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Less Heat, Less Power Consumption

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Stable and
Reliable Solution

Barebone

2U12L6SW

User Manual



Version 1.0

Published September 2013

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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.

CALIFORNIA, USA ONLY

The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.

“Perchlorate Material-special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate”

ASRockRack's Website: www.ASRockRack.com

Setting up the Server in a Restricted Access Location

- 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.
- Leave enough clearance (25 inches in the front and 30 inches in the back of the rack) to allow the front door to be opened completely and to allow for sufficient airflow.
- This product is for installation merely in a Restricted Access Location.
- This product is not suitable for use with visual display work place devices according to §2 of the the German Ordinance for Work with Visual Display Units.

Replaceable batteries

CAUTION

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.

DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS

Important Safety Instructions

Pay close attention to the following safety instructions before performing any of the operation. Basic safety precautions should be followed to protect yourself from harm and the product from damage:

- Operation of the product should be carried out by suitably trained, qualified, and certified personnel only to avoid risk of injury from electrical shock or energy hazard.
- Disconnect the power cord from the wall outlet when installing or removing main system components, such as the motherboard and power supply unit.
- Place the system on a stable and flat surface.
- Use extreme caution when working with high-voltage components.
- When handling parts, use a grounded wrist strap designed to prevent static discharge.
- Keep the area around the system clean and clutter-free.
- Keep all components and printed circuit boards (PCBs) in their antistatic bags when not in use.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.

Contact Information

If you need to contact ASRockRack or want to know more about ASRockRack, you're welcome to visit ASRockRack's website at www.ASRockRack.com; or you may contact your dealer for further information.

ASRockRack Incorporation

6F., No.37, Sec. 2, Jhongyang S. Rd., Beitou District,

Taipei City 112, Taiwan (R.O.C.)

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Chapter 1 Introduction

Thank you for purchasing 2U12L6SW, a reliable barebone system produced under ASRockRack's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRockRack's commitment to quality and endurance.



Because the hardware specifications might be updated, the content of this documentation will be subject to change without notice. In case any modifications of this documentation occur, the updated version will be available on ASRockRack's website without further notice. If you require technical support related to this product, please visit our website for specific information about the model you are using.

ASRockRack's Website: www.ASRockRack.com



The illustrations shown in this manual are examples only, the actual system may differ slightly.

1.1 Package Contents

- 2U12L6SW (2U Form Factor)
- Power Supply Unit (pre-installed)
- System Fan (pre-installed)
- HDD Backplanes x 3 (pre-installed)
- Chassis Cables
- Screws x 72 (includes 24ea SFF and 48ea LFF)
- User Manual
- Support CD

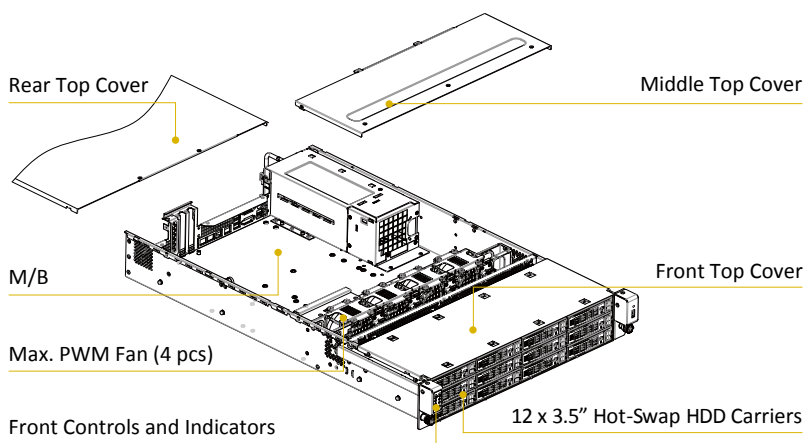


If any items are missing or appear damaged, contact your authorized dealer.

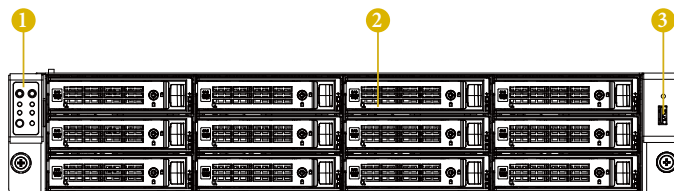
Chapter 2 Chassis Overview

This chapter provides diagrams showing the location of important components of the server chassis.

2.1 System Components

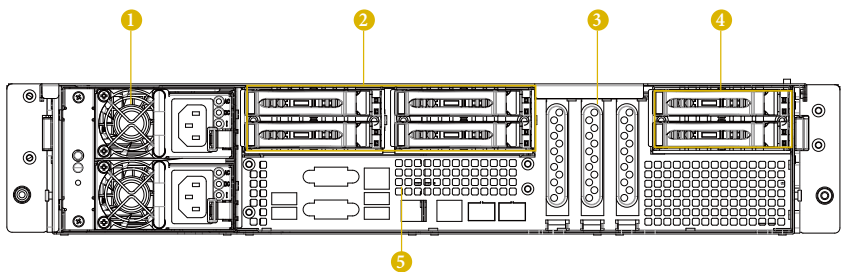


2.2 System Front View



No.	Description
1	Control Panel Buttons and LEDs
2	12 x 3.5" Hot-Swap HDD Carriers
3	USB 2.0 Port

2.3 System Rear View



No.	Description
1	Power Supply Units
2	4 x 2.5" Hot-Swap HDD Carriers
3	3 x Low Profile PCI Express Slots
4	2 x 2.5" Hot-Swap HDD Carriers
5	I/O Shield (depends on the specification of the motherboard)

2.4 Front Control Panel Buttons and LEDs



No.	Description
1	Power Button and LED
2	LAN1 Activity LED
3	LAN3 Activity LED*
4	NMI (Nonmaskable Interrupt) Button*
5	ID Button and LED
6	LAN2 Activity LED
7	LAN4 Activity LED*
8	System Status LED*
9	Reset Button

**Please be noted that the functions are supported depending on the type of the motherboard.*

Power Button

Press the power switch button to toggle the system power on and standby/sleep modes.

