

XF5 / XN5 Series

Hardware Manual

May 2025

ANNOUNCEMENT

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TABLE OF CONTENTS

Announcement.....	i
Notices.....	vi
Regulatory Statements	vii
FCC Statement	vii
CE Statement	vii
UL Statement	vii
Preface.....	xi
About This Manual.....	xi
Warranty.....	xi
Precautions	xi
Related Documents	xii
Technical Support	xii
Information, Tip, and Caution	xiii
Conventions	xiii
1. Product Overview	1
1.1. Introduction to XF5 / XN5 Series	1
1.2. Hardware Specifications	2
1.3. Package Contents	2
2. Overview of System Components.....	3
2.1. XF5 / XN5 Front Panel.....	3
2.2. XF5 / XN5 Rear Panel	7
2.3. XF5 / XN5 Power Supply Units.....	11
2.4. XF5 / XN5 Cache-to-Flash Memory Protection.....	13
3. Install System Hardware	16
3.1. Basic System Installation	16
3.2. Installing the Security Bezel.....	16

- 3.3. Connecting a UPS (Option) 16
- 3.4. Connecting the USB LCM (Option) 17
- 3.5. Wake-on-LAN / Wake-on-SAS (Option) 17
- 3.6. Installing Host Cards (Option)..... 18
- 3.7. Installing Memory Modules (Option) 18
- 3.8. Expansion Unit Connections (Option) 19
- 4. Support and Other Resources 21**
 - 4.1. Getting Technical Support 21
 - 4.2. Documentation Feedback..... 22
- Appendix..... 23**
 - End-User License Agreement (EULA)..... 23

FIGURES

Figure 1-1	XF5226 / XN5226 Form Factors	1
Figure 2-1	XF5226 / XN5226 System Controls and Indicators	3
Figure 2-2	XF5226 / XN5226 Disk Drive Numbering.....	5
Figure 2-3	XF5226 / XN5226 Disk Drive Indicators	6
Figure 2-4	XF5226 / XN5226 Rear Panel Layout	7
Figure 2-5	XF5226 / XN5226 Controller Module Components.....	8
Figure 2-6	XF5226 / XN5226 Controller LEDs	9
Figure 2-7	XF5226 / XN5226 Power Supply Unit Location	11
Figure 2-8	XF5226 / XN5226 Power Supply Unit Components.....	12
Figure 2-9	XF5226 / XN5226 Cache-to-Flash Module Location.....	13
Figure 2-10	XF5226 / XN5226 Cache-to-Flash Module	14
Figure 3-1	XF5226 / XN5226 Security Bezel.....	16
Figure 3-2	Portable USB LCM.....	17
Figure 3-3	XF5226 / XN5226 Memory Module Slot Number	18
Figure 3-4	XF5226 / XN5226 Expansion Unit Connections.....	19

TABLES

Table 1-1	XF5 / XN5 Series Models	2
Table 2-1	XF5226 / XN5226 System Control and Indicator Description.....	4
Table 2-2	XF5226 / XN5226 Disk Drive Indicator Description	6
Table 2-3	XF5226 / XN5226 Rear Panel Layout Description.....	7
Table 2-4	XF5226 / XN5226 Controller Module Component Description	8
Table 2-5	XF5226 / XN5226 Controller LED Description.....	9
Table 2-6	XF5226 / XN5226 Power Supply Unit Location Description	12
Table 2-7	XF5226 / XN5226 Power Supply Unit Component Description	12
Table 2-8	XF5226 / XN5226 Power Supply Unit LED Description	13
Table 2-9	XF5226 / XN5226 Cache-to-Flash Module Location Description.....	14
Table 2-10	XF5226 / XN5226 Cache-to-Flash Module Description	14
Table 2-11	XF5226 / XN5226 Cache-to-Flash Module LED Description	14

NOTICES

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

REGULATORY STATEMENTS

FCC 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: FCC Part 15 Class A
IC ICES-003

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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。VCC1-A

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。

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
(EN55032 / EN55035)

UL Statement

Rack Mount Instructions - The following or similar rack-mount instructions are included with the installation instructions:

1. Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (T_{ma}) specified by the manufacturer.
2. Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
3. Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
4. Circuit Overloading - Careful consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
5. Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).



CAUTION

The main purpose of the system left and right ears are for 19" rack use only. Do NOT use those ears to carry or transport the system.

The ITE is not intended to be installed and used in a home, school or public area accessible to the general population, and the thumbscrews should be tightened with a tool after both initial installation and subsequent access to the panel.

Warning: Always remove all power supply cords before service

This equipment intended for installation in restricted access locations.

