IW-RS436-07

4U NVMe Hybrid Storage Server

User Manual

PREFACE

Thank you for choosing the InWin IW-RS436-07 storage server. This manual is written for system technicians who are responsible for installation, managing and repairing this server chassis. This document provides an overview of all the features of the chassis, a list of accessories or other components you may need to finish the installation and instructions on adding and removing components in the InWin IW-RS436-07. For the latest version of this manual, you may visit InWin's server website.

SAFETY INFORMATION

To ensure a safe and smooth operation of your InWin IW-RS436-07, it is essential that you choose an appropriate location for the system, provide an appropriate operating environment and supply an adequate amount of power for all components of the system. As you plan for installation, follow the guidelines below to ensure that the system and its environment are safely and appropriately positioned for efficient operation and service. Your system should be installed and serviced only by a qualified technician.

Environment Selection:

The system is designed to operate in a typical office environment:

- The location should be clean, dry and free of airborne particles.
- It should be placed in a well-ventilated room, and away from sources of heat including direct sunlight and radiators.
- It should be kept away from sources of vibration or physical shock.
- The space should be accommodated with a properly grounded wall outlet, and with sufficient space to access the power supply cords.
- The operating environment temperature should be around 0°C to 40°C (32°F to 104°F).

Heed Safety Instructions:

Before working with InWin IPC/storage/SMB server products, we strongly recommend you use this guide as a reference and follow the safety instructions. The instructions in this manual will help you ensure and maintain compliance with existing product certifications and approvals. Follow the described, regulated components mentioned in this manual. Use of non-UL listing products or other regulators may not comply with product regulations in the region(s) in which the product is sold.

System Power On/Off:

The power button DOES NOT totally turn off the system AC power. To remove the power of the system, you must unplug the AC power cord from the outlet or the system's power supply units. Make sure the power cord is unplugged before you open the chassis, add or remove any components.

Hazardous Conditions, Devices and Cables:

Hazardous electrical conditions can be present on/in power supply units and their cables. Disconnect the power cord and any other devices attached to the server before opening the case. Failing to follow safety procedures will increase the risk of personal injury or equipment damage.

Electrostatic Discharge (ESD) and ESD Protection:

In most cases, ESD may damage disk drives, electronic boards and other parts. We recommend that you conduct installation only at an ESD free space. If not possible, perform ESD protection protocol by wearing anti-static wrist straps attached to the ground on any unpainted metal surface on your server during operation.

Installing or Removing Jumpers:

A jumper is a short length conductor used to close, open or bypass part of an electronic circuit. Jumpers on InWin backplanes have a small tab on top that you can pick up with your fingertips. Grip the jumper carefully and plug the jumper to cover the jumper pins on the backplane. Once you need to remove the jumper, grip the jumper and carefully pull without squeezing.

CAUTION

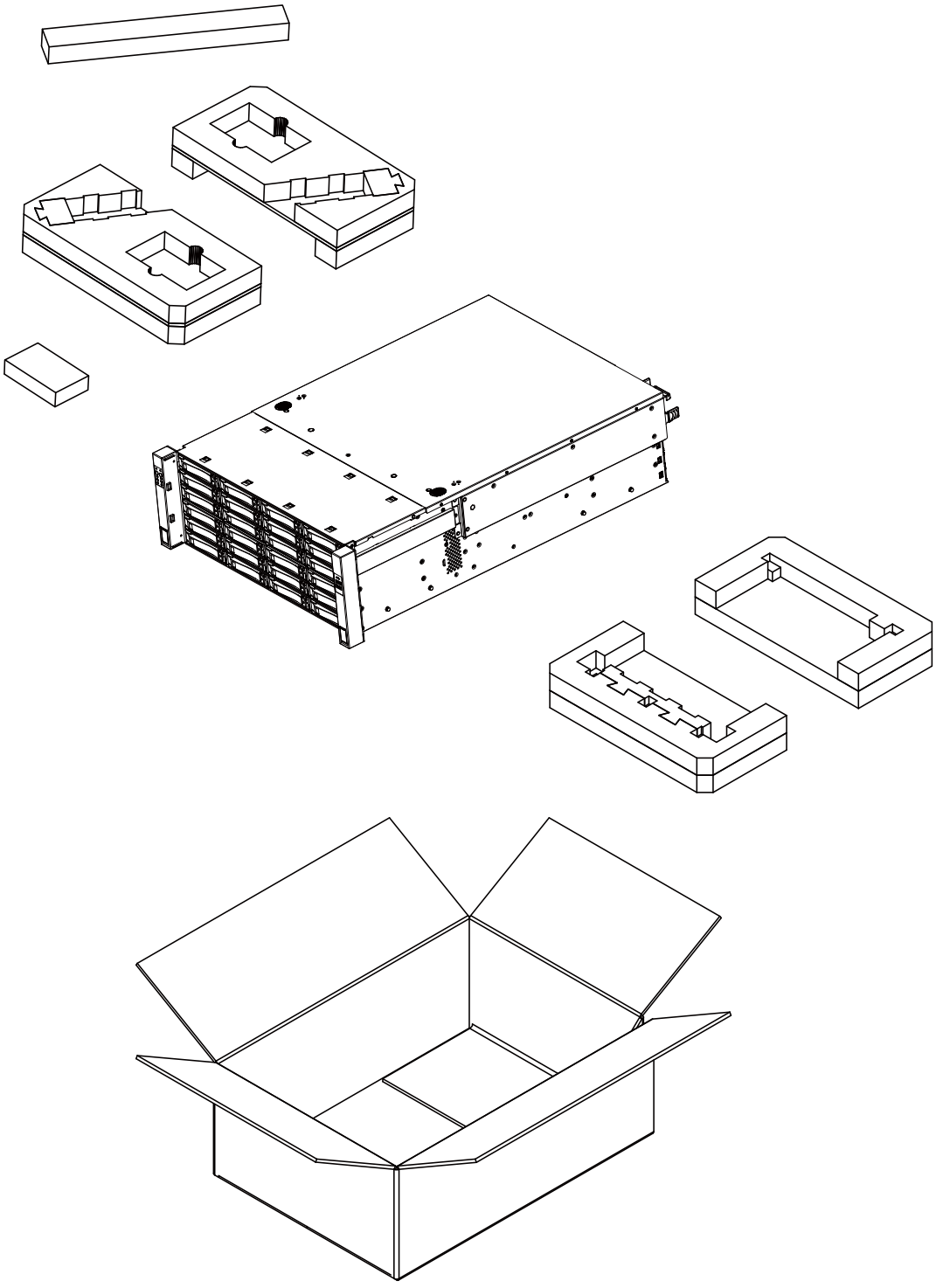
To avoid damage and maintain your safety, please read the following terms listed below:

1. Do not populate hard drives and turn on the power until the system has stabilized. Make sure hard drives and other components are properly connected before turning on the system.
2. Tighten or loosen all screws with a screwdriver.
3. Apply the correct screws packed in the accessories box.
4. For your safety, please have at least two people lift and install the unit in its designated area.
5. Before mounting the unit to the cabinet, make sure the rail is installed correctly.
6. When installing and removing any module or part, please use the handles.

1 Product Introduction

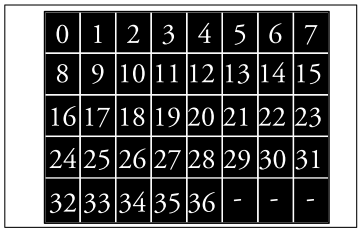
1.1 Box Contents

When you open the IW-RS436-07 box, the contents should include following:



1.2 Accessories Box

1



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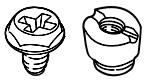

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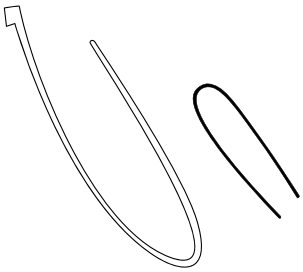
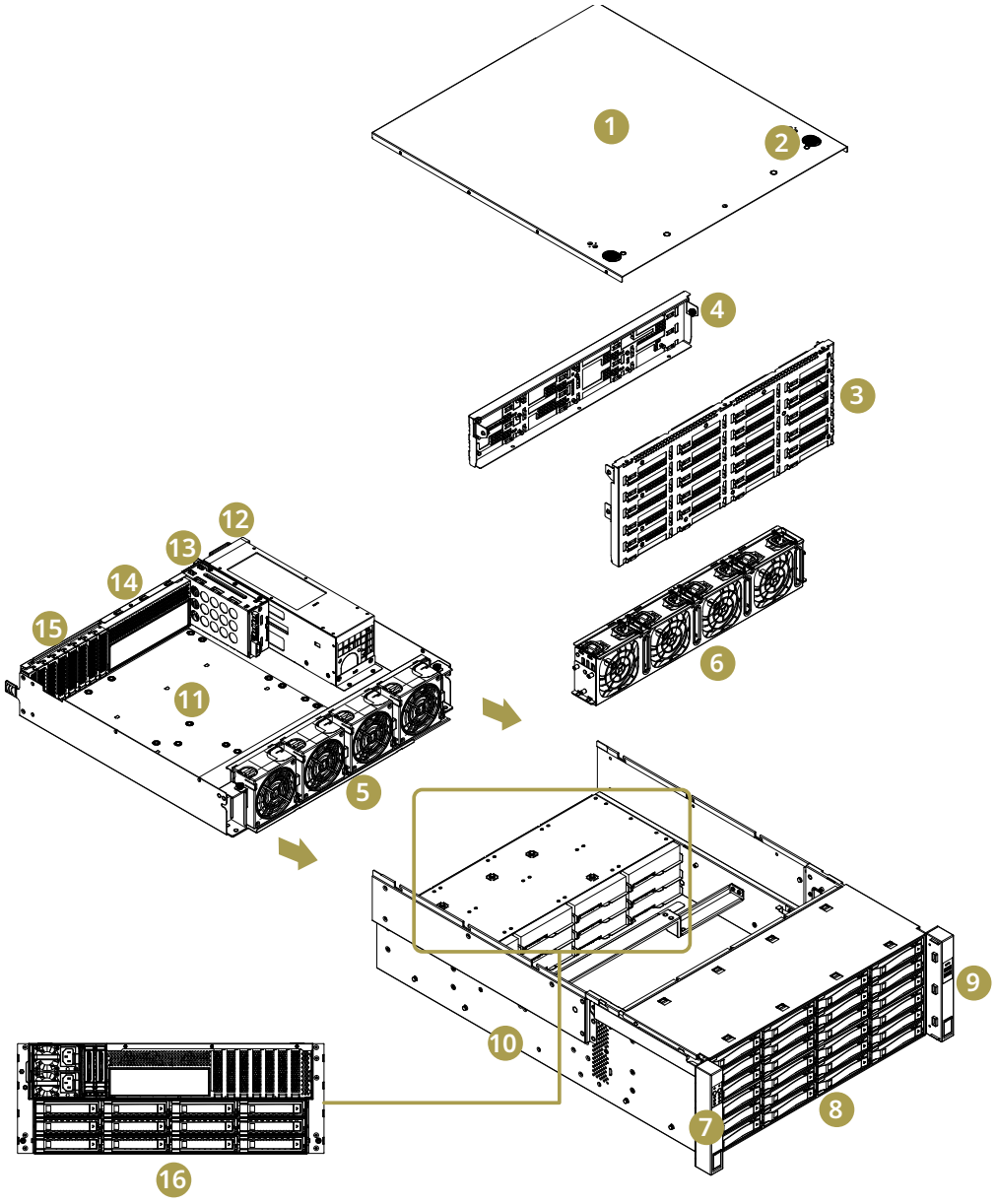


