ThinkSystem SD665-N V3 Neptune DWC Tray System Configuration Guide

Machine Types: 7DAZ

Note

Before using this information and the product it supports, be sure to read and understand the safety information and the safety instructions, which are available at:
https://pubs.lenovo.com/safety_documentation/

In addition, be sure that you are familiar with the terms and conditions of the Lenovo warranty for your server, which can be found at:
http://datacentersupport.lenovo.com/warrantylookup

Contents

Safety

Before installing this product, read the Safety Information.

قبل تركيب هذا المنتج، يجب قراءة الملاحظات الآمنية

Antes de instalar este produto, leia as Informações de Segurança.

在安装本产品之前，请仔细阅读 Safety Information （安全信息）。

安裝本產品之前，請先閱讀「安全資訊」。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

Ennen kuin asennat tämän tuotteen, lue turvaohjeet kohdasta Safety Information.

Avant d'installer ce produit, lisez les consignes de sécurité.

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

Πριν εγκαταστήσετε το προϊόν αυτό, διαβάστε τις πληροφορίες ασφάλειας
(safety information).

לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

A termék telepítése előtt olvassa el a Biztonsági előírásokat!

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza.

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Пред да се инсталира овој продукт, прочитајте информацијата за безбедност.

ᠡᠨᠡ ᠵᠦᠢᠯ ᠢ ᠤᠭᠰᠠᠷᠠᠬᠤ ᠠᠴᠠ ᠡᠮᠦᠨᠡ ᠠᠶᠤᠯ ᠦᠭᠡᠢ ᠮᠡᠳᠡᠭᠡᠯᠡᠯ ᠢ ᠤᠩᠰᠢᠭᠠᠷᠠᠢ᠃

Les sikkerhetsinformasjonen (Safety Information) før du installerer dette produktet.

Przed zainstalowaniem tego produktu, należy zapoznać się
z książką "Informacje dotyczące bezpieczeństwa" (Safety Information).

Antes de instalar este produto, leia as Informações sobre Segurança.

Перед установкой продукта прочтите инструкции по
технике безопасности.

Pred inštaláciou tohto zariadenia si pečítaje Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

Antes de instalar este producto, lea la información de seguridad.

Läs säkerhetsinformationen innan du installerar den här produkten.

ཐོན་རྫས་འདི་བདེ་སྐྱེད་མ་བྱས་གོང་། སྐྲ་གྱི་ཡིད་གཟབ་
བྱ་འདུ་མིན་ཡོད་པའི་འོད་སྟེར་བལྟ་དགོས།

Bu ürünü kurmadan önce güvenlik bilgilerini okuyun.

مەزكۇر مەھسۇلاتنى ئورنىتىشتىن بۇرۇن بىخەتەرلىك ئۇچۇرلىرىنى ئوقۇپ چىقىڭ.

Youq mwngz yungh canjbinj neix gaxgonq, itdingh aeu doeg aen
canjbinj soengq cungj vahgangj ancien siusik.

Safety inspection checklist

Use the information in this section to identify potentially unsafe conditions with your server. As each machine was designed and built, required safety items were installed to protect users and service technicians from injury.

Note: The product is not suitable for use at visual display workplaces according to §2 of the Workplace Regulations.

Note: The set-up of the server is made in the server room only.

CAUTION:
This equipment must be installed or serviced by trained personnel, as defined by the NEC, IEC 62368-1 & IEC 60950-1, the standard for Safety of Electronic Equipment within the Field of Audio/Video, Information Technology and Communication Technology. Lenovo assumes you are qualified in the servicing of equipment and trained in recognizing hazards energy levels in products. Access to the equipment is by the use of a tool, lock and key, or other means of security, and is controlled by the authority responsible for the location.

Important: Electrical grounding of the server is required for operator safety and correct system function. Proper grounding of the electrical outlet can be verified by a certified electrician.

Use the following checklist to verify that there are no potentially unsafe conditions:

1. Make sure that the power is off and the power cord is disconnected.

2. Check the power cord.

   - Make sure that the third-wire ground connector is in good condition. Use a meter to measure third-wire ground continuity for 0.1 ohm or less between the external ground pin and the frame ground.

   - Make sure that the power cord is the correct type.

     To view the power cords that are available for the server:

     a. Go to:

     b. Click **Preconfigured Model** or **Configure to order**.

     c. Enter the machine type and model for your server to display the configurator page.

     d. Click **Power ➙ Power Cables** to see all line cords.

- Make sure that the insulation is not frayed or worn.

3. Check for any obvious non-Lenovo alterations. Use good judgment as to the safety of any non-Lenovo alterations.

4. Check inside the server for any obvious unsafe conditions, such as metal filings, contamination, water or other liquid, or signs of fire or smoke damage.

5. Check for worn, frayed, or pinched cables.

6. Make sure that the power-supply cover fasteners (screws or rivets) have not been removed or tampered with.

Chapter 1. GPU power and maximum number of trays in the enclosure

Follow the information in this section to determine GPU power setting and number of trays in the enclosure.

There are three GPU power capping modes for SD665-N V3. Each mode supports different maximum number of tray installed in the DW612S enclosure, which are listed in the guideline below. **Make sure** to follow the guideline when configuring GPU power capping or changing number of trays in the enclosure.

Guideline on GPU power capping and maximum tray number in the enclosure:
* TGP Max mode: 700W (default mode, maximum 4 trays in the enclosure)
* TGP User selected optimal: 600W (maximum 5 trays in the enclosure)
* TGP User selected minimum: 500W (maximum 6 trays in the enclosure)

For information on water temperature and tray number, see the Water requirement section in "Environmental specifications" from *SD665-N V3 User Guide*.

Note: Mismatching GPU power capping value and maximum tray number may cause GPU performance impact.

Chapter 2. Server components

This section contains information about each of the components associated with the server.

Front view

The following illustration shows the controls, LEDs, and connectors on the front of the solution.

