

E25006

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# IN SEARCH OF INCREDIBLE



NUC15CRK / NUC15CRH

Service Manual



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# ***Chapter 1:***

## ***Introduction***

## Disclaimer

ASUS is not responsible for direct, indirect, intentional or unintentional damages resulting from improper installation and operation.

## Safety precautions

- Before handling components, use a grounded wrist strap or touch a safely grounded object to avoid damaging them due to static electricity.
- Keep liquids or moisture away from your NUC system to avoid short circuits.
- Remove rings, watches, and any other metal objects from your hands.
- Hold components by the edges to avoid touching the ICs.
- Properly install all components before connecting the AC power.
- Do not use power adapters or batteries from other devices to reduce the risk of injury to persons due to fire or explosion. Use only certified power adapters or batteries supplied by the manufacturer or authorized retailers.
- Detach all clips or flaps before removing cables to prevent damage.
- Disconnect cables, connectors, and power plugs by pulling the plug evenly to avoid damage.
- Use screws with the correct specifications on your NUC system to prevent damage.
- Confirm that the cable orientation is correct before connecting any cables.
- Photograph the appearance of cables, cable routing, connectors, and screws for later reference before proceeding with each step.

## Pre-repair checklist

1. Read the entire manual before starting any service procedures and follow all instructions.
2. Back up your NUC system.
3. Turn off your NUC system.
4. Place your NUC system on a stable surface.
5. Disconnect all connected peripherals and cables.

---

### **IMPORTANT!**

- Purchase replacement components from an authorized retailer of this NUC system to ensure maximum compatibility and reliability.
  - Refer to <https://www.asus.com> for a list of compatible components.
- 

### **NOTE:**

- The illustrations are for reference only.
  - Product and component images are for illustrative purposes only. The actual appearance and specifications may vary depending on the model.
  - The procedures described in this manual may vary depending on the model configuration and may not reflect the entire servicing process. To service components that are not covered in this manual, please visit an authorized service center for assistance.
  - Keep all adhesive tape, insulating materials, screws, and other removable items in a safe place until the service procedure is completed, as they may be needed during installation.
-

## Diagnostics tool

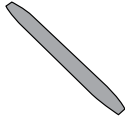
Run system diagnosis in MyASUS after replacing any components to ensure that all components are working properly.

For more information, visit <https://www.asus.com/support/myasus-deeplink/>.

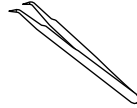
## Repair tools



**Screwdriver**



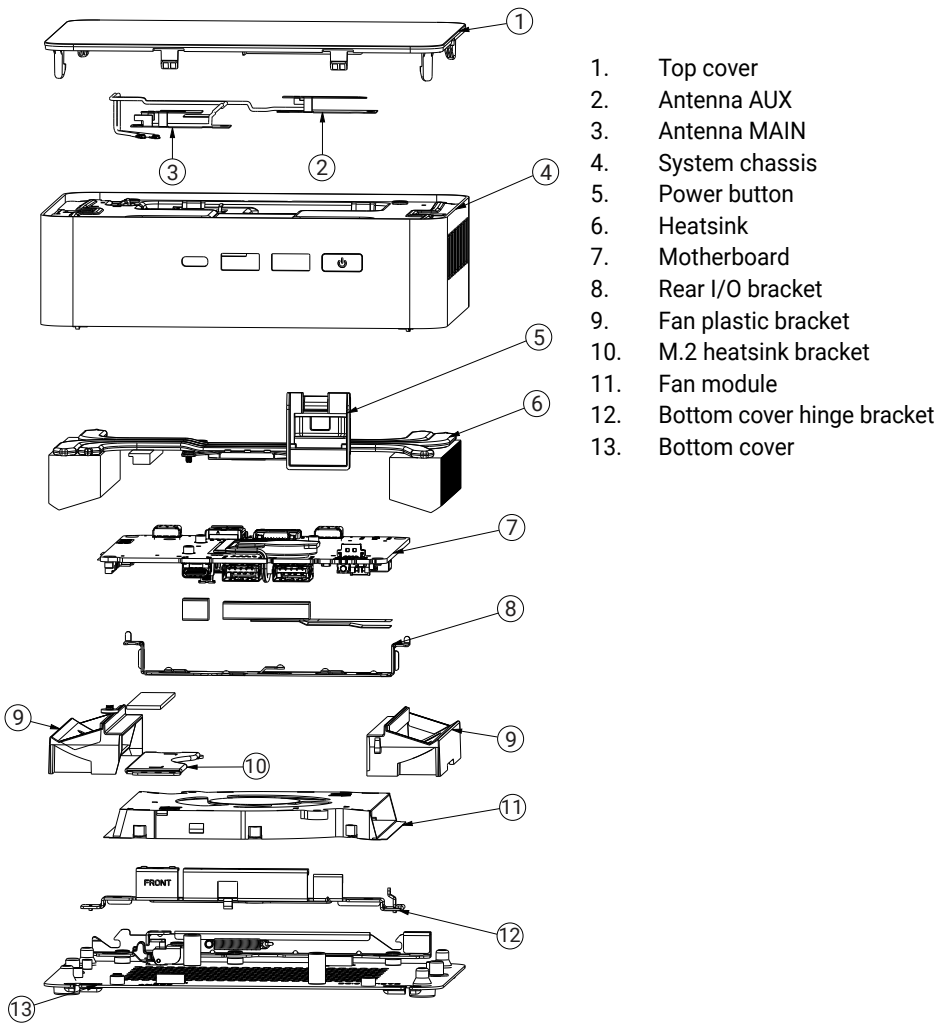
**Plastic blade**



**Tweezers**



# Major components (NUC15CRS)





## ***Chapter 2:***

## ***Service Procedures***

## Bottom cover

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**NOTE:** The system illustration for this section is for reference only. The system appearance may vary depending on the model, but the installation steps remain the same.

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### Before you begin

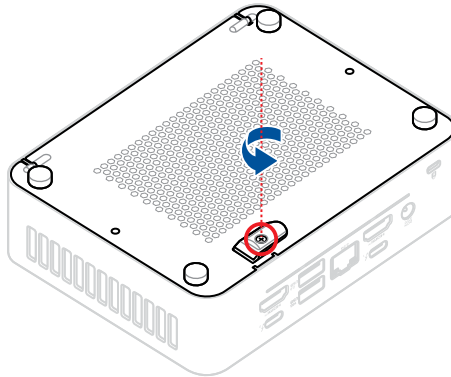
Read the **Safety Precautions** and complete the **Pre-repair Checklist**.

### Screw list

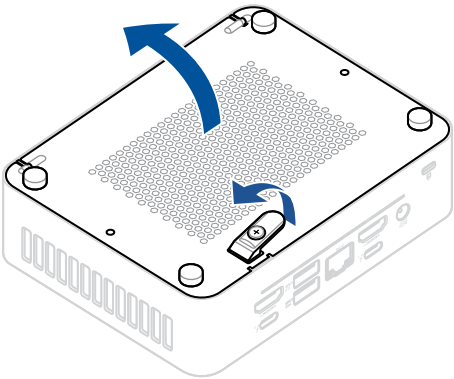
- ⊕ Bottom cover lock latch captive screw (1 pc)

### Opening the bottom cover

1. Place the NUC system on a flat stable surface with its top side facing down.
2. Completely loosen the screw on the bottom cover lock latch.

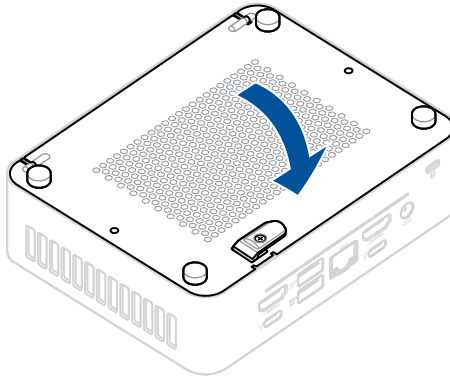


3. Lift the lock latch upwards to release the bottom cover, and lift open the bottom cover.

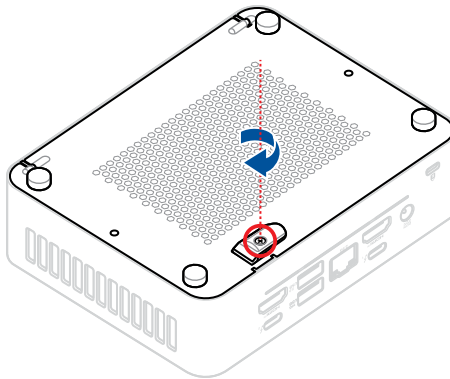


## Closing the bottom cover

1. Close the bottom cover, then press down on the bottom cover to make sure the bottom cover clicks into place.



2. Secure the bottom cover by tightening the latch lock screw.



# Memory module

**IMPORTANT!** You can only install a DDR5 SODIMM or CSODIMM to the NUC system's DIMM slot.

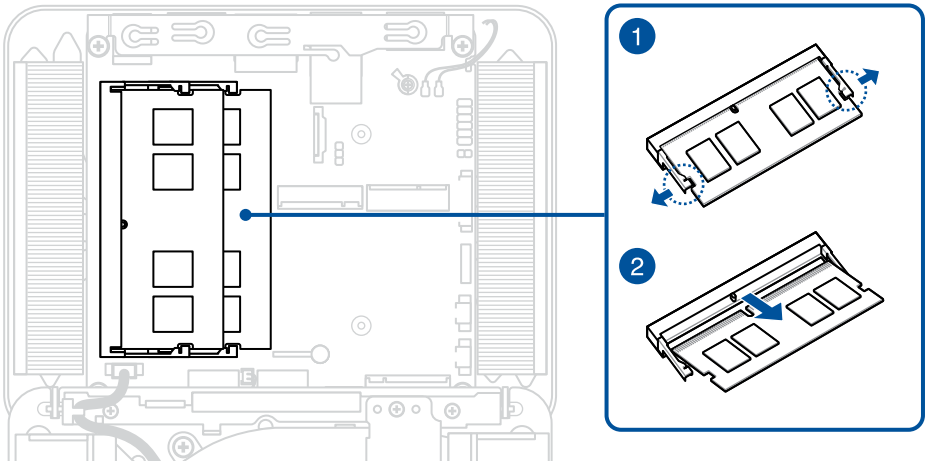
**NOTE:** We recommend that you install the memory module under professional supervision. You may also visit an authorized service center for further assistance.

