



Intel® NUC 13 Extreme Kit - NUC13RNGi9

Intel® NUC 13 Extreme Kit - NUC13RNGi7

Intel® NUC 13 Extreme Kit - NUC13RNGi5

Intel® NUC 13 Extreme Compute Element -
NUC13SBBi9

Intel® NUC 13 Extreme Compute Element -
NUC13SBBi7

Intel® NUC 13 Extreme Compute Element -
NUC13SBBi5

User Guide

July 2023



You may not use or facilitate the use of this document in connection with any infringement or other legal analysis concerning Intel products described herein. You agree to grant Intel a non-exclusive, royalty-free license to any patent claim thereafter drafted which includes subject matter disclosed herein.

No license (express or implied, by estoppel or otherwise) to any intellectual property rights is granted by this document.

All information provided here is subject to change without notice. Contact your Intel representative to obtain the latest Intel product specifications and roadmaps.

The products described may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request.

Copies of documents which have an order number and are referenced in this document may be obtained by calling 1-800-548-4725 or by visiting: <http://www.intel.com/design/literature.htm>.

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure.

Intel and the Intel logo are trademarks of Intel Corporation or its subsidiaries in the U.S. and/or other countries.

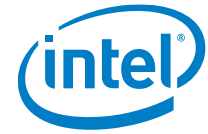
*Other names and brands may be claimed as the property of others.

Copyright © 2023, Intel Corporation. All rights reserved.



Contents

1.0	Introduction	5
1.1	Before You Begin	5
1.2	Installation Precautions.....	6
1.3	Observe Safety and Regulatory Requirements.....	6
2.0	Open the Chassis	7
3.0	System Memory	13
4.0	M.2 SSD	16
5.0	2.5" and 3.5" SSD.....	18
6.0	External PCIe card	22
7.0	Close the Chassis.....	27
8.0	Connect Power	29
9.0	Install an Operating System.....	30
10.0	Install the Latest Device Drivers and Software	31



Revision History

Date	Revision	Description
October 2022	1.0	Initial release.



1.0 Introduction

This User Guide provides step-by-step installation instructions for these products:

- Intel® NUC 13 Extreme Kit - NUC13RNGi9
- Intel® NUC 13 Extreme Kit - NUC13RNGi7
- Intel® NUC 13 Extreme Kit - NUC13RNGi5
- Intel® NUC 13 Extreme Compute Element - NUC13SBBi9
- Intel® NUC 13 Extreme Compute Element - NUC13SBBi7
- Intel® NUC 13 Extreme Compute Element - NUC13SBBi5

1.1 Before You Begin



CAUTIONS

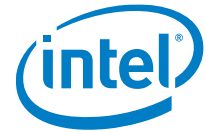
The steps in this guide assume you're familiar with computer terminology and with the safety practices and regulatory compliance required for using and modifying computer equipment.

Disconnect the computer from its power source and from any network before performing any of the steps described in this guide.

Failure to disconnect power, telecommunications links, or networks before you open the computer or perform any procedures can result in personal injury or equipment damage. Some circuitry on the board can continue to operate even though the front panel power button is off.

Follow these guidelines before you begin:

- Always follow the steps in each procedure in the correct order.
- Create a log to record information about your computer, such as model, serial numbers, installed options, and configuration information.
- Electrostatic discharge (ESD) can damage components. Perform the procedures described in this chapter only at an ESD workstation using an antistatic wrist strap and a conductive foam pad. If such a station isn't available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the computer chassis.



1.2 Installation Precautions

When you install and test the Intel NUC, observe all warnings and cautions in the installation instructions.

To avoid injury, be careful of:

- Sharp pins on connectors
- Sharp pins on circuit boards
- Rough edges and sharp corners on the chassis
- Hot components (such as SSDs, processors, voltage regulators, and heat sinks)
- Damage to wires that could cause a short circuit

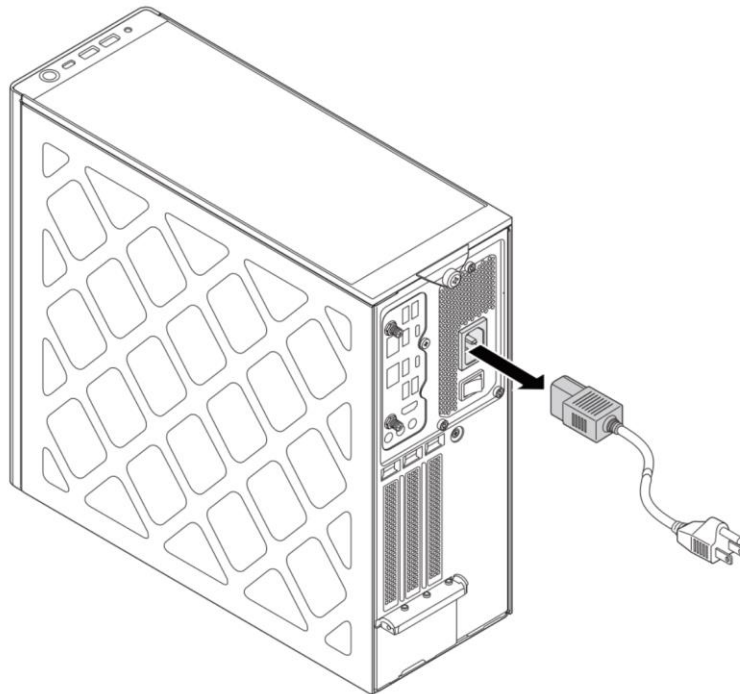
Observe all warnings and cautions that instruct you to refer computer servicing to qualified technical personnel.

1.3 Observe Safety and Regulatory Requirements

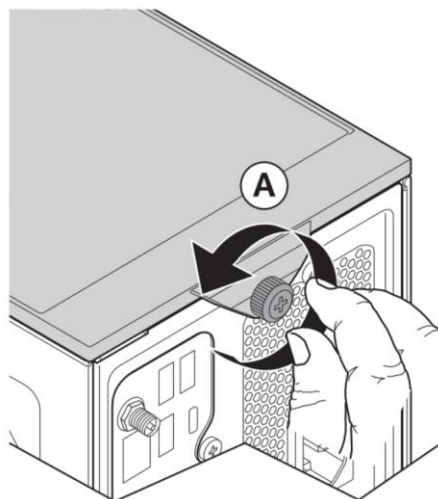
If you don't follow these instructions, you increase your safety risk and the possibility of noncompliance with regional laws and regulations.

2.0 *Open the Chassis*

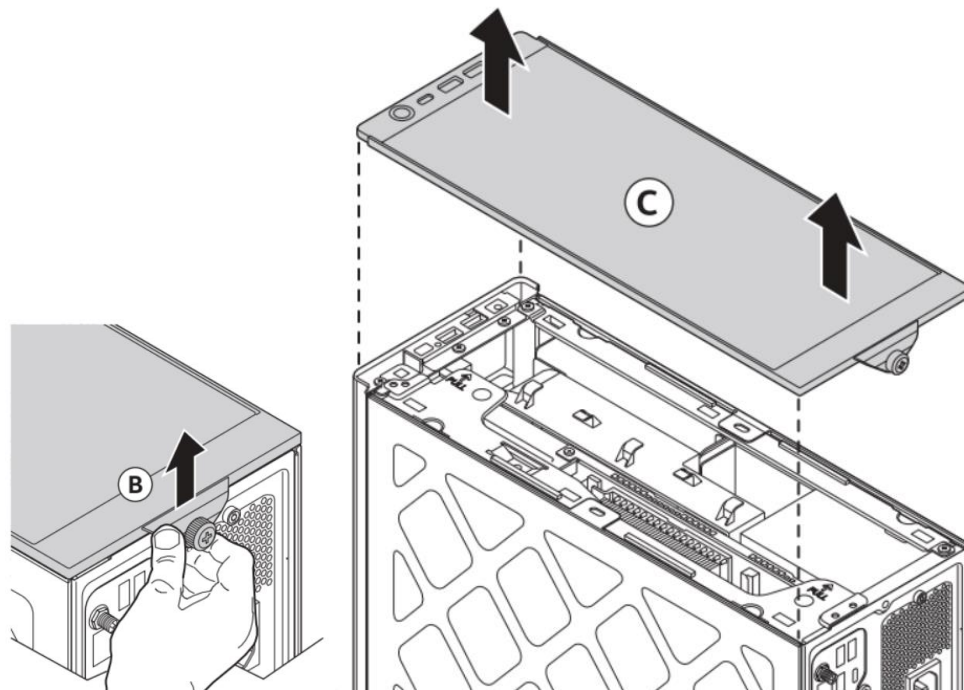
1. Disconnect the power cord, telecommunications systems, networks, antenna, and modems, if any of them are connected, before you open or service the device.



