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IN SEARCH OF INCREDIBLE



Service Manual

ASUS

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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 Desktop PC 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 the correct screw models on your Desktop PC to prevent damage.
- Confirm that the cable orientation is correct before connecting any cables.
- Fully remove all adhesive residue after removing and before installing any components.
- Photograph the appearance of cables, cable routing, connectors, and screws for later reference before proceeding with each step.

Pre-repair checklist

- Read the entire manual before starting any service procedures and follow all instructions.
 - Back up the data on your Desktop PC.
 - Place your Desktop PC on a clean and stable surface.
 - Turn off your Desktop PC.
 - Disconnect all connected peripherals and cables.
 - Disconnect all power cables and remove the battery pack (if applicable).
-

IMPORTANT!

- If you are uncertain about performing the described service procedures, stop and contact an authorized service center for assistance.
 - Purchase replacement components from authorized retailers of this Desktop PC to ensure maximum compatibility and reliability.
-

NOTE:

- The illustrations are for reference only.
 - The service procedures described in this manual depend 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 further 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.
-

Installation tool



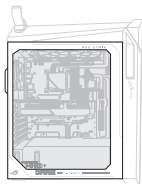
Screwdriver

Diagnostic tools

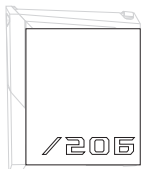
Use ASUS System Diagnostics after completing any service procedures to ensure that all components are working properly.

For more information, visit www.asus.com/support/FAQ/1048490/.

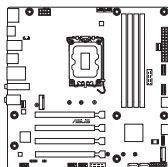
Major components



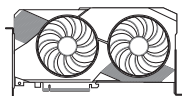
Left side cover



Right side cover



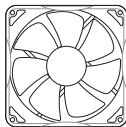
Motherboard



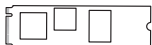
Graphics card



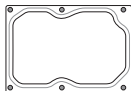
CPU liquid fan module



CPU air fan module



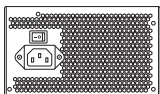
M.2 SSD module



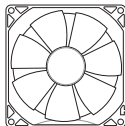
HDD



RAM module



PSU

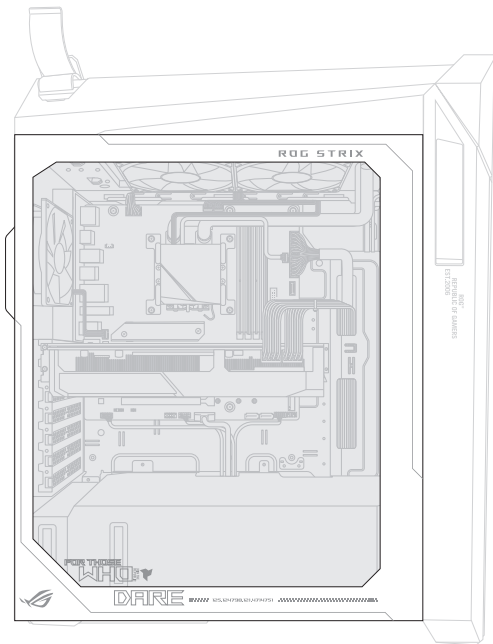


Chassis fan module

NOTE: The illustrations in this manual are for reference only. Actual components may vary per model.

Chapter 2: ***Service Procedures***

Left side cover



Before you begin

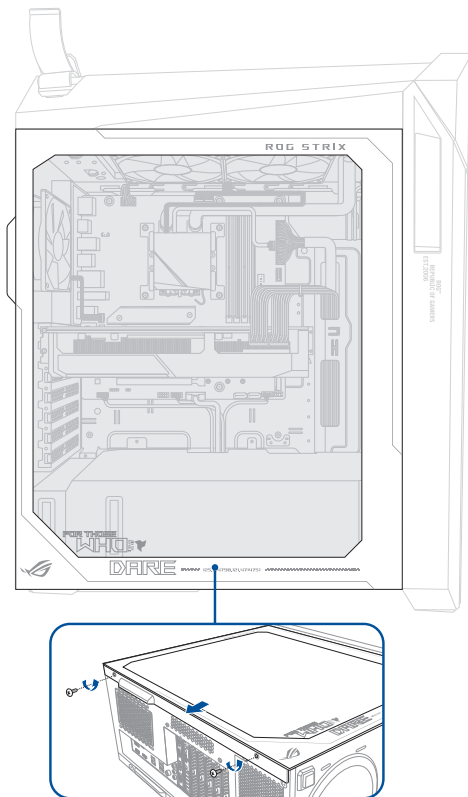
Read the **Safety Precautions** and complete the **Pre-repair Checklist**.

Screw list

- ⊕ #6-32*L6 (B) (2pcs)

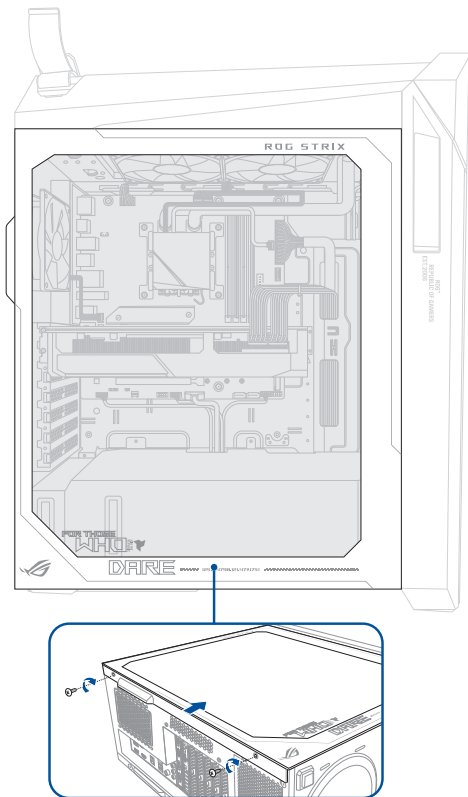
Removal

Remove the screws from the Desktop PC's left side cover.

