SR107 Plus Series

Server Chassis **User Manual**

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A document provides an overview of product features, functions, architecture, and support specifications.

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The products and services described may contain defects or errors known as errata which may cause deviations from published specifications. Current characterized errata are available on request.

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1. Product Overview

The SR107 chassis has been modified to support both tool-less 3.5" HDD tray as well as PCIe 3.0 slot, and transformed into feature-advanced SR107 Plus. Beneath the chassis, an information sticker reads revision and manufacturing code, necessary for technical support.

Table 1   Chenbro SR107 Plus specifications

Feature	Description
MB Form Factor	· SSI EEB (12" x 13")
Dimension **(Dx W x H)**	· 620.0 x 220.0 x 425.0 (mm) 24.40" x 8.66" x 16.73" (w/o bezel)
Drive Bay	· 3 x 5.25" External, 8 x 3.5" Hot-swap (Option), 8 x 3.5" Internal (Option), 1 x 3.5" External
Storage Backplane	· 2 x 3.5" 4-port 12Gbps , Mini-SAS HD Passive Backplane · 2 x 3.5"" 4-port 12Gbps , SAS/SATA Passive Backplane
PSU Form Factor	· PS/2 Single or N+1 Redundant
Indicator	· 1 x Power Status, 2 x LAN Activity, 1 x HDD Status, 1 x System Alarm
Front Control	· 1 x Power On/Off, 1 x System Reset, 1 x Alarm Mute, 2 x USB2.0/USB3.0 (Option)
System Security	· Intrusion Switch, Key Lock, Kensington Slot
Expansion Slot Opening	· 7 x Full Height (6 x Full Length + 1 x Half Length)
Net Weight	· 18.0 kg/39.68 lb
Gross Weight	· 22.5 kg/50.54 lb
Cubic Feet	· 5.53
Container Loading	· 20': 140, 40': 280, 40'H: 336 (Single Packing)
Slide Rail	· Supported

1-1 Front Panel

Figure 1   Front panel (enclosed)

A. Bezel Door

B. Front Control Panel

C. USB Port Blank
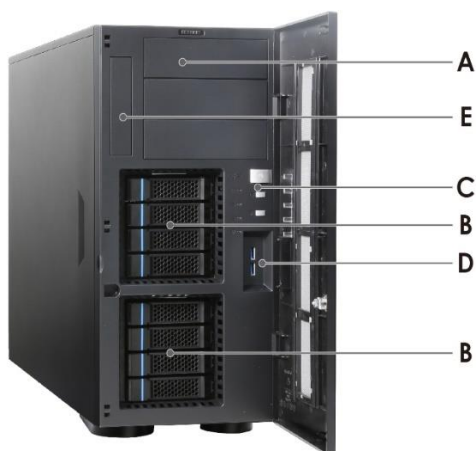
Figure 2   Front panel (open)

A. 5.25" Storage Drive Bay

B. 3.5" Storage Drive Bay

C. Front Control Panel

D. USB3.0

E. 3.5" External Drive Bay (FDD only)

1-2 Back Panel
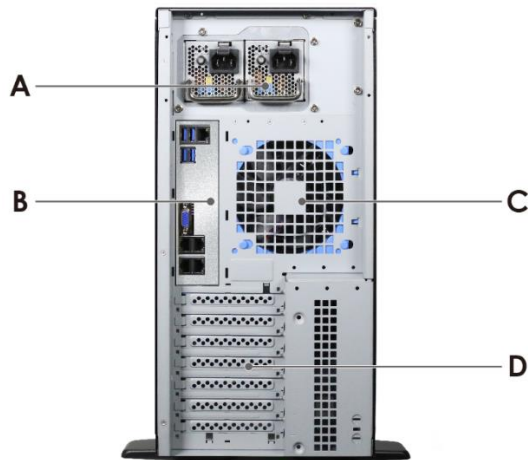
Figure 3   Back panel with redundant PSU

A.   N+1 Redundant PSU   **C.**   Rear Fan

B.   Rear I/O   **D.**   Expansion Slot Opening

Figure 4   Back panel with single PSU

A.   PS/2 Single PSU   **C.**   Rear Fan

B.   Rear I/O   **D.**   Expansion Slot Opening

1-3 Security Features
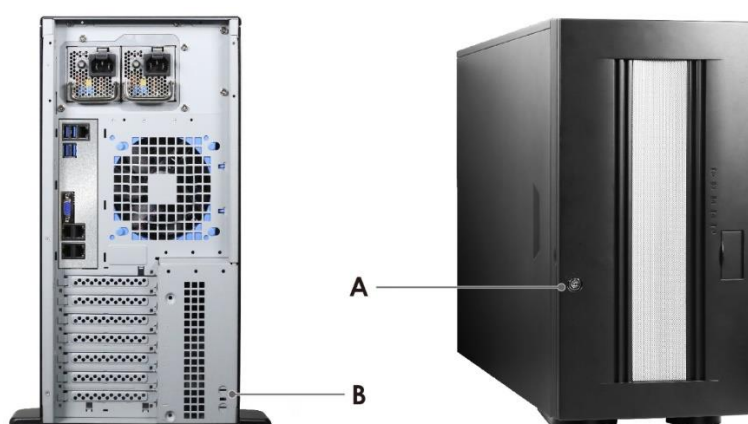
Figure 5   Key lock and Kensington slot location

