XN7024R Hardware

Owner's Manual

QSAN Technology, Inc.   www.qsan.com

Edition 1.1 (December 2018)

This edition applies to QSAN XCubeNAS XN7024R NAS storage systems. QSAN believes the information in this publication is accurate as of its publication date. The information is subject to change without notice.

Notices

The Information contained in this manual has been reviewed for accuracy. It may include typographical errors or technical inaccuracies. Changes are made to the document periodically. These changes will be incorporated in new editions of the publication. QSAN may make improvements or changes in the products. All features, functionality, and product specifications are subject to change without prior notice or obligation. All statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products.

All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

Regulatory Statements

CE Statement

This device has been shown to be in compliance with and was tested in accordance with the measurement procedures specified in the Standards and Specifications listed below.

Technical Standard: EMC DIRECTIVE 2014/30/EU Class A

(EN55032 / EN55024)

FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.

2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and uses in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Notice: The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equivalent.

BSMI Statement

警告：這是甲類的資訊產品。在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

VCCI Statement

この装置は、クラス A 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

VCCI-A

Safety Warnings

1. The XCubeNAS can operate normally in the temperature of 0°C~40°C (31.99 ~ 103.99°F). Please make sure the environment is well-ventilated.

2. The power cord and devices connected to the XCubeNAS must provide a correct supply voltage (100-127V~/ 10A, 50-60Hz. 200-240V~/ 5A, 50-60Hz).

3. Do not place the XCubeNAS in direct sunlight or near chemicals. Make sure the temperature and humidity of the environment are in the optimized level.

4. Place the product right side up at all times.

5. Unplug the power cord and all connected cables before cleaning. Wipe the XCubeNAS with a dry towel. Do not use chemical or aerosol to clean the NAS.

6. Do not place any objects on the XCubeNAS for the server's normal operation and to avoid overheat.

7. Use the screws provided in the product package to lock the hard disks in the XCubeNAS when installing hard disks for proper operation.

8. Do not place the XCubeNAS near any liquid.

9. Do not place the XCubeNAS on any uneven surface to avoid falling off and damage.

10. Do no place the XCubeNAS on the ground and do not step on the system to prevent any potential damages.

11. Make sure the voltage is correct in the location where the XCubeNAS is installed. Contact the distributor or the local power supply company for the information.

12. Do not place any object on the power cord.

13. Do not attempt to repair the XCubeNAS in any occasions. Improper disassembly of the product may expose the users to electric shock or other risks. For any inquiries, please contact the distributor.

14. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.

15. The XCubeNAS should only be installed in restricted access location such as in the server room and maintained by the qualified service person. The server room is locked by key or keycard, or other means of security access and only a qualified service person is allowed to enter the server room.

CAUTION: (English)

Replacing incorrect type of battery will have the risk of explosion. Please replace the same or equivalent type battery use and dispose of used batteries according to the instructions.

INFORMATION:

QSAN provides a limited warranty for QSAN-branded hardware products:

- System hardware and peripheral product (s): **3** years limited warranty from date of original purchase.

For more detail warranty policy, please refer to QSAN official website:

https://www.qsan.com/en/warranty.php

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Preface

About This Manual

This manual provides technical guidance for designing and implementing QSAN XN7024R system, and it is intended for use by system administrators, NAS designers, storage consultants, or anyone who has purchased this product and is familiar with servers and computer networks, network administration, storage system installation and configuration, network attached storage management and relevant protocols.

> ⚠️ **CAUTION:**
> Do NOT attempt to service, change, disassemble or upgrade the equipment's components by yourself. Doing so may violate your warranty and expose you to electric shock. Refer all servicing to authorized service personnel. Please always follow the instructions in this owner's manual.

Related Documents

There are related documents which can be downloaded from the website.

- XCubeNAS QIG (Quick Installation Guide): https://www.qsan.com/en/download.php
- Compatibility Matrix: https://www.qsan.com/en/download.php
- XCubeNAS QSM user manual: https://www.qsan.com/en/download.php
- Online FAQ: https://www.qsan.com/en/faq.php
- White Papers: https://www.qsan.com/en/download.php
- Application Notes: https://www.qsan.com/en/download.php

Technical Support

Do you have any questions or need help troubleshooting a problem? Please contact QSAN Support, we will reply to you as soon as possible.

- Via the Web: http://www.qsan.com/en/contact_support.php
- Via Telephone: +886-2-7720-2118 extension 136
  (Service hours: 09:30 - 18:00, Monday - Friday, UTC+8)
- Via Skype Chat, Skype ID: qsan.support
  (Service hours: 09:30 - 02:00, Monday - Friday, UTC+8, Summertime: 09:30 - 01:00)
- Via Email: support@qsan.com

Information, Tip and Caution

This manual uses the following symbols to draw attention to important safety and operational information.

INFORMATION:
INFORMATION provides useful knowledge, definition, or terminology for reference.

TIP:
TIP provides helpful suggestions for performing tasks more effectively.

CAUTION:
CAUTION indicates that failure to take a specified action could result in damage to the system.

Conventions

The following table describes the typographic conventions used in this manual.

Conventions	Description
Bold	Indicates text on a window, other than the window title, including menus, menu options, buttons, fields, and labels. Example: Click the **OK** button.
<Italic>	Indicates a variable, which is a placeholder for actual text provided by the user or system. Example: copy *<source-file> <target-file>*.
[ ] square brackets	Indicates optional values. Example: [a | b] indicates that you can choose a, b, or nothing.
{ } braces	Indicates required or expected values. Example: { a | b } indicates that you must choose either a or b.
| vertical bar	Indicates that you have a choice between two or more options or arguments.
/ Slash	Indicates all options or arguments.
underline	Indicates the default value. Example: [a | b]

1.   Overview

Thank you for purchasing QSAN XN7024R. The XN7024R is next generation high-efficiency NAS system which is designed for composite SMB and enterprise applications for enterprise and SMB users. Before setting up your new XN7024R, please check the package contents to verify those items below. Besides, make sure to read the safety instructions carefully.

1.1.   Package Contents

Main Unit *1	
AC Power cord *2	RJ45 Cable *1
Screws for 3.5" drives (#6-32) *100	Screws for 2.5" drives (M3) *100

1.2. XN7024R Product Overview

QSAN XN7024R is a powerful NAS system, composed of the system hardware and the QSM operating system, designed for both enterprise and SMB users. The system hardware is a modular design and FRU (field replacement unit) optimized, features the Intel enterprise level Xeon CPU and up to 128GB of DDR4 ECC RAM. All the hardware modules are inside the rackmount chassis including: system controllers, front panel, rear panel, redundant power supply and fan modules, and expansion slots for optional 10GbE or 1GbE host cards. Following is the feature list of XN7024R:

- With Intel® Pentium® 1.6GHz Quad-Core Processor.
- SAS 12Gb/s and SATA 6Gb/s (backward compatible with SAS 6Gb/s and SATA 3Gb/s) supported.
- 8GB DDR4 ECC U-DIMM RAM (Max 32GB *4 = 128GB).
- Built-in 1GbE Network Interface *1 and 10GbE Network Interface *2.
- Built-in 12Gb/s SAS wide ports *2 for capacity expansion.
- Tool-less design for fan-module and power supply replacing.

Following tables are hardware specifications of XN7024R.

Model Name	XN7024R
Form Factor	Rackmount, 4U 24bay
CPU	Intel® Pentium® 1.6GHz Quad-Core Processor
RAM	8GB DDR4 ECC U-DIMM (Max 128GB) Note: The pre-install memory modules may need to be replaced when expanding the memory.
USB	USB 3.0 x2 (Rear) USB 2.0 x1 (Front)
Flash	8GB SATA DOM
Tray type	3.5" HDD tray with lock x24
No. of Internal Hard Disks	24 (LFF[1] disk)
Max. Raw Capacity	14TB x 24 = 336 TB (LFF=14TB)
Hard Drive Interface	SAS 12Gb/s and SATA 6Gb/s (backward compatible with SAS 6Gb/s and SATA 3Gb/s)

Host Connectivity	Optional: 4 x 10GbE (SFP+) ports[2] 2 x 10GbE (RJ45) ports 4 x 1GbE (RJ45) ports 4 x 16Gb FC (SFP+) ports[2] 2 x 16Gb FC (SFP+) ports[2]
Expansion Connectivity	Built-in 2 x 12Gb/s SAS wide ports (SFF-8644)
Ethernet Ports	1 GbE LAN (RJ45) x1 10 GbE LAN (RJ45) x2
PSU	770W/850W 1+1 redundant (80 PLUS Platinum) 100-127V~/ 10A, 50-60Hz 200-240V~/ 5A, 50-60Hz
Dimension (H x W x D) (mm)	19" Rack mount 170.3 x 438 x 515
Agency Certifications	FCC Class A · CE Class A · BSMI Class A · VCCI Class A

Note: Model specifications are subject to change without notice. Please refer to http://www.qsan.com for the latest information.

[1] LFF : Large Form Factor / 3.5" disk drive

[2] Slot 2 only provides 20Gb bandwidth

2.   Hardware Overview

This chapter outlines the key hardware components of the XN7024R system. After reading this chapter, you will have a basic understanding of each XN7024R hardware component and give you the ability to be able to successfully configure and operate your XN7024R system. Following is the key components of XN7024R:

- Front and Rear Panel
- System Controller
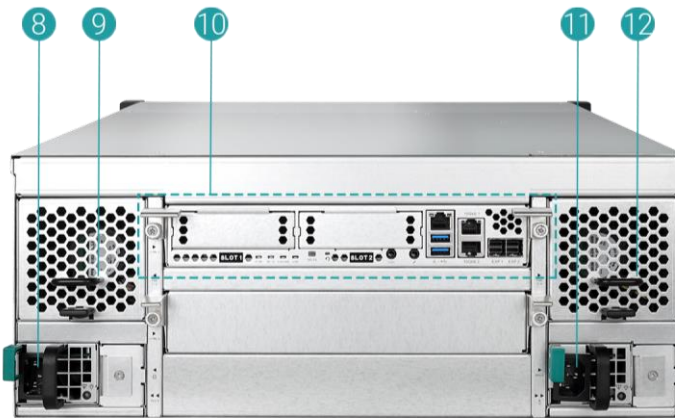- System Disk Drive Numbering
- Disk Drive Form Factors

2.1.   Front and Rear Panel

The figure below contains the information about buttons and indicators modules.
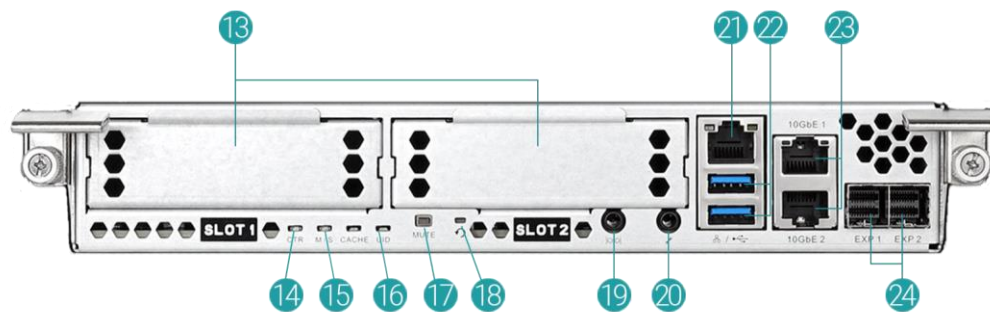
Front Panel

Rear Panel

System Controller

Table 2-1   Descriptions of System Controls and Indicators

Number	Location	Description
1	Front	Power Button/LED Indicator for Power Status
2		Unique Identifier (UID) Button/LED Indicator
3		System Access LED Indicator
4		System Status LED Indicator
5		USB 2.0 Port
6		Disk Drive Power LED Indicator
7		Disk Drive Status LED Indicator
8	Back	Power Supply Unit 1
9		Fan Module 1

10		Controller Module
11		Power Supply Unit 2
12		Fan Module 2
13		Additional Host Card Expansion Slot
14		Controller Status LED
15		Master/Slave LED
16		Unique Identifier (UID) LED Indicator
17		Mute Button
18	System	Reset Button
19	Controller	Console Port (3.5mm jack to RS232)
20		Service Port
21		Gigabit LAN Port
22		USB 3.0 Port
23		10GbE (RJ45) Port
24		12Gb/s SAS Wide Port (SFF8644)

For a better understanding of the related colors and behaviors of each indicator on the front panel, please refer to the chapter 7. LED Indicator Table section.

2.2.   System Disk Drive Numbering

Figures below illustrate XN7024R system disk drive numbering. You can find a disk drive numbering sticker on the top cover of the system chassis.
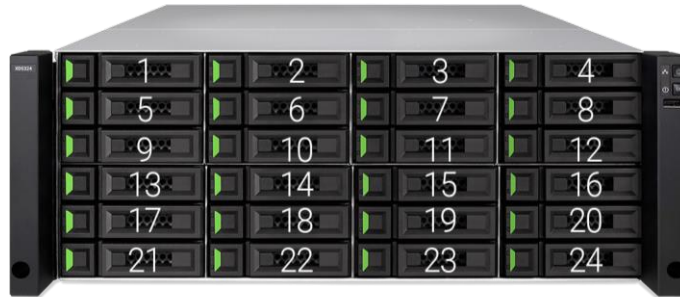
2.3.   Disk Drive Form Factors

QSAN has tested and approved the popular SAS HDDs, SATA HDDs and SSDs models available on the market, you have the highest flexibility to choose the most advanced HDDs or SSDs available from the manufacturers or purchase the best cost/performance SAS/SATA HDDs or SSDs from the market, it will significantly reduce your IT infrastructure investment cost. Please refer to the following website for the compatibility of HDD and SSD: https://www.qsan.com/en/download.php

Table 2-2   Supported Disk Drive Types

Form Factor	Number of Tray	Supported Drive Type
3.5" LFF Tray	24	3.5" SAS/NL-SAS/SATA HDD
		2.5" SAS/SATA SSD

TIP:

1. 2.5" SAS/SATA drives can also be installed on 3.5" LFF trays.