- Access should only be allowed by qualified SERVICE PERSONS or by USERS who have been instructed about the reasons for the restrictions applied to the location and about any precautions that shall be taken.
- Access is through the use of a TOOL or lock and key, or other means of security, and is controlled by the authority responsible for the location.
- Recommended operation temperature: 0°C ~ 35°C (32°F ~ 95°F); operation rating (100-127 Vac, 50-60Hz, 10.0A; 200-240 Vac, 50-60Hz, 5.0A)



CAUTION

CAUTION: (English)

Risk of explosion if battery is replaced by incorrect type. Please replace the same or equivalent type battery use and dispose of used batteries according to the instructions.

ATTENTION: (French)

IL Y A RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACÉE PAR UNE BATTERIE DE TYPE INCORRECT. METTRE AU REBUT LES BATTERIES USAGÉES CONFORMEMENT AUX INSTRUCTIONS.

VORSICHT: (German)

Explosionsgefahr bei unsachgemäßem Austausch der Batterie. Entsorgung gebrauchter Batterien nach Anleitung.

ADVERTENCIA: (Spanish)

Las baterías pueden explotar si no se manipulan de forma apropiada. No desmonte ni tire las baterías al fuego. Siga las normativas locales al desechar las baterías agotadas.

ВНИМАНИЕ: (Russian)

Опасность взрыва при замене батареи неправильного типа. Пожалуйста, устанавливайте на место батареи такого же или аналогичного типа и утилизируйте использованные батареи в соответствии с инструкциями.

警告: (Traditional Chinese)

電池如果更換不正確會有爆炸的危險，請依製造商說明處理用過之電池。

警告: (Simplified Chinese)

电池如果更换不正确会有爆炸的危险，请依制造商说明处理用过之电池。



CAUTION

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.



CAUTION RESTRICTED ACCESS LOCATION

This system is intended for installation only in restricted access locations as defined where both these conditions apply:

- Access can only be gained by service persons or by users who have been instructed about the reasons for the restrictions applied to the location and about any precautions that shall be taken.
- Access is through the use of a tool or lock and key, or other means of security, and is controlled by the authority responsible for the location.

Warning

- Electric shock hazard



The system may have one or more power supply unit (PSU) cords. To avoid serious injuries, it is recommended that all PSU power cords must be disconnected by trained service technicians before installing or replacing system components.

PREFACE

About This Manual

This manual provides technical guidance for designing and implementing QSAN XF5 and XN5 series storage systems, and they are intended for use by system administrators, storage consultants, or anyone who has purchased these products and is familiar with servers and computer networks, network administration, storage system installation and configuration, storage area network management, and relevant protocols.

Warranty

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

- System hardware and peripheral products: 5 years limited warranty from date of original purchase.
- Battery Backup Module or super capacitor module (applies for cache-to-flash module): 1-year limited warranty from date of original purchase.

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

<https://www.qsan.com/warranty>

Precautions



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 manual.



CAUTION

Before beginning any removal or replacement procedure, remember to follow the standard safety precautions and the electrostatic discharge procedure.



CAUTION

Because the system is very heavy, follow the standard safety precautions when lifting assemblies of materials. This requires two people and sometimes a lifting tool.

Related Documents

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

- [Quick Installation Guide](#)
- [Software Manual](#)
- [Compatibility Matrix](#)
- [White Papers](#)
- [Application Notes](#)

Technical Support

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

- Via the Web: https://www.qsan.com/technical_support
- Via Telephone: +886-2-77206355

- (Service hours: 09:30 - 18:00, Monday - Friday, UTC+8)
- Via Skype Chat, Teams / Skype ID: qsan.support
- (Service hours: 09:30 - 02:00, Monday - Friday, UTC+8, Summer time: 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.
<i><Italic></i>	Indicates a variable, which is a placeholder for actual text provided by the user or system. Example: copy <i><source-file></i> <i><target-file></i> .
[] 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: [<u>a</u> b]

1. PRODUCT OVERVIEW

Thank you for purchasing QSAN Technology, Inc. products. XF5 and XN5 series is the leading enterprise all-flash array developed to allow all enterprises to easily enter the era of flash storage.

1.1. Introduction to XF5 / XN5 Series

QSAN XF5 and XN5 series are an all-flash system, the system is composed of system hardware and the XEVO (for block storage) or QSM (for unified storage) operating system, the system hardware is a modular design and FRU (Field Replacement Unit) optimized. All the hardware modules are inside the rack mount chassis including system controllers, front panel, rear panel, redundant power supply units and fan modules, cache-to-flash modules, and expansion slots for optional Fibre Channel or Ethernet high-speed host cards. This manual will direct you step by step to familiarize you with the hardware components, how to install the system, carry out the initial configuration, and provide you with some quick maintenance guidelines.



