ADVANTECH
**MIC-770 V3 12th/13th Gen Intel Core i Socket Compact Fanless Computer**

# ADVANTECH MIC-770 V3 12th/13th Gen Intel Core i Socket Compact Fanless Computer User Manual



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## ADVANTECH MIC-770 V3 12th/13th Gen Intel Core i Socket Compact Fanless Computer


## Product Usage Instructions

**Unpacking and Checking Contents:**
Before starting, ensure that all items from the packing list are present and undamaged. Contact your distributor if anything is missing or damaged.

**System Setup:**
Follow the startup manual provided to set up the MIC-770 V3 system. Make sure to connect all necessary cables and components as instructed.

**Connecting Peripherals:**
Use the provided connectors and cables to connect peripherals such as VGA monitors, HDMI devices, USB devices, LAN connections, and audio equipment as needed.

**Powering On the System:**
Connect the power cable to the power connector and supply DC power within the specified range (9-36V). Ensure that jumpers are set correctly for ATX or AT module.

**Memory Installation:**
The MIC-770 V3 supports DDR5 SODIMM ECC/non-ECC type memory modules. Contact your distributor for compatible memory modules and follow the memory installation guidelines provided.

**Frequently Asked Questions (FAQ):**

- **Q: What should I do if any items from the packing list are missing or damaged?**
  A: Contact your distributor or sales representative immediately for assistance in replacing the missing or damaged items.
- **Q: How do I connect peripherals such as monitors and USB devices to the MIC-770 V3?**
  A: Use the labeled connectors on the system to connect peripherals. VGA monitors can be connected to the VGA connector, USB devices to the USB ports, etc.

## Packing List

Before you begin installing your card, please make sure that the following items have been shipped:

1. MIC-770 V3 bare-bone system x 1
2. Startup Manual EN\CN\TC for MIC-770 V3 3rd Ed. P/N: 2041077052
3. 4-pin Phoenix connector P/N: 1652003234
4. Mounting bracket x 2 P/N: 1960070543T00A
5. SATA cable x 1 P/N: 1700013095-01
6. SATA power cable x 1 P/N: 1700024372-01

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.
**Note:** Acrobat Reader is required to view any PDF file. Acrobat Reader can be downloaded at: **get.adobe.com/reader** (Acrobat is a trademark of Adobe).

**Caution:** THERE IS DANGER OF EXPLOSION IF THE BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S

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

For technical support and service, please visit our support website for MIC-770 V3 at: **https://advt.ch/mic770spt**

Register your products on our website and get 2 months extra warranty for free at:
**http://www.register.advantech.com**

## Specifications

- **Processor System**
  - 12th/13th Gen Intel® Core™ i socket CPU (LGA1700)
- **Memory**
  - Supports dual-channel DDR5 SODIMM-4800 MHz, 32GB per slot with ECC function (W SKU only); Max. capacity is 64GB.
- **Graphics**
  - R680E: Intel® HD Graphics 770, supports DirectX 12
  - H610E: Intel® HD Graphics 770, supports DirectX 12
- **Serial Ports**
  - 2 x RS-232/422/485, RS-485 supports automatic flow control
- **Ethernet**
  - Interface: 10/100/1000 Mbps
  - **Controllers:**
    - R680E LAN1: Intel® I219LM, LAN2: Intel® i210IT
    - H610E LAN1: Intel® I219V, LAN2: Intel® i210IT
- **Storage**
  - Internal 2.5″ Storage Bay: 1
  - mSATA: 1
  - NVMe (M.2): 1 x M-Key 2280 with PCIe Gen 3 x4. Please use the wide-temperature NVMe module without the heatsink. (R680E SKU, operating temp. -10~50°C)
- **Front I/O**
  - Display: 1 x VGA, 1 x HDMI
  - USB: R680E: 2 x USB 3.2 (Gen.2) , 6 x USB 3.2 (Gen.1) H610E: 4 x USB 3.2 (Gen.2), 4 x USB 2.0
  - Serial: 2 x RS-232/422/485
  - Audio: Line-out/Mic-in
- **Power Requirements**
  - Power type: ATX/AT
  - Power input Voltage: 9-36 VDC
  - Minimum Power Input: 9VDC 16A – 36VDC 5A

This product is intended to be supplied by a UL-certified power supply or UL-certified DC source rated 19Vdc, 7.89A minimum, TMA 50°C minimum (Safety certificate operation temperature=40°C). If you need further assistance, please contact Advantech for further information.