A. Key Lock

B. Kensington Slot

1-4 Front Control Panel
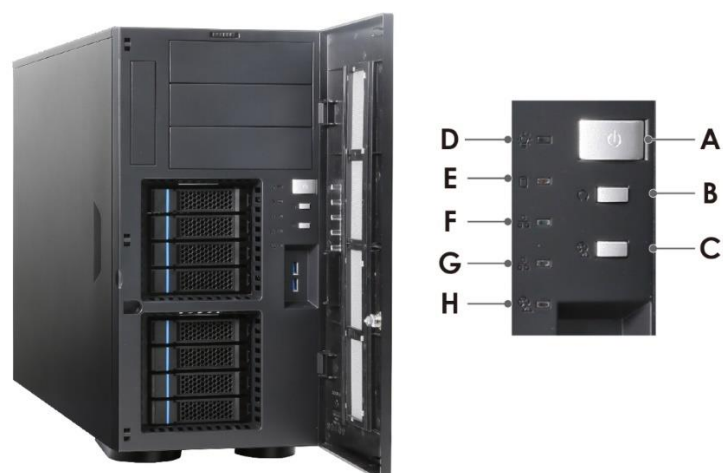
Figure 6   Front control panel

Table 2   Front control panel

Label	ICON	Indicator, button or connector
A	⏻	Power Button
B	品	Lan1, Lan2 Activity LED
C	☀	Power LED
D	▢	HDD Activity LED
E	⊗	Fan Alarm LED
F	↻	System Reset Button
G	⊗	Fan Alarm Reset Button

1-5 Chassis Dimensions
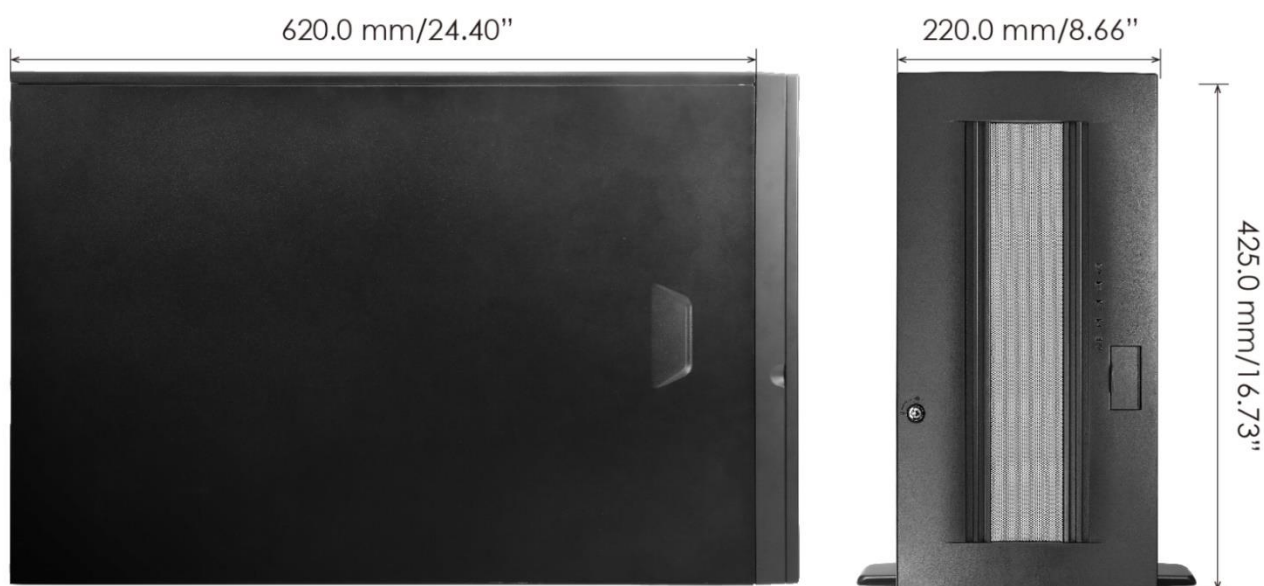
Figure 7   Chassis dimensions

1-6 Interior View

Figure 8   Chassis components

A. 3.5" HDD Cage

B. Power Supply Unit

C. Middle Fan

D.   5.25" Storage Drive Bay

E. 3.5" External Drive Bay Slot

F. System Board

1-7 System Level Environmental Specifications

The following table defines the system level specifications under operating and non-operating environments.

Table 3   System environmental specifications summary

Parameter		Specification
Temperature	Operating	5º C to 35º C (41º F to 95º F)
Temperature	Non-Operating	-40º C to 70º C (-40º F to 158º F)
Humidity	Non-Operating	50% to 90%, non-condensing with a maximum wet bulb of 28° C (at temperatures from 25° C to 35° C)
Unpackaged Shock	Non-Operating	Trapezoidal, 25 g, velocity change is based on product weight
Vibration	Operating	5 Hz @ 0.0002 g2/Hz to 350 Hz @ 0.0002 g2/Hz Input acceleration is 0.26 g RMS 10 minutes per axis for all 3 axes on all samples Random control limit tolerance is ± 3 dB
Sag & Bow	Non-Operating	Tolerance analysis among rack, rail and chassis Actual on rack test with EIA Go-NoGo fixture
EMI Pre-scan	Radiated Emissions	CISPR CLASS A (under 6 dB): 30~1000 MHz vertical/horizontal 1G~6G GHz vertical/ horizontal 1G~18G GHz vertical/horizontal
RVI	Operating	HDD class · Class 1: Highest performance, reliability, and data integrity · Class 2: A second tier of performance, reliability, and data integrity HDD I/O throughput degradation SPEC Pass/Fail Criteria · No functional failure during test or post-test diagnostics · Requirement to pass test is based on IOMeter data throughput (in IO's per second) expressed as a percent of Test HDD maximum theoretical baseline performance · Class1: > 90% of baseline for 4K random writes and > 80% of baseline for 128K sequential writes · Class2: > 85% of baseline for 4K random writes and > 75% of baseline for 128K sequential writes · Mix: > 80% of baseline for 4K random writes and > 70% of baseline for 128K sequential writes
Packaged Vibration	Non-Operating	ISTA (weight over 68 kg, 1B; weight equal or less than 68 kg, 1A)
Packaged Drop	Non-Operating	Drop height change is based on product weight Non-palletized product: · Investigation: Test requirement is 6 face drops, 8 corner drops and 12 edge drops for a total of 26 drops · Validation: Test requirement is 6 face drops, 2 corner drops and 3 edge drops for a total of 11 drops Palletized product: (Both investigation and validation) · Perform two bottom drops at the specified height, 10 bottom drops at one half of the specified height · Perform 4 rotational edge drops (one per edge) at the specified height

1-8 System Packaging

The original Chenbro packaging, where the server system is delivered, is designed to provide protection to a fully configured system and tested to meet ISTA (International Safe Transit Association) Test Procedure 1A. The packaging is also designed to be reused for shipment after system integration has been completed.