2. If you would like to maximize volume space with RAID being set, we recommend that all your installed drives be the same size.

3. Please contact a QSAN authorized reseller for details purchasing information.

3. Install the System Hardware

This chapter will show you the procedure of XN7024R hardware installation and initial configuration.

3.1. Install the Disk Drive in the Tray

3.1.1. Tools and Parts for Drive Installation

- A screwdriver (Phillips #1).

- At least one 3.5" or 2.5" SAS/SATA drive (please visit www.qsan.com for compatible drive models).

> ⚠️ **CAUTION:**
> Please ensure that there is no data on the disk to prevent important data being formatted.
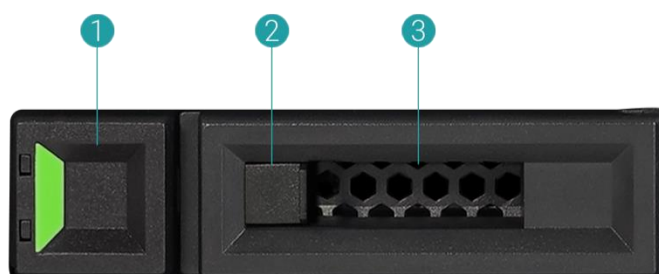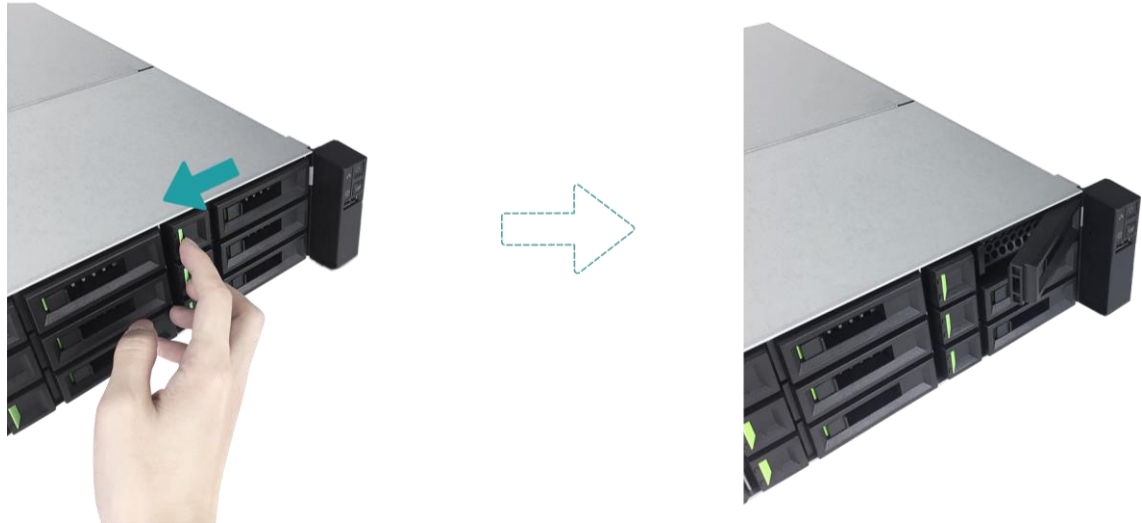
3.1.2. LFF Disk Drive Description

Table 3-1   Front Side Components of LFF Disk Drive Trays

Item Number	Description
1	Release Button
2	Disk Drive Lock
3	Carrier Handle

3.1.3. Install the Disk Drive (LFF)

1. Open the drive tray.
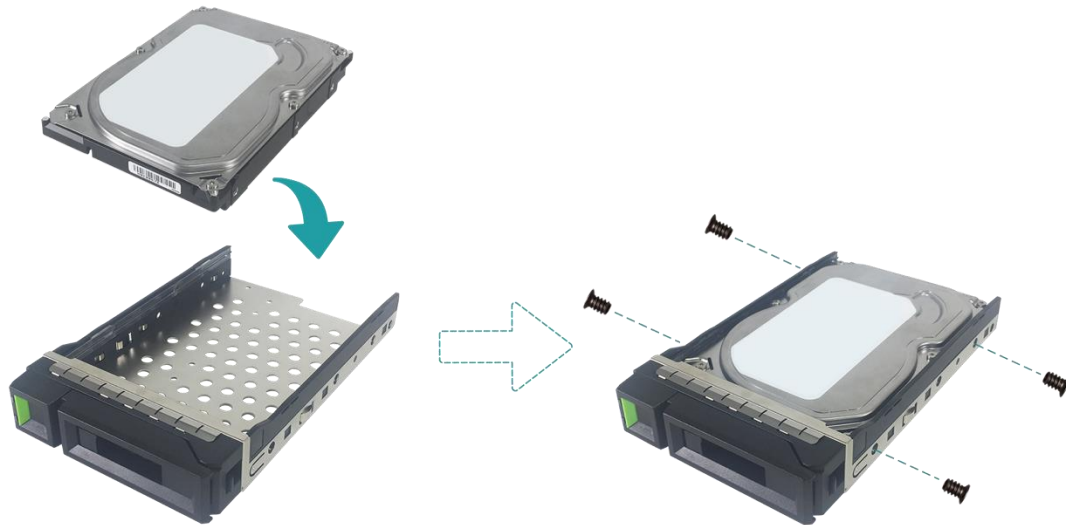   ① Push the release button from right to left to open the carrier handle.

   ② Hold the carrier handle and pull out the disk drive tray, repeat the steps above to remove other disk drive trays.

2. Install a 3.5" HDD into an LFF tray.

① Place the drive on the tray.

② Secure the drive from the four spots indicate below with four #6-32 screws provided in the accessory box.

3. Install a 2.5" SSD into an LFF tray.

① Place the drive in the blue area (shown below) of the tray.

② Turn the tray upside down and secure the drive from the bottom of the tray with four M3 screws provided in the accessory box.
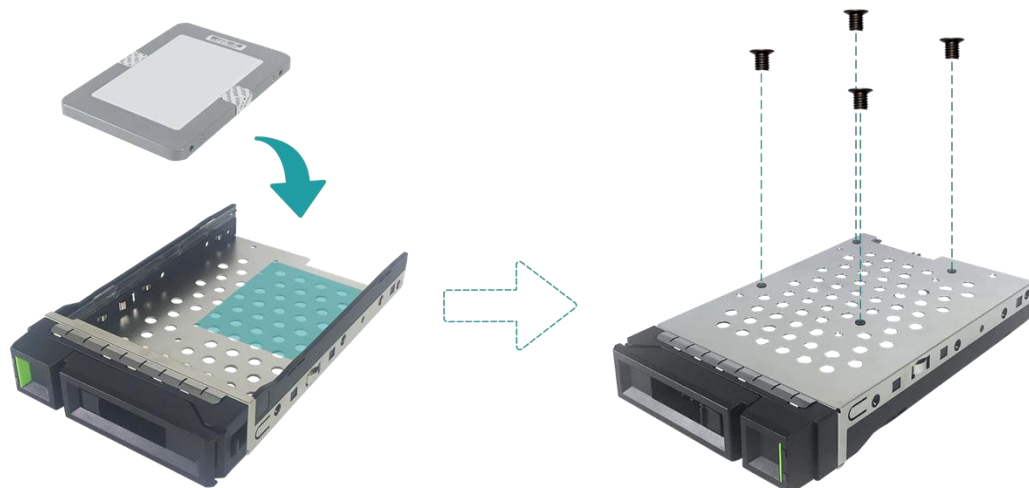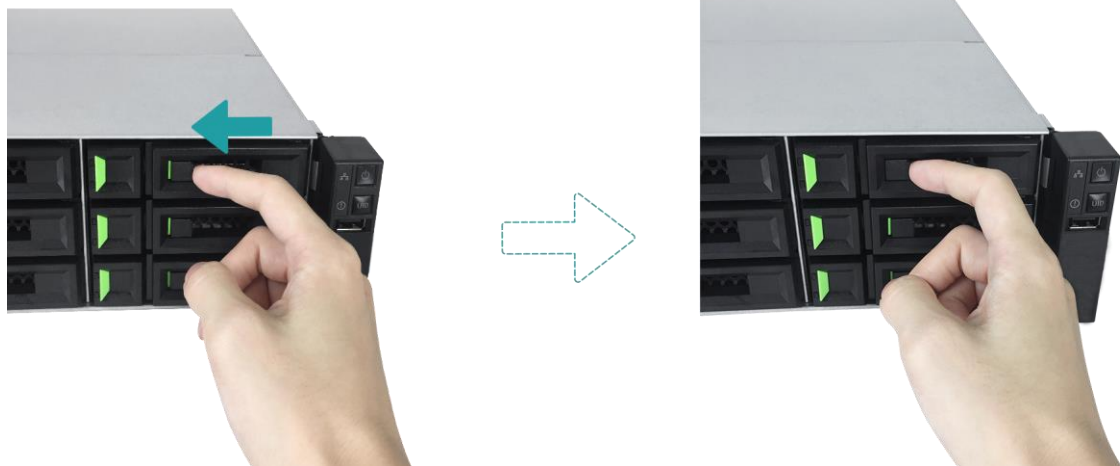
4. Install a LFF tray into the XCubeNAS.

① Insert the loaded drive tray into the empty drive bay all the way to the back until the carrier handle can be closed.

② Push the disk drive lock from right to left to lock the drive tray.

TIP:

Make sure the tray is pushed in all the way, otherwise the drive might not function properly.

5. Repeat the steps above to install all prepared drives.

3.2. Upgrade Memory

⚠️ **CAUTION:**
- The following instructions should only be performed by an authorized and trained technician. Strictly adhere to the instructions to install a RAM module on the NAS.

- Before you start, please ensure that you turn off the NAS, disconnect the power adapter, network cable(s), and also remove any other device/cable that is attached to the NAS.

XN7024R is installed with two 4GB ECC DDR4 memory module by default. If you want to install, check, or remove a memory module on your XCubeNAS, please follow the steps as illustrated below:

1. Shutdown your XCubeNAS and disconnect power, network cable(s) or any other device/cable that is attached to your system to prevent any possible damages.

2. Remove the controller from the system chassis.

   ① Loosen the screws below the release lever on the back of the XCubeNAS.
   ② Pull down both release lever at the same time, then pull out the controller.
   ③ Use one hand to hold one end of the controller module (the side with release levers) and the other hand hold the bottom of the controller. Pull out the controller module until it is free from the system chassis.
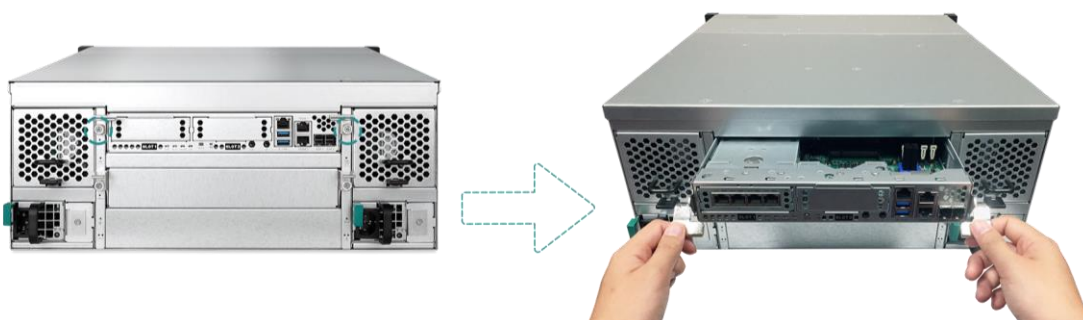
⚠️ **CAUTION:**
The controller module is very heavy, please use both hands while installing, removing, or carrying the controller module. Recommended place for removing the controller module: the system is in a well secured rack or on a stable surface.
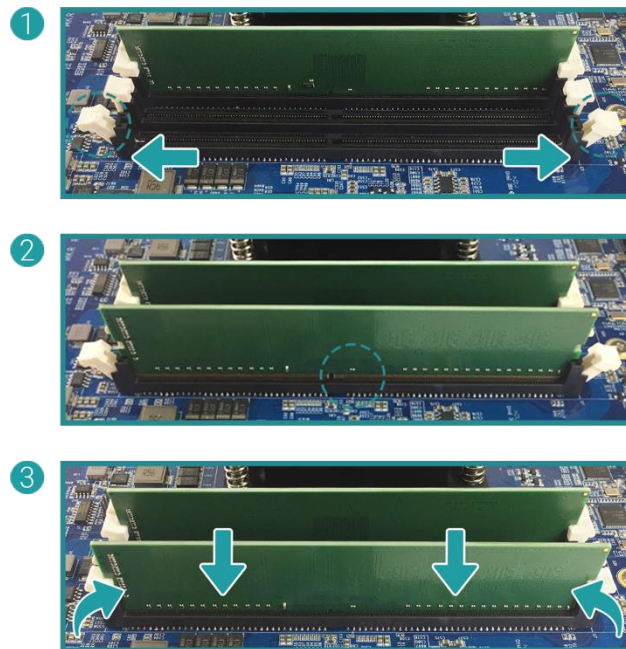
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3. Insert a new memory module into the slot.

    ① Push the retaining clips on the slot out to the sides.
    ② Align the notch on the gold edge of the module with the notch in the memory slot.
    ③ Push down on the memory module with firm and even pressure. The retaining clips will snap into position as the module is correctly inserted.

4. Put back the controller you removed in step 2.

    ① Align the controller with the chassis, then gently push the controller all the way to the back.
    ② Push back and release lever then fasten the screws on the back of the XCubeNAS.
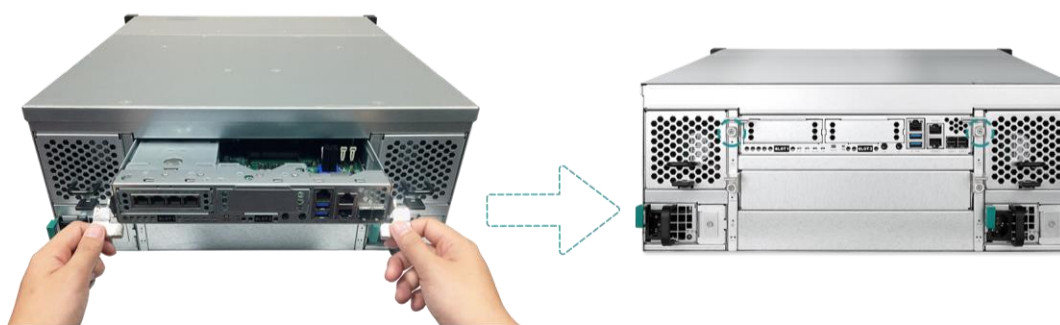
5. Remove memory module.