- **Miscellaneous**
  - Power Switch (Orange: System standby / Green: System Power boot)

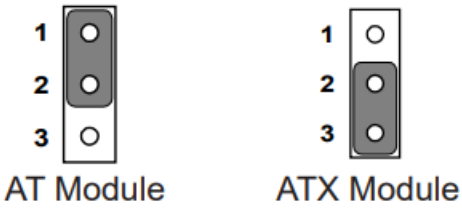
- COM1 TX & RX LED; COM2 TX & RX LED; Storage Status LED (Blinking: read/write; Dark: no behavior)

- **Environment**
  - Operating Temperature: TDP 35W CPU: -20 ~ 60°C TDP 65W CPU: -20 ~ 50°C Note: Safety Certification Test Temperature: safety max 60°C with SSD (TDP 35W CPU) (Safety certificate operating temperature 60°C)
  - Storage Temperature: -40 ~ 85°C (-40 ~ 185°F)
  - Relative Humidity: 95% @ 40°C (non-condensing)
- **Physical Characteristics**
  - Dimensions (W x H x D): 77 x 192 x 230 mm
  - Weight: 2.8 kg (6.17 lb)

### Jumpers and Connectors

Jumpers can be set to suit your application. The table below shows the function of each of the jumpers and connectors.

| **Connectors** | |
|---|---|
| **Label** | **Function** |
| VGA1 | VGA Connector |
| HDMI1 | HDMI connector |
| COM 1/2 | RS-232/422/485 |
| COM 3/4, COM 5/6 | RS-232 |
| USB 1-4 | USB 3.2 (R680E, iAMT) or USB 2.0 (H610E) |
| USB 5/6 | USB 3.2 |
| USB 7/8 | USB 3.2 |
| LAN 1 | Intel i219LM (R680E) or Intel i219V (H610E) |
| LAN 2 | Intel i210IT (iBMC) |
| Audio | Audio Jack (Line-out, Mic-in) |
| LED | COM 1/2 TX; RX; Storage device status |
| DC 9-36V | Power connector |




| PSON1: System AT/ATX Module Selection | |
|---|---|
| **Function** | **Jumper Setting** |
| 1-2 | AT module |
| 2-3 | ATX module (Default) |

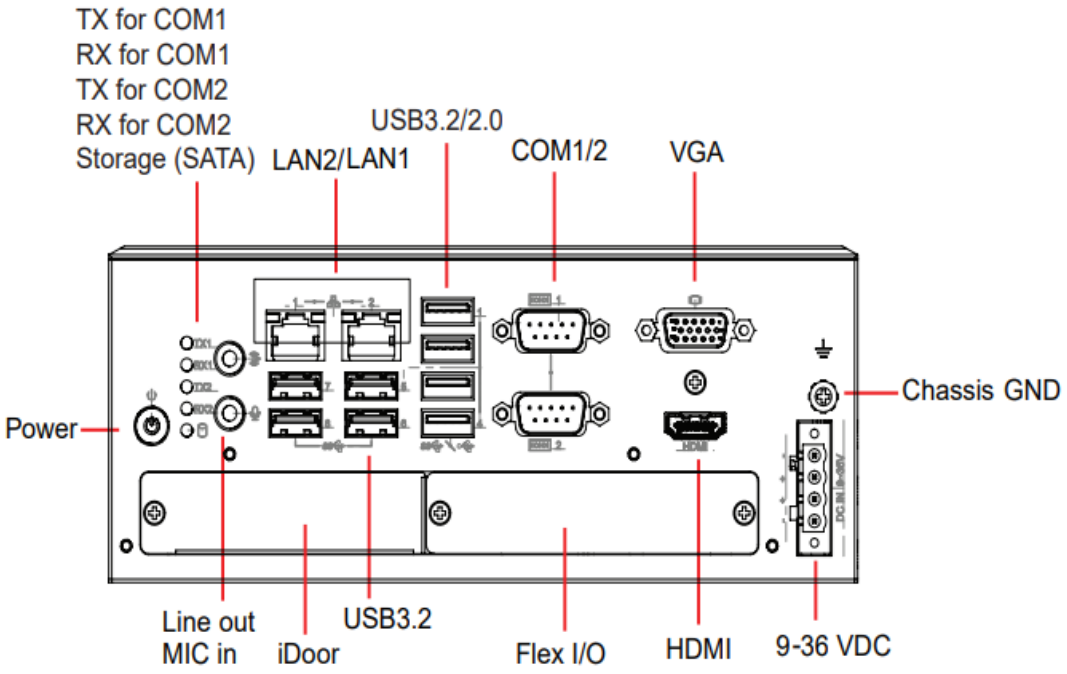
**Battery**

The computer is supplied with a battery-powered real-time clock circuit. There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

