

# Hitachi Advanced Server DS120 Hardware Guide

---

This guide provides the system overview and specifications for Hitachi Advanced Server DS120, including hardware component descriptions, ports, network interface cards, and LEDs.

© 2019 Hitachi Vantara Corporation. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or stored in a database or retrieval system for commercial purposes without the express written permission of Hitachi, Ltd., or Hitachi Vantara Corporation (collectively, "Hitachi"). Licensee may make copies of the Materials provided that any such copy is: (i) created as an essential step in utilization of the Software as licensed and is used in no other manner; or (ii) used for archival purposes. Licensee may not make any other copies of the Materials. "Materials" means text, data, photographs, graphics, audio, video and documents.

Hitachi reserves the right to make changes to this Material at any time without notice and assumes no responsibility for its use. The Materials contain the most current information available at the time of publication.

Some of the features described in the Materials might not be currently available. Refer to the most recent product announcement for information about feature and product availability, or contact Hitachi Vantara Corporation at [https://support.HitachiVantara.com/en\\_us/contact-us.html](https://support.HitachiVantara.com/en_us/contact-us.html).

**Notice:** Hitachi products and services can be ordered only under the terms and conditions of the applicable Hitachi agreements. The use of Hitachi products is governed by the terms of your agreements with Hitachi Vantara Corporation.

By using this software, you agree that you are responsible for:

- 1) Acquiring the relevant consents as may be required under local privacy laws or otherwise from authorized employees and other individuals to access relevant data; and
- 2) Verifying that data continues to be held, retrieved, deleted, or otherwise processed in accordance with relevant laws.

**Notice on Export Controls.** The technical data and technology inherent in this Document may be subject to U.S. export control laws, including the U.S. Export Administration Act and its associated regulations, and may be subject to export or import regulations in other countries. Reader agrees to comply strictly with all such regulations and acknowledges that Reader has the responsibility to obtain licenses to export, re-export, or import the Document and any Compliant Products.

**EXPORT CONTROLS** - Licensee will comply fully with all applicable export laws and regulations of the United States and other countries and Licensee shall not export, or allow the export or re-export of, the Software, API, or Materials in violation of any such laws or regulations. By downloading or using the Software, API, or Materials, Licensee agrees to the foregoing and represents and warrants that Licensee is not located in, under the control of, or a national or resident of any embargoed or restricted country.

Hitachi is a registered trademark of Hitachi, Ltd., in the United States and other countries.

AIX, AS/400e, DB2, Domino, DS6000, DS8000, Enterprise Storage Server, eServer, FICON, FlashCopy, IBM, Lotus, MVS, OS/390, PowerPC, RS6000, S/390, System z9, System z10, Tivoli, z/OS, z9, z10, z13, z/VM, and z/VSE are registered trademarks or trademarks of International Business Machines Corporation.

Active Directory, ActiveX, Bing, Excel, Hyper-V, Internet Explorer, the Internet Explorer logo, Microsoft, the Microsoft Corporate Logo, MS-DOS, Outlook, PowerPoint, SharePoint, Silverlight, SmartScreen, SQL Server, Visual Basic, Visual C++, Visual Studio, Windows, the Windows logo, Windows Azure, Windows PowerShell, Windows Server, the Windows start button, and Windows Vista are registered trademarks or trademarks of Microsoft Corporation. Microsoft product screen shots are reprinted with permission from Microsoft Corporation.

All other trademarks, service marks, and company names in this document or web site are properties of their respective owners.

# TABLE OF CONTENTS

## About the System

Introduction .....	1
System Features.....	1
SKU information .....	3
Package Contents .....	4
A Tour of the System .....	5
System Overview .....	5
System Front View.....	6
Front Control Panel (FCP).....	7
System Rear View .....	7
System Rear I/O .....	8
Power Sub-System .....	9
HDD / M.2 Adapter Configuration.....	10
Full 2.5" HDD Configuration .....	10
NVMe SSD M.2 Adapter Add-On Card (Optional) .....	11
LED Status Descriptions .....	12
Front Control Panel LEDs.....	12
BMC Management Port LEDs .....	12
Storage Drive LED.....	13

# Conventions

Several different typographic conventions are used throughout this manual. Refer to the following examples for common usage.

**Bold** type face denotes menu items, buttons and application names.

*Italic* type face denotes references to other sections, and the names of the folders, menus, programs, and files.

<Enter> type face denotes keyboard keys.



## **WARNING!**

Warning information appears before the text it references and should not be ignored as the content may prevent damage to the device.



## **CAUTION!**

CAUTIONS APPEAR BEFORE THE TEXT IT REFERENCES, SIMILAR TO NOTES AND WARNINGS. CAUTIONS, HOWEVER, APPEAR IN CAPITAL LETTERS AND CONTAIN VITAL HEALTH AND SAFETY INFORMATION.

## **Note:**

Highlights general or useful information and tips.

# Precautionary Measures

Read all caution and safety statements in this document before performing any of the instructions. To reduce the risk of bodily injury, electrical shock, fire, and equipment damage, read and observe all warnings and precautions in this chapter before installing or maintaining your system. To avoid personal injury or property damage, before you begin installing the product, read, observe, and adhere to all of the following instructions and information. The following symbols may be used throughout this guide and may be marked on the product and / or the product packaging.

## Safety Instructions about your system

In the event of a conflict between the information in this guide and information provided with the product or on the website for a particular product, the product documentation takes precedence.

Your system should be integrated and serviced only by technically qualified persons.