    ① Follow step 1 and 2 above to shut down your XCubeNAS, and disconnect the cables, and then remove the controller.
    ② Disengage the memory retaining clips by pushing them outwards, and the module will pop out of the slot.
    ③ Follow step 4 above to put back the controller.

The following table is the suggested installation combination for memory.

Table 3-2   The Suggested Installation Combination for Memory.

Pair #1		Pair #2		Total Memory
Slot #1	Slot #3	Slot #2	Slot #4	
4GB	4GB	-	-	8GB (Default)
4GB	4GB	4GB	4GB	16GB
8GB	8GB	-	-	16GB
8GB	8GB	8GB	8GB	32GB
16GB	16GB	-	-	32GB
16GB	16GB	16GB	16GB	64GB
32GB	32GB	-	-	64GB
32GB	32GB	32GB	32GB	128GB

CAUTION:

To ensure the system stability, you MUST install genuine QSAN memory modules for system memory size expansion.

TIP:

In order to achieve dual-channel RAM performance, it is suggested that you install memory modules with the same capacity in pairs.

Pair 1: Slot #1 and Slot #3

Pair 2: Slot #2 and Slot #4

Memory module support:

1 RAM: Supports one module inserted into any slot as single-channel memory configuration.

2 RAMs: Supports two modules inserted into slot #1 and slot #3 or slot #2 and slot #4 as one pair of dual-channel memory configuration.

4 RAMs: Supports four modules inserted into all the slots as two pairs of dual-channel memory configuration.

INFORMATION:

(1) If you want to purchase the optional memory, please contact your nearest local reseller or visit QSAN official website: https://qsan.com/location

(2) See the recommended memory module from the QSAN official website: https://www.qsan.com/en/download.php

3.3. Install the Optional Host Card

Your XCubeNAS XN7024R comes with two on-board 10GbE ports and one on-board 1GbE port on the controller, with two additional host card expansion slots. If you would like to expand the number of host ports, you can purchase QSAN's optional host cards including 10GbE via SFP+, 10GBASE-T, or 1GBASE-T host cards. To install a host card, please follow the steps as illustrated below:
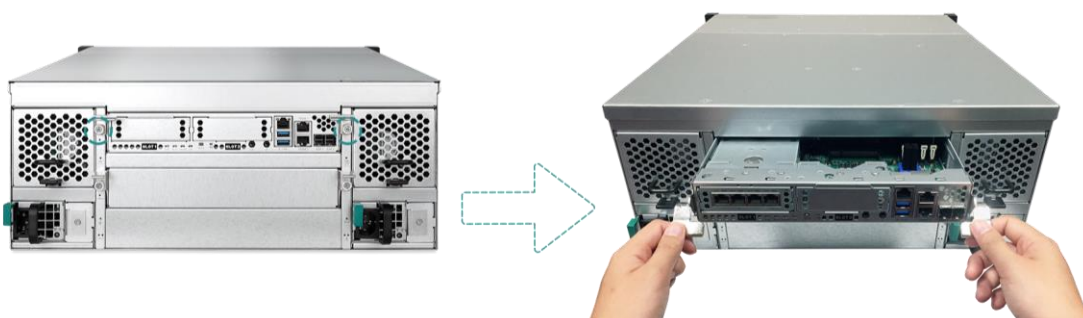
CAUTION:
1. You must remove the controller module from the system chassis before installing or removing the host card.
2. The host card CANNOT be hot-plugged in the controller module.

TIP:
Please note that if you change the host card type on the controller, the network setting may change depending on your system configuration.

1. Shutdown your XCubeNAS and disconnect power, network cable(s) or any other device/cable that is attached to your system to prevent any possible damages.
2. Remove the controller from the system chassis.

   ① Loosen the screws below the release lever on the back of the XCubeNAS.
   ② Pull down both release lever at the same time, then pull out the controller.
   ③ Use one hand to hold one end of the controller module (the side with release levers) and the other hand hold the bottom of the controller. Pull out the controller module until it is free from the system chassis.
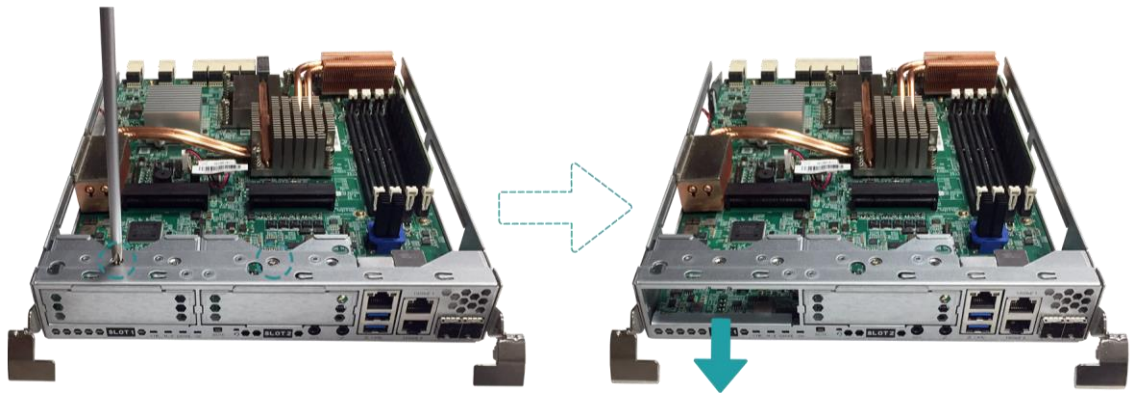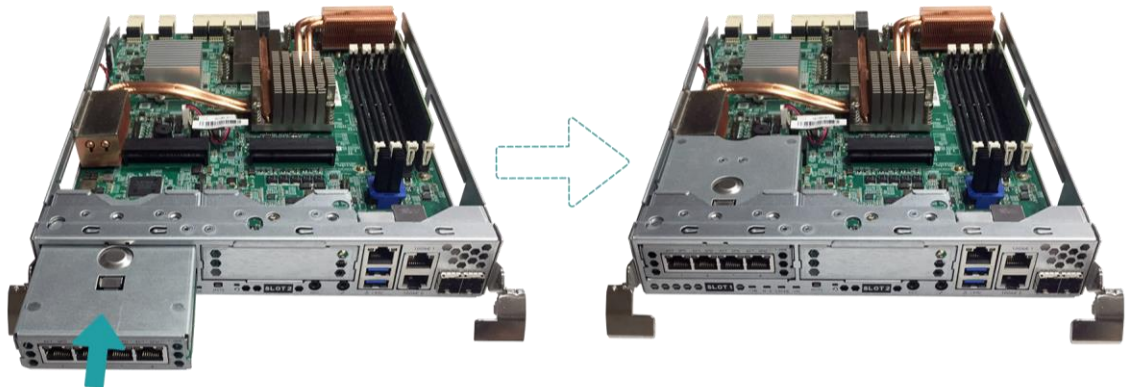
3. Remove the dummy host card bracket.

   ① Loosen the screw(s) on the controller cage.
   ② Remove the dummy host card bracket.

4. Install the host card.

   ① Align the host card to the slot, then gently push all the way into the controller cage until you hear a "click" sound. Make sure the host card connector is well connected to the controller module.
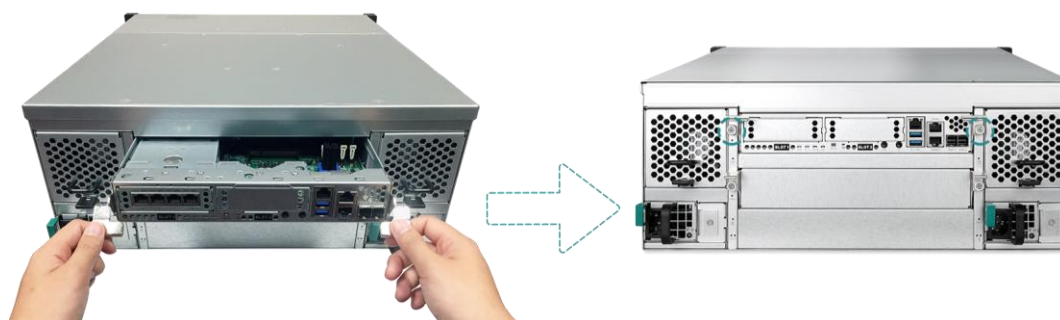

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5. Put back the controller you removed in step 2.

① Align the controller with the chassis, then gently push the controller all the way to the back.

② Push back and release lever then fasten the screws on the back of the XCubeNAS.

ℹ️ **INFORMATION:**

(1) If you want to purchase the optional adapter card, please contact your nearest local reseller or visit QSAN official website: https://qsan.com/location

(2) See the recommended adapter cards from the QSAN website: https://www.qsan.com/en/download.php
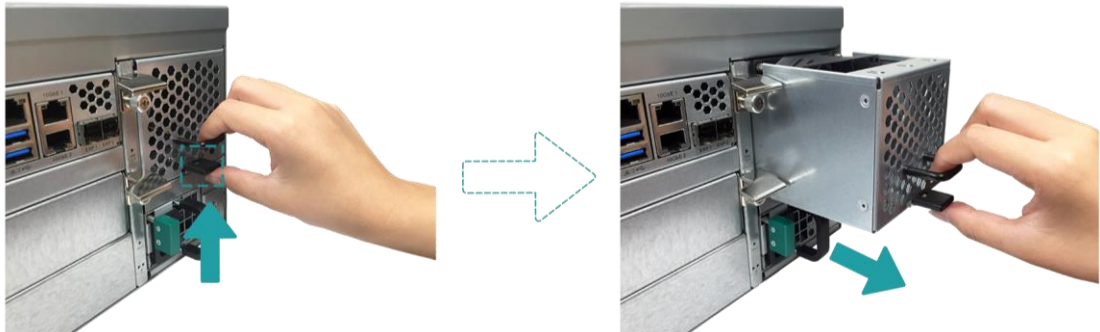

3.4.   Replace System Fan

If a system fan failed to function, please see the instructions below to replace the malfunctioning fan:

> ⚠️ **CAUTION:**
> The fan module is a heavy and fragile; please use both hands while installing, removing, or carrying them. Recommended place for removing the system fan module: the system is in a well-secured rack or on a stable surface.

1. Shutdown your XCubeNAS and disconnect power, network cable(s) or any other device/cable that is attached to your system to prevent any possible damages.

2. Remove the fan module from XCubeNAS.

    ① Press the lever of the fan module at the rear panel in the indicated direction.
    ② Pull out the fan module from the XCubeNAS.

3. Prepare a new fan module, and push it back to the slot until you hear a 'click' sound. Please make sure that the direction of the fan module is correctly installed, to prevent any potential damage caused by improper installation.

3.5. Replace Malfunctioning PSU

XCubeNAS comes with two redundant Power Supply Units (PSU) that can be hot swapped when the PSU is not functioning. If a PSU or its fan failed to function, please see the instructions below to replace the malfunctioning PSU:

> ⚠️ **CAUTION:**
> The power supply unit is a heavy and fragile; please use both hands while installing, removing, or carrying them. Recommended place for removing the power supply unit: the system is in a well-secured rack or on a stable surface.

1. Unplug the power cord from the PSU to be replaced.
2. Remove the PSU from XCubeNAS.

   ① Push the lever of the PSU at the rear panel in the indicated direction.
   ② Pull out the PSU from the XCubeNAS.
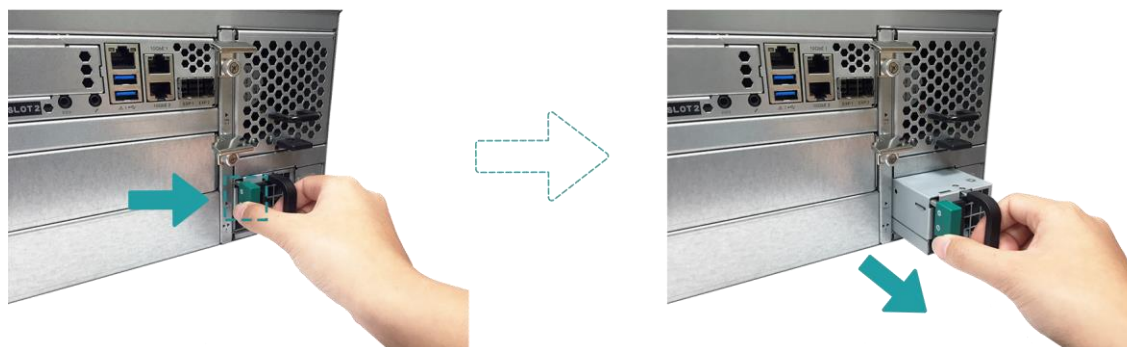
3. Prepare a new PSU, and push it back to the slot until you hear a click. Please make sure that the direction of the PSU is correctly installed, to prevent any potential damage caused by improper installation.

3.6. Replace System Controller

If the system failed to function, please contact QSAN support for further examination. If you need to replace the system controller, please see the instructions below:

> ⚠️ **CAUTION:**
> 1. The controller module is heavy and fragile, please use both hands while installing, removing, or carrying the controller module.

Recommended place for removing the controller module: the system is in a well secured rack or on a stable surface.

2. The controller must be installed into slot 1 (the top slot of the system from the rear view).

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1. Shutdown your XCubeNAS and disconnect power, network cable(s) or any other device/cable that is attached to your system to prevent any possible damages.