## Before you begin

1. Read the **Safety Precautions** and complete the **Pre-repair Checklist**.
2. Open the bottom cover.

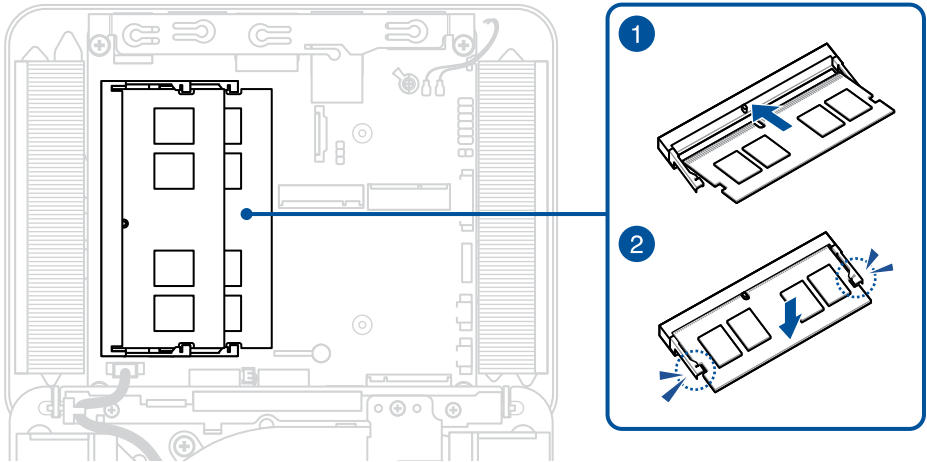
## Removal

1. Simultaneously push the two retaining clips on the memory module slot outward.
2. Remove the module from the slot.



## Installation

1. Align and insert the memory module into the slot.
2. Press down until it clicks and is securely seated in place.



3. Install the component(s) you removed in **Before you begin**.



## M.2 SSD

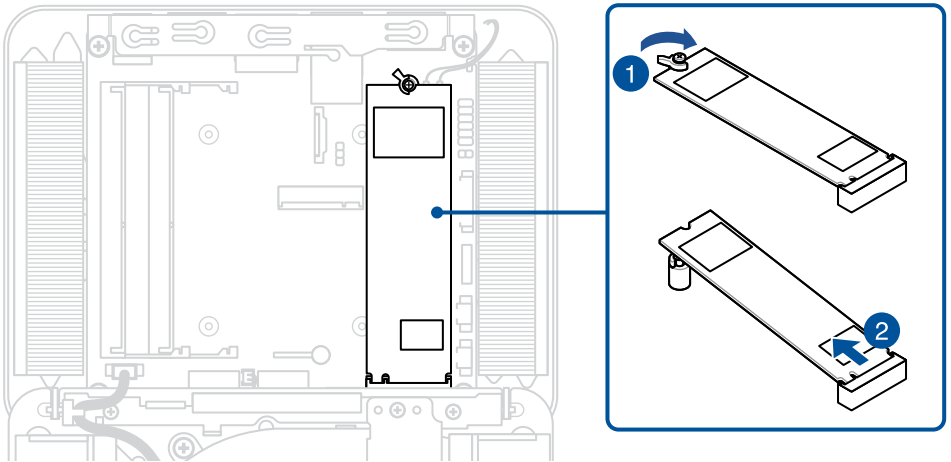
**IMPORTANT!** Thermal paste, thermal pads, liquid metal, or other thermal interface materials must be thoroughly removed and replaced if this component is removed. Ensure that replacement materials are available before proceeding, or contact an authorized service center for assistance.

### Before you begin

1. Read the **Safety Precautions** and complete the **Pre-repair Checklist**.
2. Open the bottom cover.

### Removal (2280)

1. Rotate the Q-Latch clockwise to release the M.2 module.
2. Remove the M.2 module from the M.2 slot



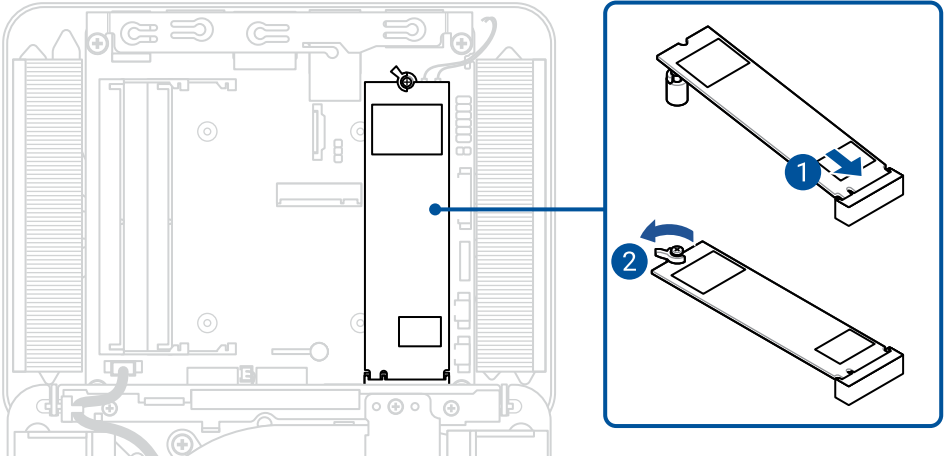
## Installation (2280)

1. Insert the M.2 module into the M.2 slot on the system board.
2. Rotate the Q-Latch counterclockwise to secure the M.2 module in place.

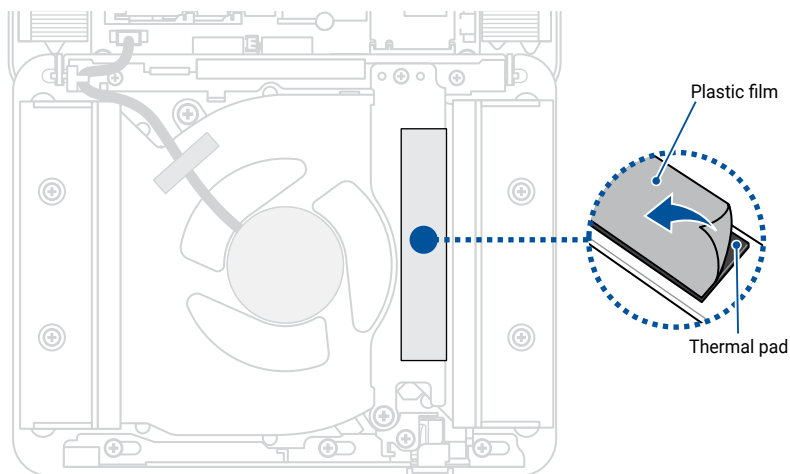
---

**NOTE:** The Q-latch and latch screw is installed to the 2280 length position screw stand by default.

---



3. Before closing the bottom cover, ensure to remove the plastic film on the thermal pad(s), if they exist.



---

**NOTE:**

- The specifications for the thermal pad(s) used here are as follows:  
Thickness: 1.25mm  
Size: 60mm x 12mm  
Thermal conductivity: 3.0 W/mK  
Hardness: 20 shore 00
- To replace the thermal pad yourself, check with an ASUS Service Partner near you ([www.asus.com/support](http://www.asus.com/support)) for the availability of replacement thermal pads.
- The availability of replacement parts may vary depending on the country.