To remove all power from the system completely, disconnect the power cord from the server.

NMI (Nonmaskable Interrupt) Button

Press the NMI button with a paper clip or pin to generate a nonmaskable interrupt and to put the server in a halt state for examination.

ID Button

Press the ID button to toggle the front panel ID LED and the baseboard ID LED on and off. You are able to locate the server you're working on from behind a rack of servers.

System Reset Button

When the system is completely unresponsive, press the system reset button to reboot the server without shutting it off and initialize the system.

Status LED Definitions

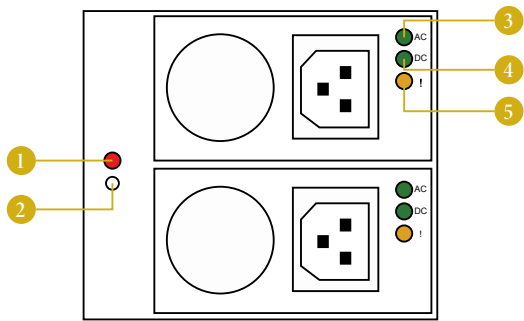
Power LED	
Status	Description
Blue	Power on
Blinking Blue	Standby(Sleep) mode
Off	Power off

LAN1, LAN2,LAN3, LAN4 LEDs	
Status	Description
Yellow	Link between system and network or no access
Blinking Yellow	Network access

ID LED	
Status	Description
Blue	System identification is active.
Off	System identification is disabled.

System Status LED	
Status	Description
Off	Running or normal operation
Yellow	At least one sensor has critical alert

2.5 PSU Panel Button and LEDs



No.	Description
1	Buzzer Mute Button
2	Power Supply Status LED
3	AC LED
4	DC LED
5	Fail/Warning LED

Buzzer Mute Button

Press the red Buzzer Mute button to stop the buzzer from making a sound and reset the buzzer alarm. Alarm buzzer beeps when any of the power modules fails.

Status LED Definitions

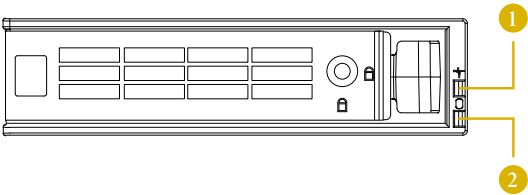
Power Supply LED	
Status	Description
Green	AC present / only standby output on Power supply DC output ON and OK
Amber	PDB (Power Distribution Board) failure Single module failure
Off	No AC to all PSU

AC LED	
Status	Description
Green	AC present / only standby output on / CR-State
Flashing Green (1Hz)	No AC power to this PSU
Off	No AC power to all PSU

AC and DC LEDs	
Status	Description
Green	Power supply DC output ON and OK

Fail/Warning LED	
Status	Description
Amber	Power supply failure
Flashing Amber (1Hz)	Power supply warning

2.6 HDD Tray Panel LEDs



No.	Description
1	HDD Power LED
2	HDD Activity LED

Status LED Definitions

HDD Power LED	
Status	Description
Blue	HDD powered-on
Off	No power to HDD

HDD Activity LED	
Status	Description
Solid Green	HDD active
Blinking Green	HDD accessing or reading
Red	HDD failed
Off	HDD powered-off

Chapter 3 Hardware Installation and Maintenance

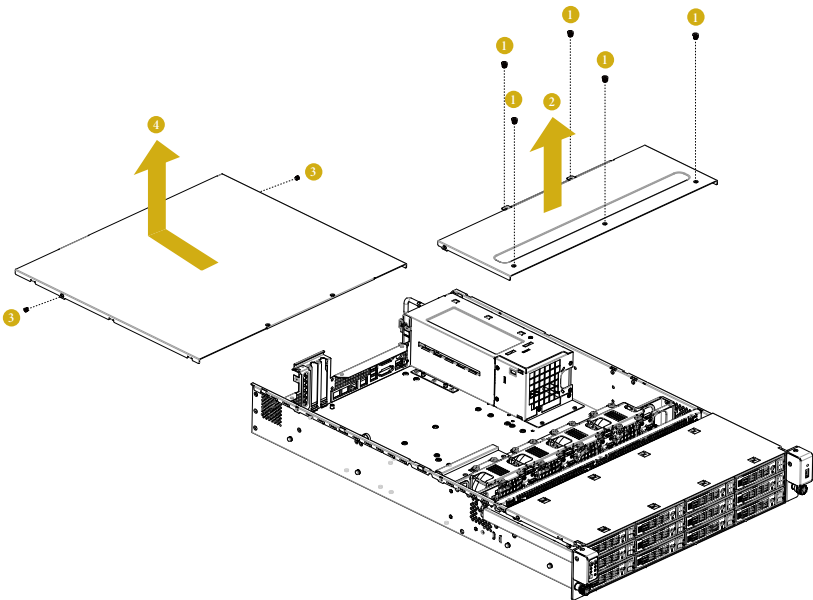
This chapter helps you assemble the chassis and install components.

