



# HS-453DX

## User Guide

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# 1. Preface





## About This Guide

This guide provides information on the QNAP HS-453DX NAS and step-by-step instructions on installing the hardware. It also provides instructions on basic operations and troubleshooting information.

## Audience

This document is intended for consumers and storage administrators. This guide assumes that the user has a basic understanding of storage and backup concepts.

## Document Conventions

| Symbol  | Description  |
|---|--|
|    | Notes provide default configuration settings and other supplementary information.                      |
|    | Important notes provide information on required configuration settings and other critical information. |
|   | Tips provide recommendations or alternative methods of performing tasks or configuring settings.       |
|  | Warnings provide information that, when ignored, may result in potential loss, injury, or even death.  |

## 2. Product Overview

This chapter provides basic information about the QNAP HS-453DX NAS.

### About the HS-453DX

The HS-453DX is a four-drive silent NAS powered by an Intel® Celeron® J4115 quad-core 1.8 GHz processor or an Intel® Celeron® J4105 quad-core 1.5 GHz processor and comes equipped with up to 8 GB of DDR4 memory. In addition to its two front drive bays, the HS-453DX has two internal M.2 SATA SSD slots for added data management capability. The HS-453DX features both a Gigabit and 10 Gigabit Ethernet port for enhanced connectivity as well as two HDMI ports for additional multimedia support.

### Hardware Specifications



#### Warning



- If your QNAP product has hardware defects, return the product to QNAP or a QNAP-authorized service center for maintenance or replacement. Any attempt to repair or perform maintenance procedures on the product by you or an unauthorized third-party invalidates the warranty.
- QNAP is not responsible for any damage or data loss caused by unauthorized modifications and installation of unsupported third-party applications.
- For details, see the [QNAP Warranty Terms and Conditions](#).






#### Tip

Model specifications are subject to change without prior notice. To see the latest specifications, go to <https://www.qnap.com>.

| Component            | HS-453DX   |
|----------------------|--|
| Ordering Information |  |
| Ordering P/N         | <ul style="list-style-type: none"> <li>• HS-453DX-4G</li> <li>• HS-453DX-8G</li> </ul>                                       |
| Processor            |  |
| CPU                  | Intel® Celeron® J4115<br>Intel® Celeron® J4105   |
| Frequency            | 4-core/4-thread 1.8 GHz base/2.5 GHz burst<br>4-core/4-thread 1.5 GHz base/2.5 GHz burst                                     |
| Architecture         | x86 64-bit   |
| Encryption engine    | AES-NI   |
| Memory               |  |
| Pre-installed memory | <ul style="list-style-type: none"> <li>• 4 GB RAM: 2 x 2 GB SODIMM DDR4</li> <li>• 8 GB RAM: 2 x 4 GB SODIMM DDR4</li> </ul> |

| Component                            | HS-453DX  |
|--------------------------------------|---|
| Memory slots                         | 2 x SODIMM DDR4<br><br> <b>Important</b><br>Use only QNAP memory modules to maintain system performance and stability. For NAS devices with more than one memory slot, use QNAP modules with identical specifications. Using unsupported modules may degrade performance, cause errors, or prevent the operating system from starting. |
| Maximum memory                       | 8 GB RAM: 2 x 4 GB  |
| Flash memory                         | 4 GB (dual-boot OS protection)  |
| Storage                              |   |
| Drive bays                           | 2 x 3.5-inch SATA 6 Gbps  |
| Drive compatibility                  | <ul style="list-style-type: none"> <li>• 3.5-inch SATA hard disk drives</li> <li>• 2.5-inch SATA hard disk drives</li> <li>• 2.5-inch SATA solid-state drives</li> </ul>  |
| M.2 SSD slots                        | 2 x SATA 6 Gbps   |
| M.2 SSD form factor                  | 2280  |
| SSD cache acceleration support       | <ul style="list-style-type: none"> <li>• 3.5-inch drive bays: 1 and 2</li> <li>• M.2 SSD slots: 1 and 2</li> </ul>  |
| Hot-swapping                         | The device supports hot-swapping drives except for the following: <ul style="list-style-type: none"> <li>• M.2 SSDs</li> <li>• SSD cache drives</li> </ul>  |
| Network                              |   |
| 10 Gigabit Ethernet ports            | 1 x 10 GbE RJ45   |
| Gigabit Ethernet ports               | 1 x GbE RJ45  |
| External I/O Ports & Expansion Slots |   |
| USB ports                            | <ul style="list-style-type: none"> <li>• 2 x USB 3.0 Type-A</li> <li>• 1 x USB 3.0 Type-C</li> <li>• 2 x USB 2.0 Type-A</li> </ul>  |
| HDMI ports                           | <ul style="list-style-type: none"> <li>• 1 x HDMI 2.0</li> <li>• 1 x HDMI 1.4b</li> </ul>   |
| Audio ports                          | <ul style="list-style-type: none"> <li>• 2 x 3.5 mm dynamic microphone jacks</li> <li>• 1 x 3.5 mm line-out jack</li> <li>• 1 x speaker</li> </ul>  <b>Note</b><br>You cannot use speakers and line-out jacks simultaneously.  |
| Interface                            |   |

| Component              | HS-453DX   |
|------------------------|--|
| Buttons                | <ul style="list-style-type: none"> <li>• Power</li> <li>• Reset</li> </ul>   |
| IR sensor              | 1<br><br> <b>Note</b><br>The HS-453DX supports the QNAP RM-IR004 IR remote control.   |
| Dimensions             |  |
| Form factor            | Compact  |
| Dimensions (H x W x D) | 42.8 x 404 x 220 mm<br>(1.68 x 15.9 x 8.66 in)   |
| Net weight             | 2.40 kg (5.29 lbs)   |
| Others                 |  |
| Power supply unit      | 90W, 100-240V AC, 50/60 Hz   |
| System battery         | CR2032 lithium battery (3V, 225 mAh)<br><br> <b>Warning</b><br>To avoid potential battery explosion, causing injury or damage to components, ensure that you replace the existing battery with a battery of the same type.  |
| Sound level            | <ul style="list-style-type: none"> <li>• With 2 x 2.5-inch SSDs installed: 6.2 dB(A)</li> <li>• With 2 x 3.5-inch HDDs installed:               <ul style="list-style-type: none"> <li>• Operating: 13.0 dB(A)</li> <li>• Standby: 6.2 dB(A)</li> </ul> </li> </ul><br> <b>Note</b><br>The sound level was tested at a bystander position, which is within one meter of the NAS. The test NAS operated at low speed in an environment with an ambient noise level of 6.0 dB(A). |
| Operating temperature  | 0°C to 40°C (32°F to 104°F)  |
| Relative humidity      | <ul style="list-style-type: none"> <li>• Non-condensing relative humidity: 5% to 95%</li> <li>• Wet-bulb temperature: 27°C (80.6°F)</li> </ul>   |

**Tip**

Model specifications are subject to change without prior notice. To see the latest specifications, go to <https://www.qnap.com>.

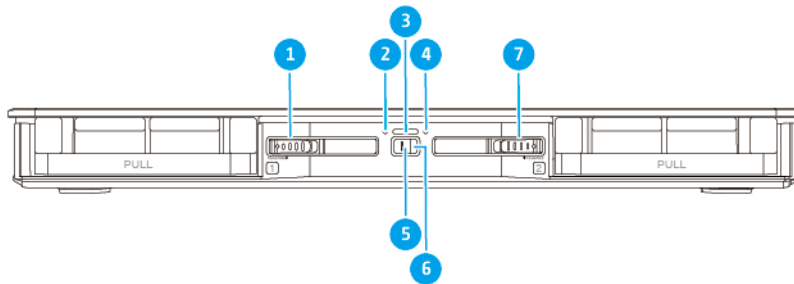
## Package Contents

| Item             | Quantity |
|------------------|----------|
| HS-453DX NAS     | 1        |
| AC power adapter | 1        |
| Power cord       | 1        |

| Item                                  | Quantity |
|---------------------------------------|----------|
| Ethernet cables                       | 2        |
| RM-IR004 infrared (IR) remote control | 1        |
| AAA batteries                         | 2        |
| Screws for 3.5-inch drives            | 8        |
| Screws for 2.5-inch drives            | 6        |
| Screws for M.2 SSDs                   | 2        |
| Thermal pads for M.2 SSDs             | 2        |
| Thermal pads for integrated circuits  | 3        |
| Quick Installation Guide (QIG)        | 1        |

## Components

### Front Panel



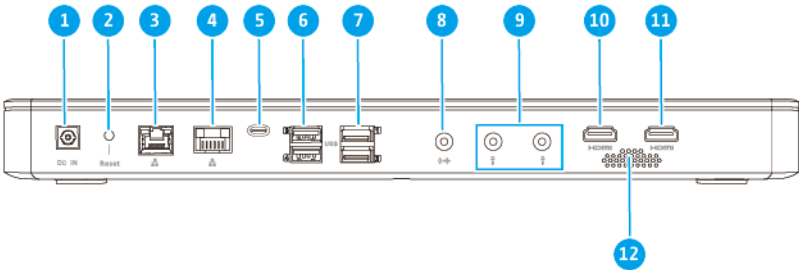
#### Note

This image shows the HS-453DX without the front cover attached.

| No. | Component         | No. | Component         |
|-----|-------------------|-----|-------------------|
| 1   | Drive bay 1 latch | 5   | Power button      |
| 2   | Drive 1 LED       | 6   | IR sensor         |
| 3   | Status LED        | 7   | Drive bay 2 latch |
| 4   | Drive 2 LED       | -   | -                 |

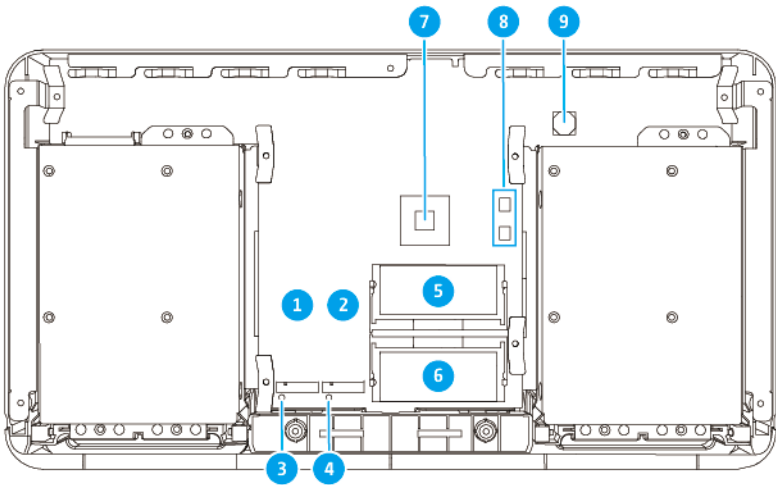


Rear Panel



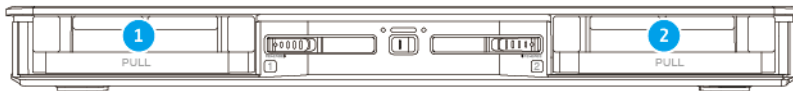
| No. | Component            | No. | Component                       |
|-----|----------------------|-----|---------------------------------|
| 1   | Power input          | 7   | USB 3.0 Type-A ports            |
| 2   | Reset button         | 8   | 3.5 mm line-out jack            |
| 3   | GbE RJ45 port        | 9   | 3.5 mm dynamic microphone jacks |
| 4   | 10 GbE RJ45 port     | 10  | HDMI 1.4b port (HDMI 2)         |
| 5   | USB 3.0 Type-C port  | 11  | HDMI 2.0 port (HDMI 1)          |
| 6   | USB 2.0 Type-A ports | 12  | Speaker                         |

System Board



| No. | Component      | No. | Component     |
|-----|----------------|-----|---------------|
| 1   | M.2 SSD slot 1 | 6   | Memory slot 2 |
| 2   | M.2 SSD slot 2 | 7   | CPU           |
| 3   | M.2 SSD 1 LED  | 8   | MOSFET ICs    |
| 4   | M.2 SSD 2 LED  | 9   | 10 GbE IC     |
| 5   | Memory slot 1  | -   | -             |

## Front Drive Numbering



## Safety Information

The following instructions help ensure personal safety and environmental safety. Read these instructions carefully before performing any operations.