The original packaging includes the shipping box, and various protective inner packaging components, which are designed to function together as a protective packaging system. When reused, all of the original packaging material must be used, including box and each inner packaging component. In addition, all inner packaging components MUST be reinstalled in the proper location to ensure adequate protection of the system for subsequent shipment.

Table 4 System packing information

Part Number	Single/Bulk	Form Factor (mm)	Support Level
387-10569-2100A0	Single	315 x 651 x 720	L5

⚠ **NOTE:** The design of the inner packaging components does not prevent improper placement within the packaging assembly. There is only one correct packaging assembly that will allow the package to meet the ISTA (International Safe Transit Association) Test Procedure 1A (2008). Failure to follow the specified packaging assembly instructions may result in damage to the system during shipment.

Table 5 Product weight information

Product	Unpackaged Net Weight （kg）	Packaged Gross Weight （kg）	Unpackaged Net Weight (lb)	Packaged Gross Weight (lb)
SR107 Plus	9.0	11.0	19.82	24.23

⚠ **NOTE:** A L5 system does not include motherboards, processors, memory, drives, or add-in cards. It is the system configuration as shipped from Chenbro. Weights of integrated system (system configurations that include the items above) will vary depending on the final system configuration.

2. System Components Installation and Removal

SR107 Plus supports up to 8 x 3.5" hot-swap SAS/SATA HDD or 8 x 3.5" Internal SAS/SATA HDD. Support for different storage and peripheral options will vary depending on the system model and/or available accessory options installed.

2-1 Front Bezel Installation
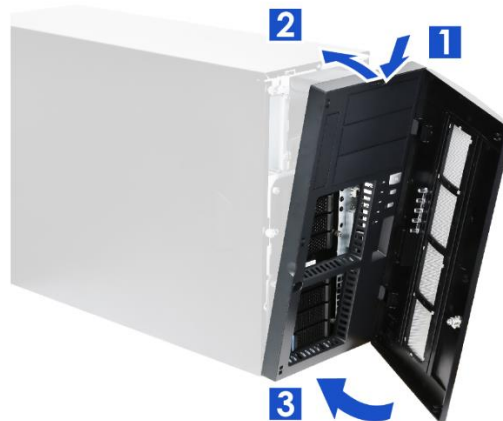
Figure 9   Bezel installation

1. Align the bottom bezel latch with the metal frame of the chassis, and lean the piece toward the chassis.

2. With the bezel door open, slide the mounting lock right on the top of the bezel and push down the bezel to lock into place.

3. Close the bezel door.
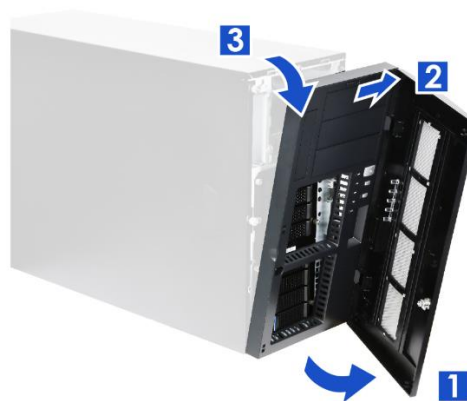
Figure 10   Bezel removal

1. Open the bezel door.

2. Slide right the mounting lock without releasing.

3. Detach the bezel starting from the top to the bottom of the bezel until it is fully detached.

2-2 Side Cover Installation
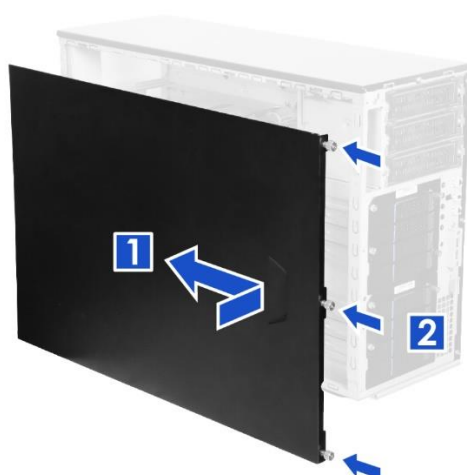
Figure 11   Side cover installation

1. Align the side cover with the bottom grooves, place down and slide it toward the rear of chassis.

2. Make sure it locks into place, and secure the thumb screws as shown.

2-3 External Device Installation
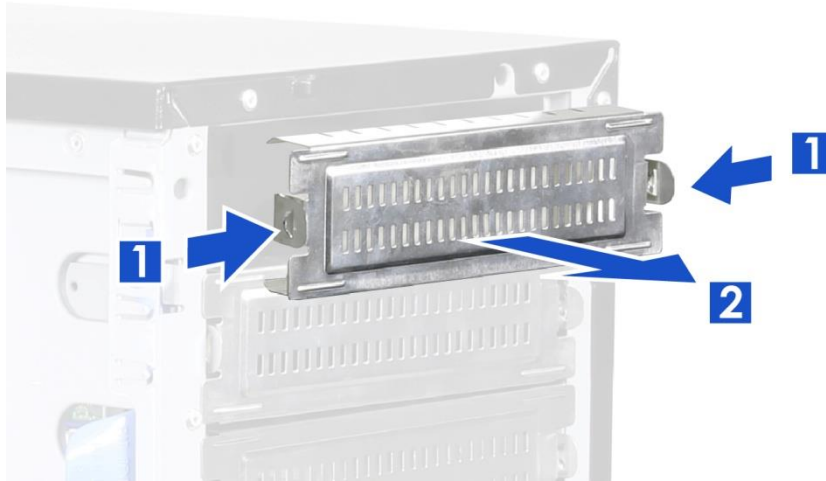
Figure 12   5.25" device blank removal