INFORMATION

For how to use the XEVO (for block storage) operating system, please refer to the [XEVO Software Manual](#). For how to use the QSM (for block storage) operating system, please refer to the [QSM Software Manual](#).

XF5226 or XN5226 model supports SFF (Small Form Factor) 26-bay 19" rack mount 2U chassis.



Figure 1-1 XF5226 / XN5226 Form Factors

The following tables provide detailed information about all XF5 and XN5 series models arranged by form factors.

Table 1-1 XF5 / XN5 Series Models

MODEL NAME	CONTROLLER TYPE	FORM FACTOR, BAY COUNT, RACK UNIT
XF5226D-12C	Dual Controller	SFF 26-bay 2U Chassis
XF5226S-12C	Single Controller	SFF 26-bay 2U Chassis
XN5226D-12C	Dual Controller	SFF 26-bay 2U Chassis
XN5226S-12C	Single Controller	SFF 26-bay 2U Chassis

1.2. Hardware Specifications

For detailed hardware specifications, please refer to the [XF5 Data Sheet](#) and [XN5 Data Sheet](#).

1.3. Package Contents

For detailed package contents, please refer to the [Quick Installation Guide](#).

2. OVERVIEW OF SYSTEM COMPONENTS

This chapter outlines the key hardware components or modules of the system. After reading this chapter, you will have a basic understanding of each part of the hardware and give you the ability to be able to successfully configure and operate your system.

2.1. XF5 / XN5 Front Panel

In this section, we will describe the system controls and indicators, disk drive numbering, and the disk drive LEDs in the front panel.

2.1.1. XF5 / XN5 System Controls and Indicators

The XF5226 or XN5226 model features a unique design: the system controls and indicators are located on the right ear. The system control and indicator module integrate functional buttons and system state indicators, which can be easily operated and read by user. The figure below takes an example and contains detailed of the button and indicator module. Please refer to the following for the definition of LED behavior.

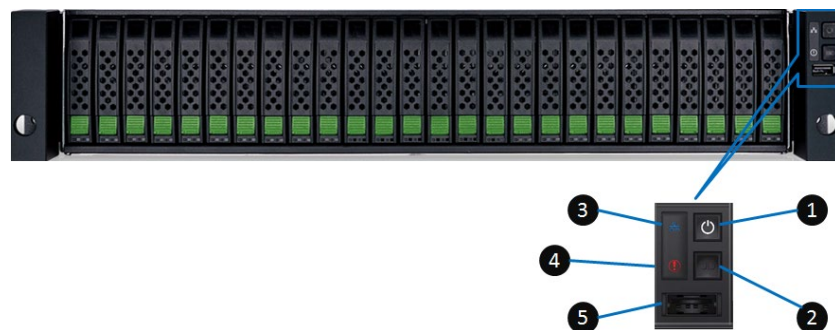


Figure 2-1 XF5226 / XN5226 System Controls and Indicators

Table 2-1 XF5226 / XN5226 System Control and Indicator Description

NUMBER	DESCRIPTION	DEFINITION
1	Enclosure Power Button / LED	<p>Power Button</p> <ul style="list-style-type: none"> Press the button one time to turn ON the system power and keep pressing for 4 seconds to turn OFF the system power. <p>Power LED</p> <ul style="list-style-type: none"> Solid White: Power is ON (at least one power supply unit is supplying power to the system). Blinking White: The system is in the stage of boot or shutdown. Off: The system is turned off.
2	UID Button / LED	<p>UID (Unique Identifier) button</p> <ul style="list-style-type: none"> Press the button one time to turn it ON and press it again to turn it OFF. <p>UID (Unique Identifier) LED</p> <ul style="list-style-type: none"> Solid Blue: The system has been identified. Off: The system has not been identified.
3	Enclosure Access LED	<p>Enclosure Access LED indicates the host interface connectivity.</p> <ul style="list-style-type: none"> Blinking Blue: The host interface activity is on-going. Off: There is no host interface activity.
4	Enclosure Status LED	<p>Enclosure Status LED indicates the current health status of the system.</p> <ul style="list-style-type: none"> Solid Amber: System has errors including PSU failure, abnormal voltage, abnormal temperature, any fan module failed or removed, controller degraded, pool

		degraded, pool failure, SSD cache pool degraded, or SSD cache pool failure. <ul style="list-style-type: none">• Off: The system is healthy.
5	USB Port	The USB port can be plugged in the LCM (LCD Module).