3.1 Chassis Cover

Removing the Chassis Cover

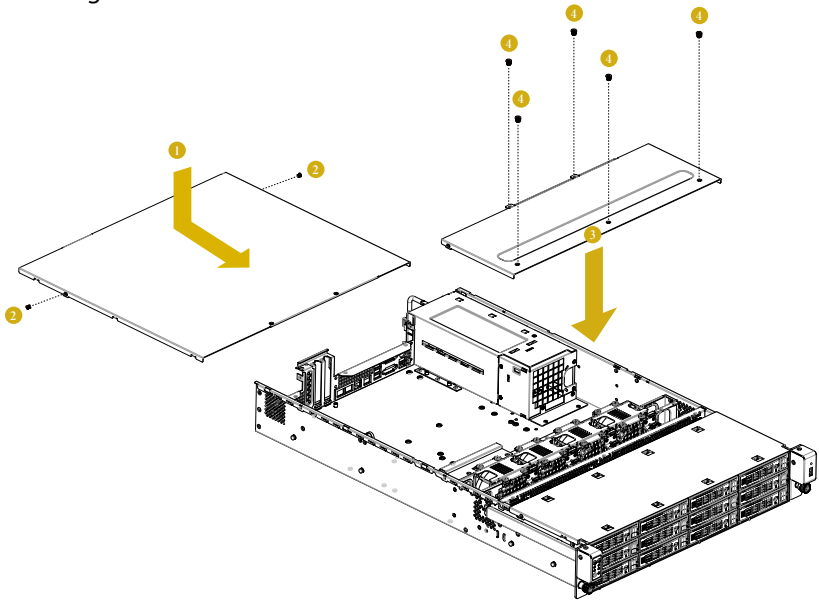


1. Before removing the top cover, power off the server and unplug the power cord.
2. The system must be operated with the chassis top cover installed to ensure proper cooling.



1. Remove the five screws that secure the top covers to the chassis.
2. Lift up and remove the middle top cover.
3. Remove the two screws on both sides that secure the rear top cover to the chassis
4. Push the rear section of the top cover toward the rear of the chassis to remove the cover from the locked position.
Lift up and remove the rear top cover.

Installing the Chassis Cover



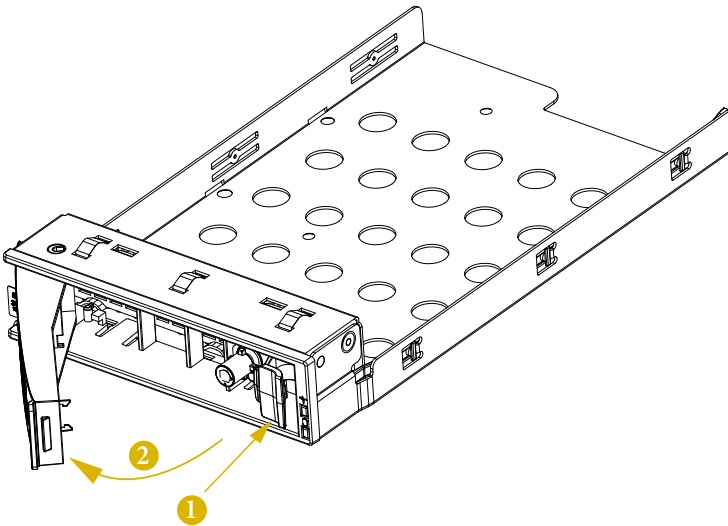
1. Lower the rear top cover on the chassis, making sure the side latches align with the cutouts.
Slide the rear top cover toward the front until the cover locks into place.
2. Secure the rear top cover with the two screws.
3. Lower the middle top cover onto the chassis.
4. Secure the top covers with the five screws.

3.2 Hard Drives

The 2U12L6SW chassis supports hot-swappable hard drives.

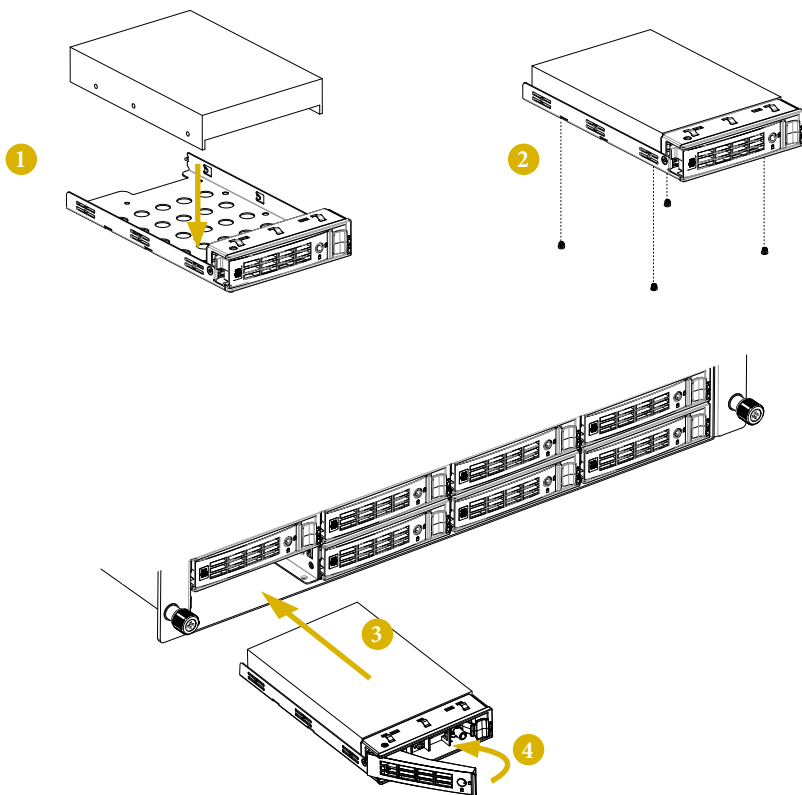
Removing HDD Carriers from the Chassis

1. Press the locking lever latch on the HDD carrier to unlock the retention lever.
2. Rotate the lever out and away from the module bay and pull the hard drive out of the HDD carrier.



