Installation Guide

Ultrastar® Serv24

S2122-N24-4

Version 1.3

August 2018

1ET1084

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Contents

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Revision History

Date	Revision	Comment
November 2017	Revision 1.0	Initial Release
December 2017	Revision 1.1	• Updated the **Supported SKUs** on page 15 • Updated the **List of Compatible Drives** on page 15
February 2018	Revision 1.2	Updated the **Ultrastar Serv24 Installation Procedure** on page 20
August 2018	Revision 1.3	Updated the following: • **List of Replaceable Components** on page 14

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Points of Contact

For further assistance with an HGST product, contact Platform Engineering technical support. Please be prepared to provide the following information: Serial Number (S/N), product name, model number, and a brief description of the issue.

Email:
support@hgst.com

Website:
http://support.hgst.com

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1   Ultrastar Serv24 Overview

1.1   Ultrastar® Serv24 Description

Figure 1: Ultrastar Serv24
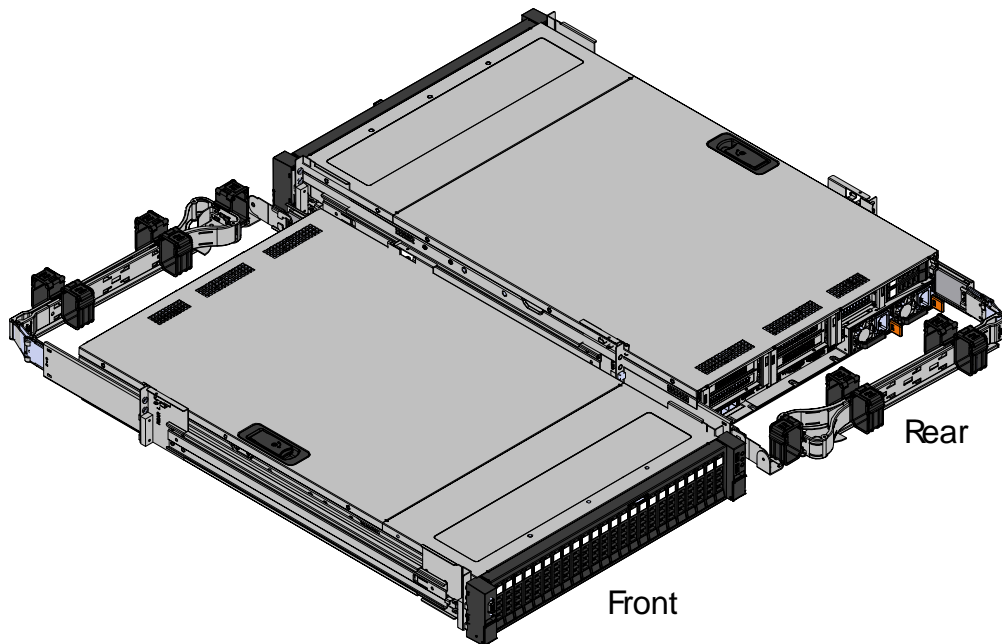
The Ultrastar® Serv24 is a 2U, 24 bay, single node storage server. The maximum data storage capacity of the Ultrastar Serv24 is 184.32 TB using HGST Ultrastar® SN200, SanDisk® Skyhawk™, and SanDisk® Skyhawk™ Ultra drives. For a full list of compatible drives and total storage capacities, see the **List of Compatible Drives** on page 15. The enclosure runs on a high line input voltage of 200-240VAC (high line) and provides 1200W under maximum load conditions. The maximum Ultrastar Serv24 power cannot exceed 1000W (100-127VAC (low line)) for low line input operation. Not all of the Ultrastar Serv24 configurations can operate using Lowline input power. The maximum power draw of the enclosure is determined by the specific configuration of CPUs, DIMMs, PCIe add-in cards, and compatible NVMe drives. It is designed to fit within a 2U rack space and requires a minimum of See EIA-310 Rack Standard.

- 2U Storage Server
- 24 NVMe drives
- Contains an Intel Purely platform motherboard
- Supports up to 24 DIMMs
- Three open PCIe generation 3 slots
- One NIC card
- Two M.2 boot drives
- Redundant 1200W PSUs
- One VGA port
- One Serial port
- Four USB 3.0 ports

- One dedicated 1 GbE port for IPMI

1.2   Block Diagrams

Figure 2: System Block Diagram
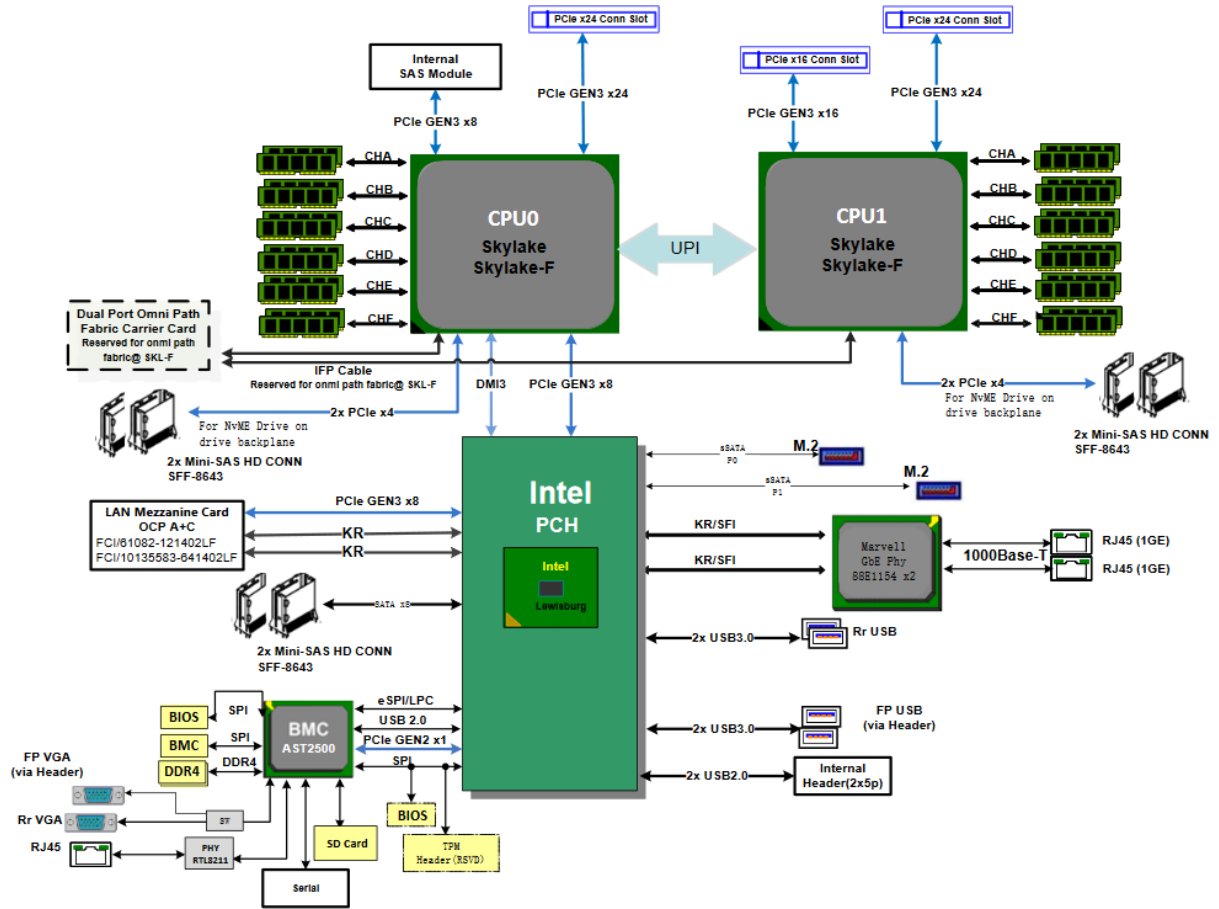
Figure 3: CPU/PCIe Switch/NVMe Drive Interface Block Diagram
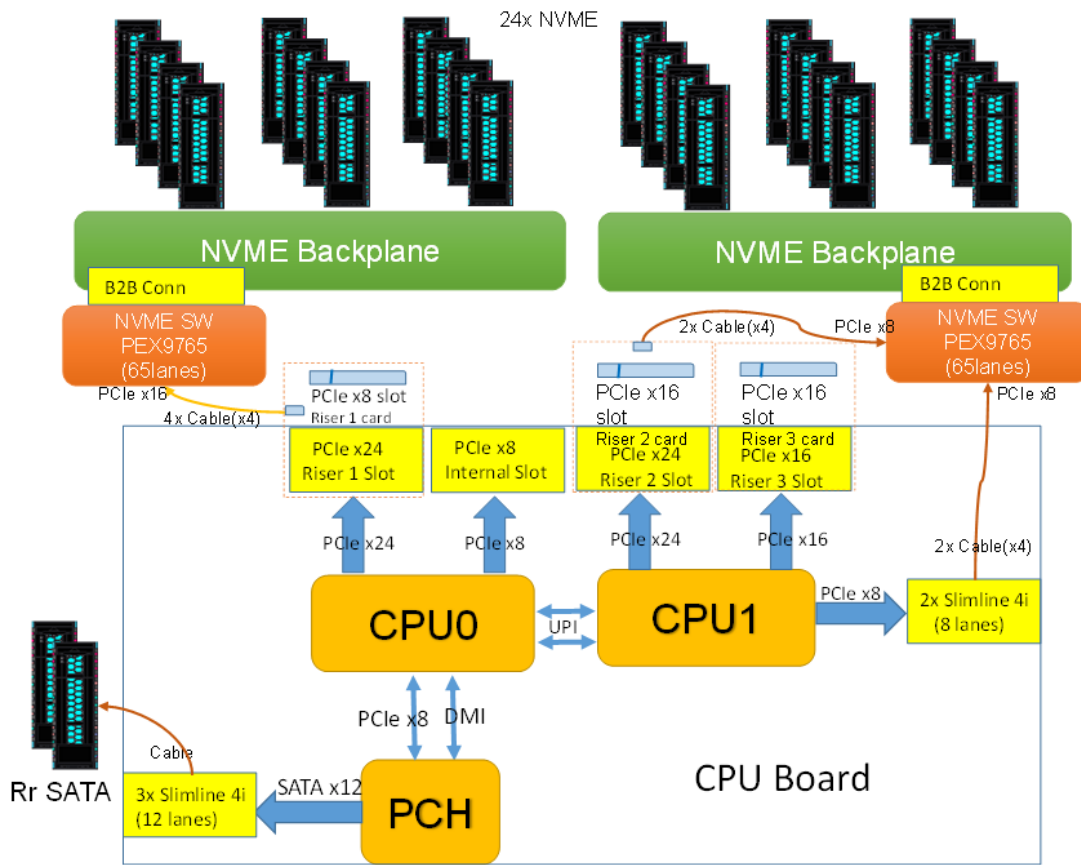
Figure 4: I2C Block Diagram