You must adhere to the guidelines in this guide and the assembly instructions in related chapters to ensure and maintain compliance with existing product certifications and approvals. Use only the described, regulated components specified in this guide. Use of other products / components will void the UL Listing and other regulatory approvals of the product, and may result in noncompliance with product regulations in the region(s) in which the product is sold.

Table 1: Warning and Cautions






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 hot components or surfaces.
	Indicates do not touch fan blades, may result in injury.
	Remove the system from the rack to disconnect power system.

Table 1: Warning and Cautions (Continued)

	The enclosure is designed to carry only the weight of the system sled. Do not use this equipment as a workspace. Do not place additional load onto any equipment in this system.
	Indicates two people are required to safely handle the system.

## Intended Application Uses

This product was evaluated as Information Technology Equipment (ITE), which may be installed in offices, schools, computer rooms, and similar commercial type locations. The suitability of this product for other product categories and environments (such as medical, industrial, residential, alarm systems, and test equipment), other than an ITE application, may require further evaluation.

## Site Selection

The system is designed to operate in a typical office environment. Choose a site that is:

- Clean, dry, and free of airborne particles (other than normal room dust).
- Well-ventilated and away from sources of heat including direct sunlight and radiators.
- Away from sources of vibration or physical shock.
- Isolated from strong electromagnetic fields produced by electrical devices.
- In regions that are susceptible to electrical storms, we recommend you plug your system into a surge suppressor and disconnect telecommunication lines to your modem during an electrical storm.
- Provided with a properly grounded wall outlet.
- Provided with sufficient space to access the power system, because they serve as the product's main power disconnect.
- Provided with either two independent DC power system or two independent phases from a single power system.

## Equipment Handling Practices

Reduce the risk of personal injury or equipment damage:

- Conform to local occupational health and safety requirements when moving and lifting equipment.
- Use mechanical assistance or other suitable assistance when moving and lifting equipment.

- To reduce the weight for easier handling, remove any easily detachable components.
- Never lift or move your system solely by the handle on the component.

## Power and Electrical Warnings



### CAUTION!

MAKE SURE THE SYSTEM IS REMOVED FROM THE RACK BEFORE SERVICING ANY NON-HOT PLUG COMPONENTS. THE BUS BAR CLIPS MUST BE DISCONNECTED FROM THE POWER SYSTEM IN ORDER TO FULLY SEPARATE THE SYSTEM FROM THE POWER SOURCE.



### CAUTION!

TO AVOID RISK OF ELECTRIC SHOCK, DISCONNECT ALL CABLING FROM THE SYSTEM AND REMOVE THE SYSTEM FROM THE RACK.

## System Access Warnings



### CAUTION!

TO AVOID PERSONAL INJURY OR PROPERTY DAMAGE, THE FOLLOWING SAFETY INSTRUCTIONS APPLY WHENEVER ACCESSING THE INSIDE OF THE PRODUCT:

- Disconnect from the power source by removing the system from the rack.
- Disconnect all cabling running into the system.
- Retain all screws or other fasteners when servicing. Upon completion servicing, secure with original screws or fasteners.



### CAUTION!

IF THE SERVER HAS BEEN RUNNING, ANY INSTALLED HDD MODULES MAY BE HOT.



### CAUTION!

UNLESS YOU ARE ADDING OR REMOVING A HOT-PLUG COMPONENT, ALLOW THE SYSTEM TO COOL BEFORE SERVICING.



### CAUTION!

TO AVOID INJURY DO NOT CONTACT MOVING FAN BLADES. IF YOUR SYSTEM IS SUPPLIED WITH A GUARD OVER THE FAN, DO NOT OPERATE THE SYSTEM WITHOUT THE FAN GUARD IN PLACE.

## Rack Mount Warnings

The following installation guidelines are required by UL for maintaining safety compliance when installing your system into a rack.

The equipment rack must be anchored to an unmovable support to prevent it from tipping when your system or piece of equipment is extended from it. The equipment rack must be installed according to the rack manufacturer's instructions.

Install equipment in the rack from the bottom up, with the heaviest equipment at the bottom of the rack.

Extend only one piece of equipment from the rack at a time.

You are responsible for installing a main power disconnect for the entire rack unit. This main disconnect must be readily accessible, and it must be labeled as controlling power to the entire unit, not just to the system(s).

To avoid risk of potential electric shock, a proper safety ground must be implemented for the rack and each piece of equipment installed in it.

**Elevated Operating Ambient** - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (T<sub>ma</sub>) specified by the manufacturer.

**Reduced Air Flow** - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

**Mechanical Loading** - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

**Circuit Overloading** - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over-current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

**Reliable Earthing** - Reliable earthing of rack-mounted equipment should be maintained.

Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

## Electrostatic Discharge (ESD)



### CAUTION!

ESD CAN DAMAGE DRIVES, BOARDS, AND OTHER PARTS. WE RECOMMEND THAT YOU PERFORM ALL PROCEDURES AT AN ESD WORKSTATION. IF ONE IS NOT AVAILABLE, PROVIDE SOME ESD PROTECTION BY WEARING AN ANTI-STATIC WRIST STRAP ATTACHED TO CHASSIS GROUND -- ANY UNPAINTED METAL SURFACE -- ON YOUR SERVER WHEN HANDLING PARTS.

Always handle boards carefully. They can be extremely sensitive to ESD. Hold boards only by their edges without any component and pin touching. After removing a board from its protective wrapper or from the system, place the board component side up on a grounded, static free surface. Use a conductive foam pad if available but not the board wrapper. Do not slide board over any surface.