2.1.2. XF5 / XN5 System Disk Drive Numbering

Figures below illustrate the system disk drive numbering. The SFF system disk drive numbering is single row from left to right. If you want to check the disk drive numbering rule while installing the disk drives into the system, for SFF system, the disk drive numbering is printed on the lower part of the system front.



Figure 2-2 XF5226 / XN5226 Disk Drive Numbering



TIP

Please insert any one of the first four hard drives, the event log can be saved and displayed at the next system startup. Otherwise, the event log cannot be saved.

2.1.3. XF5 / XN5 Disk Drive LEDs

Please refer to the following for the definition of LED behavior.

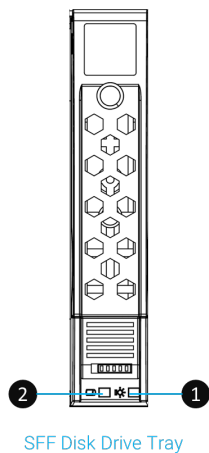


Figure 2-3 XF5226 / XN5226 Disk Drive Indicators

Table 2-2 XF5226 / XN5226 Disk Drive Indicator Description

NUMBER	DESCRIPTION	DEFINITION
1	Disk Drive Power LED	<ul style="list-style-type: none">• Solid Blue: The disk drive is inserted and there is no data access.• Blinking Blue: The disk drive is accessing data.• Off: There is no disk drive inserted.
2	Disk Drive Status LED	<ul style="list-style-type: none">• Solid Amber:<ul style="list-style-type: none">▪ When the system is booting.▪ There is a disk drive error.• Blinking Amber (interval of 0.5 sec): The disk drive is being rebuilt.• Blinking Amber (interval of 0.05 sec): Identify the disk drive.• Off: The disk drive is healthy.

2.2. XF5 / XN5 Rear Panel

In this section, we will describe the name and location of the key components and modules in the rear panel. The following content outlines the detail of the rear panel and components.

2.2.1. XF5 / XN5 Rear Panel Layout

Figures and the table below illustrate the system rear panel layout.

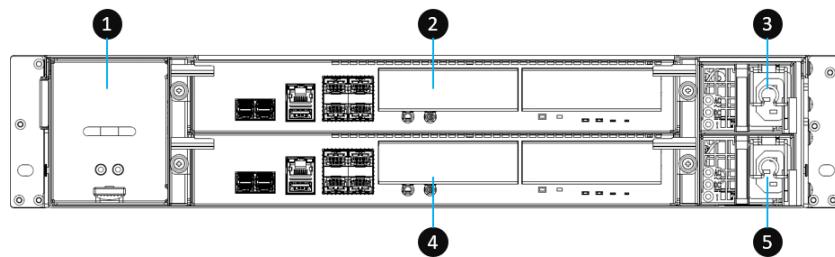


Figure 2-4 XF5226 / XN5226 Rear Panel Layout

Table 2-3 XF5226 / XN5226 Rear Panel Layout Description

ITEM NUMBER	DESCRIPTION
1	Slot for Cache-to-Flash Module
2	Controller Module 1
3	Power Supply Unit 1
4	Controller Module 2
5	Power Supply Unit 2

2.2.2. XF5 / XN5 Controller Module

The following image and table illustrate each component of a controller module.

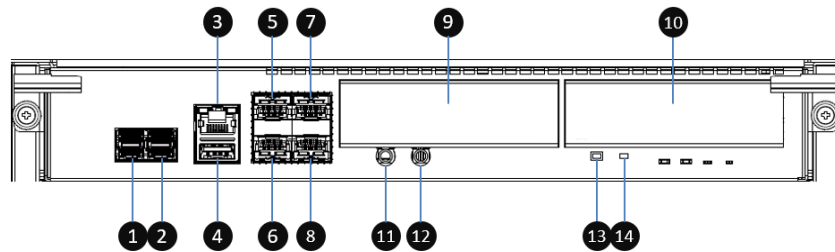


Figure 2-5 XF5226 / XN5226 Controller Module Components

Table 2-4 XF5226 / XN5226 Controller Module Component Description

ITEM NUMBER	DESCRIPTION
1	12 Gb/s SAS Wide Port 1 (SFF8644)
2	12 Gb/s SAS Wide Port 2 (SFF8644)
3	2.5 GbE (RJ45) LAN Port (management port for XF5226)
4	USB Port
5	25 GbE (SFP28) LAN Port 1
6	25 GbE (SFP28) LAN Port 2
7	25 GbE (SFP28) LAN Port 3
8	25 GbE (SFP28) LAN Port 4
9	Host Card Slot 1 (host card is an optional part)
10	Host Card Slot 2 (host card is an optional part)
11	Console Port (3.5mm jack to RS232) ¹
12	Service Port (UPS) ²
13	Buzzer Mute Button
14	Reset to Factory Default Button ³

¹ Console cable (NULL modem cable) connects from console port of the storage system to a RS 232 port on the management PC. The console settings are on the following: Baud rate: 115,200, 8 data bit, no parity, 1 stop bit, and no flow control; terminal type: vt100.