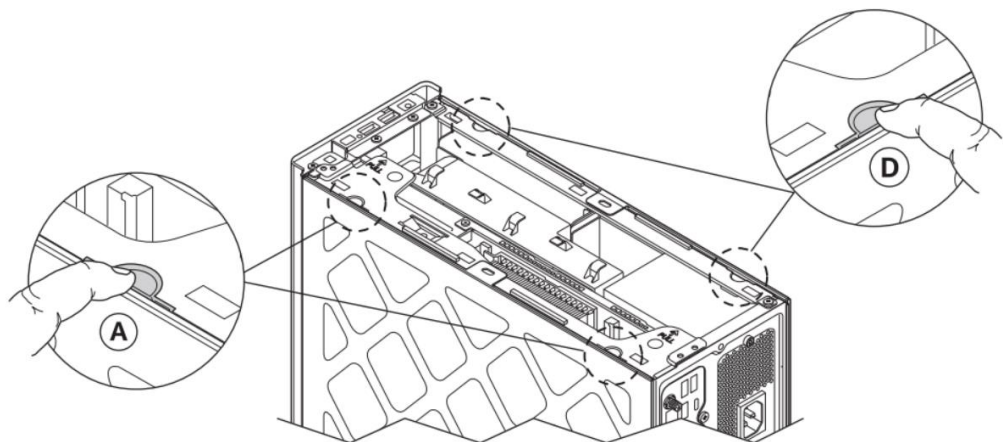
2. Unscrew the thumb screw (A) on the rear side of the chassis.

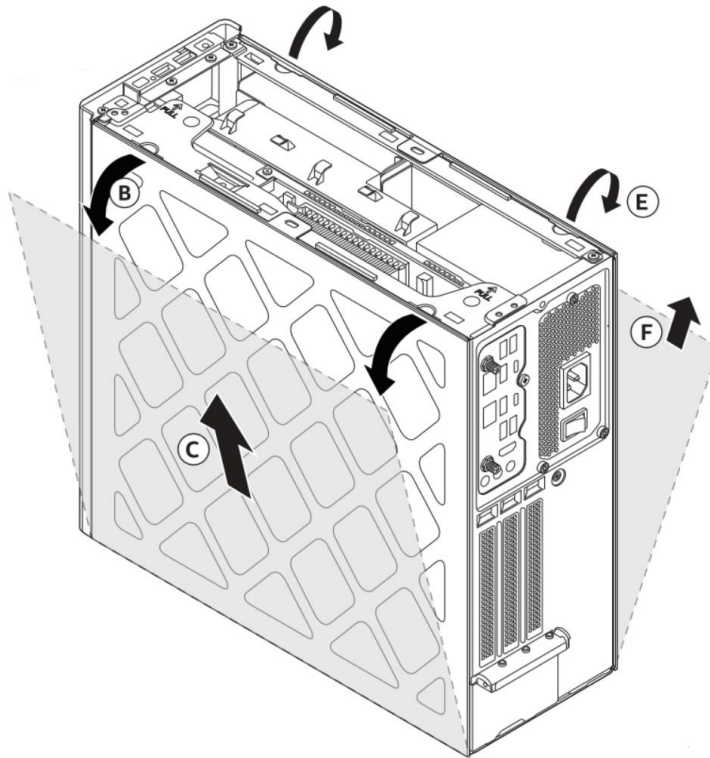


3. Hold (B) and lift to remove the top cover.

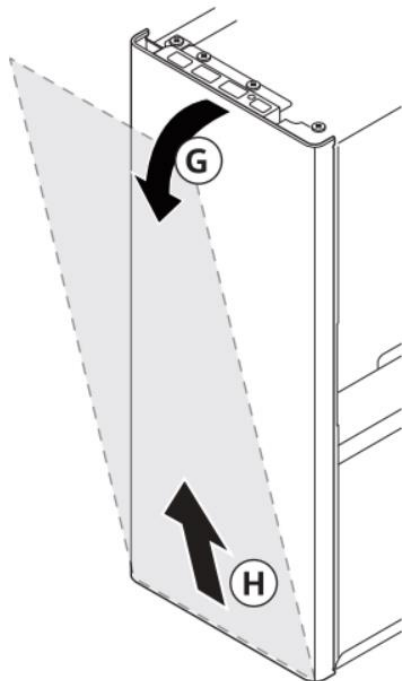


4. Pull (A) (D) outwards to remove the side panels:

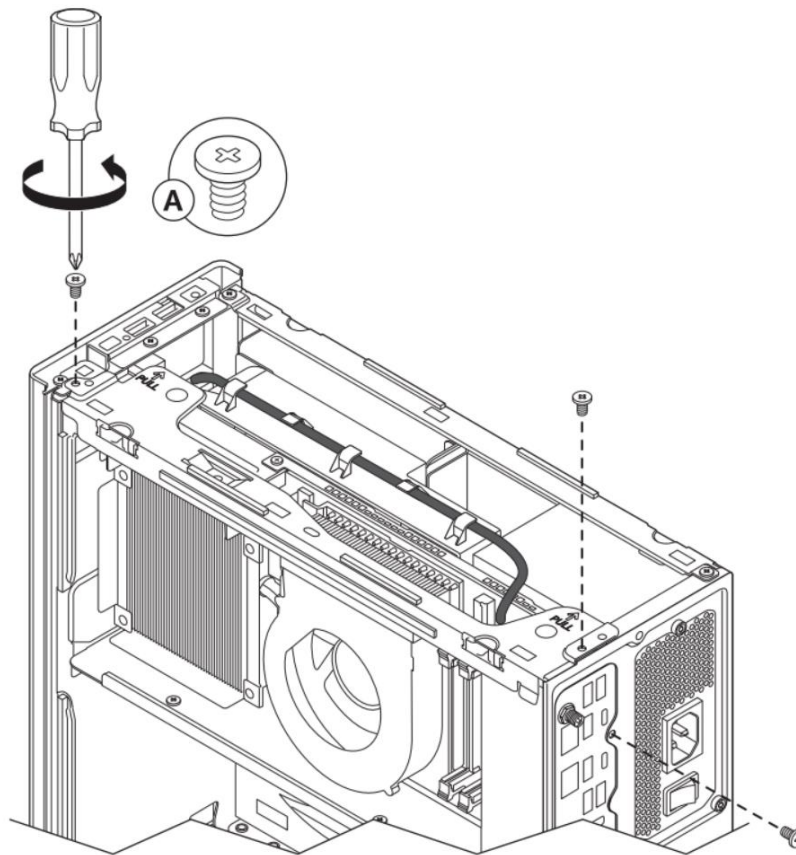




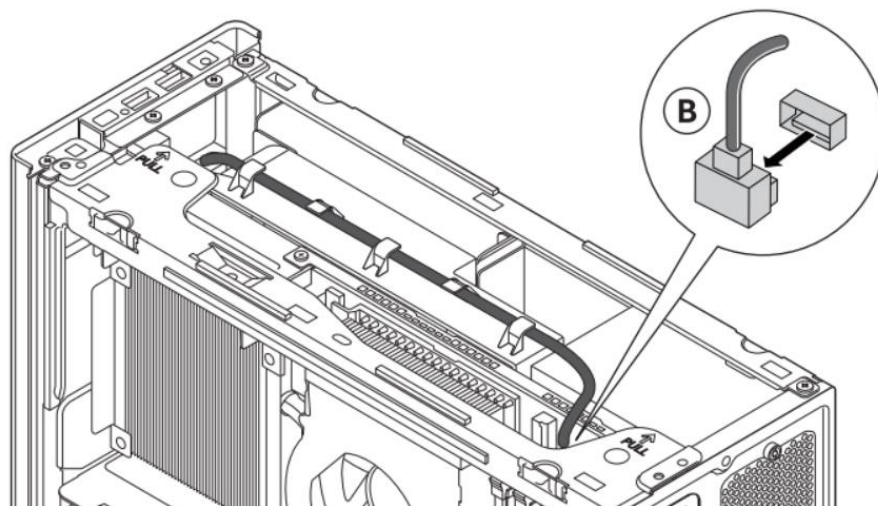
5. Remove the front cover:



