

# **XD5378**

## **Hardware Manual**

June 2025

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### **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.

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### **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:



- 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 (Tma) 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 REMPLACEE PAR UNE BATTERIE DE TYPE INCORRECT. METTRE AU REBUT LES BATTERIES USAGEES CONFORMEMENT AUX INSTRUCTIONS.

#### **VORSICHT: (German)**

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

#### **ADVERTENCIA: (Spanish)**

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

#### ВНИМАНИЕ: (Russian)

Опасность взрыва при замене батареи неправильного типа. Пожалуйста, устанавливайте на место батареи такого же или аналогичного типа и утилизировайте 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.





### **INFORMATION**

QSAN provides limited warranty for QSAN-branded hardware products:

- System hardware and peripheral product (s): 3 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: <a href="https://www.qsan.com/warranty">https://www.qsan.com/warranty</a>



### **PREFACE**

### **About This Manual**

This manual provides technical guidance for designing and implementing QSAN XD5378 expansion units, and it is 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.



#### **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.



### **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.

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- Via Telephone: +886-2-77206355
- (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, Summer time: 09:30 01:00)
- Via Email: <a href="mailto:support@qsan.com">support@qsan.com</a>

### 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 <b>OK</b> button.
<italic></italic>	Indicates a variable, which is a placeholder for actual text provided by the user or system.  Example: copy <source-file> <target-file>.</target-file></source-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: [ <u>a</u>   b ]



### 1. Product Overview

Thank you for purchasing QSAN Technology, Inc. products. QSAN XCubeDAS XD5300 Series is a DAS (Direct Attached Storage) or JBOD (Just a Bunch Of Disks) for server expansion. It is also a RAID expansion enclosure for QSAN storage.

### 1.1. Introduction to XD5378

QSAN XD5378 is a DAS storage system. The system is fully compatible with all major 12 Gb/s SAS host cards, RAID controller cards, servers, and operating systems. The system hardware is a modular design for FRU (field replacement unit). All the hardware modules are inside the rack mount chassis, including the system controller module, front panel, rear panel, redundant power supply, and fan module. This manual will direct you step by step to familiarize you with the hardware components, how to install the system, carry out the initial configure, and provide you with some quick maintenance guidelines.

XD5378 supports the standard form factor:

LFF (Large Form Factor): 78-bay rack mount 4U chassis.

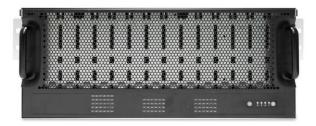


Figure 1-1 XD5378 Form Factor



## 1.2. Hardware Specifications

For detailed hardware specifications, please refer to the <u>XD5378 Datasheets</u> which can be downloaded from the website.



### 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. 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. System Controls and Indicators

The XD5378 features a unique design: the system controls and indicators are located on the front panel. The system control and indicator module integrates functional buttons and system state indicators, which can be easily operated and read by the user. The figure below takes the XD5378, which contains detailed information about the button and indicator module. Please refer to the following for the definition of LED behavior.

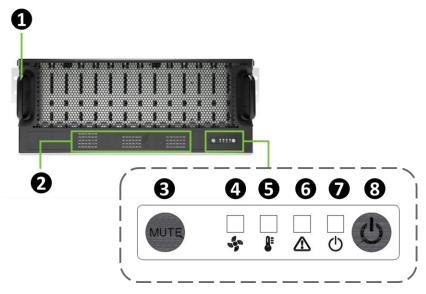


Figure 2-1 System Controls and Indicators



Table 2-1 System Control and Indicator Descriptions

NUMBER	DESCRIPTION	DEFINITION
1	System Handle	The system handle can be used when pulling out the enclosure from the cabinet.
2	System Disk Drive Status LED	<ul> <li>The system disk status LED indicates the current status of disk drives from location 1 to 78 disk drive slots.</li> <li>Solid Blue: The disk drive inserted operates properly.</li> <li>Solid Red: The disk drive inserted is unhealthy.</li> <li>Off: There is no disk drive inserted.</li> </ul>
3	System Alert Mute Switch	<ul> <li>System Alert Mute Switch</li> <li>Press the button once to mute the system alert sound.</li> </ul>
4	System Fan Fault LED	The system fan fault LED indicates the current fan status of the system  UID (Unique Identifier) LED  Red: The system fan failed.  Off: The system fan works properly.
5	System Temperature (Overheating) LED	<ul> <li>The System Temperature LED indicates the system is overheated.</li> <li>Red: The system operates at an overheated temperature.</li> <li>Off: The system operates at normal temperature.</li> </ul>
6	System Power Fail LED	The System Power Fail LED indicates the power status of the system.  • Red: The error occurred on the power supply