### General Instructions

- The device should be stored in a secure location with restricted access, controlled through the use of a tool, lock and key, or any means of security.
- Only qualified, skilled, and authorized persons with knowledge of all restrictions, safety precautions, and installation and maintenance procedures should have physical access to the device.
- To avoid potential injury or damage to components, ensure that the drives and other internal system components have cooled before touching them.
- Observe electrostatic discharge (ESD) procedures to avoid potential injury or damage to components.

### Power

- To reduce the risk of fire or electric shock, ensure that you only connect the power cord to a properly grounded electrical outlet.



Devices with redundant power supply may have one or more power supply unit (PSU) cords. To avoid serious injuries, a trained service technician must disconnect all PSU cords from the device before installing or replacing system components.

### System Battery

- To avoid potential battery explosion, causing injury or damage to components, ensure that you replace the existing battery with a battery of the same type.
- Dispose of used batteries properly according to local regulations or the instructions of the battery manufacturer.

### Moving Parts



**Moving fan blades:** Keep your body parts away from moving fan blades while the device is connected to a power source.



**Moving components:** Keep your body parts away from other moving components.

## Installation Requirements

| Category                 | Item  |
|--------------------------|---|
| Environment              | <ul style="list-style-type: none"> <li>• Room temperature: 0°C to 40°C (32°F to 104°F)</li> <li>• Non-condensing relative humidity: 5% to 95%</li> <li>• Wet-bulb temperature: 27°C (80.6°F)</li> <li>• Flat, anti-static surface without exposure to direct sunlight, liquids, or chemicals</li> </ul> |
| Hardware and peripherals | <ul style="list-style-type: none"> <li>• Storage drives<br/>For details on compatible drives, go to <a href="https://www.qnap.com/compatibility/">https://www.qnap.com/compatibility/</a>.</li> <li>• Network cable</li> </ul>  |
| Tools                    | <ul style="list-style-type: none"> <li>• Phillips #1 or #2 screwdriver</li> <li>• Anti-static wrist strap</li> </ul>  |

## Setting Up the NAS



**Important**

Read all safety requirements and information in [Safety Information](#) carefully before setting up the NAS or installing NAS components.

1. Place your NAS device in an environment that meets the requirements.  
For details, see [Installation Requirements](#).
2. Install the drives.  
For details, see the following topics:
  - [Installing 3.5-inch Drives on 3.5-inch Trays](#).
  - [Installing 2.5-inch Drives on 3.5-inch Trays](#).
  - [Installing M.2 Solid-state Drives](#).
3. Connect the power cord and all applicable cables.
4. Power on the NAS.
5. Install QTS.  
For details, see [QTS Installation](#).
6. Log on to QTS.

## 3. Installation and Configuration

This chapter provides specific hardware and firmware installation and configuration steps.

### Hardware Installation

This section provides information on installing drives and replacing memory modules.

#### Drive Installation

The HS-453DX is compatible with 3.5-inch and 2.5-inch hard drives, 2.5-inch solid-state drives, and M.2 solid-state drives.

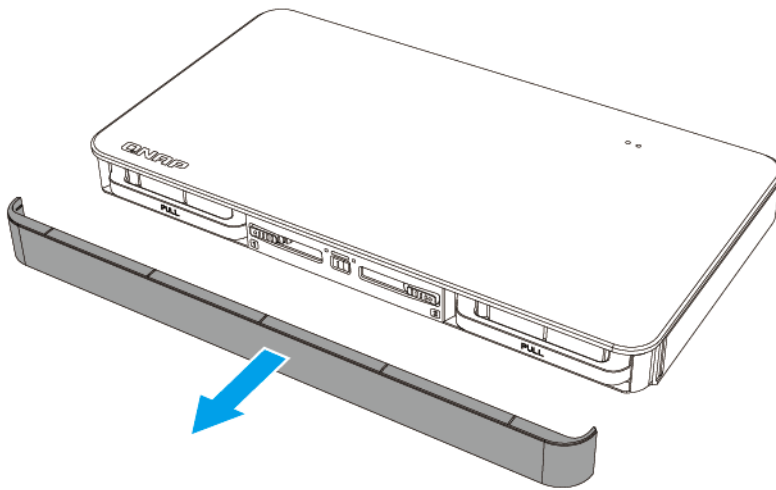
#### Installing 3.5-inch Drives on 3.5-inch Trays



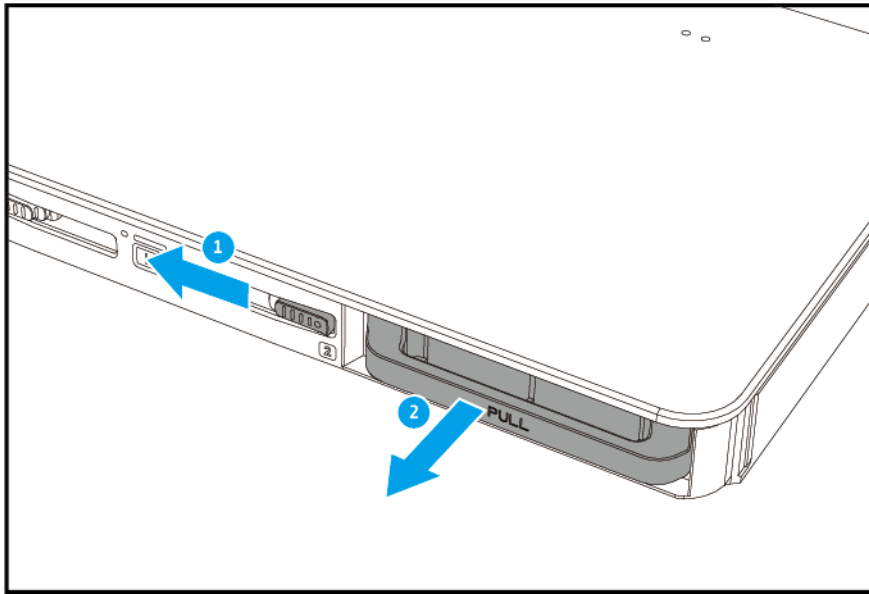
##### Warning

- Installing a drive deletes all data on the drive.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.

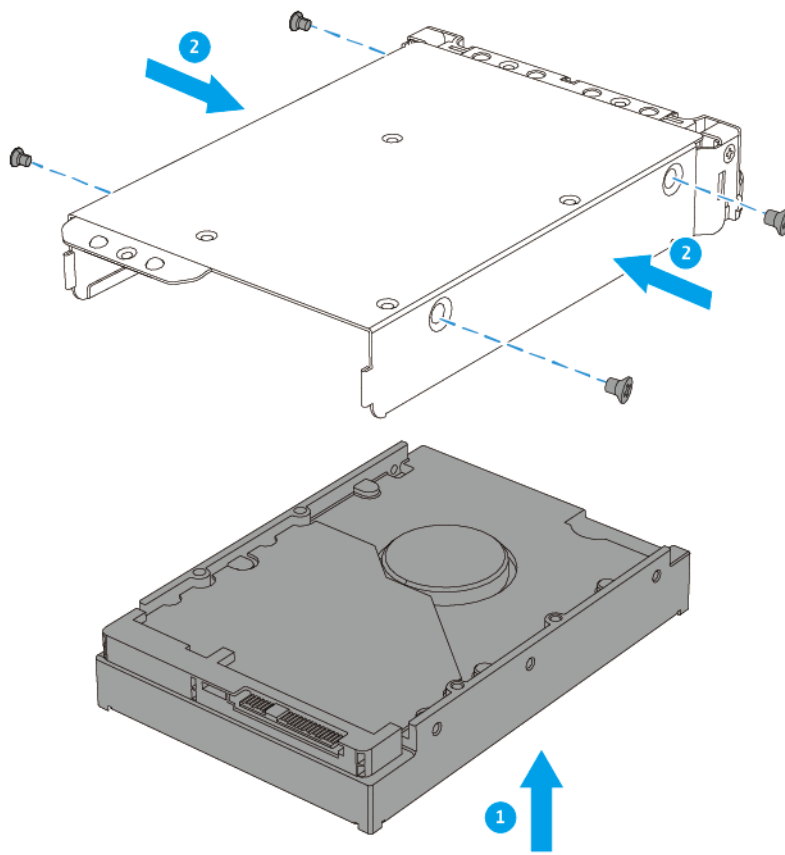
1. Remove the front cover.



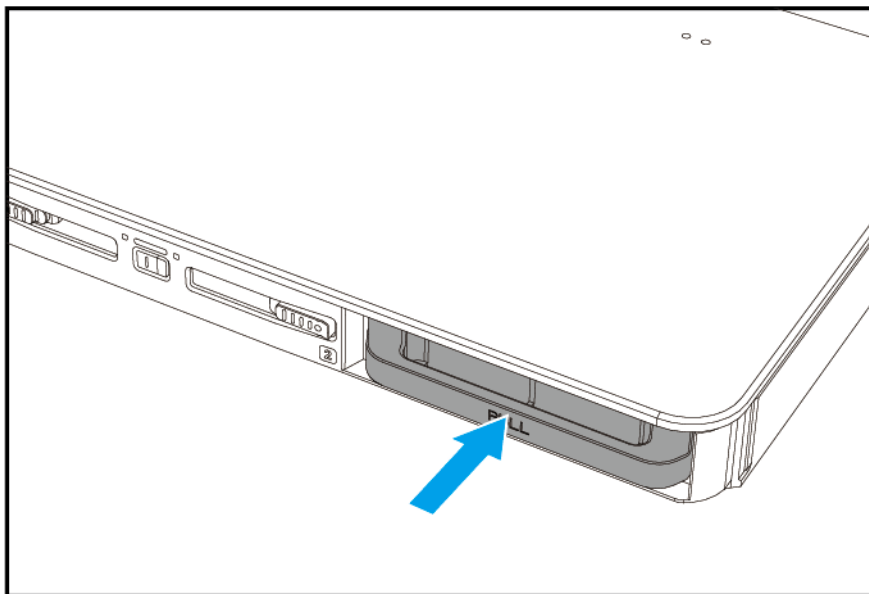
2. Power off the NAS.
3. Remove a drive tray by simultaneously pressing the latch and pulling the tray.



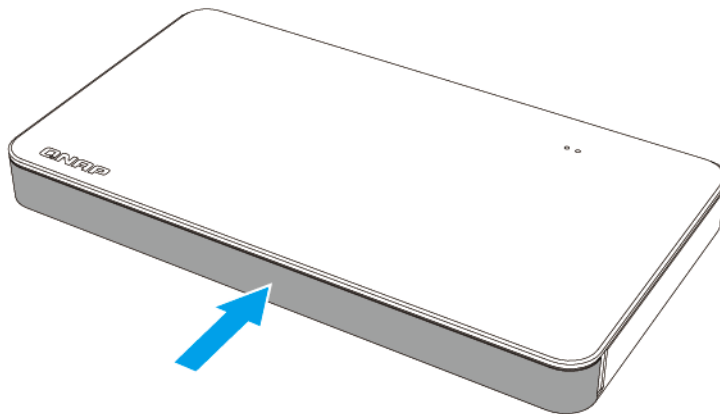
- 4.** Install a drive on the tray.
  - a.** Place the drive on the tray so that the holes on the sides of the drive are aligned with the holes on the sides of the tray.
  - b.** Attach the screws.