Notes:

- Up to six SD665-N V3 trays can be installed in the DW612S 6U enclosure. For more information on the number of trays in the enclosure, see Chapter 1 "GPU power and maximum number of trays in the enclosure" on page 1.
- SD665-N V3 tray contains one compute node on the right and one GPU node on the left (when viewed from front of the DW612S enclosure)
- The GPU node contains the NVIDIA HGX H100 4-GPU board and the network board (4 Connect-X 7).

The following illustrations show the controls, LEDs, and connectors on the front of each tray.

Note: The illustrations in this document might differ slightly from your hardware.
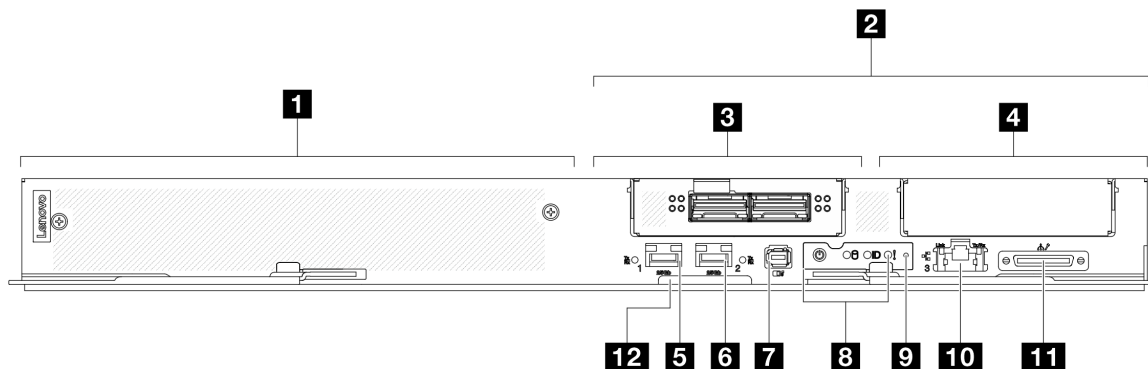
Figure 1. SD665-N V3 tray

Table 1. SD665-N V3 tray indicators, controls, and connectors

1 GPU node / Left node (odd bay numbers)	**7** External Diagnostics Handset connector. See "External Diagnostics Handset" on page 11 for more information.
2 Compute node / Right node (even bay numbers)	**8** Front operator panel LEDs. See "Front LEDs" on page 10.
3 OSFP cage for OSFP module. See "Hardware replacement procedures" in *User Guide* or *Hardware Replacement Guide* for component replacement.	**9** NMI button. Press this button to force a nonmaskable interrupt to the processor. You might have to use a pen or the end of a straightened paper clip to press the button. You can also use it to force a blue-screen memory dump. Use this button only when you are directed to do so by Lenovo Support.
4 Drive bay 2/3. See "Hardware replacement procedures" in *User Guide* or *Hardware Replacement Guide* for component replacement.	**10** 1 Gb RJ45 Ethernet port with share-NIC feature for Lenovo XClarity Controller. See "Front LEDs" on page 10 for more information. Lenovo XClarity Controller connection is mutually exclusive between RJ45 Ethernet connector and 25Gb SFP28 Port 1.

| **5** 25 Gb SFP28 Ethernet port (Port 1) with share-NIC feature for Lenovo XClarity Controller. See "Front LEDs" on page 10 for more information.
Lenovo XClarity Controller connection is mutually exclusive between RJ45 Ethernet connector and 25Gb SFP28 Port 1. | **11** KVM breakout cable connector
The KVM breakout cable includes VGA connector, serial port connector, and USB 3.0 (5 Gbps) / 2.0 connector. XCC mobile management is supported by USB connector on the KVM breakout cable. |
| **6** 25 Gb SFP28 Ethernet port (Port 2). See "Front LEDs" on page 10 for more information. | **12** Pull-out information tab with Lenovo XClarity Controller network access label. See "Identify the solution and access the Lenovo XClarity Controller" on page 29 for more information. |

Top view

This section contains information on the top view of the solution.

Compute node top view
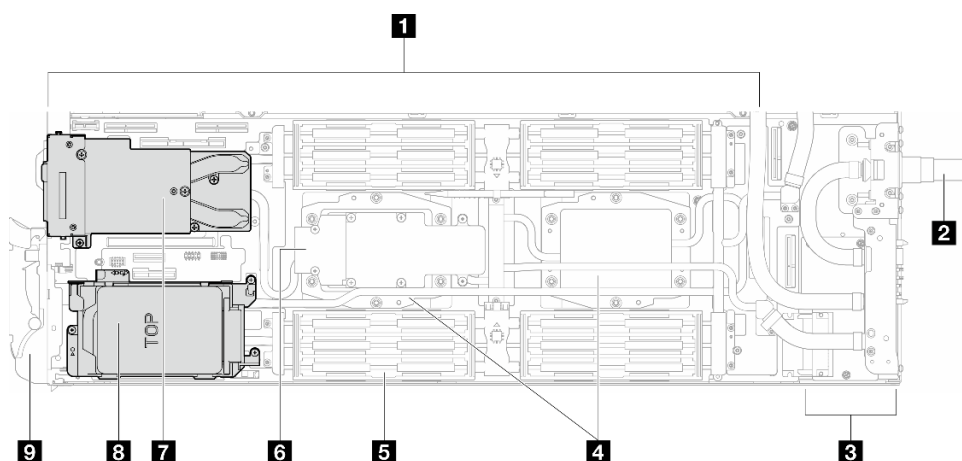
Figure 2. Compute node top view

Table 2. Components on the compute node top view

1 System board	**6** M.2 drive backplane
2 Water loop quick connect	**7** OSFP module See "Hardware replacement procedures" in *User Guide* or *Hardware Replacement Guide* for for component replacement.
3 Power distribution board	**8** Drive bay 2/3 See "Hardware replacement procedures" in *User Guide* or *Hardware Replacement Guide* for component replacement.
4 Processor cold plates	**9** Front cam handle
5 Memory module cooling tube	