## Cooling and Airflow



### CAUTION!

CAREFULLY ROUTE CABLES AS DIRECTED TO MINIMIZE AIRFLOW BLOCKAGE AND COOLING PROBLEMS. FOR PROPER COOLING AND AIRFLOW, OPERATE THE SYSTEM ONLY WITH THE CHASSIS COVERS\* / AIR DUCT INSTALLED. OPERATING THE SYSTEM WITHOUT THE COVERS / AIR DUCT IN PLACE CAN DAMAGE SYSTEM PARTS. TO INSTALL THE COVERS\* / AIR DUCT:

- Check first to make sure you have not left loose tools or parts inside the system.
- Check that cables, add-in cards, and other components are properly installed.

Attach the covers\* / air duct to the chassis according to the product instructions.

\* May not apply to all systems.

Please be aware that slots and openings on the front and rear side of the chassis are designed for ventilation; to make sure reliable operation of your system and to protect it from overheating, these openings must not be covered or blocked. The openings should never be covered or blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.

## Laser Peripherals or Devices



### CAUTION!

TO AVOID RISK OF RADIATION EXPOSURE AND / OR PERSONAL INJURY:

- Do not open the enclosure of any laser peripheral or device.
- Laser peripherals or devices are not serviceable.
- Return to manufacturer for servicing.

Use certified and rated Laser Class I for Optical Transceiver product.

**Heed safety instructions:** Before working with the system, whether using this manual or any other resource as a reference, pay close attention to the safety instructions. Adhere to the assembly instructions in this manual to ensure and maintain compliance with existing product certifications and approvals. Use only the described, regulated components specified in this manual. Use of other products / components will void the UL listing and other regulatory approvals of the product and will most likely result in non-compliance with product regulations in the region(s) in which the product is sold.

**System power on/off:** To remove power from system, you must remove the system from rack. Make sure the system is removed from the rack before opening the chassis, adding, or removing any non hot-plug components.

**Hazardous conditions, devices and cables:** Hazardous electrical conditions may be present on power, telephone, and communication cables. Turn off the system and disconnect the cables attached to the system before opening it. Otherwise, personal injury or equipment damage can result.

**Electrostatic discharge (ESD) and ESD protection:** ESD can damage drives, boards, and other parts. We recommend that you perform all procedures in this chapter only at an ESD workstation. If one is not available, provide some ESD protection by wearing an antistatic wrist strap attached to chassis ground any unpainted metal surface on the server when handling parts.

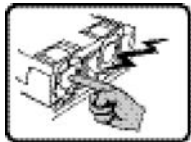
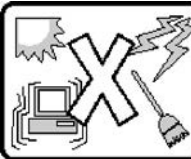
**ESD and handling boards:** Always handle boards carefully. They can be extremely sensitive to electrostatic discharge (ESD). Hold boards only by their edges. After removing a board from its protective wrapper or from the server, place the board component side up on a grounded, static free surface. Use a conductive foam pad if available but not the board wrapper. Do not slide board over any surface.



**Installing or removing jumpers:** A jumper is a small plastic encased conductor that slips over two jumper pins. Some jumpers have a small tab on top that can be gripped with fingertips or with a pair of fine needle nosed pliers. If the jumpers do not have such a tab, take care when using needle nosed pliers to remove or install a jumper; grip the narrow sides of the jumper with the pliers, never the wide sides. Gripping the wide sides can damage the contacts inside the jumper, causing intermittent problems with the function controlled by that jumper. Take care to grip with, but not squeeze, the pliers or other tool used to remove a jumper, or the pins on the board may bend or break.

## General Information

Before servicing this system, it is recommended to read this guide completely to be aware of any safety issues or requirements involved in the servicing of this system.

## Assembly Safety Guidelines

	<p>The power system in this product contains no user-serviceable parts. Refer servicing only to qualified personnel.</p>
	<p>The system is designed to operate in a typical office environment. Choose a site that is:</p> <ul style="list-style-type: none"> <li>• Clean and free of airborne particles (other than normal room dust).</li> <li>• Well ventilated and away from sources of heat including direct sunlight.</li> <li>• Away from sources of vibration or physical shock.</li> <li>• Isolated from strong electromagnetic fields produced by electrical devices.</li> <li>• In regions that are susceptible to electrical storms, we recommend you plug your system into a surge suppressor and disconnect telecommunication lines to your modem during an electrical storm.</li> <li>• Provided with a properly grounded wall outlet.</li> <li>• Provided with sufficient space to access the power system, because they serve as the product's main power disconnect.</li> </ul>

	<p><b>WARNING!</b></p> <p>The system is safety certified as rack-mounted equipment for use in a server room or computer room, using an approved customer rack.</p> <p>The enclosure is designed to carry only the weight of the system sled. Do not place additional load onto any equipment.</p>
	<p>Heavy object. Indicates two people are required to safely handle the system.</p>

# About the System

This guide provides the system overview and specifications for Hitachi Advanced Server DS120, including hardware component descriptions, ports, network interface cards, and LEDs.

# 1.1 Introduction

This document provides an overview of the hardware features of the chassis, troubleshooting information, and instructions on how to add and replace components of the server.

## System Features

The system comprises a 1U/30.7" long chassis. Major features include:

- **Chipset:** Intel® C624
- **Processors (x2):** Intel® Xeon® Processor Scalable Family (codename Skylake-SP)
- **Expansion:** See *SKU information on page 3* for more information.
- **Memory:** Up to 24 DIMM slots are available; ECC DDR4 2666 MT/s RDIMM memory
- **Network\*:**
  - Dedicated GbE management NIC port from PHY RTL8211 to BMC
  - Intel® C624 as 2x or 4x 10GbE integrated network solution with PHY (optional)\*

*\*The dual port or quad port PHY card is installed to OCP mezzanine slot*

### Note:

The system supports: 500W and 800W Titanium/Platinum redundant PSU, 100-240VAC 50/60Hz, AC/ HVDC; 1100W redundant DC PSU: Acbe I/P: DC -39 - - 72v, 37A max.