5. Insert the tray into the drive bay.



6. Power on the NAS.
7. Attach the front cover.



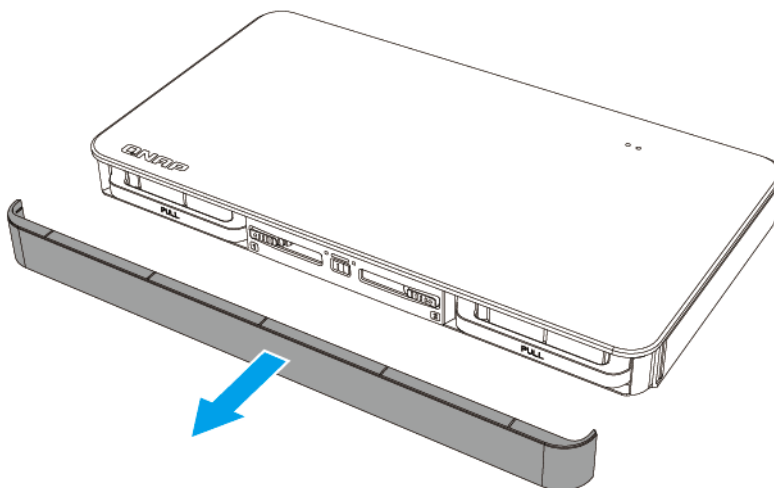
## Installing 2.5-inch Drives on 3.5-inch Trays



### Warning

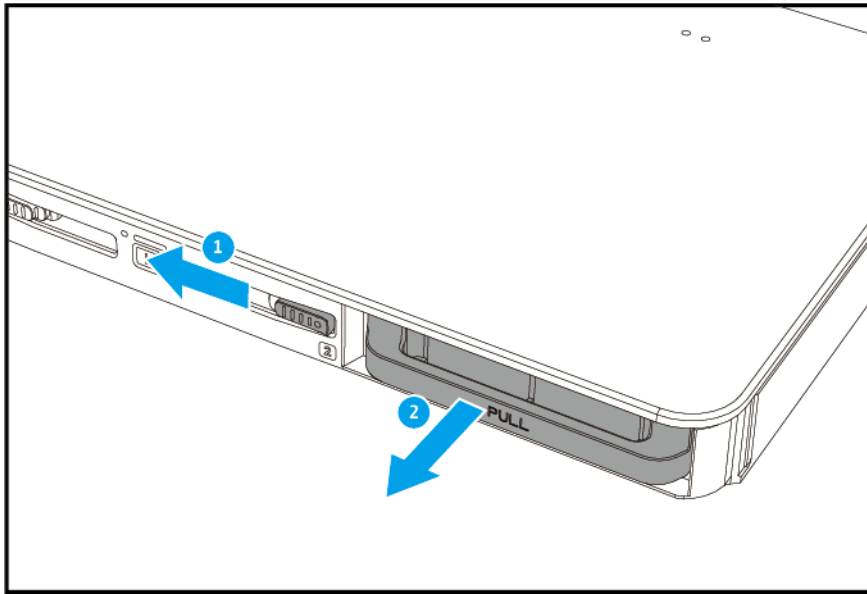
- Installing a drive deletes all data on the drive.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.

1. Remove the front cover.

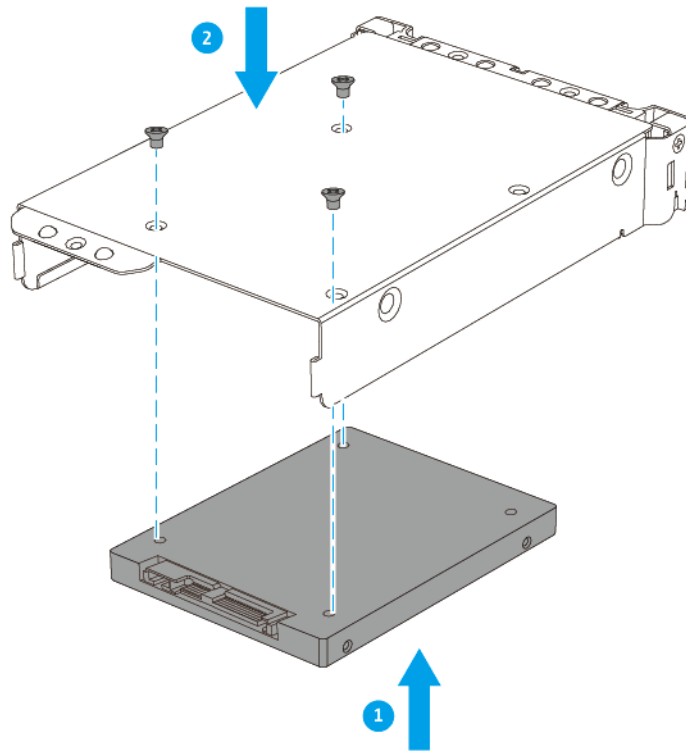


2. Power off the NAS.
3. Remove a drive tray by simultaneously pressing the latch and pulling the tray.

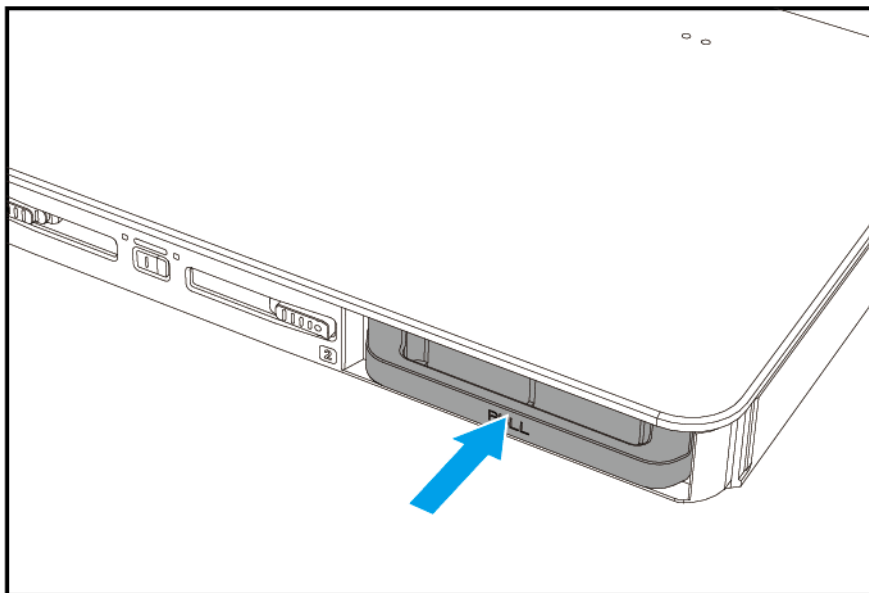




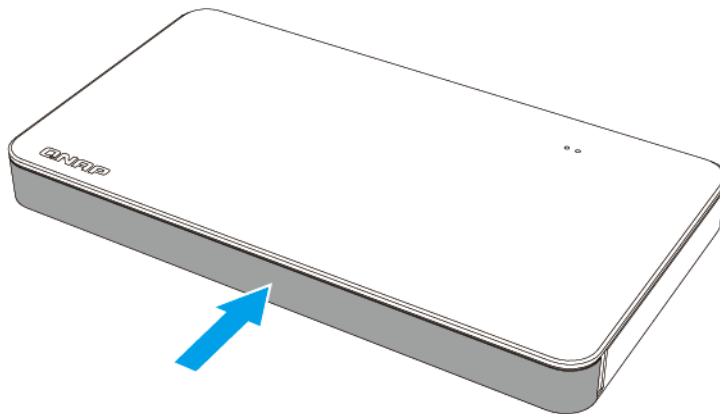
- 4.** Install a drive on the tray.
  - a.** Place the drive on the tray so that the holes on the bottom of the drive are aligned with the holes on the bottom of the tray.
  - b.** Attach the screws.



5. Insert the tray into the drive bay.



6. Power on the NAS.
7. Attach the front cover.



## Installing M.2 Solid-state Drives



### Warning

- Only qualified personnel should perform the following steps. Failure to follow instructions can result in serious injury or death.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.

•



**Moving fan blades:** Keep your hands and other body parts away from moving fan blades.

•



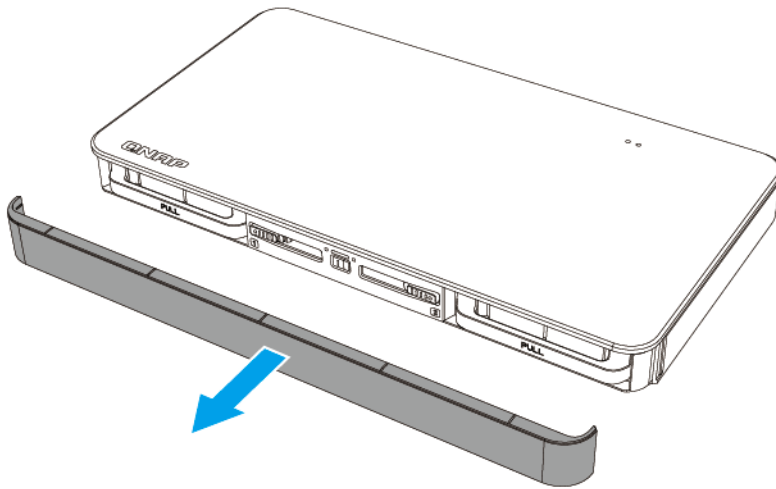
**Other moving components:** Keep your hands and other body parts away from other moving components.



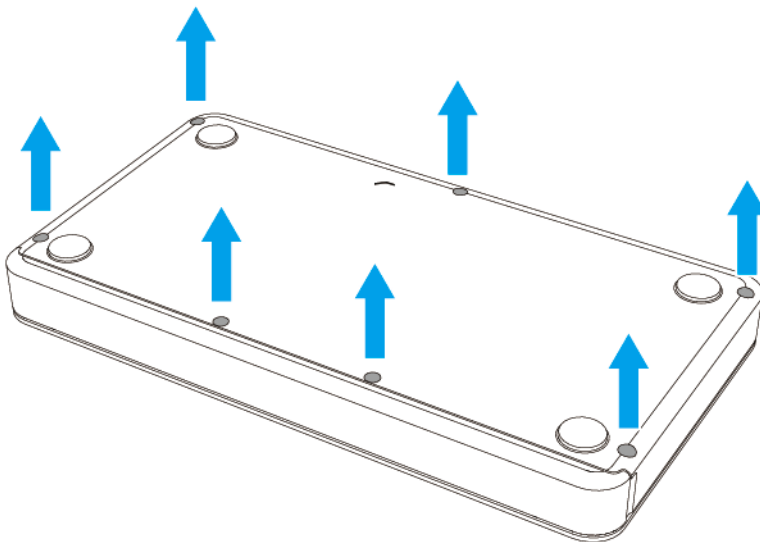
### Note

- The HS-453DX has two M.2 SSD slots. For a list of compatible M.2 SSDs, go to <https://www.qnap.com/compatibility>.
- QNAP recommends installing thermal pads on the M.2 SSD controllers to enhance cooling efficiency and ensure consistent performance.

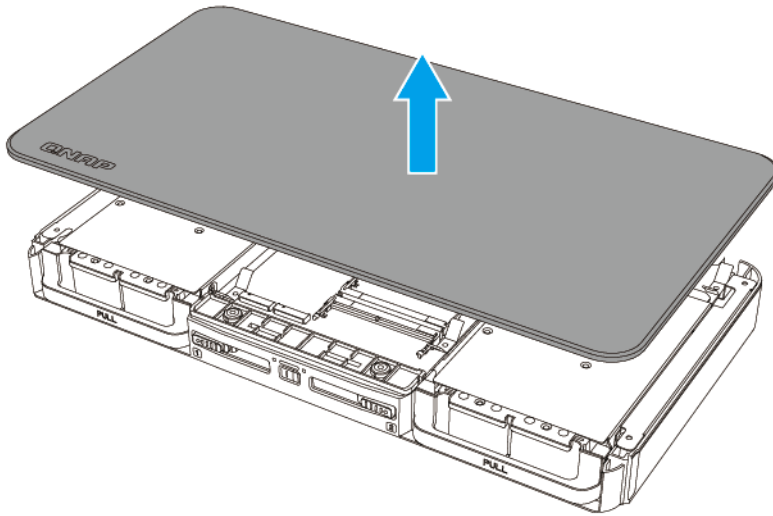
1. Remove the front cover.



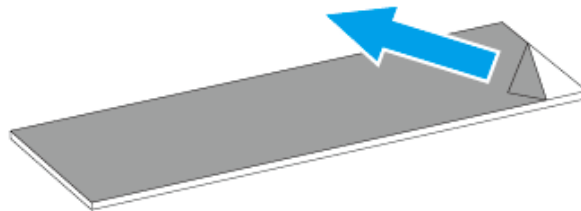
2. Power off the NAS.
3. Disconnect the power cord from the electrical outlet.
4. Disconnect all cables and external attachments.
5. Remove the top cover.
  - a. Turn the NAS upside down.
  - b. Remove the screws.