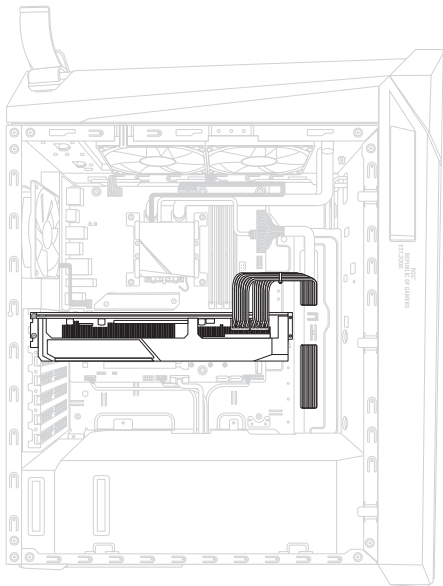


Installation

1. Put the left side cover on the chassis and align the screw holes.
2. Secure the left side cover using the screws you removed earlier.



Graphics card



Before you begin

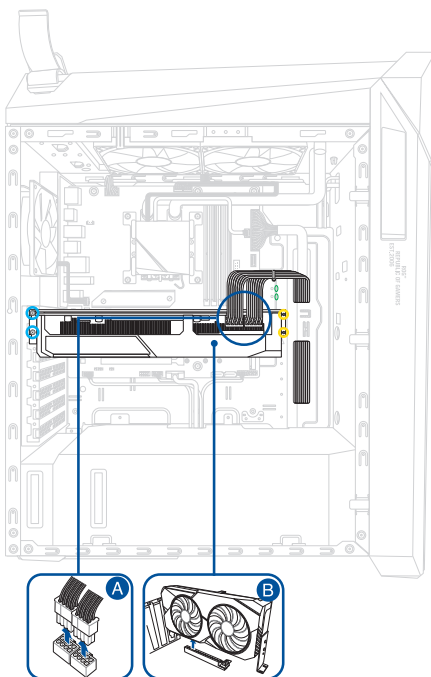
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following component:
 - Left side cover

Screw list

- ⊕ M3.0 X 4L (6.3, 2.05) (2pcs)
- ⊕ #6-32 X L6 (B) B-NI-ZN NY (2pcs)
- ⊕ M2.5 X 4L (4.5, 1.8) (2pcs)

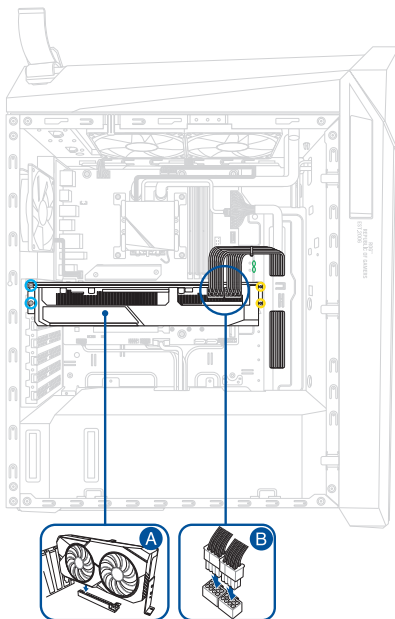
Removal

1. Disconnect the ATX cables from the graphics card.
2. Remove the four screws marked in blue and yellow from the graphics card.
3. Press the retaining clip of the PCI Express slot outward to unlock and reject the graphics card, and then take the graphics card out.
4. Remove the two screws marked in green and take the graphics card bracket out.

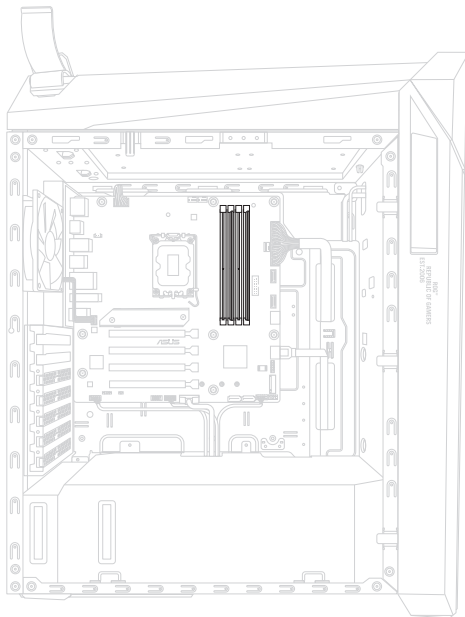


Installation

1. Install the graphics card bracket (marked in green) with two screws you removed earlier.
2. Firmly insert the graphics card into the PCI Express slot until the retaining clip snaps back in place.
3. Secure the graphics card using the four screws marked in blue and yellow you removed earlier.
3. Connect the ATX cable to the graphics card.
4. Install the component you removed in the *Before you begin* section.