6

No.	Item	No.	Item
1	HDD Tray Mark Label x 1	4	Power LED 3-pin to 2-pin Adapter x 1
2	Motherboard Stand-off Sockets and Screws x 12	5	Cable Ties-1 x 5 Cable Ties-2 x 6
3	2.5" HDD Screws x 108	6	Jumper for HDD Backplane x 2

1.3 General Information

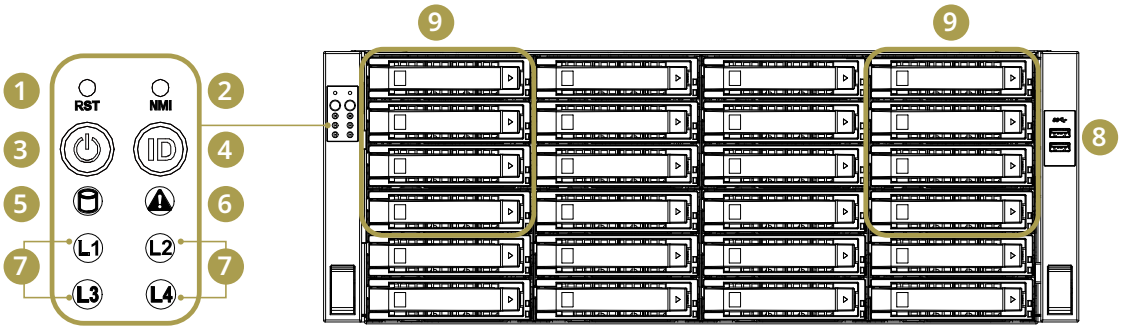
When you open the chassis, it should reflect the diagram's image.



1	Top cover	**9**	USB 3.0 x 2
2	Top cover screwless open button	**10**	Slide rail mounting area
3	Front backplane	**11**	ATX, CEB, EEB M/B mounting area
4	Rear backplane	**12**	80 Plus Platinum CRPS (including PDB)
5	80 x 38mm PWM hot-swap top fans x 4	**13**	Rear 2.5" hot-swap SSD trays x 2
6	80 x 38mm PWM hot-swap bottom fans x 4	**14**	Rear I/O shield mounting area
7	Front controls and indicator	**15**	Low-profile PCI slot x 7
8	2.5"/3.5" hot-swap front trays x 24	**16**	2.5"/3.5" hot-swap rear trays x 12

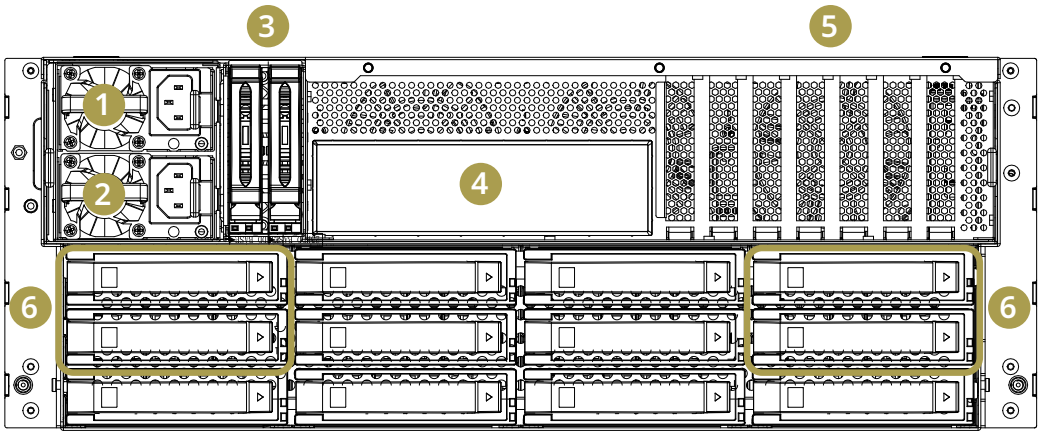
1.3.1 Front Panel Controls and Indicators

The IW-RS436-07 supports either 2.5"/3.5" SAS/SATA disk bays x 36 or 2.5"/3.5" SAS/SATA disk bays x 24 and NVMe x 12 disk bays in specific areas. The control panel, USB I/O ports and indicators are located on the handles.



No.	Name	Color	Status	Description
1	System Reset Button	N/A		Press the button to activate system reset.
2	NMI Button	N/A		Press the button to activate user-defined function.
3	Power On/Off Button with LED	Green	Solid on	System is powered on.
		N/A	Off	System is off.
4	Chassis ID Button with LED	Blue	Solid on	Press the button to activate system identification.
5	Hard Disk LED	Amber	Blinking	System HDD accessing.
6	System Fail LED	Amber	Solid on	System Status (- , +).
		Green	Solid on	System Status (+ , -).
7	LAN LED (From top to bottom ranked LAN1-LAN4)	Green	Blinking	Link between system and network.
		N/A	Off	No data transmission or receiving is occurring.
8	USB 3.0 Connector	N/A		USB devices connections.
9	NVMe 8 x 3.5" disk bays for faster hybrid storage performance.			