- c. Place the NAS in its normal upright position.
- d. Lift the top cover off the NAS.



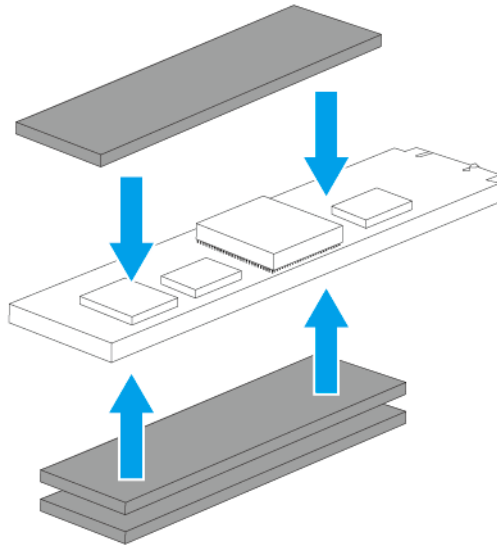
6. Install thermal pads on the M.2 SSD.
  - a. Remove the protective film from the thermal pads.



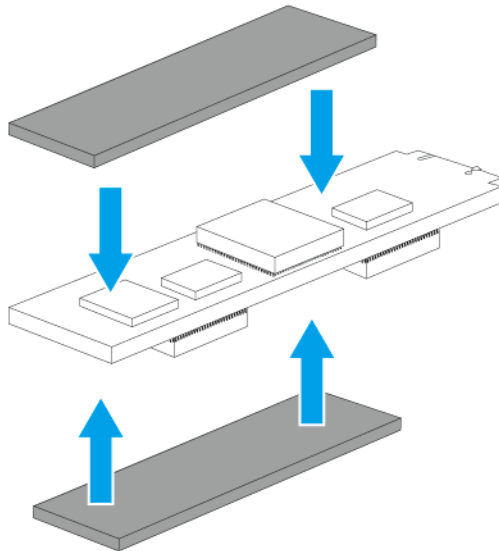
- b. Apply the thermal pads to the M.2 SSD.

**Note**

Single-sided M.2 SSDs have components (e.g., controllers, flash ICs) mounted only on the top side, and double-sided M.2 SSDs have components mounted on both sides.

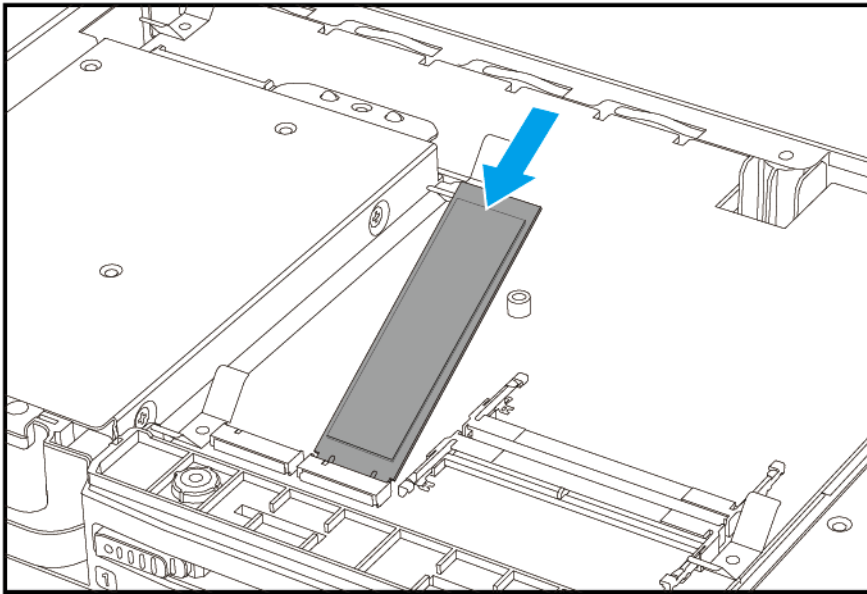


**Single-sided M.2 SSD**

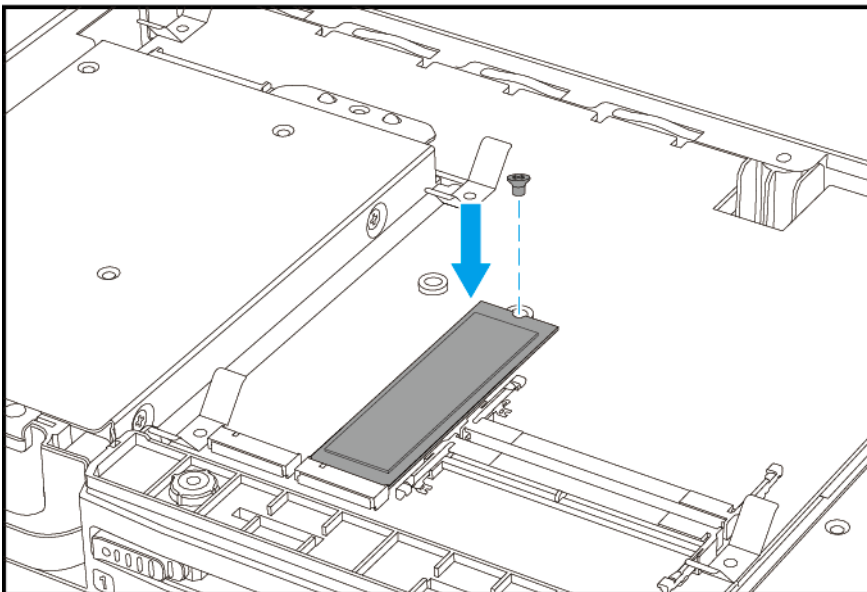


**Double-sided M.2 SSD**

7. Install the M.2 SSD.
  - a. Insert the M.2 SSD.

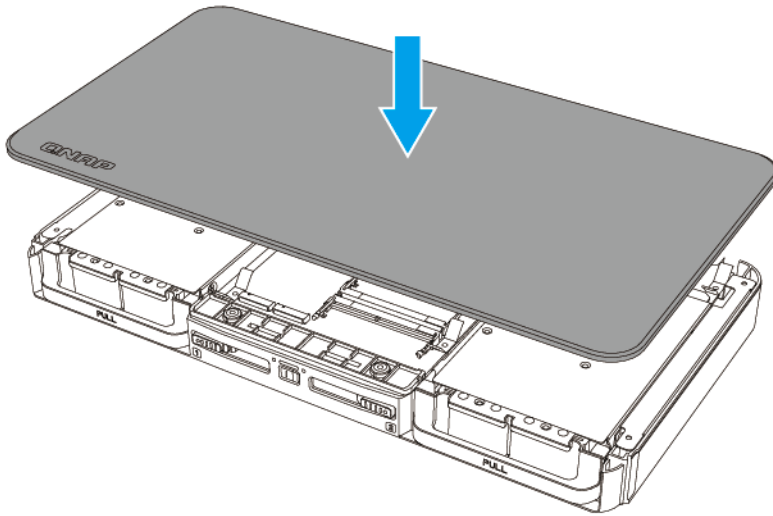


**b.** Attach the screw.

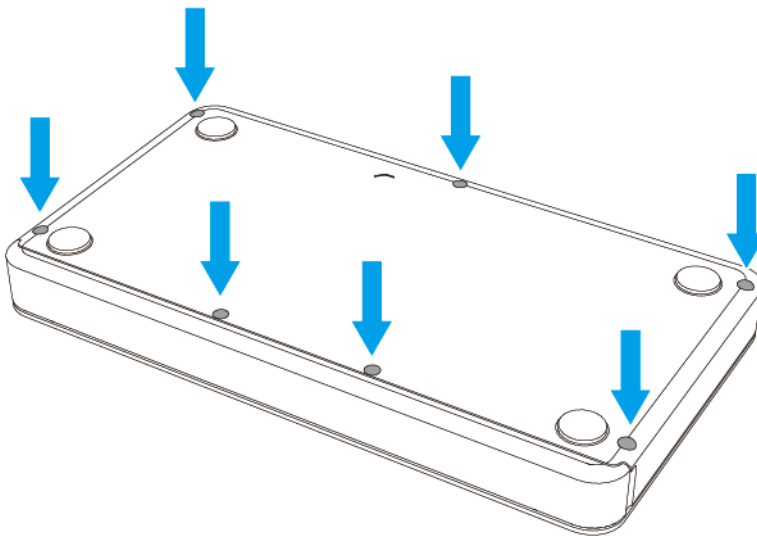


**8.** Attach the top cover.

**a.** Place the top cover on the NAS.

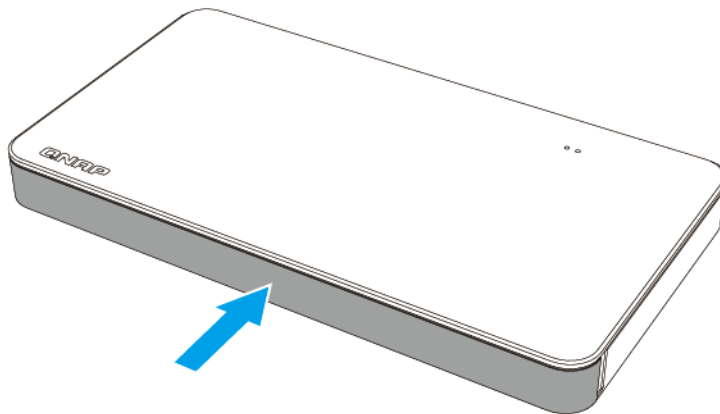


- b.** Turn the NAS upside down.
- c.** Attach the screws.



- d.** Place the NAS in its normal upright position.
- 9.** Connect all cables and external attachments.
  - 10.** Connect the power cord to the electrical outlet.
  - 11.** Power on the NAS.
  - 12.** Attach the front cover.





## Replacing Memory Modules

The HS-453DX has two memory slots. You can increase the memory capacity of the NAS by upgrading the memory modules. When using two modules, use only QNAP modules of the same type and capacity to maintain system performance and stability. You can purchase QNAP memory modules from authorized resellers.



### Warning

- Only qualified personnel should perform the following steps. Failure to follow instructions can result in serious injury or death.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.

•



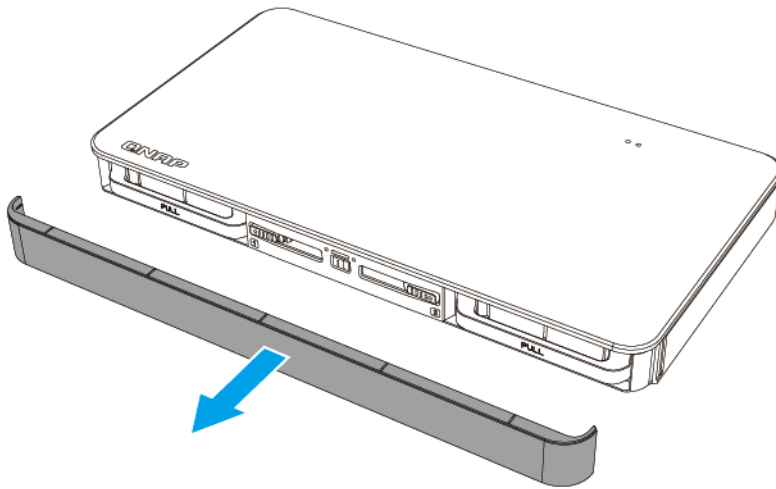
**Moving fan blades:** Keep your hands and other body parts away from moving fan blades.

