one second.

12th Gen Intel High Performance Processors

The UBX-210K is equipped with an Intel N97 or Core i3 N305 processor and built-in Iris graphic chip. It provides powerful computing performance and superior video quality on retail applications.

Modular I/O Board & Compact-size with Multiple I/Os

The UBX-210K is fanless and supports DDR5 memory and M.2 2280 SATA SSDs. It also supports modular I/O boards for easy maintenance and flexible installation. Diverse I/Os are used for different peripherals connections. Rich I/O types and quantities reduce the need for an extra converter. The UBX-210K's dimensions are 234 x 145.77 x 58 mm (W x D x H) featuring a compact body but with multiple I/Os. Users can select suitable I/O configurations for assembly.

1.2 Product Features

1.2.1 General

- **CPU:**
 - Intel N97
 - Intel Core i3 — N305
- **BIOS:** AMI 256 Mbit Flash BIOS
- **Video:**
 - 1 x USB-C (compliant with DP 1.4), supports up to 4096 x 2160 @ 60Hz
 - 2 x HDMI 2.1, supports 4096 x 2160 @60Hz
- **Triple Display:** USB-C + 2HDMI
- **Memory (Optional):** 1 x DDR5 262 pin SO-DIMM, support up to 16 GB(non-ECC)
- **Storage (Optional):** 2 x M.2 2280 SATA SSD
- **USB:** 4 x USB 3.2
- **Audio:** HD audio (via USB-C, HDMI), 1 x Line-out
- **COM:** 1 x RS232
- **LAN:** 2 x RJ-45
 - LAN1/2: Intel i226; up to 2.5 Gbps
- **Expansion:** 1 x M.2 2230 for Wi-Fi and Bluetooth combo module

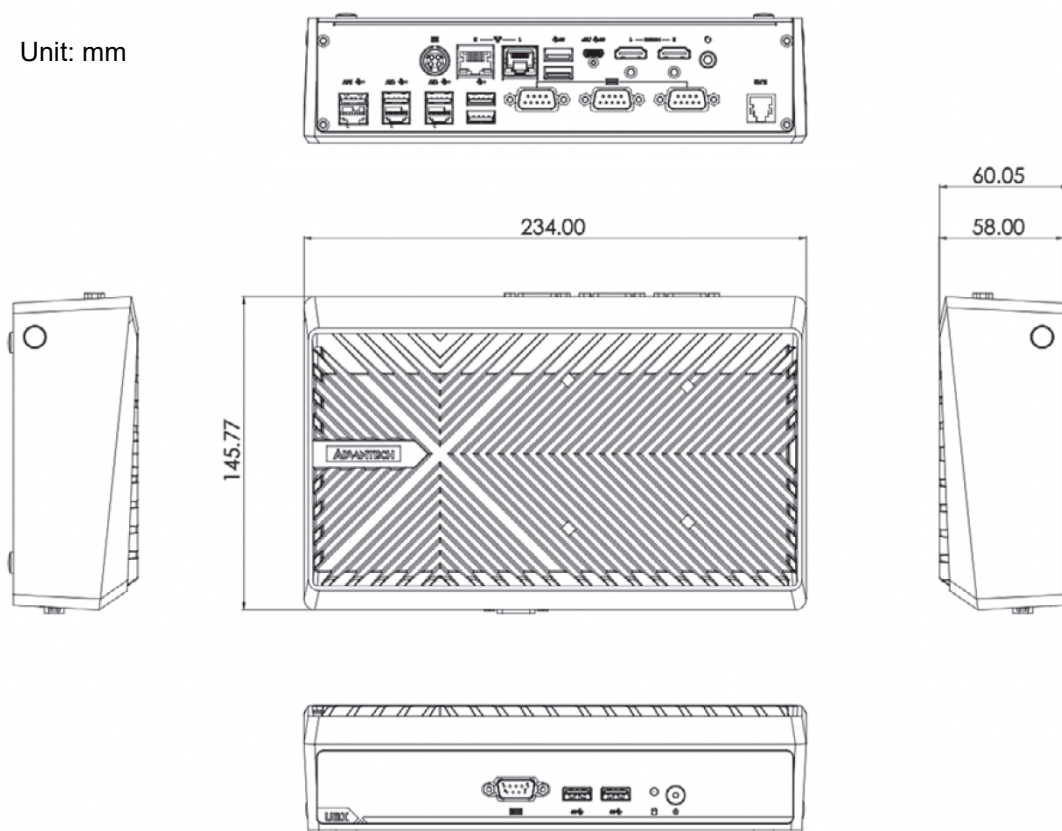
- **Modular I/O Board:**

- I/O Type A: 1 x 24V powered USB, 1.5A
2 x 12V powered USB, 2.5A
2 x USB 2.0 Type A
3 x 5 V/12 V powered COM (default: 0 V, via jumper setting)
1 x 24 V/12 V RJ-12 function: connect to cash register drawer.
(Default: 24V, via jumper setting; 24V/0.5A or 12V/1A)
- I/O Type B: 4 x USB 2.0 Type A
3 x COM (RS232)