1.3.2 Rear Panel Configuration



No.	Name	Description
1	Power Module 1	Default primary power supply module.
2	Power Module 2	Backup power supply module.
3	OS HDD	This slot is for InWin OS disk backup module which supports two 2.5" 12G SSDs and features hot-swap function.
4	System I/O (Depends on M/B Specifications)	The I/O shield should come with the motherboard or is provided by motherboard vendors.
5	Low-profile PCIe slots x 7	The slots support low-profile cards. The bracket should be removed before using.
6	NVMe x 4 disk bays for faster hybrid storage performance.	

2 Hardware Installation

2.1 Motherboard & Expansion Card Installation

Before installing the motherboard, please find the I/O shield from your motherboard package and install it into the system I/O window. If you cannot find the I/O shield, please check with your motherboard vendor, or contact InWin for I/O shield OEM service.

For a quick installation video, please visit **07 Series Motherboard & Expansion Card.**

2.2 HDD Tray Installation

The IW-RS436-07 features tool-less trays. Users no longer need to use screws to mount disks, and can swap drives faster.

For a quick installation video, please visit **07 Series HDD Tray Installation.**

2.3 Fan Installation

The IW-RS436-07's built-in fan modules feature a tool-less design, which makes it easy to maintain.

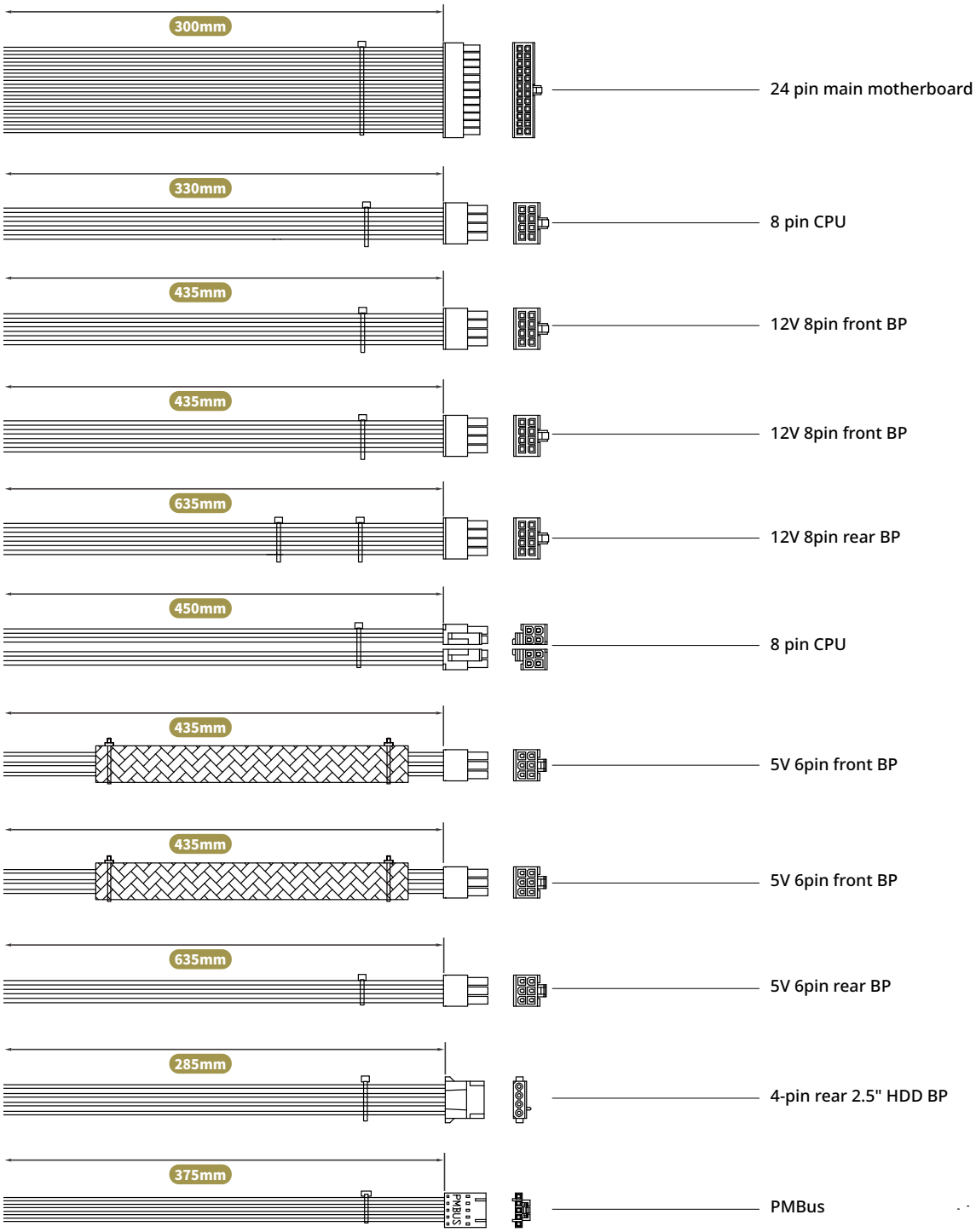
For a quick installation video, please visit **07 Series Fan Installation.**

2.4 Power Supply Installation

The IW-RS436-07 has a built-in redundant power supply unit. With this function, the system is capable of operating if one of the modules fails. To replace it, users only need to release the failed module, and then insert a functional module.