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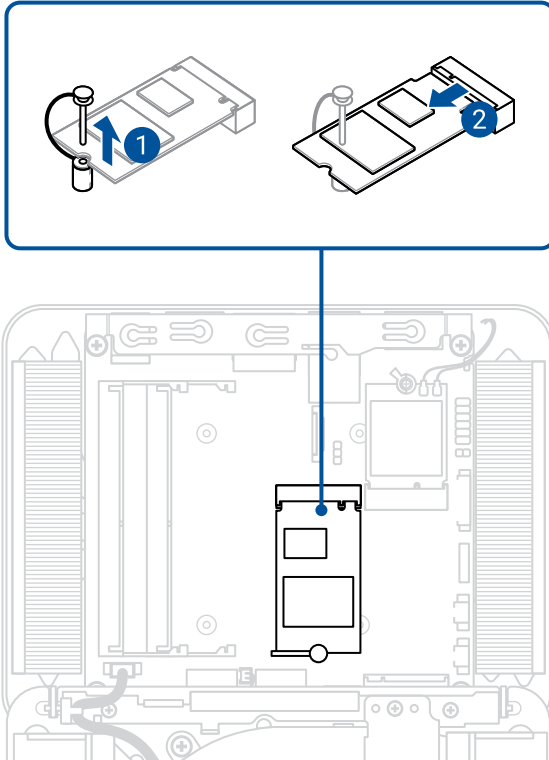
**WARNING!** Heat dissipation performance may still vary even when you have replaced the thermal pad with one that meets the specifications provided. To prevent potential damage to the M.2 SSD, you should have the thermal pad replaced by a service center near you.

---

4. Install the component(s) you removed in **Before you begin**.

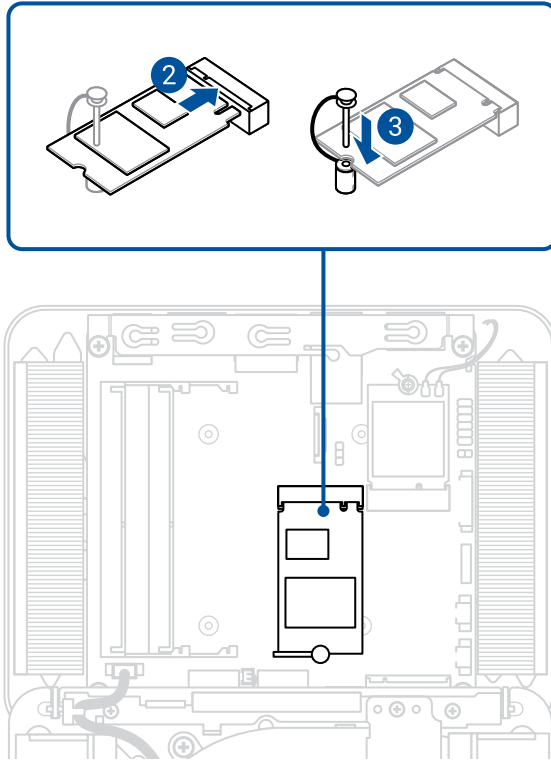
## Removal (2242)

1. Pull the pin of the M.2 anchor upwards so that the pin is completely pulled out.
2. Remove the M.2 module from the M.2 slot.



## Installation (2242)

1. Pull the pin of the M.2 anchor upwards so that the pin is completely pulled out.
2. Align and insert the M.2 module.
3. Gently push the M.2 module down on top of the M.2 anchor, and secure it by pushing the pin of the M.2 anchor into the hole.



4. Install the component(s) you removed in **Before you begin**.

# Wireless card

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**NOTE:** The system illustration for this section is for reference only. The system appearance may vary depending on the model, but the installation steps remain the same.

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## Before you begin

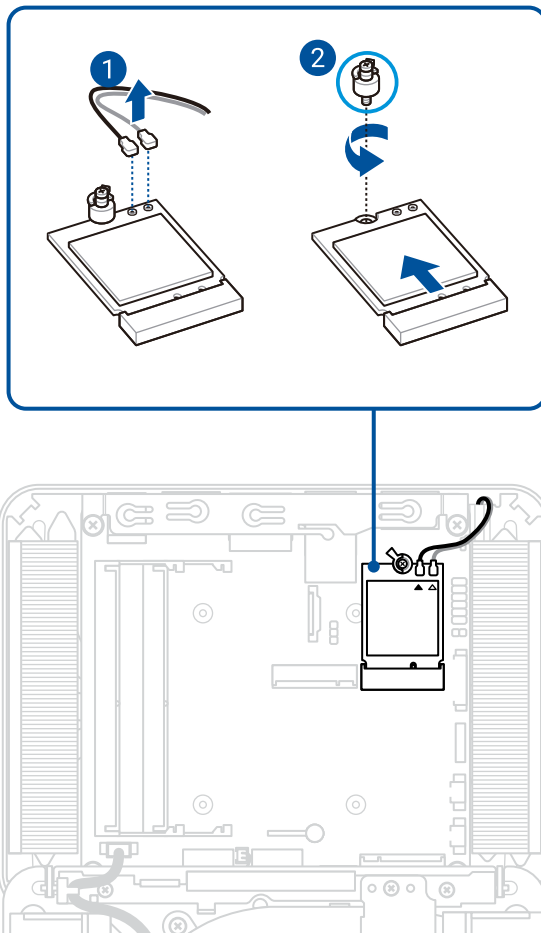
1. Read the **Safety Precautions** and complete the **Pre-repair Checklist**.
2. Open the bottom cover.
3. Remove the following component(s):
  - M.2 SSD (2280)

## Screw list

- ⊕ Q-latch standoff screw (1 pc)

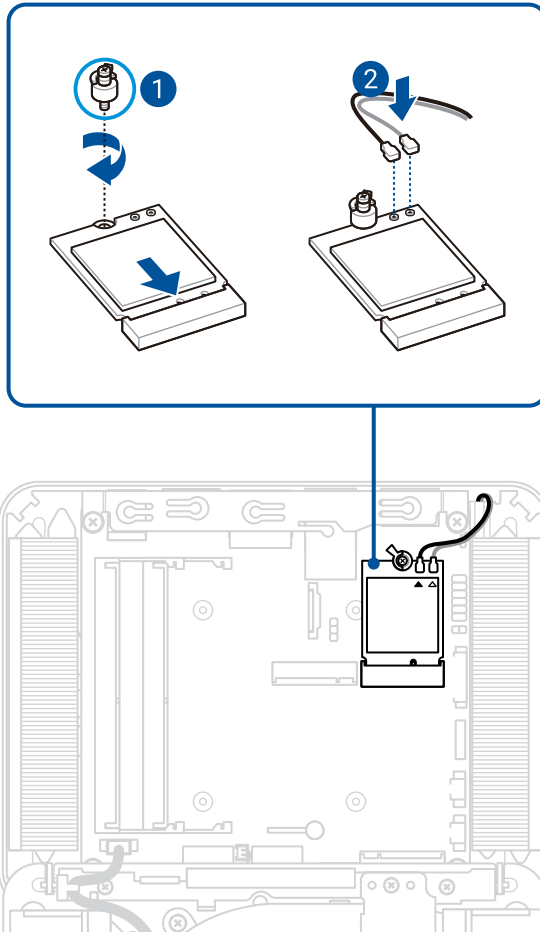
## Removal

1. Disconnect the antenna cables from the wireless card.
2. Remove the Q-latch standoff screw, then remove the wireless card.



## Installation

1. Install the wireless card, then secure it using the Q-latch standoff screw.
2. Connect the antenna cables to the wireless card.



3. Install the component(s) you removed in **Before you begin**.



# Fan module

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**IMPORTANT!** Thermal paste, thermal pads, liquid metal, or other thermal interface materials must be thoroughly removed and replaced if this component is removed. Ensure that replacement materials are available before proceeding, or contact an authorized service center for assistance.

---

## Before you begin

1. Read the **Safety Precautions** and complete the **Pre-repair Checklist**.
2. Open the bottom cover.
3. Remove the following component(s):
  - Memory module
  - M.2 SSD
  - Wireless card

## Screw list

-   M2 X 3L (6 pcs)
-   M2.5 X 6L (2 pc)

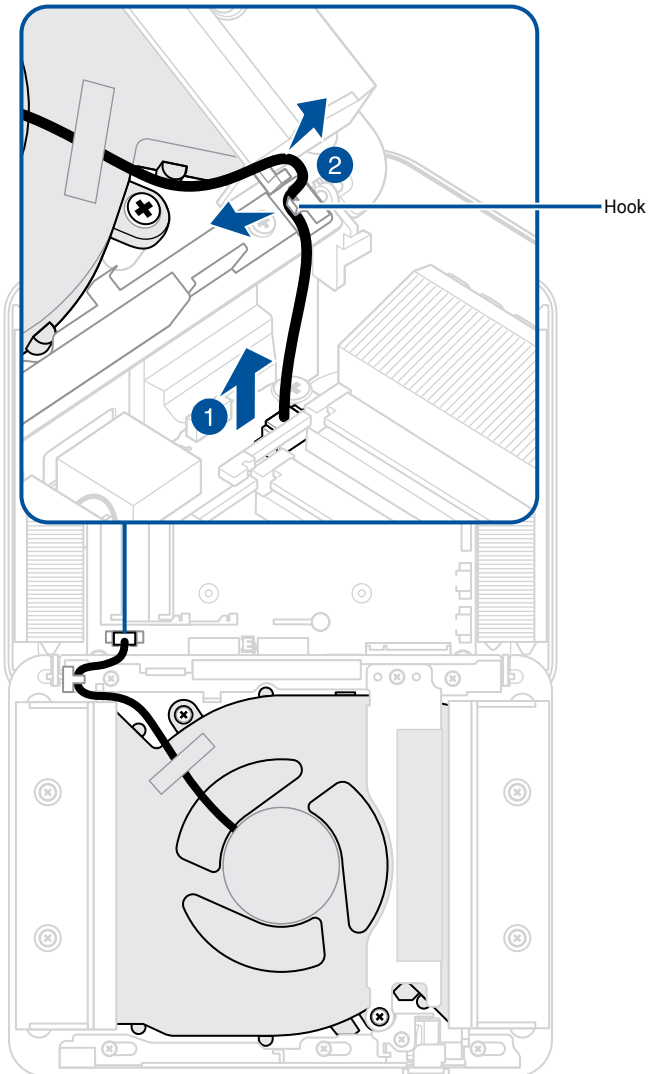
## Removal

1. Disconnect the fan cable from the motherboard.
2. Carefully detach the fan cable from the cable routing hook so that the fan cable is completely free from the bottom cover.