## Specifications

Table 1.1: System Specifications

SPECIFICATIONS	DESCRIPTION
Form factor	1U rack mount
Chassis dimensions (W x H x D)	440mm x 43.2 mm x 780 mm 17.3" x 1.7" x 30.7"
Processor	<b>Processor type:</b> Intel® Xeon® Processor Scalable Family (codename Skylake-SP) <b>Max. TDP support:</b> 165W, Optimized power delivery for 85W, VRD 13 <b>Number of processors:</b> 2 <b>Internal Interconnect:</b> 10.4 GT/s, 9.6 GT/s
Chipset	Intel® C624
Memory	<b>Total slots:</b> 24 <b>Memory type:</b> DDR4 2666 MT/s RDIMM <b>Memory size:</b> 8GB, 16GB, 32 GB* *More options refer to the AVL

Table 1.1: System Specifications (Continued)

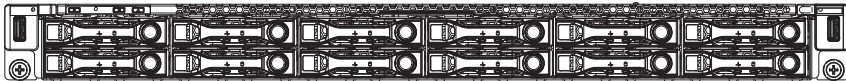
SPECIFICATIONS	DESCRIPTION																								
Storage controller	<b>Onboard (Intel® C624):</b> <ul style="list-style-type: none"><li>• (8) SATA 6Gbps port with (2) mini-SAS HD connector</li><li>• (6) sSATA 6Gbps port with (1) mini-SAS HD connector (reserved) and (2) 7-pin SATA port (reserved for SATA DOM)</li></ul>																								
Networking	<ul style="list-style-type: none"><li>• Dedicated GbE management NIC port from PHY RTL8211 to BMC</li><li>• Intel® C621 as 2x or 4x GbE integrated network solution with PHY (optional)</li><li>• Intel® C624 as 2x or 4x10GbE integrated network solution with PHY (optional)</li></ul>																								
Expansion slots	See <i>SKU information</i> on page 3 for more information.																								
Storage	<p>2.5" SKU:</p>  <ul style="list-style-type: none"><li>• Tiered SKU:<table><tr><td>SAS/ SATA</td><td>SAS/ SATA</td><td>SAS/ SATA</td><td>SAS/ SATA</td><td>U.2</td><td>U.2</td></tr><tr><td>SAS/ SATA</td><td>SAS/ SATA</td><td>SAS/ SATA</td><td>SAS/ SATA</td><td>U.2</td><td>U.2</td></tr></table></li><li>• (8) SATA/SAS SSD/HDD (SFF-8680)</li><li>• (4) SATA/SAS SSD/HDD or NVMe SSD (SFF-8639)</li><li>• All Flash SKU:<p>6x SSD from CPU06x SSD from CPU1</p><table><tr><td>SATA/NVMe</td><td>SATA/NVMe</td><td>SATA/NVMe</td><td>SATA/NVMe</td><td>SATA/NVMe</td><td>SATA/NVMe</td></tr><tr><td>SATA/NVMe</td><td>SATA/NVMe</td><td>SATA/NVMe</td><td>SATA/NVMe</td><td>SATA/NVMe</td><td>SATA/NVMe</td></tr></table></li><li>• (12) SATA SSD or</li><li>• (12) NVMe SSD</li></ul>	SAS/ SATA	SAS/ SATA	SAS/ SATA	SAS/ SATA	U.2	U.2	SAS/ SATA	SAS/ SATA	SAS/ SATA	SAS/ SATA	U.2	U.2	SATA/NVMe	SATA/NVMe	SATA/NVMe	SATA/NVMe	SATA/NVMe	SATA/NVMe	SATA/NVMe	SATA/NVMe	SATA/NVMe	SATA/NVMe	SATA/NVMe	SATA/NVMe
SAS/ SATA	SAS/ SATA	SAS/ SATA	SAS/ SATA	U.2	U.2																				
SAS/ SATA	SAS/ SATA	SAS/ SATA	SAS/ SATA	U.2	U.2																				
SATA/NVMe	SATA/NVMe	SATA/NVMe	SATA/NVMe	SATA/NVMe	SATA/NVMe																				
SATA/NVMe	SATA/NVMe	SATA/NVMe	SATA/NVMe	SATA/NVMe	SATA/NVMe																				
Onboard storage	(2) SATADOM (optional)																								
Video	Integrated Aspeed AST2500 with 8MB video memory																								
Network options	<ul style="list-style-type: none"><li>• (1) GbE dual or quad port OCP mezzanine PHY card (Optional)*</li><li>• (1) 10GbE dual or quad port OCP mezzanine PHY card (Optional)*</li></ul>																								
Front I/O	<ul style="list-style-type: none"><li>• Power/ID/Reset Buttons</li><li>• Power/ID/Status LEDs</li><li>• (2) USB 3.0 ports</li></ul>																								
Rear I/O	<ul style="list-style-type: none"><li>• (2) USB 3.0 ports</li><li>• (1) VGA port</li><li>• (1) RS232 serial port</li><li>• (1) GbE RJ45 management port</li><li>• (1) ID LED</li><li>• (1) MicroSD slot</li></ul>																								
TPM	Yes (optional, SPI mode)																								
ACPI	ACPI compliance, S0, S5 support																								
Power supply	<ul style="list-style-type: none"><li>• 500W and 800W Titanium/Platinum redundant PSU, 100-240VAC 50/60Hz, AC/HVDC support</li><li>• 1100W redundant DC PSU: Acbel I/P: DC -39 - -72V, 37A max.</li></ul>																								