For a quick installation video, please visit **07 Series Power Supply Installation.**

• 2.4.1 Power Supply Cable Information

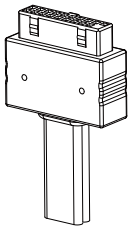


Length Unit: mm

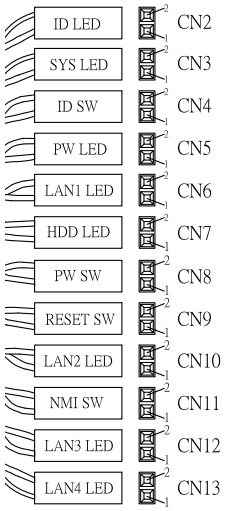
2.5 Connecting Cables

Connecting LED Cable, Front Control Panel and Front USB I/O Ports

Refer to your motherboard user guide for pin functions and locations, and then plug the connectors to the pins on the motherboard to activate the functions.



USB 3.0



LED Connector

No.	Connector Name	Abbreviation	Color	Front I/O Indication
CN2	ID LED	ID LED	RED/BLACK	Chassis ID Button with LED
CN3	SYSTEM LED	SYS LED	RED/BLACK	System Fail LED
CN4	ID Switch	ID SW	RED/BLACK	Chassis ID Button with LED
CN5	Power LED	PW LED	RED/BLACK	Power ON/OFF Button with LED
CN6	LAN 1 LED	LAN1 LED	RED/BLACK	LAN LED
CN7	HDD LED	HDD LED	RED/BLACK	HDD Active LED
CN8	Power Switch	PW SW	RED/BLACK	Power ON/OFF Button with LED
CN9	Reset Switch	RESET SW	RED/BLACK	System Reset Button
CN10	LAN 2 LED	LAN2 LED	RED/BLACK	LAN LED
CN11	NMI Switch	NMI SW	RED/BLACK	NMI Button
CN12	LAN 3 LED	LAN3 LED	RED/BLACK	LAN LED
CN13	LAN 4 LED	LAN4 LED	RED/BLACK	LAN LED
	USB 3.0 Connector	None	-	USB 3.0

- If the motherboard's led power source is a 3-pin type, please use the 3-pin to 2-pin adapter from the accessories box to connect.

2.6 Slide Rail Installation

The IW-RS436-07 is a rackmount model, which supports EIA-RS310D standard cabinets and chassis racks. InWin provides standard slide rails to allow users to mount the chassis onto the cabinets.

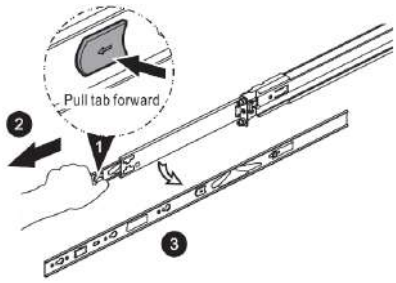
2.6.1 Identifying the Slide Rail

The slide rail by your order might be different. You can reference the quick installation guide inside the slide rail package and follow the instructions to mount the rail onto your cabinet or chassis rack.

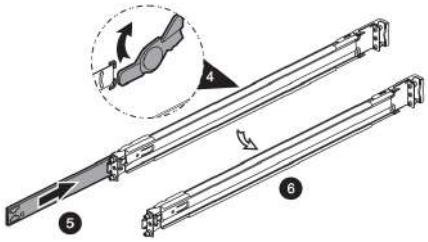
2.6.2 Removing the Inner Rail and Sliding the Intermediate Rail Back

Step 1: Pull out the inner rail until it reaches the stop. Release the blue slide tab to unlock.
Step 2: Continue pulling the inner rail until the second stops. Release the white slide tab to remove the inner rail.
Step 3: Pull the latch on the middle rail upward and retract the middle rail back.

Step 1 - 2



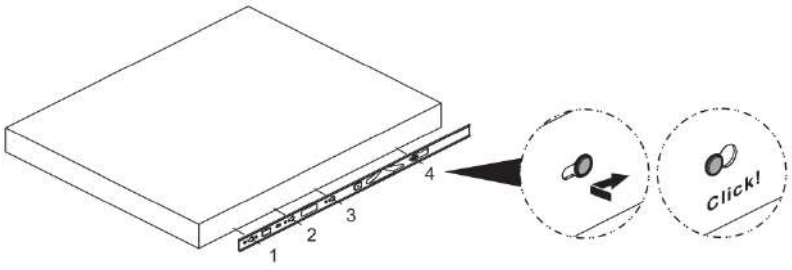
Step 3



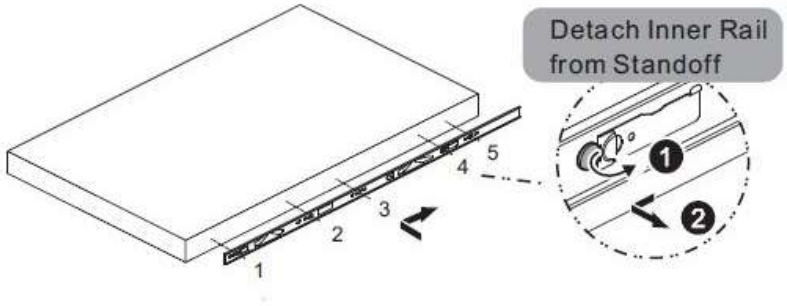
2.6.3 Attaching the Inner Rail to the Chassis

Step 1: Align the chassis sidewall standoffs to the inner rail keyholes. Slide the inner rail toward the front until the standoffs snap into place, securing the rail to the chassis.
Step 2: Repeat the same action on the other side.
Step 3: When removing the inner rail: Pull up the latch and slide the inner rail forward. Remove the keyhole from the standoff to detach the inner rail. (Action ❶and ❷ in the figure)