1. Press two sides of the latch of the blank to release the blank as shown.

2. Pull the blank out.
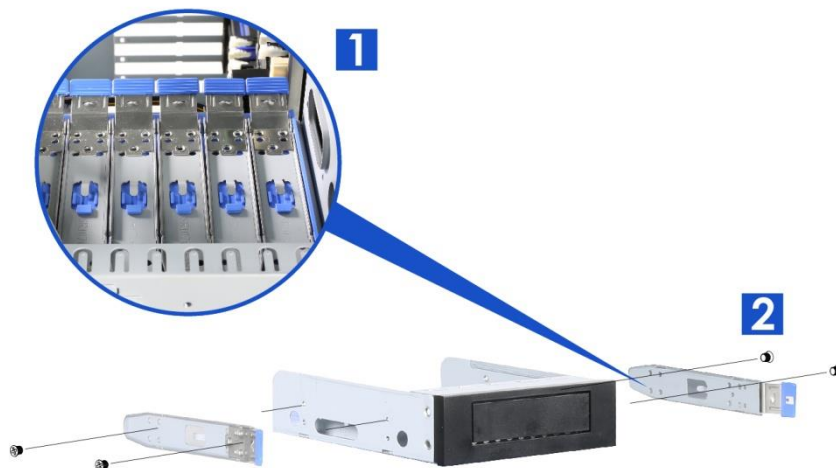
Figure 13   5.25" device side rail installation

1. Take the reserved side rails located inside the drive slot.

2. Attach and secure the side rails on both sides of the 5.25" device.

Figure 14   5.25" device installation

1. Insert the 5.25" device into the drive bay.

⚠   **Note:** Make sure both side rails are clipped on the latch.
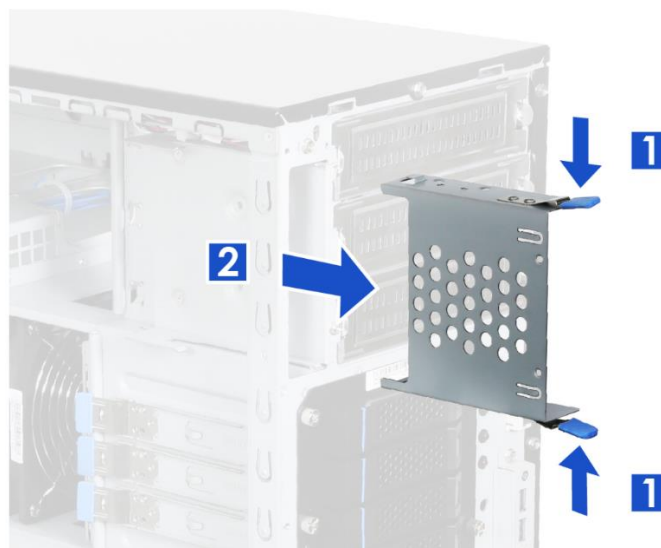
Figure 15   External FDD tray installation

1. Squeeze the latch.

2. Pull the tray out of the chassis.

⚠   **Note:** This bay only supports standard sized FDD device.

2-4 HDD Cage Installation
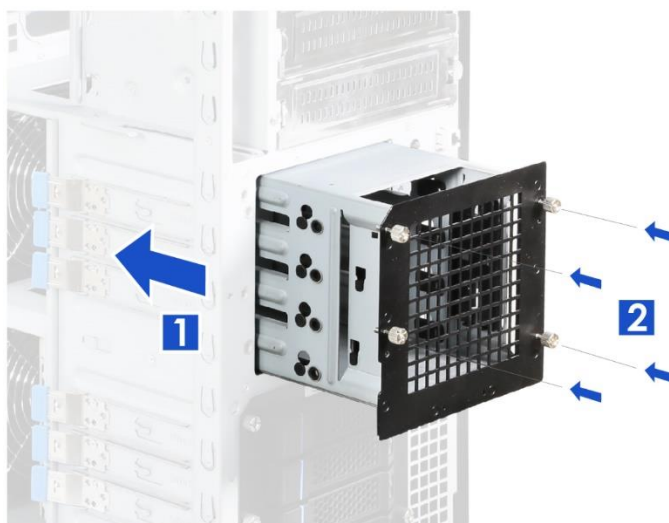
Figure 16   3.5" internal HDD cage installation

1. Insert the HDD cage into the chassis.

2. Secure the thumb screws on the four sides of the HDD cage.

Figure 17   3.5" hot-swap HDD cage installation

1. Insert the HDD cage into the chassis.

2. Secure the thumb screws on the four sides of the HDD cage.

Figure 18   3.5" hot-swap HDD tray removal

1. Press the tray button to release the tray.

2. Pull the lever to remove the tray from the HDD cage.

Figure 19   3.5" hot-swap HDD tray installation

1. Insert the HDD tray into the cage.

2. Push down the lever to secure the HDD tray.

Figure 20   3.5" HDD installation (tool-less type)