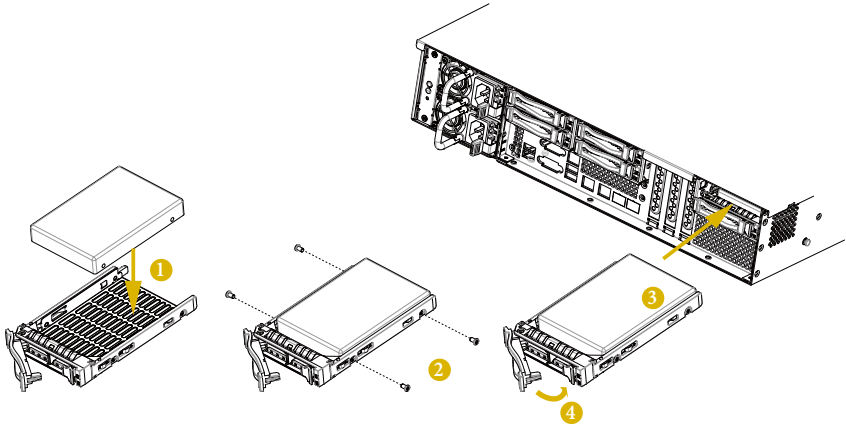
Installing a 3.5-inch Hard Drive to the HDD Carrier

1. Place the HDD into the HDD carrier with the printed circuit board side facing down.
Carefully align the mounting holes in the hard drive and the HDD carrier.
2. Secure the hard drive using the four screws.
3. Slide the HDD carrier into the HDD bay until the drive is fully seated.
4. Push in the locking lever to lock the HDD carrier into place.



Installing a 2.5-inch Hard Drive to the HDD Carrier

1. Place the HDD into the HDD carrier with the printed circuit board side facing down.
Carefully align the mounting holes in the hard drive and the HDD carrier.
2. Secure the hard drive using the four screws.
3. Slide the HDD carrier into the HDD bay until the drive is fully seated.
4. Push in the locking lever to lock the HDD carrier into place.



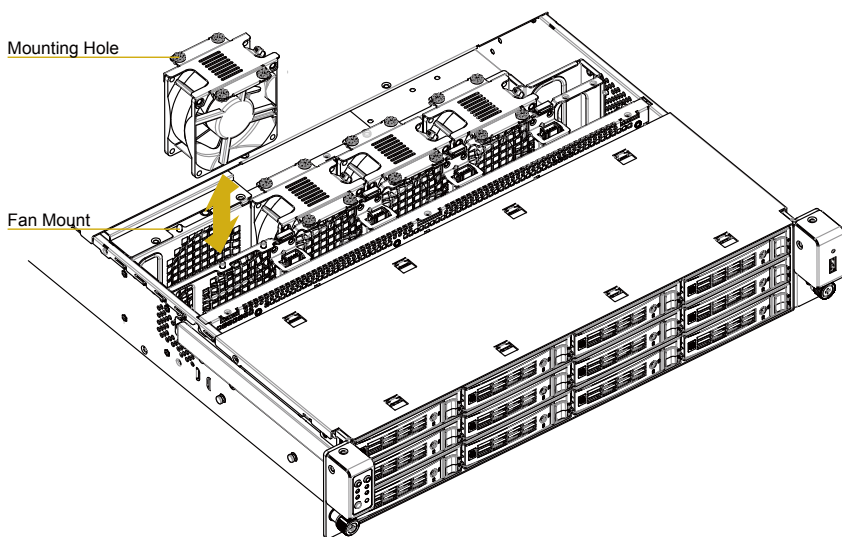
3.3 System Fan



Before replacing the system fan, power off the server and unplug the power cord.

Replacing the System Fan

1. Unplug the fan connector and remove the failed fan.
2. Align the mounting holes on the replacement fan corners with the fan mounts on the fan bracket.
3. Gently place the fan onto the mounts with fan's power cord facing right, when you are facing the front of the server. Make sure the fan is well seated.
4. Connect the end of the fan cable to the fan connector.



3.4 Power Supply

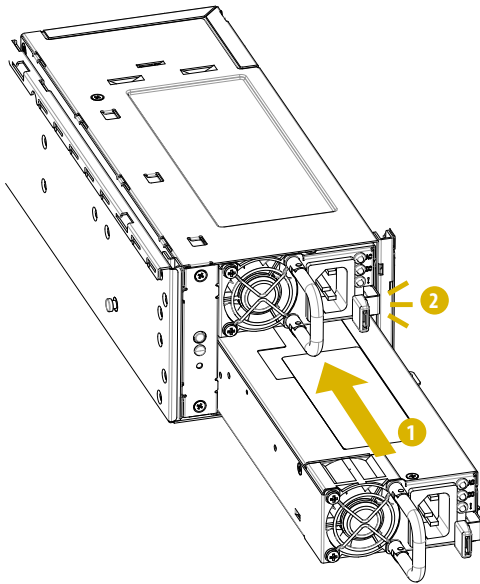


1. Before replacing the power supply, power off the server, unplug the power cord, and disconnect all wiring from the power supply.
2. In a redundant system, you do not need to power down the server.

Replacing the Power Supply Unit

The 2U12L6SW can accommodate two AC or two DC power supplies in the bay at the rear of the chassis. Each unit provides up to 650 Watts of power. Only a single power supply is required for operation, with the second power supply purely as a redundant, load-sharing backup. It can be removed without affecting system operation.

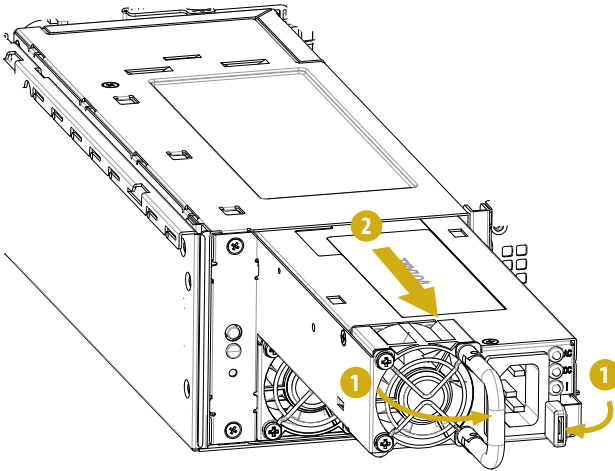
1. Align the power supply unit with the power supply slot. Ensure that the three LEDs appear on the right when you are installing the power supply unit.
2. Carefully slide the PSU all the way into the power supply bay until it clicks into place.