GPU node top view
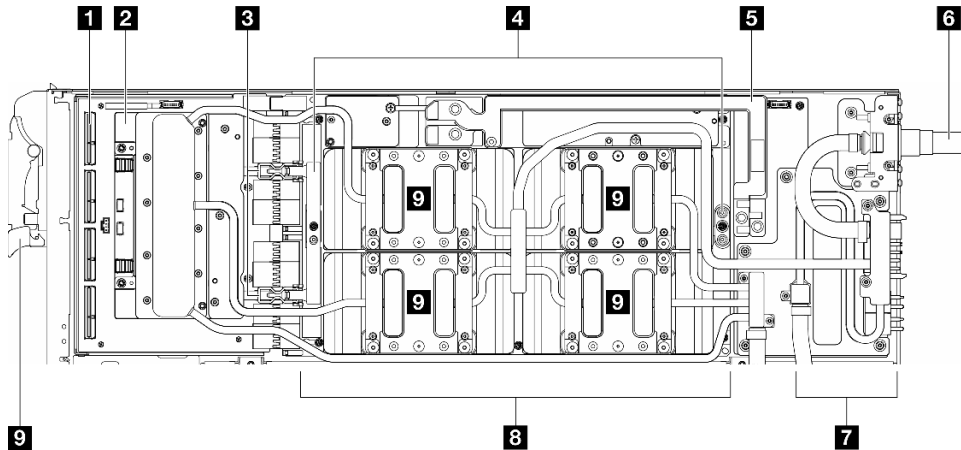
Figure 3. GPU node top view

Table 3. Components on the GPU node top view

1 Carrier board (for network board)	**6** Water loop quick connect
2 Network board	**7** GPU node power distribution board
3 Carrier board retention clips	**8** GPU board
4 GPU board handles	**9** GPUs
5 Bus bar	

GPU numbering

The following illustration shows the GPU numbering.
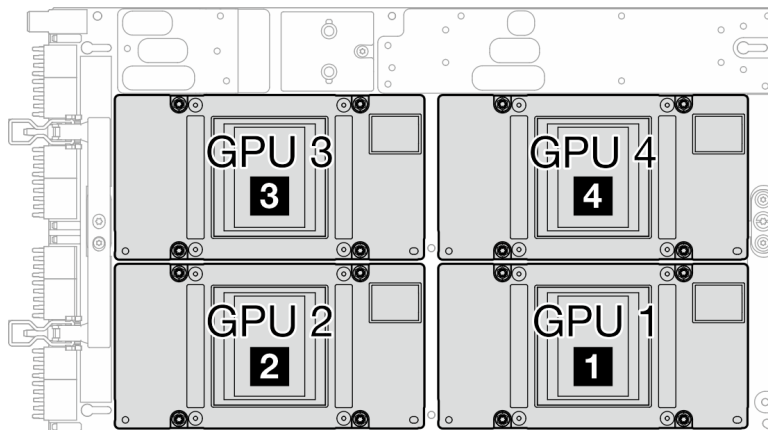
Figure 4. GPU numbering

KVM breakout cable

Use this information for details about the KVM breakout cable.

Use the KVM breakout cable to connect external I/O devices to the compute node. The KVM breakout cable connects through the KVM connector (see "Front view" on page 3). The KVM breakout cable has connectors

for a display device (video), one USB 3.0 (5 Gbps) connectors for a USB keyboard and mouse, and a serial interface connector.

The following illustration identifies the connectors and components on the KVM breakout cable.
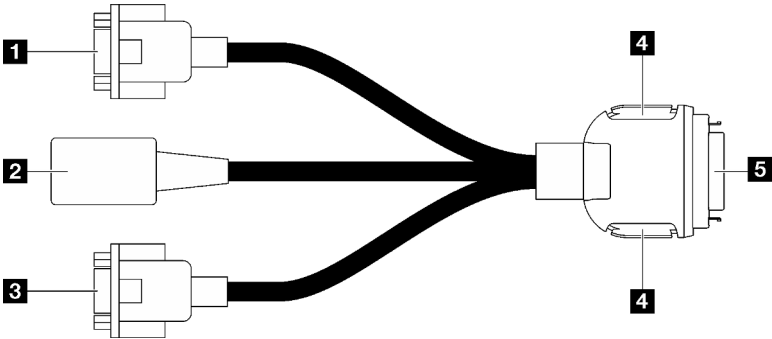
Figure 5. Connectors and components on the KVM breakout cable

Table 4. Connectors and components on the console breakout cable

1 Serial port connector	**4** Retention buttons
	• Removal—Press the buttons; then, disconnect the KVM breakout cable from the server.
	• Installation—Press the buttons while connecting the KVM breakout cable to the server; then, release the buttons to secure the KVM breakout cable to the chassis.
2 USB 3.0 (5 Gbps) / USB 2.0 connector (XCC mobile management is supported by USB 2.0 connector on the KVM breakout cable only.)	**5** connects to KVM connector on the front of the server. See "Front view" on page 3.
3 VGA connector	

System-board layout

The illustrations in this section provide information about the connectors, switches, and jumpers that are available on the system board.

For more information about the LEDs that are available on the system board, see "System-board LEDs" on page 22.

System-board connectors

The following illustrations show the DIMM slots numbering, internal connectors on the system board, and internal connectors on the GPU node.

DIMM slot numbering

The following illustration shows the location of the DIMM slots numbering on the system board of the compute node.
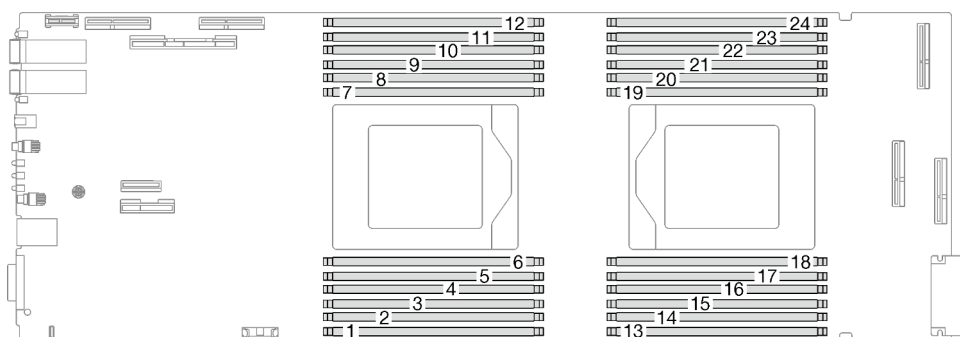
Figure 6. DIMM slots numbering on compute node system board