Table 1.1: System Specifications (Continued)

SPECIFICATIONS	DESCRIPTION
System rating	<ul style="list-style-type: none"> <li>100-120/200-240Vac, 50/60Hz, 6.5/3.3A or 240Vdc, 3A (Per PSU inlet) for PSU:500W and 800W</li> <li>100-120/200-240Vac, 50/60Hz, 7.4/4A or 240Vdc, 3.7A (Per PSU inlet) for PSU:800W</li> <li>-39V- -72Vdc, 28A max. (Per PSU inlet)</li> </ul>
Fan	(8) dual rotor fans (15+1 redundant)
System management	IPMI v2.0 Compliant, on board "KVM over IP" support
Operating environment	<ul style="list-style-type: none"> <li>Operating temperature: 5°C to 40°C (41°F to 104°F)</li> <li>Non-operating temperature: -40°C to 70°C (-40°F to 158°F)</li> <li>Operating relative humidity: 20% to 85%RH</li> <li>Non-operating relative humidity: 10% to 95%RH</li> </ul>

**Note:**

Internal USB port is reserved for UDK USB drive installation only. Feature hot plug is not available on this internal USB port.

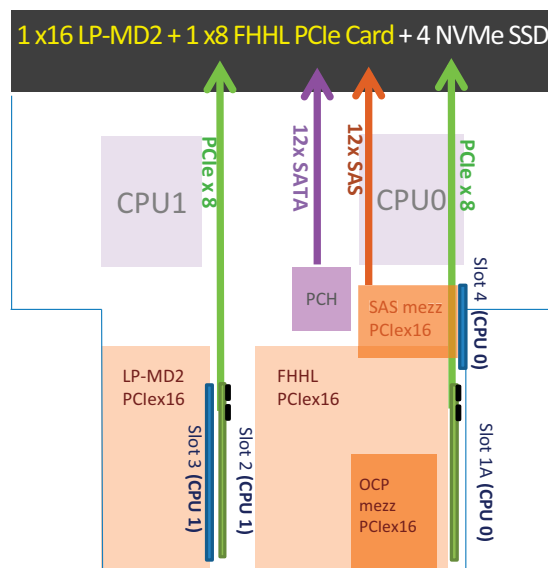
## SKU information

## 2.5" Tiered SKU

SAS/ SATA	SAS/ SATA	SAS/ SATA	SAS/ SATA	U.2	U.2
SAS/ SATA	SAS/ SATA	SAS/ SATA	SAS/ SATA	U.2	U.2

Legend:

U.2 = SAS/SATA/NVMe



## 1.2 Package Contents

- (1) DS120-1U system
- (2) processor heat sinks
- (1) power supply unit
- (1) power cord  
(optional)

**Note:**

For exact shipping contents, contact your sales representative.



## 1.3 A Tour of the System

### System Overview

The server is available as a 2.5" storage drive configuration.

The 2.5" storage drive system overview is displayed in the following image:

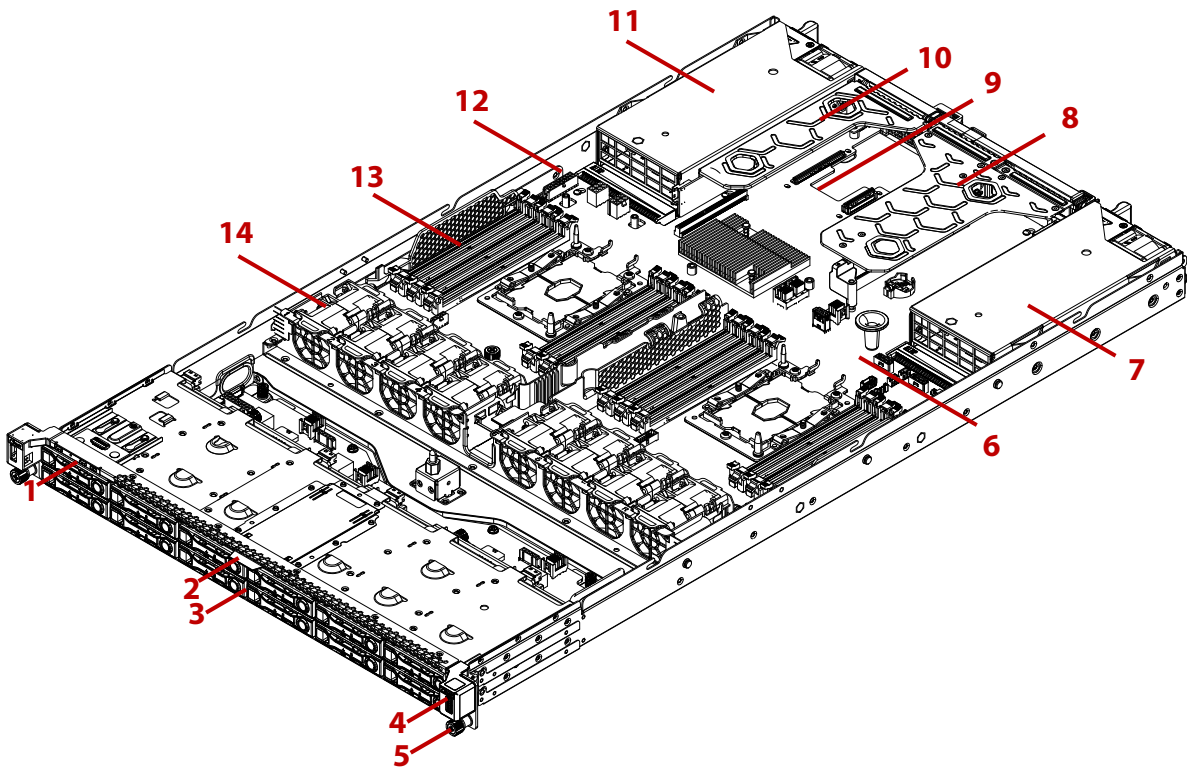


Figure 1. 2.5" Storage Drive System Component Overview

Table 2: Component Overview

No.	ITEM	DESCRIPTIONS
1	Front control panel	See Front Control Panel (FCP) on page 7
2	Asset tag	Record serial number or other important information
3	2.5" storage drive tray	Housing up to twelve 2.5" storage drives (15mm)
4	USB port	Connect to USB device
5	Thumb screw	Secure the system to rack frame
6	Mainboard	System mainboard
7	PSU assembly	Redundant power supply unit assembly
8	Riser assembly (CPU1)	Support PCIe add-on card installation with riser feature.
9	OCP slot (CPU0)	Support OCP 2.0 mezzanine card installation.

Table 2: Component Overview (Continued)

No.	ITEM	DESCRIPTIONS
10	Riser assembly (CPU0)	Support PCIe add-on card installation with riser feature.
11	PSU assembly	Redundant power supply unit assembly
12	SuperCap carrier	Housing SuperCap using in SAS mezzanine card or SAS add-on card
13	DIMM slots	(12) DDR4 DIMM slots per CPU
14	Fan module	(8) System fan modules

## System Front View

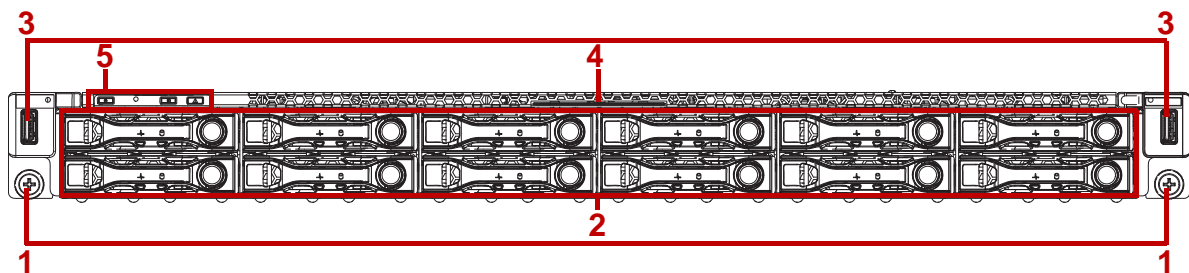


Figure 2. 2.5" Storage Drive System Front View

Table 3: Front View

No.	NAME	DESCRIPTIONS
1	Thumb screw	Secure the system to rack frame
2	2.5" storage drive tray	Housing up to twelve 2.5" storage drive (15mm):
3	USB port	Connect to USB device
4	Asset tag	Record serial number or other important information
5	Front control panel	See <i>Front Control Panel LEDs</i> on page 12 for further information.

Front Control Panel (FCP)



Figure 3. Front Control Panel

Table 4: Front Control Panel Descriptions

No.	ICON	NAME	DESCRIPTIONS
1		Power button with LED	Power on / off Blue on - S0 system power on; Off - S5 system power off
2		Reset button	Soft reset system function
3		Identification button with LED	Toggles ID LED, activate ID LED to identify system Blue blinking - Identifier on front and rear chassis; Off - Normal.
4		System Status LED	Provides critical and non-critical failure notification Amber blinking - failed; Off - SEL cleared / good

System Rear View

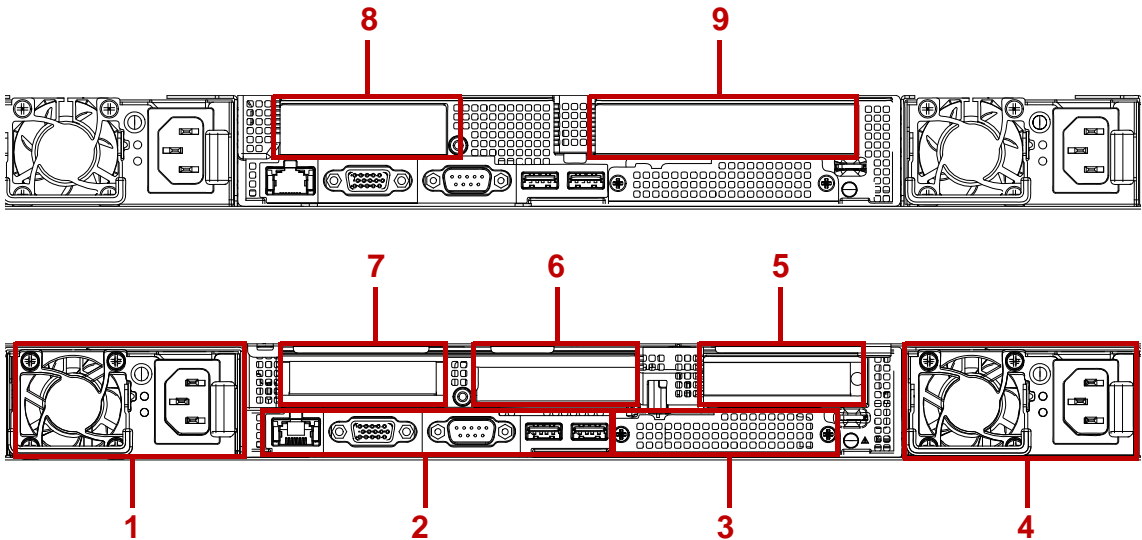


Figure 4. System Rear View

Table 5: System Rear View

No.	FEATURE	DESCRIPTIONS
1	Power sub-system	Main power supply unit (PSU0). See <i>Power Sub-System</i> on page 9.
2	System I/O ports	See <i>System Rear I/O</i> on page 8
3	Expansion slot	Support OCP 2.0 mezzanine card installation (CPU0)