Removing the Power Supply Unit

To remove a failed power supply, identify the failed power supply by checking the power supply LEDs on the PSU.

1. Hold onto the power supply handle while pressing the green locking lever towards the power supply handle.
2. Pull to remove the power supply from the chassis.



3.5 Backplanes

Each barebone system supports one 3.5-inch HDD backplane and two 2.5-inch HDD/SDD backplanes. The Hot-Swap SAS/SATA backplanes serve as the interface between the motherboard and the HDDs/SDDs.



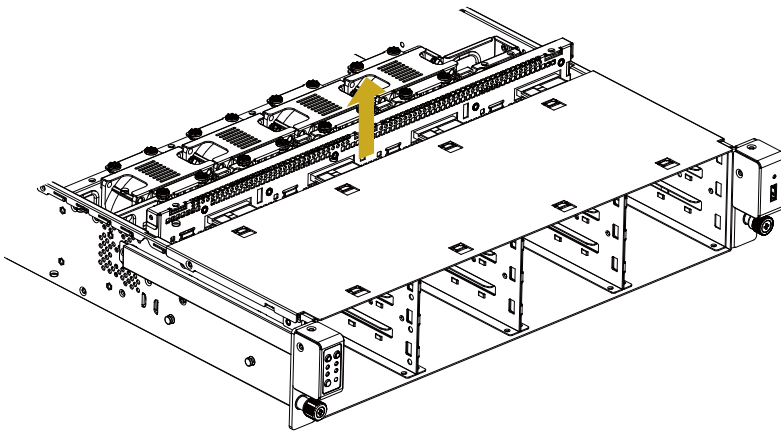
Before removing and installing backplanes, power off the server and unplug the power cord.



For the specification of backplanes, please refer to the Chapter 4.

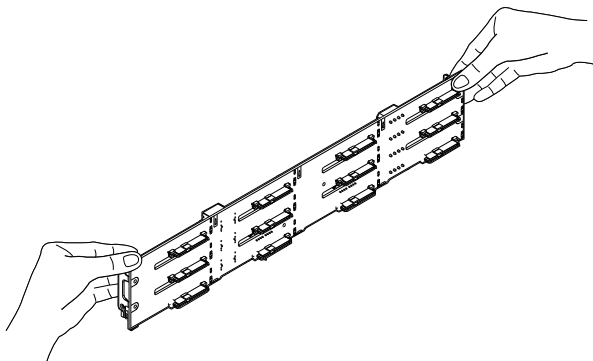
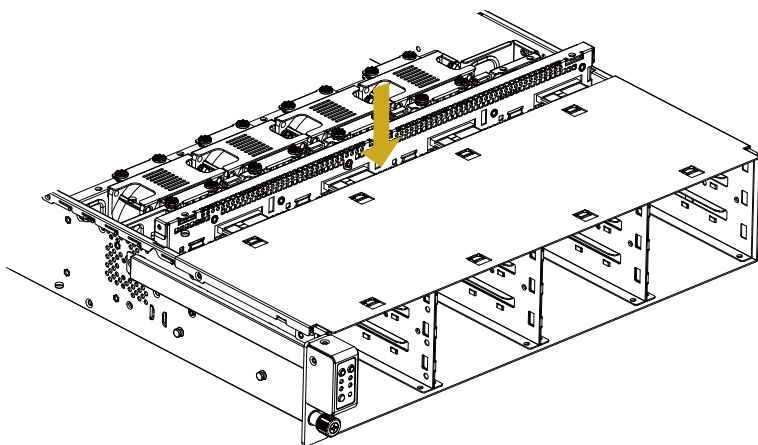
Removing the Backplane

1. Loosen the securing screws on the backplane.
2. Lift the backplane up from the chassis.

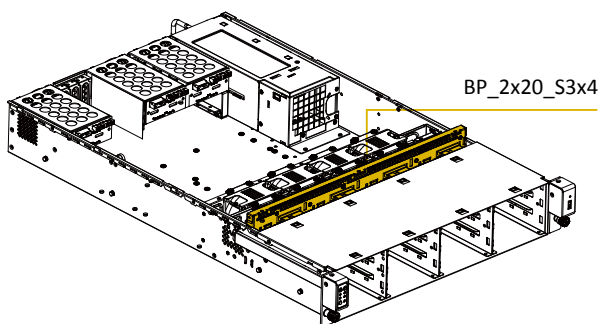
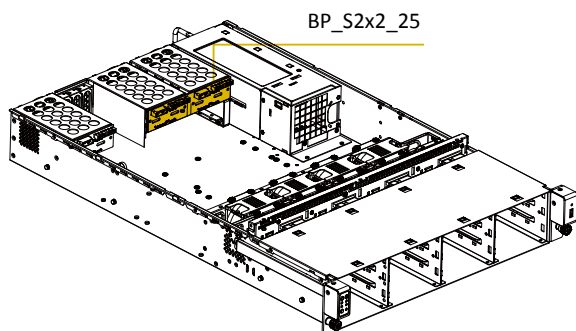
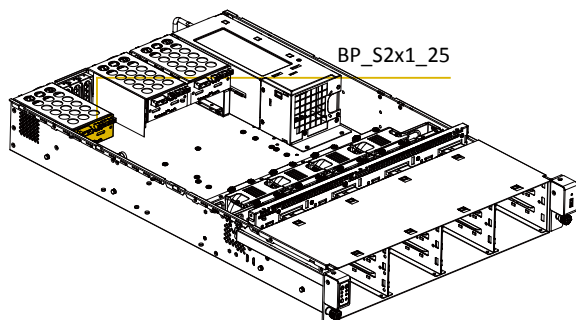


Installing the Backplane

1. Hold the backplane only by the edges.
2. Position the backplane in the server system. Align mounting holes of backplane to the standoff on the chassis.
3. Secure the backplane with the four screw.



The following diagram shows the location of blackplanes on the server chassis.