Internal connectors on system board in the compute node

The following illustrations show the internal connectors on the system board.
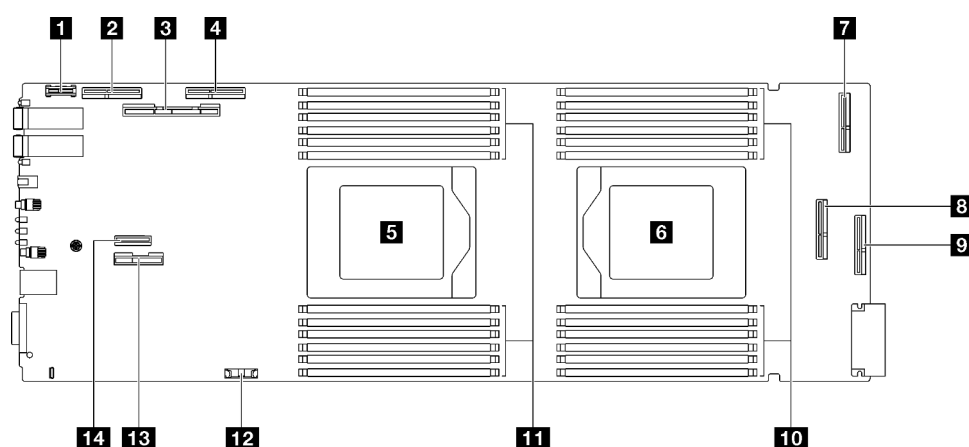
Figure 7. Internal connectors on compute node system board in the compute node

Table 5. Internal connectors on compute node system board

1 PRC TPM connector	**8** PCIe 1 – PCIe x16 Gen 5 connector
2 PCIe 4 – PCIe x16 Gen 5 connector	**9** PCIe 5
3 PCIe 2/SATA – drive bay 0/1	**10** Memory module slot 13–24
4 PCIe 3 – PCIe x16 Gen 5 connector	**11** Memory module slot 1–12
5 Processor 1 socket	**12** CMOS battery (CR2032) connector
6 Processor 2 socket	**13** Power and sideband signal connector for slot 1 or drive bay 0/1
7 PCIe 6	**14** PCIe 7 – M.2 connector

System-board switches

The following illustration shows the location and description of the switches.

Important:

1. Before you change any switch settings or move any jumpers, turn off the solution; then, disconnect all power cords and external cables. Review the following information:

- https://pubs.lenovo.com/safety_documentation/
- "Installation Guidelines", "Handling static sensitive devices", and "Power off the solution " in *User Guide* or *Hardware Maintenance Guide*.

2. Any system-board switch or jumper block that is not shown in the illustrations in this document are reserved.

Note: If there is a clear protective sticker on the top of the switch blocks, you must remove and discard it to access the switches.
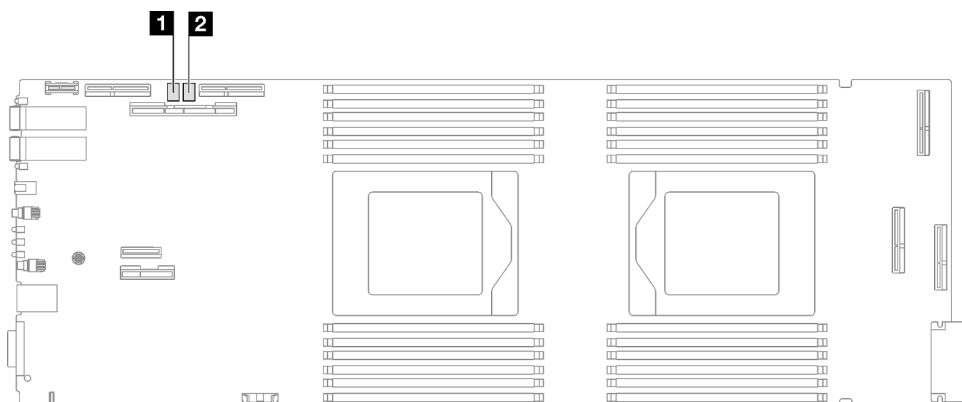
Figure 8. Switches on compute node system board

Table 6. System-board switches

1 SW5 switch block	**2** SW11 switch block

Table 7. SW5 switch block definition

Switch number	Switch name	Usage description	
		On	**Off**
1	XCC reset	Force hot reset BMC chip	Normal (default)
3	XCC boot primary	Request XCC to boot from backup bank	Request XCC to boot from primary bank (default)
4	Password override	Overrides the power-on password	Normal (default)

Table 8. SW11 switch block definition

Switch number	Switch name	Usage description	
		On	**Off**
3	Clear CMOS	Clear CMOS data	Normal (default)

GPU node connectors

The following illustrations show the internal connectors on the GPU node.