		Off: The system power is healthy.
7	System Power LED	The Enclosure Status LED indicates the power status of the system.  Red: The error occurred on the power supply Off: The system power is healthy.
8	System Power Button	<ul><li>System Alert Mute Switch</li><li>Press the button once to boot up the system.</li></ul>

### 2.1.2. System Disk Drive Numbering

The figures below illustrate the XD5378 system disk drive numbering.

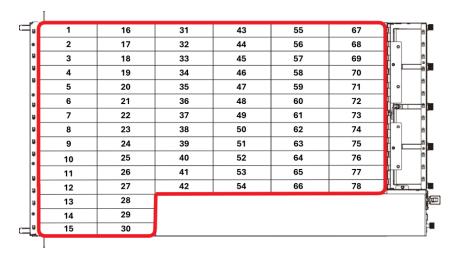


Figure 2-2 Disk Drive Numbering



### **TIP**

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



### Disk Drive LEDs

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

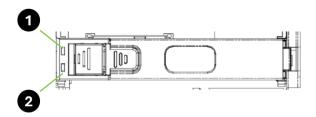


Figure 2-3 Disk Drive Indicators

Table 2-2 Disk Drive Indicator Description

NUMBER	DESCRIPTION	DEFINITION
1	Disk Drive Error LED	<ul> <li>Solid Red: The disk has failed.</li> <li>Blinking Red: Error occurs within the disk.</li> <li>Off: The disk drive is healthy.</li> </ul>
2	Disk Drive Status LED	<ul> <li>Solid Blue: The disk drive is idle.</li> <li>Fast Blinking Blue: The disk drive is accessing data.</li> <li>Slow Blinking Blue: The disk drive is being identified.</li> <li>Off: No disk drive was inserted.</li> </ul>

### 2.2. Rear Panel

This section will describe the name and location of the key components and modules in the rear panel. The following content outlines the details of the rear panel and components.

### 2.2.1. Rear Panel Layout

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

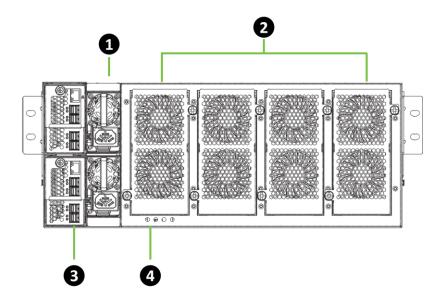


Figure 2-4 Rear Panel Layout

Table 2-3 Rear Panel Layout Description

ITEM NUMBER	DESCRIPTION
1	Power Supply Unit
2	Controller Module
3	Fan Module



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

NUMBER	DESCRIPTION	DEFINITION
4	System Fan Module LED	<ul> <li>The LEDs of the four system fan modules indicate the status of the four system fan modules, respectively, from left to right.</li> <li>Solid Green: The corresponding system fan module is attached and operates properly.</li> <li>Solid Red: The corresponding system fan module is attached and is being identified.</li> <li>Off: The corresponding system fan module is not attached.</li> </ul>

### 2.2.2. Controller Module

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

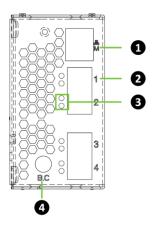


Figure 2-5 Controller Module Components



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Table 2-4 Controller Module Component Description

ITEM NUMBER	DESCRIPTION
1	Management Port
2	12 Gb/s SAS Wide Port
4	Console Port

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

NUMBER	DESCRIPTION	DEFINITION
3	Wide SAS Port LED	<ul> <li>Solid Green: The wide SAS port is connected and operates properly.</li> <li>Solid Amber: The wide SAS port only identifies one PHY.</li> <li>Off: The wide SAS port is not connected.</li> </ul>