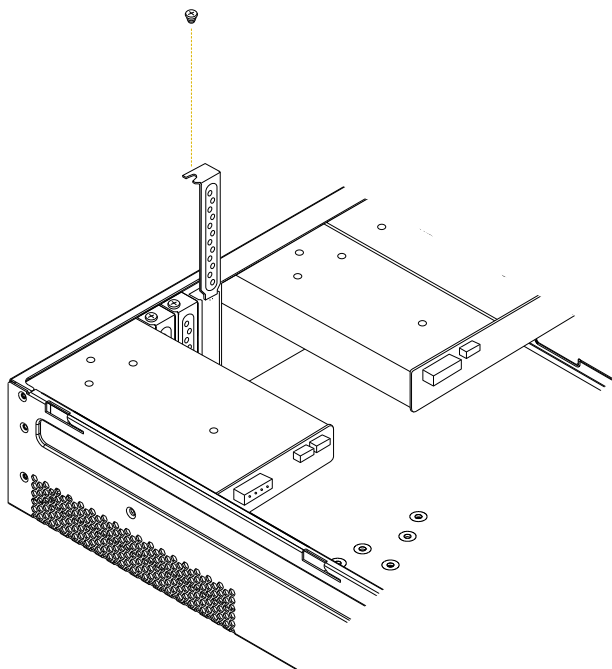
3.6 Add-on Card



Before installing the add-on card, power off the server and unplug the power cord.

Installing the Add-on Card in the Chassis

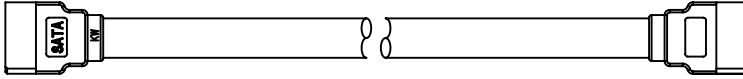
1. Remove the screw securing the cover in place for each low profile add-on slot you want to use. Keep this screw for later use.
2. Align the add-on card and insert into place.
3. Secure each card to the chassis using the screw previously removed.



3.7 Chassis Cables

This section lists supported cables for your chassis system.

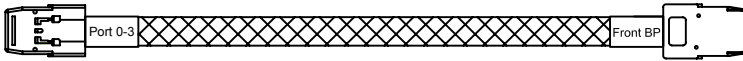
1. Single port SATA Cable (Quantity: 2)



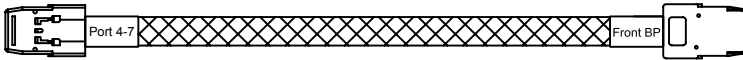
2. SGPIO Cable (Quantity: 1)



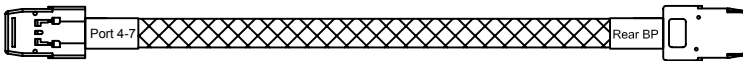
3. MiniSAS-1 Cable (670mm) (Quantity: 1)



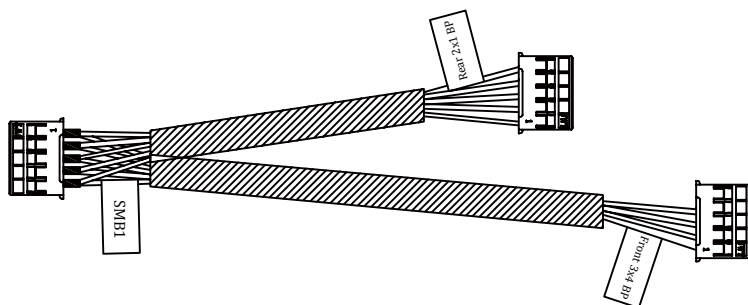
4. MiniSAS-2 Cable (670mm) (Quantity: 1)



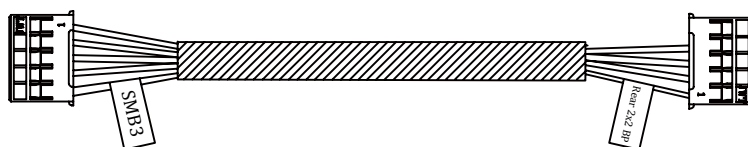
5. MiniSAS-1 Cable (970mm) (Quantity: 1)



6. MNG Cable (520mm+100mm)_SMB (Quantity: 1)



7. MNG Cable (960mm)_SMB (Quantity: 1)

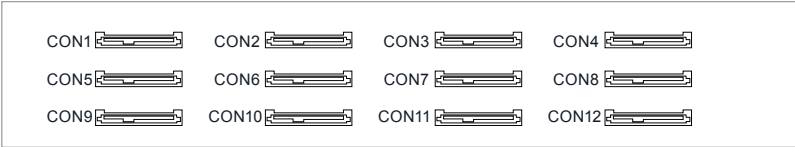


Chapter 4 Backplane Specifications

3.5-inch Hard Drive Backplane (to connect 12 HDDs)

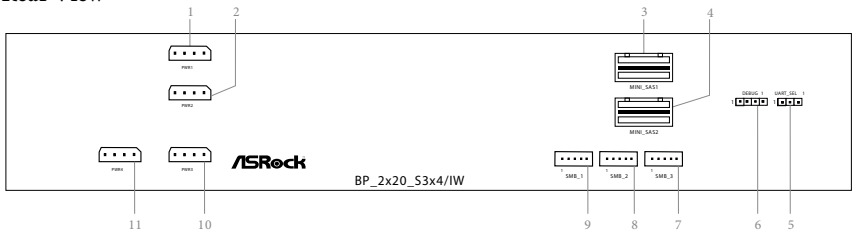
BP_2x20_S3x4 /IW

Front View



12 x SAS/SATA Hot-swap Connectors

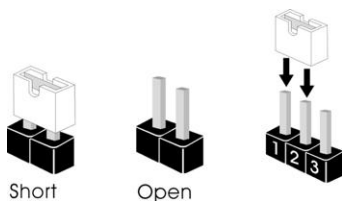
Rear View



No.	Description
1	Power Connector (PWR1)
2	Power Connector (PWR2)
3	Mini-SAS Connector (MINI_SAS1)
4	Mini-SAS Connector (MINI_SAS2)
5	UART Jumper (UART_SEL1)
6	Debug Connector (DEBUG1)
7	SMB Connector (SMB_3)
8	SMB Connector (SMB_2)
9	SMB Connector (SMB_1)
10	Power Connector (PWR3)
11	Power Connector (PWR4)

Jumper Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on the pins, the jumper is “Short”. If no jumper cap is placed on the pins, the jumper is “Open”. The illustration shows a 3-pin jumper whose pin1 and pin2 are “Short” when a jumper cap is placed on these 2 pins.