2. Remove the controller from the system chassis.

① Loosen the screws below the release lever on the back of the XCubeNAS.
② Pull down both release lever at the same time, then pull out the controller.
③ Use one hand to hold one end of the controller module (the side with release levers) and the other hand hold the bottom of the controller. Pull out the controller module until it is free from the system chassis.
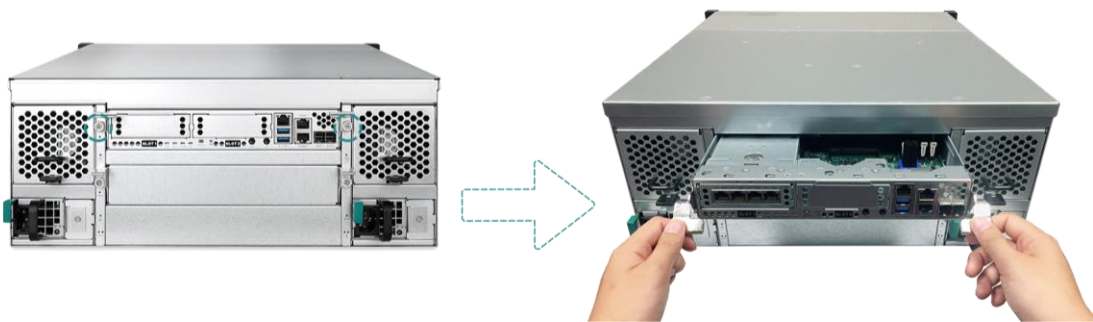
3. Prepare a new controller module, insert back to the system chassis.

① Align the controller with the chassis, then gently push the controller all the way to the back.
② Push back and release lever then fasten the screws on the back of the XCubeNAS.
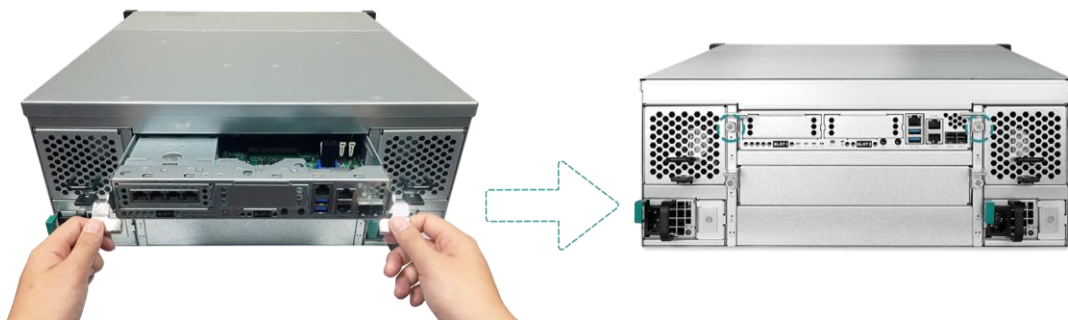
3.7. Install the Rail Kits

Rail kit is an optional accessory XCubeNAS, if you did not purchase QSAN qualified rail kit, you can skip the steps of the system installation tasks. If you want to purchase QSAN qualified rail kit: full extension and thin slide with tool-less bracket: AA612508 series, please contact QSAN authorized reseller.

> ⚠️ **CAUTION:**
> The populated XCubeNAS system can be very heavy, to avoid any potential injury or harm to installers, or damage to the system, we strongly recommend at least two certified operators or engineers perform the system installation.

1. Pull the inner rail out and slide the intermediate rail back.
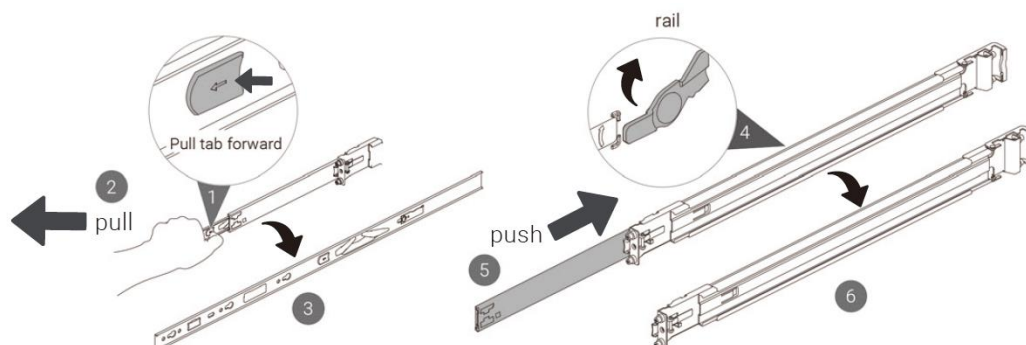
2. Install the inner member onto the chassis.
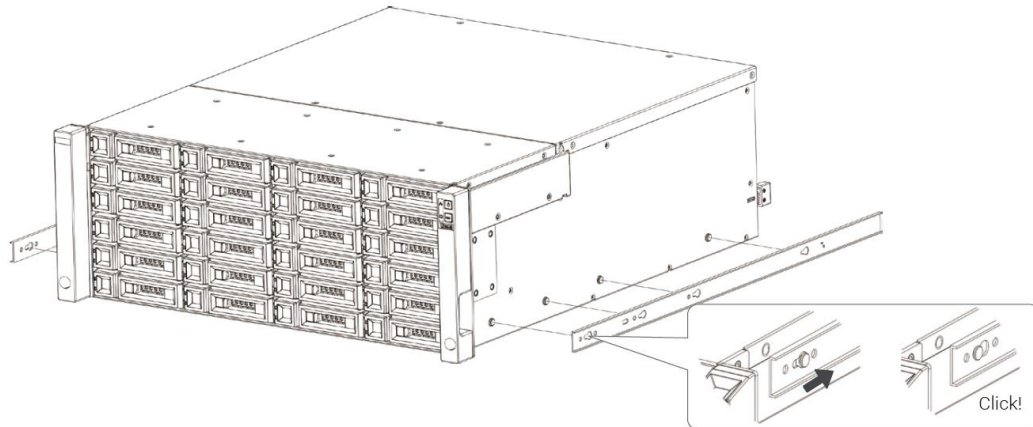
3. Install the outer rail/bracket assembly to the frame. Repeat this step for the other side.
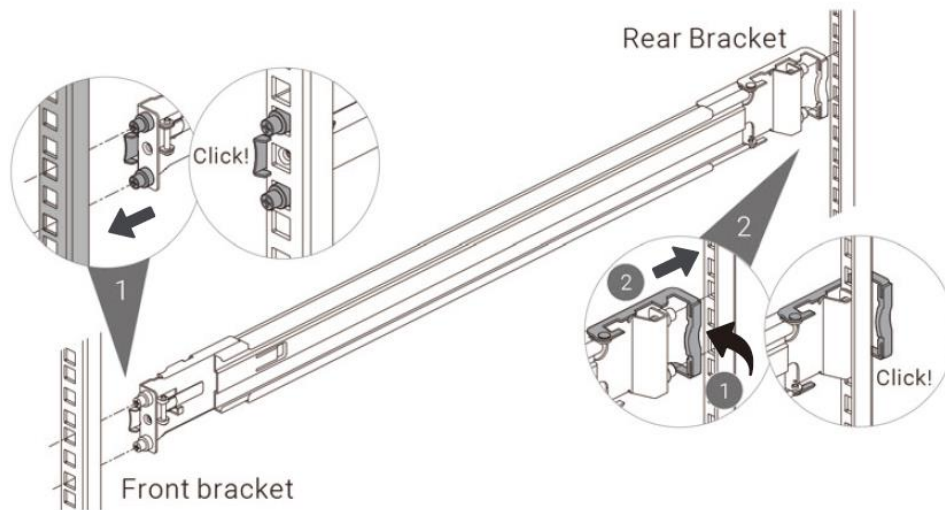
4. Insert the chassis to complete the installation

① Pull the middle member fully extended in locked position.
② Ensure ball bearing retainer is located at the front of the middle member.
③ Insert chassis into the middle-outer member.
④ When hitting the stop, pull/push release tab to unlock and retract chassis into rack.
⑤ Use M5x20 screws to fasten the chassis ear.
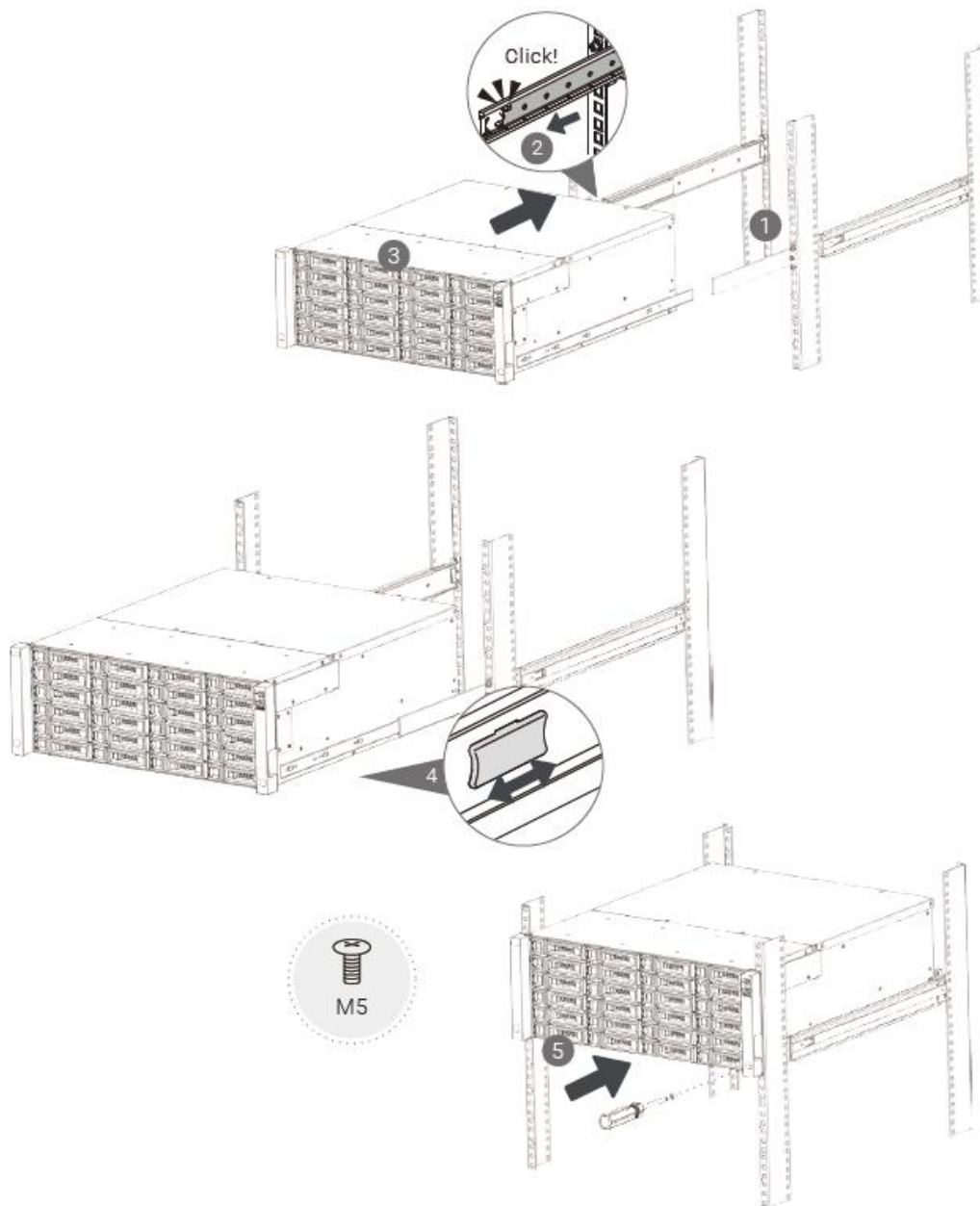
3.8. Connect the System to the Host

XN7024R has two on-board 10GbE and one on-board 1GbE LAN ports for host connections. You can learn more about the path configuration in cabling for XN7024R by following images:

a. One LAN connection

b. Multiple LAN connections
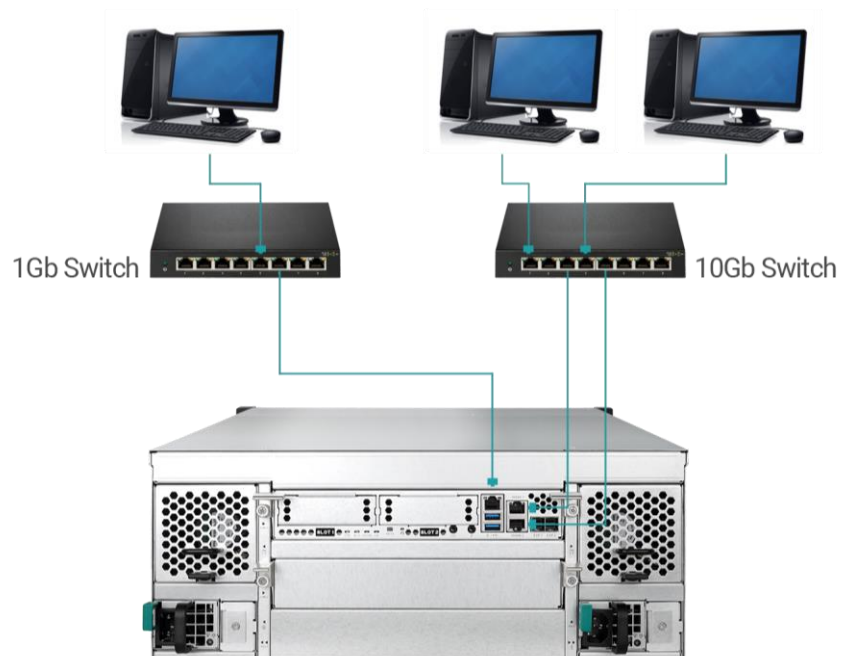
3.9. Start Up Your System

Before you power on your XCubeNAS for the first time, please make sure the following tasks are done:

1. Connect one end of each power cord to the power ports located on the back of the XCubeNAS and the other end to a power outlet.