BMC

SMB14(M) — BP connector

DDR_I2C_C012(M) — PCA9617 — DIMM (S) A0 0XA0 A1 0XA2 B0 0XA4 B1 0XA6 C0 0XA8 C1 0XAA

PE_HP CPU0

DDR_I2C_C345(M) — PCA9617 — DIMM (S) D0 0XA0 D1 0XA2 E0 0XA4 E1 0XA6 F0 0XA8 F1 0XAA

SMB3(M) — PIROM

DDR_I2C_C012(M) — PCA9617 — DIMM (S) G0 0XA0 G1 0XA2 H0 0XA4 H1 0XA6 J0 0XA8 J1 0XAA

PE_HP CPU1

DDR_I2C_C345(M) — PCA9617 — DIMM (S) K0 0XA0 K1 0XA2 L0 0XA4 L1 0XA6 M0 0XA8 M1 0XAA

(S) OCP C card connector
(S) OCP A card connector

PCA9548 (0xE4)

SMB7(M)

(S) PCIex24 Riser1
(S) PCIex24 Riser2
(S) PCIex16 Riser3
(S) PCIex8 MEZZ card(Raid)

NOPOP

LAN SMB(S)
SMB (M)

SMB9(S)

PCA9617

SMB8(M) — (S) CPLD (0x0C)   (S) CPU&PCH-XDP   (S) CLK uffer (0xD8)

SMB6(M) — SML0(S)
SMB4(M)
SMB1(M)

(S) LM75B (0x90)   (S) LM75B (0x92)   (S) LM75B (0x94)   (S) LM75B (0x96)   (S) VPD AT24C256 (0xA0)   LM75B (0x96) ON FP   (S) CPU0 fabric SB conn   (S) CPU1 fabric SB conn

SMB2(M) — NOPOP — POP — SML1(M)

PCA9511

(S) PSU1 (0xA0)   (S) PSU1 (0xA2)

PCH

SMB5(M) — NOPOP — POP — SML2(M)

(S) VR IC (0x96)   (S) VR IC (0x112)   (S) VR IC (0x106)   (S) VR IC (0x118)   (S) VR IC (0x14)   (S) VR IC (0x10)   (S) VR IC (0x0C)   (S) VR IC (0x08)   (S) VR IC (0x104)   (S) VR IC (0x119)

1.3   Ultrastar Serv24 Specification Summary

Table 1: Environmental Specification Summary

Specification	Non-Operational	Operational
Temperature	-40°C to 60°C	5°C to 35°C
Temperature Gradient	30°C per hour max	20°C per hour max
Temperature De-rating	1°C per 300m above 12000m	1°C per 300m above 950m
Relative Humidity	8-93% Non-Condensing	8-85% Non-Condensing
Relative Humidity Gradient	30% per hour maximum	30% per hour maximum

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Specification	Non-Operational	Operational
Altitude	950m to 12000m	950m to 3048m

Table 2: Electrical Specifications

Specification	Value
Maximum Power Consumption	1000W (low line) / 1200W (high line)
Input Voltage	100-127VAC (low line) / 200-240VAC (high line)
PSU Connector Type	C14
Inrush Current Maximum (per PSU)	AC line inrush current shall not exceed 30A peak, for up to one-quarter of the AC cycle, after which, the input current should be no more than the specified maximum input current.
PSU Efficiency	80 Plus™ Platinum

Table 3: Mechanical Specifications

Specification	Non-Operational	Operational
Shock	35G - 152 in/sec trapezoid wave	10G - 5 ms duration; 5 shocks positive and 5 negative in each of 3 axes. 30 total shocks
Vibration	1.04G - 2~200Hz, 15 minutes/faces, six product faces	0.278G - Random 5-500 Hz 30 minutes per axis, 3 axes (X, Y, Z)
Weight	33.47 kg / 73.8 lbs	
Weight w/ Rails and CMA	39.23 kg / 86.5 lbs	
Dimensions	**W**: 481.8 mm x **L**: 768.2 mm x **H**: 87 mm / **W**: 18.8in. x **L**: 30.2in. x **H**: 3.4in.	
Dimensions w/ CMA	**W**: 481.8 mm x **L**: 1021.3 mm x **H**: 87 mm / **W**: 18.8in. x **L**: 40.2in. x **H**: 3.4in.	
Rack Mounted Rails Travel	796.2 mm / 31.3in. **Note:** Measured from the rack posts to the front of the enclosure.	
Required Rack Width	482.6 mm / 19 in.	
Required Rack Depth	See EIA-310 Rack Standard	

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Specification	Non-Operational	Operational
Rack Units (U)	2U	

Table 4: Data Capacity Specifications

Specification	Value
Number of Drive Slots	24
Max Raw Data Storage Capacity	184.32 TB

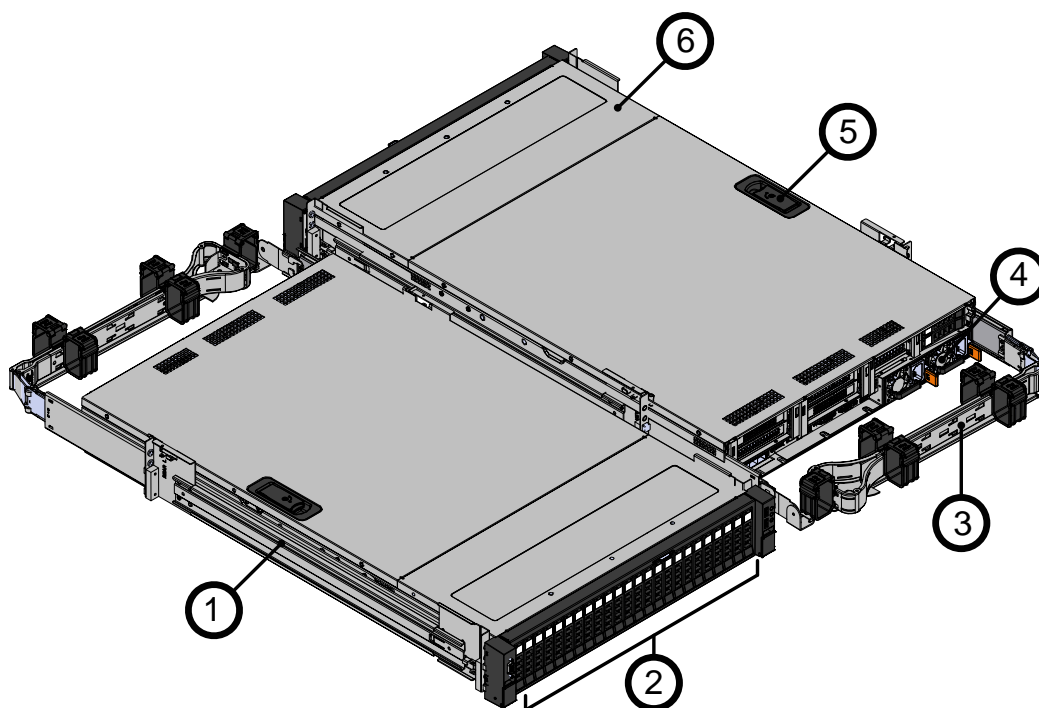## 1.4   Ultrastar Serv24 Layout

Figure 5: Ultrastar Serv24 Layout

Table 5: Ultrastar Serv24 Layout

Number	Component
1	Rails
2	Drive Bay
3	CMA
4	PSU Bay
5	Chassis Cover w/ latch
6	Chassis