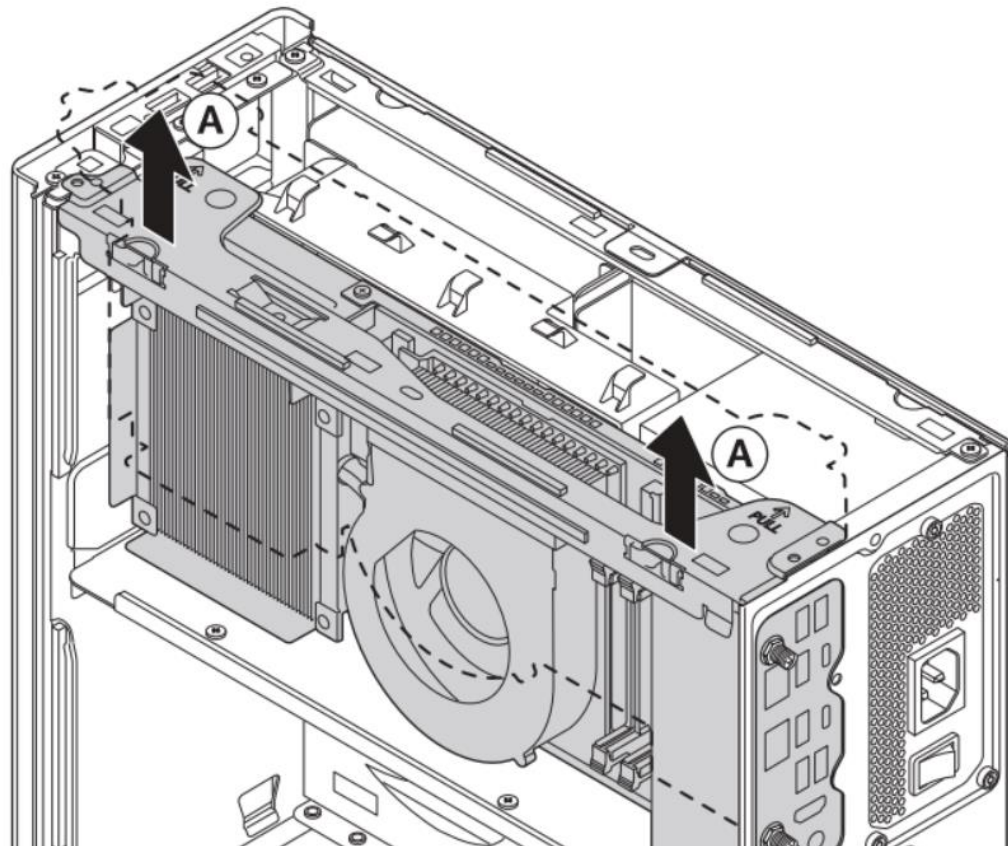
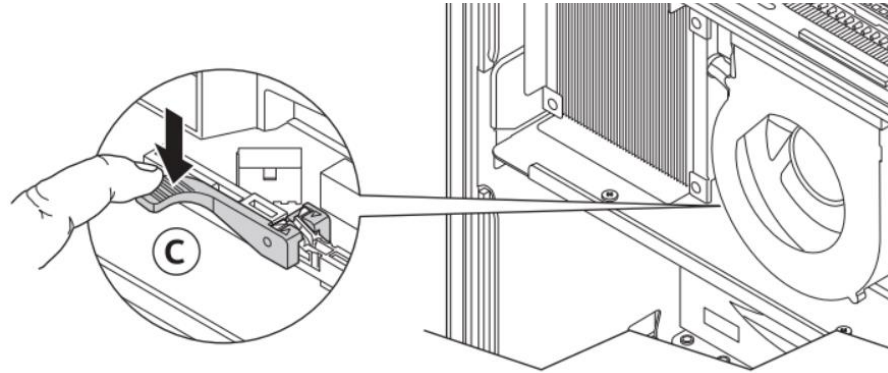
6. Unscrew the three screws on the top front, top rear, and back panel:

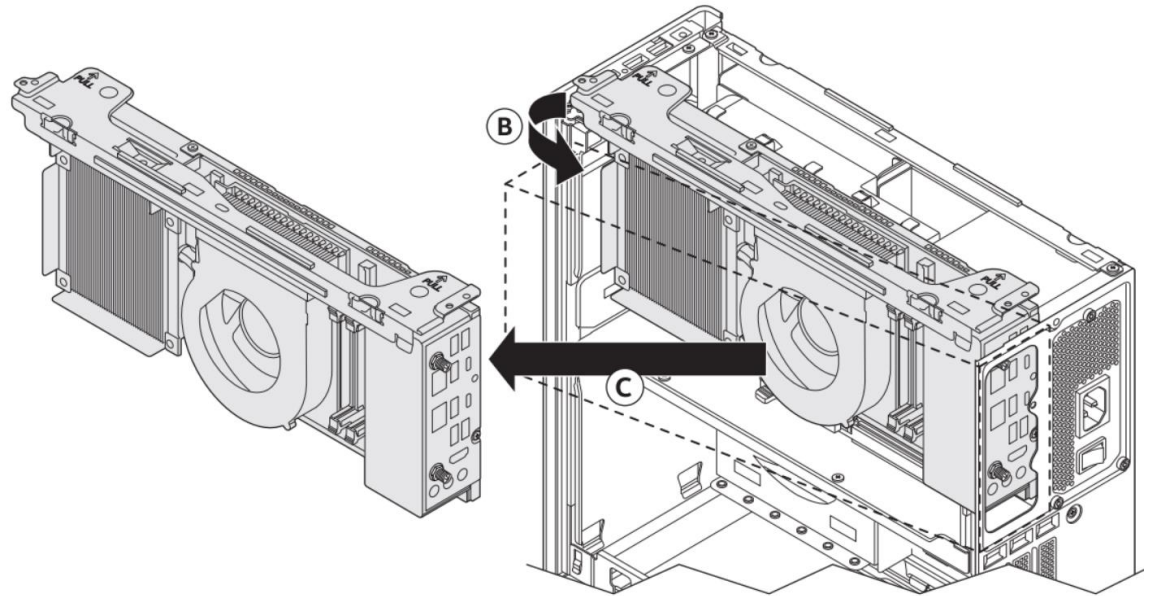
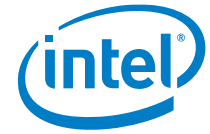


7. Remove the USB Type-C cable (B)



8. Press down the lever on the PCIe x16 connector that holds the Compute Element. Simultaneously, hold the top bar attached to the compute element, pull up and rotate outwards to remove the Compute Element







3.0 System Memory

Intel® NUC 13 Extreme Kit NUC13RNGi9, NUC13RNGi7, NUC13RNGi5 and Intel® NUC 13 Extreme Compute Element NUC13SBBi9, NUC13SBBi7, NUC13SBBi5 have two 262-pin DDR5 SO-DIMM sockets. Be sure to select memory modules that meet these requirements:

- 1.1V and 2.1V (with XMP) low voltage JEDEC memory only
- 4000 MHz, 4400 MHz, 4800 MHz, 5200 MHz, and 5600 MHz SO-DIMMs
- Max capacity - 64GB
- Non-ECC
- Intel® XMP 3.0 support

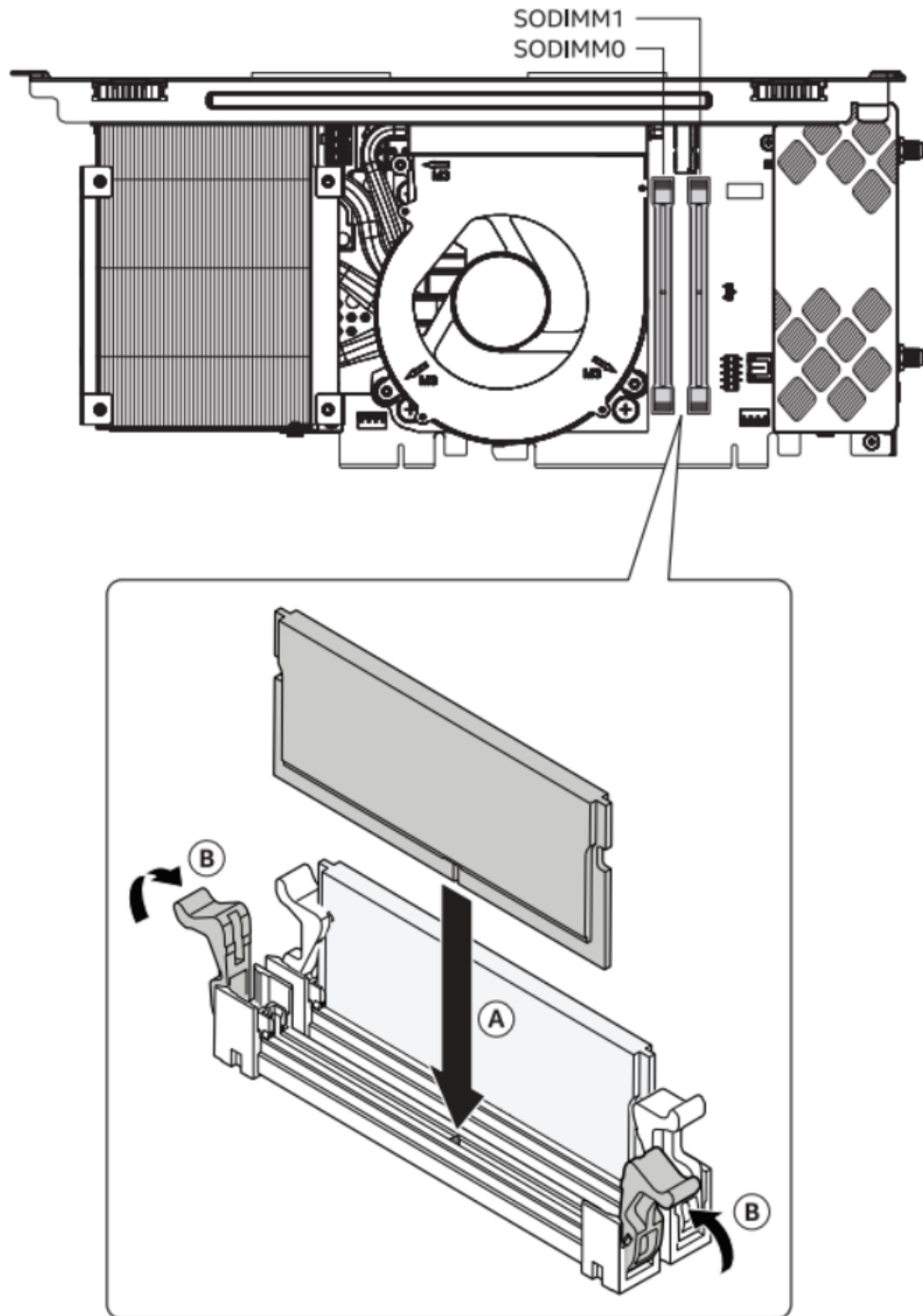
Find compatible memory modules in the Intel Product Compatibility Tool