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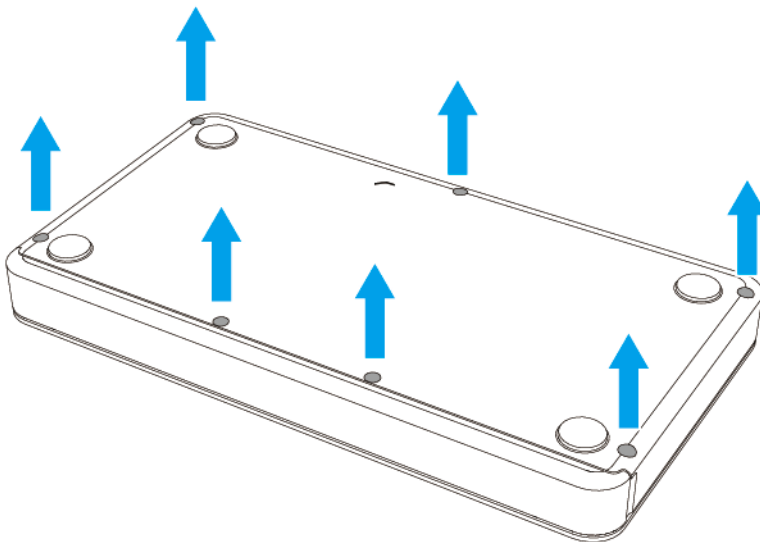


**Other moving components:** Keep your hands and other body parts away from other moving components.

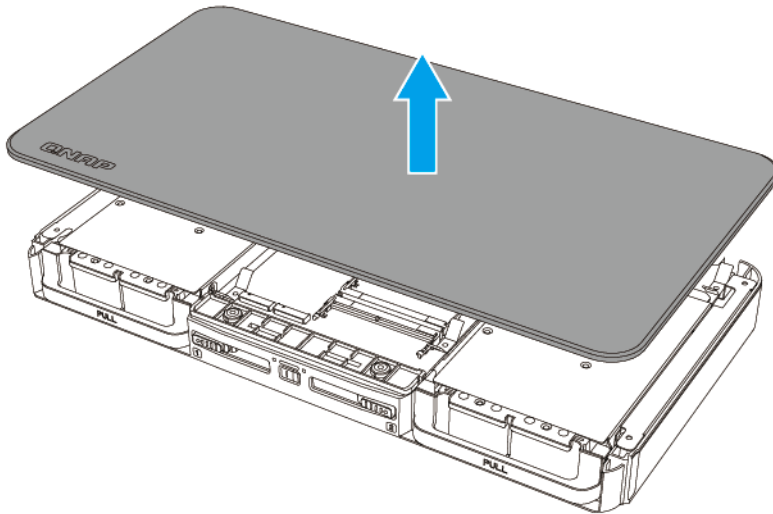
1. Remove the front cover.



2. Power off the NAS.
3. Disconnect the power cord from the electrical outlet.
4. Disconnect all cables and external attachments.
5. Remove the top cover.
  - a. Turn the NAS upside down.
  - b. Remove the screws.

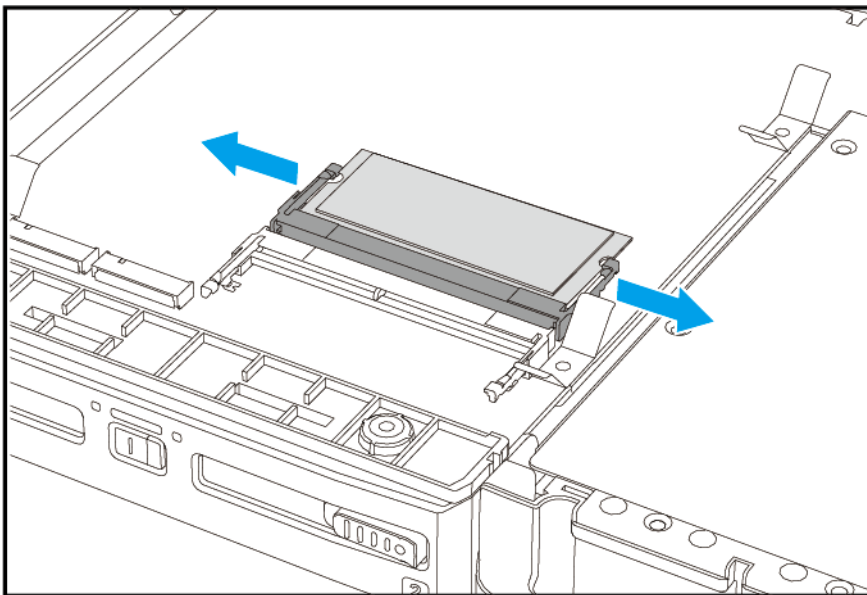


- c. Place the NAS in its normal upright position.
- d. Lift the top cover off the NAS.



6. Remove an existing module.

- a. Push the retention clips outward simultaneously to release the module.



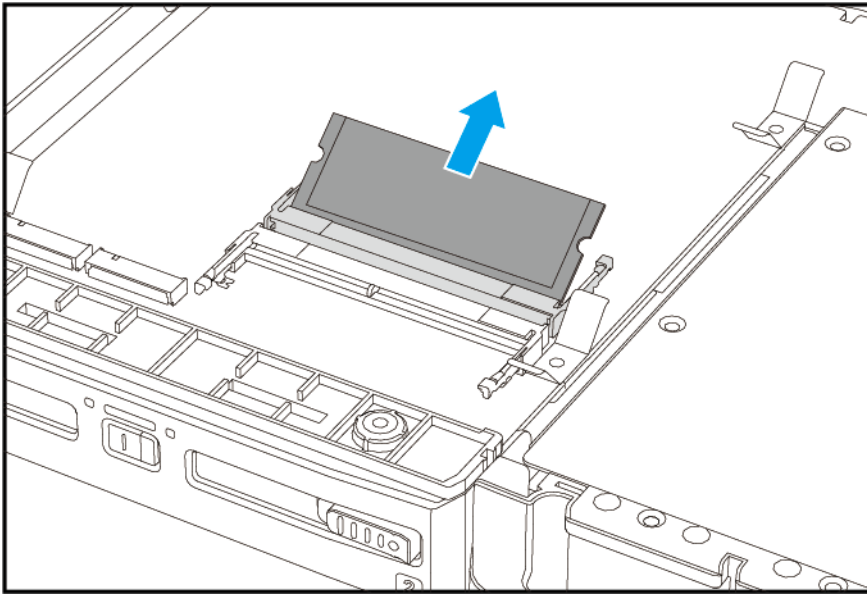
- b. Verify that the module has tilted upward and is completely released from the slot.



**Warning**

Attempting to remove a module that is not completely released may damage the module and the motherboard.

- c. Hold the edges of the module and carefully pull it out of the slot.

**Warning**

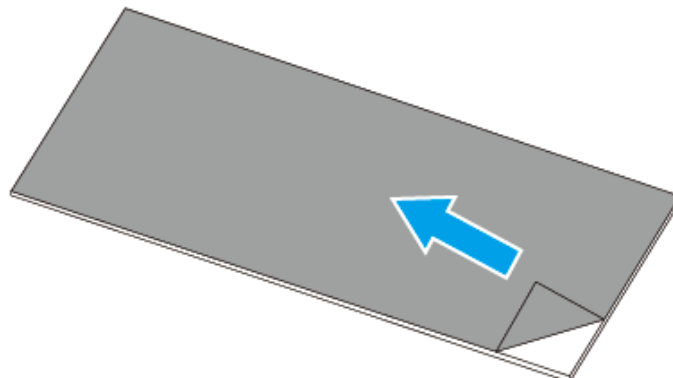
- Do not touch the components, particularly the metal connectors.
- Do not bend the module.

7. Optional: Install a thermal pad on the replacement module.

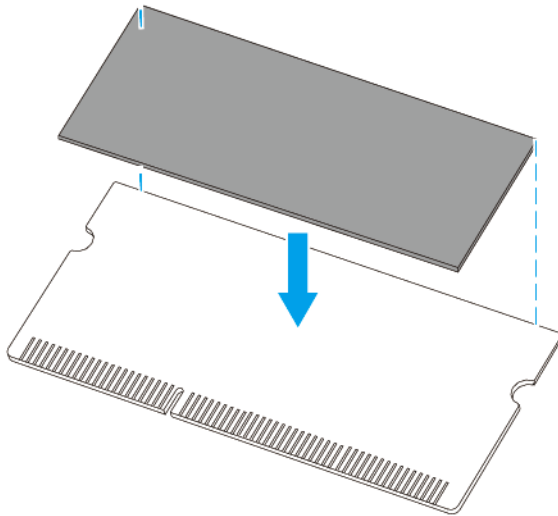
**Tip**

QNAP recommends installing thermal pads on the memory modules to enhance cooling efficiency and ensure consistent performance. Thermal pads can be purchased at [shop.qnap.com](https://shop.qnap.com).

- a. Remove the protective film from the thermal pad.

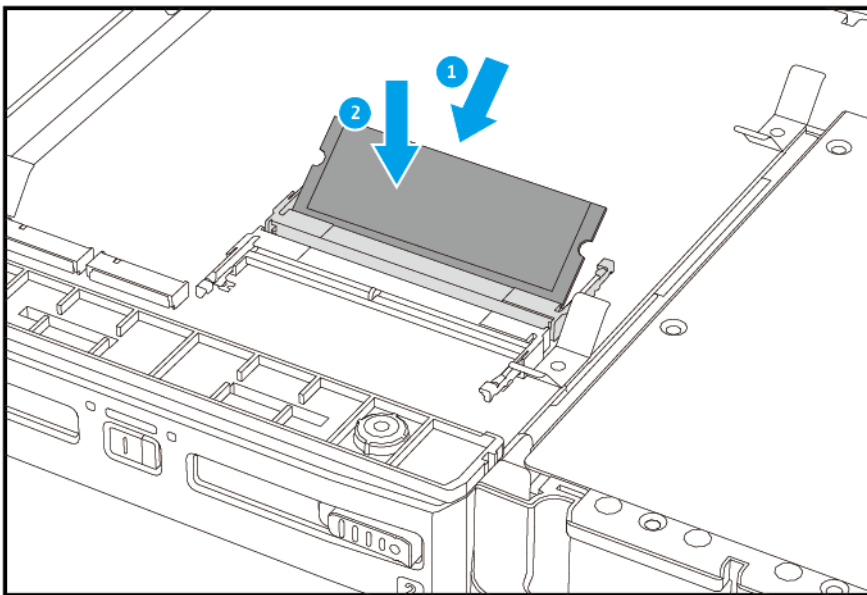


- b. Apply the thermal pad to the module.

**Important**

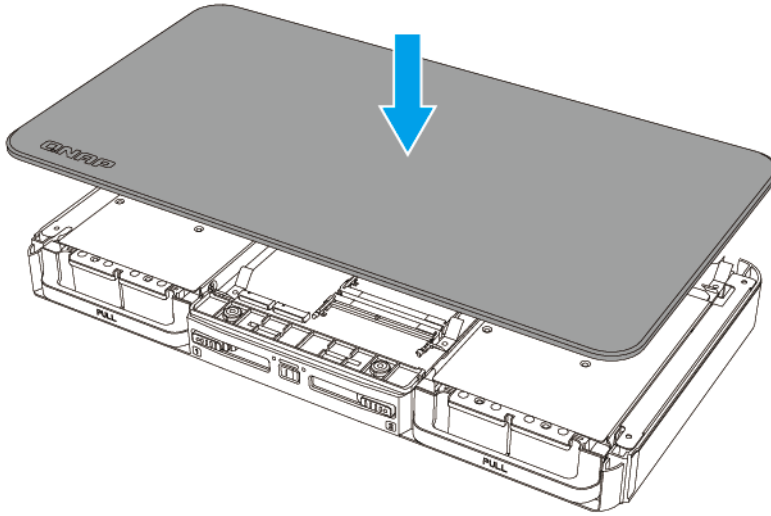
Apply the thermal pad to the side of the module that faces upward.

8. Install a new module.
  - a. Align the notch with the ridge in the slot.
  - b. Insert the module.
  - c. Verify that the metal connectors are fully inserted.
  - d. Carefully press down on the module until the retention clips lock the module into place.