1.5   Ultrastar Serv24 Rack Requirements

The Ultrastar Serv24 is designed to be installed into a rack that meets the EIA-310 standard at a minimum. See EIA-310 Rack Standard of usable space measured from front rack frame to the rear rack frame. It requires 2U of rackspace, and it should be installed into the rack at the lowest possible U height to keep the load on the rack balanced.

1.6   List of Replaceable Components

Table 6: List of Replaceable Components

Component	HGST Part Number
L6 Enclosure • Chassis • Redundant PSUs (1200W) • NIC (Dual 10 GbE (SPF+) OCP Card) • CMA • Rails • Full set of fan modules	1EX1036
AC Power Cord (2.5m)	1EX1027
Drive Blank	1EX1134
PSU (1200W)	1EX1028
CMA	1EX1038
Rails	1EX1037
Fan module	1EX1035
Intel® VROC Premium Hardware Key	1EX1177
SanDisk® X400 SSD M.2 2280 Boot Drive (256GB)	1EX1026
Heat Sink	1EX1674
Intel® Xeon CPU, 5120 w/ heat sink	1EX1030
Intel® Xeon CPU, 6140 w/ heat sink	1EX1031
Intel® Xeon CPU, 8160 w/ heat sink	1EX1032
Celestica™ NIC (Dual 10 GbE (SPF+) OCP Card)	1EX1034
Samsung® DIMM (32GB DDR4 - 2400MHz)	1EX1033
Samsung® DIMM (32GB DDR4 - 2666MHz)	1EX1033

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1.7   Supported SKUs

The following table lists the versions of this HGST product that are supported by this document.

SKUs			
1ES0412	1ES0415	1ES1004	1ES1005
1ES1006	1ES1007	1ES1008	1ES1009
1ES1010	1ES1011	1ES1012	1ES1013
1ES1014	1ES1015	1ES1016	1ES1017
1ES1018	1ES1019	1ES1020	1ES1021
1ES1022	1ES1023	1ES1024	1ES1025
1ES1026	1ES1027	1ES1028	1ES1093
1ES1403			

1.8   List of Compatible Drives

Table 7: Compatible Drives

Drive	Volume	Part Number
SanDisk® Skyhawk™ Ultra 1.7DW/D ISE	1.6 TB	1EX1018
SanDisk® Skyhawk™ Ultra 1.7DW/D SE	1.6 TB	1EX1022
SanDisk® Skyhawk™ 0.6DW/D ISE	1.92 TB	1EX1016
SanDisk® Skyhawk™ 0.6DW/D SE	1.92 TB	1EX1020
SanDisk® Skyhawk™ Ultra 1.2DW/D ISE	3.2 TB	1EX1019
SanDisk® Skyhawk™ Ultra 1.2DW/D SE	3.2 TB	1EX1023
SanDisk® Skyhawk™ 0.5DW/D ISE	3.84 TB	1EX1017
SanDisk® Skyhawk™ 0.5DW/D SE	3.84 TB	1EX1021
HGST Ultrastar® SN200 3DW/D SE	6.4 TB	1EX1025
HGST Ultrastar® SN200 1DW/D SE	7.68 TB	1EX1024
SanDisk® X400 SSD M.2 2280 Boot Drive (256GB)	256 GB	1EX1026

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2   Safety

The following chapter provides safety and regulatory information for the Ultrastar Serv24.

2.1   Electrostatic Discharge

⚠ **CAUTION**

Electrostatic discharge can harm delicate components inside HGST products.

Electrostatic discharge (ESD) is a discharge of stored static electricity that can damage equipment and impair electrical circuitry. It occurs when electronic components are improperly handled and can result in complete or intermittent failures.

Wear an ESD wrist strap for installation, service and maintenance to prevent damage to components in the product. Ensure the antistatic wrist strap is attached to a chassis ground (any unpainted metal surface). If possible, keep one hand on the frame when you install or remove an ESD-sensitive part.

Before moving ESD-sensitive parts place them in ESD static-protective bags until you are ready to install the part.

2.2   Optimizing Location

Failure to recognize the importance of optimally locating your product and failure to protect against electrostatic discharge (ESD) when handling your product can result in lowered system performance or system failure.

Do not position the unit in an environment that has extreme high temperatures or extreme low temperatures. Be aware of the proximity of the unit to heaters, radiators, and air conditioners.

Position the unit so that there is adequate space around it for proper cooling and ventilation. Consult the product documentation for spacing information.

Keep the unit away from direct strong magnetic fields, excessive dust, and electronic/electrical equipment that generate electrical noise.

2.3   Power Connections

Be aware of the ampere limit on any power supply or extension cables being used. The total ampere rating being pulled on a circuit by all devices combined should not exceed 80% of the maximum limit for the circuit.

CAUTION   The power outlet must be easily accessible close to the unit.

⚠   Always use properly grounded, unmodified electrical outlets and cables. Ensure all outlets and cables are rated to supply the proper voltage and current.

⚡   This unit has more than one power supply connection; both power cords must be removed from the power supplies to completely remove power from the unit. There is no switch or other disconnect device.

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2.4   Power Cords

⚠ Use only tested and approved power cords to connect to properly grounded power outlets or insulated sockets of the rack's internal power supply.

If an AC power cord was not provided with your product, purchase one that is approved for use in your country or region.

CAUTION   To avoid electrical shock or fire, check the power cord(s) that will be used with the product as follows:

- The power cord must have an electrical rating that is greater than that of the electrical current rating marked on the product.
- Do not attempt to modify or use the AC power cord(s) if they are not the exact type required to fit into the grounded electrical outlets.
- The power supply cord(s) must be plugged into socket-outlet(s) that is /are provided with a suitable earth ground.
- The power supply cord(s) is / are the main disconnect device to AC power. The socket outlet(s) must be near the equipment and readily accessible for disconnection.

2.5   Rackmountable Systems

CAUTION

Always install rack rails and storage enclosure according to Ultrastar Serv24 product documentation. Follow all cautions, warnings, labels, and instructions provided within the rackmount instructions.

Reliable grounding of rack-mounted equipment should be maintained.

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.

Observe the maximum rated ambient temperature, which is specified in the product documentation.

For safe operation of the equipment, installation of the equipment in a rack should be such that the amount of air flow is not impeded so that the safe operation of the equipment is not compromised.

2.6   Safety and Service

⚠ All maintenance and service actions appropriate to the end-users are described in the product documentation. All other servicing should be referred to a HGST-authorized service technician.

⚠⚡ To avoid shock hazard, turn off power to the unit by unplugging both power cords before servicing the unit. Use extreme caution around the chassis because potentially harmful voltages are present.

⚡ When replacing a hot-plug power supply, unplug the power cord to the power supply being replaced before removing it from the Ultrastar Serv24.

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⚡ The power supply in this product contains no user-serviceable parts. Do not open the power supply. Hazardous voltage, current and energy levels are present inside the power supply. Return to manufacturer for servicing.

⚠ ⚡ ⊘ Use caution when accessing part of the product that are labeled as potential shock hazards, hazardous access to moving parts such as fan blades or caution labels.

2.7   Safety Warnings and Cautions

To avoid personal injury or property damage, before you begin installing the product, read, observe, and adhere to all of the following safety instructions and information. The following safety symbols may be used throughout the documentation and may be marked on the product and/or the product packaging.