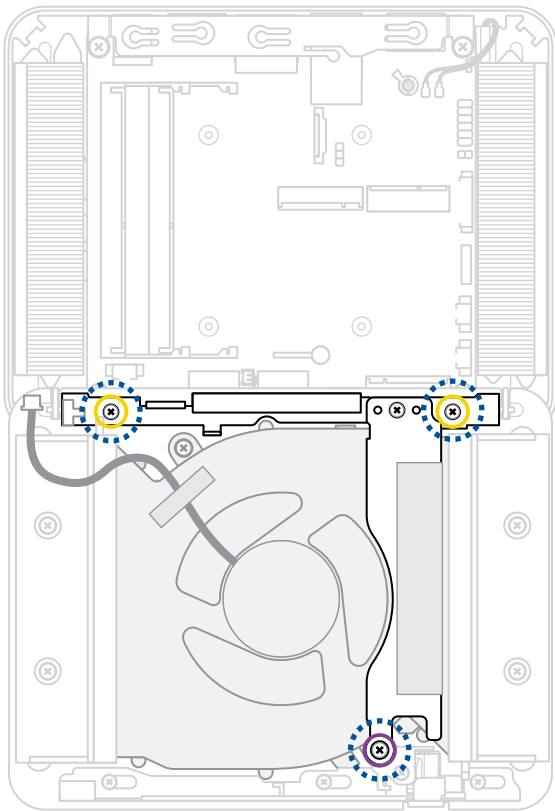
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**NOTE:** Use a tool if necessary.

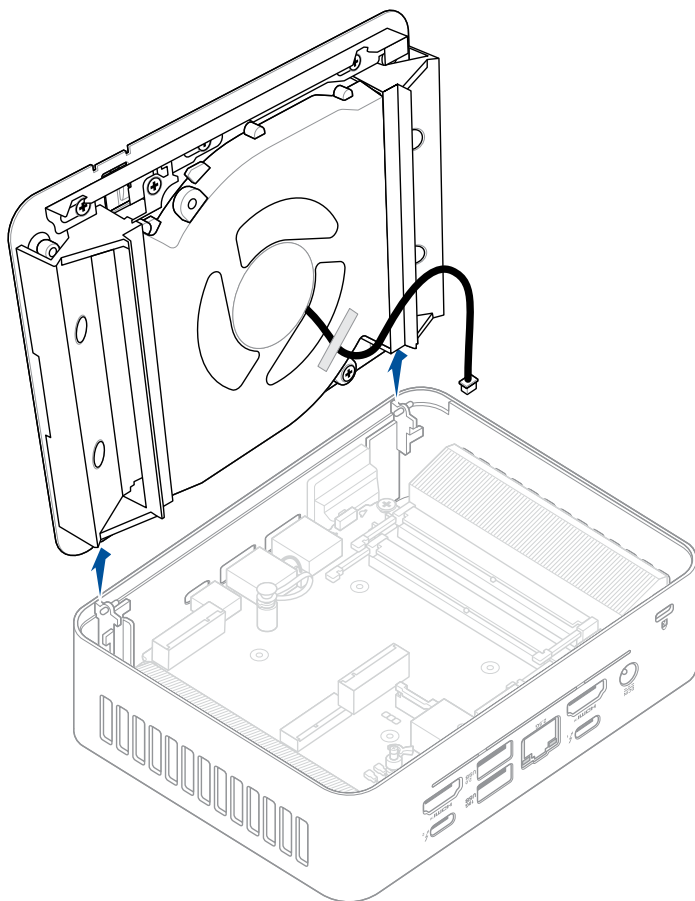
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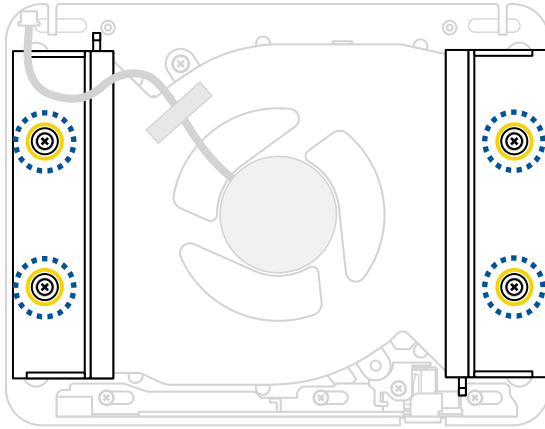
3. Remove the three (3) screws as shown in the illustration below.



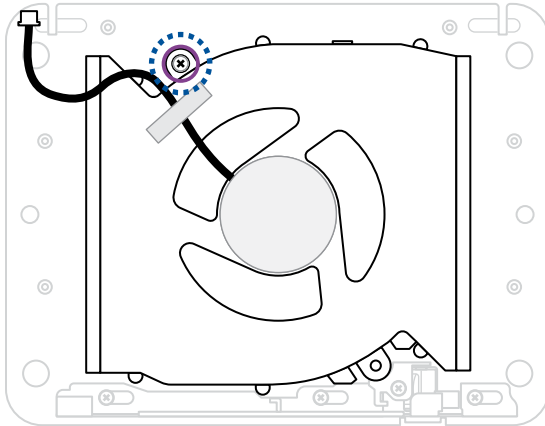
4. Tilt the bottom cover towards the front I/O ports until it is perpendicular to the motherboard, then lift and remove the bottom cover.



5. Remove the four (4) screws on the plastic brackets, then lift and remove the plastic brackets.

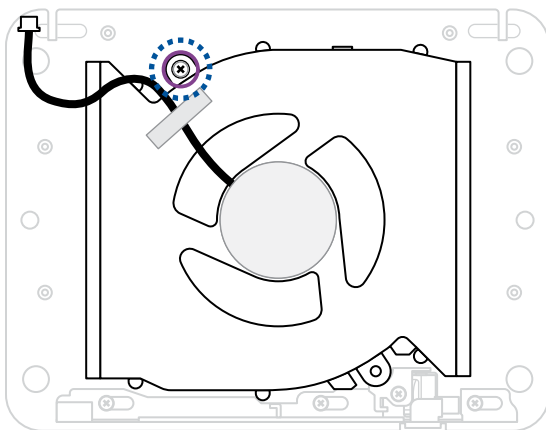


6. Remove the screw from the fan module, then lift and remove the fan module.

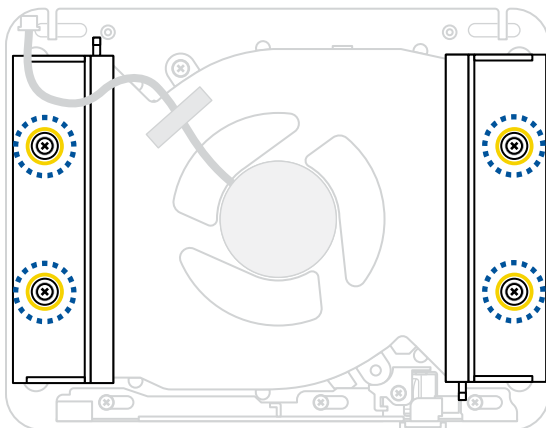


## Installation

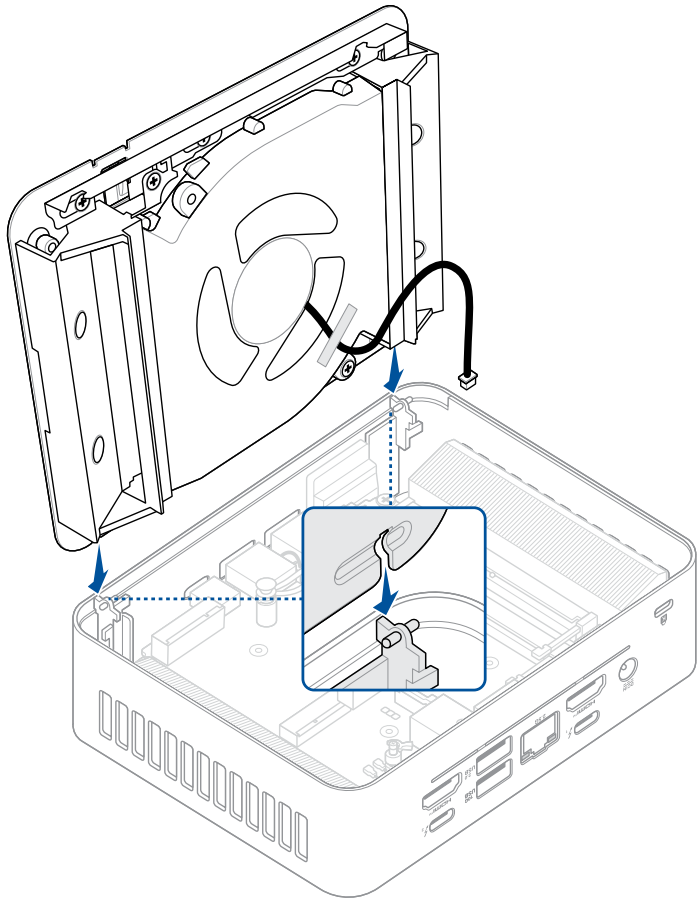
1. Align and place the fan module onto the bottom cover then secure the fan by tightening a screw as shown in the illustration below.