2. Connect at least one LAN cable to one of the LAN ports and the other end to your switch, router, or hub.
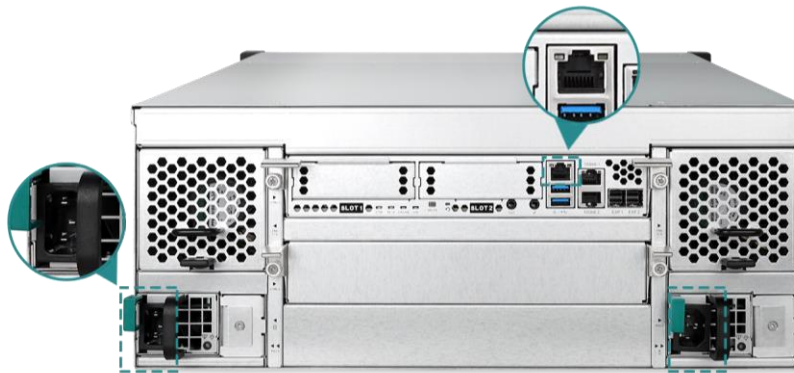
3. Press the power button to turn on your XCubeNAS.

Your XCubeNAS is now online and detectable from a network computer.

INFORMATION:
The power cord rating is the minimum requirement. The rating of the power cord that you purchase must equal to or be higher than the minimum requirement to ensure the system safety and reliability.

INFORMATION:
The Following are the operational conditions for XN7024R:

Temperature:

- Operating temperature 0 to 40°C
- Shipping temperature -10°C to 50°C
- Operating Relative Humidity 20% to 80% non-condensing
- Non-Operating Relative Humidity 10% to 90%

4.   Discover and Install QSM

After hardware setup is finished, the next step is to discover the system on the network and start the initial configuration. To discover and install the QSAN Storage Manager (QSM), please follow the steps below:

1. Power on the XCubeNAS.

2. Open a web browser on your computer connected to the same local area network as XCubeNAS, and use either of the following methods on the browser:

   a. Use Web Finder: find.qsan.com (Please make sure the XCubeNAS has internet access ability before using the Web Finder.)
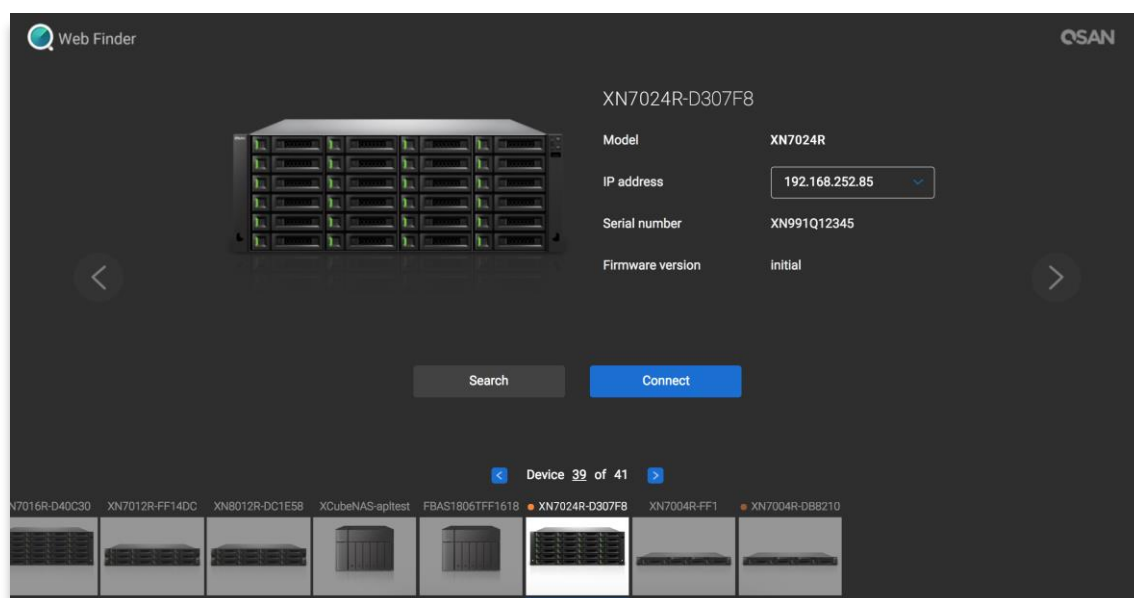
   b. If your XCubeNAS cannot be connected to the internet, please try downloading and installing XFinder application from the QSAN website to your PC: https://www.qsan.com/zh-tw/download.php

Pin	Device Name	Model	IP Address	QSAN Cloud	Mac Address	Firmware...	Notifica...	Power
📌	QSAN_QDC	XN7024R	192.168.30.129	--	00:13:78:D8:27...	3.0.0	Off	⏻ ↻

1 System found   2017/06/07 21:13:40
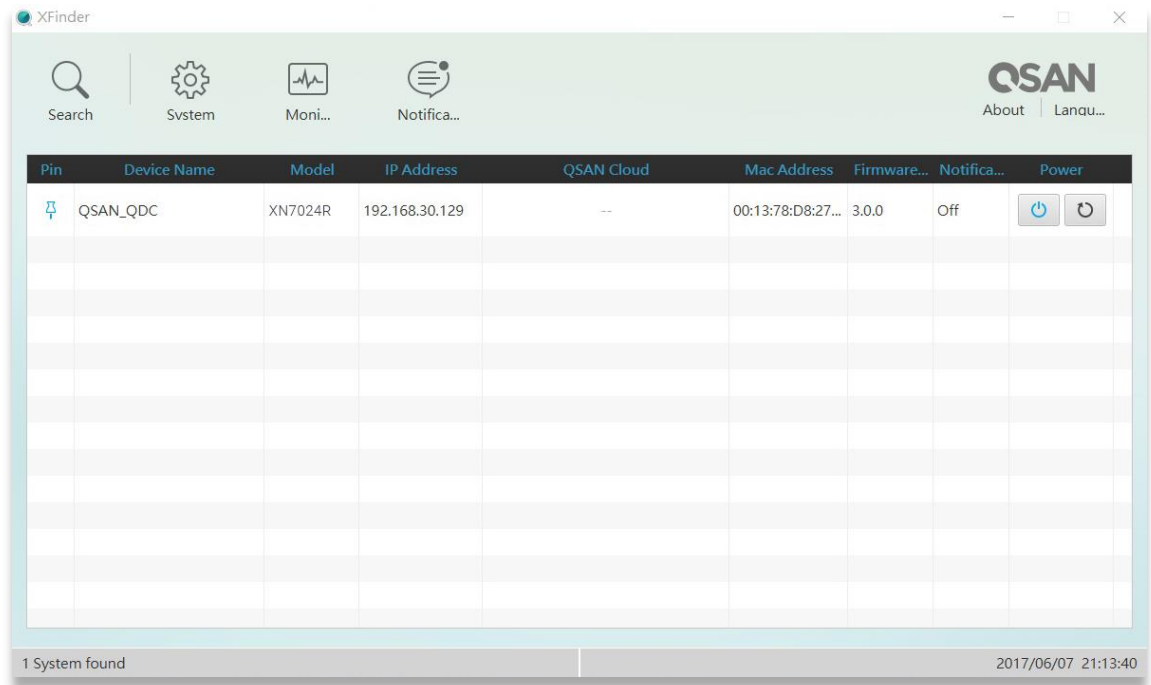
3. Click "**Connect**" on the Web Finder or double click on your XCubeNAS on the XFinder, the welcome page will be launched on your web browser.

Welcome!

Quick setup is QSAN recommended settings or you can choose customize set up with your need.

Free Lock Error Abnormal

Model name XN7016R

Serial number XN175Q00002

Quick Setup   Customized Setup
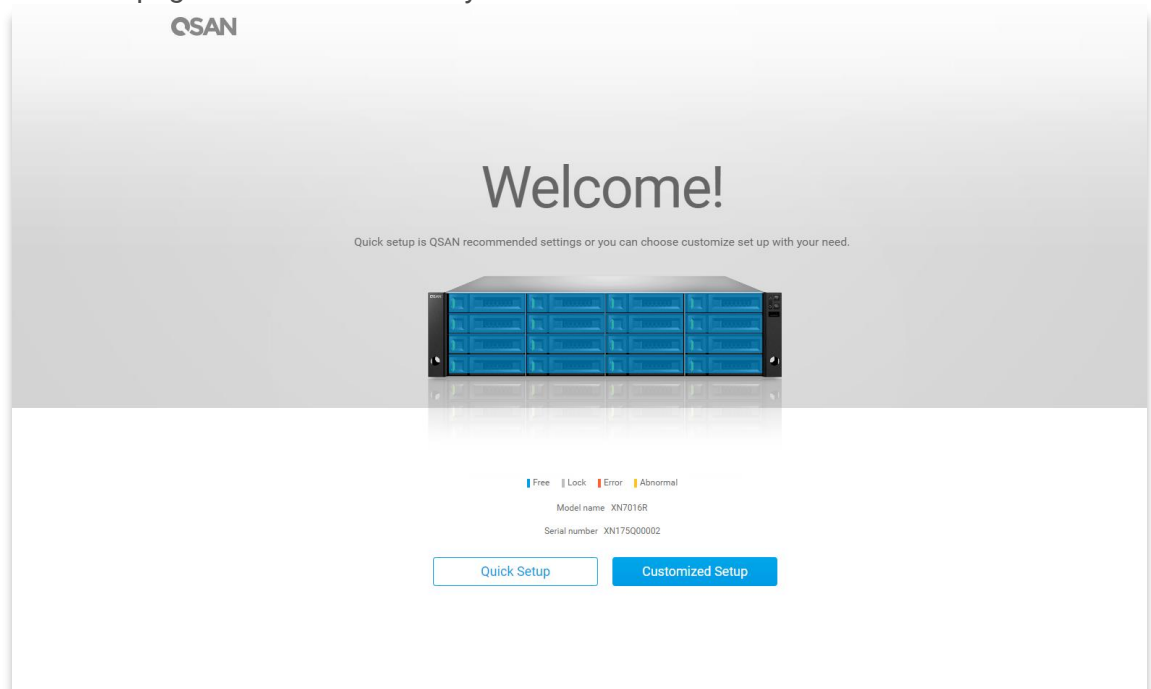
4. Click **Quick Setup** or **Custom Setup** to start the setup process and follow the onscreen instructions.

5. If you accidentally leave the quick install page, you can always return to the setup page by go through the steps above from step 1 again.

6. After quick setup is finished, login to the QSM as **"admin"** (default account name) with the password you set on former instructions.
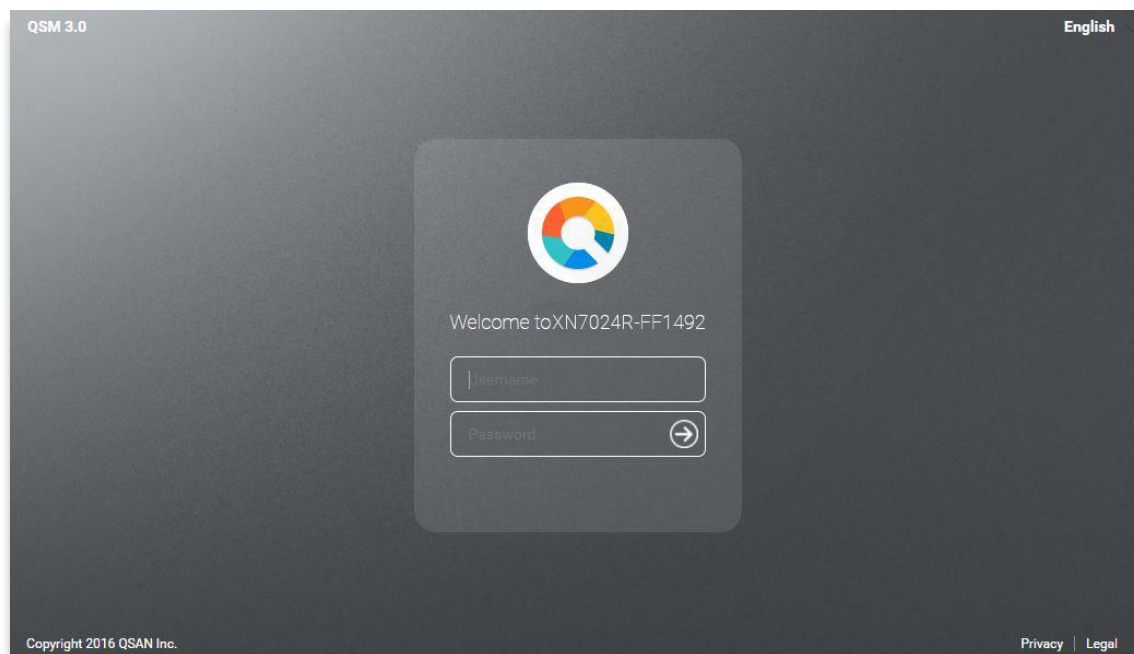
	INFORMATION:
	1. The XCubeNAS must be connected to the Internet to install QSM with Web Finder.
	2. Both the XCubeNAS and your PC must be on the same local network.
	3. If you cannot find your XCubeNAS, the default IP address for LAN 1 is 169.254.1.234.
	4. If you expanded your memory or add a network expansion card earlier on, you can now check to make sure the system recognizes the new module. You can check the status by following steps:

  a. Login to QSM as **admin** or a user belongs to the **administrator**'s group.
  b. Find the memory status in **Monitor app→ Hardware**.

If your system cannot recognize the expanded memory or the network expansion card or failed to start up, please check again and ensure the unit is properly installed.

5.   Restart/Shutdown/Logout QSM

If you want to restart, shutdown or log out QSM, please follow the steps below:

1. To restart or shutdown QSM, please click on the QSAN logo on the top left corner, then choose the option which you would like to proceed. Click **Yes** button on the confirm window.