² System supports traditional UPS via a serial port and network UPS via SNMP. If using the UPS with a serial port, connect the system to the UPS via the included cable for communication. (The cable plugs into the serial cable that comes with the UPS.) Then set up the shutdown values for when the power goes out.

³ Press the button for 3 seconds to progress reset to defaults. The default settings are:

- Reset **Management Port** IP address to DHCP and then fix IP address: 169.254.1.234/16.
- Reset admin's **Password** to 1234.
- Reset **System Name** to model name plus the last 6 digits of serial number.
- Reset IP addresses of all **LAN Ports** to 192.168.1.1, 192.168.2.1, ... etc.
- Reset link speed of all **Fibre Channel Ports** to Automatic.
- Clear all access control settings of the host connectivity.

Please refer to the following for the definition of LED behavior.

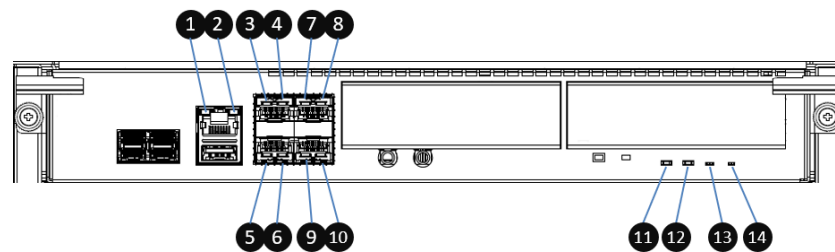


Figure 2-6 XF5226 / XN5226 Controller LEDs

Table 2-5 XF5226 / XN5226 Controller LED Description

NUMBER	DESCRIPTION	DEFINITION
1	Management Port Speed LED	<ul style="list-style-type: none"> • Blinking Amber: The transmission speed is 2.5 Gb. • Blinking Green: The transmission speed is 1 Gb. • Off: No link detected.
2	Management Port Access LED	<ul style="list-style-type: none"> • Blinking Amber: Data is being accessed. • Solid Amber: No data access.

3	25 GbE GbE LAN Port 1 Access LED	<ul style="list-style-type: none"> Blinking Green: Link is established, and data is being accessed. Off: No data access.
4	25 GbE GbE LAN Port 1 Speed LED	<ul style="list-style-type: none"> Solid Blue: 25 Gb link is established and maintained. Solid Amber: 10 Gb / 1 Gb link is established and maintained. Off: No link detected.
5	25 GbE GbE LAN Port 2 Access LED	<ul style="list-style-type: none"> Blinking Green: Link is established, and data is being accessed. Off: No data access.
6	25 GbE GbE LAN Port 2 Speed LED	<ul style="list-style-type: none"> Solid Blue: 25 Gb link is established and maintained. Solid Amber: 10 Gb / 1 Gb link is established and maintained. Off: No link detected.
7	25 GbE GbE LAN Port 3 Access LED	<ul style="list-style-type: none"> Blinking Green: Link is established, and data is being accessed. Off: No data access.
8	25 GbE GbE LAN Port 3 Speed LED	<ul style="list-style-type: none"> Solid Blue: 25 Gb link is established and maintained. Solid Amber: 10 Gb / 1 Gb link is established and maintained. Off: No link detected.
9	25 GbE GbE LAN Port 4 Access LED	<ul style="list-style-type: none"> Blinking Green: Link is established, and data is being accessed. Off: No data access.
10	25 GbE GbE LAN Port 4 Speed LED	<ul style="list-style-type: none"> Solid Blue: 25 Gb link is established and maintained. Solid Amber: 10 Gb / 1 Gb link is established

		<p>and maintained.</p> <ul style="list-style-type: none"> Off: No link detected.
11	Controller Status LED	<ul style="list-style-type: none"> Solid Green: Controller status is normal. Solid Red: System is booting, or the controller is failed.
12	Master / Slave LED (only for dual controllers)	<ul style="list-style-type: none"> Solid Green: This is the Master controller. Off: This is the Slave controller.
13	Dirty Cache LED	<ul style="list-style-type: none"> Solid Amber: Data on the cache is waiting for flush to disks. Off: There is no data on the cache.
14	UID (Unique Identifier) LED	<ul style="list-style-type: none"> Solid Blue: The enclosure has been identified. Off: The enclosure is not being identified.