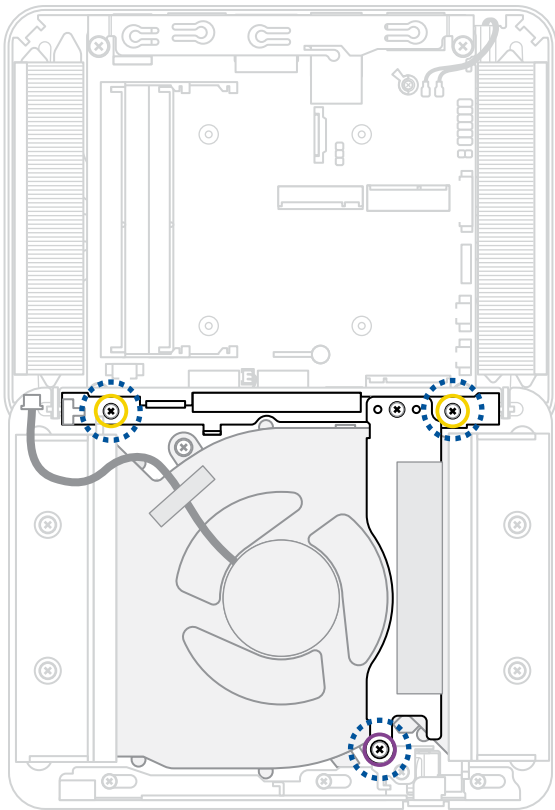
2. Align and attach the plastic brackets, then secure the plastic brackets using four (4) screws.



3. Align the bottom cover perpendicular to the motherboard, then slide the side of the bottom cover with the notches into the chassis as shown in the illustration below.



4. Align and place the thermal pad bracket and bottom cover side bracket, then secure them to the bottom cover as shown in the illustration below





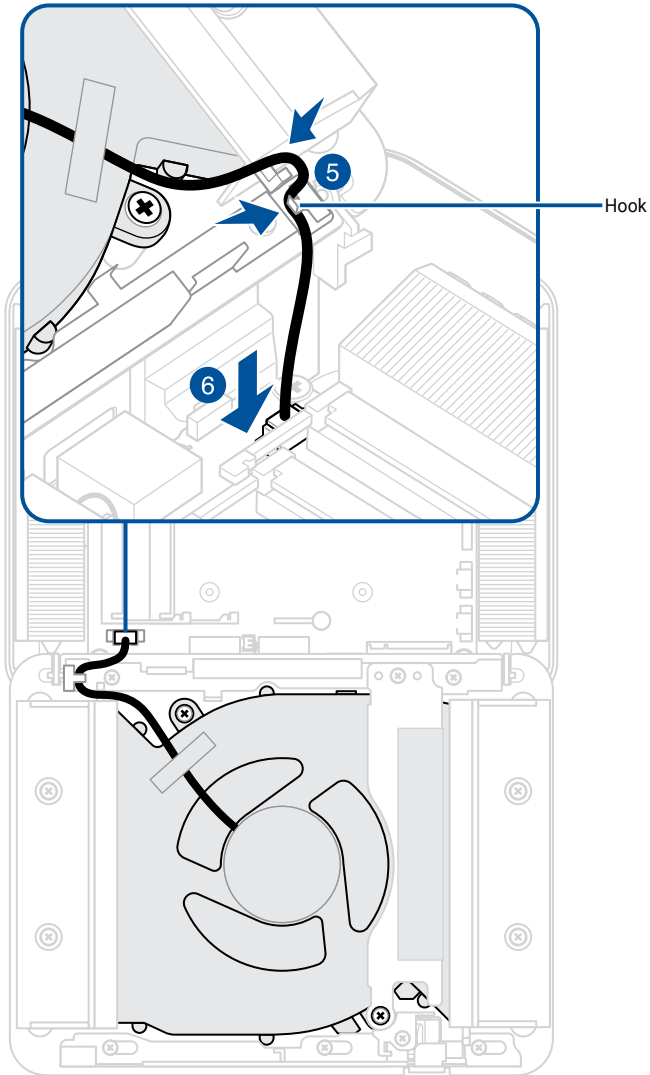
5. Route the fan cable making sure the fan cable is also pushed into the hook.

---

**NOTE:** Use a tool if necessary.

---

6. Connect the fan cable to fan connector on the motherboard.



7. Install the component(s) you removed in **Before you begin**.

# Motherboard

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**IMPORTANT!** Thermal paste, thermal pads, liquid metal, or other thermal interface materials must be thoroughly removed and replaced if this component is removed. Ensure that replacement materials are available before proceeding, or contact an authorized service center for assistance.

---

## Before you begin

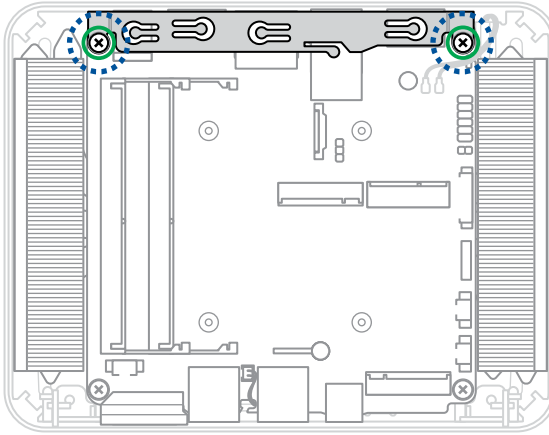
1. Read the **Safety Precautions** and complete the **Pre-repair Checklist**.
2. Open the bottom cover.
3. Remove the following component(s):
  - Memory module
  - M.2 SSD
  - Wireless card
  - Fan module

## Screw list

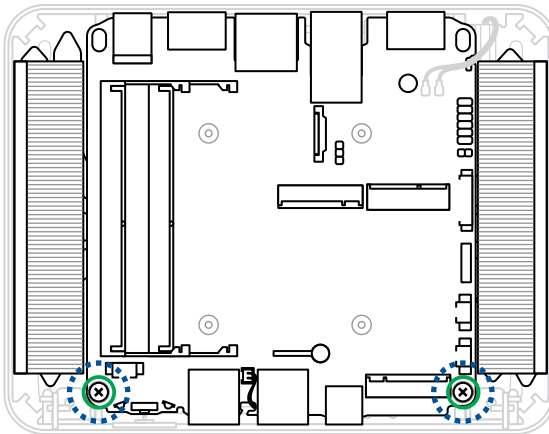
- ⊕ M2.5 X 5L (4 pcs)
- ⊕ Heatsink captive screws (4 pcs)

## Removal

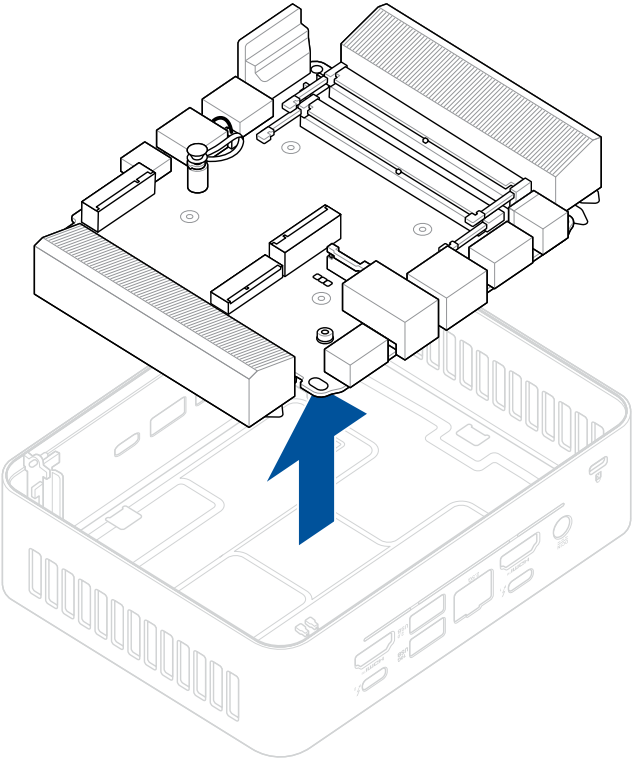
1. Remove the two (2) screws securing the rear I/O bracket, then remove the rear I/O bracket.