#5 UART Jumper
(UART_SEL1)

1-2:

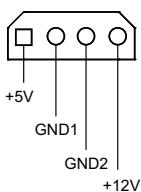
Configure the setting of Debug connector for updating firmware by SDB_TX/RX.

2-3 (Default):

Configure the setting of Debug connector for updating debug console by UART.

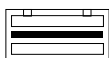
Pin Definitions

#1, 2, 10, 11 Power
Connector
(PWR1)
(PWR2)
(PWR3)
(PWR4)



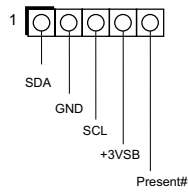
The 4-pin connectors provide power to the backplane.

#3, 4 Mini-SAS
Connector
(MINI_SAS1)
(MINI_SAS2)



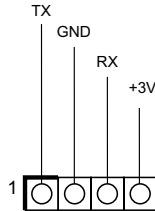
This connector is used to connect RAID card or the mini-SAS port on the motherboard.

#7, 8, 9 SMB Connector
(SMB_1)
(SMB_2)
(SMB_3)



The SMB (SubMiniature version B) connector provides a communication interface between the backplane and the motherboard.

#6 Debug Connector
(DEBUG1)



The Debug Connector is used for the firmware upgrade and factory reset.

2.5-inch Hard Drive Backplane (to connect 4 HDDs)

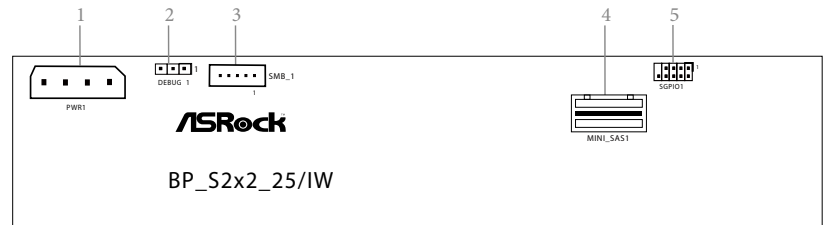
BP_S2x2_25/IW

Front View



4 x SAS/SATA Hot-swap Connectors

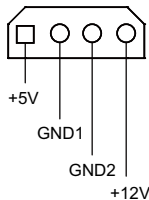
Rear View



No.	Description
1	Power Connector (PWR1)
2	Debug Connector (DEBUG1)
3	Intelligent Platform Management Bus Header (SMB_1)
4	Mini-SAS Connector (MINI_SAS1)
5	SGPIO Connector (SGPIO1)

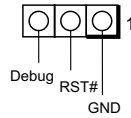
Pin Definitions

#1 Power Connector
(PWR1)



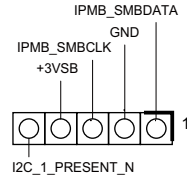
The 4-pin connectors
provide power to the
backplane.

#2 Debug Connector (DEBUG1)



The Debug Connector is used for the firmware upgrade and factory reset.

#3 Intelligent Platform Management Bus Header (SMB_1)



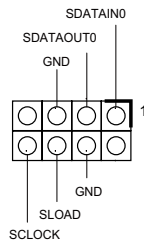
This 5-pin connector provides a communication interface between the backplane and the motherboard. It allows basic monitoring of voltages, fans, and temperature.

#4 Mini-SAS Connector (MINI_SAS1)



This connector is used to connect RAID card or the mini-SAS port on the motherboard.

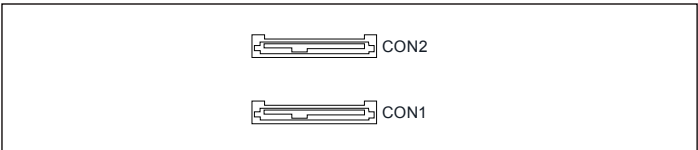
#5 Serial General Purpose Input/Output Header (SGPIO_1)



This header supports Serial Link interface for onboard SATA connections.

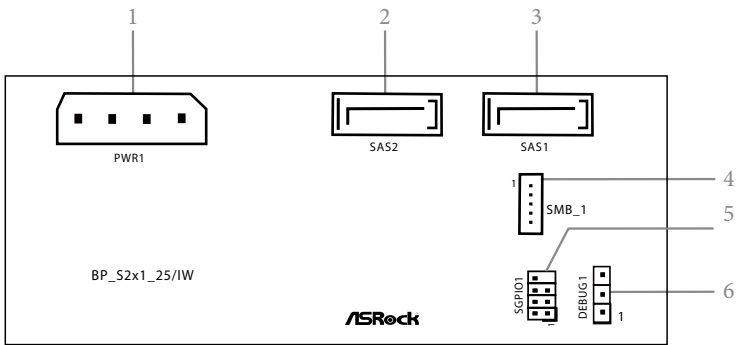
BP_S2x1_25/IW (to connect 2 SSDs)

Front View



4 x SAS/SATA Hot-swap Connectors

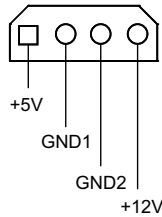
Rear View



No.	Description
1	Power Connector (PWR1)
2	SAS Connector (SAS2)
3	SAS Connector (SAS1)
4	Intelligent Platform Management Bus Header (SMB_1)
5	SGPIO Connector (SGPIO1)
6	Debug Connector (DEBUG1)

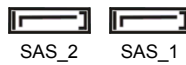
Pin Definitions

#1 Power Connector (PWR1)



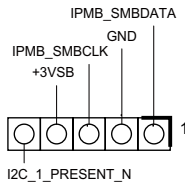
The 4-pin connectors provide power to the backplane.