1. Engage two embossed pins into the side dimples on the HDD as shown.

2. Carefully push down the other side of the HDD until another two embossed pins and side dimples lock into place.

⚠   **NOTE:** Due to degraded performance and reliability concerns, the use of the 3.5" drive tray as a 2.5" drive tray is intended to support SSD type storage devices only. Installing a 2.5" hard disk drive into the 3.5" drive tray cannot be supported.
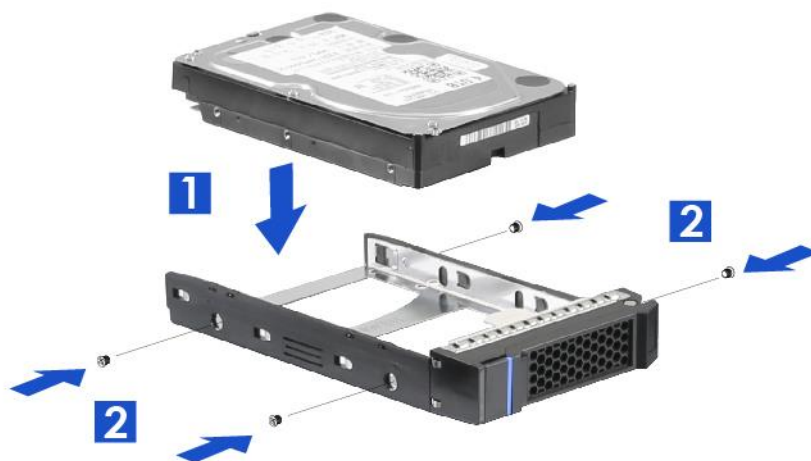
Figure 21   3.5" HDD installation (screw type)

1. Align the front HDD with the anchor point on the tray.

2. Assemble 3.5" HDD with tray by four screws as shown.

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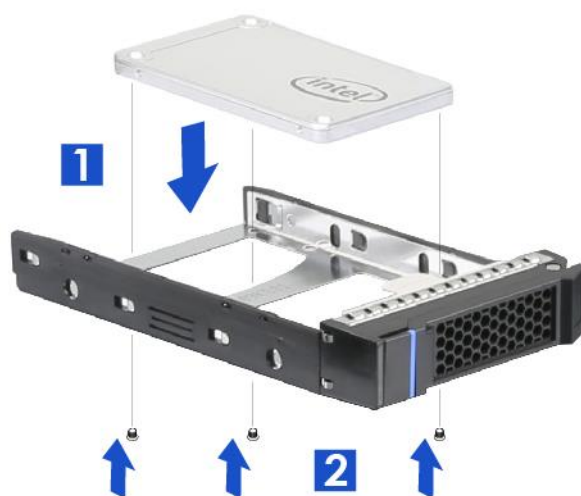
Figure 22   2.5" HDD installation (screw type)

1. Align the front HDD with the anchor point on the tray.

2. Assemble 2.5" SSD into the tray by three screws from the bottom as shown.

⚠ **NOTE:** To ensure proper system airflow requirements, all front drive bays are suggested to populate with a 3.5" drive tray where it is supposed to be installed with a 3.5" drive, a 2.5" drive with plastic dummy filler or only dummy fillers. In addition, in order to support a 2.5" drive in a 3.5" tray, a screw-type tray is required.

⚠ **NOTE**: Dedicated screw type is required for 2.5" SSD Installation, Chenbro P/N: 384-14602-3143A0.

2-5 Internal Chassis Fan Maintenance
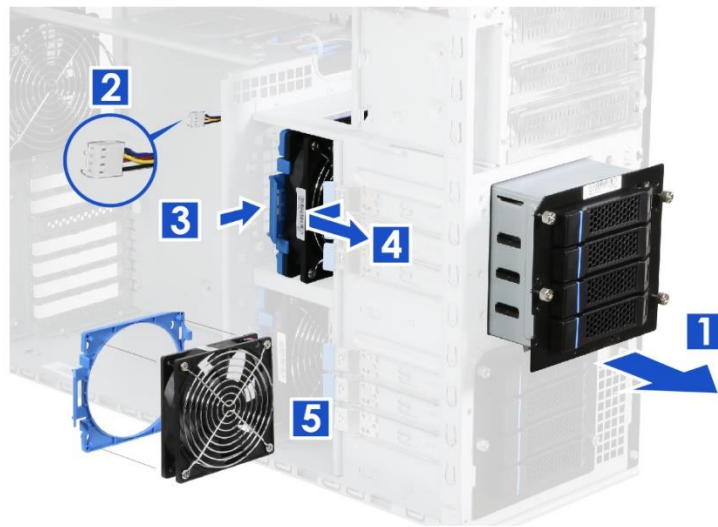
Figure 23   Internal chassis fan maintenance step-1