RAM module



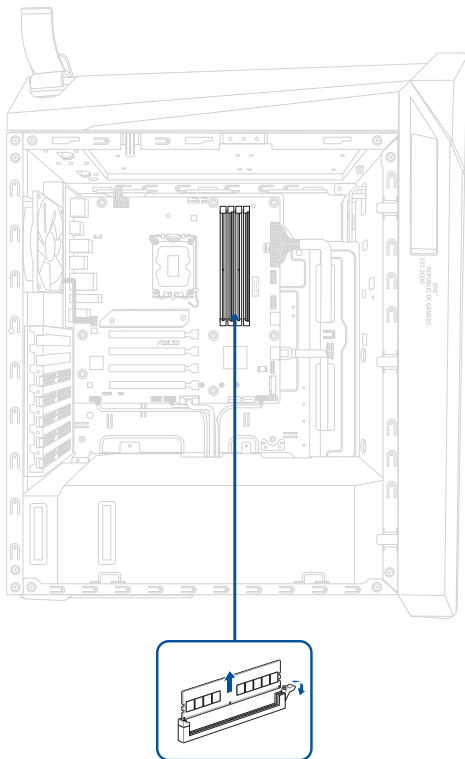
Before you begin

NOTE: The orientation of this component may vary by model.

1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following component:
 - Left side cover

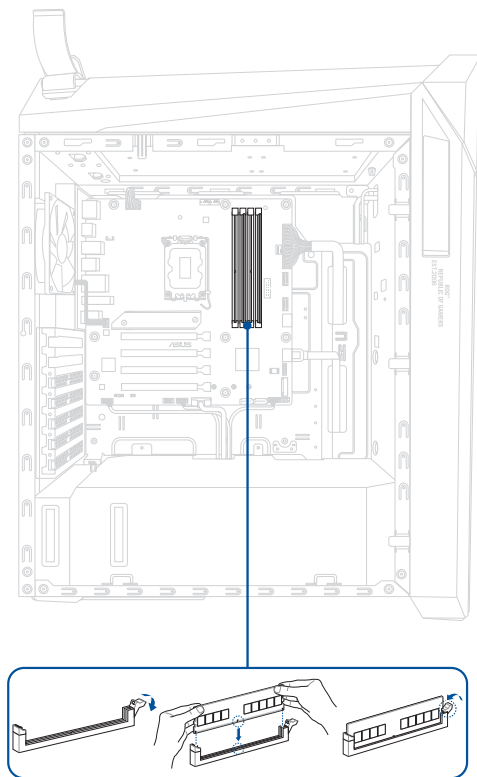
Removal

Press the clip(s) outwards to remove the RAM module(s).



Installation

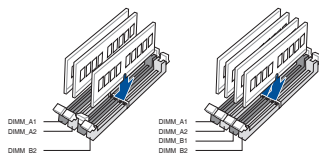
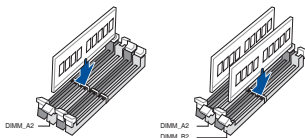
1. Align and insert the RAM module(s) into the RAM module slot(s).
2. Install the component you removed in the *Before you begin* section.



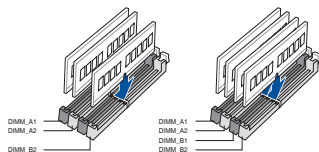
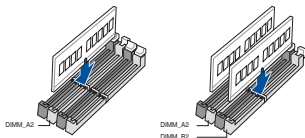
Recommended memory configurations

- Follow the installation sequence below to ensure system stability and avoid possible booting up failure.

	DIMM_A1	DIMM_A2	DIMM_B1	DIMM_B2
1 x DIMM	x	√	x	x
2 x DIMM	x	√	x	√
3 x DIMM	√	√	x	√
4 x DIMM	√	√	√	√



or



- Install DIMMs with the same capacity from the same manufacturer in the slots of the same channel.

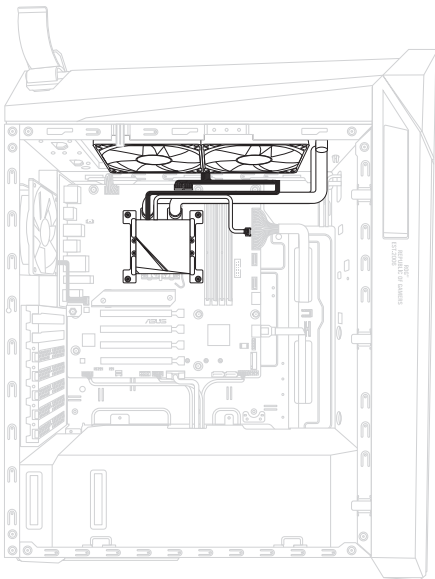
Total memory capacity \ Single memory capacity	DIMM_A1	DIMM_A2	DIMM_B1	DIMM_B2
4GB		4GB		
8GB		8GB		
8GB		4GB		4GB
12GB	4GB	4GB		4GB
16GB		16GB		
16GB		8GB		8GB
16GB	4GB	4GB	4GB	4GB
24GB	8GB	8GB		8GB
32GB		32GB		
32GB		16GB		16GB
32GB	8GB	8GB	8GB	8GB
48GB	16GB	16GB		16GB
64GB		32GB		32GB
64GB	16GB	16GB	16GB	16GB
96GB	32GB	32GB		32GB
128GB	32GB	32GB	32GB	32GB

CPU cooler module

Before you begin

1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following component:
 - Left side cover