CAUTION   Indicates the presence of a hazard that may cause minor personal injury or property damage if the CAUTION is ignored.

WARNING   Indicates the presence of a hazard that may result in serious personal injury if the WARNING is ignored.

⚠ Indicates potential hazard if indicated information is ignored.

⚡ Indicates shock hazards that result in serious injury or death if safety instructions are not followed.

⊘ Indicates do not touch fan blades, may result in injury.

↯↯ Indicates disconnect all power sources before servicing.

3   Packaging

3.1   Ultrastar Serv24 Packaging Overview

The main box of the Ultrastar Serv24 packaging consists of two layers of packaging totaling 39.5 kg / 87.2 lbs: The first layer contains the Rail Kit, CMA box, and foam protection. The chassis is on the second layer of the box. The rail kit and CMA are each packed in their own box. The chassis is packed in foam and ESD safe bag and contains the drives and PSUs pre-installed. The power cables are tucked into the foam that protects the chassis.

Table 8: Box Contents

Container	Contents
CMA Box	1 CMA arm and 1 cable tie
Rails Box	2 Rails • four screws • four washers
Chassis (in ESD safe bag and foam cushions)	Chassis with PSUs and Drives pre-installed.
Power Cables (in foam cushion)	2 Power Cables

3.2   Ultrastar Serv24 Unpacking Procedure

1. Cut the plastic wrap that surrounds the outer box with a box cutter.
2. Cut the secure straps that hold the box together.
3. Cut the tape that is holding the box shut with a box cutter.
4. Open the outer box and remove the CMA box and Rail Kit Box. Set them aside.
5. Remove the protective foam from the top of the chassis and remove the chassis from the ESD safe bag.
6. Open the CMA box and remove the CMA arm. Set it aside.
7. Open the Rail Kit box and remove the rails. Set them aside.
8. Remove the chassis from the outer box.

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4   Installation

4.1   Ultrastar Serv24 Installation Overview

***Table 9: Require Equipment***

Equipment	Number Needed	Notes
#2 Phillips Screwdriver	1	The #2 Phillips Screwdriver is used to install the provided screws into the rack mounted rails.

Once the entire contents of the system are unpacked and accounted for, the installation process for the Ultrastar Serv24 can begin. Start by installing the rails into the rack, followed by the in installation of the chassis that contains the PSUs and drives pre-installed. Finally, the CMA, power cables, and other cabling should be connected to the rear of the enclosure.

4.2   Ultrastar Serv24 Installation Procedure

1. Remove the inner rail.

    a) Extend the inner portion of the rails until they lock in place.

Figure 6: Inner Rail Removal
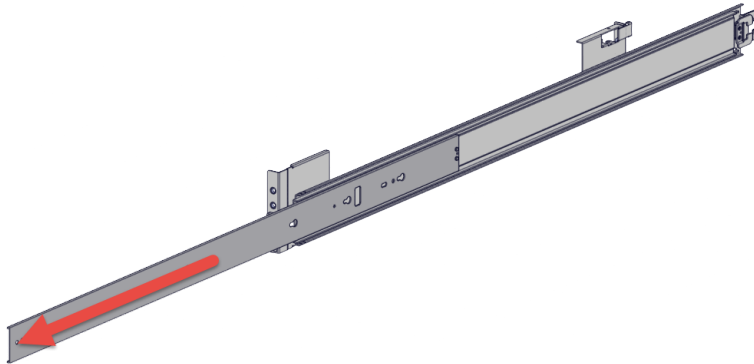
b) Locate the white tab on the outside of the inner rail.

Figure 7: White Tab

c) Slide the white tab and pull the inner rail free of the outer rail.
d) Repeat the previous steps to remove the remaining inner rail.

2.   Install the inner rail onto the chassis.

a) Orient the inner rail so that the flat side is facing the enclosure.
b) Align the keyholes on the inner rail to the mounting pegs on the side of the enclosure. If the keyholes don't line up with the pegs, flip the rail long ways to try and align them.

Figure 8: Inner Rail Installation
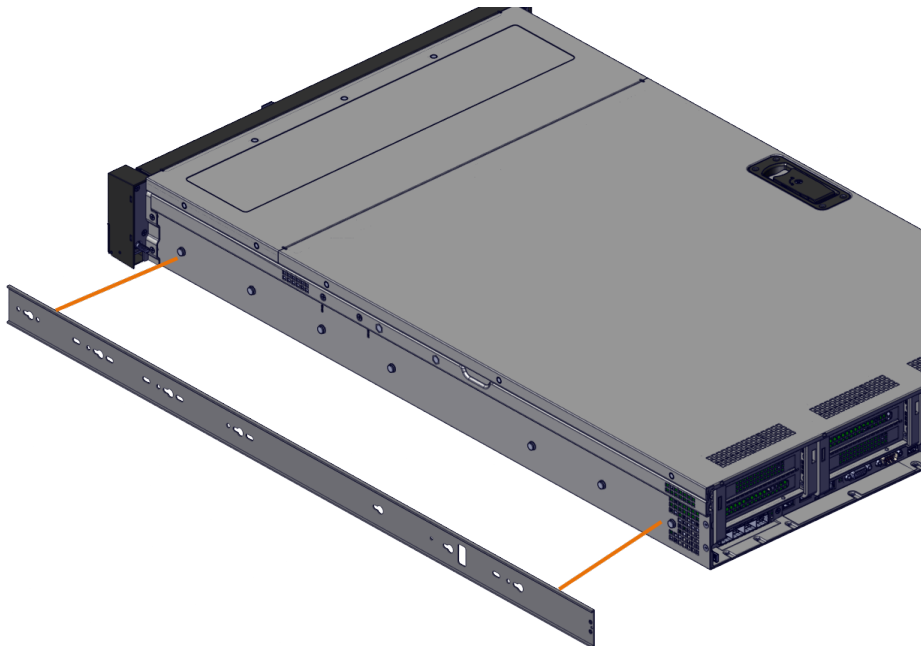
c) Mount the rail on the side of the enclosure and slide toward the rear to lock it in place.

Figure 9: Inner Rail Lock
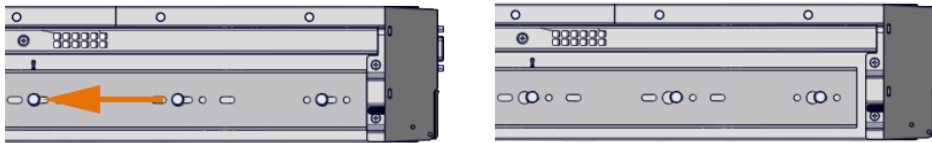
d) Follow these steps for the second inner rail on the opposite side of the enclosure.

3. Install the outer rails into the rack.

Note:

- Each rail is labeled either right or left. Ensure that the rails are installed in their assigned configuration.
- Install the rails into whole rack unit (U) sections as seen in the following image. The rails will not mount properly if staggered across two different U's.

Figure 10: Rack Units
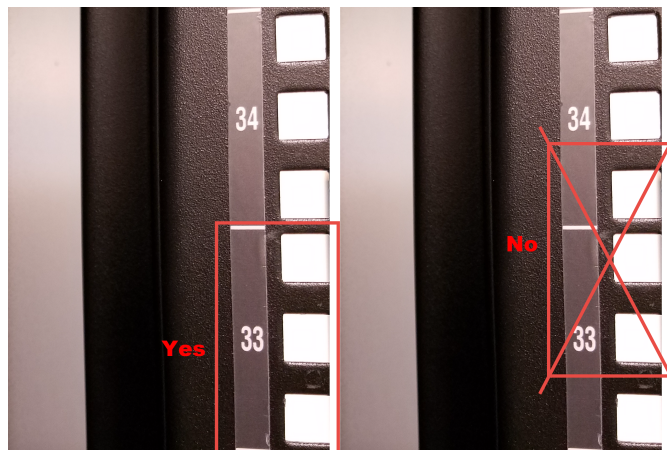
a) Move to the rear of the rack.
b) Orient the rail so that the word "REAR" that is embossed into the metal of the rail is at the rear end of the rack, and the release button is facing the side of the rail.

c) Align the posts at the U-height desired for installation. The bottom of the rail will align with the lowest hole in the U.