**Declaration of Conformity**
This device complies with the requirements in Part 15 of the FCC rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

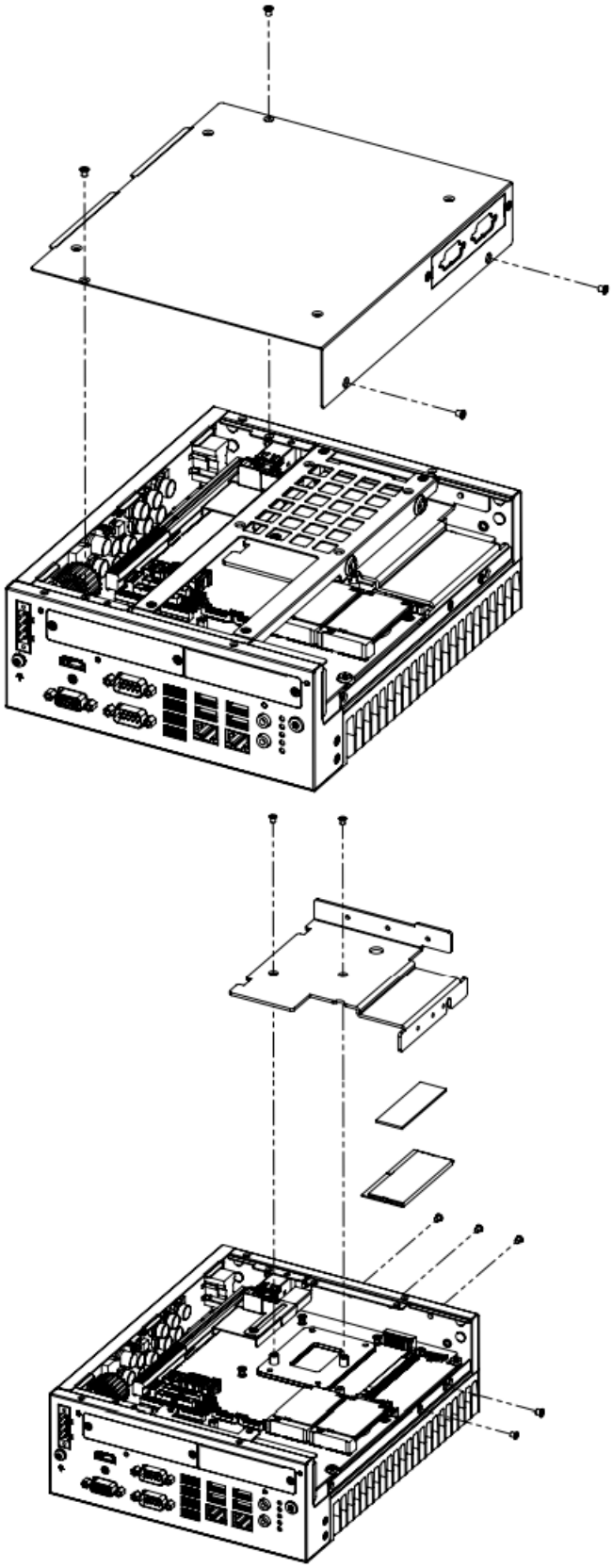
**System I/O Interface**



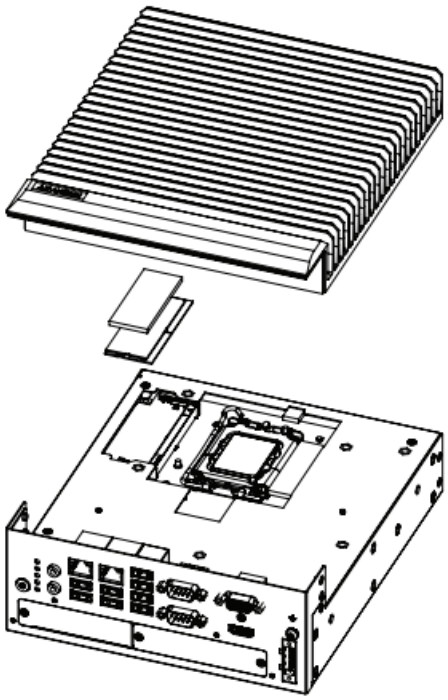

## Simple Maintenance Process

**Memory Installation**

MIC-770 V3 supports DDR5 SODIMM ECC/non-ECC type memory modules. If you need a detailed memory support list, please contact your distributor or sales representative to order compatible memory modules.