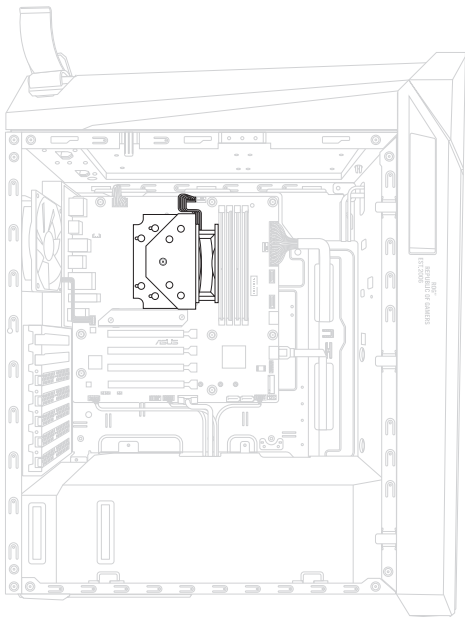
Liquid cooler



Screw list

- ⊕ #6-32 (8pcs)
- ⊕ M3.0 X 8.0L (8pcs)

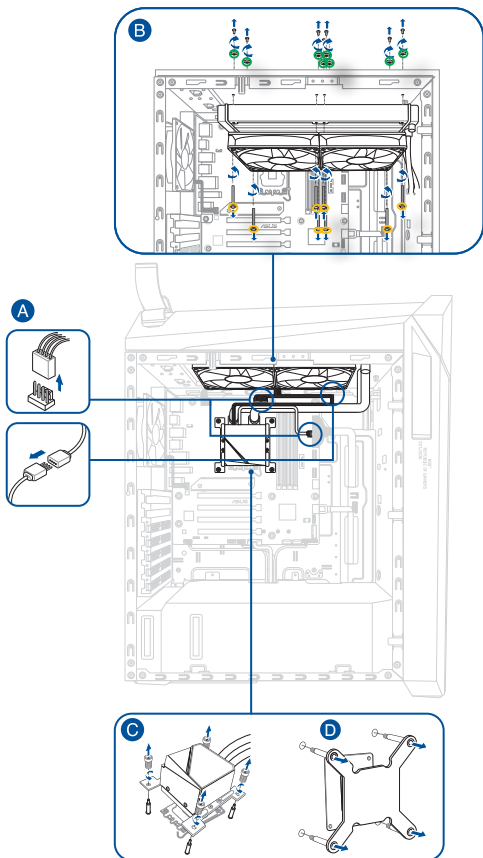
Air cooler



Removal

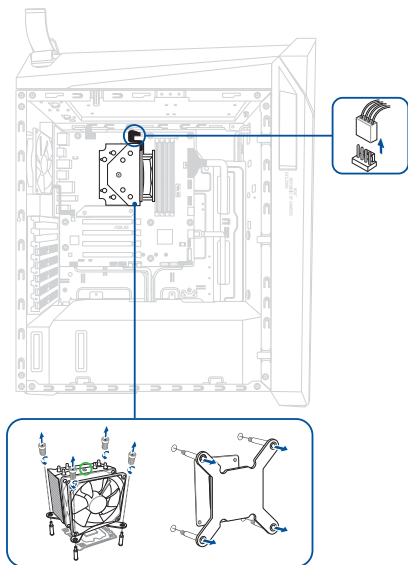
Liquid cooler

1. Disconnect the CPU fan cables, and the CPU water cooler fan cable.
2. Remove the CPU fans from the inner top side of chassis.
3. Remove the four screws of the water cooler and take it out. If the cooler is hard to disassemble, move it leftwards and rightwards slightly to separate the CPU and the cooler.
4. If you need to replace the CPU cooler retention kit, please remove the motherboard first (refer to section *Motherboard*), and remove the four screws from the bottom side of the motherboard.



Air cooler

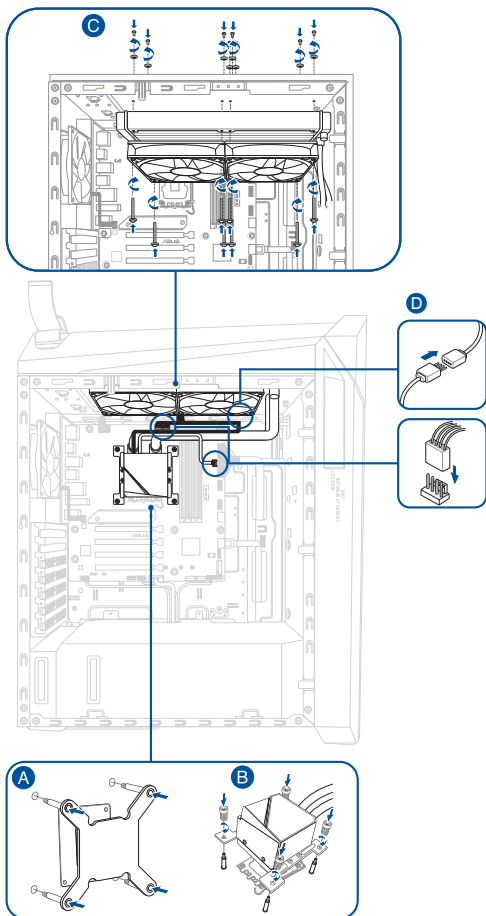
1. Disconnect the CPU fan cable.
2. Remove the screw marked in green and then the cooler fan.
3. Release the four screws on the cooler and remove the cooler.
4. (For 125W cooler only) Remove the six screws on the bottom of the heatsink to release the cooler retention kit.