2. Remove the remaining two (2) screws securing motherboard.



3. Lift and remove the motherboard from the chassis.

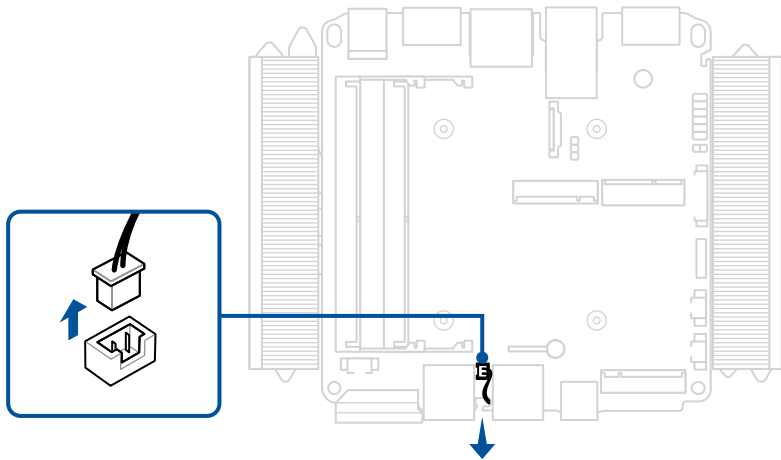


4. Disconnect the battery cable from battery connector.

---

**NOTE:** Use a tool if necessary.

---

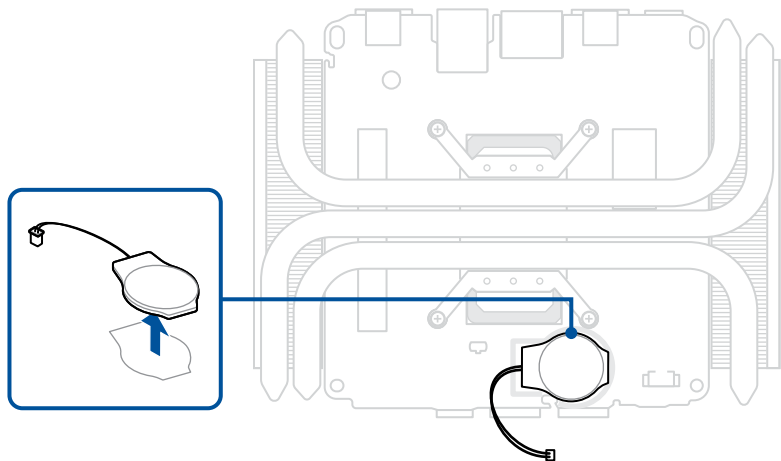


5. Flip the motherboard over and carefully remove the CMOS battery.

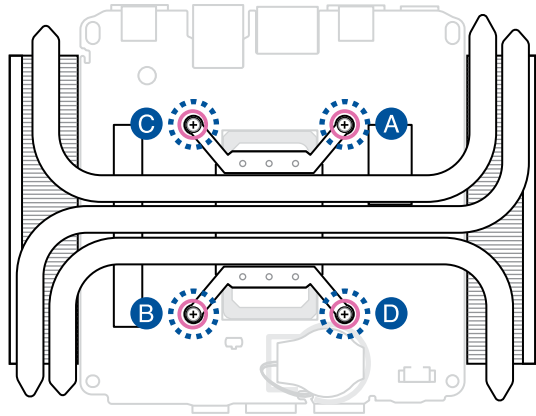
---

**IMPORTANT!** When removing the battery, be careful not to damage the motherboard or the CMOS battery, which is taped to the motherboard.

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6. Flip the motherboard over, then remove the four (4) screws securing the heatsink.



7. Lift and remove the heatsink.

## Installation

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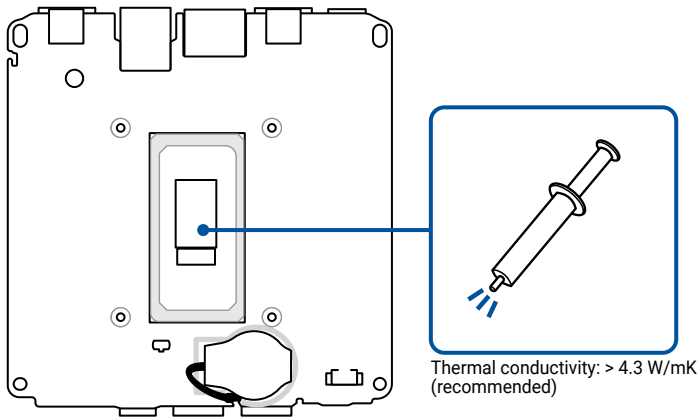
**WARNING!** To prevent potential damage to the CPU, you should have the CPU thermal fan and module replaced by a service center near you.

---

**IMPORTANT!** Thermal paste, thermal pads, liquid metal, or other thermal interface materials must be thoroughly removed and replaced if this component is removed. Ensure that replacement materials are available before proceeding, or contact an authorized service center for assistance.

---

1. Prepare the motherboard by wiping the CPU surface clean with a clean cloth. Apply several drops of TIM to the exposed area of the CPU that will be in contact with the heatsink. Ensure that it is spread in an even thin layer.



---

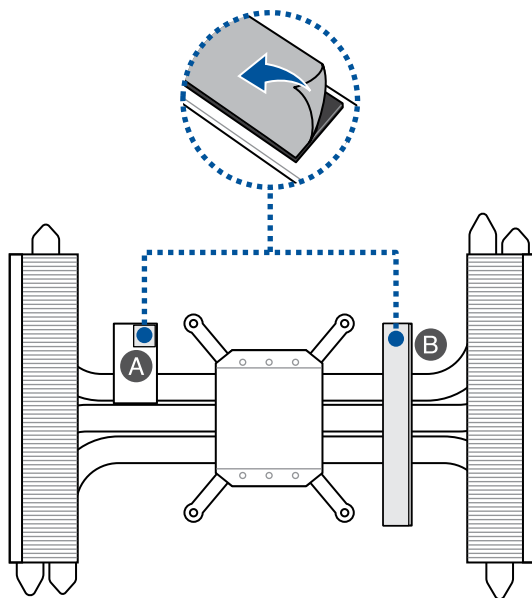
**WARNING!** The TIM is toxic and inedible. DO NOT eat it. If it gets into your eyes or touches your skin, wash it off immediately, and seek professional medical help.

---

**IMPORTANT!** To prevent contaminating the TIM, DO NOT spread it with your finger.

---

2. Before installing the heatsink, ensure to remove the plastic film on the thermal pad(s) on the bottom of the heatsink, if they exist.



---

**NOTE:**

- The specifications for the thermal pad(s) used here are as follows:

Thermal Pad A

Thickness: 3.4mm

Size: 22mm x 19mm

Thermal conductivity: 2.0 W/mK

Hardness: 30±5 shore 00

Thermal Pad B

Thickness: 3.4mm

Size: 22mm x 19mm

Thermal conductivity: 2.0 W/mK

Hardness: 30±5 shore 00

- To replace the thermal pad yourself, check with an ASUS Service Partner near you ([www.asus.com/support](http://www.asus.com/support)) for the availability of replacement thermal pads.
- The availability of replacement parts may vary depending on the country.

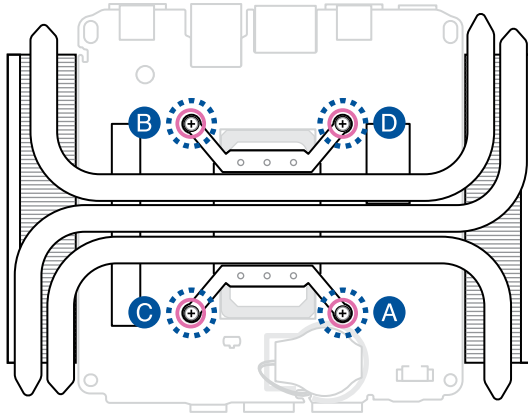
---

**WARNING!** Heat dissipation performance may still vary even when you have replaced the thermal pad with one that meets the specifications provided. To prevent potential damage to the M.2 SSD, you should have the thermal pad replaced by a service center near you.