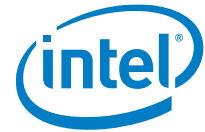
- [NUC13RNGi9](#)
- [NUC13RNGi7](#)
- [NUC13RNGi5](#)
- [NUC13SBBi9](#)
- [NUC13SBBi7](#)
- [NUC13SBBi5](#)

NOTE	If you plan to install only one memory module, install it in the lower memory socket.
-------------	---

To install memory, follow these steps:

1. Observe the precautions in "Before You Begin" on page 5.
2. Turn off all peripheral devices connected to the computer. Turn off the computer and disconnect the power cord.
3. Remove the computer's side and top chassis covers as per the instructions in section 2.0, Open the chassis.
4. Align the small space (key) at the bottom edge of the memory module with the key in the socket.
5. Insert the bottom edge of the module vertically into the socket (A)
6. When the module is inserted, push up the retaining clips until they snap into place (B). Make sure the clips are firmly in place.





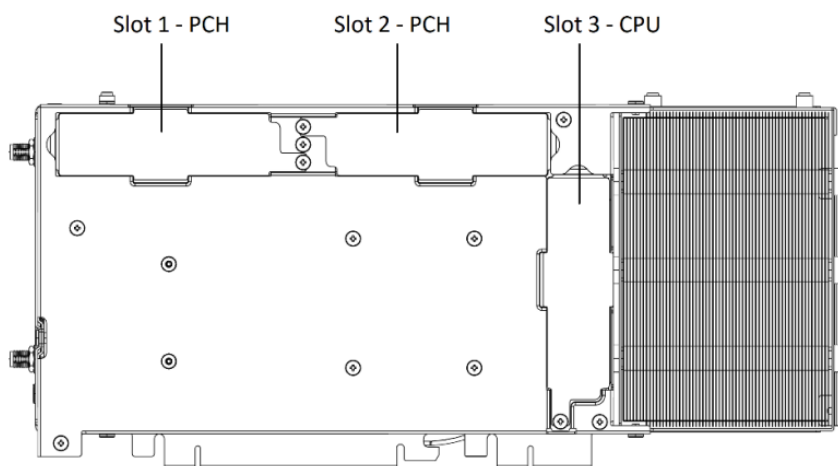
To remove a SO-DIMM, follow these steps:

1. Observe the precautions in "Before You Begin" on page 5.
2. Turn off all peripheral devices connected to the computer. Turn off the computer and disconnect the power cord.
3. Remove the computer's side and top chassis covers as per the instructions in the section 2.0 Open the chassis.
4. Gently push the retaining clips down at each end of the memory module to get it out of the socket.
5. Holding the module by the edges, lift it away from the socket, and store it in an antistatic package.
6. Reinstall and reconnect any parts you removed or disconnected to reach the memory sockets.
7. Replace the computer's covers and reconnect the power cord as per the instructions from section 5.0 Close the Chassis.

4.0 M.2 SSD

Intel® NUC 13 Extreme Kit NUC13RNGi9, NUC13RNGi7, NUC13RNGi5 and Intel® NUC 13 Extreme Compute Element NUC13SBBi9, NUC13SBBi7, NUC13SBBi5 have the following options:

M.2 connector	Controller	Support
Slot 1	PCH	M.2 NVMe and SATA
Slot 2	PCH	M.2 NVMe
Slot 3	CPU	M.2 NVMe



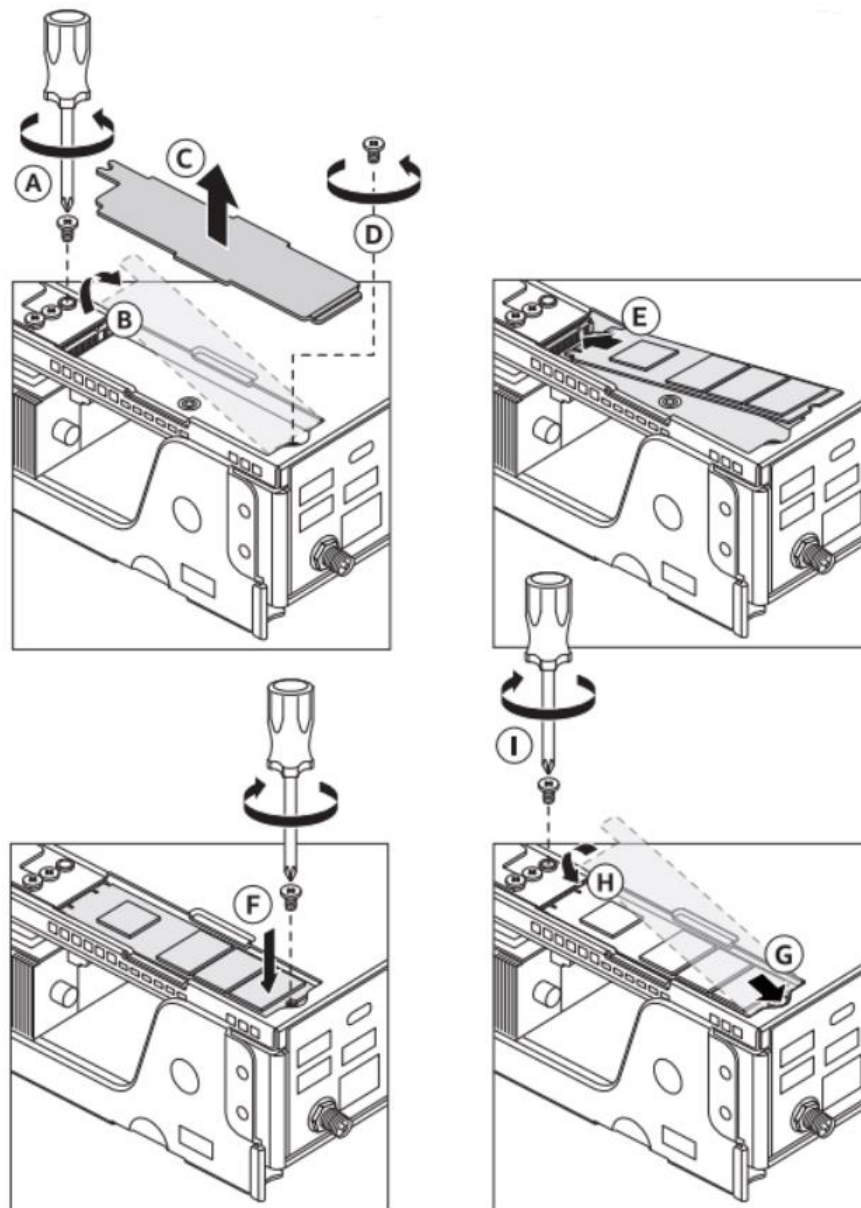
There are no pre-installed SSD available out of the box for the above SKUs.