Installation

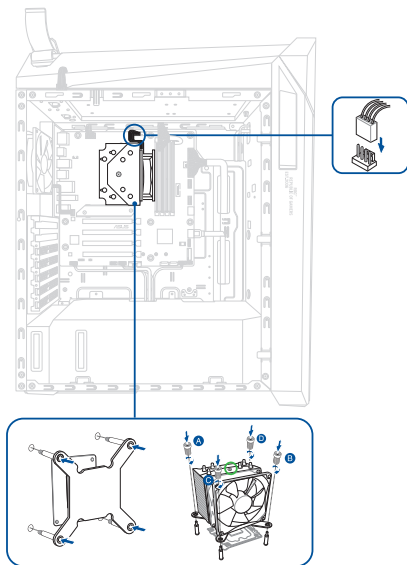
Liquid cooler

1. Install the CPU cooler retention kit to the bottom side of the motherboard.
2. Place and secure the CPU cooler on top of the installed CPU.
3. Install the CPU fans on the inner top side of the chassis.
3. Reconnect the fan cables and the CPU water cooler fan cables.
4. Install the component you removed in the *Before you begin* section.

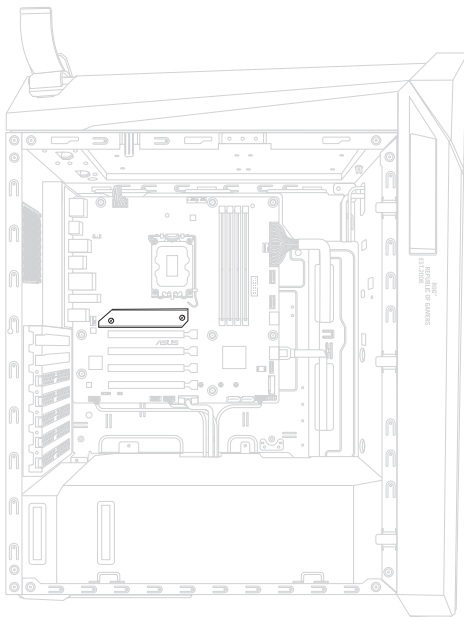


Air cooler

1. (For 125W cooler only) Secure the six screws on the bottom of the heatsink to lock the cooler retention kit.
2. Place the cooler on the processor and lock the four screws in a diagonal sequence to secure the CPU cooler in place.
3. Attach the cooler fan to the heatsink and secure the screw in the middle of the cooler marked in green.
4. Connect the CPU fan cable.



M.2 SSD module



Before you begin

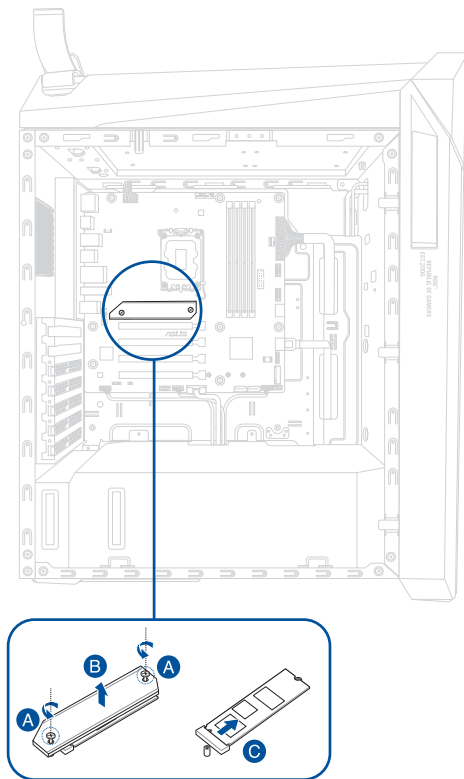
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Left side cover
 - Graphics card

Screw list

- ⊕ M.2 SSD heatsink with screws (2pcs)

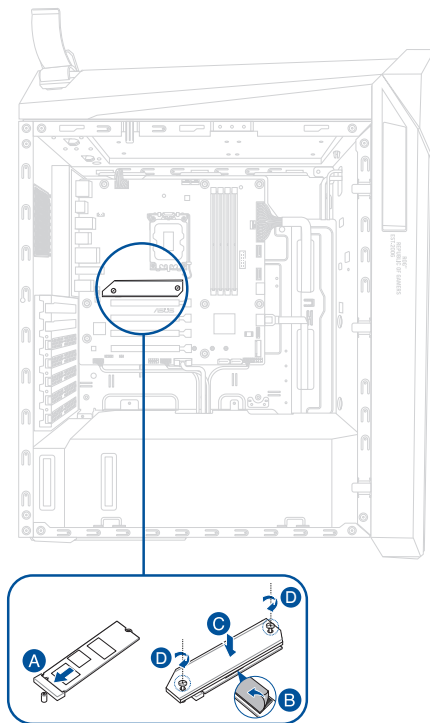
Removal

Remove the screws and take out the M.2 heatsink, then remove the M.2 SSD module from the motherboard.

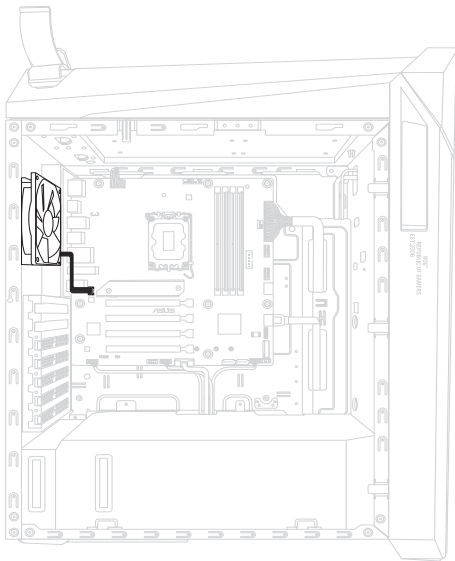


Installation

1. Align and insert the M.2 SSD module into the M.2 slot on the motherboard, then secure the M.2 SSD module using the heatsink with screws you removed earlier.
2. Install the components you removed in the *Before you begin* section.