Figure 24   Internal chassis fan maintenance step-2

1. Remove the HDD cage.

2. Unplug the power connector from the backplane or system board.

3. Press the fan module latch at the top of the fan module.

4. Push the fan module down to remove it from the chassis.

5. Remove the fan from the tool-less fan holder as shown and replace the fan.

6. Secure the fan model by aligning four embossed pins with four holes on the chassis.

7. Plug the power connector into the backplane or system board.

8. Insert the HDD cage.

2-6 Rear Fan Maintenance
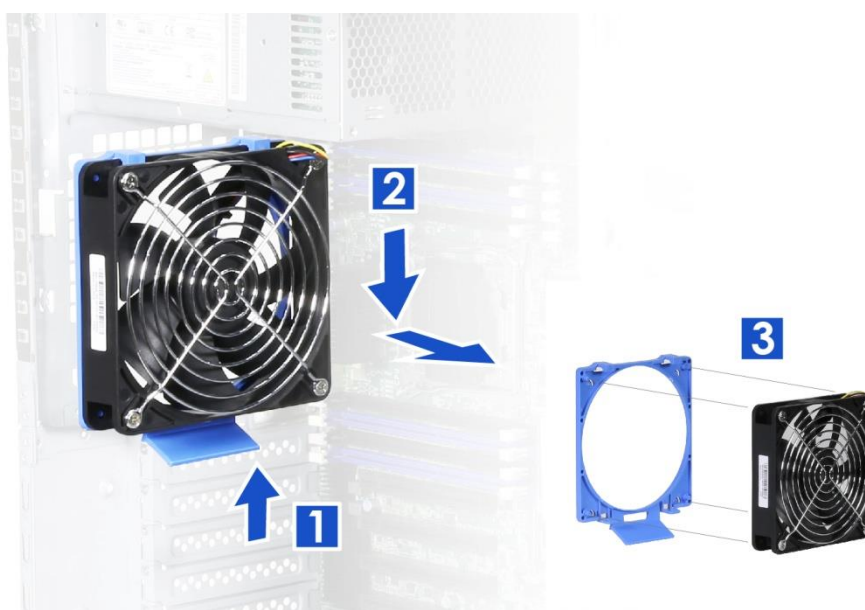
Figure 25   Rear fan maintenance step-1

Figure 26   Rear fan maintenance step-2

1. Lift up the fan module latch at the bottom of the fan module without releasing.

2. Push the fan module down to remove it from the chassis.

3. Remove the fan from the tool-less fan holder as shown and replace the fan.

4. Secure the fan module by aligning four embossed pins of it with four holes on the chassis, and pushing it upward as shown.

2-7 Power Supply Installation

Figure 27   Single PSU installation

1. Place the PSU inside the chassis, and ensure the alignment for four screw holes of PSU with the bracket of the chassis.

2. Secure the four screws as shown.
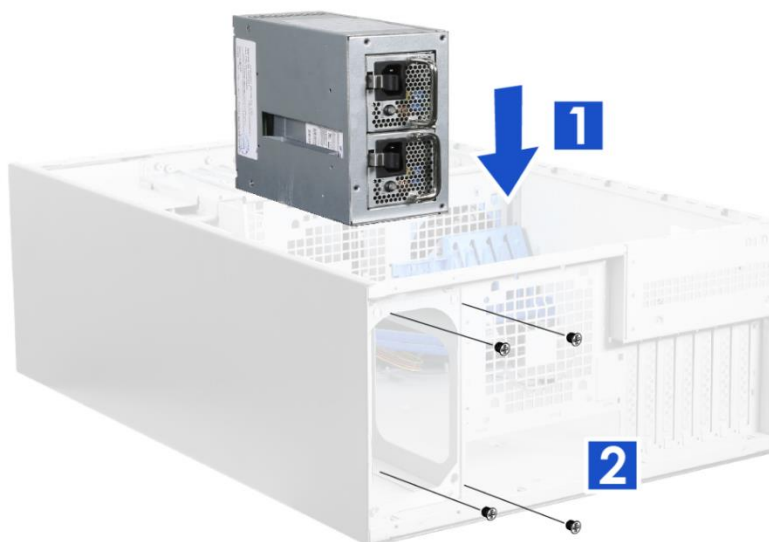
Figure 28   Redundant PSU installation

1. Place the PSU inside the chassis, and ensure the alignment for four screw holes of PSU with the bracket of the chassis.

2. Secure the four screws as shown.

3. Backplane

Each drive tray includes two LED indicators for drive activity and drive status. Light pipes integrated into the drive tray direct light emitted from LEDs mounted next to each drive connector on the backplane to the drive tray faceplate, making them visible from the front of the system.
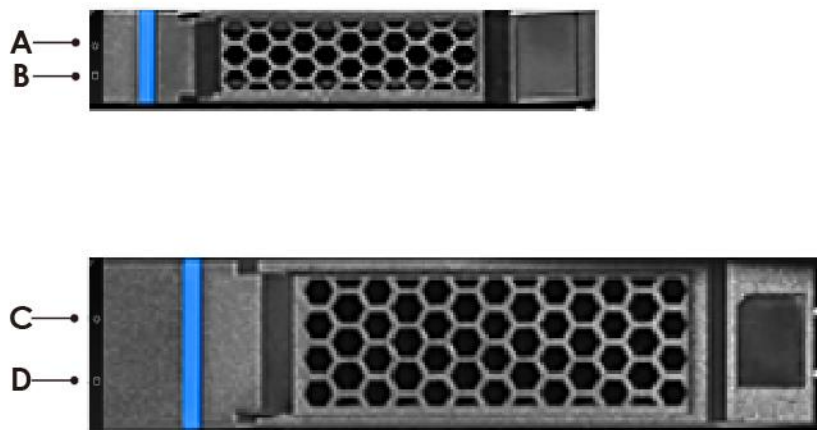

Figure 29   Drive tray LED identification

Table 6   Drive power LED/activity LED behavior

LED	ICON	LED	Color	Behavior	Condition
A,C	☀	Power LED	N/A	Stay off	Fault
			Blue	Solid on	Present
B,D	🗍	Activity LED	Green	Stay on	Access
			Red	Solid on	Failure
				1Hz blink	Rebuild
				4Hz blink	Locate

⚠ **NOTE:** The drive activity LED is driven by signals from the drive itself. Drive vendors may choose to operate the activity LED different from what is described in the table above. Should the activity LED on a given drive type behave differently than what is described, customers should take the drive vendor specifications as a reference for the specific drive model to determine what the expected drive activity LED operation should be.