Find compatible M.2 and SATA SSDs in the Intel Product Compatibility Tool:

- [NUC13RNGi9](#)
- [NUC13RNGi7](#)
- [NUC13RNGi5](#)
- [NUC13SBBi9](#)
- [NUC13SBBi7](#)
- [NUC13SBBi5](#)

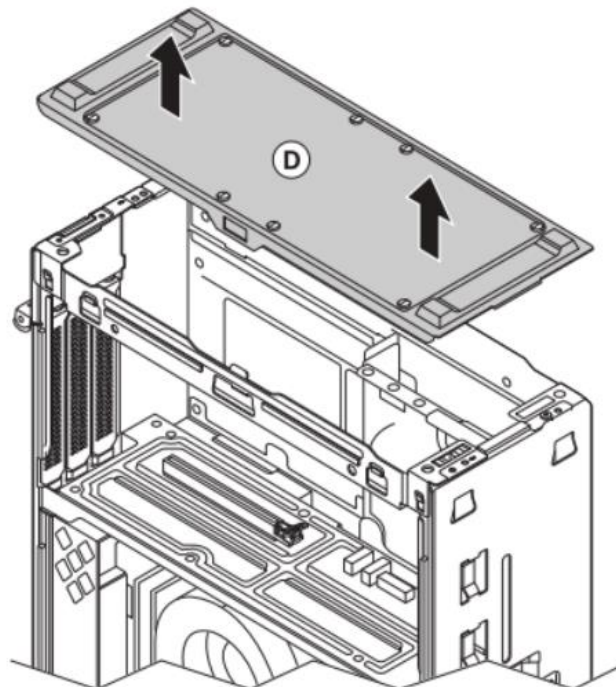
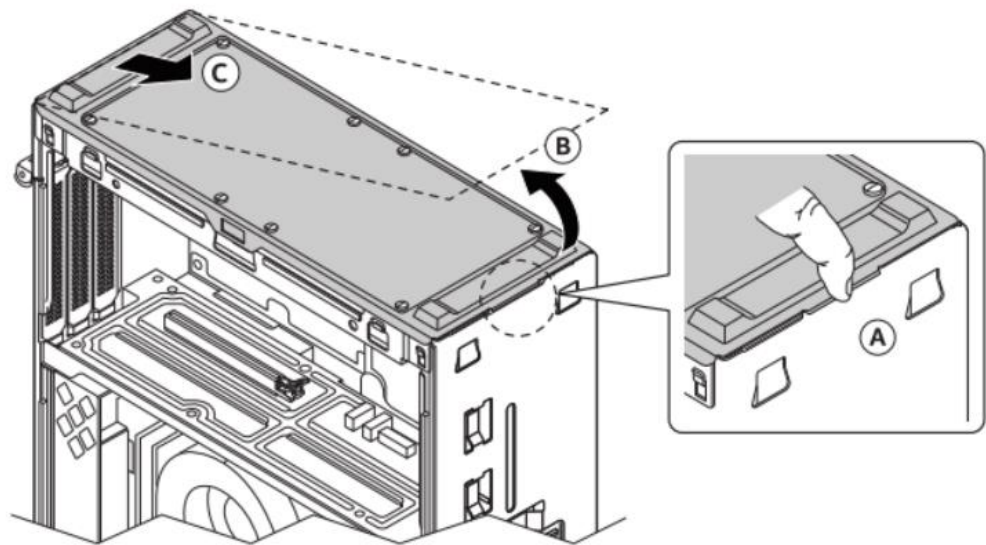
To install M.2 SSD:

1. Remove the M.2 cover.
2. Remove the pre-installed SSD from the connector if there are any.
3. Make sure there is the metal standoff in the right position, depending on the length of the SSD you are going to install.
4. Align the space at the bottom of the new M.2 SSD to the key on the connector and slide the SSD into the m.2 slot.
5. Secure SSD with the small screw.
6. Secure the M.2 cover.

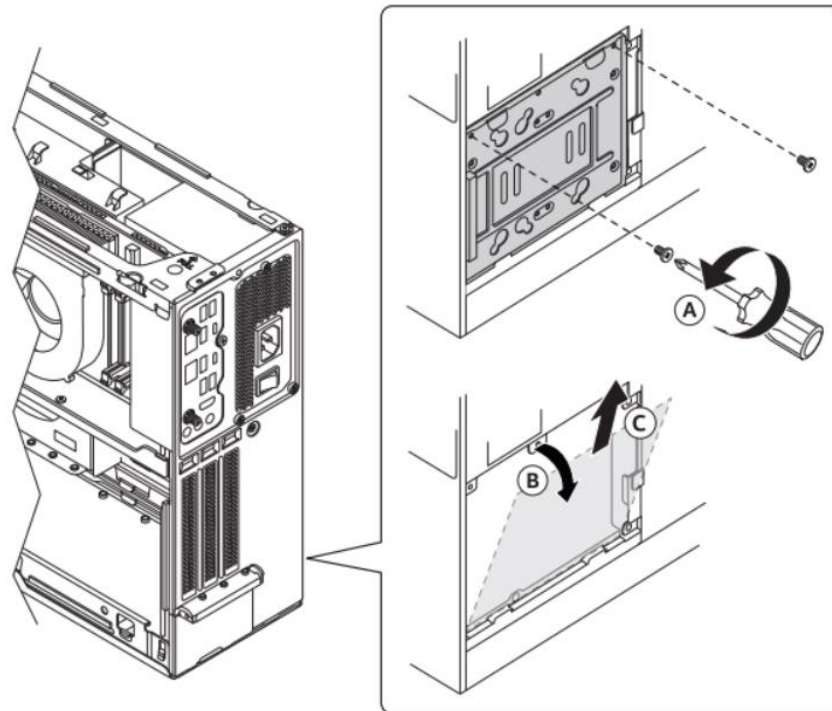


5.0 2.5" and 3.5" SSD

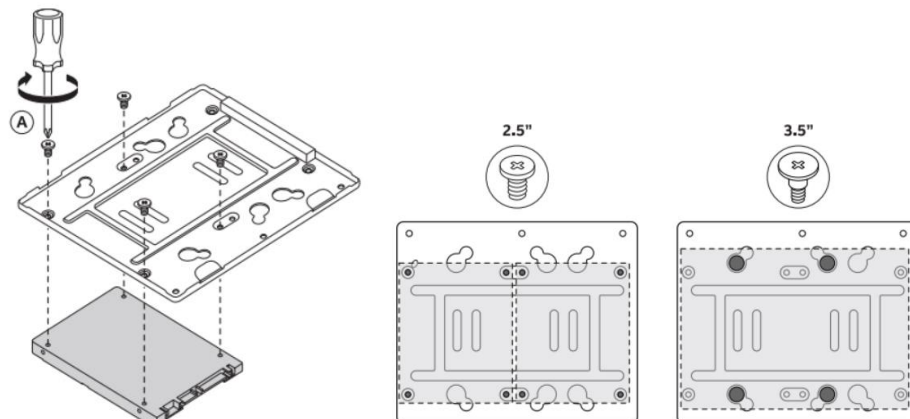
1. Remove the chassis bottom cover



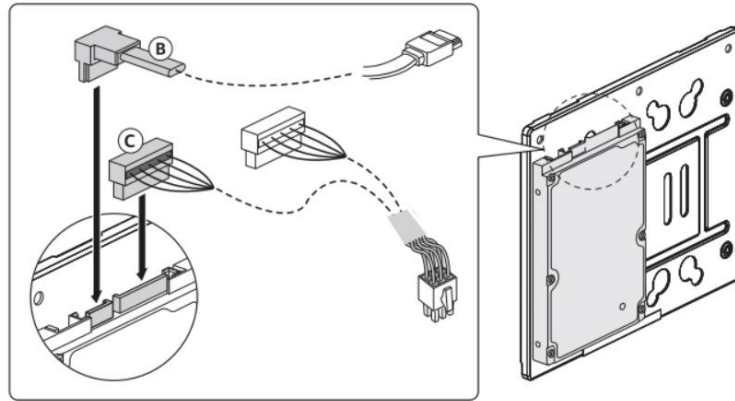
2. Unscrew and remove the SSD panel.



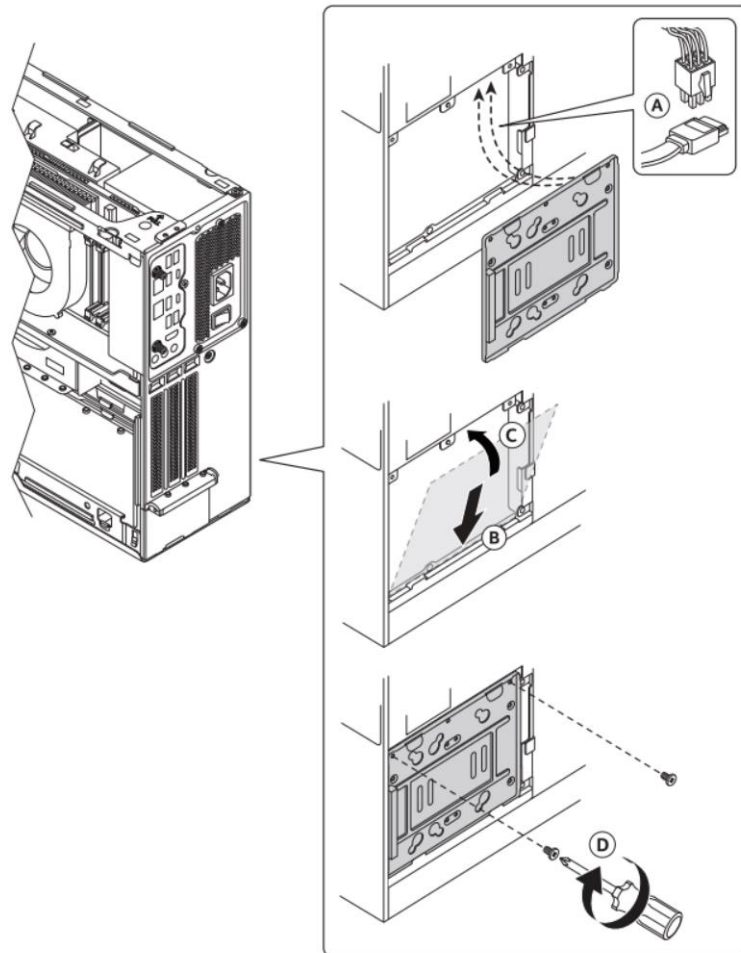
3. Secure the 2.5" or 3.5" SSD to the panel.