Chassis Fan module



Before you begin

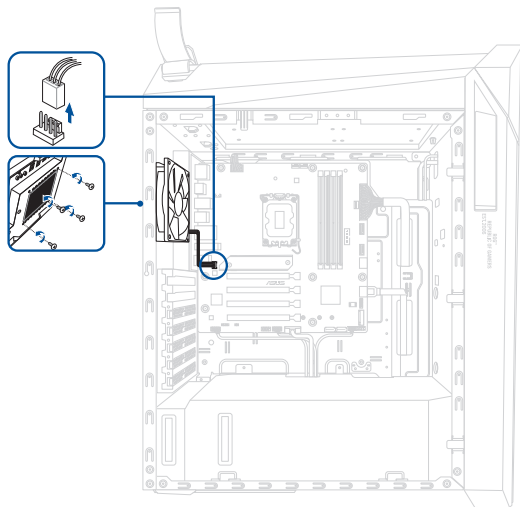
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following component:
 - Left side cover
 - Graphics card

Screw list

- ⊕ M5.0 X 10L (4pcs)

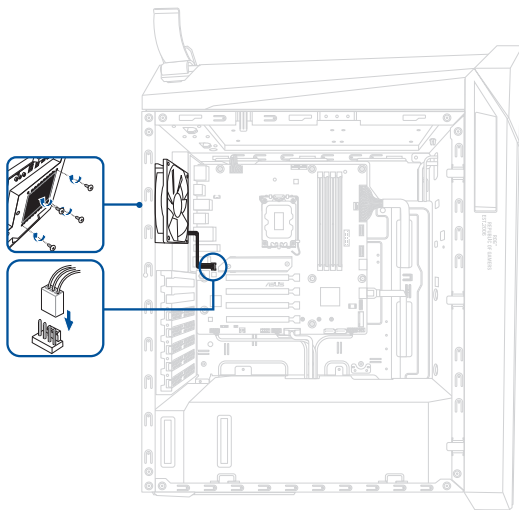
Removal

1. Disconnect the chassis fan cable.
2. Remove the screws on the rear side of the chassis and remove the chassis fan.

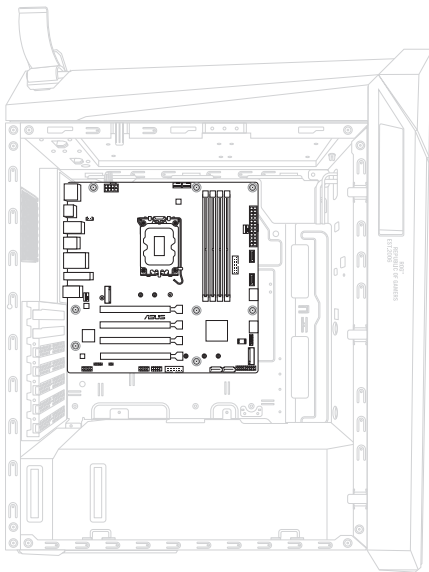


Installation

1. Align the screw holes of the chassis fan and the chassis.
2. Secure with the screws you removed earlier.
3. Reconnect the chassis fan cable.
4. Install the component you removed in the *Before you begin* section.



Motherboard



Before you begin

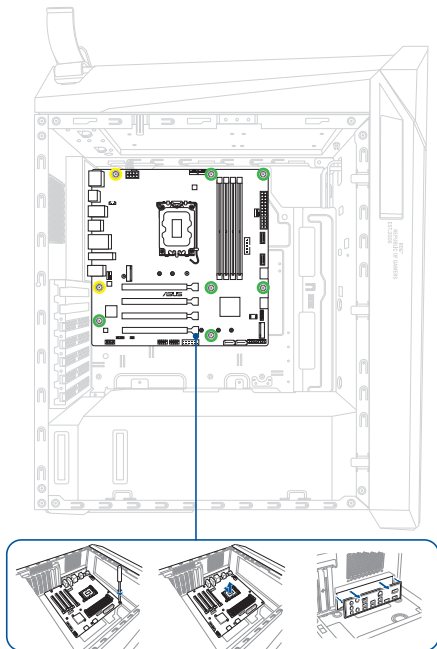
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Left side cover
 - Graphics card
 - RAM module
 - CPU fan module
 - Chassis fan module

Screw list

- ⊕ #6-32*6L(7.1,2.3) (6pcs)
- ⊕ M3*4L (6.3,2.05) (2pcs)