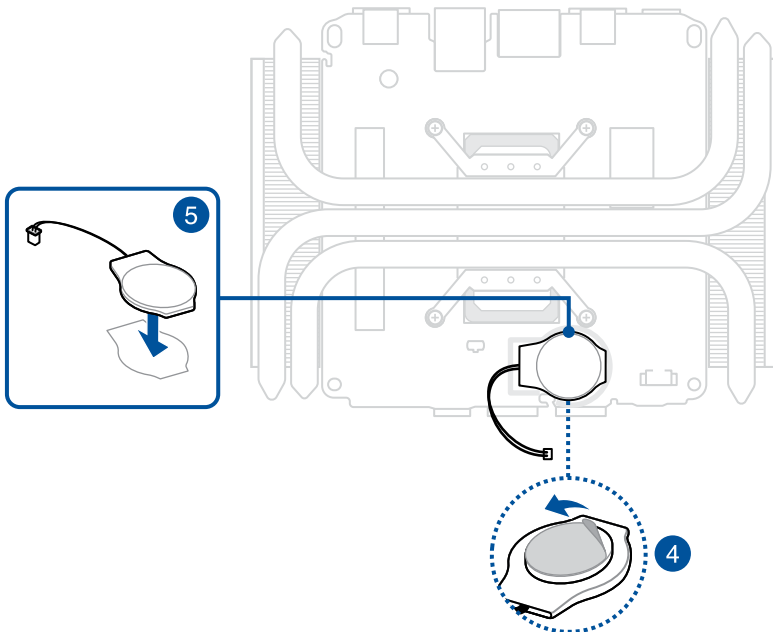
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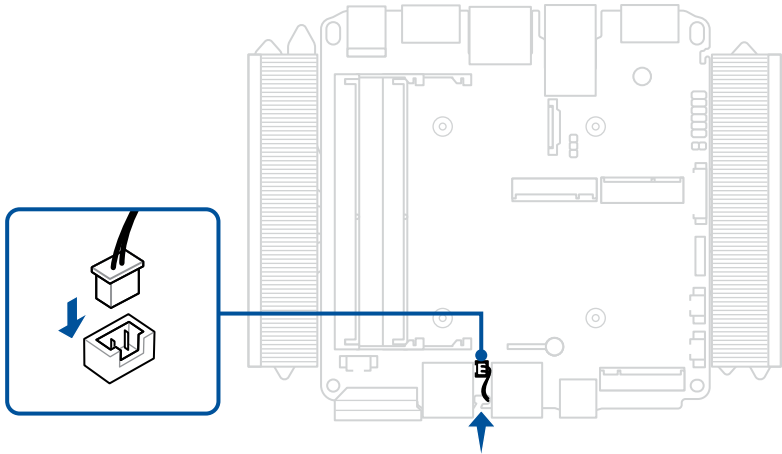
3. Align and place the heatsink as shown, and secure it to the motherboard by tightening the screw(s) one by one in the sequence shown in the illustration.



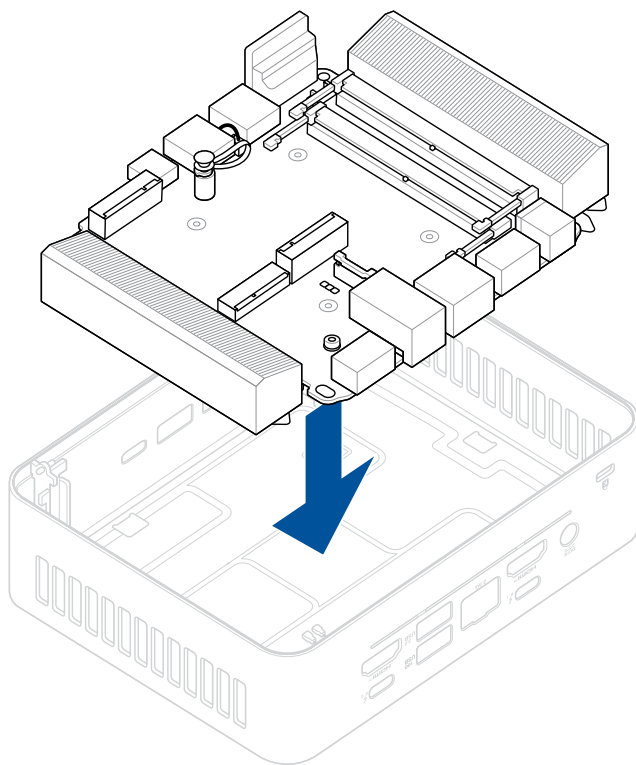
4. Remove the release liner on the battery, if one exists.
5. Align the battery as shown, and then affix it within the designated area outlined on the motherboard.



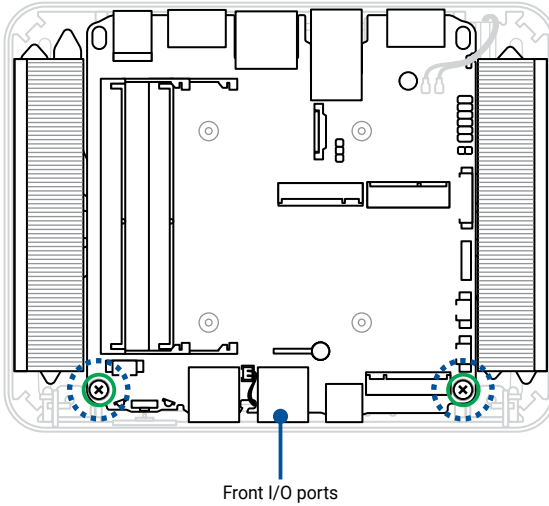
6. Flip the motherboard over, and connect the cable from the battery to the battery connector.



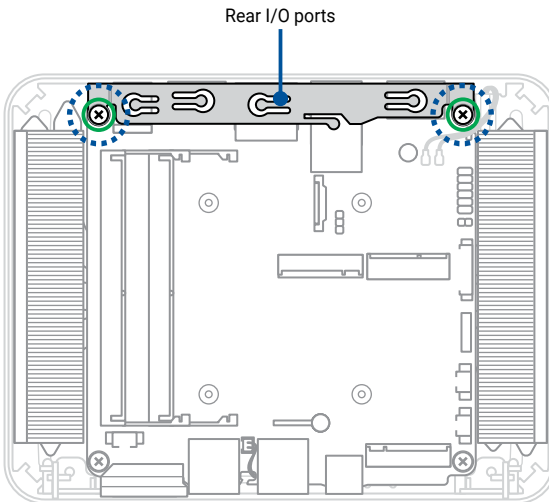
7. Align the ports of the motherboard to the openings on the chassis, then place the motherboard into the chassis.



8. Secure the two (2) screws on the side of the motherboard's front I/O ports.



9. Align the rear I/O bracket to the screw holes on the motherboard on the rear I/O side, then secure the rear I/O bracket using two (2) screws.



10. Install the component(s) you removed in **Before you begin**.

# Heatsink

---

**IMPORTANT!** Thermal paste, thermal pads, liquid metal, or other thermal interface materials must be thoroughly removed and replaced if this component is removed. Ensure that replacement materials are available before proceeding, or contact an authorized service center for assistance.

---

## Before you begin

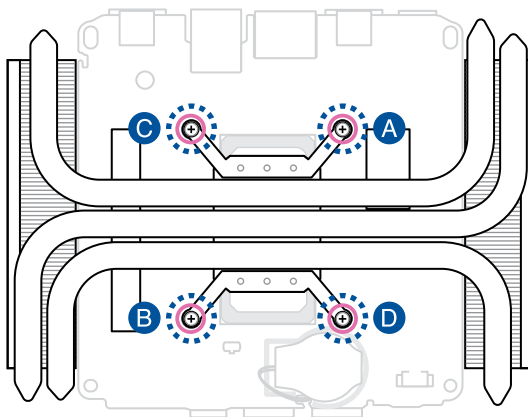
1. Read the **Safety Precautions** and complete the **Pre-repair Checklist**.
2. Open the bottom cover.
3. Remove the following component(s):
  - Memory module
  - M.2 SSD
  - Wireless card
  - Fan module
  - Motherboard

## Screw list

- ⊕ Heatsink captive screws (4 pcs)

## Removal

1. Completely loosen the four (4) heatsink screws in the sequence shown in the illustration.



2. Lift and remove the heatsink.

## Installation

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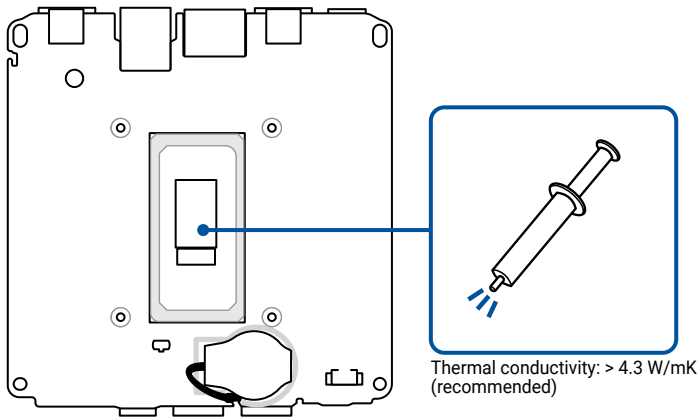
**WARNING!** To prevent potential damage to the CPU, you should have the CPU thermal fan and module replaced by a service center near you.

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**IMPORTANT!** Thermal paste, thermal pads, liquid metal, or other thermal interface materials must be thoroughly removed and replaced if this component is removed. Ensure that replacement materials are available before proceeding, or contact an authorized service center for assistance.

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1. Prepare the motherboard by wiping the CPU surface clean with a clean cloth. Apply several drops of TIM to the exposed area of the CPU that will be in contact with the heatsink. Ensure that it is spread in an even thin layer.