4. Insert the signal and power cables to the SSD

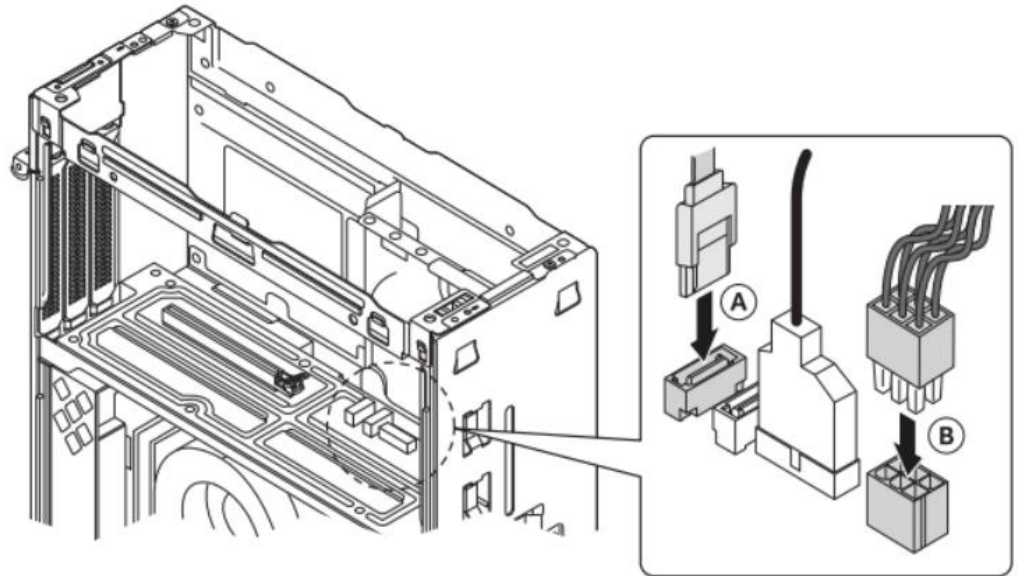


5. Secure the SSD plate to the chassis



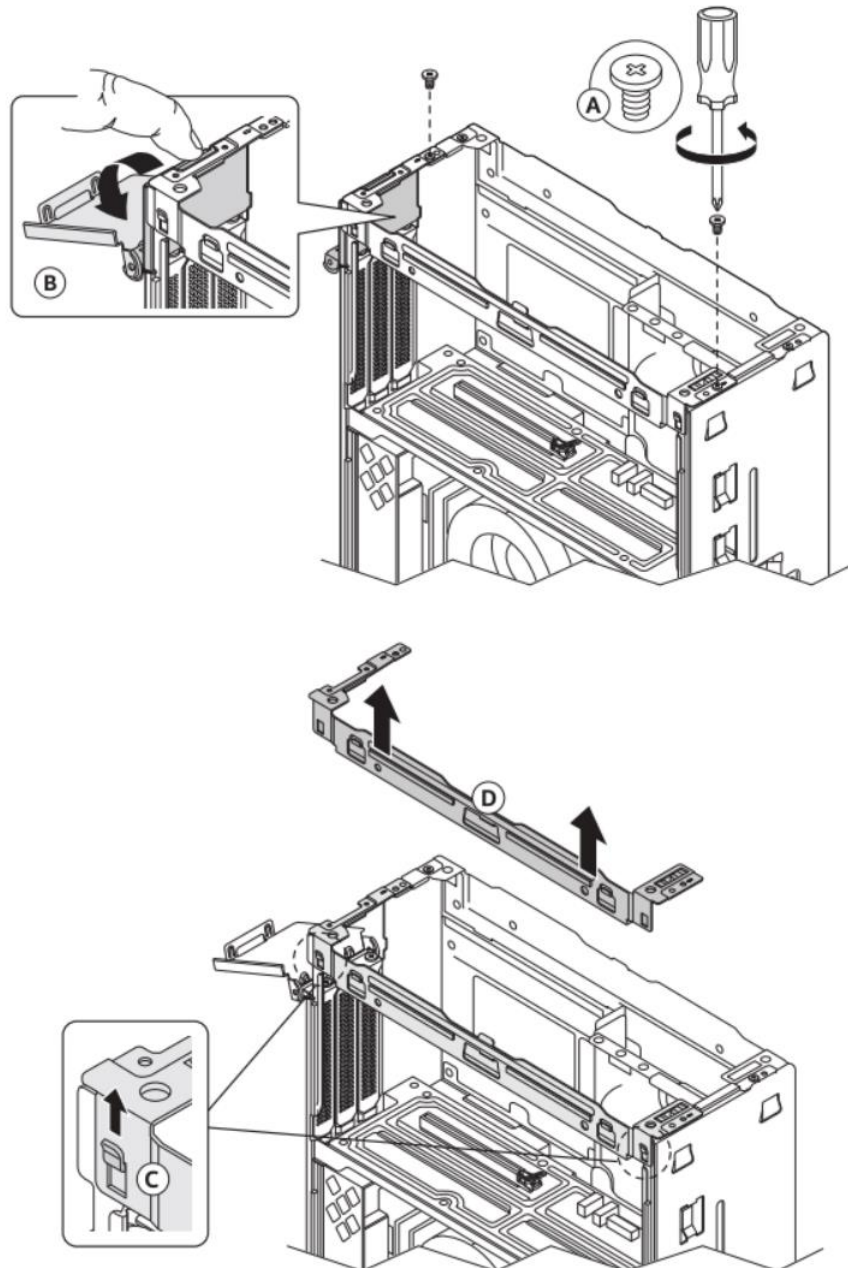


6. Insert the SSD signal and power cable to the baseboard

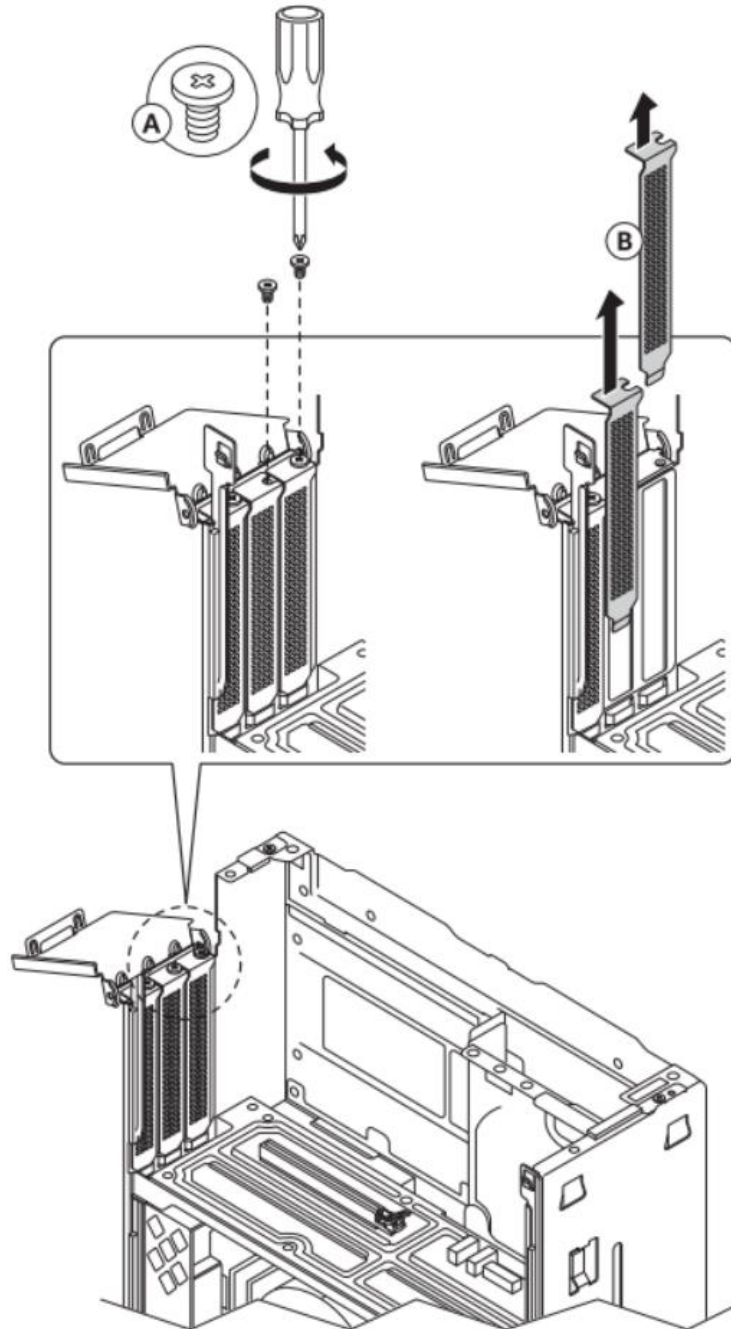


6.0 External PCIe card

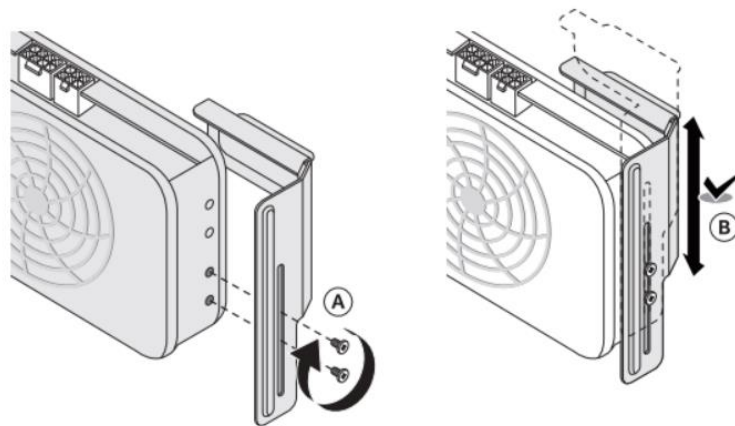
1. Unscrew (A), open the bracket (B) and lift the side bracket.



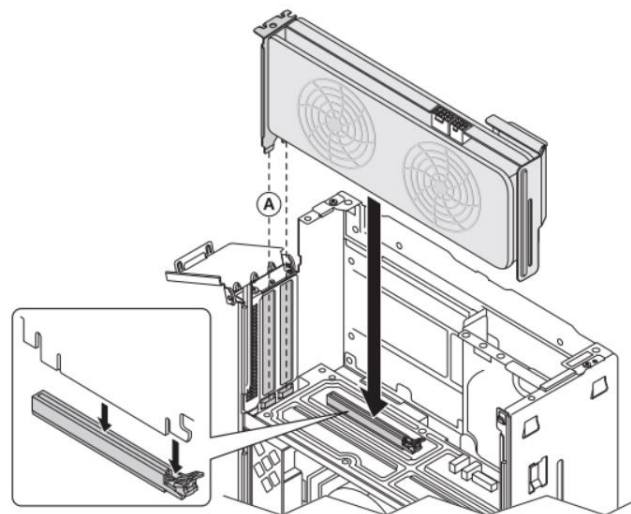
2. Unscrew (A) and lift (B) the metal brackets covering the back panel frames for the PCIe device connectors



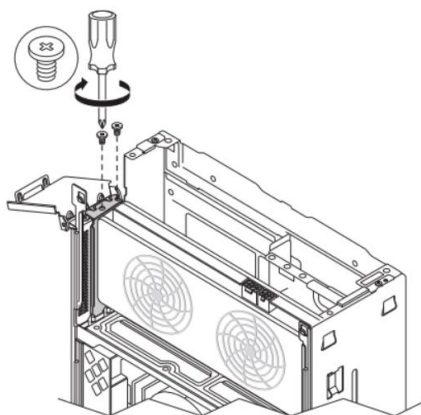
3. Align and secure the bracket (B) to the PCIe card