2. To log out QSM, please click **User Profile** on the top right corner, then choose **Logout**. Click **Yes** button on the confirm window.
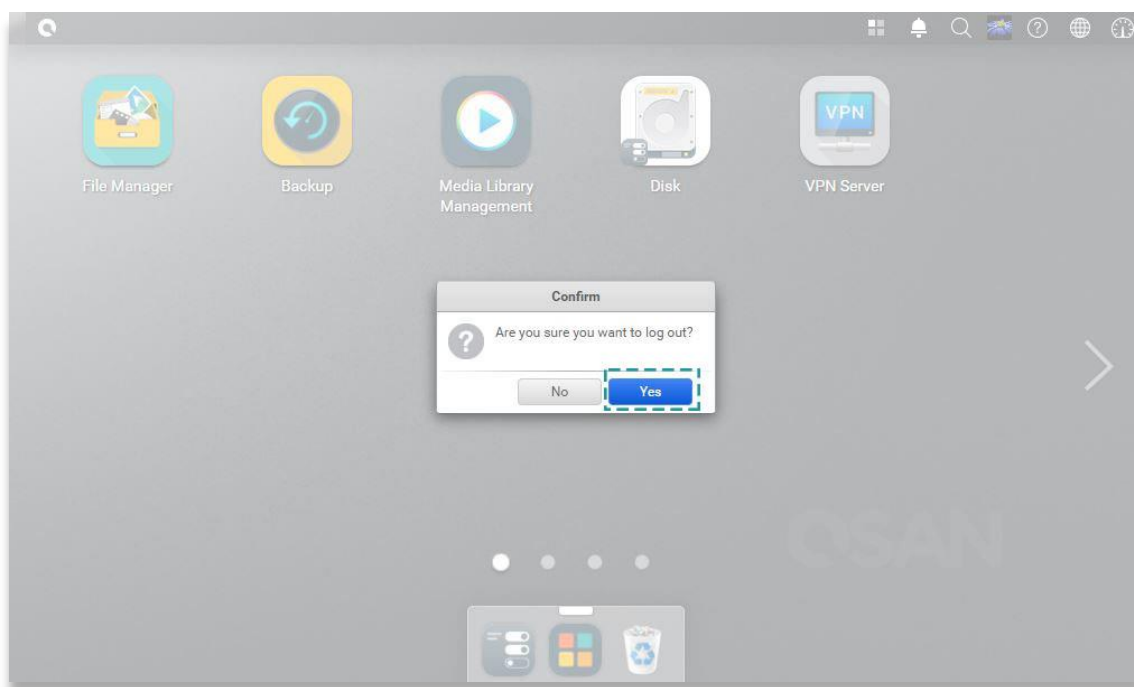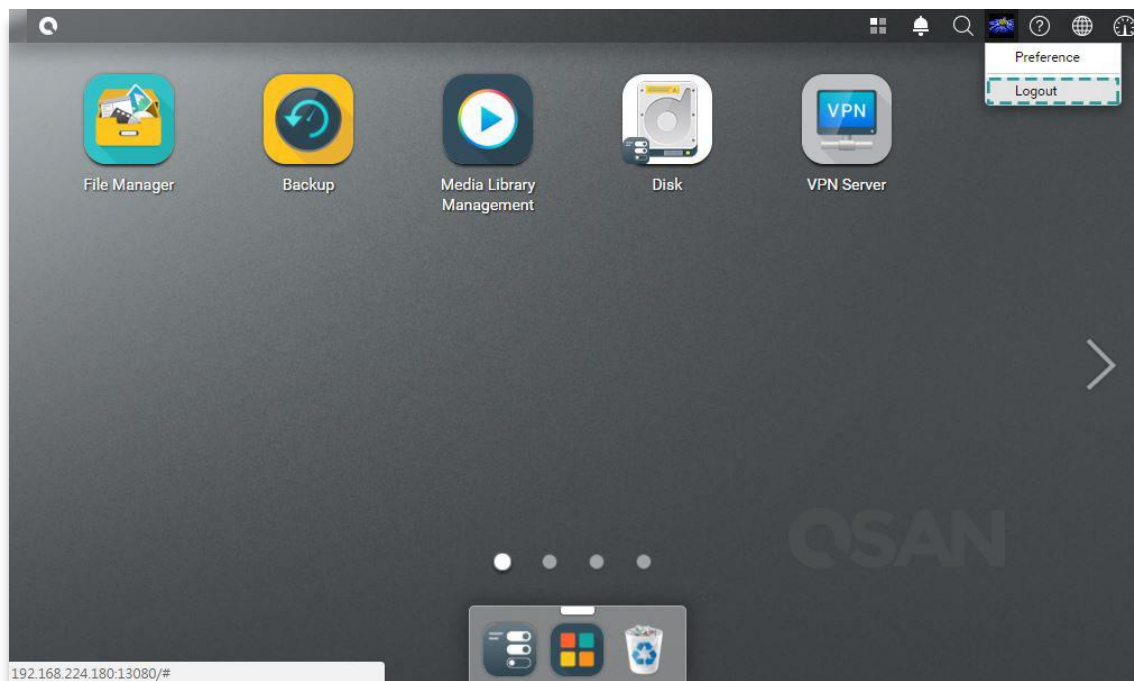
6. Reset to Default

If you want to reset XCubeNAS to factory default, there are several options to choose from. Please follow the steps below:

Reset to default by using the reset button on the back of XCubeNAS:

1. Reset network settings: Press and hold the reset button on the rear panel for **3 seconds**, a short beep sound for 1 second will be heard. The administrator password and all the network settings will be reset, the system configuration will result in:

   - Reset Admin password to the default value: 1234.
   - All networking set to "DHCP".
   - All data service ports set to default setting (All data service enable and set to default port).
   - VLAN will be terminated.
   - Vswitch will be deleted.
   - Port trunking will be disabling.
   - After configs are deleted, restart the XCubeNAS.
   - Log out QSAN Cloud.
   - DNS settings.
   - DDNS and UPNP settings.

2. Reset all settings: Press and hold the reset button on the rear panel for **10 seconds**, you will hear a short beep sound at the third second and a long beep sound at the tenth second. The operating system (including reset the administrator password and all the network settings) will be reinstalled, the system configuration will result in:

- Reset all network settings to factory default.
- Reset all system settings to factory default.
- All accounts, groups, folder permission, and ACL are deleted.
- Access control lists are all deleted.
- All backup tasks are deleted.
- Cloud sync job delete.
- VPN settings are deleted.
- Web server setting are set to default.
- AntiVirus setting are deleted.
- SQL settings are set to default.
- Media Library index will be deleted.
- After configs are deleted, restart the XCubeNAS.
- Log out QSAN Cloud.

Reset to default through QSM:

You can also reset network setting or all the setting through QSM.

1. Please click **Control Panel → System → Maintenance → System Recovery**. Choose the option which you would like to proceed.

   a. Reset network settings: The administrator password and all the network settings will be reset.

   b. Reset all settings to factory default: The operating system (including reset the administrator password and all the network settings) will be reinstalled.

   c. Reinitiate the system: All settings will return to factory default. The system config and all data will be deleted. The system will restart automatically and return to quick install page.
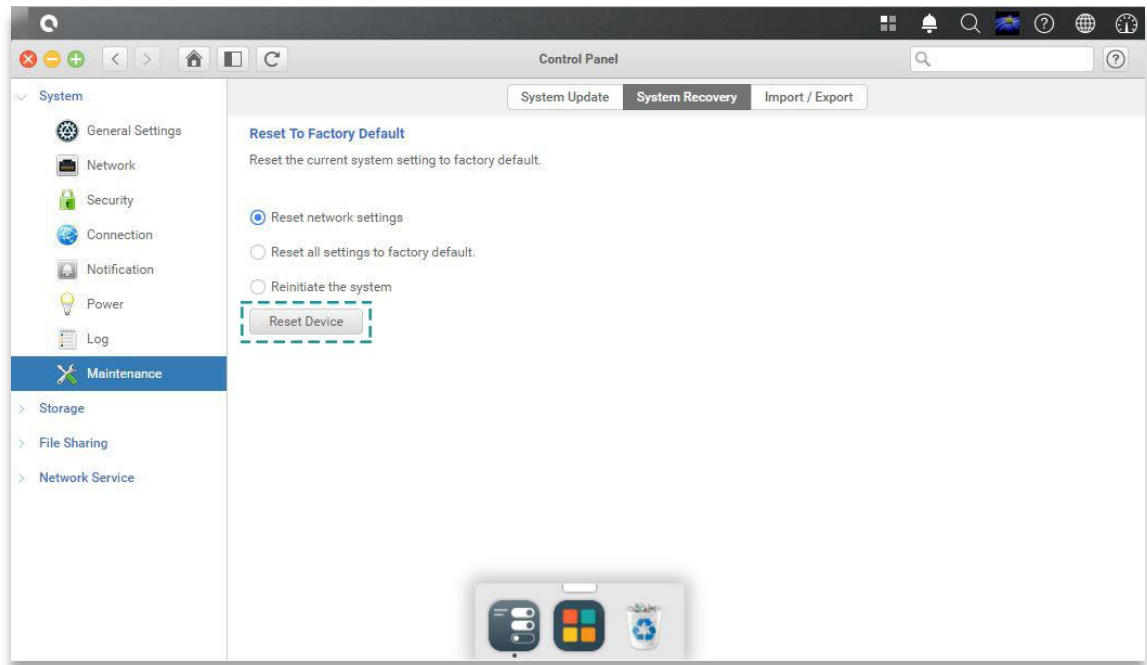
2. Click the Reset Device button to proceed.

7. LED Indicator Table

7.1. XN7024R LED Indicator Table

XN7024R features the button and indication module on both the front panel and the rear panel. Please refer to the following content for definitions of LED behaviors.
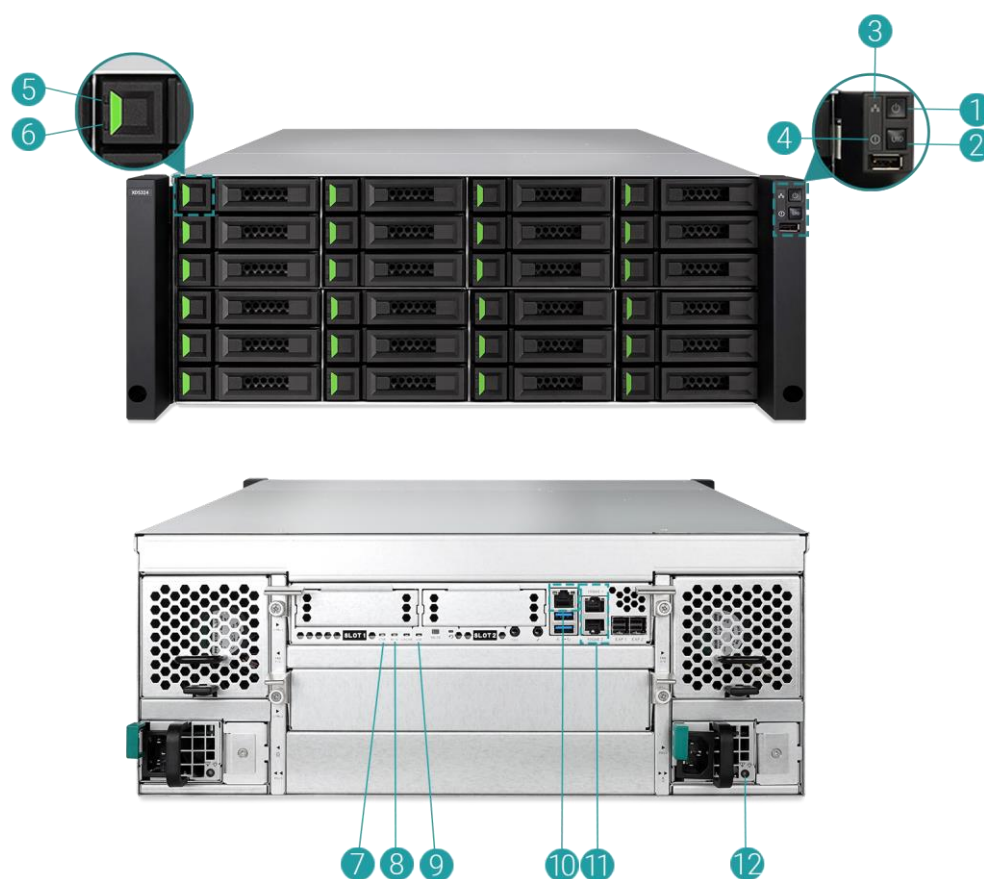
Table 7-1   Descriptions of the System Controls and Indicators LEDs

Number	Description	Definition
1	Enclosure Power Button/LED	**Power Button** • Press the button one time to turn ON or OFF the system power. • Keep pressing for 4 seconds to force turn OFF the system power.

		Power LED
		• White: power is ON (at least one power supply unit is supplying power to the system).
		• White flashes every 0.5 sec: the system is at the stage of starting up or shutting down, or the NAS is not configured.
		• Off: the system is shutdown.
2	Unit Identification (UID) Button/LED (front panel)	**UID (Unique Identity) button** • Press the button one time to turn it ON; press it again to turn it OFF. **UID (Unique Identity) LED** • Blue: the system has been identified. • Off: the system has not been identified.
3	Enclosure Access LED	(Indicate the host interface connectivity.) • Blue flashes: the host interface activity is on-going. • Off: no host interface activity. Note: This behaviour does not include 1G port's activity.
4	Enclosure Status LED	(Indicate current health status of the system.) • Amber: 1) The storage folder/pool has reached its full capacity (100%). 2) The storage folder/pool is going to be full (95%). 3) The system fan is out of function. 4) A bad sector is detected on the hard disk drive. 5) One of the pool is in degraded read-only mode. 6) Hardware self-test error. e.g. PSU failed, abnormal voltage, the temperature is at critical high/low, any cooling fan module failed or removed, any pool failed or the UPS is running on batteries. • Amber flashes every 0.5 sec: firmware is upgrading, or RAID rebuilding is in a process. • Off: the system is healthy.
5	Disk Drive Power LED	• Blue: the disk drive is inserted and no data access.