d) Pull the rail toward the rack step with the support posts aimed at the holes on the rack stems until the tool-less latching mechanism engages the rack.
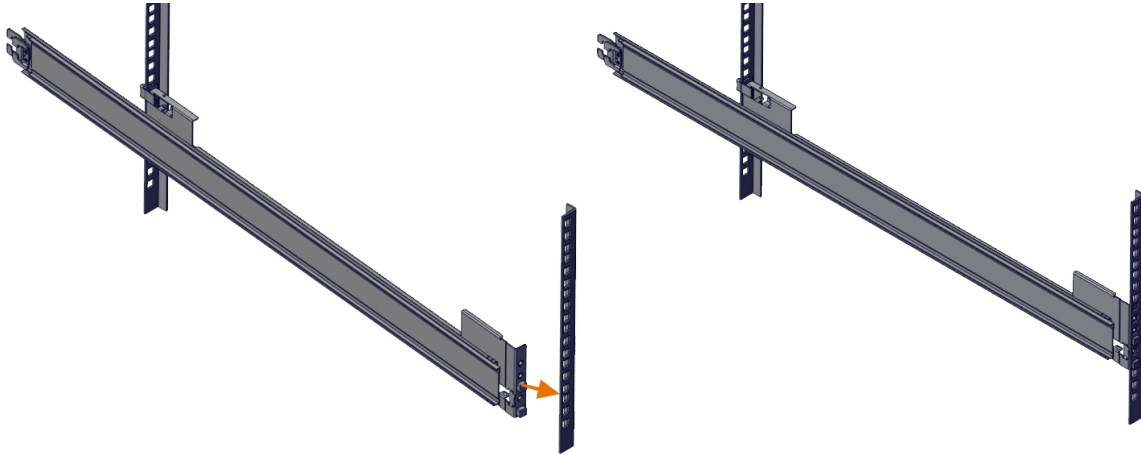
Figure 11: Front Rail Mechanism Operation
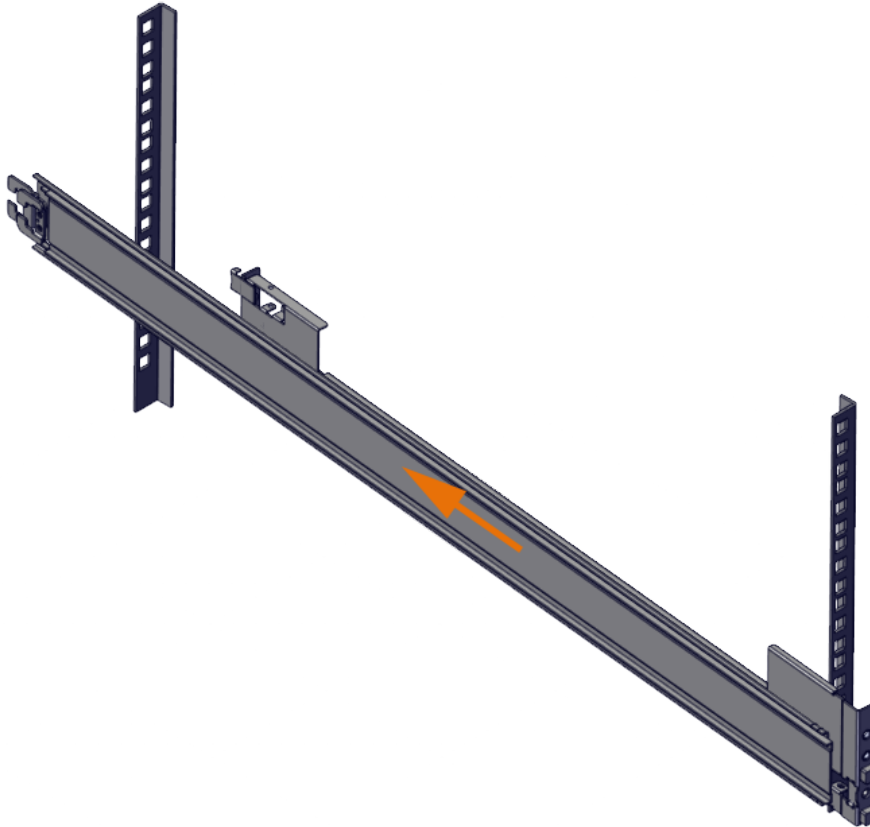
e) Move to the front of the rack.

f) Align the front of the rail with the holes on the rack stems that will receive the support posts and pull the rail toward the holes until the tool-less latching mechanism engages the rack.

Figure 12: Front Rail Mechanism Operation

g) Latch the front rail mount to the rack by sliding the latch over the rack holes.

4.   (Optional) Install the VROC Key.

> **Attention:** The VROC key can only be installed into an enclosure that contains SanDisk® Skyhawk™ or SanDisk® Skyhawk™ Ultra drives.

> **Attention:** Skip this step if your configuration does not require the installation of a VROC Key.

a) If the enclosure lock is secured, use a Philips Screwdriver to unlock the latch.
b) Unlatch the enclosure cover by pressing the latch button and lifting the latch.
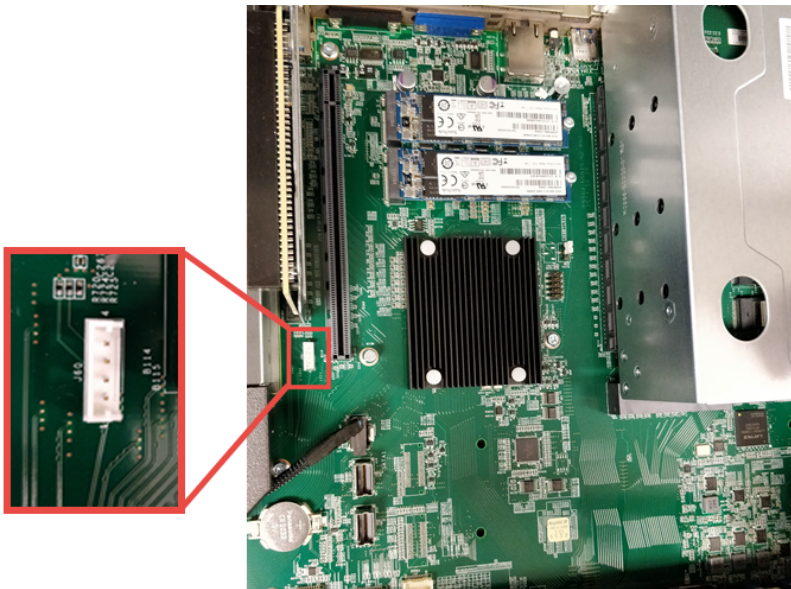
Figure 13: Enclosure Cover Latch
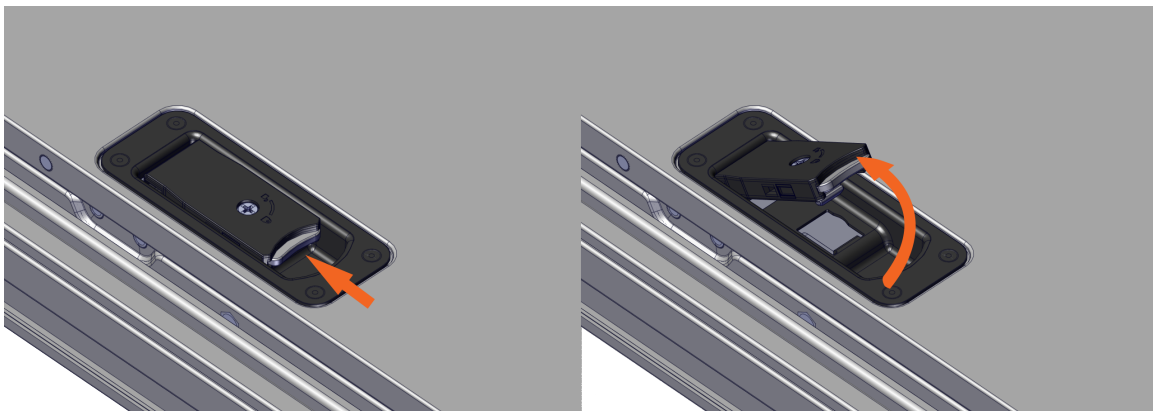
c) Remove the enclosure cover from the enclosure.