2.3. XF5 / XN5 Power Supply Units

The system is equipped with two redundant and hot swappable PSUs (Power Supply Units). The images and the table below illustrate the location of PSUs in the system.

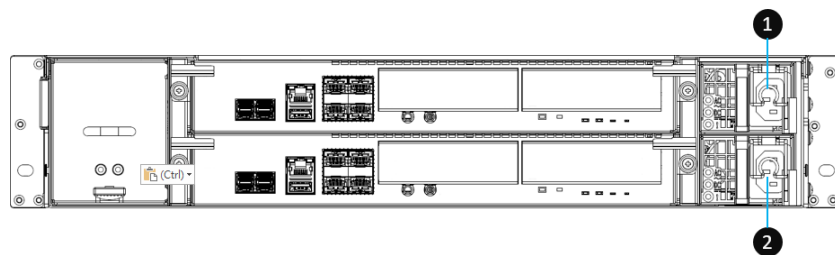


Figure 2-7 XF5226 / XN5226 Power Supply Unit Location

Table 2-6 XF5226 / XN5226 Power Supply Unit Location Description

ITEM NUMBER	DESCRIPTION
1	PSU 1
2	PSU 2

Please refer to the following for the definition of component and LED behavior.

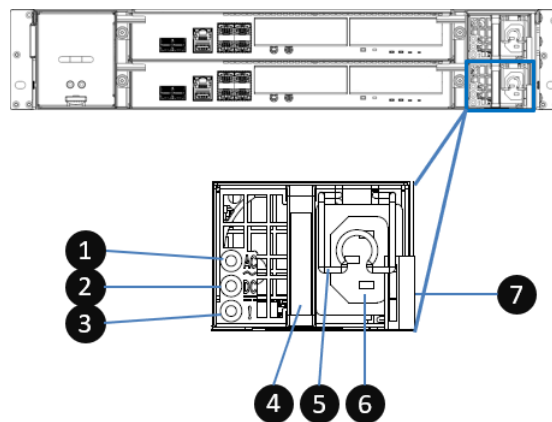


Figure 2-8 XF5226 / XN5226 Power Supply Unit Components

Table 2-7 XF5226 / XN5226 Power Supply Unit Component Description

ITEM NUMBER	DESCRIPTION
1	PSU AC Power LED
2	PSU DC Power LED
3	PSU Warning LED
4	PSU Handle
5	PSU Power Cord Hook
6	PSU Power Cord Connect Hole

Table 2-8 XF5226 / XN5226 Power Supply Unit LED Description

NUMBER	DESCRIPTION	DEFINITION
1 & 2	PSU Power LED	<ul style="list-style-type: none"> Solid Green: The PSU is on and normal. Off: No power detected.
4	PSU Warning LED	<ul style="list-style-type: none"> Solid Amber: There is critical event caused shutdown. Blinking Amber: There are PSU warning events including high temperature, high power, high current, slow fan, or under input voltage.

2.4. XF5 / XN5 Cache-to-Flash Memory Protection

In the event of power loss, the I/O cache data stored in the volatile memory will be lost; this can cause data inconsistency especially in database applications. The system can provide an optional Cache-to-Flash memory protection function that will safely transfer the memory cache data to a non-volatile flash device for permanent preservation. The Cache-to-Flash module includes an M.2 flash memory and multiple supercapacitors. The module is hot pluggable with zero system downtime for extra availability and reliability. Images and tables below illustrate the location of the cache-to-flash module.

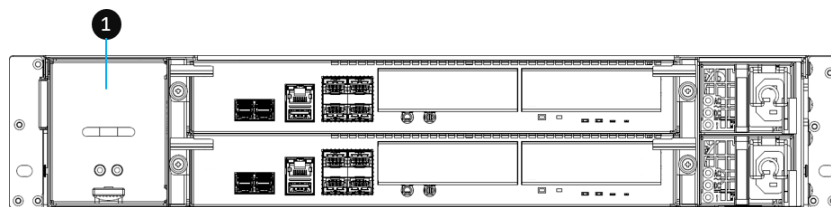


Figure 2-9 XF5226 / XN5226 Cache-to-Flash Module Location

Table 2-9 XF5226 / XN5226 Cache-to-Flash Module Location Description

ITEM NUMBER	DESCRIPTION
1	Slot for Cache-to-Flash-Module

Please refer to the following for the definition of module and LED behavior.