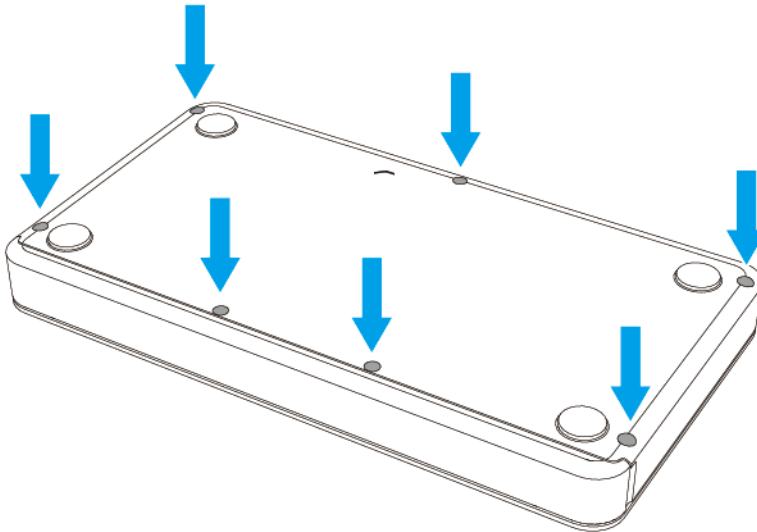
9. Attach the top cover.

- a.** Place the top cover on the NAS.



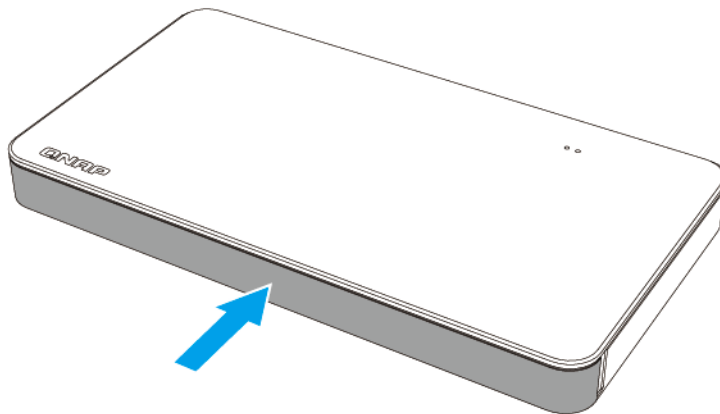
- b.** Turn the NAS upside down.

- c.** Attach the screws.



- d.** Place the NAS in its normal upright position.

- 10.** Connect all cables and external attachments.
- 11.** Connect the power cord to the electrical outlet.
- 12.** Power on the NAS.
- 13.** Attach the front cover.



14. Verify that the module is recognized by the NAS.
  - a. Log on to QTS as administrator.
  - b. Go to **Control Panel > System > System Status > Hardware Information**.
  - c. Check the value for **Total memory**.

## IC Thermal Pads

The HS-453DX comes with preinstalled thermal pads on the CPU, MOSFET, and 10 GbE integrated circuits (ICs). Repeated removal and attachment of the top cover of the NAS may cause these thermal pads to wear out, requiring you to replace them periodically.

You can purchase replacement thermal pads at [shop.qnap.com](http://shop.qnap.com).

## Replacing IC Thermal Pads



### Warning

- Only qualified personnel should perform the following steps. Failure to follow instructions can result in serious injury or death.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.

•



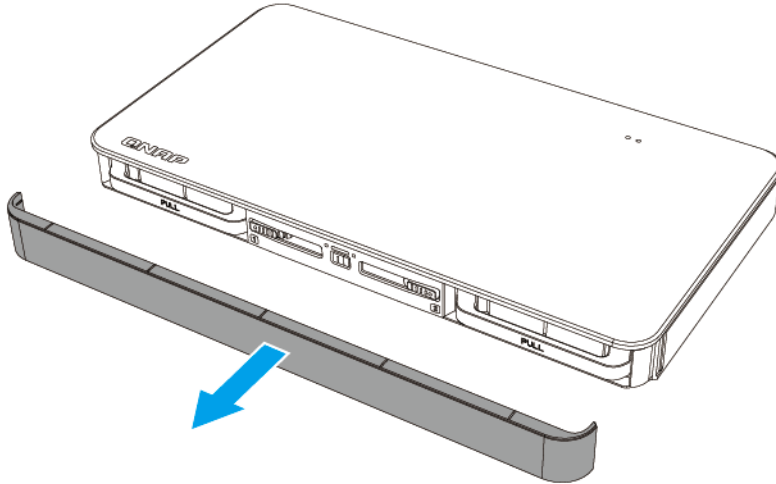
**Moving fan blades:** Keep your hands and other body parts away from moving fan blades.

•

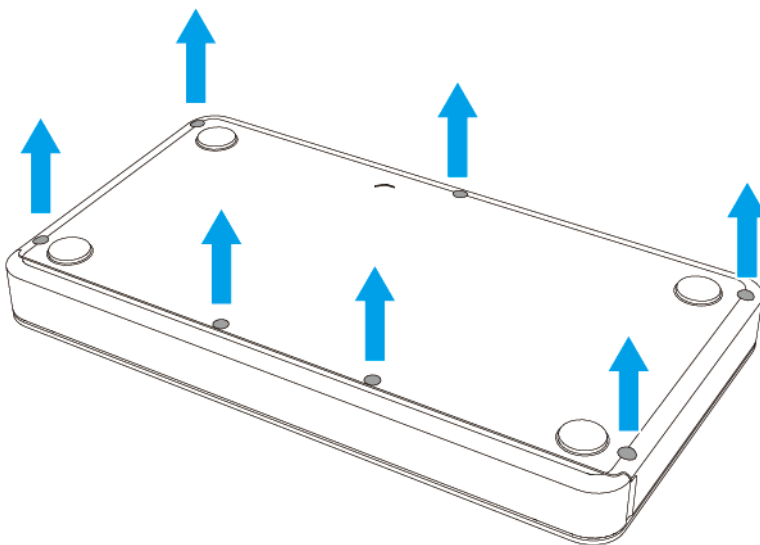


**Other moving components:** Keep your hands and other body parts away from other moving components.

1. Remove the front cover.

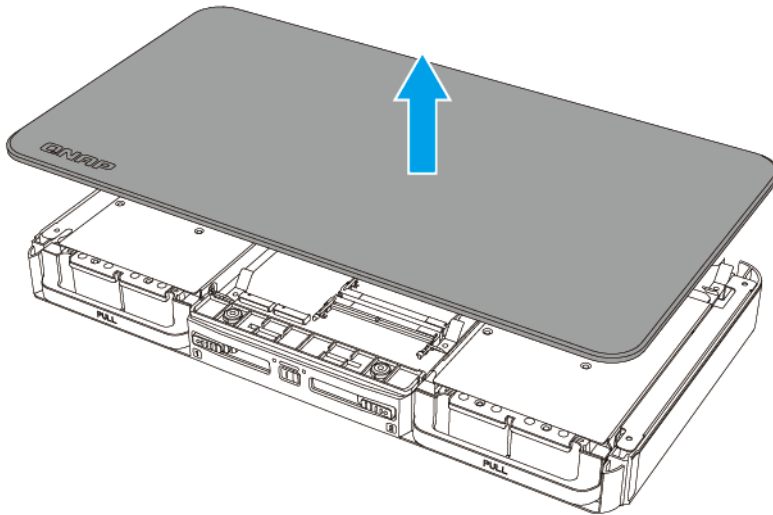


2. Power off the NAS.
3. Disconnect the power cord from the electrical outlet.
4. Disconnect all cables and external attachments.
5. Remove the top cover.
  - a. Turn the NAS upside down.
  - b. Remove the screws.

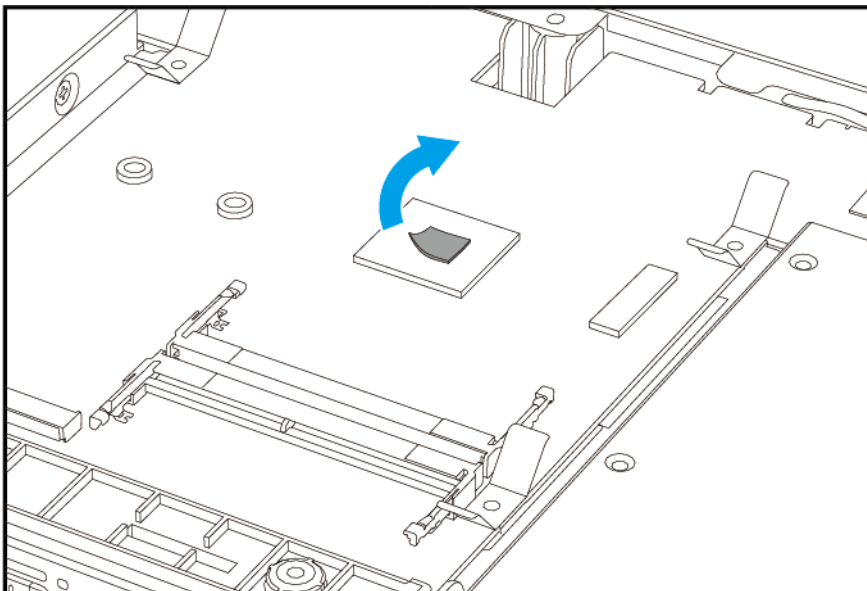




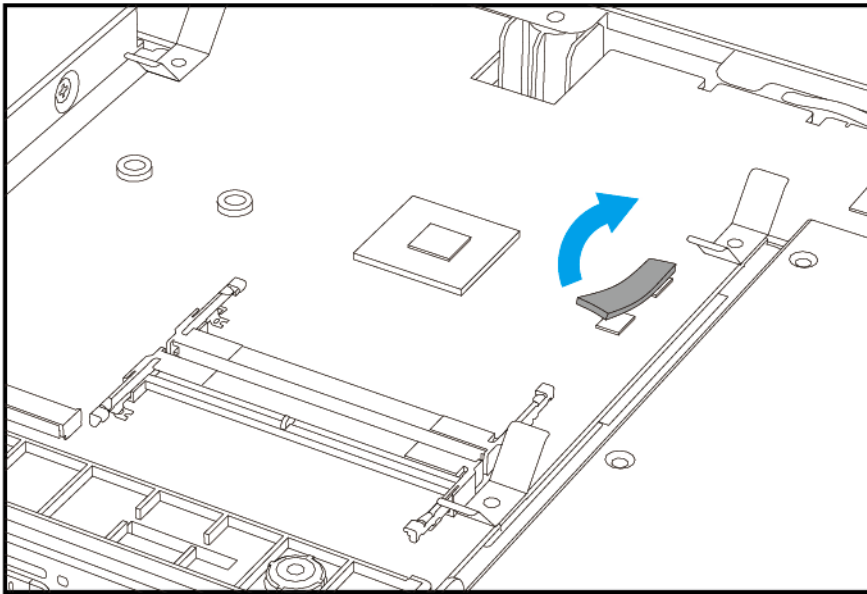
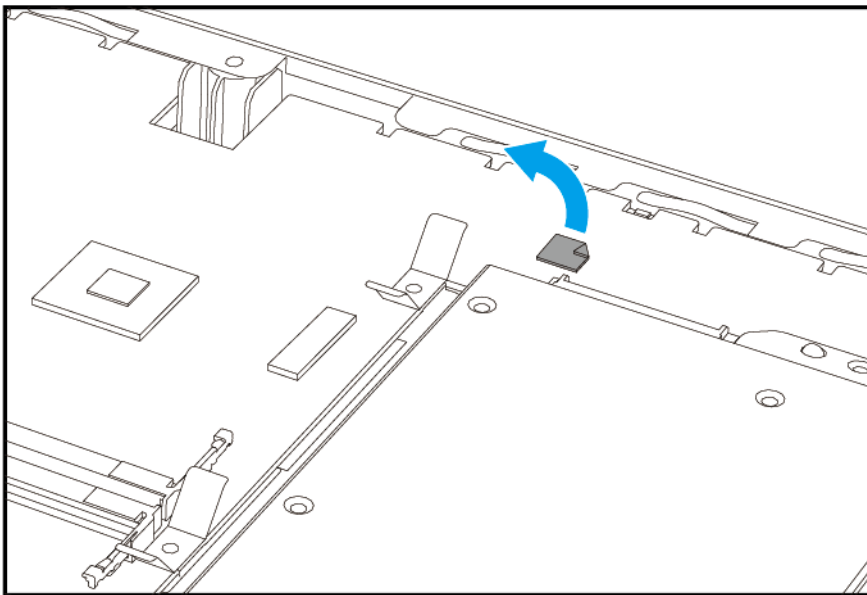
- c. Place the NAS in its normal upright position.
- d. Lift the top cover off the NAS.