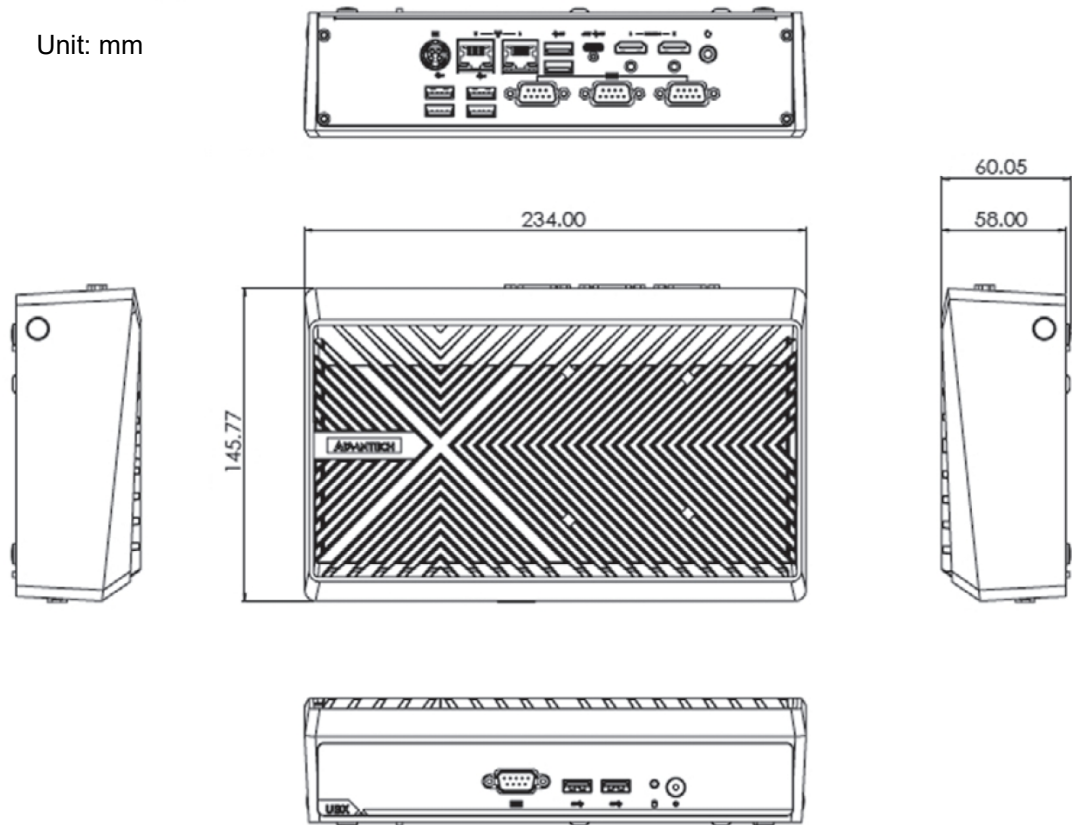
1.2.2 Mechanical Specifications

1.2.3 System Dimensions:

- UBX-210K with I/O Type A:



■ UBX-210K with I/O Type B:



1.2.4 Weight

2.3 kg

1.3 Power Requirements

1.3.1 System Power

- **Power Input:** DC in 24 V (configured with I/O type A);
DC in 19V or 24V (configured with I/O type B).