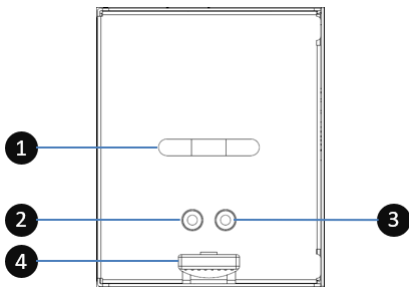


Figure 2-10 XF5226 / XN5226 Cache-to-Flash Module

Table 2-10 XF5226 / XN5226 Cache-to-Flash Module Description

ITEM NUMBER	DESCRIPTION
1	Cache-to-Flash Module Handle
2	Cache-to-Flash Module Power LED
3	Cache-to-Flash Module Status LED
4	Cache-to-Flash Module Release Tab

Table 2-11 XF5226 / XN5226 Cache-to-Flash Module LED Description

NUMBER	DESCRIPTION	DEFINITION
2	Cache-to-Flash Module Power LED	<ul style="list-style-type: none">• Solid Green: The power of the flash memory is good.• Solid Amber: When data is flushed to the Cache-to-Flash module, the indicator will

		illuminate until the supercapacitors are depleted or power is turned on.
3	Cache-to-Flash Module Status LED	<ul style="list-style-type: none">• Solid Blue: The status of flash memory is good.• Blinking Blue and Amber Alternately:<ul style="list-style-type: none">▪ The system has not been initialized, waiting for detection and initialization.▪ Data is being written to the Cache-to-Flash module▪ Write data back from Cache-to-Flash module.• Solid Amber: The flash memory is failed or wrong PCIe connection speed.

3. INSTALL SYSTEM HARDWARE

This chapter will guide you through the installation process.

3.1. Basic System Installation

For basic system installation, please refer to the [Quick Installation Guide](#). You can learn to install the disk drives, optional host cards, rail kits, and power on the storage system to discover and setup the system.

For more information about discovering your system and the initial configuration, please refer to the [Software Manual](#).

3.2. Installing the Security Bezel

The following steps are used to install the security bezel:

1. Insert the tab on the security bezel into the slot on the right side of the chassis.
2. Then align the latch with the slot on the left side of the case and press it firmly until it clicks into place.
3. Use the key to lock the security bezel.

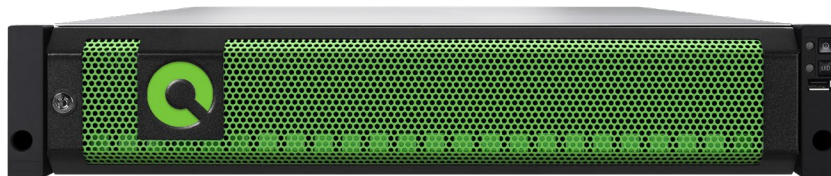


Figure 3-1 XF5226 / XN5226 Security Bezel

3.3. Connecting a UPS (Option)

If you want to install a UPS (uninterruptible power supply) to provide clean power and offer protection against mains power failures, please follow the following instructions.

1. Before you purchase a UPS system, please check the supported UPS interfaces and communication types.
2. Supported types include network UPS via SNMP, serial UPS with COM port, and USB UPS.
3. Connect the UPS to the system via Service Port (UPS).

3.4. Connecting the USB LCM (Option)

If you purchased the USB LCM, please use the enclosed USB extension cable (A-male to A-female) to connect to the system.



Figure 3-2 Portable USB LCM

The Following procedures are for the USB LCM connection:

1. Connect the USB LCM to the female side of the USB extension cable.
2. Connect the male side of the USB extension cable to the USB port on the system front pillar.

3.5. Wake-on-LAN / Wake-on-SAS (Option)

You can power on the system remotely using the Wake-on-LAN feature. It can work with any available Wake-on-LAN freeware and shareware.

QSAN's Wake-on-SAS technology allows you to remotely turn on or off all cascaded XD5300 expansion enclosures using QSAN's proprietary SAS cable. Wake-on-SAS ensures that after the head system is shut down for maintenance or other purposes, the expansion enclosure will not run idle, thus consuming power. Wake-on-SAS allows your devices to be turned on only when necessary, thereby avoiding unnecessary waste of electricity. Another advantage of Wake-on-SAS is that when you turn on the head system, the expansion enclosures will automatically wake up, so if you forget to turn them on first, you don't need to worry about degrading the volumes on the expansion enclosures.

3.6. Installing Host Cards (Option)

The system comes with four onboard LAN ports on each controller. If you want to expand the number of host ports, please purchase QSAN host cards which are optional accessories. There are several types of host cards to choose from. You can set up Fibre Channel using 32 Gb or 16 Gb Fibre Channel host cards, or choose Ethernet host cards via 100 GbE, 25 GbE, or 10GbE.

If you purchased additional optional host cards, please refer to the [Host Card Hardware Manual](#) for installation and detailed information.