Step 1 - 2



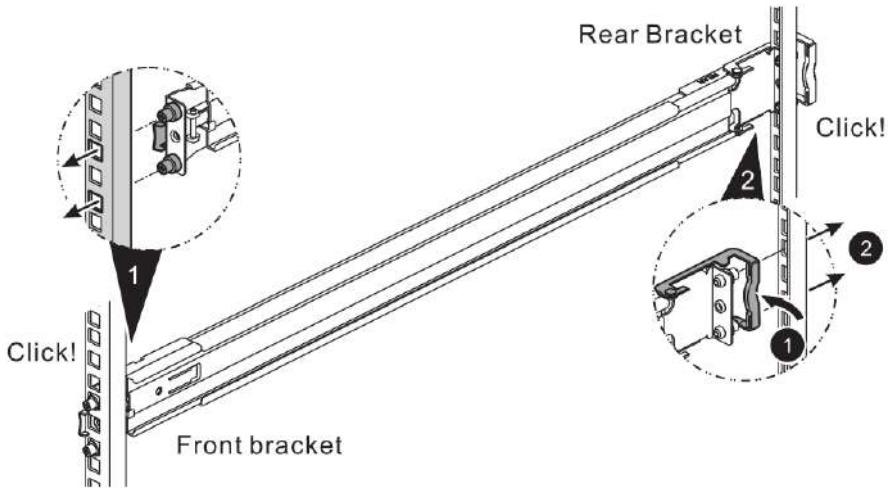
Step 3



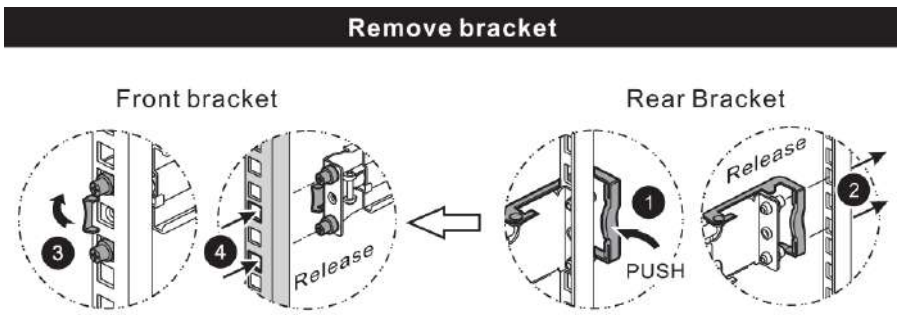
2.6.4 Mounting the Rail Bracket to the Cabinet

Step 1: Extend the rail bracket over the rear rack of the cabinet.
Step 2: Pull out the rear hook on the end of the outer rail, align and push the rail bracket pins into the post holes on the rack. Then, pull back the hook on the end of the outer rail.
Step 3: Extend the opposite side of the rail bracket to the front rack of the cabinet.
Step 4: Hang the front hooks of the outer rail at the front of the rack post holes. Pull the rail bracket pins that go into the front post holes on the rack until they click.
Step 5: The other side is the same process. Repeat the installation steps 1-4.
Step 6: Once you would like to detach the bracket, pull outward on the front and the rear hooks of the outer rail to release the bracket. Repeat the same action to the other side.

Step 1 - 5

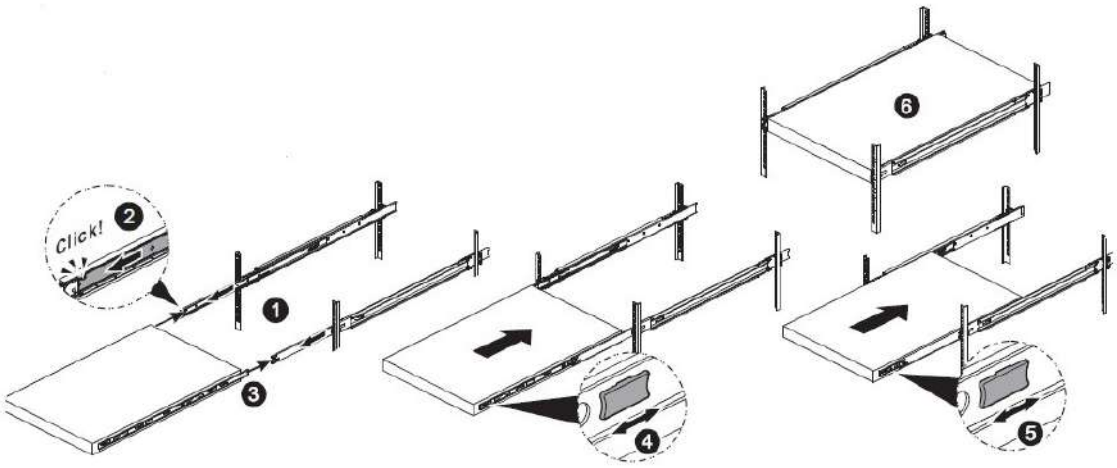


Step 6



2.6.5 Inserting the Chassis to the Cabinet

Step 1: Pull out the middle rail to the stop position.
Step 2: Move the ball bearing retainer to the front end of the middle rail, and it should click into the locked position.
Step 3: Insert the inner rails of the chassis into the middle rails on both sides of the rack.
Step 4: Push the chassis to the stop position, and then release the blue slide tab (by either pulling the tab forward or pushing the tab back) to continue.
Step 5: Until reaching the second stop position, release the blue slide tab again to continue.
Step 6: Push the chassis into position on the rack completely. Make sure that the front end of the chassis is aligned with the edge of the rack to complete the installation.