		•	Blue flashes: the disk data is being accessed.
		•	Off: no disk drive is inserted.
6	Disk Drive Status LED	•	Off: the disk drive is healthy.
		•	Amber: the disk drive has read/write error.
		•	Amber flashes (interval of 0.5 sec): the disk drive is rebuilding.
		•	Amber flashes (interval of 0.05 sec): identify a specific disk drive.
7	Controller Status LED	•	Green: The controller status is normal.
		•	Red: The system is booting, or the controller failed.
8	Master / Slave LED	•	Always showing green light.
9	Unit Identification (UID) LED (rear panel)	•	Blue: the system has been identified.
		•	Off: the system has not been identified.
10	1G LAN Port	**Speed (Left):**	
		•	Amber: 1000Mbps connection.
		•	Green: 100Mbps connection.
		Activity/Link (Right):	
		•	Light OFF: No connection.
		•	Light ON: Connected to the internet
		•	Light flashes: when data is being accessed.
11	10G LAN Port	10G dual port connector embedded 2 LEDs: Left LED/Right LED	
		•	Left LED to indicate upper port.
		•	Right LED to indicate lower port.
		•	Amber flashes: when accessing.
12	PSU LED	•	OFF: No AC power to power supplies / AC present.
		•	Green: PSU is on and OK.
		•	Green flashes: PSU is off, 5VB is on.
		•	Amber: Power supply failure for main output.
		•	Amber flashes: Power supply showing warning event such as high temperature or high power.

7.2. Host Card LED Indicator Table

XN7024R supports three optional host cards, including 10GbE via SFP+ (HQ-10G4S2), 10GBASE-T (HQ-10G2T), or 1GBASE-T (HQ-01G4T) host cards. Please refer to the following content for definitions of LED behaviors.

HQ-01G4T (1GBASE-T)

Number	Definition
1	**Link Status LED (Left):** • Green flashes: Asserted when the link is established, and packets are being transmitted along with any receive activity (Access). • OFF: No link is detected, or link fails.
2	**Speed LED (Right):** • Amber: Asserted when a 1G link is established and maintained. • Green: Asserted when a 100M link is established and maintained. • OFF: No link is detected, or link fails.

HQ-10G4S2 (10GbE via SFP+)

Number	Definition
1	**Link Status LED (Left):** • Green flashes: Asserted when the link is established, and packets are being transmitted along with any receive activity (Access). • OFF: No link is detected, or link fails.
2	**Speed LED (Right):** • Blue: Asserted when a 10G link is established and maintained. • Amber: Asserted when a 1G link is established and maintained. • OFF: No link is detected, or link fails.

HQ-10G2T (10GBASE-T)

Number	Definition
1	**Link Status LED (Left):** • Green flashes: Asserted when the link is established, and packets are being transmitted along with any receive activity (Access). • OFF: No link is detected, or link fails.
2	**Speed LED (Right):** • Green: Asserted when a 10G link is established and maintained. • Amber: Asserted when a 1G link is established and maintained. • OFF: No link is detected, or link fails.

8.   Buzzer Indicator Table

Number	Beep Sound	No. of Times	Description
1	Short beep (0.5 sec)	1	• The XCubeNAS is ready (finish start up). • The XCubeNAS is being shut down (software shutdown). • The user presses the reset button to reset the NAS. • The system firmware has been updated. • USB drive is removed. • The user starts hard drive rebuilding.
2	Long beep (1.5 sec)	Beep until event finishes, interval of 0.5 sec	• 1) The system pool has reached its full capacity (100%). 2) The system pool is going to be full (95%). 3) The system fan is out of function. 4) A bad sector is detected on the hard disk drive or hard disk failed. 5) One of the pool is in degraded mode. 6) Hardware self-test error. *e.g.* PSU failed, abnormal voltage, the temperature is at critical high/low, any cooling fan module failed or removed, any pool failed.

Note: If one event has triggered the beep sound, the next event will not trigger the beep sound until the previous event has finished.

Note 2: The beep sound will not be triggered if buzzer function is disabled from the QSM. You can check the error messages through the **Notification Center** on QSM.

9. Deployment Topology

This chapter will show detailed deployment topology for XCubeNAS. You can build up a deployment plan for your XCubeNAS storage environment. It supports a maximum of up to 232 drives for the system storage space expansion, both single and dual path cabling are supported.

9.1. Expansion Configuration Rules

The table below shows the rule of configuration for XCubeNAS and enclosure units. Please refer to the table below for a maximum number of expansion enclosures and disk drives prior to performing system deployment.

Table 9-1   XCubeNAS System and Expansion Enclosure Configuration Rules

| NAS Model	Expansion Enclosures	Max. No. of Expansion Units	Max. No. of Disk Drives	Max. Raw Capacity (HDD: 14 TB SSD: 2 TB)
XN7024R	XD5312D (2U 12Bay)	8	24+12x8=120	1,680 TB
	XD5316D (3U 16Bay)	8	24+16x8=152	2,128 TB
	XD5324D (4U 24Bay)	8	24+24x8=216	3,024 TB
	XD5326D (2U 26Bay)	8	24+26x8=232	572 TB

> **INFORMATION:**
> See the configuration of XCubeNAS enclosure units on Appendix: Expansion Enclosure List
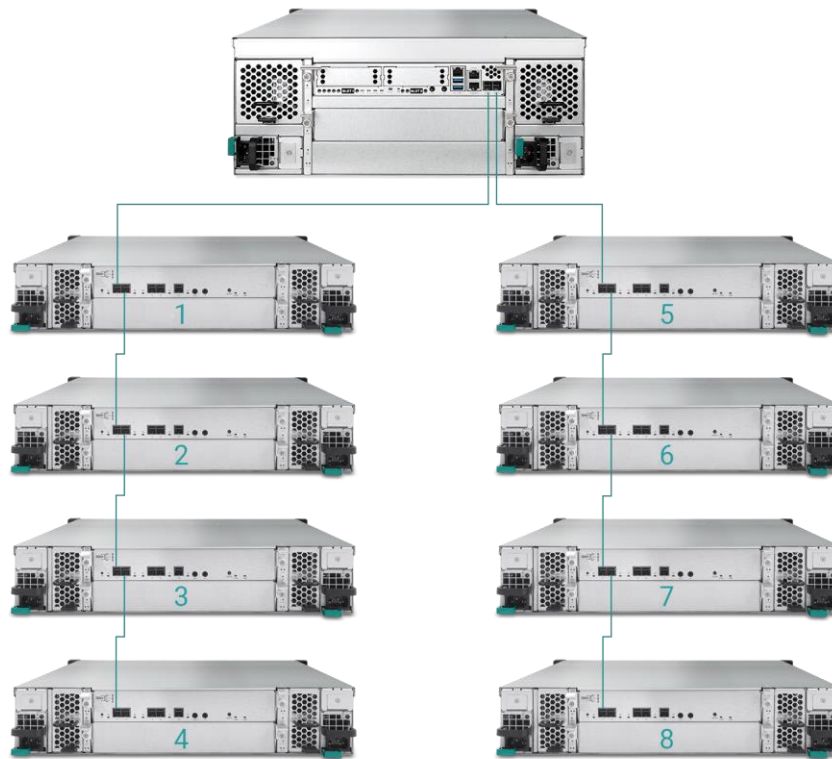
9.2. Cabling the System

Please follow the steps below to expand your storage space:

1. Connect your XCubeNAS to one or more expansion unit(s) via the SAS port and SAS cable(s). The following images illustrate some examples of expansion types for your system:
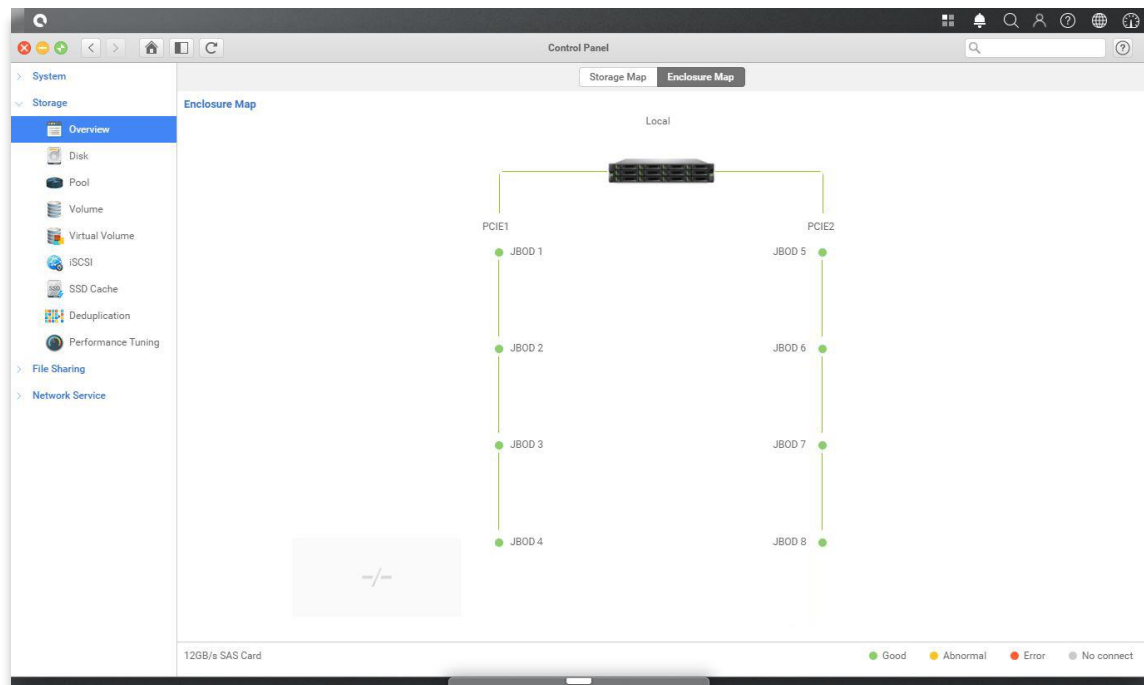
   a. **Single Path Expansion**
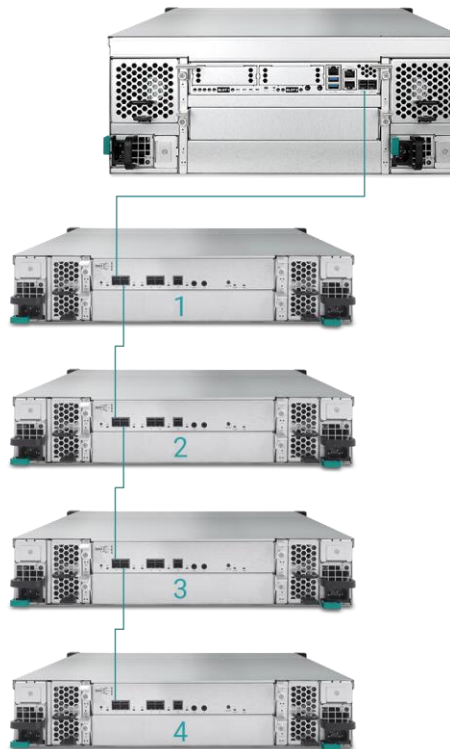
b. Dual Path Expansion

2. After connected to the expansion units, you can check the deployment topology on QSM → **Control Panel** → **Storage app** → **Overview** → **Enclosure Map.**

3.   The status of each expansion unit will be shown on QSM → **Monitor app**→ **Hardware**.

10. Quick Maintenance

This chapter provides quick maintenance and instruction of removing/installing FRU (Field Replaceable Unit) or optional components of XCubeNAS. Any of the FRU components can be hot swapped and replaced with zero downtime in the rare event of a component failure. If you encounter any issues caused by FRU components while operating the XCubeNAS, please refer to related section and follow the quick troubleshooting procedures step by step.

> **⚠ CAUTION:**
>
> We recommend that all maintenance is carried out by a certified technician. Do not attempt to carry out any maintenance outside of those outlined in the following section of this guide. System damage due to incorrect maintenance or FRU replacement can affect your product warranty. If you are unsure of the problem related to your XCubeNAS system, we strongly recommend you contact or get help from QSAN support team:
>
> - Via the Web: http://www.qsan.com/en/contact_support.php
> - Via Telephone: +886-2-7720-2118 extension 136
>
>   (Service hours: 09:30 - 18:00, Monday - Friday, UTC+8)
> - Via Skype Chat, Skype ID: qsan.support
>
>   (Service hours: 09:30 - 02:00, Monday - Friday, UTC+8, Summertime: 09:30 - 01:00)
> - Via Email: support@qsan.com