3.7. Installing Memory Modules (Option)

If you purchased additional optional memory modules, refer to the following illustration for the recommended order in which to install the memory modules. The memory modules of the two controllers must be installed in the same slot and have the same capacity.

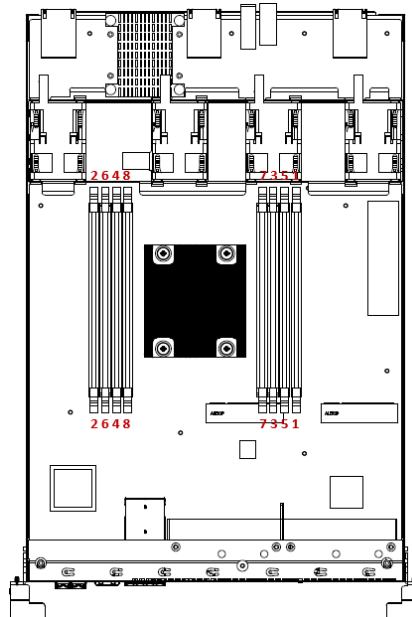


Figure 3-3 XF5226 / XN5226 Memory Module Slot Number



CAUTION

To ensure system stability, you **MUST** install genuine QSAN memory modules to expand the system memory size. The platform does not support

mixed installation of DIMMs, so mixed installation of memory combinations is not allowed.

**TIP**

Inserting two DIMMs or more will boost performance.

3.8. Expansion Unit Connections (Option)

The following figure illustrates the connections of a dual-controller storage system and expansion units. MPIO (Multipath I/O) configuration is designed to provide HA (High Availability) data connections to ensure data consistency in the event of a single path host connection failure.

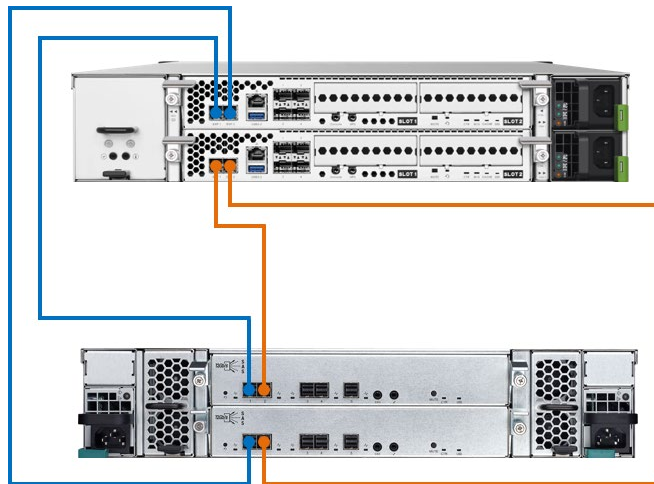


Figure 3-4 XF5226 / XN5226 Expansion Unit Connections

Step details are described below.

1. Connect the SAS cable from QSAN CTRL 1 EXP1 to JBOD CTRL 1 port 1.
2. Connect the SAS cable from QSAN CTRL 1 EXP2 to JBOD CTRL 2 port 1.
3. Connect the SAS cable from QSAN CTRL 2 EXP1 to JBOD CTRL 1 port 2.

4. Connect the SAS cable from QSAN CTRL 2 EXP2 to JBOD CTRL 2 port 2.



TIP

If any connection is disconnected, the system status will show **Degrade** mode.

4. SUPPORT AND OTHER RESOURCES

4.1. Getting Technical Support

After installing your device, locate the serial number on the sticker located on the side of the chassis or from the **System -> Maintenance > System Information** and use it to register your product at https://www.qsan.com/business_partnership. 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.

- Via the Web: https://www.qsan.com/technical_support
- Via Telephone: +886-2-77206355
- (Service hours: 09:30 - 18:00, Monday - Friday, UTC+8)
- Via Skype Chat, Teams / Skype ID: qsan.support
- (Service hours: 09:30 - 02:00, Monday - Friday, UTC+8, Summer time: 09:30 - 01:00)
- Via Email: support@qsan.com

Information to Collect

- Product name, model or version, and serial number
- Operating system name and version
- Firmware version
- Error messages or capture screenshots
- Product-specific reports and logs
- Add-on products or components installed
- Third-party products or components installed

Information for Technical Support

If the technical support requests you to download the Service Package, please navigate in the **System -> Maintenance > System Information**, and then click the **Download Service Package**

button to download. Then the system will automatically generate a zip file the default download location of your web browser.

4.2. 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, include the document title, part number, revision, and publication date located on the front cover of the document.

APPENDIX

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