Internal connectors on the GPU node

The following illustrations show the internal connectors on the GPU node.
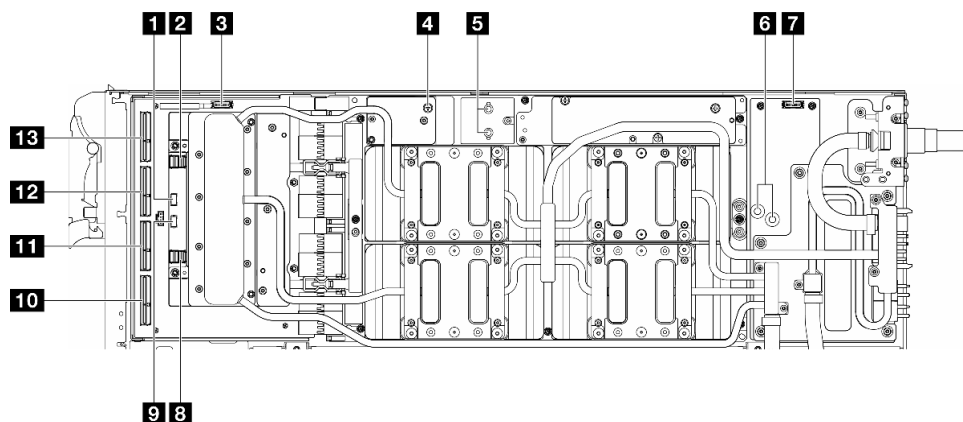
Table 9. Internal connectors on the GPU node

1 OOB port 0 (on the network board)	**8** Port 1(on the network board)
2 Port 0 (on the network board)	**9** OOB port 1 (on the network board)
3 Power and side band connector (on the carrier board)	**10** MCIO connector 4
4 Cable tie screw hole	**11** MCIO connector 3
5 Bus bar power connectors (on the GPU board)	**12** MCIO connector 2
6 Bus bar power connectors (on the GPU node power distribution board)	**13** MCIO connector 1
7 Power and side band connector (on the GPU node power distribution board)	

GPU numbering

Use this information to identify the GPU numbering.

The following illustration shows the GPU numbering.
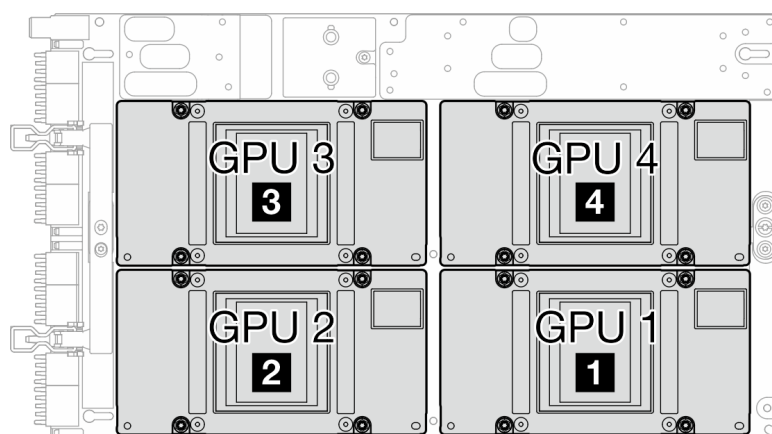
Figure 9. GPU numbering

1 GPU 1	**3** GPU 3
2 GPU 2	**4** GPU 4

System LEDs and diagnostics display

See the following section for information on available enclosure LEDs and diagnostics display.

For more information, refer to "Troubleshooting by system LEDs and diagnostics display" on page 10.

Troubleshooting by system LEDs and diagnostics display

See the following section for information on available system LEDs and diagnostics display.

Front LEDs

The following illustration shows LEDs on the front of the solution. By viewing the status of LEDs, you can often identify the source of the error.
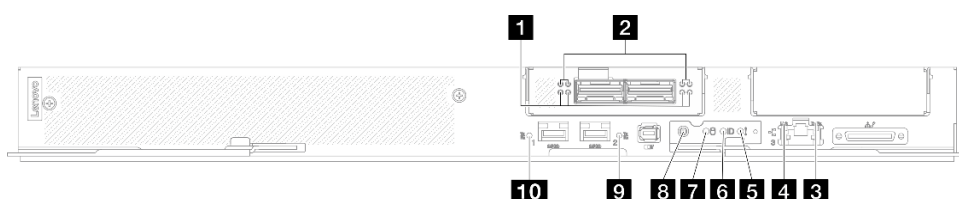
Figure 10. SD665-N V3 tray front LEDs

Table 10. Front LEDs

1 Network board link activity LED (green) on the OSFP module	**6** Identification LED (blue)
2 Network board link status LED (yellow) on the OSFP module	**7** Drive activity LED (green)
3 1 Gb Ethernet port activity LED (green)	**8** Node power button with LED (green)
4 1 Gb Ethernet port link LED (green)	**9** 25 Gb Ethernet port link and activity LED (right) (green)
5 Check log LED (yellow)	**10** 25 Gb Ethernet port link and activity LED (left) (green)

1 Network board link activity LED (green) on the OSFP module: Use these green LEDs to distinguish the link activity of the four ConnectX-7 chip sets on the network board in the GPU node.

From left to right, these LEDs represent ConnectX-7 chip sets 1, 0, 3, and 2.

> **Off:** Network is disconnected from switch.
>
> **On:** The network link is connected.
>
> **Blinking:** The network link is connected with active traffic.

2 Network board link status LED (yellow) on the OSFP module: Use these yellow LEDs to distinguish the link status of the four ConnectX-7 chip sets on the network board in the GPU node.

From left to right, these LEDs represent ConnectX-7 chip sets 1, 0, 3, and 2.

> **Off:** Network is disconnected from switch.
>
> **On:** The network is connected and active.

Note: Using command to light up locating LED is available when transceiver or cable is attached to the OSFP port.

3 **1 Gb Ethernet port activity LED (green):** Use this green LED to distinguish the network status.

   Off: The ConnectX-7 chip sets link is disconnected.

   On: The ConnectX-7 chip sets link is established.

4 **1 Gb Ethernet port link LED (green):** Use this green LED to distinguish the network status.

   Off: The network link is disconnected.

   On: The network link is established.

5 **Check log LED (yellow):** When this yellow LED is lit, it indicates that a system error has occurred. Check the XCC event log for additional information.

6 **Identification LED (blue):** Use this blue LED to visually locate the node among other nodes. This LED is also used as a presence detection button. You can use Lenovo XClarity Administrator to light this LED remotely.

7 **Drive activity LED (green):** If the LED is lit, it indicates that the drive is powered, but not actively reading or writing data. If the LED is flashing, the drive is being accessed.

8 **Node power button with LED (green):** Press this button to turn the node on and off manually. The states of the power LED are as follows:

   Off: Power is not present or the power supply, or the LED itself has failed.