Figure 14: Removing the Enclosure Cover
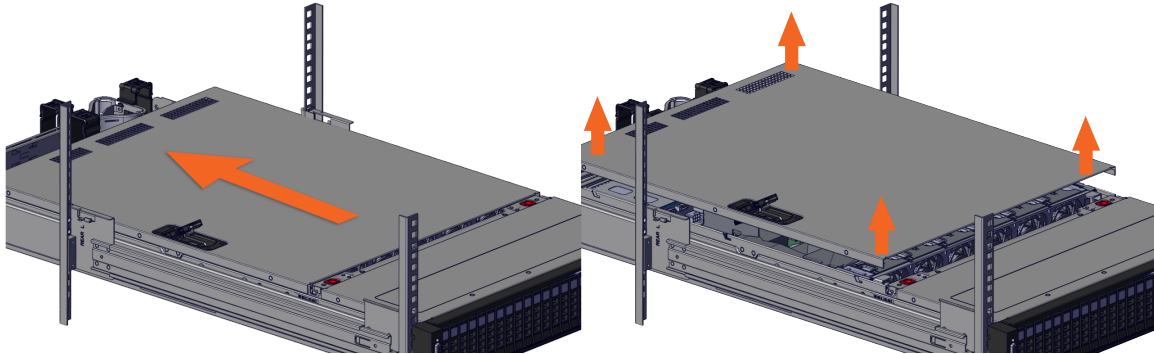
d) Locate the VROC connector on the motherboard as seen in the following image. The connector is located next to the PCIe bracket that covers the M.2s.
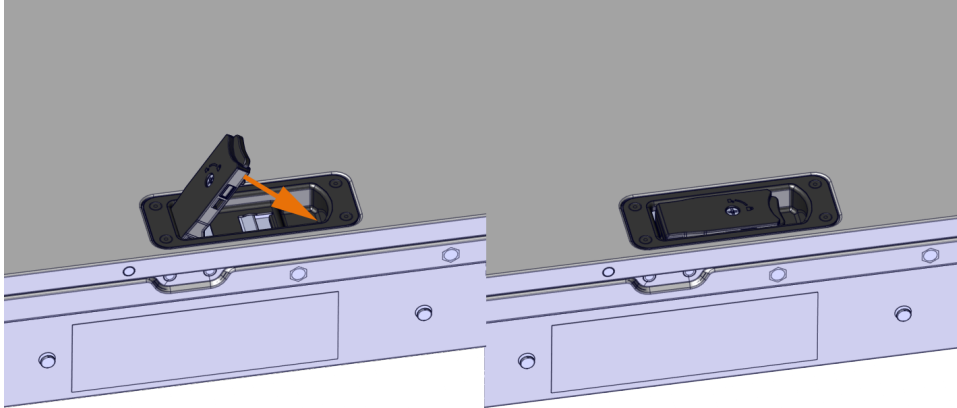
Figure 15: VROC Connector Location

e) Pressing firmly, plug the VROC key into the VROC connector on the motherboard.
f)   Seat the cover into place over the enclosure by placing the cover on the chassis and sliding it towards the front of the enclosure.
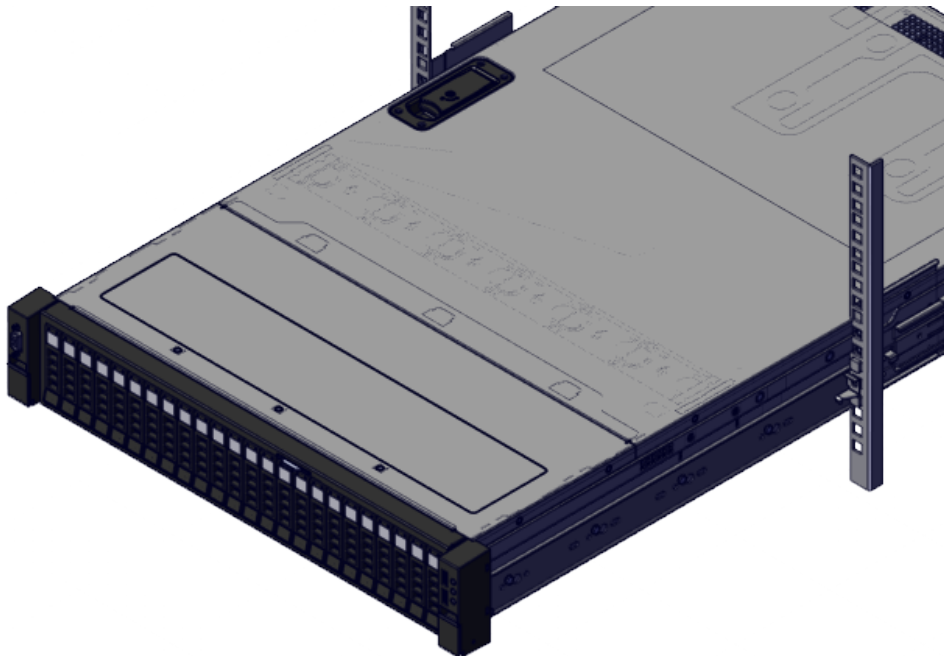
g) Once the cover is seated, press the cover latch down until it locks.

Figure 16: Locking the Enclosure Cover

5. Slide the enclosure into the rack.

a) Pull the rack mounted rails out towards the front of the rack until they are locked in place.

Figure 17: Rack Mounted Rails Locked

b) Line up the enclosure with the rack mounted rails and slide it in until the first set of locks engage.

c) On either side of the enclosure rails, pull the blue release tabs and push the enclosure into the rack. The enclosure latches will engage with the rail latch when properly seated.

Figure 18: Blue Tabs

Figure 19: Enclosure Installed
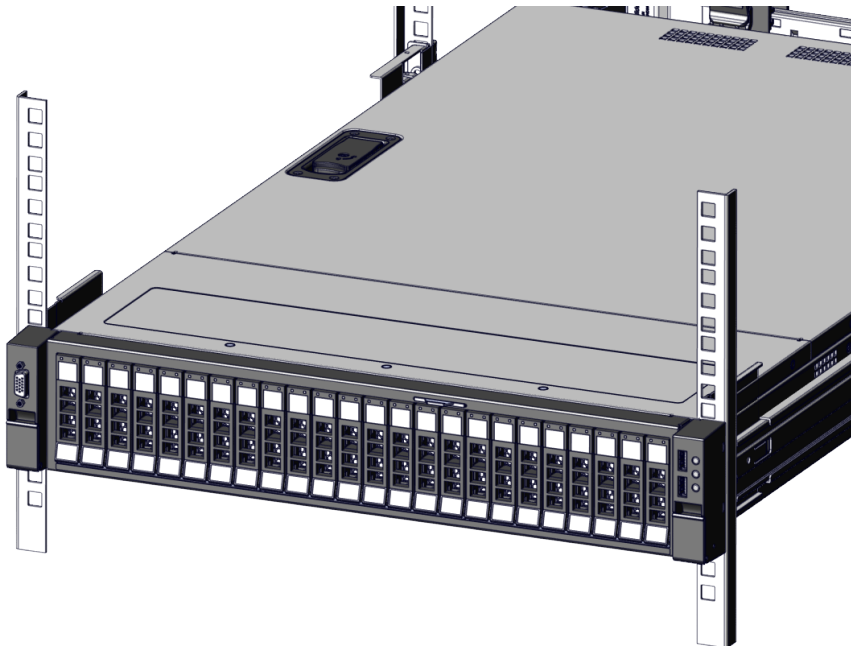
6. Install the CMA.
   a) The CMA has one arm that is connected to the rails and the enclosure chassis by four connectors. The first step in installing the arm for the CMA is to first determine what orientation the arm needs to be in. The arm should have the elbow on the left side.
   b) Orient the CMA so that the elbow is on the left-hand side.

c) Insert the connectors into the rail connections on either side as seen in the image below.

Figure 20: CMA Installation
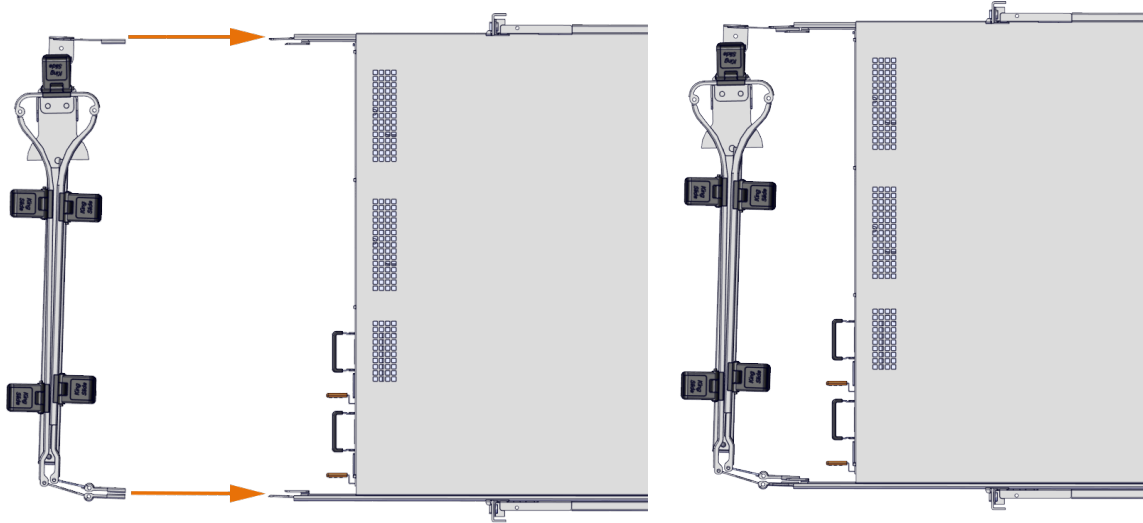
d) Slowly slide the enclosure forward to ensure the CMA arm is operating properly and return it back to its proper location.