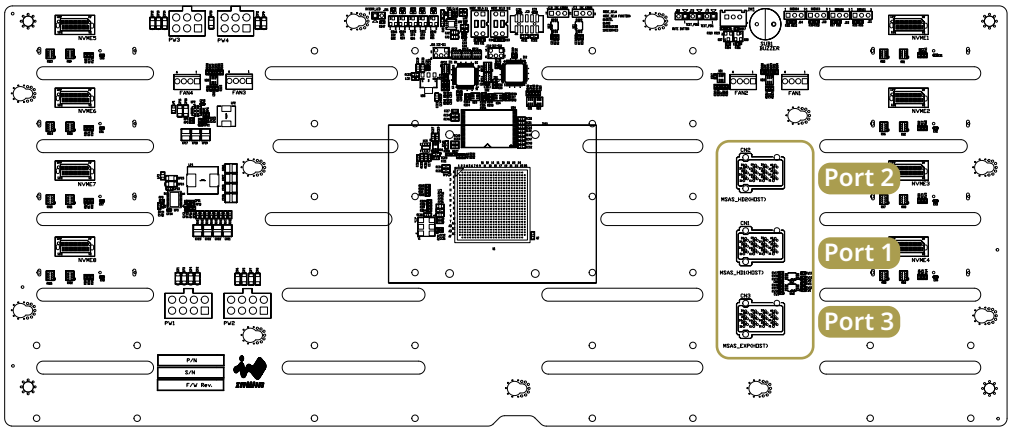


3 Backplane Introduction

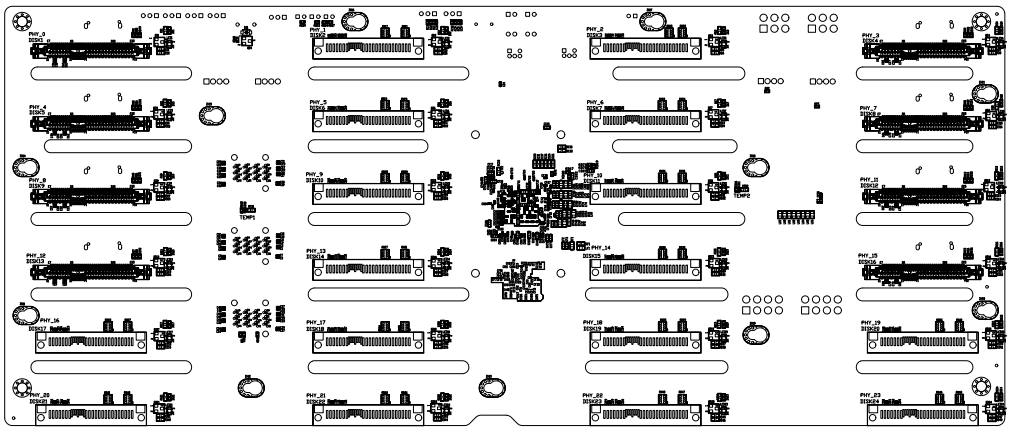
InWin backplanes with expander onboard are high performance and are cost-effective solutions for supporting Intel® Xeon Scalable & AMD EPYC family by adding NVMe support. The active backplanes support state-of-the-art SAS3 12Gbps HDD/SSD and are also backward compatible with SAS 6Gbps, SATA 6Gps and SATA 3Gps HDD/SSD. The backplane varies by order. Please reference the **IW-RS436-07 Backplane Connection** to complete the installation.