   Flashing rapidly (4 times per second): The node is turned off and is not ready to be turned on. The power button is disabled. This will last approximately 5 to 10 seconds.

   Flashing slowly (once per second): The node is turned off and is ready to be turned on. You can press the power button to turn on the node.

   On: The node is turned on.

9 **10** **25 Gb Ethernet port link and activity LED (green):** Use this green LED to distinguish the network status.

   Off: The network is disconnected.
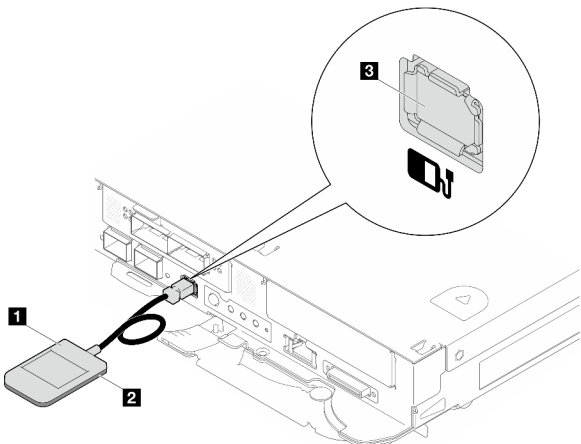
   Blinking: The network is accessing.

   On: The network is established.

External Diagnostics Handset

The External Diagnostics Handset is an external device that is connected to the server with a cable, and it allows quick access to system information such as errors, system status, firmware, network, and health information.

Location of the External Diagnostics Handset

Location	Callouts
The External Diagnostics Handset is connected to the server with an external cable.	**1** External Diagnostics Handset
	2 Magnetic bottom With this component, the diagnostic handset can be attached to the top or side of the rack with hands spared for service tasks.
	3 External diagnostics connector This connector is located on the front of the server, and is used to connect an External Diagnostics Handset.

Note: When unplugging the External Diagnostics Handset, see the following instructions:
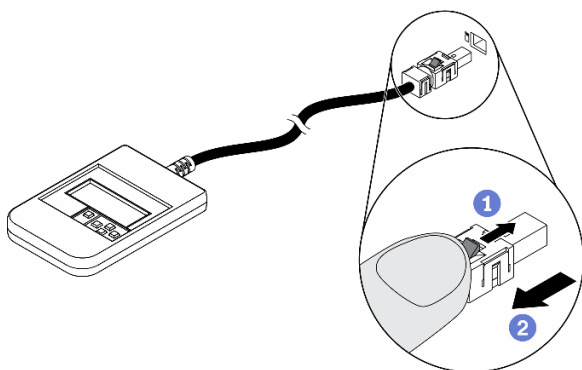
❶Press the plastic clip on the plug forward.

❷Hold the clip and remove the cable from the connector.

Display panel overview

The diagnostics device consists of an LCD display and 5 navigation buttons.

Status Dashboard
 	
System Name   Ambient Temp
System Status   Power
Active Alerts   Checkpoint Code │ Active Session
 	
Menu: • Active Alerts
     • Status Dashboard
     • VPD
     • System Firmware
     • XCC Network
     • Environmental
     • Active Sessions
     • Actions
	1 LCD display

	2 Scroll buttons (up/down/left/right) Press the scroll buttons to locate and select system information.
	3 Select button Press the select button to select from the options in the menu.

Option flow diagram

The LCD panel displays various system information. Navigate through the options with the scroll keys.

Depending on the model, the options and entries on the LCD display might be different.

Power consumption/Temparature

Select

Scroll up/down/left/right

Checkpoint Code

Status Dashboard
XXXXX   25 C
System Init.   11 W
1 Active Alerts   0x09

System Status Dashboard → Active Alerts → System VPD → System Firmware

Active Alerts
- Alerts 1
- ...
- Alerts 31

System VPD
- Machine Type Model Serial Number
- Universal Unique ID

System Firmware
- XCC Primary
- XCC Backup
- uEFI

XCC Network Information
- XCC Hostname
- MAC Address
- IPv4 Network Mask
- IPv4 DNS
- IPv6 Link Local IP
- Stateless IPv6 IP
- Static IPv6 IP
- Current IPv6 Gateway
- IPv6 DNS

System Environment
- Ambient Temp
- Exhaust Temp
- CPU Temp
- PSU
- FAN 1 - FAN 4

Active Sessions
- User Session 1
- ...
- User Session 31

Actions
- Revert XCC to Defaults
- Force XCC Reset
- Request XCC Reset
- Set UEFI MEM test
- System Reset
- Request Virtual Reseat
- Modify XCC IPv4 Address
- Modify System Name
- Generate / Download FFDC Service Data

Full menu list

Following is the list of available options. Switch between an option and the subordinate information entries with the select button, and switch among options or information entries with the scroll buttons.

Depending on the model, the options and entries on the LCD display might be different.

Home Menu (System Status Dashboard)

Home Menu	Example
1 System name **2** System status **3** Active alert quantity **4** Temperature **5** Power consumption **6** Checkpoint code	◄ Status Dashboard ► **1** xxxxx 25 C **4** **2** System Init. 11 W **5** **3** 1 Active Alerts 0x09 **6**

Active Alerts

Sub Menu	Example
Home screen: Active error quantity **Note:** The "Active Alerts" menu displays only the quantity of active errors. If no errors occur, the "Active Alerts" menu will not be available during navigation.	1 Active Alerts
Details screen: • Error message ID (Type: Error/Warning/Information) • Occurrence time • Possible sources of the error	Active Alerts: 1 Press ▼ to view alert details FQXSPPU009N(Error) 04/07/2020 02:37:39 PM CPU 1 Status: Configuration Error

System VPD Information

Sub Menu	Example
• Machine type and serial number • Universal Unique ID (UUID)	Machine Type: xxxx Serial Num: xxxxxx Universal Unique ID: xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

System Firmware

Sub Menu	Example

XCC Primary
• Firmware level (status)
• Build ID
• Version number
• Release date
	`XCC Primary (Active)`
	`Build: DVI399T`
	`Version: 4.07`
	`Date: 2020-04-07`