1. Undo 4 screws and remove the bottom cover.
2. Undo 7 screws to remove the memory thermal cover and install the memory and affix the thermal pad (P/N: 1990019498N000).

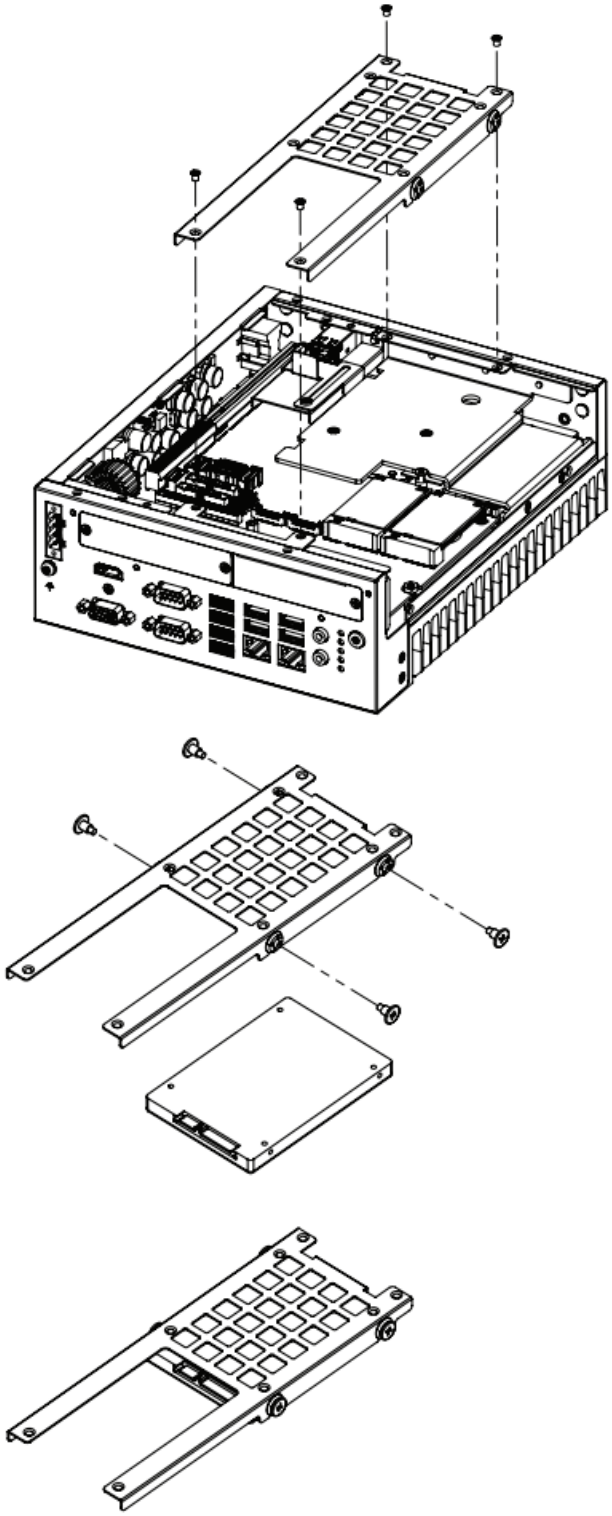


1. Undo 4 screws and remove the bottom cover.
2. Affix the thermal pad (P/N: 1990019498N000) on the memory and assemble it.

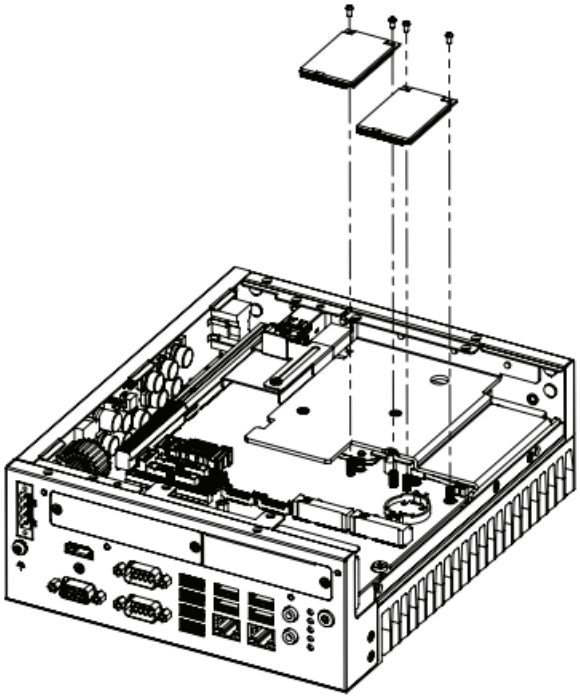
   **Note:** The thermal pad and memory thermal cover must be fully affixed and compacted.