3.1 Mini-SAS HD & OCuLink Backplane

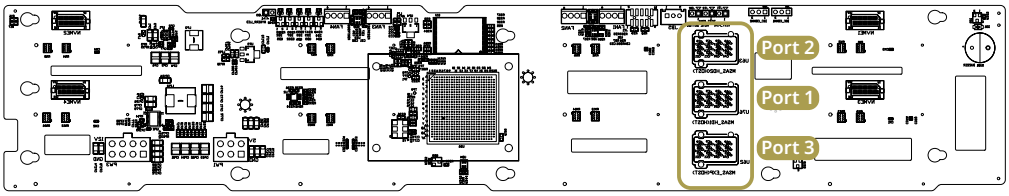
Front Host Side



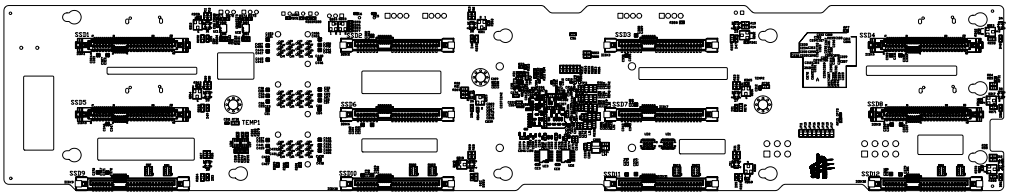
Front HDD Side



Rear Host Side

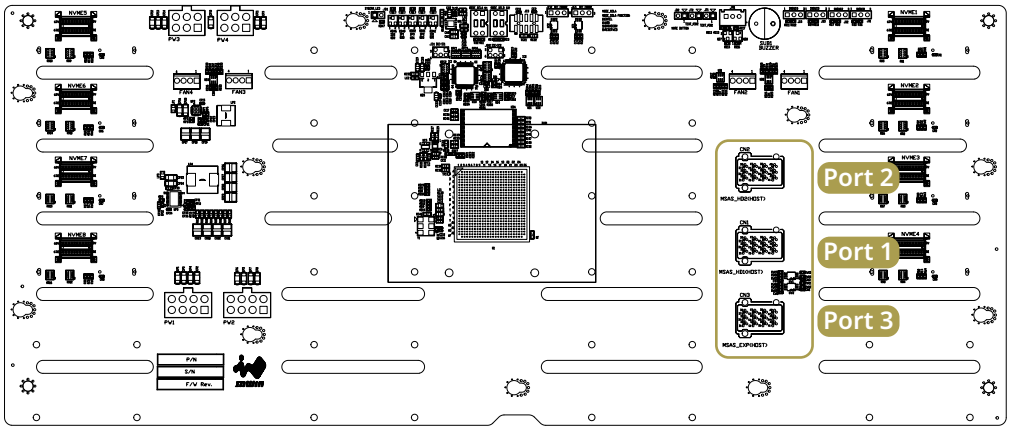


Rear HDD Side

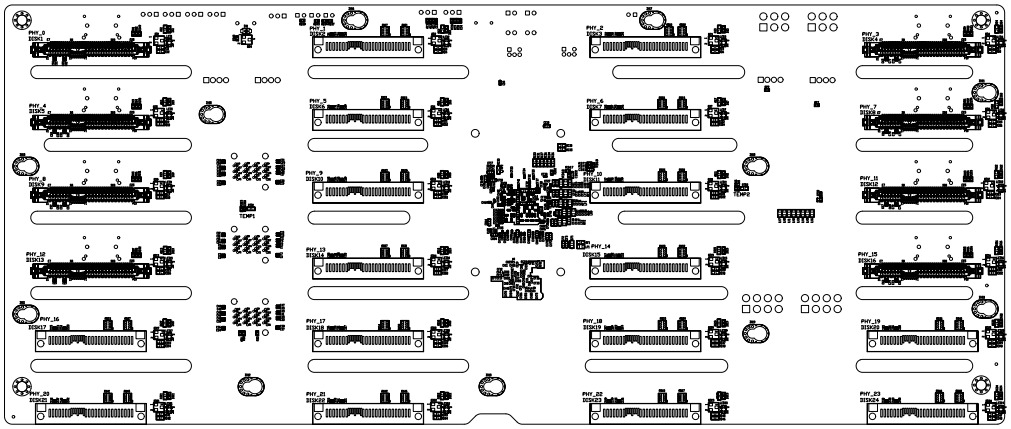


3.2 Mini-SAS HD & Slimline Backplane

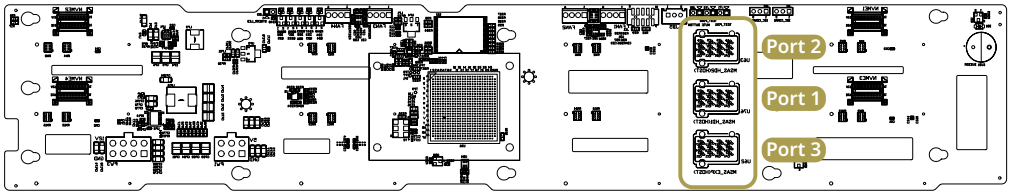
Front Host Side



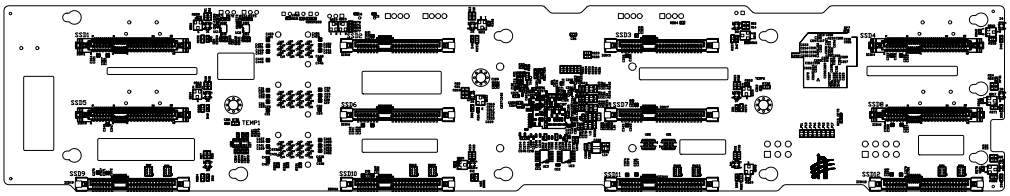
Front HDD Side



Rear Host Side



Rear HDD Side



3.3 Backplane Connection

3.3.1 Oculink and Slimline Backplane Connection

The IW-RS436-07 supports NVMe SSDs through either Oculink x 12 or Slimline x 12 connectors, and these two independent backplanes equipped with expander onboard are backward compatible with Mini-SAS HD.

3.3.2 Connecting Expander Through SAS Connectors

Use the SAS 8643 cable to connect the Expander to the motherboard.
Use ports 2 and 1 to connect the motherboard or RAID controller, and port 3 for cascading.

3.4 Jumper Setting

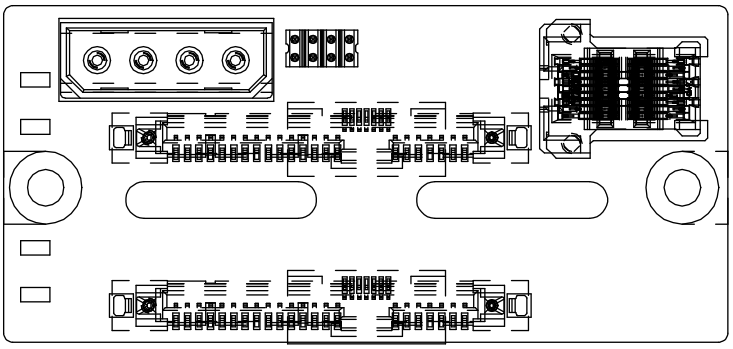
3.4.1 Front Jumper Setting

Location	Description
JD1	Firmware Programming Header
JM1	M/B Fan Speed Control
JB1	System_Fail LED
JB2	Mute_Button
JC3	Firmware Programming Header
JC1/JC2	I2C Header

3.4.2 Rear Jumper Setting

Location	Description
JD1	Firmware Programming Header
JM4	M/B Fan Speed Control
JB3	System_Fail LED
JB2	Mute_Button
JC1	Firmware Programming Header
JM1/JM2	I2C Header

3.5 Rear 2.5" HDD Backplane



4 Compatibility Lists

To reach the best performance and avoid system failure, InWin strongly recommends customers to choose the components from InWin's compatibility list. All the components are tested in InWin's lab, and assured the components are compatible with InWin's chassis. You can download the latest updated device compatibility list from InWin's website: **ipc.in-win.com**

5 Technical Support

If you need help with installation or troubleshooting, you can contact your local InWin reps, or send an e-mail to InWin's local contacts for technical assistance.

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