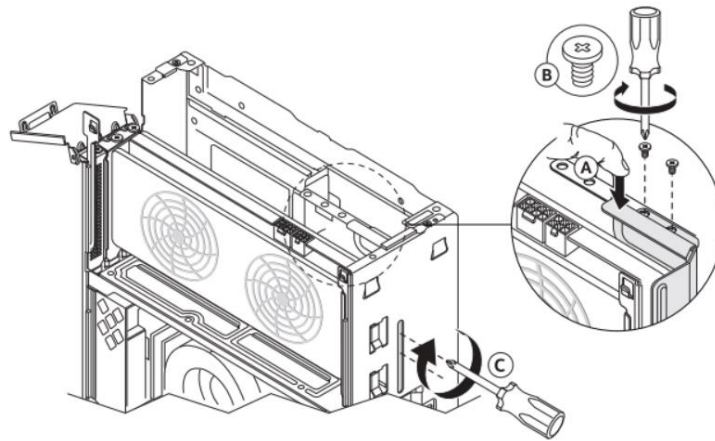


4. Insert the PCIe card to the PCIe connector on the baseboard

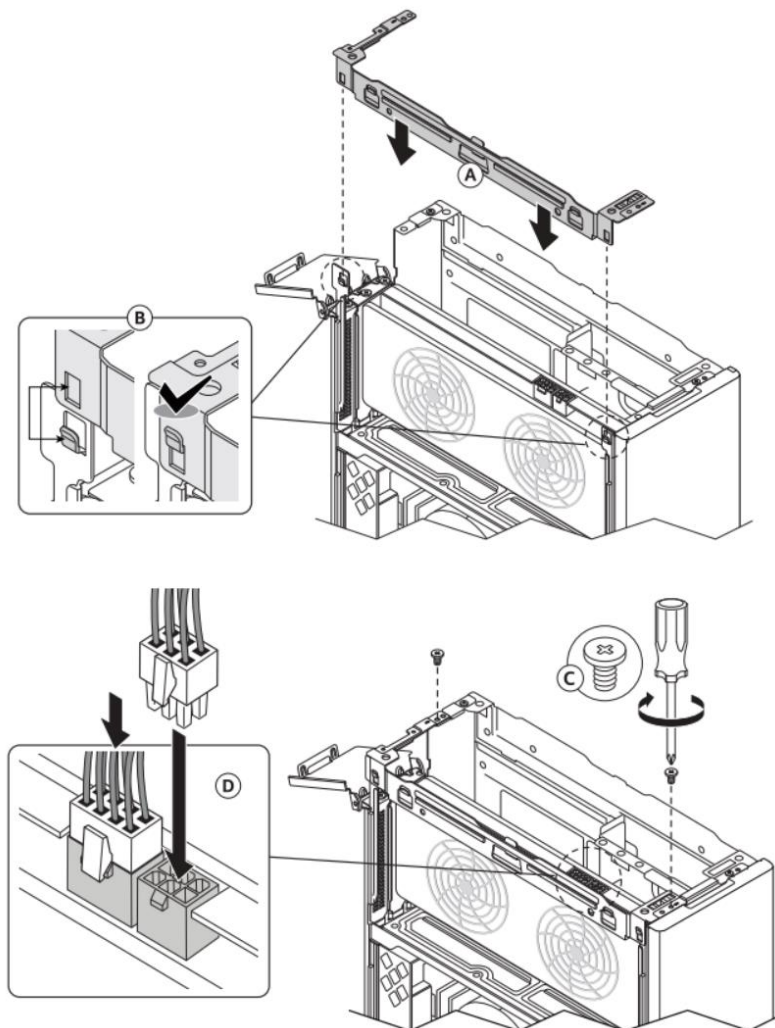


5. Secure the PCIe card to the chassis

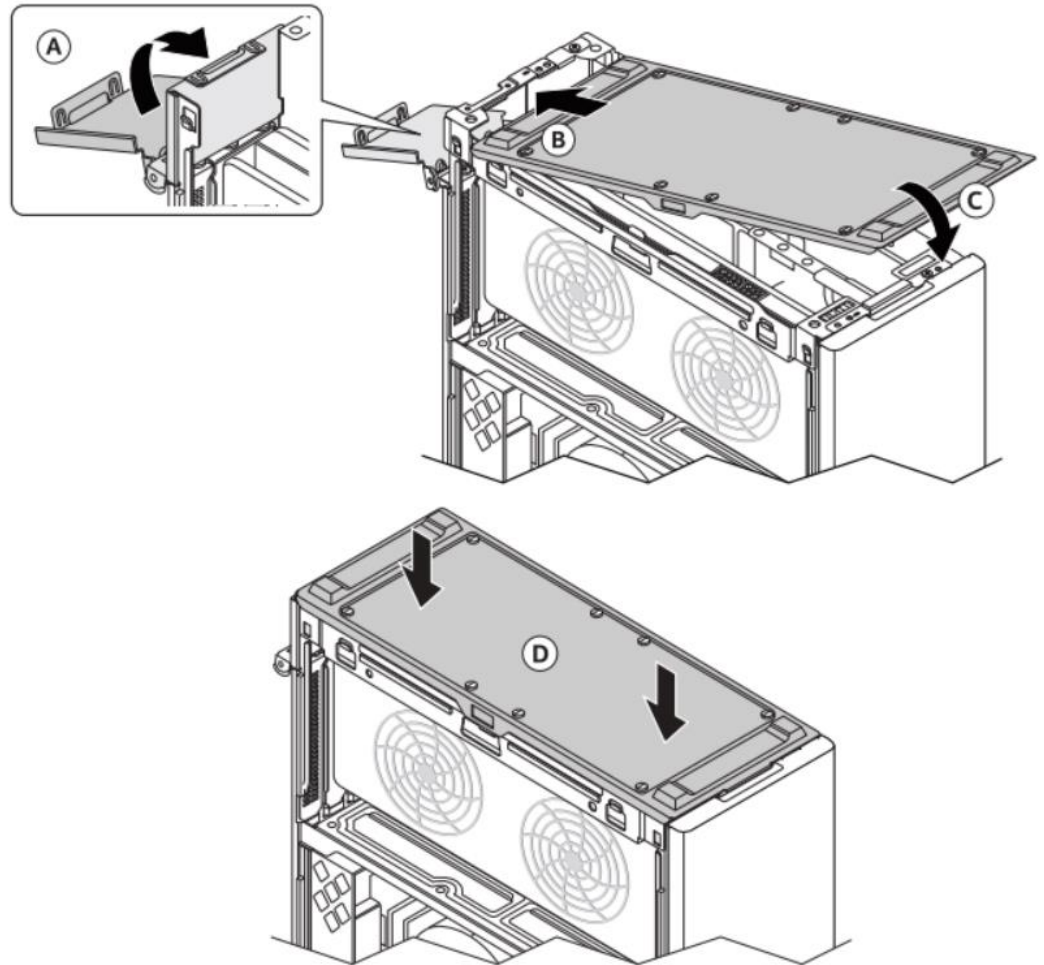




6. Secure the side bracket to the chassis and insert the PCIe cards power cable

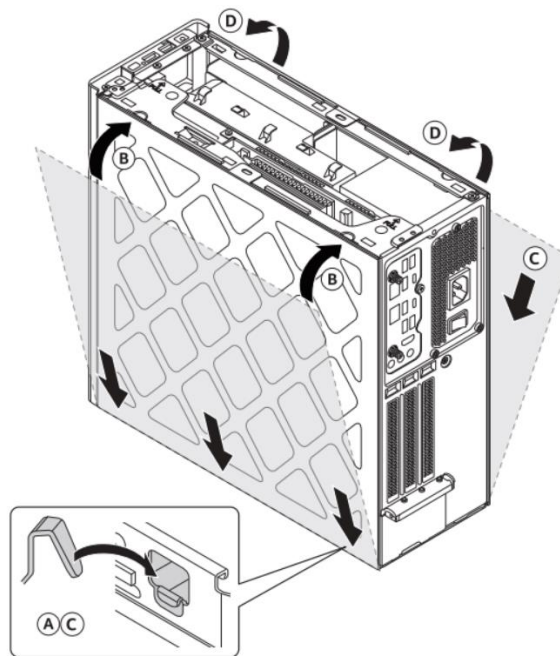


7. Close bracket (A) and insert the chassis back panel cover

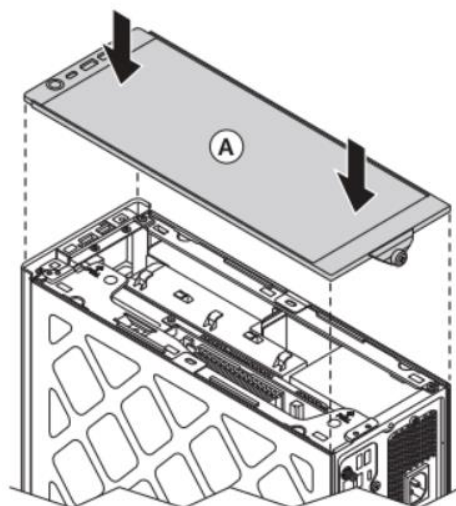


7.0 Close the Chassis

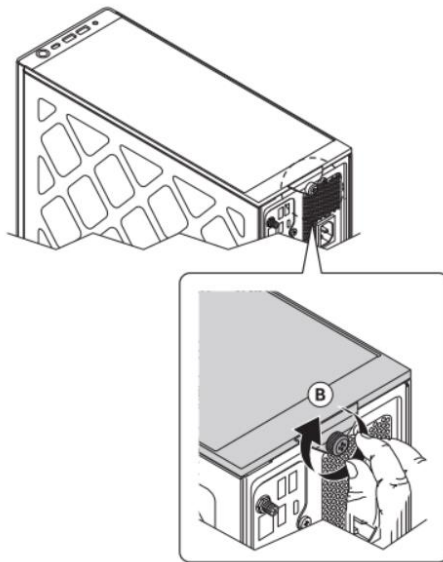
1. Slide down the side cover to latch (A) and (C)
2. Push the side cover towards the chassis to engage the top latches (B) and (D)



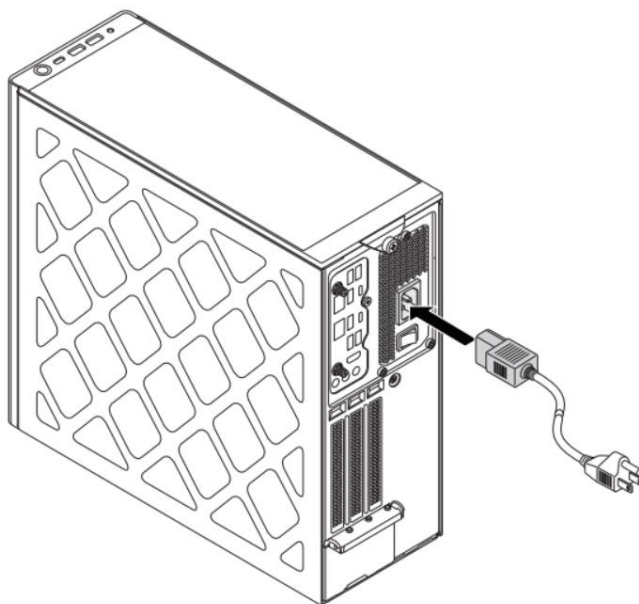
3. Insert the chassis top cover



4. Secure screw (B)



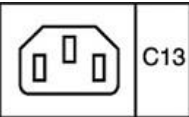
5. Connect the power cord and other devices.

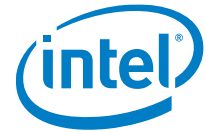




8.0 Connect Power

Each Intel NUC model includes either a region-specific AC power cord or no AC power cord.

Product codes	Power cord type
RNUC13RNGi90000 RNUC13RNGi70000 RNUC13RNGi50000	No power cord included. An AC power cord needs to be purchased separately. The connector on the power adapter is a C13 type connector. 
RNUC13RNGi90001 RNUC13RNGi70001 RNUC13RNGi50001	US power cord included.
RNUC13RNGi90002 RNUC13RNGi70002 RNUC13RNGi50002	EU power cord included.
RNUC13RNGi90003 RNUC13RNGi70003 RNUC13RNGi50003	UK power cord included.