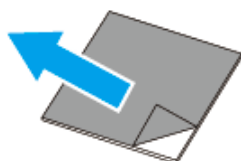
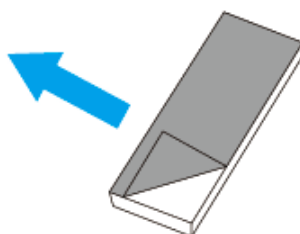
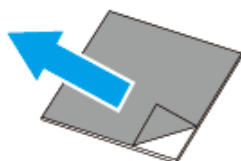
- 6. Locate the IC on the system board.  
For details, see [System Board](#).
- 7. Remove the existing thermal pad from the IC.



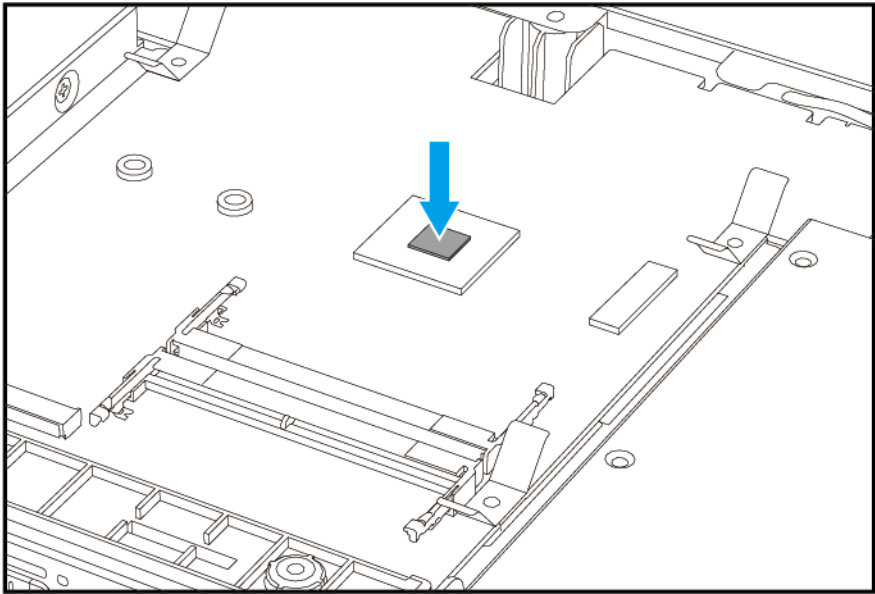
**CPU**

**MOSFET ICs****10 GbE IC**

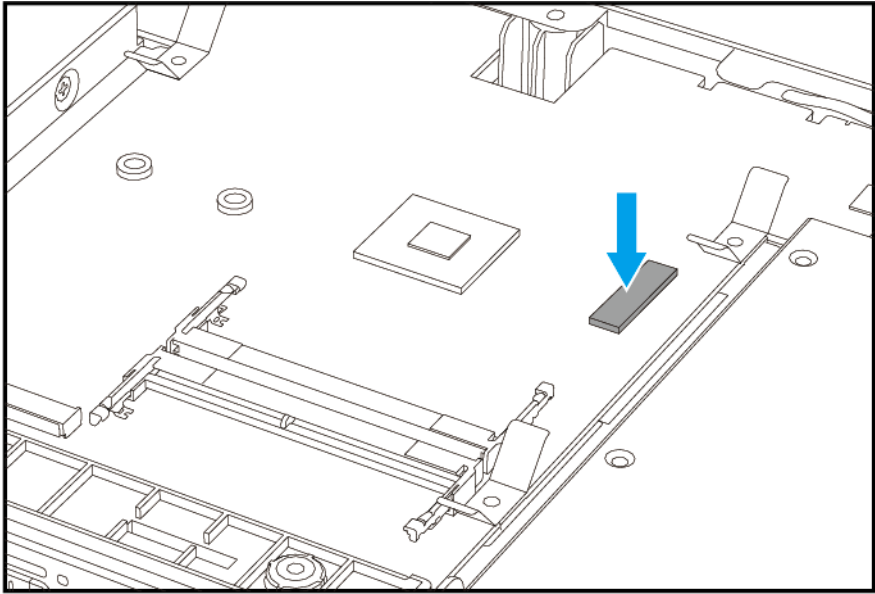
8. Remove the protective film from the thermal pad.

**CPU****MOSFET ICs****10 GbE IC**

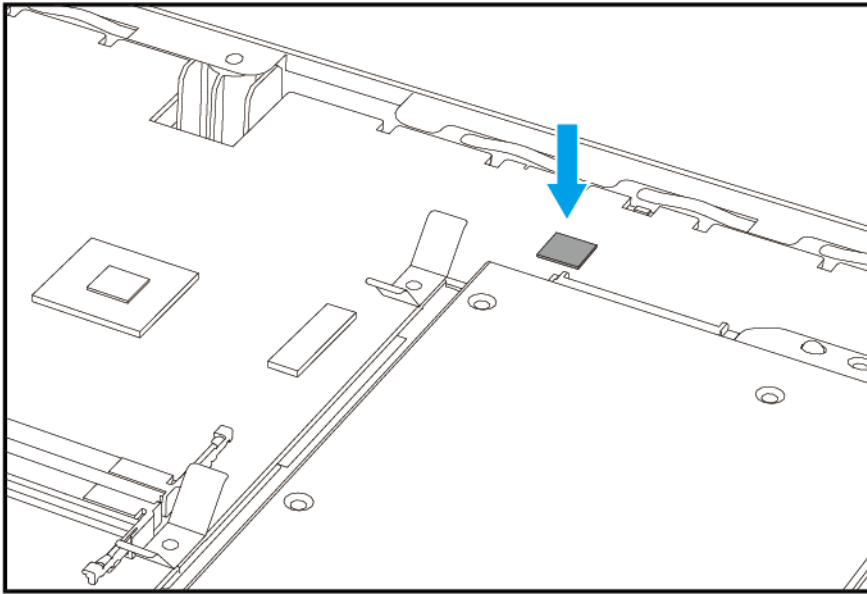
9. Apply the thermal pad to the IC.



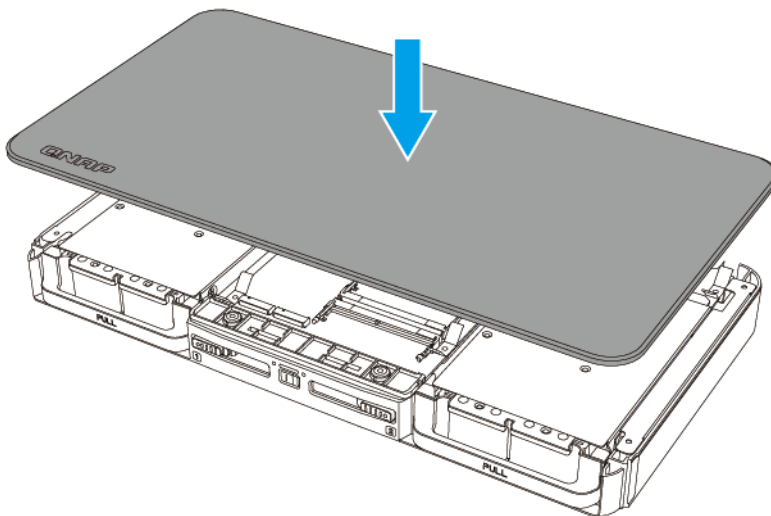
**CPU**



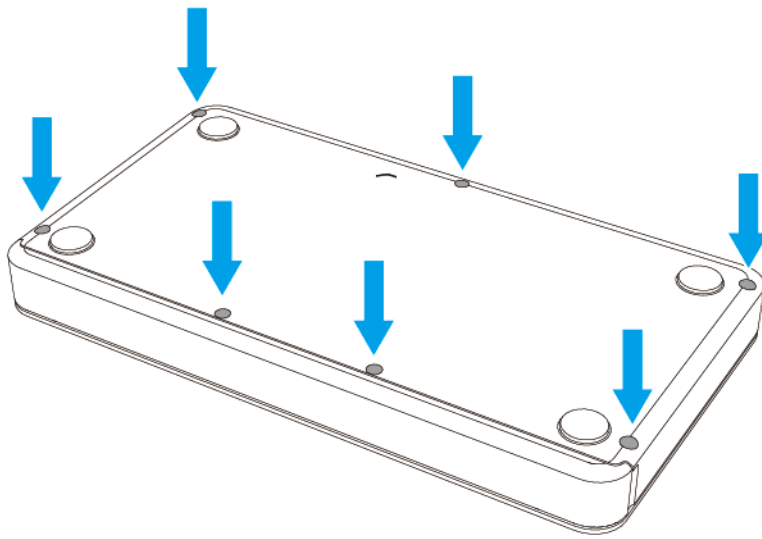
**MOSFET ICs**

**10 GbE IC****10. Attach the top cover.**

- a.** Place the top cover on the NAS.

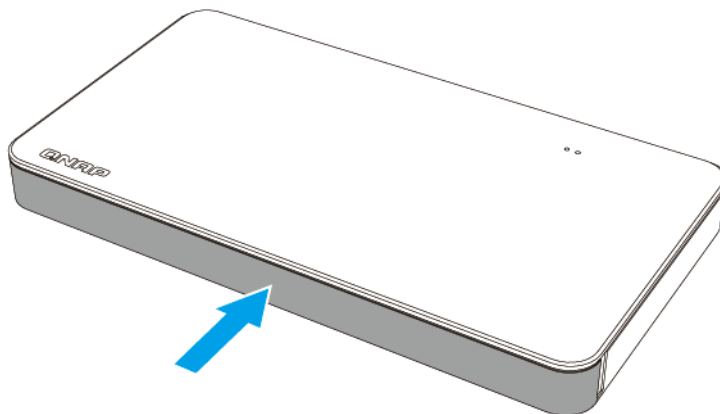


- b.** Turn the NAS upside down.
- c.** Attach the screws.



**d.** Place the NAS in its normal upright position.

- 11.** Connect all cables and external attachments.
- 12.** Connect the power cord to the electrical outlet.
- 13.** Power on the NAS.
- 14.** Attach the front cover.



## QTS Installation

The HS-453DX uses the QNAP QTS operating system. You can install QTS using any of the following methods.

| Method                                 | Description  | Requirements   |
|--|--|--|
| Qfinder Pro installation (Recommended) | <p>If the NAS is connected to your local area network, you can do the following:</p> <ul style="list-style-type: none"> <li>• Locate the NAS using Qfinder Pro.</li> <li>• Complete the steps in the Smart Installation Guide wizard.</li> </ul> <p>For details, see <a href="#">Installing QTS Using Qfinder Pro</a>.</p>   | <ul style="list-style-type: none"> <li>• Computer</li> <li>• Network cable</li> <li>• Qfinder Pro installer</li> </ul>                                     |
| Cloud installation                     | <p>If the NAS is connected to the internet, you can do the following:</p> <ul style="list-style-type: none"> <li>• Scan the QR code on the NAS.</li> <li>• Log into your myQNAPcloud account.</li> <li>• Use CloudLink to remotely access your NAS.</li> <li>• Complete the steps in the Smart Installation Guide wizard.</li> </ul> <p>For details, see <a href="#">Installing QTS Using the Cloud Key</a>.</p> | <ul style="list-style-type: none"> <li>• Computer or mobile device</li> <li>• Network cable</li> <li>• myQNAPcloud account</li> <li>• Cloud Key</li> </ul> |
| Local installation                     | <p>If the NAS supports HDMI output, you can do the following:</p> <ul style="list-style-type: none"> <li>• Connect the NAS to the required hardware.</li> <li>• Complete the steps in the Smart Installation Guide wizard.</li> </ul> <p>For details, see <a href="#">Installing QTS Using an HDMI Connection</a>.</p>   | <ul style="list-style-type: none"> <li>• Monitor</li> <li>• HDMI cable</li> <li>• USB keyboard or Remote control (not available on all models)</li> </ul>  |

## Installing QTS Using Qfinder Pro



### Warning

Installing QTS deletes all data on the drives. Back up your data before proceeding.