1.3.2 RTC Battery

- **Lithium:** 3 V/220 mAh

1.4 Environmental Specifications

1.4.1 Temperature

- **Operating Temperature:**
0 ~ 40°C(When powered USB ports are not used);
0 ~ 35°C(When all powered USB ports are used)
- **Storage Temperature:** -20 ~ 60°C

1.4.2 Relative Humidity

- 95% @ 40°C (104°F) (non-condensing)

1.4.3 Vibration Tolerance

- The system is equipped with a memory and 2 x M.2 SSD: 3.5 Grms
- Reference IEC60068-2-6:2007, random, 5 ~ 500 Hz, 1 hr/axis, (x, y, z) 3 axes

1.4.4 Shock Tolerance

- The system is equipped with a memory and two M.2 SSD: 30G acceleration
- Reference IEC60068-2-27:2008, half sine, 11 ms pulse duration

1.4.5 Safety Certification

- UL, CB, CCC, BSMI

1.4.6 EMC Certification

- CE, FCC, CCC, BSMI, EN 62368, RED

Chapter 2

Hardware Installation

2.1 Introduction

The following sections introduce I/Os of the UBX-210K and demonstrate the memory, storage and Wi-Fi module installation.

2.2 UBX-210K I/O Connectors

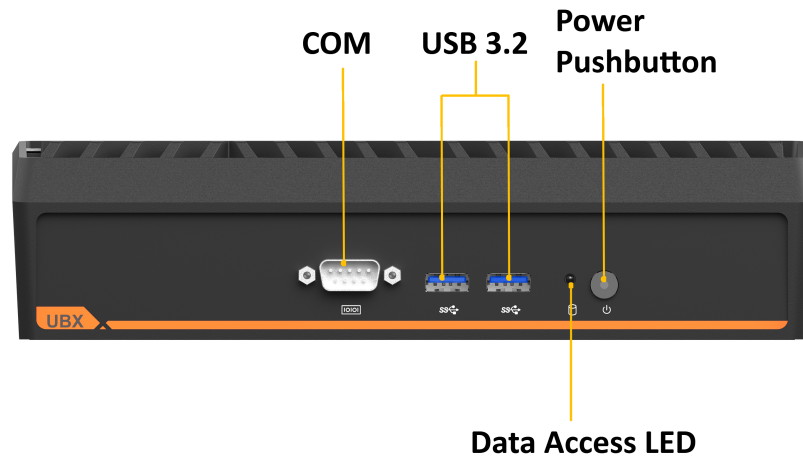


Figure 2.1 UBX-210K Front View

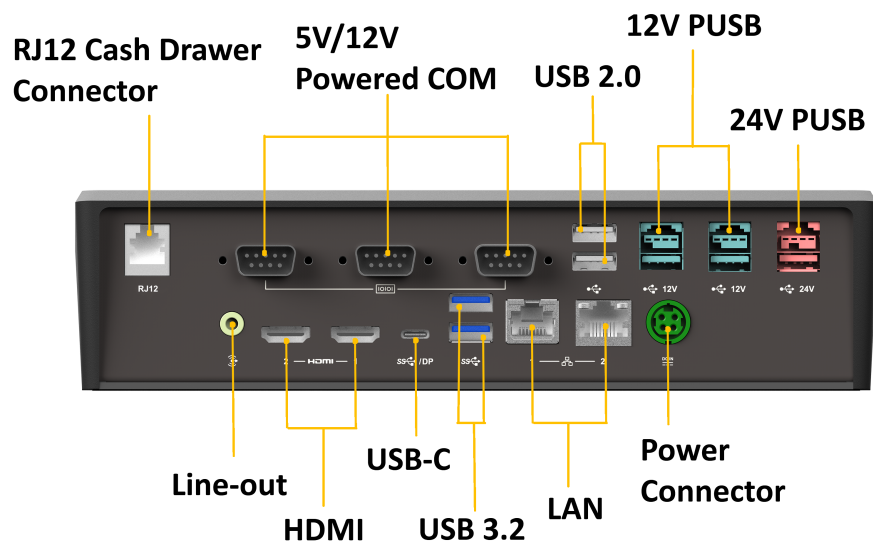


Figure 2.2 UBX-210K w/ I/O Type A Rear View

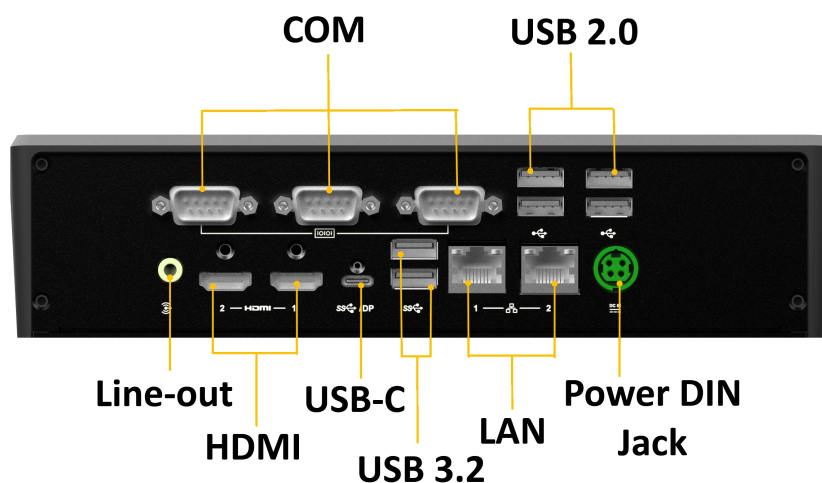


Figure 2.3 UBX-210K w/ I/O Type B Rear View

2.3 Hardware Installation

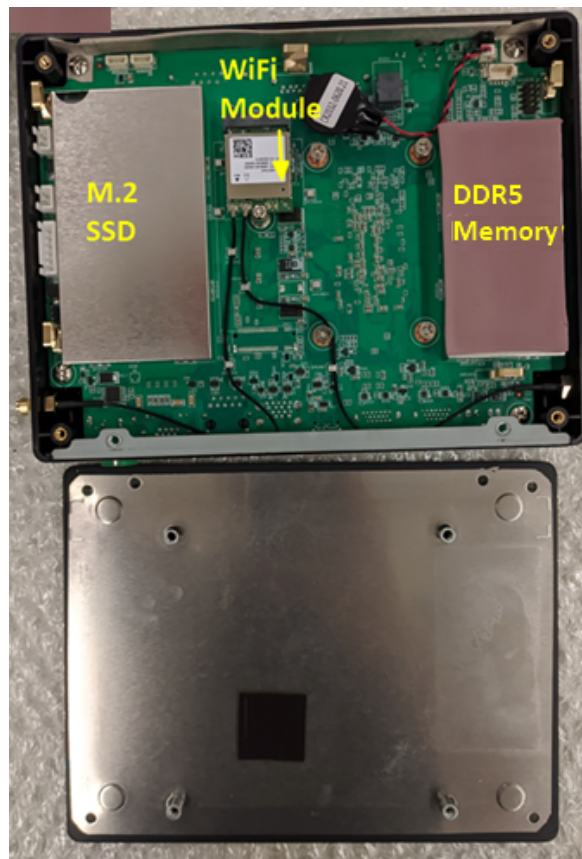
2.3.1 Memory, M.2 SSD, and WiFi Module Installation

Follow these steps to install the memory and M.2 SSD for the UBX-210K.

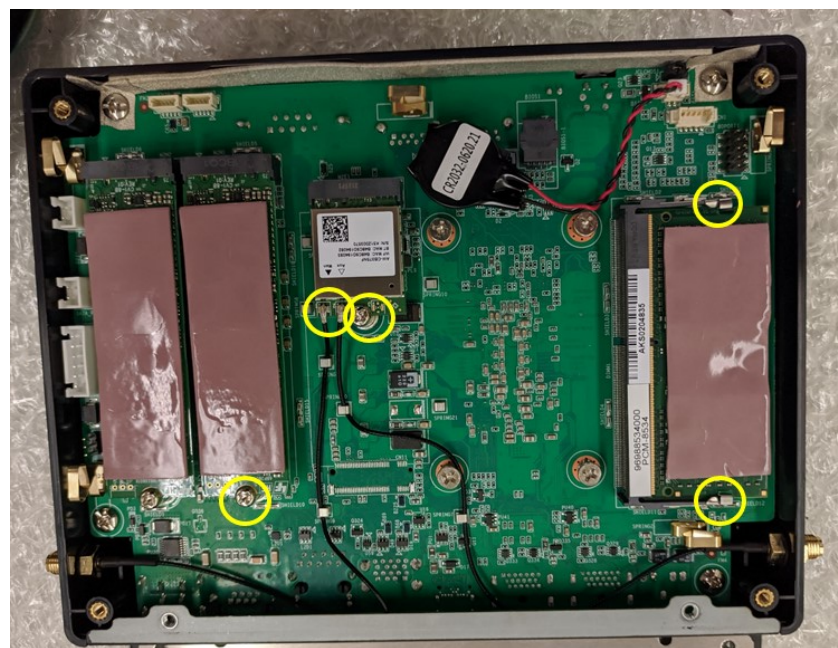
1. Remove the 8 screws from the bottom cover.