7. Cable the CMA.

a) Unlatch the elbow side of the CMA arm and swing it forward by pressing the blue button that says "push" to unlatch it and swing it out.

b) Gather the cables, two power cables and one Ethernet cable to install in this right hand side.

c) Open all of the baskets.

Figure 21: Open Baskets
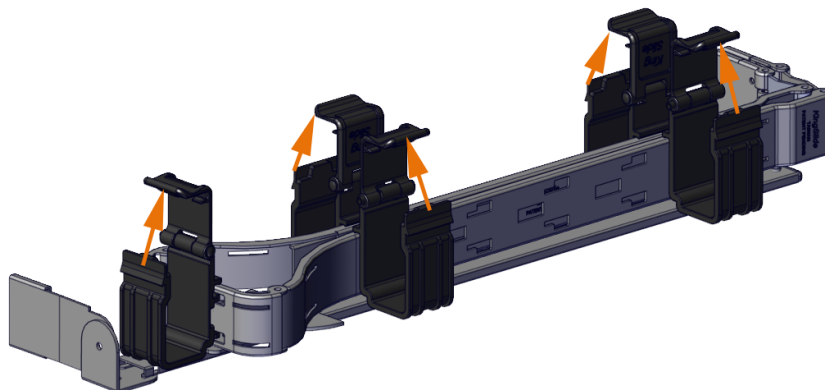
d) Connect the power cords and cables to the enclosure.

Figure 22: Standard Power Cord and Cable Connections
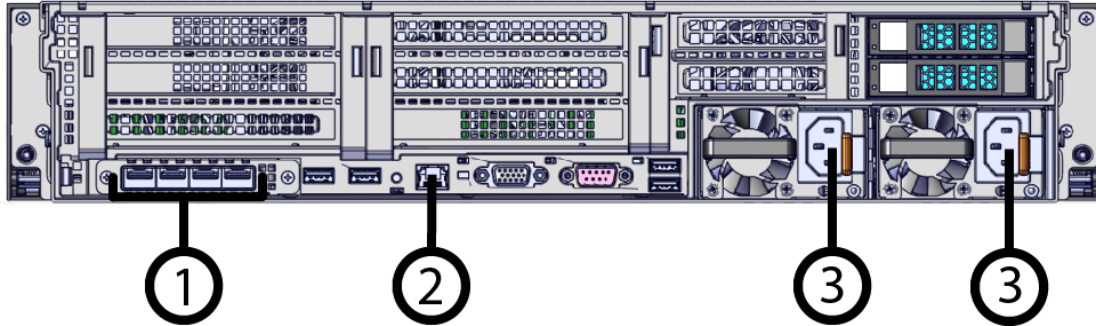
e) Close all of the baskets.

f) Reconnect the CMA at the elbow to connector A.

8. Test for binding in the extension of the CMA by gently pulling the enclosure out of the rack to ensure the cables extend properly and that the system doesn't bind at all. If it does, examine the point at which the binding occurred and adjust the seating of cables in the baskets, check the connections to the rails, and examine the joints of the CMA arm to ensure that they are all functioning properly.

9. Make sure the CMA is in operational position by folding the arm in toward the enclosure and attaching the elbow end of the CMA to the connector that is attached to the rail.

10. Secure the rack ear shipping screws.

a) Locate the rack ear covers.

Figure 23: Rack Ear Shipping Screw Covers
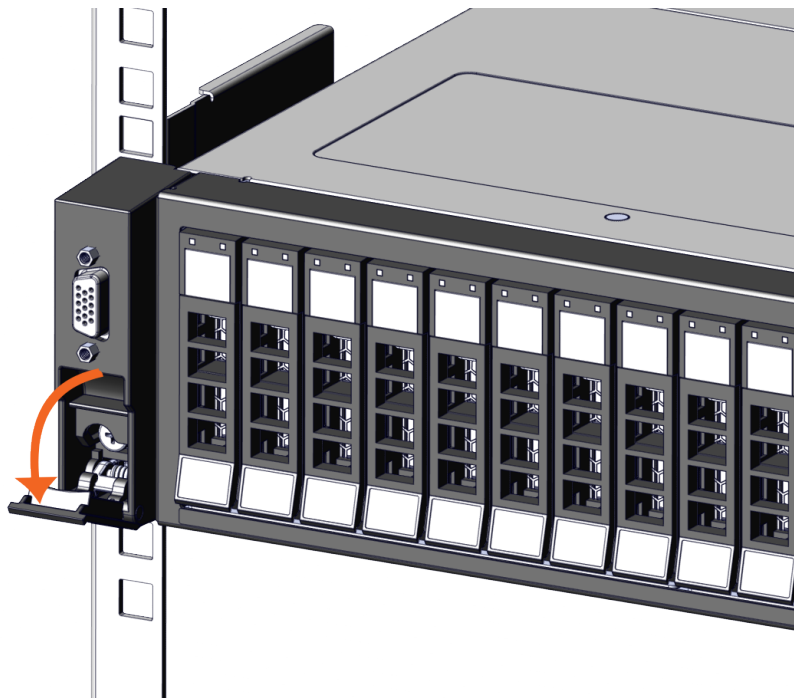
b) Secure the enclosure to the rack using the preinstalled screws on each side.

5   Initial Bringup

5.1   Bringing Up the Enclosure

Before you begin:

• Ensure that you have a bootable USB drive that contains one of the following approved Operating Systems:

Table 10: Manufacturer Supported Operating Systems

Operating System	Support
Microsoft® Windows Server 2012 R2 x64	Fully supported
Microsoft® Windows Server 2016 x64	Fully supported
VMWare® ESXi 6.5U1	Fully supported
RedHat® Red Hat Enterprise Linux (x86_64) 7.2	VMD not supported
RedHat® Red Hat Enterprise Linux (x86_64) 7.3	Disable VMD to install
RedHat® Red Hat Enterprise Linux (x86_64) 7.4	Fully supported
Novell® SUSE Linux Enterprise Server 12 SP1	VMD not supported
Novell® SUSE Linux Enterprise Server 12 SP2	VMD not supported
Novell® SUSE Linux Enterprise Server 12 SP3	Fully supported
Ubuntu® Ubuntu Server 16.04	Fully supported
Ubuntu® Ubuntu Server 16.10	Fully supported
Ubuntu® Ubuntu Desktop 16.10	Fully supported
Ubuntu® Ubuntu 17.04	Fully supported

1. The enclosure will power up after about 20 seconds after the AC power cord has been connected to the PSUs.

2. When the BIOS splash screen appears, press **Esc** to enter the BIOS.
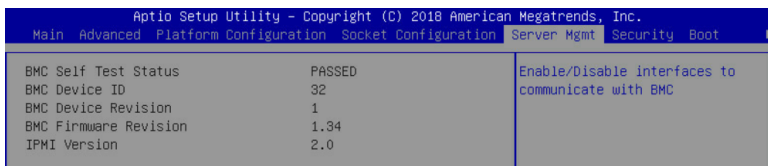

Note: The BIOS may take up to five minutes to appear.

Figure 24: BIOS

3. When the Setup Utility appears, press the right arrow to move over to the **Server Mgmt** tab.

Figure 25: Setup Utility

4. Press the down arrow until the BMC network configuration is selected and press **Enter**.

Figure 26: BMC network configuration
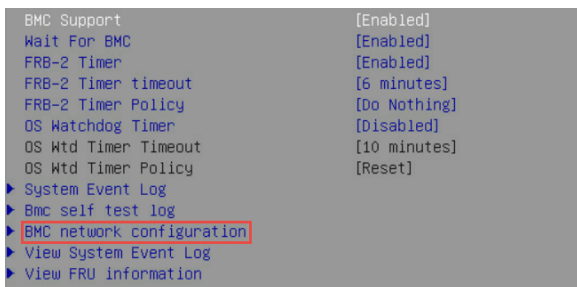
5. Record the Station IP address that appears in the **Dedicated Link** section.

Note:

- This IP address will be used to connect to the enclosure through the BMC WebUI.