RNUC13RNGi90004 RNUC13RNGi70004 RNUC13RNGi50004	Australia/New Zealand power cord included.
RNUC13RNGi90006 RNUC13RNGi70006 RNUC13RNGi50006	China power cord included.

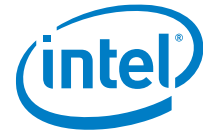


9.0 *Install an Operating System*

See [Supported Operating Systems](#) for a list of Intel-validated Windows* operating systems.

The [Intel Product Compatibility Tool](#) lists versions of Linux* that have been reported as compatible by Intel NUC owners. If you need assistance with Linux on your Intel NUC, check the distribution's website and forums for peer assistance.

Refer to [Operating System Installation](#) for system requirements and installation steps.



10.0 *Install the Latest Device Drivers and Software*

Here are the options for keeping device drivers current:

- Allow the [Intel® Driver & Support Assistant \(Intel® DSA\)](#) to detect out-of-date drivers
- Manually download drivers, BIOS, and software from Download Center:
 - [NUC13RNGi9](#)
 - [NUC13RNGi7](#)
 - [NUC13RNGi5](#)
 - [NUC13SBBi9](#)
 - [NUC13SBBi7](#)
 - [NUC13SBBi5](#)

The following device drivers and software are available.

- Intel® Chipset Device Software
- Intel® Graphics
- Intel® Management Engine
- Intel® Gigabit Ethernet
- Intel® Wireless
- Intel® Bluetooth
- Intel® Serial IO
- Intel® GNA
- Marvel Ethernet
- Realtek* ALC1220 High Definition Audio
- Intel® Rapid Storage Technology
- Thunderbolt® Networking Driver