#2, 3 SAS Connectors (SAS1, SAS2)



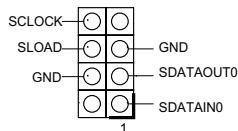
These two SAS connectors support SAS/SATA data cables for internal storage devices. The current SAS2/SATA3 interface allows up to 6.0 Gb/s data transfer rate.

#4 Intelligent Platform Management Bus Header (SMB_1)



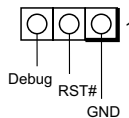
This 4-pin connector provides a communication interface between the backplane and the motherboard. It allows basic monitoring of voltages, fans, and temperature.

#5 Serial General Purpose Input/Output Header (SGPIO_1)



This header supports Serial Link interface for onboard SATA connections.

#2 Debug Connector (DEBUG1)



The Debug Connector is used for the firmware upgrade and factory reset.

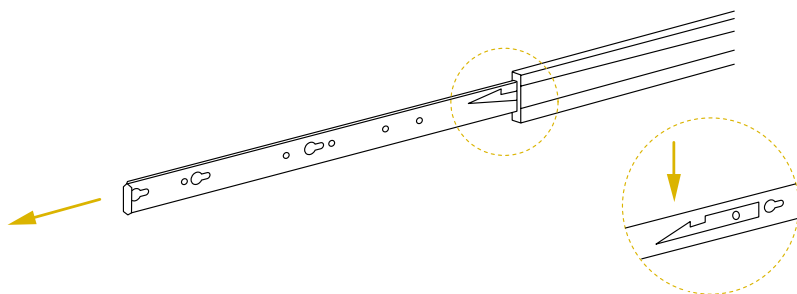
Appendix A Rails Installation



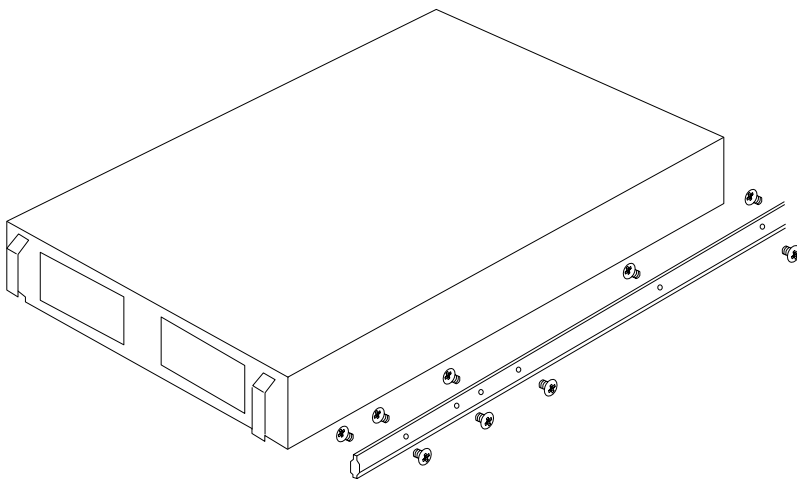
The rails installation instructions in this manual are example only, your actual rail assembly procedure may differ slightly.

Installing the Rails

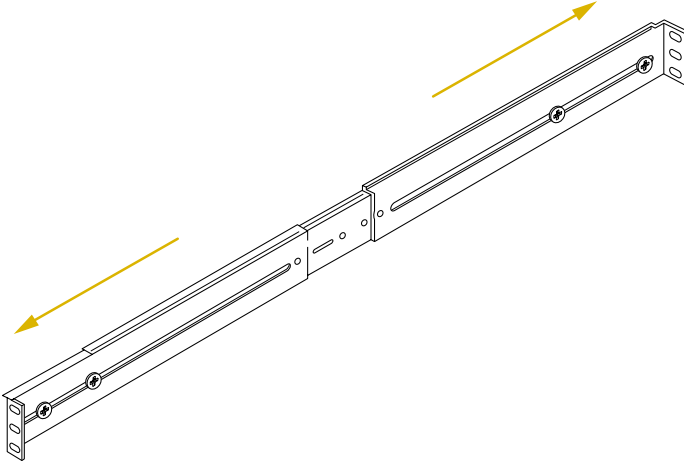
1. Pull out the inner rail from rail assembly by pulling the front activating release latch forward.



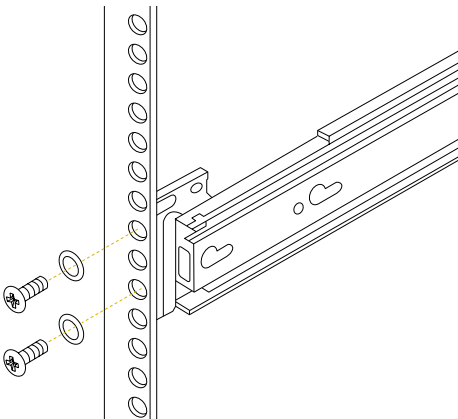
2. Secure the inner rails directly to the sides of the chassis using screws.



3. Each slide is pre-attached with front and rear adjustable EIA brackets. Loosen the nuts on the both brackets, and decide the proper setback distance to the opening, then tighten the nuts on the front brackets.



4. Extend the rear brackets to where it reaches the rear rack. Do not fully tighten rear bracket mounting screws until final adjustment is made.
Repeat Step 3&4 above for other side of outer slide member.
5. Attach the L-shaped bracket to the front mounting flange using screws and nylon ring.
Repeat Step 5 for the other side of slide.



Optional Slide Rail Kit

The optional slide rail kit is available for you to order, as listed below.

Optional Accessory – Slide Rail Kit	
Vendor	Model name
IN WIN	3A68-660CP