**Storage Installation**

1. Undo 4 screws and remove the bottom cover.
2. Undo 4 screws to remove the storage tray.
3. Secure the storage on the HDD tray with 4 screws (P/N:1930002235).
4. Assemble the SATA cable/power cable and replace the storage tray securely with 4 screws.
5. Replace the bottom cover.



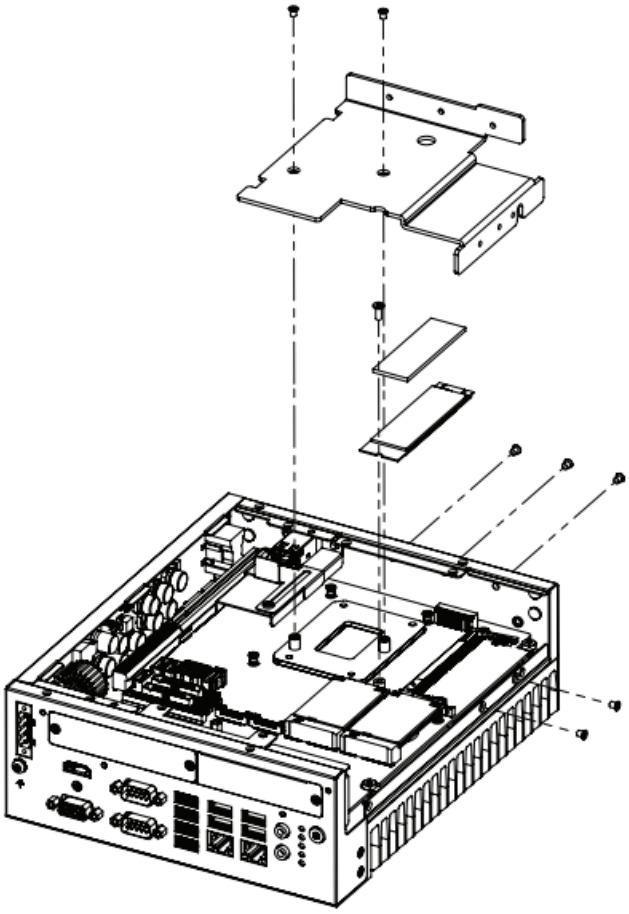
**Mini-PCIe/mSATA Installation**
MIC-770 V3 supports full-size Mini-PCIe /mSATA.



1. Undo 4 screws and remove the bottom cover.
2. Install the module in the Mini-PCIe socket and secure with the screws.
3. Replace the bottom cover and secure with the screws.