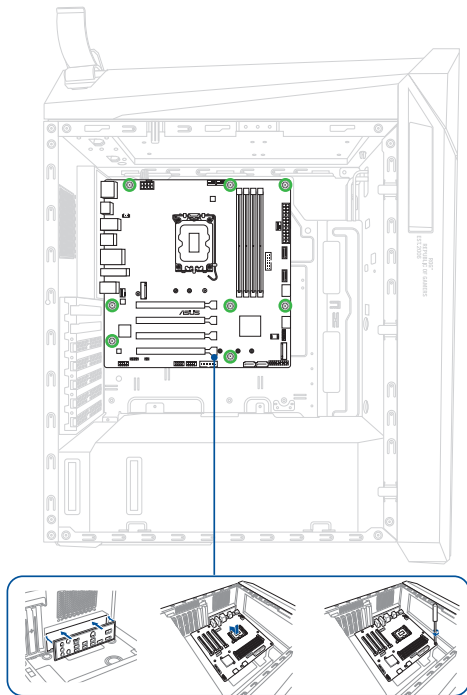
Removal

1. Disconnect the cables from the motherboard.
2. Remove the screws, then remove the motherboard from the chassis.

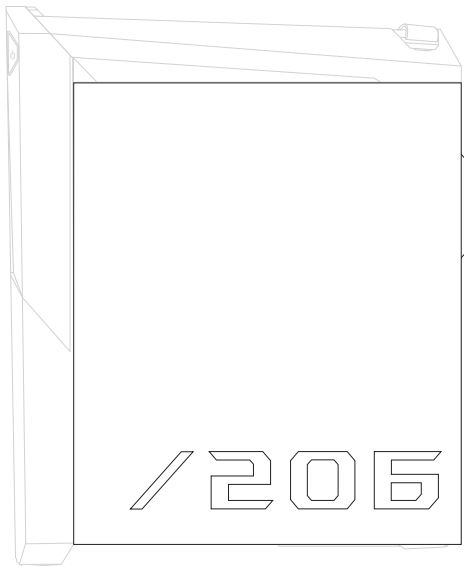


Installation

1. Align and install the motherboard, then secure the motherboard using the screws you removed earlier.
2. Reconnect the cables to the motherboard.
3. Install the components you removed in the *Before you begin* section.



Right side cover



Before you begin

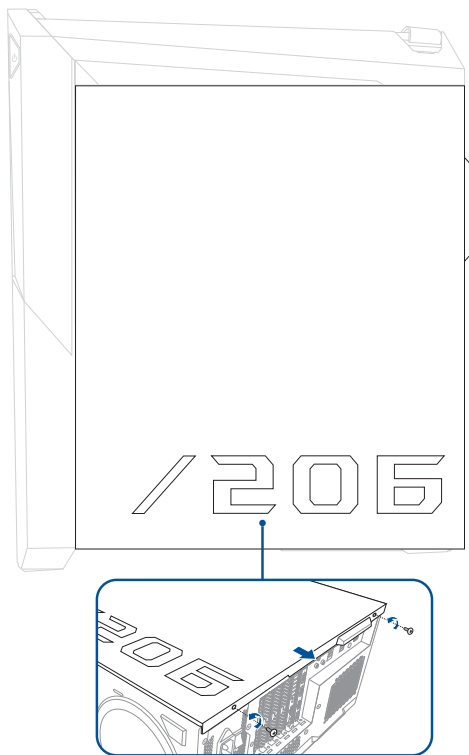
Read the **Safety Precautions** and complete the **Pre-repair Checklist**.

Screw list

- ⊕ #6-32*L6 (2pcs)

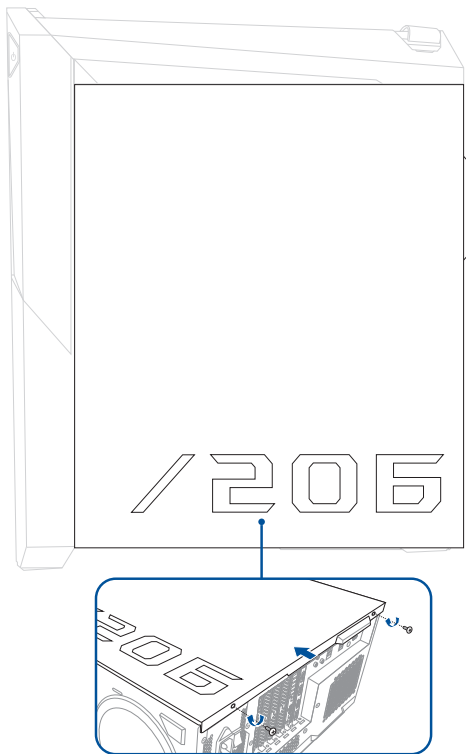
Removal

1. Remove the screws from the Desktop PC's right side cover.
2. Slide to remove the right side cover from the chassis.

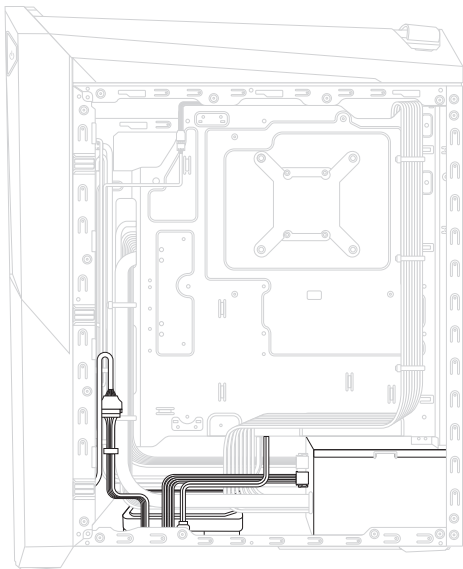


Installation

1. Put the right side cover on the chassis and align the screw holes.
2. Secure the right side cover using the screws you removed earlier.



HDD module



Before you begin

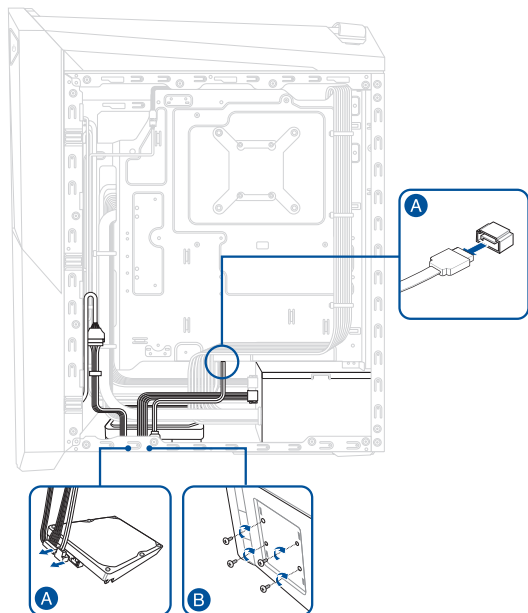
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following component:
 - Right side cover