## 2.3. Power Supply Units

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

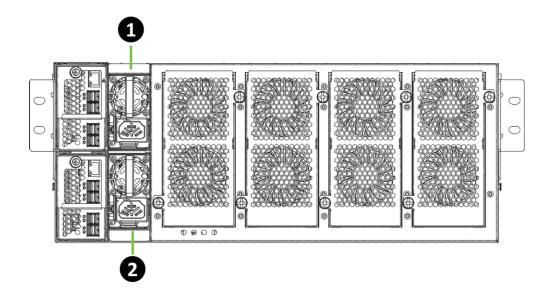


Figure 2-6 Power Supply Unit Location

Table 2-5 Power Supply Unit Location Description

ITEM NUMBER	DESCRIPTION
1	PSU 1
2	PSU 2



### Please refer to the following for the definition of component.

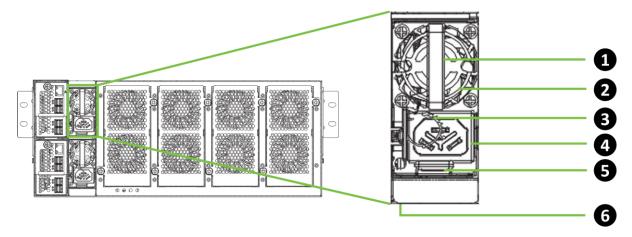


Figure 2-7 Power Supply Unit Components

Table 2-6 Power Supply Unit Component Description

ITEM NUMBER	DESCRIPTION
1	PSU Handle
2	PSU Fan
3	PSU Power Cord Holder
4	PSU Power Cord Connect
5	PSU Release Tab

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

Table 2-7 Power Supply Unit LED Description

NUMBER	DESCRIPTION	DEFINITION
6	PSU LED	<ul><li>Solid Green: The PSU is on and normal.</li><li>Off: The PSU is off.</li></ul>



### 2.4. Fan Modules

The system is equipped with four redundant and hot-swappable fan modules. Each fan module includes two fans. Images and tables below illustrate the location and mechanical components of the fan module that is installed in the system.

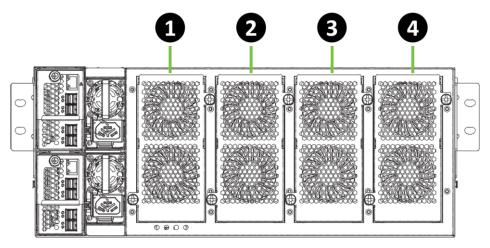


Figure 2-8 Fan Module Location

Table 2-8 Fan Module Location Description

ITEM NUMBER	DESCRIPTION
1	Fan 1 and Fan 2
2	Fan 3 and Fan 4
3	Fan 5 and Fan 6
4	Fan 7 and Fan 8

Please refer to the following for the definition of component.

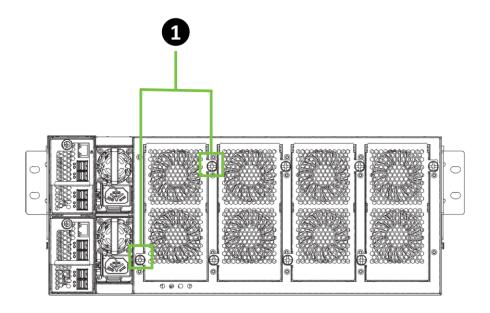


Figure 2-9 Fan Module Components

Table 2-9 Fan Module Component Description

ITEM NUMBER	DESCRIPTION
1	The fan module screw is to fix the fan module to the enclosure.
	<ul> <li>Fasten the screw: Spin the fan module screw clockwise when installing the fan module.</li> </ul>
	• Loosen the screw: Spin the fan module screw counterclockwise when detaching the fan module.



### 3. SUPPORT AND OTHER RESOURCES

### 3.1. Getting Technical Support

After installing your device, locate the serial number on the sticker located on the side of the chassis and use it to register your product at <a href="https://www.qsan.com/business">https://www.qsan.com/business</a> 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: <a href="https://www.qsan.com/technical-support">https://www.qsan.com/technical-support</a>
- Via Telephone: +886-2-77206355
- (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, Summer time: 09:30 01:00)
- Via Email: <a href="mailto:support@qsan.com">support@qsan.com</a>

#### **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



### 3.2. Documentation Feedback

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