**NVMe M.2 Installation**

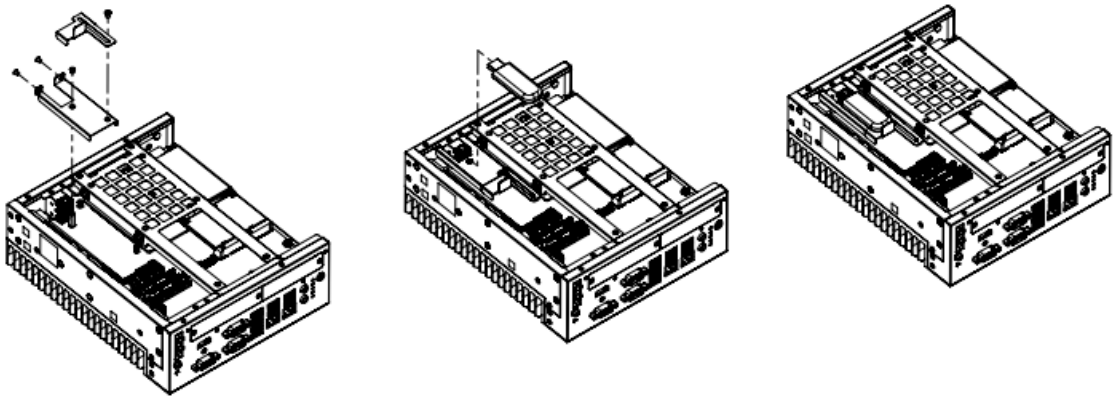
MIC-770 V3 (R680E) supports NVMe M.2



1. Undo 4 screws and remove the bottom cover.
2. Undo 7 screws to remove the cover, thermal cover, and M.2. cover.

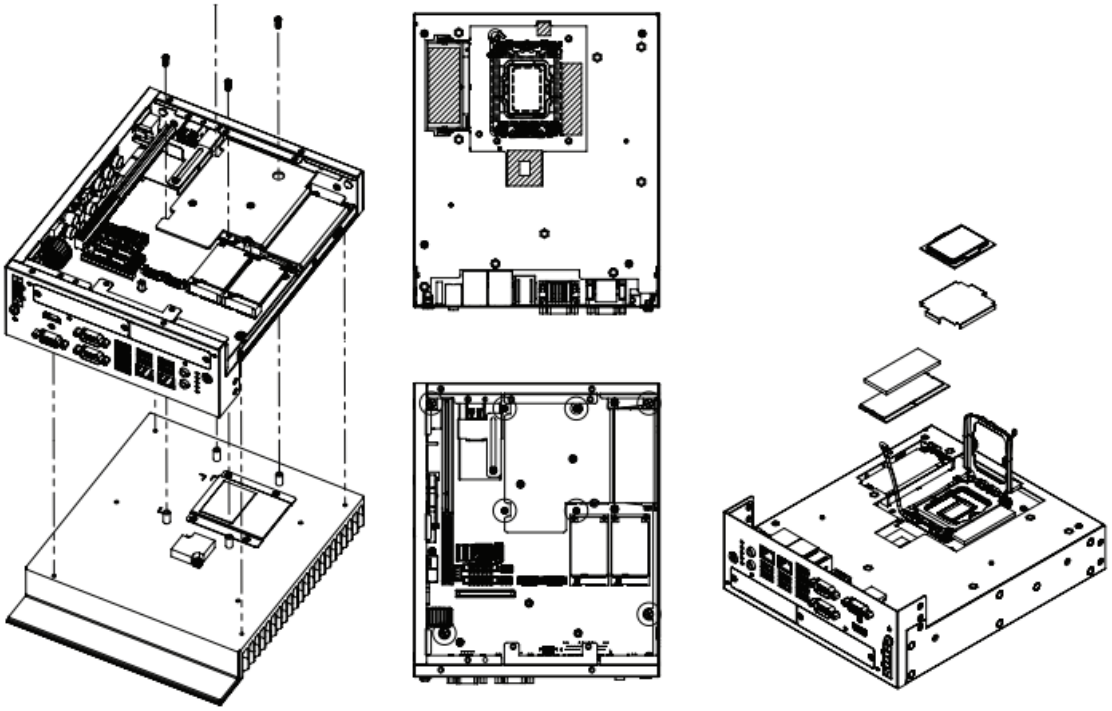
3. Install the module in the M.2 socket and secure with the screws.
4. Replace the bottom cover and secure with the screws.

**Internal USB 2.0 Installation**



1. Undo 4 screws and remove the bottom cover.
2. Loosen the bracket screw and adjust the bracket size by the USB dongle size.
3. Install the USB dongle in the first socket. Only the first socket is functional.
4. Secure the screw and replace the bottom cover and secure with screws.

**CPU Installation**

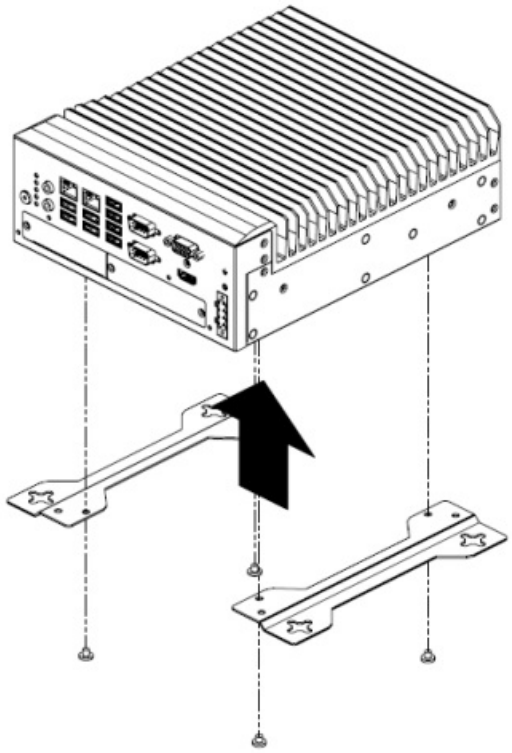


1. Undo 4 screws and remove the bottom cover.
2. Undo 4 screws to remove the storage tray.
3. Undo 7 screws to remove the memory & M.2 thermal cover.
4. Undo 4 screws in the corner of the chassis.
5. Undo 4 screws around the CPU to release the CPU heatsink.
6. Remove the CPU heatsink and install the CPU.
7. Smear thermal grease onto the CPU.