1. Power on the NAS.
2. Connect the NAS to your local area network.
3. Run Qfinder Pro on a computer that is connected to the same local area network.



### Note

To download Qfinder Pro, go to <https://www.qnap.com/utilities>.

4. Locate the NAS in the list and then double-click the name or IP address.  
The **Smart Installation Guide** opens in the default web browser.
5. Click **Start Smart Installation Guide**.
6. Specify the following information.

- **NAS name:** Specify a name with 1 to 14 characters. The name supports letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), but cannot end with a hyphen.
- **Password:** Specify an administrator password with 1 to 64 characters. The password supports all ASCII characters.

7. Click **Next**.

8. Specify the time zone, date, and time.



**Tip**

QNAP recommends connecting to an NTP server to ensure that the NAS follows the Coordinated Universal Time (UTC) standard.

9. Click **Next**.

10. Select **Obtain an IP address automatically (DHCP)**.

11. Click **Next**.

12. Select the types of devices that you will use to access shared folders on the NAS.

13. Click **Next**.

14. Select **Configure disks later**.



**Note**

For details on configuring disks, see the Storage Manager section of the QTS User Guide.

15. Click **Next**.

16. Select **No**.



**Note**

- Enabling the multimedia functions allows you to install multimedia applications after configuring the disks in Storage Manager.
- For details on enabling multimedia functions on QTS, see the System Administration section of the QTS User Guide.

17. Click **Next**.

18. Review the settings.

19. Click **Apply**.

A confirmation message appears.



**Warning**

Clicking **Confirm** deletes all data on the drive before installing QTS.

20. Click **Confirm**.

QTS is installed.

## Installing QTS Using the Cloud Key



**Warning**

Installing QTS deletes all data on the drives. Back up your data before proceeding.



1. Power on the NAS.
2. Connect the NAS to the internet.
3. Go to the QNAP Cloud Installation page using one of the following methods:
  - On your computer, go to <http://install.qnap.com/>.
  - Scan the QR code on the NAS using a mobile device.

The web page lists all the uninitialized QNAP NAS devices on the local network.

4. Find your NAS from the list and then click **Initialize**.



**Note**

If your NAS is not listed, follow the instructions on the web page to specify the Cloud Key on the NAS.

The installation wizard opens in the default web browser.

5. Create an account or sign in to myQNAPcloud.



**Note**

You must return to this page to complete the installation after creating an account.

6. Specify the myQNAPcloud device name for the NAS.



**Note**

The myQNAPcloud device name is used when remotely accessing the NAS.

7. Optional: Select **CloudLink**.



**Note**

- CloudLink allows you to remotely access the NAS without having to configure port forwarding on your router. You can remotely access the NAS by logging into QTS or by using mobile apps.
- You can also enable CloudLink by installing the CloudLink app on the NAS.

8. Click **Next**.

The **Smart Installation Guide** opens in the default web browser.

9. Click **Start Smart Installation Guide**.

10. Specify the following information.

- **NAS name:** Specify a name with 1 to 14 characters. The name supports letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), but cannot end with a hyphen.
- **Password:** Specify an administrator password with 1 to 64 characters. The password supports all ASCII characters.

11. Click **Next**.

12. Specify the time zone, date, and time.



**Tip**

QNAP recommends connecting to an NTP server to ensure that the NAS follows the Coordinated Universal Time (UTC) standard.

13. Click **Next**.
14. Select **Obtain an IP address automatically (DHCP)**.
15. Click **Next**.
16. Select the types of devices that you will use to access shared folders on the NAS.
17. Click **Next**.
18. Select **Configure disks later**.



#### Note

For details on configuring disks, see the Storage Manager section of the QTS User Guide.

19. Click **Next**.
20. Select **No**.



#### Note

- Enabling the multimedia functions allows you to install multimedia applications after configuring the disks in Storage Manager.
- For details on enabling multimedia functions on QTS, see the System Administration section of the QTS User Guide.

21. Click **Next**.
22. Review the settings.
23. Click **Apply**.  
A confirmation message appears.



#### Warning

Clicking **Confirm** deletes all data on the drive before installing QTS.

24. Click **Confirm**.  
QTS is installed.

## Installing QTS Using an HDMI Connection



#### Warning

Installing QTS deletes all data on the drives. Back up your data before proceeding.

1. Connect an HDMI monitor to the NAS.
2. Connect a USB keyboard to the NAS or prepare the QNAP IR remote control (not available on all models).
3. Power on the NAS.  
The **Welcome** screen of the Smart Installation Guide appears.
4. Select **Start Smart Installation Guide**.
5. Select **No, skip this process**.

Enabling the multimedia functions allows you to install multimedia applications after configuring the disks in Storage Manager.

For details on enabling multimedia functions on QTS, see the System Administration section of the QTS User Guide.

**6. Select **Configure later**.**

For details on configuring disks, see the Storage Manager section of the QTS User Guide.

**7. Review the settings.**

**8. Click **Next**.**

**9. Review the settings.**

**10. Click **Next**.**

The **Confirm** screen appears.



**Warning**

Clicking **Next** deletes all data on the drive before installing QTS.


**11. Click **Next**.**

QTS is installed.

## 4. Basic Operations

This chapter describes basic NAS operations.

### Power Button

| Operation       | User Action                                | Result  |
|-----------------|--|---|
| Power on        | Press the button once.                     | The NAS powers on.  |
| Power off       | Press and hold the button for 1.5 seconds. | The NAS powers off.   |
| Force power off | Press and hold the button for 5 seconds.   | The NAS shuts down.<br> <b>Important</b><br>Use this method only when the NAS is unresponsive. |

### Reset Button

| Operation             | User Action                               | Result  |
|-----------------------|---|---|
| Basic system reset    | Press and hold the button for 3 seconds.  | The following settings are reset to default: <ul style="list-style-type: none"> <li>• System administrator password: admin</li> <li>• TCP/IP configuration:               <ul style="list-style-type: none"> <li>• Obtain IP address settings automatically via DHCP</li> <li>• Disable jumbo frames</li> <li>• If port trunking is enabled (multi-LAN models only), the port trunking mode is reset to "Active Backup (Failover)".</li> </ul> </li> <li>• System port: 8080 (system service port)</li> <li>• Security level: Low (Allow all connections)</li> <li>• LCD panel password: (blank)</li> <li>• VLAN: Disabled</li> </ul> |
| Advanced system reset | Press and hold the button for 15 seconds. | The default factory settings are restored. <ul style="list-style-type: none"> <li>• To retrieve old data after an advanced system reset, recreate the previous folder structure on the NAS.</li> </ul>  |

### LEDs

LEDs indicate system status and related information when the NAS is powered on. The following LED information applies only when the drive is correctly installed and when the NAS is connected to the network.

For details on the location of the LEDs, see [Components](#).

| LED           | Status  | Description   |
|---------------|---|---|
| System Status | Flashes green and red alternately every 0.5 seconds | <ul style="list-style-type: none"> <li>• The drive is being formatted.</li> <li>• The NAS is being initialized.</li> <li>• The operating system is being updated.</li> <li>• RAID rebuilding is in progress.</li> <li>• Online RAID Capacity Expansion is in progress.</li> <li>• Online RAID Level Migration is in progress.</li> </ul>  |
|               | Red   | <ul style="list-style-type: none"> <li>• The drive is invalid.</li> <li>• The disk volume has reached its full capacity.</li> <li>• The disk volume is about to reach its full capacity.</li> <li>• The system fan is not functioning.</li> <li>• An error occurred when accessing (read/write) the data.</li> <li>• A bad sector is detected on the hard drive.</li> <li>• The NAS is in degraded read-only mode (two member drives failed in RAID 5 or RAID 6 but the data can still be read).</li> <li>• Hardware self-test error</li> </ul> |
|               | Flashes red every 0.5 seconds                       | The NAS is in degraded mode (one member drive failed in RAID 1, RAID 5, or RAID 6).   |
|               | Flashes green every 0.5 seconds                     | <ul style="list-style-type: none"> <li>• The NAS is starting up.</li> <li>• The NAS is not configured.</li> <li>• A drive is not formatted.</li> </ul>  |
|               | Green   | The NAS is ready.   |
|               | Off   | All drives are in standby mode.   |
| Drive         | Flashes red   | The data is being accessed and a read/write error occurs during the process.  |
|               | Red   | A drive read/write error occurred.  |
|               | Flashes green                                       | The data is being accessed.   |
|               | Green   | The drive can be accessed.  |

## Beep Alarm

| Duration                 | Frequency           | Description   |
|--------------------------|---------------------|---|
| Short beep (0.5 seconds) | 1                   | <ul style="list-style-type: none"> <li>The NAS is starting up.</li> <li>The NAS is shutting down (software shutdown).</li> <li>The user pressed the Reset button.</li> <li>The operating system was updated.</li> </ul>   |
|                          | 3                   | The user tried to copy the NAS data to the external storage device from the front USB port, but the data cannot be copied.  |
| Long beep (1.5 seconds)  | 3 (every 5 minutes) | The system fan is not functioning.  |
|                          | 2                   | <ul style="list-style-type: none"> <li>The disk volume is about to reach its full capacity.</li> <li>The disk volume has reached its full capacity.</li> <li>The drives are in degraded mode.</li> <li>The user started the drive rebuilding process.</li> <li>A drive is plugged in or out.</li> </ul> |
|                          | 1                   | <ul style="list-style-type: none"> <li>The NAS was powered off by force shutdown (hardware shutdown).</li> <li>The NAS was powered on successfully and is ready.</li> </ul>   |

## 5. Troubleshooting

This chapter describes basic troubleshooting information.

### Forcing Qfinder Pro or myQNAPcloud to Locate the NAS

If Qfinder Pro or myQNAPcloud is unable to locate the NAS during QTS installation, the drives or data may be faulty.

1. Power off the NAS.
2. Remove all drives.
3. Power on the NAS.
4. Locate the NAS using Qfinder Pro or myQNAPcloud.
5. Reinsert the drives.
6. Continue with the QTS installation.

### Hot-swapping Failed Drives

The NAS supports hot-swapping of drives in the following situations:

- RAID 1: One member drive fails
- RAID 5: One member drive fails
- RAID 6: One or two member drives fail

1. Log on to QTS.
2. Go to **Main Menu > Storage & Snapshots > Storage > Disks/VJBOD**.
3. Locate the failed drive.
4. Prepare a new hard drive with a capacity that is the same as or larger than the failed hard drive.
5. Remove the failed drive from the NAS.
6. Wait for 20 seconds or until the NAS beeps twice.
7. Remove the failed drive from the drive tray.
8. Insert the new drive into the drive tray.
9. Install the new drive.  
The NAS beeps twice.
10. Go to **Main Menu > Storage & Snapshots > Storage > Storage/Snapshots**.
11. Locate the volume that contains the new drive and then verify that the status is **Rebuilding**.

### Support and Other Resources

QNAP provides the following resources:

| Resource        | URL   |
|-----------------|---|
| Documentation   | <a href="http://docs.qnap.com">http://docs.qnap.com</a>         |
| Helpdesk        | <a href="http://helpdesk.qnap.com">http://helpdesk.qnap.com</a> |
| Downloads       | <a href="http://download.qnap.com">http://download.qnap.com</a> |
| Community Forum | <a href="http://forum.qnap.com">http://forum.qnap.com</a>       |



## 6. Glossary

### **CloudKey**

Unique 8-digit code assigned to each NAS device

### **CloudLink**

Enables you to access the NAS over the internet without configuring complex port forwarding settings

### **myQNAPcloud**

Provides various remote access services such as DDNS and CloudLink

### **myQNAPcloud ID**

Email address that was used to register for a myQNAPcloud account

### **Qfinder Pro**

Enables you to locate and access the QNAP NAS devices in your local area network

### **QTS**

QNAP NAS operating system

## 7. Notices

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Version 3, 29 June 2007

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### FCC Class B Notice



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

**Note**

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 a residential installation. 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, the user is 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 the dealer or an experienced radio/television technician for help.

**Important**

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VCCI-B

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