Table 5: System Rear View (Continued)

No.	FEATURE	DESCRIPTIONS
4	Power sub-system	Main power supply unit (PSU1). See <i>Power Sub-System</i> on page 9.
5	Expansion slot	PCIe expansion slot with LP MD-2 (CPU0)
6	Expansion slot	PCIe expansion slot with LP MD-2 (CPU1)
7	Expansion slot	PCIe expansion slot with LP MD-2 (CPU1)
8	Expansion slot	PCIe expansion slot with LP MD-2 (CPU1)
9	Expansion slot	PCIe expansion slot with FHHL (CPU0)

## System Rear I/O

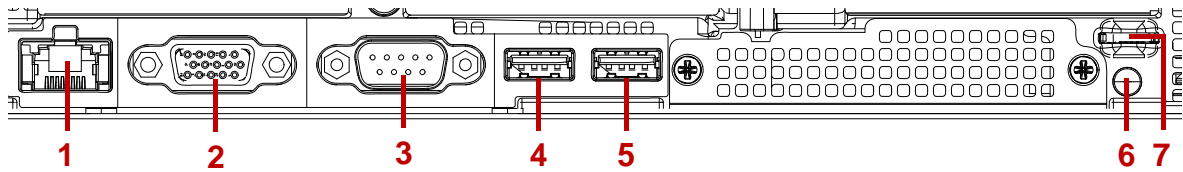


Figure 5. System Rear I/O

Table 6: System Rear I/O Descriptions

No.	ICON	NAME	DESCRIPTIONS
1		Dedicated NIC	Dedicated RJ45 connector
2		VGA connector	Maximum display resolution: 1920x1200 32bpp@60Hz (reduced blanking)
3		COM A port	DB9 port (Serial_A) for debug or terminal concentrator
4		USB 3.0 port	USB 1 port; connect to USB device
5			USB 0 port; connect to USB device
6		Identification LED	Blue blinking - Identifier; Off - Normal.
7		MicroSD slot	Backup BMC SEL.

Power Sub-System

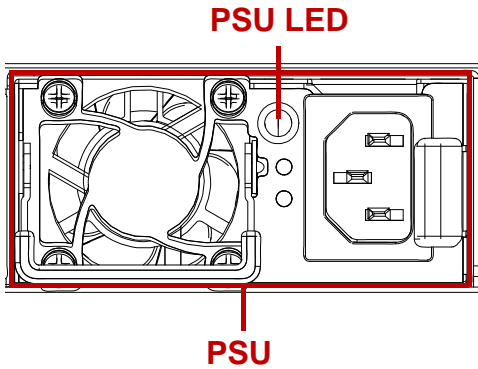


Figure 6. PSU to Mainboard Module Description

A single power supply unit (default) is supplied in the system. A secondary PSU is available for redundancy functionality.

Table 7: AC Power Supply Units by Model

PSU	AC INPUT
2 x 500W and 800W Titanium/Platinum high efficiency redundant PSU	100-240VAC 50/60Hz, AC/HVDC support

Table 8: DC Power Supply Units by Model

PSU	DC INPUT
2 x 1100W high efficiency redundant DC PSU	DC -39 - -72V, 37A max.

Table 9: Power Supply Unit LED

PSU LED COLOR	DESCRIPTION
Amber On	PSU failure
Green On	PSU good
Green Blinking at 0.5Hz	PSU standby
Green Blinking at 2Hz	PSU cold redundancy standby

## HDD / M.2 Adapter Configuration

The systems are available as a full 2.5" SKU. Within the HDD array, the HDD enumeration is as follows:

### Full 2.5" HDD Configuration



ALL FLASH SKU

HDD0~HDD11 support SATA or NVMe SSD\*

TIERED SKU

HDD0~HDD7 support SATA/SAS HDD/SSD;  
HDD8~HDD11 support SATA/SAS HDD/SSD or  
NVMe SSD\*

Figure 7. Full 2.5" HDD Configuration

Table 10: Intel® VMD PCIe Root Port BIOS Setup Option Table (only for NVMe SSD)

HDD SLOT#	ALL FLASH SKU			TIERED SKU		
	CPU SOCKET	PSTACK	VMD PORT	CPU SOCKET	PSTACK	VMD PORT
0	0	0	1A	N/A		
1			1B			
2		2	3A			
3			3B			
4			3C			
5			3D			
6	1	0	1A	0	0	1A
7			1B			
8			1C			
9			1D			
10		2	3A	1	2	3A
11			3B			3B

NVMe SSD M.2 Adapter Add-On Card (Optional)