3-1 Storage Backplane Options

SR107 Plus supports the below backplanes:

· 2 x 3.5" 4-port 12Gbps Mini-SAS HD backplane

· 2 x 3.5" 4-port 12Gbps SAS/SATA backplane

All available SAS/SATA backplanes include the following common features:

· 12Gbps SAS and 6Gbps SAS/SATA

· 29-pin SFF-8680 12Gbps rated drive interface connectors, providing both power and I/O signals to attached devices

· Hot-swap support for SAS/SATA devices

· I2C interface from a 4-pin connector for device status communication to the BMC over SMBus

· LEDs to indicate drive activity and status for each attached device

3-2 3.5" 4-Port 12Gbps Mini-SAS HD Backplane

Table 7   Backplane specifications

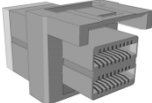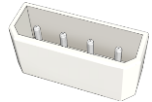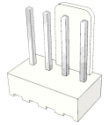| Specification	
Host Interface	Mini-SAS HD (SFF-8643)
HDD Interface	SFF-8680 (SAS 29-pin)
Hot-Swap	Yes, allows users to replace devices online
Display	LED indicates storage device status Power LED – Off (Fault) – Blue on (Present) Activity LED – Green on (Access) – Red on (Failure) – Red 1 Hz blink (Rebuild) – Red 4 Hz blink (Locate)
Environment Monitor	Temperature sensor TMP75
Connector and Header	1. 1 x Mini-SAS HD 2. 4 x SFF-8680 3. 4 x big 4-pin power connector for +5V & +12V from power supply 4. 1 x pin header 2.00 mm (1 x 3) 5. 1 x pin header 2.00 mm (2 x 3) 6. 1 x pin header 2.54 mm (2 x 3) 7. 1 x pin header 2.54 mm (2 x 5) 8. 1 x 4-pin Wafer 2.50 mm 9. 2 x 2-pin Wafer 2.54 mm 10. 1 x 4-pin Wafer 2.54 mm 11. 1x I2C
Dimension (L x W x H)	106.0 x 114.0 x 2.4 (mm)
Material	FR4 4 layers

Figure 30   Backplane front view
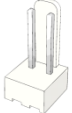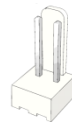
A. HDD_00

B. HDD_01

C. HDD_02

D. HDD_03

Figure 31   Backplane rear view

Table 8   Connector and pin header function description

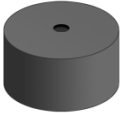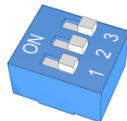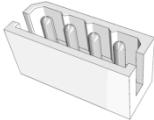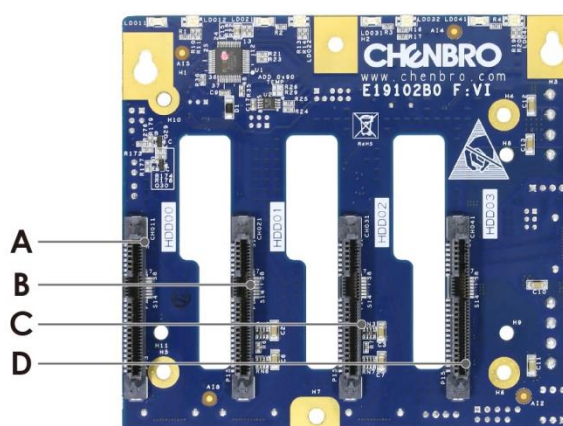| Label	Connector	Description	Drawing
A	Mini-SAS HD	For connecting to a mainboard or HBA, this Mini-SAS HD connector is applied. A proper cable selection is essential as well to make sure good signal integrity, which can be maintained for the whole connection path from mainboard or HBA/RAID card to the HDD devices.	
B	Power	These two connectors are used to power four 3.5" hard disks, connected to this backplane, and each can ensure that all drives are supplied with stable power inputs. If the chassis fan is also powered by fan header (JF01), this configuration is highly recommended.	
C	Fan	There are two 4-pin headers for the PWM fan, and it is alternative solution that the chassis fan can be powered and monitored by this backplane instead of a motherboard. If the chassis fan is connected to a mainboard, user needs to disable the fan monitoring function of backplane by DIP switch (SW1).	
D	Signal Indicator	The event LED, with red/black wire, is located on front bezel of SR107 Plus series and can be configured through this pin header.	
E	Power Fail Mute	Transfer mute signal from a backplane to PSU.	
F	Power Fail Alarm	Send alarm signal to PSU.	
G	Buzzer	Buzzer will alarm when fan and temperature become abnormal.	

Label	Connector	Description	Drawing
H	DIP Switch	The settings of on-board hardware monitor can be controlled and configured through this DIP switch. It can manage the functions of PWM fan & temperature threshold.	
I	I2C	The motherboard can monitor HDD temperature and fan status through this connector. However, the I2C connector on the motherboard side is vendor dependent, so please contact our field application engineers to fully utilize this feature.	

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# 3-3 3.5" 4-Port 12Gbps SAS/SATA Backplane

Table 9   Backplane specifications

Specification	
Host Interface	SATA 7-pin
HDD Interface	SFF-8680 (SAS 29-pin)
Hot-Swap	Yes, allows users to replace storage devices online

Display	LED indicates storage device status
	Power LED – Off (Fault)
	              – Blue on (Present)
	Activity LED – Green on (Access)
	           – Red on (Failure)
	           – Red 1 Hz blink (Rebuild)
	           – Red 4 Hz blink (Locate)

Environment Monitor	Temperature sensor TMP75
Connector	1. 4 x SATA 2. 4 x SFF-8680 3. 4 x big 4P Power connectors for +5V, +12V from power supply 4. 1 x pin header 2.0 mm (1 x 3) 5. 1 x pin header 2.0 mm (2 x 3) 6. 1 x pin header 2.54 mm (2 x 3) 7. 1 x pin header 2.54 mm (2 x 5) 8. 1 x 4-pin Wafer 2.5 mm 9. 2 x 2-pin Wafer 2.54 mm 10. 1 x 4-pin Wafer 2.54 mm
Dimension (L x W x H)	106.0 x 114.0 x 2.4 (mm)
Material	FR4 4 layers