XCC Backup
• Firmware level (status)
• Build ID
• Version number
• Release date
	`XCC Backup (Active)`
	`Build: D8BT05I`
	`Version: 1.00`
	`Date: 2019-12-30`

UEFI
• Firmware level (status)
• Build ID
• Version number
• Release date
	`UEFI (Inactive)`
	`Build: DOE101P`
	`Version: 1.00`
	`Date: 2019-12-26`

XCC Network Information

Sub Menu	Example

• XCC hostname
• MAC address
• IPv4 Network Mask
• IPv4 DNS
• IPv6 Link Local IP
• Stateless IPv6 IP
• Static IPv6 IP
• Current IPv6 Gateway
• IPv6 DNS
Note: Only the MAC address that is currently in use is displayed (extension or shared).
	`XCC Network Information`
	`XCC Hostname: XCC-xxxx-SN`
	`MAC Address:`
	`xx:xx:xx:xx:xx:xx`
	`IPv4 IP:`
	`xx.xx.xx.xx`
	`IPv4 Network Mask:`
	`x.x.x.x`
	`IPv4 Default Gateway:`
	`x.x.x.x`

System Environmental Information

Sub Menu	Example
• Ambient temperature • Exhaust temperature • CPU temperature • PSU status • Spinning speed of fans by RPM	Ambient Temp: 24 C Exhaust Temp: 30 C CPU1 Temp: 50 C PSU1: Vin= 213 w Inlet= 26 C FAN1 Front: 21000 RPM FAN2 Front: 21000 RPM FAN3 Front: 21000 RPM FAN4 Front: 21000 RPM

Active Sessions

Sub Menu	Example
Quantity of active sessions	Active User Sessions: 1

Actions

Sub Menu	Example
Several quick actions are available: • Revert XCC to Defaults • Force XCC Reset • Request XCC Reset • Set UEFI Memory Test • Request Virtual Reseat • Modify XCC Static IPv4 Address/Net mask/Gateway • Modify System Name • Generate/Download FFDC Service Data	Request XCC Reset? This will request the BMC to reboot itself. Hold √ for 3 seconds

System Management Module 2 (SMM 2) LEDS

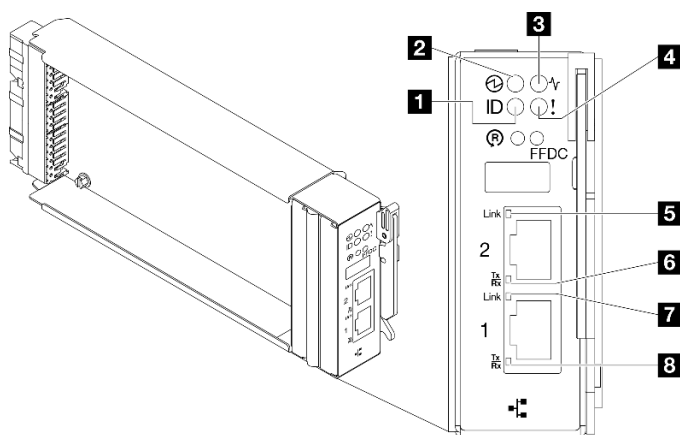The following illustration shows the LEDs on the SMM2 module.

Figure 11. SMM2 LEDs

Table 11. SMM2 connectors and LEDs

1 Identification LED (blue)	**5** Ethernet port 2 link (RJ-45) LED (green)
2 Power LED (green)	**6** Ethernet port 2 activity (RJ-45) LED (green)
3 Status LED (green)	**7** Ethernet port 1 link (RJ-45) LED (green)
4 Check log LED (yellow)	**8** Ethernet port 1 activity (RJ-45) LED (green)

1 Identification LED: When this LED is lit (blue), it indicates the enclosure location in a rack.

2 Power-on LED: When this LED is lit (green), it indicates that the SMM2 has power.

3 Status LED: This LED (green) indicates the operating status of the SMM2.

- **Continuously on**: The SMM2 has encountered one or more problems.
- **Off**: When the enclosure power is on, it indicates the SMM2 has encountered one or more problems.
- **Flashing**: The SMM2 is working.
  - During the pre-boot process, the LED flashes rapidly.
    - Ten times per second: The SMM2 hardware is working and the firmware is ready to initialize.
    - Two times per second: The firmware is initializing.
  - When the pre-boot process is completed and the SMM2 is working correctly, the LED flashes at a slower speed (about once every two seconds).

4 Check log LED: When this LED is lit (yellow), it indicates that a system error has occurred. Check the SMM2 event log for additional information.

5 Ethernet port 2 link (RJ-45) LED: When this LED is lit (green), it indicates that there is an active connection through the remote management and console (Ethernet) port 2 to the management network.

6 Ethernet port 2 activity (RJ-45) LED: When this LED is flashing (green), it indicates that there is an activity through the remote management and console (Ethernet) port 2 over the management network.

7 Ethernet port 1 link (RJ-45) LED: When this LED is lit (green), it indicates that there is an active connection through the remote management and console (Ethernet) port 1 to the management network.

8 Ethernet port 1 activity (RJ-45) LED: When this LED is flashing (green), it indicates that there is an activity through the remote management and console (Ethernet) port 1 over the management network.

Power supply LEDs

This topic provides information about various power supply LED status and corresponding action suggestions.

The following minimal configuration is required for the solution to start:

- One DW612S Enclosure
- One SD665-N V3 tray
- Two processors on the compute node
- One NVIDIA HGX H100 4-GPU board and network board (4 Connect-X 7)
- 2 DIMMs per node in slot 6 and slot 19. (one DIMM per processor)
- Two CFF v4 power supplies or one DWC PSU
- One drive (any type) (If OS is needed for debugging)

The power supplies get electrical power from a 200 - 240 V ac power source and convert the ac input into 12 V outputs. The power supplies are capable of autoranging within the input voltage range. There is one common power domain for the enclosure that distributes power to each of the DWC tray and modules through the system midplane.

AC redundancy is achieved by distributing the ac power cord connections between independent ac circuits.