10.1. Replace Fan Module

The XCubeNAS comes with tool-less fan module which can be easily changed when the fan failed. If a fan failed to function, you can check the fan status on QSM. Please go to **Monitor app→ Hardware**. The System Health and Fan Speed will show "Error" if failed. You can also check the status by clicking **Dashboard** on the top right corner on the desktop. The System Status will also display "Error" and its message, "Fan(No.) is not functioning".
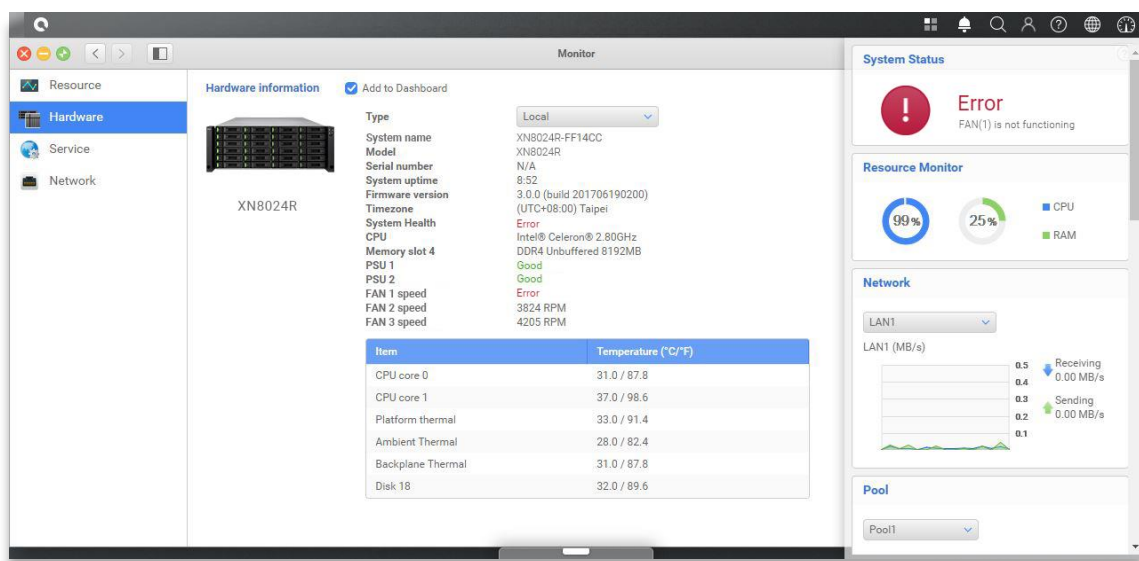
If you see the error message shown above, which means your fan module needed to be replaced immediately. To replace the malfunction fan module, please refer to chapter 3.4 Replace System Fan. After the new fan module is successfully installed, you can see the fan speed displaying its Revolutions Per Minute(RPM) value on QSM.
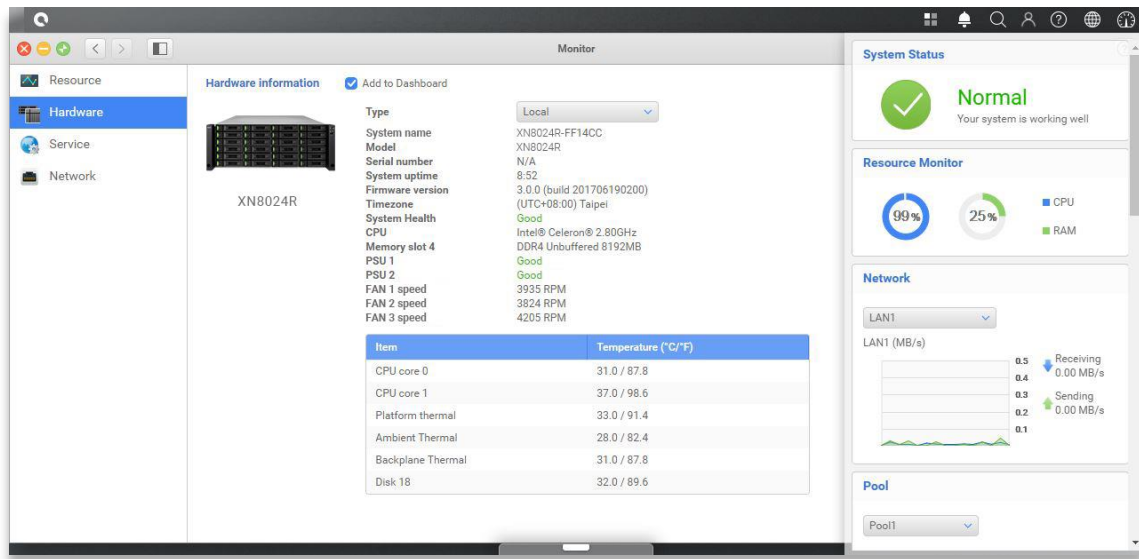
## 10.2. Replace Power Supply Unit

XCubeNAS comes with two redundant Power Supply Units (PSU) that can be hot swapped it when the PSU is not functioning. If a PSU or its fan failed to function, you can check the PSU status in two ways:

1. On PSU: the PSU LED will turn to color amber.
2. In QSM: Please go to **Monitor app→ Hardware**. The PSU status will show "Error" if failed. You can also check the status by clicking **Dashboard** on the top right corner on the desktop. The System Status will also display "Error" and its message, "PSU(No.) is not functioning".
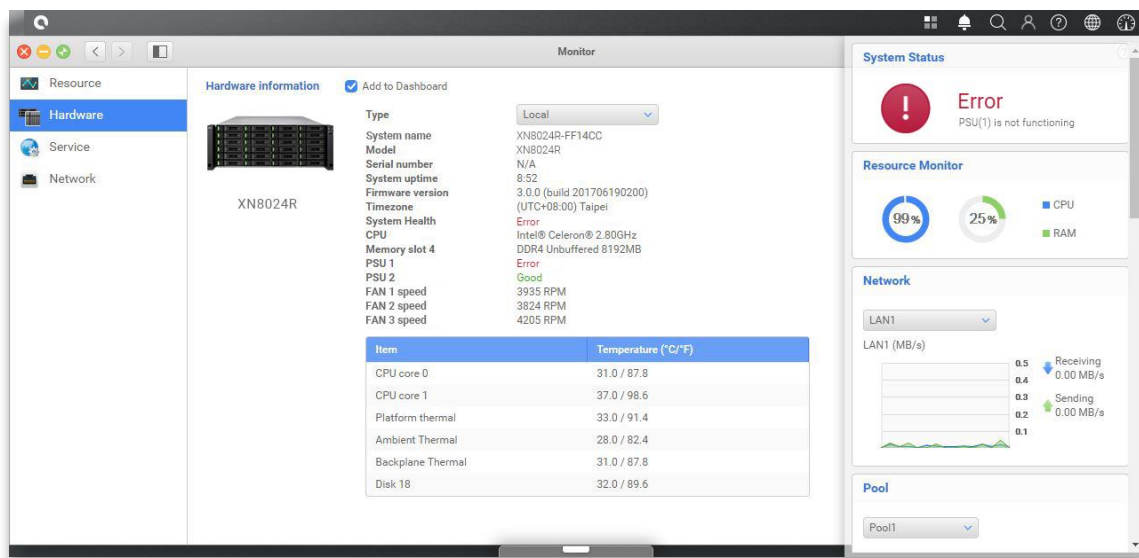
If you see the error message shown above, which means your PSU has encountered an issue and need to be replaced immediately. To replace the malfunction PSU, please refer to chapter 3.5 Replace Malfunctioning PSU. After the new PSU is successfully installed, the PSU status LED will be green and you can see the PSU status displaying "Good" on QSM.
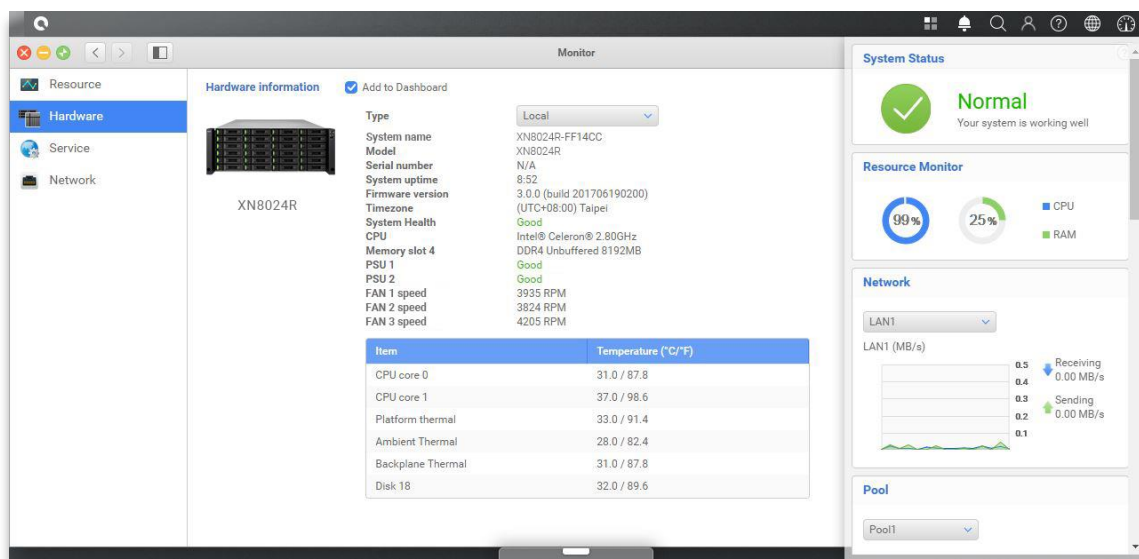
11. Support and Other Resources

11.1. Getting Technical Support

After installing your device, locate the serial number on the sticker located on the side of the chassis and register your product at partner.qsan.com/ (End-User Registration). We recommend registering your product in QSAN partner website for firmware updates, document download, and latest news in eDM. To contact QSAN Support, please use the following information.

1. Via the Web: http://www.qsan.com/en/contact_support.php
2. Via Telephone: +886-2-7720-2118 extension 136
   (Service hours: 09:30 - 18:00, Monday - Friday, UTC+8)
3. Via Skype Chat, Skype ID: qsan.support
   (Service hours: 09:30 - 02:00, Monday - Friday, UTC+8, Summertime: 09:30 - 01:00)
4. Via Email: support@qsan.com

Information to collect
1. Product name, model or version, and serial number
2. Firmware version
3. Error messages or screenshot images
4. Product-specific reports and logs
5. Add-on products or components installed
6. Third-party products or components installed

Information for Technical Support
The following system information is necessary for technical support, please refer to following for what and where to get the information of your XCubeNAS XN7024R model.

If the technical support requests you to download the service log, please navigate to the QSM UI → **Control Panel** → **System**→ **Maintenance** → **Import/Export** → **Export system diagnosis report**, and then click the **Export** button.
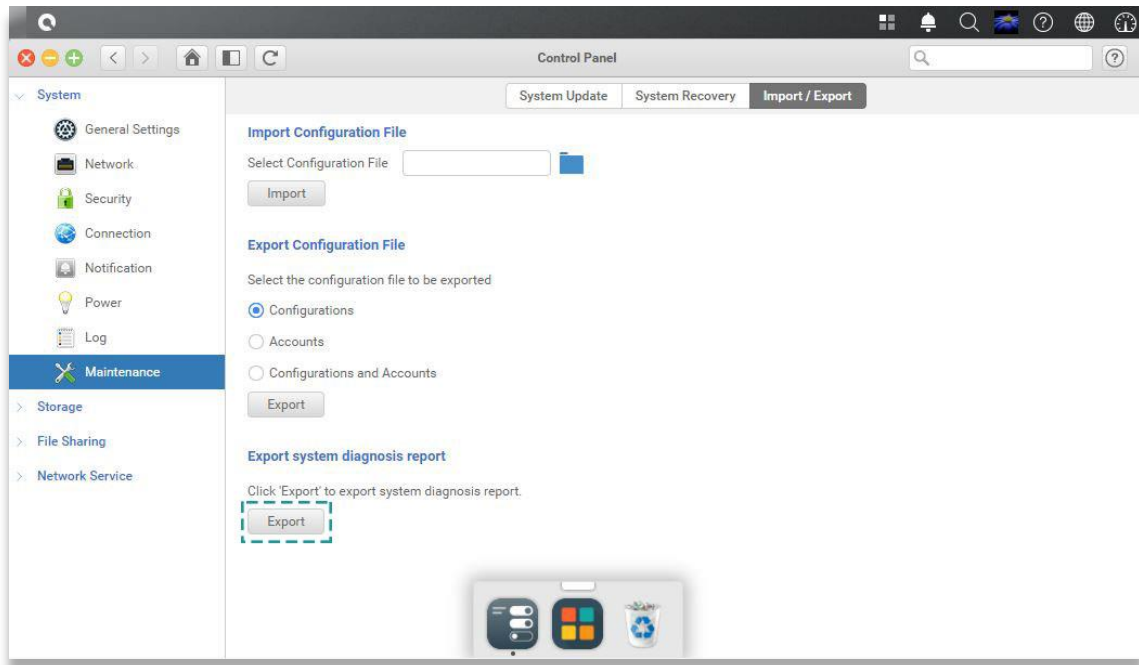
11.2. Documentation Feedback

QSAN is committed to providing documentation that meets and exceeds your expectations. To help us improve the documentation, email any errors, suggestions, or comments to docsfeedback@qsan.com.

When submitting your feedback, including the document title, part number, revision, and publication date located on the front cover of the document.

Appendix

End-User License Agreement (EULA)

Please read this document carefully before you use our product or open the package containing our product.

YOU AGREE TO ACCEPT TERMS OF THIS EULA BY USING OUR PRODUCT, OPENING THE PACKAGE CONTAINING OUR PRODUCT OR INSTALLING THE SOFTWARE INTO OUR PRODUCT. IF YOU DO NOT AGREE TO TERMS OF THIS EULA, YOU MAY RETURN THE PRODUCT TO THE RESELLER WHERE YOU PURCHASED IT FOR A REFUND IN ACCORDANCE WITH THE RESELLER'S APPLICABLE RETURN POLICY.

General

QSAN Technology, Inc. ("QSAN") is willing to grant you ("User") a license of software, firmware and/or other product sold, manufactured or offered by QSAN ("the Product") pursuant to this EULA.

License Grant

QSAN grants to User a personal, non-exclusive, non-transferable, non-distributable, non-assignable, non-sub-licensable license to install and use the Product pursuant to the terms of this EULA. Any right beyond this EULA will not be granted.

Intellectual Property Right

Intellectual property rights relative to the Product are the property of QSAN or its licensor(s). The user will not acquire any intellectual property by this EULA.

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Expansion Enclosure List

Expansion Enclosures	XD5312-D XD5312-S	XD5316-D XD5316-S	XD5324-D XD5324-S	XD5326-D XD5326-S
Configurations	Single Controller or Dual Controllers			
Host Wide Ports Per System	5 x 12 Gb/s SAS wide ports (SFF-8643, internal) connectors			
Enclosures	LFF 2U12	LFF 3U16	LFF 4U24	SFF 2U26
No. of Hard Drives	12	16	24	26
Hard Drive Interfaces 12Gb/s 6Gb/s	3.5"/2.5" SAS, NL-SAS HDD, 2.5" SAS SSD, 3.5" SATA* HDD, 2.5" SATA* SSD			2.5" SAS, NL-SAS HDD, 2.5" SAS, SATA* SSD
Dimension (H x W x D) (mm)	88 x 438 x 515	130.4 x 438 x 515	170.3 x 438 x 515	88 x 438 x 491
Power Supply	770W/850W 1+1 redundant (80 PLUS Platinum) AC Input 100-127V, 10A, 50-60Hz 200-240V 5A, 50-60Hz			
Topologies	Cascade, Reverse, Tree			