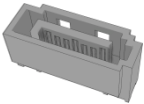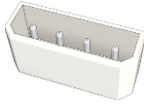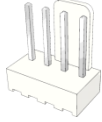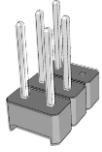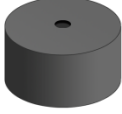**Figure 32   Backplane front view**
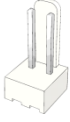
A. HDD_00

B. HDD_01
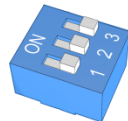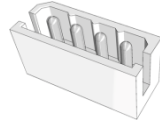
C. HDD_02

D. HDD_03
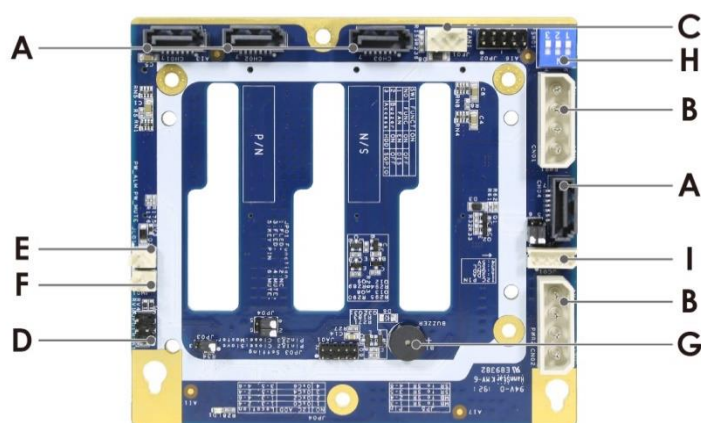
Figure 33　Backplane rear view

Table 9　Connector and pin header function description

Label	Connector	Description	Drawing
A	SATA/SAS	For connecting to a mainboard, this SATA/SAS 7-pin connector is applied. A proper cable selection is essential as well to make sure good signal integrity, which can be maintained for the whole connection path from mainboard HDD devices.	
B	Power	These two connectors are used to power four 3.5" hard disks, connected to this backplane, and each can ensure that all drives are supplied with stable power inputs. If the chassis fan is also powered by fan header (JF01), this configuration is highly recommended.	
C	Fan	There are two 4-pin headers for the PWM fan, and it is alternative solution that the chassis fan can be powered and monitored by this backplane instead of motherboard. If the chassis fan is connected to a mainboard, user needs to disable the fan monitoring function of backplane by DIP switch (SW1).	
D	Signal Indicator	The event LED with red/black wire is located on front bezel of SR107 Plus series and can be configured through this pin header.	
E	Power Fail Mute	Transfer mute signal from a backplane to PSU.	
F	Power Fail Alarm	Send alarm signal to PSU.	
G	Buzzer	Buzzer will alarm when fan and temperature become abnormal.	

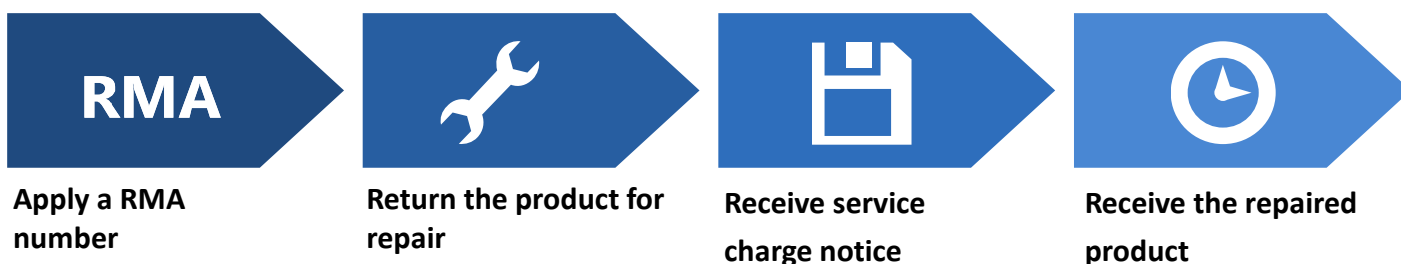| Label	Connector	Description	Drawing
H	DIP Switch	The settings of on-board hardware monitor can be controlled and configured through this DIP switch. It can manage the functions of PWM fan & Buzzer On/Off.	
I	I2C	The motherboard can monitor HDD temperature and fan status through this connector. However, the I2C connector on the motherboard side is dependent on vendors, so please contact our field application engineers to fully utilize this feature.	

4. Maintenance and Service

DOA (Dead on Arrival)

If the products are found Defect On Arrival, please contact Chenbro's regional sales or CQE and indicate the defective status via email along with product photos and description. You may need to return the defective item by request.

The customer should ensure that the products are Defect On Arrival for up to three months from Chenbro's shipping date and the damage is not caused by shipping or failures resulting from accident, misuse, abuse, neglect, mishandling, misapplication, modification, improper operation, improper repair or rework. CHENBRO is not responsible for the cost of replacement including the delivery cost.

CHENBRO also reserves the right to examine the DOA products. If the damage of DOA products is caused by improper action as described above, the customer will be liable for paying the related charge having occurred or paying the fee of the replacements if the DOA products are totally scrapped.

RMA → 🔧 → 💾 → 🕐

| **Apply a RMA number** | **Return the product for repair** | **Receive service charge notice** | **Receive the repaired product** |

TECHNICAL SUPPORT

Please provide following information when you apply our technical support:

- Product model name and/or part number
- Product serial number and bar code
- Buzzer beeping pattern and/or failure LED flashing pattern
- Detailed and specific questions

You may also contact Chenbro's regional technical supports as below:

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