Screw list

- ⊕ #6-32*6L (4pcs)

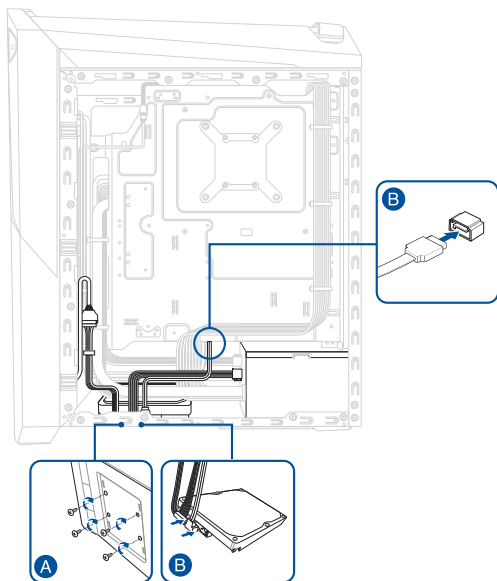
Removal

1. Disconnect the SATA cable and the SATA power cable from the HDD and the motherboard.
2. Remove the screws from the Desktop PC's bottom cover.
3. Take the HDD out.

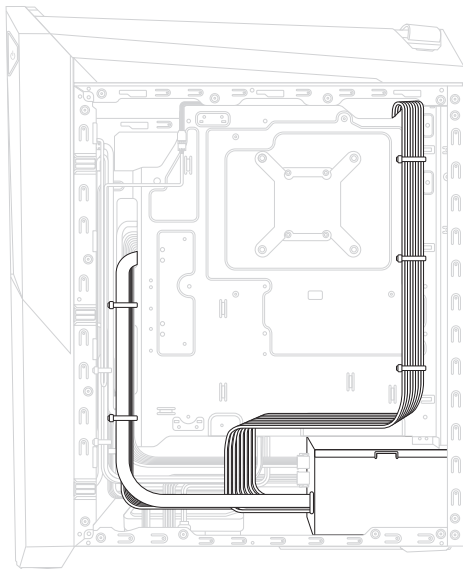


Installation

1. Put the HDD in the chassis and align the screw holes.
2. Secure the HDD using the screws you removed earlier.
3. Connect the SATA cable and the SATA power cable to the HDD and to the motherboard.
4. Install the component you removed in the *Before you begin* section.



Power supply unit (PSU) module



Before you begin

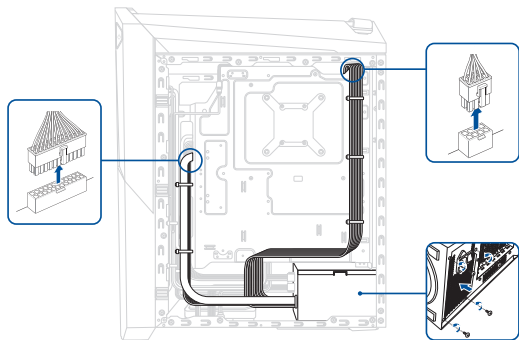
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following component:
 - Right side cover

Screw list

- ⊕ #6-32*L6 (4pcs)

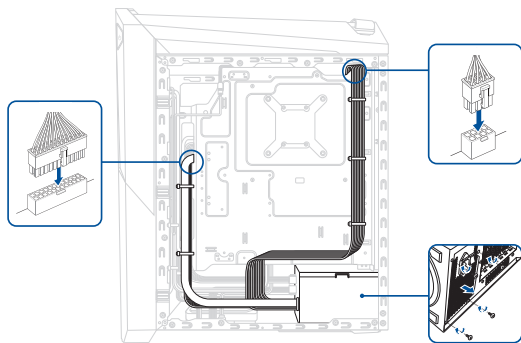
Removal

1. Disconnect the 24-pin and the 8-pin power connectors from the motherboard.
2. Remove the power cables from the cable guides.
3. Remove the screws on the bottom side of the chassis and take the power supply unit out.



Installation

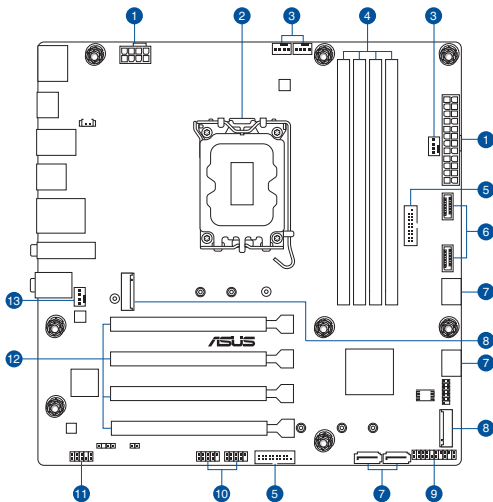
1. Put the power supply unit at the bottom of the chassis and align the screw holes.
2. Secure the power supply unit using the screws you removed earlier.
3. Route the power cable properly through the cable guides.
4. Plug the 24-pin and the 8-pin power connectors to the motherboard.
5. Install the component you removed in the *Before you begin* section.



Appendix

Wiring and connection diagrams

Motherboard View



1. Power connectors
2. CPU socket
3. CPU fan / CPU cooler header
4. DIMM slots
5. USB 3.2 Gen 1 header
6. USB 3.2 Gen 1 connector
7. SATA ports
8. M.2 SSD slots
9. System panel header
10. USB 2.0 headers
11. Front panel audio header
12. Expansion slots
13. Chassis fan headers