2. Once you remove the four screws, you'll find a DDR5 memory slot, two SSD slots, and a Wi-Fi module slot on the PCB.

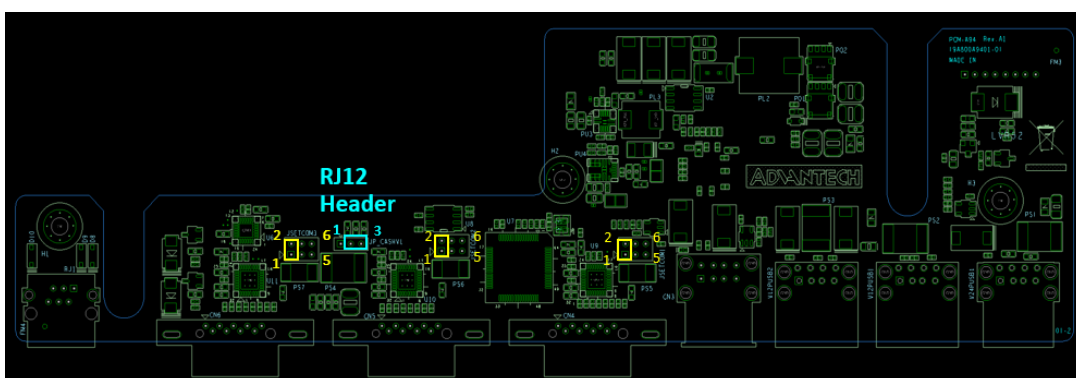
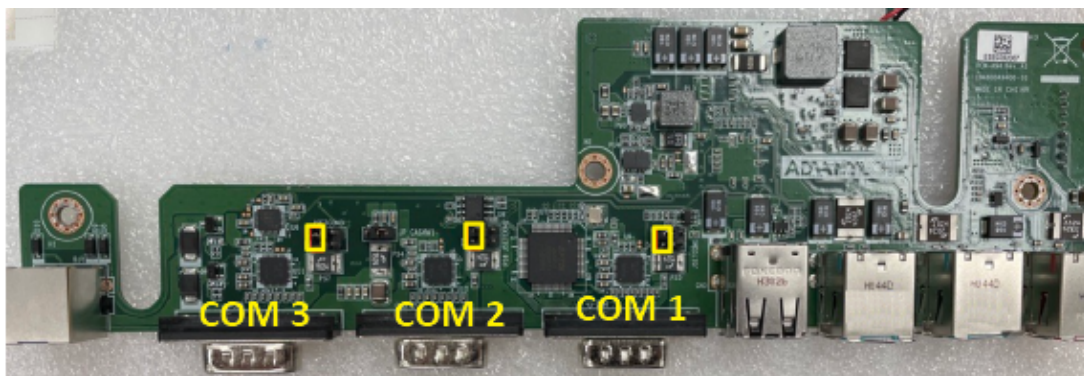


3. To install the memory, insert the DDR5 memory into the memory slot, and then apply the thermal pads onto the DDR5 memory.



4. To install the M.2 SSDs, first, remove the screws from the slots and insert the SSD into the M.2 2280 slots. Secure the SSDs in place with the screws and then apply the thermal pad onto the SSD.
5. Then, proceed to attach the Wi-Fi module and connect the two antenna cables. Securely screw the cables to establish the connection.

2.3.2 Jumper Setting for Powered COM and RJ12 Cash Drawer Connector



	RI	+5 V	+12 V
COM Header	1-2 (default)	2-4	5-6
	+12 V		+24 V
RJ12 Header	1-2		2-3 (default)