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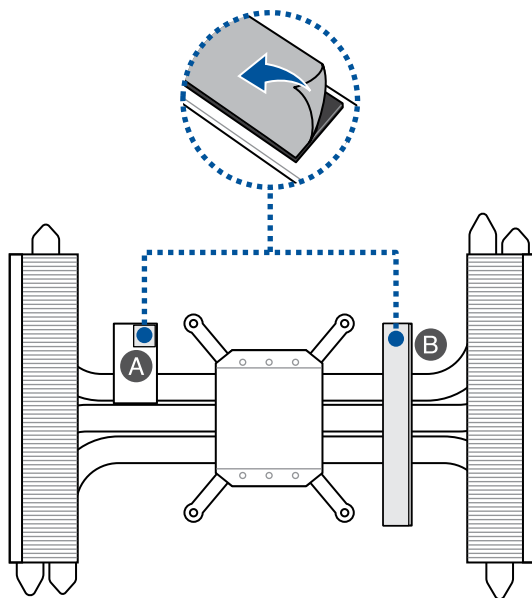
**WARNING!** The TIM is toxic and inedible. DO NOT eat it. If it gets into your eyes or touches your skin, wash it off immediately, and seek professional medical help.

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**IMPORTANT!** To prevent contaminating the TIM, DO NOT spread it with your finger.

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2. Before installing the heatsink, ensure to remove the plastic film on the thermal pad(s) on the bottom of the heatsink, if they exist.



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**NOTE:**

- The specifications for the thermal pad(s) used here are as follows:

Thermal Pad A

Thickness: 2.75mm

Size: 7mm x 7mm

Thermal conductivity: 1.8 W/mK

Hardness: 20 shore 00

Thermal Pad B

Thickness: 2.75mm

Size: 53.5mm x 6mm

Thermal conductivity: 1.8 W/mK

Hardness: 20 shore 00

- To replace the thermal pad yourself, check with an ASUS Service Partner near you ([www.asus.com/support](http://www.asus.com/support)) for the availability of replacement thermal pads.
- The availability of replacement parts may vary depending on the country.

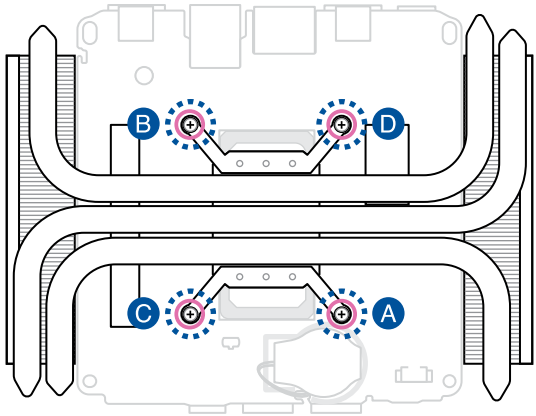
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**WARNING!** Heat dissipation performance may still vary even when you have replaced the thermal pad with one that meets the specifications provided. To prevent potential damage to the M.2 SSD, you should have the thermal pad replaced by a service center near you.

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3. Align and place the heatsink as shown, and secure it to the motherboard by tightening the screw(s) one by one in the sequence shown in the illustration.



4. Install the component(s) you removed in **Before you begin**.

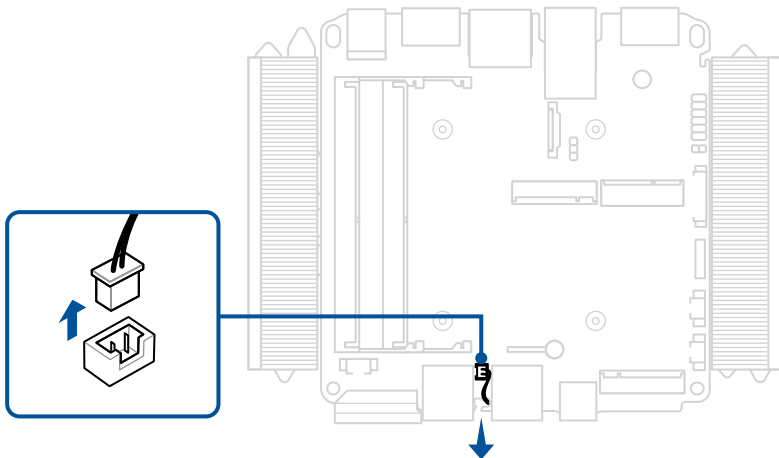
# CMOS battery

## Before you begin

1. Read the **Safety Precautions** and complete the **Pre-repair Checklist**.
2. Open the bottom cover.
3. Remove the following component(s):
  - Memory module
  - M.2 SSD
  - Wireless card
  - Fan module
  - Motherboard

## Removal

1. Disconnect the battery cable from battery connector on the flip side of the motherboard.

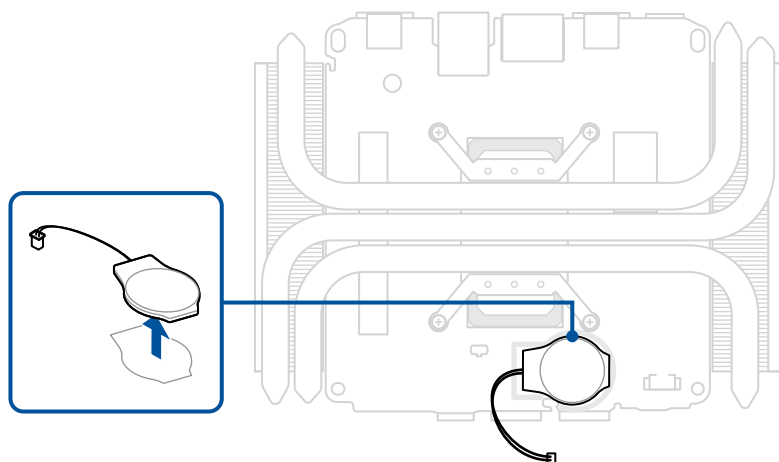


2. Carefully remove the CMOS battery.

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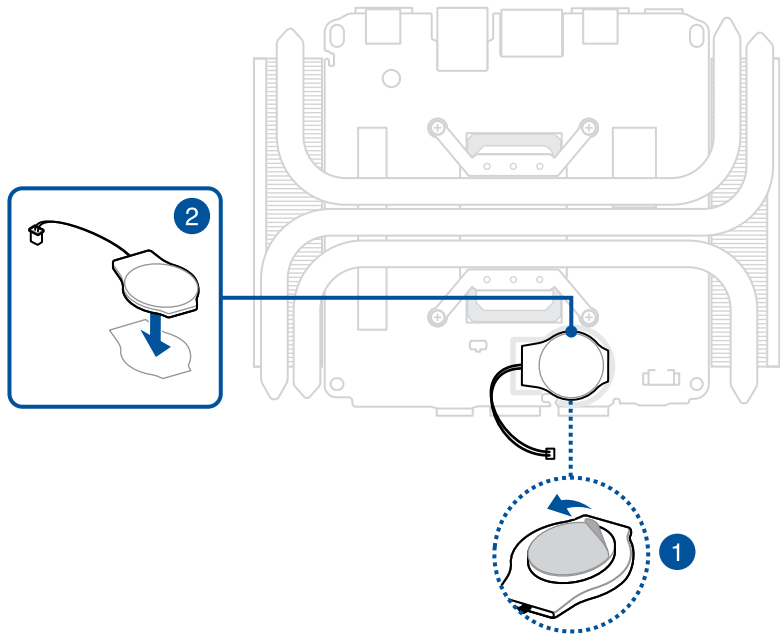
**IMPORTANT!** When removing the battery, be careful not to damage the motherboard or the CMOS battery, which is taped to the motherboard.

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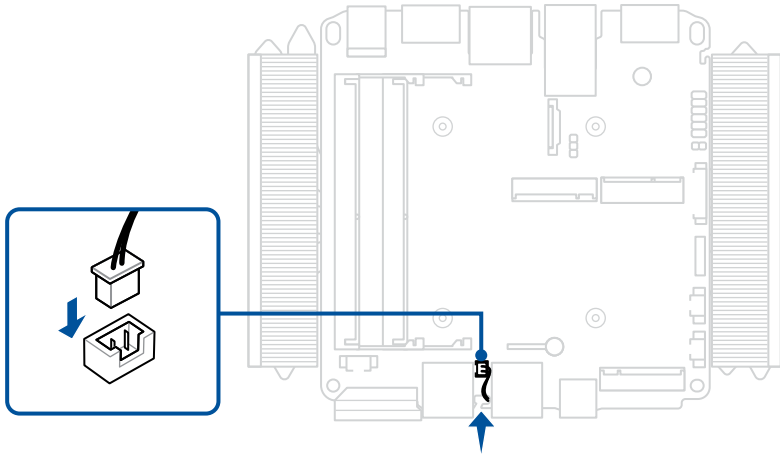


## Installation

1. Remove the release liner on the battery, if one exists.
2. Align the battery as shown, and then affix it within the designated area outlined on the motherboard.



3. Connect the cable from the battery to the battery connector on the flip side of the motherboard.



4. Install the component(s) you removed in **Before you begin**.