- (optional) The Current Configuration Address may be altered from this section to change to a DHCP or Static network configuration.

Figure 27: Dedicated Link

```
Dedicated Link
Configuration Address source           [Unspecified]
Current Configuration Address          DynamicAddressBmcDhcp
source
Station IP address                     10.202.237.130
Subnet mask                            255.255.252.0
Station MAC address                    00-a0-ec-7a-7b-6c
Router IP address                      10.202.236.1
Router MAC address                     60-9c-9f-c1-a5-10
```
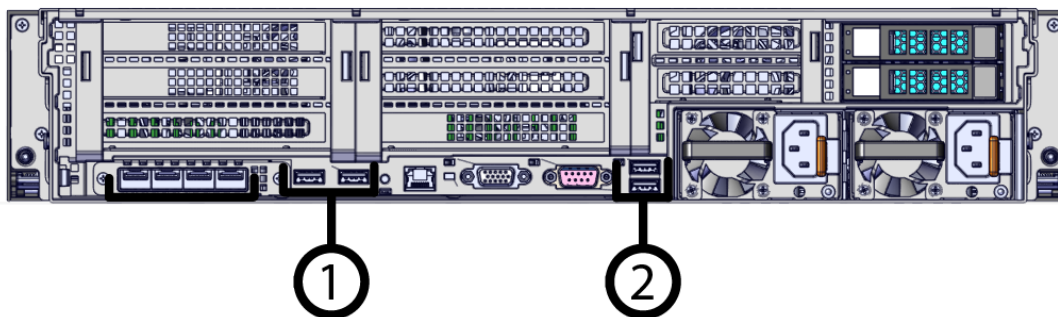
6.   To save the changes, press **F4** and select **Yes**.

> **Note:** The enclosure will reboot to apply the new selections.

7.   While the enclosure is rebooting, move to the rear of the enclosure and connect USB drive containing the Operating System into the any of the four open USB ports.

> **Note:** Callouts 1 and 2 each contain a set of two USB 3.0 ports.

Figure 28: Rear I/O—USB Ports

8.   Once the enclosure loads the BIOS, it will provide prompts on how to load the specific OS. Complete the installation of the OS according to these prompts.

9.   After a few minutes, the console or laptop will display a prompt to load the preferred operating system. Complete the necessary steps to install the OS.

10. From a laptop, open a web browser and navigate to the IP Address that was collected from the initial BIOS session.

11. Log-in as the Administrator.

   a) Open a browser window navigate to the enclosure BMC IP address.
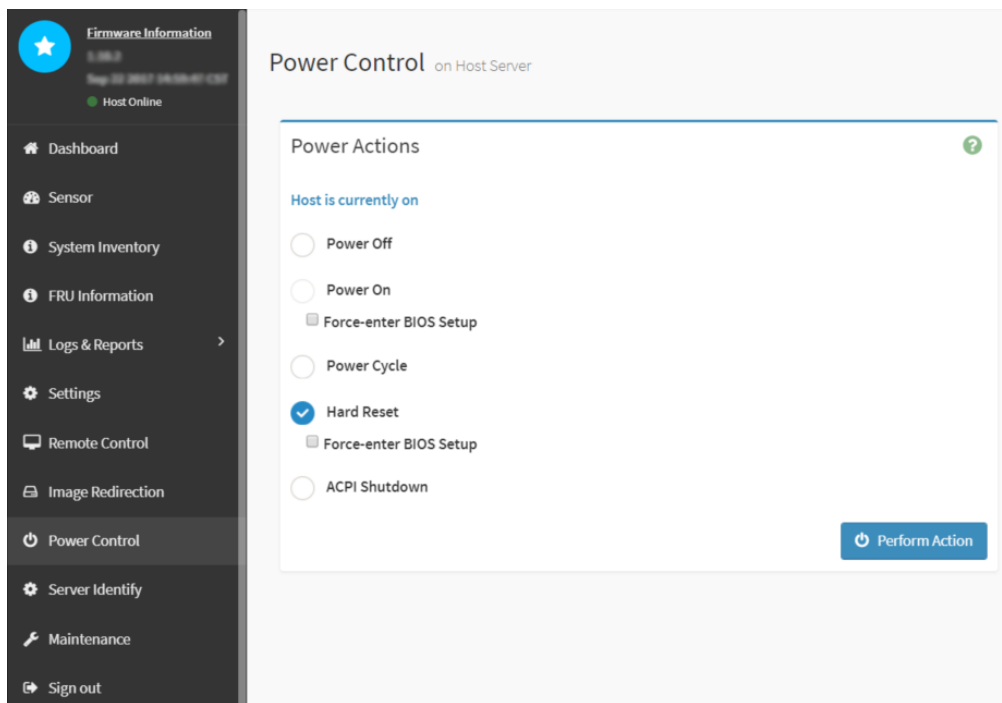
b) Log-in to Web UI using the default username admin and default password admin.

Figure 29: Admin Log-in
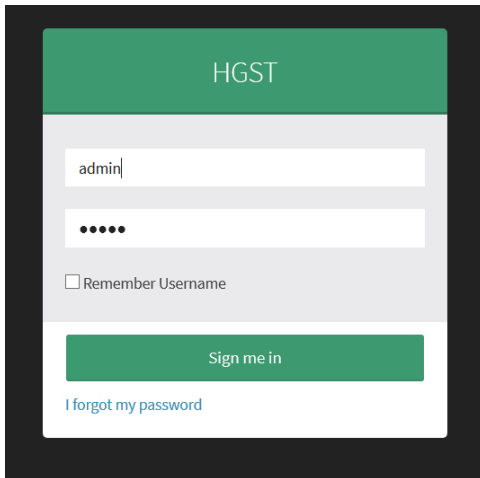
12. Navigate to **Power Control** using the Navigation menu.

Figure 30: Power Control

13. Verify that Web UI displays a connection to the enclosure.

A   System Operations Appendices

A.1   ESD

The enclosure is designed to dissipate all electrostatic discharge (ESD) to the chassis base. Ensure that there is sufficient electrical and mechanical connection from the chassis base to the rack rails, and that the rack itself is tied to earth ground. Precautions must be taken to ensure that the system is not exposed to ESD while handling components or servicing the unit.

The unit must be grounded in accordance with all local/regional and national electrical codes.

A.2   System Cooling

The Ultrastar Serv24 has a thermal solution that is designed to maintain normal system operation during the servicing of the enclosure. During a PSU replacement, the enclosure can function normally without affecting airflow and cooling. During a fan replacement, it is important to limit the time the enclosure cover is removed to 10 minutes. The removal of the enclosure cover compromises the proper airflow and cooling of the functioning enclosure.

The Ultrastar Serv24 has a safety feature called the over temperature protection (OTP) mechanism that uses sensors to monitor extreme temperature overages to ensure the system does not overheat. In the case of unsafe temperature increases, the OTP mechanism will be activated to protect the enclosure and all of its components. In the case of a warning sensor threshold violation, the OTP mechanism will report the warning information to the user through system management protocols. If the critical sensor threshold is exceeded, the CPUs and memory will be throttled to prevent temperature increases. If the shutdown threshold is exceeded, the baseboard management controller (BMC) will shut down the enclosure to prevent permanent system and component damage.

The enclosure contains six fan modules located near the front of the enclosure behind the drives. The fans provide proper cooling and airflow throughout the enclosure by pulling cool air in through the front bezel and distributed to the other components via the air ducts. Proper airflow ensures the that components remain at a safe operating temperature through normal operating conditions. The fans are designed to be redundant in case of a failure to ensure that the system will remain at the proper temperature until the failed fan can be serviced.

A.3   Power Requirements

The following table describes the A/C input power specification for the Ultrastar Serv24.

Table 11: AC Power Specifications

Power	
Alternating Current (AC) Power Supply (2 per enclosure)	
Wattage (per power supply)	1200W 80 Plus™ Platinum
Voltage (per power supply)	• Low line: 100-127VAC (low line) (1000W max), auto-ranging, 47/63 Hz • High line: 200-240VAC (high line) (1200W max), auto-ranging, 47/63 Hz

Power	
Maximum inrush current (per power supply)	AC line inrush current shall not exceed 30A peak, for up to one-quarter of the AC cycle, after which, the input current should be no more than the specified maximum input current.

A.4 Host Connectivity

The following table displays the list of power cables approved by HGST:

Table 12: Approved Power Cables

Type	Part Number	Dimension (overmold)
HGST	1EW0027	C13 to C14
BIZlink Technology Inc.	BC314-BC313-2.5M-UL	C13 to C14
Well Shin Technology CO LTD	0096-0011	C13 to C14