2.3.3 Wall Mount Kit Installation

1. Secure the wall mount kit to the bottom cover of the UBX-210K using four M3 x 5L mm screws provided in the package.

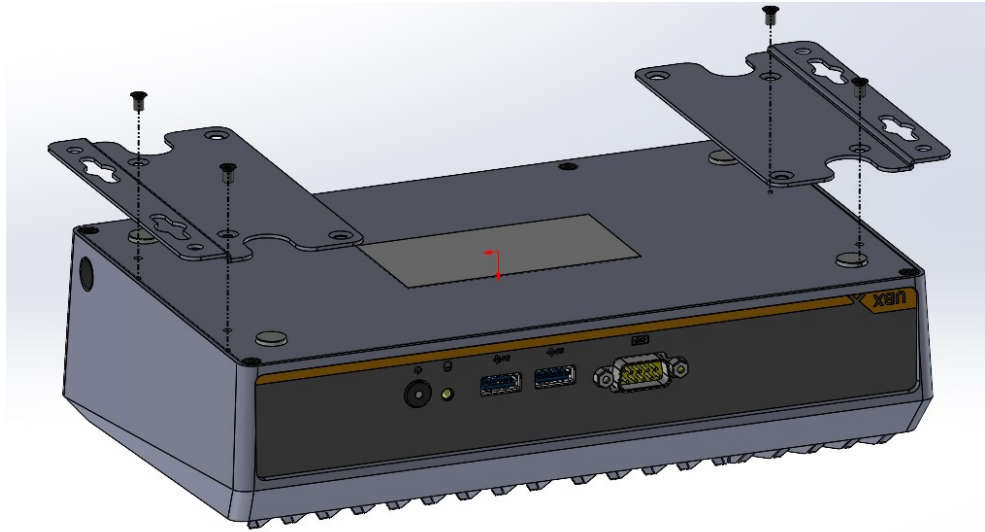


Figure 2.4 Wall Mount Kit Installation Step 1

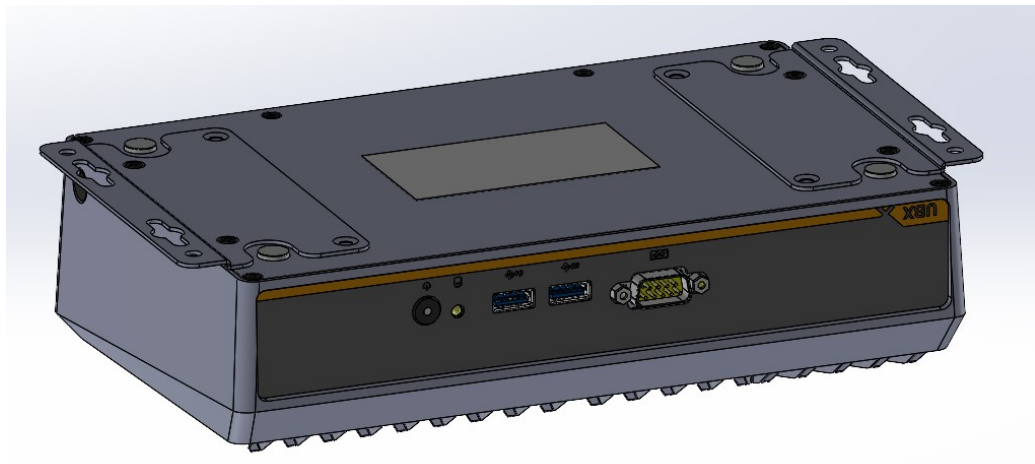


Figure 2.5 Wall Mount Kit Installation Step 2

2. Choose the correct screws to securely attach the wall mount kit to the wall.

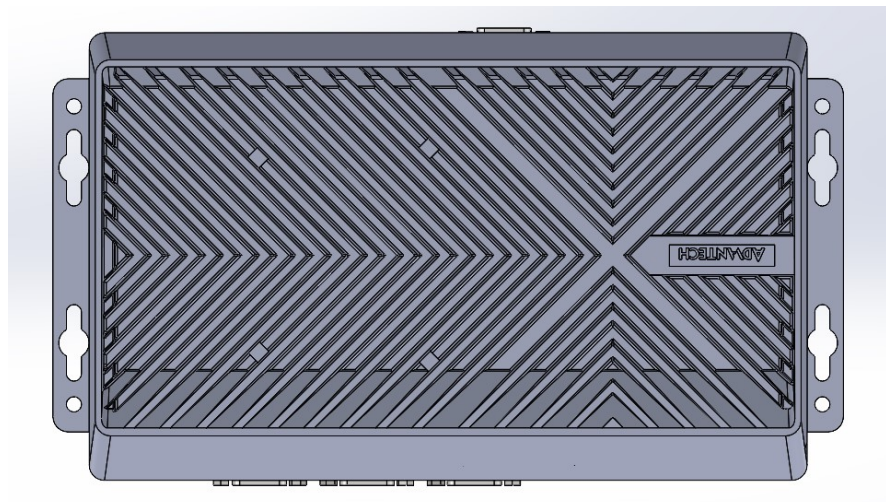


Figure 2.6 Wall Mount Kit Installation Step 3

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