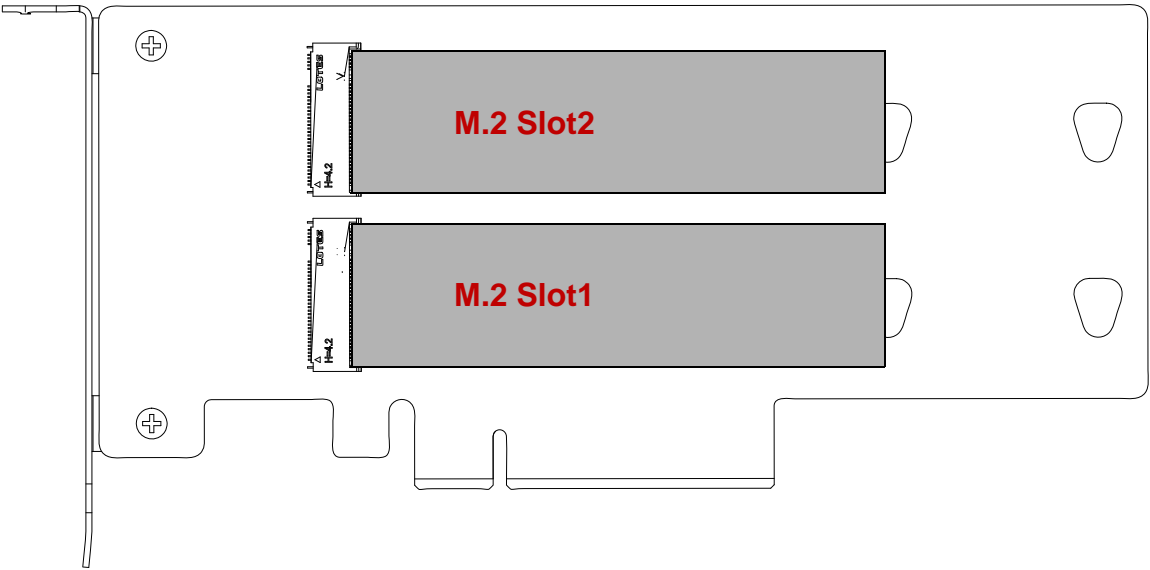


Figure 8. M.2 Slot Number

## LED Status Descriptions

### Front Control Panel LEDs

For location of the FCP, see *System Front View* on page 6.



Figure 9. Front Control Panel LEDs

Table 13: Front Control Panel LEDs Behavior

NAME	COLOR	CONDITION	LED STATUS DESCRIPTIONS
Power LED	Blue	On	System S0 power on
		Off	System S5 power off
Identification	Blue	Blinking	Unit selected for identification
		Off	No identification request
Status LED	Amber	Blinking	Critical Failure: critical fan, voltage, temperature state.
			Non-Critical Failure: non-critical fan, voltage, temperature state, CPU thermal trip, DC off.
		Off	SEL cleared
			Last pending warning or error has been de-asserted.

### BMC Management Port LEDs

The system mainboard includes one dedicated RJ45 GbE management port. The RJ45 connector has two built-in LEDs. See the following illustration and table for details.

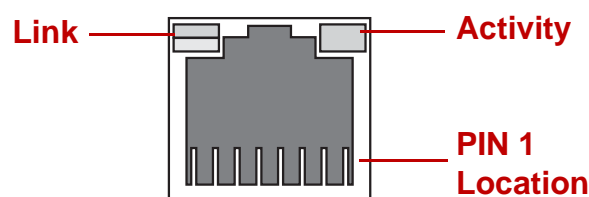


Figure 10. GbE RJ45 Management Port

Table 14: RJ45 LED Descriptions

CONDITION	LINK	ACTIVITY
Unplugged	Off	Off
1G active link	On amber	Blinking green
100M active link	On green	Blinking green
10M active link	Off	Blinking green



## Storage Drive LED

### Front 2.5" Storage Drive LED Status Behavior

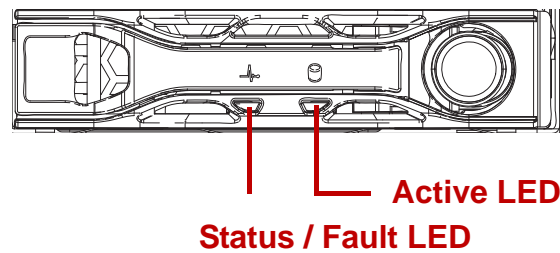


Figure 11. 2.5" Storage Drive LED Identification

The following LED behavior table represents LED conditions.

Table 15: 2.5" Storage Drive LED Status Behavior

NAME	COLOR	CONDITION	DESCRIPTIONS
Drive Status / Fault	Blue	On	Drive is online
		Blinking	Twice per second: Identification Once per second: Rebuilding
	Amber	On	HDD failure
	Off		Slot is empty
Drive Active	Blue	Blinking	HDD access is active

### Front 2.5" Storage Drive LED Status Behavior

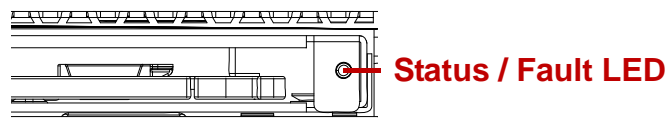


Figure 12. 2.5" Storage Drive LED Identification

The following LED behavior table represents LED conditions.

Table 16: Storage Drive LED Status Behavior

NAME	COLOR	CONDITION	DESCRIPTIONS
Drive Status / Fault	Blue	Blinking	Twice per second: Identification Once per second: Rebuilding
		On	Drive is online
	Amber		HDD failure
	Off		Slot is empty

## Hitachi Vantara



Corporate Headquarters  
2845 Lafayette Street  
Santa Clara, CA 95050-2639 USA  
[www.HitachiVantara.com](http://www.HitachiVantara.com)  
[community.HitachiVantara.com](http://community.HitachiVantara.com)

Regional Contact Information  
Americas: +1 866 374 5822 or [info@hitachivantara.com](mailto:info@hitachivantara.com)  
Europe, Middle East and Africa: +44 (0) 1753 618000 or [info.emea@hitachivantara.com](mailto:info.emea@hitachivantara.com)  
Asia Pacific: +852 3189 7900 or [info.marketing.apac@hitachivantara.com](mailto:info.marketing.apac@hitachivantara.com)