8. Replace the CPU heatsink, memory, and the M.2 thermal cover, storage tray, and bottom cover.

**Mounting Kit Installation**

1. Take the mounting kit from the accessory box.
2. Secure with 4 screws (P/N: 1930007259-01, M4x4L F/S D=8.5 H=1.5 (2+) ST/H BZn-NK) and install the system on a table.

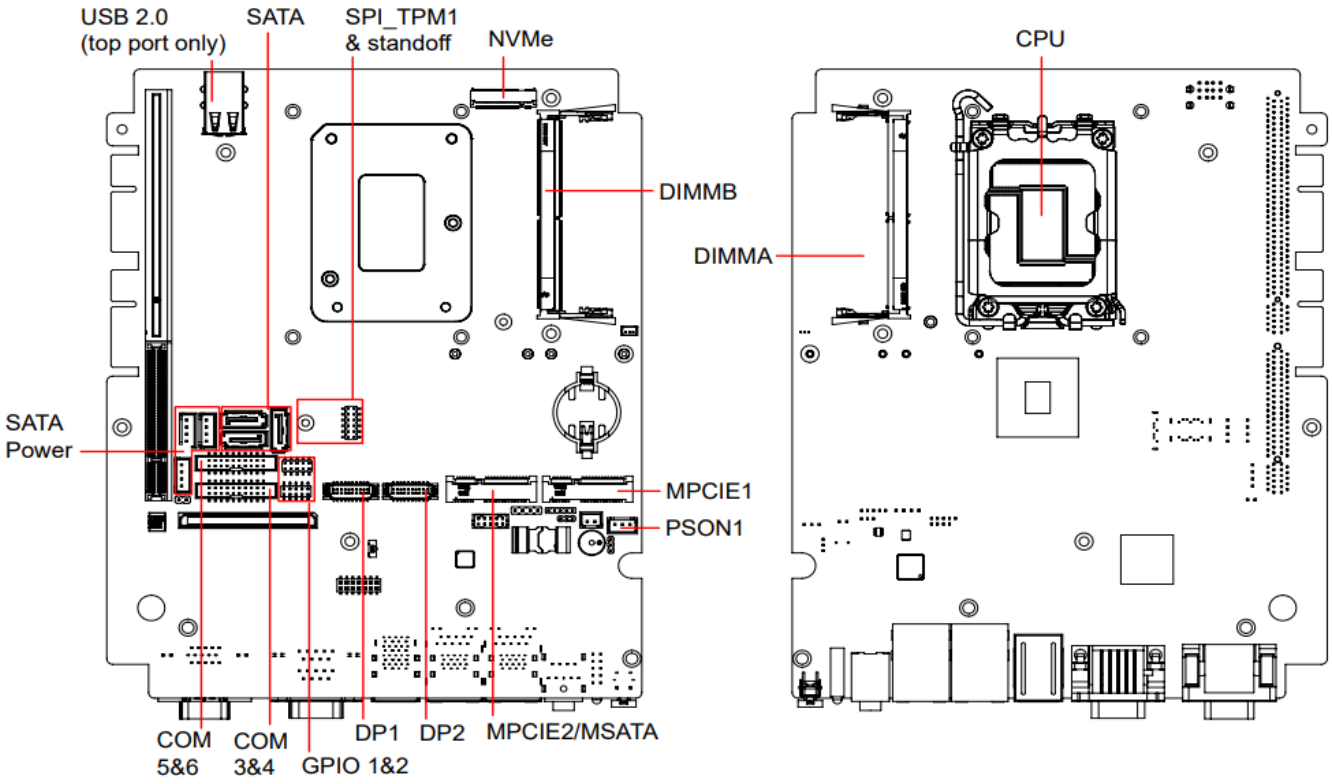


## Safety Instructions

1. Read these safety instructions carefully.
2. Keep this startup manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it 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. Make sure the voltage of the power source is correct before connecting the equipment to a power outlet.
9. Position the power cord so that people cannot step on it. 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 by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.

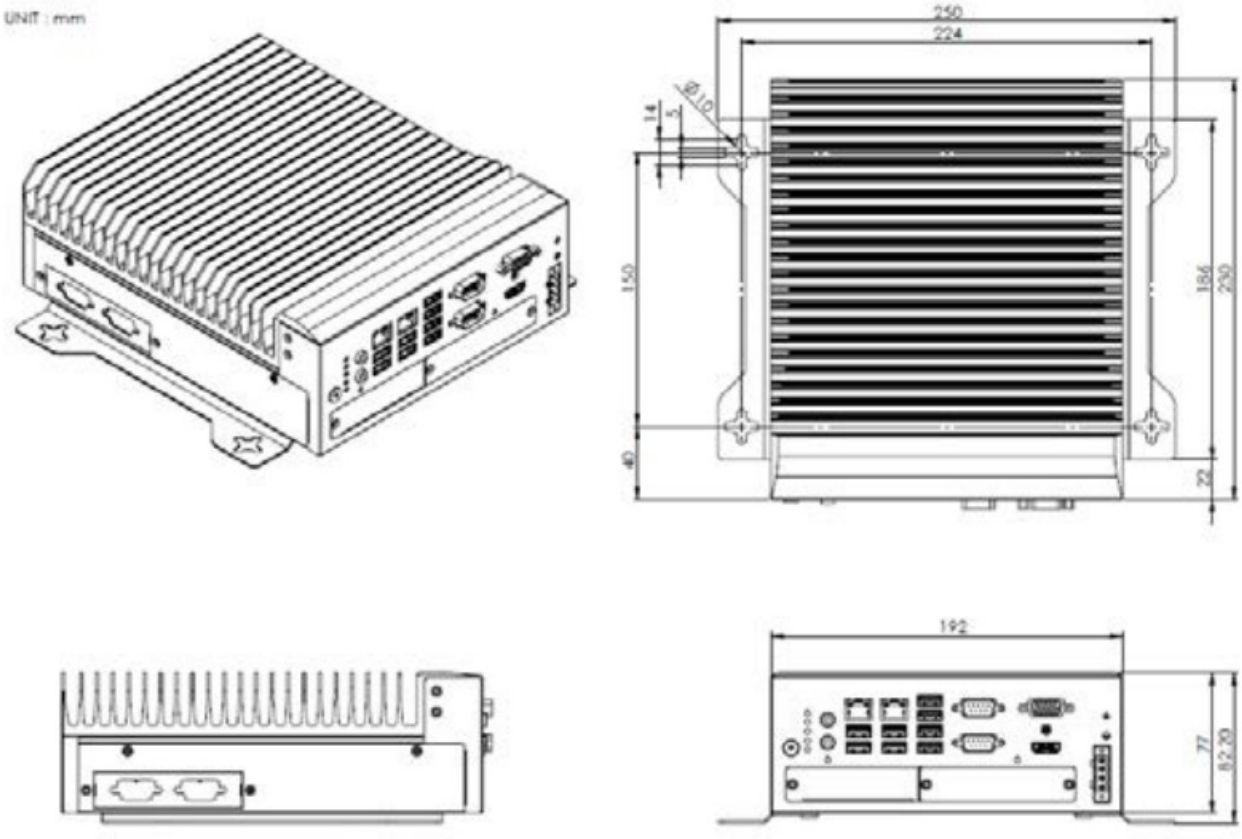
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
    - The power cord or plug is damaged.
    - Liquid has penetrated into the equipment.
    - The equipment has been exposed to moisture.
    - The equipment does not work well, or you cannot get it to work according to the user manual.
    - The equipment has been dropped and damaged.
    - The equipment has obvious signs of breakage.
15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -40°C (-40°F) OR ABOVE 85°C (185°F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.
16. CAUTION: THERE IS DANGER OF EXPLOSION IF THE BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
17. The sound pressure level at the operator's position according to IEC 704-1:1982 should be no more than 70 dB (A).
18. RESTRICTED ACCESS AREA: The equipment should only be installed in a Restricted Access Area.
19. DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

## I/O Connectors




*Please refer to the user manual for eFuse (SW5) behavior.

## System Dimensions




## Documents / Resources

| | |
|---|---|
|  | ADVANTECH MIC-770 V3 12th/13th Gen Intel Core i Socket Compact Fanless Computer [pdf] User Manual<br>2041077052, MIC-770 V3 12th 13th Gen Intel Core i Socket Compact Fanless Computer, MIC-770, V3 12th 13th Gen Intel Core i Socket Compact Fanless Computer, 13th Gen Intel Core i Socket Compact Fanless Computer, Intel Core i Socket Compact Fanless Computer, Core i Socket Compact Fanless Computer, Socket Compact Fanless Computer, Compact Fanless Computer, Fanless Computer, Computer |

## References

- Advantech Co-Creating the Future of the IoT World
- [redacted]
- [redacted]
- register.advantech.com
- Advantech Co-Creating the Future of the IoT World
- User Manual