Each power supply has internal fans and a controller. The power supply controller can be powered by any installed power supply that is providing power through the midplane.

Attention: The power supplies contain internal cooling fans. Do not obstruct the fan exhaust vents.

You have to install all of nine power supplies regardless of the type of power supply, the enclosure power load, or selected enclosure power policy.

The enclosure does not support mixing of low input voltage power supplies with high input voltage power supplies. For example, if you install a power supply with an input voltage of 100 - 127 V ac in a enclosure that is powered by 200 - 240 V ac power supplies, the 100 - 127 V power supply will not power on. The same restriction applies to a enclosure that is powered by 100 - 127 V ac power supplies. If you install a 200 - 240 V ac power supply in a enclosure that is powered by 100 - 127 V ac power supplies, the 200 - 240 V ac power supply will not power on.

The following illustration shows the LEDs on the power supply:

Figure 12. AC power supply LEDs

1 Input (AC) power LED (green)	**3** Power supply error LED (yellow)
2 Output (DC) power LED (green)	

There are three LEDs on each power supply:

1 **AC power LED (green)**: When this LED is lit (green), it indicates that ac power is being supplied to the power supply.

2 **DC power LED (green)**: When this LED is lit (green), it indicates that dc power is being supplied from the power supply to the enclosure midplane.

3 **Power supply error LED (yellow)**: When this LED is lit (yellow), it indicates that there is a fault with the power supply. Dump the FFDC log from the system and contact Lenovo back end support team for PSU data log reviewing.

Note: Before unplugging the ac power cord from the power supply, or removing the power supply from the enclosure, verify that the capacity of the remaining power supplies are sufficient to meet the minimum power requirements for all components in the enclosure.

DWC power supply LEDs

This topic provides information about various DWC power supply LED status and corresponding action suggestions.

The following minimal configuration is required for the solution to start:

- One DW612S Enclosure
- One SD665-N V3 tray
- Two processors on the compute node
- One NVIDIA HGX H100 4-GPU board and network board (4 Connect-X 7)
- 2 DIMMs per node in slot 6 and slot 19. (one DIMM per processor)
- Two CFF v4 power supplies or one DWC PSU
- One drive (any type) (If OS is needed for debugging)

The power supplies get electrical power from a 200 - 240 V ac power source and convert the ac input into 12 V outputs. The power supplies are capable of autoranging within the input voltage range. There is one common power domain for the enclosure that distributes power to each of the DWC tray and modules through the system midplane.

AC redundancy is achieved by distributing the ac power cord connections between independent ac circuits.

Each DWC power supply has internal water loops and a controller. The power supply controller can be powered by any installed power supply that is providing power through the midplane.

You have to install all three DWC power supplies regardless of the type of power supply, the enclosure power load, or selected enclosure power policy.

The enclosure does not support mixing of low input voltage power supplies with high input voltage power supplies. For example, if you install a power supply with an input voltage of 100 - 127 V ac in a enclosure that is powered by 200 - 240 V ac power supplies, the 100 - 127 V power supply will not power on. The same restriction applies to a enclosure that is powered by 100 - 127 V ac power supplies. If you install a 200 - 240 V ac power supply in a enclosure that is powered by 100 - 127 V ac power supplies, the 200 - 240 V ac power supply will not power on.

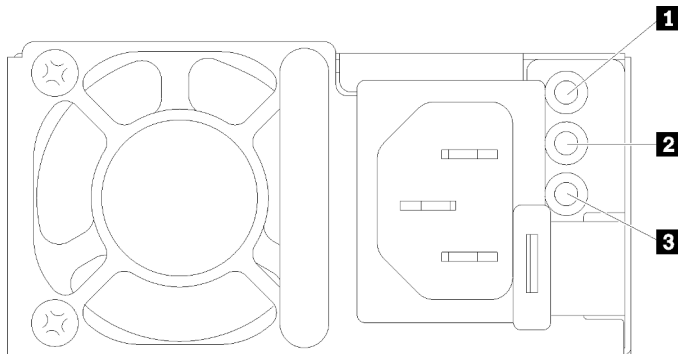The following illustration shows the LEDs on the DWC power supply:
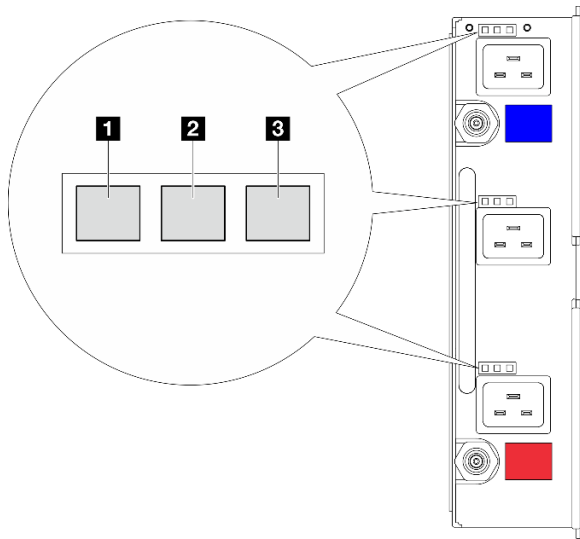
Figure 13. DWC power supply LEDs

1 Input (AC) power LED (green)	**3** Power supply error LED (yellow)
2 Output (DC) power LED (green)	

There are nine LEDs on each DWC power supply (three per power supply bay):

1 AC power LED (green): When this LED is lit (green), it indicates that ac power is being supplied to the DWC power supply in the corresponding power supply bay.

2 DC power LED (green): When this LED is lit (green), it indicates that dc power is being supplied from the corresponding power supply bay to the enclosure midplane.

3 Power supply error LED (yellow): When this LED is lit (yellow), it indicates that there is a fault with the corresponding power supply bay. Dump the FFDC log from the system and contact Lenovo back end support team for PSU data log reviewing.

Note: Before unplugging the ac power cord from the DWC power supply, or removing the DWC power supply from the enclosure, verify that the capacity of the remaining power supplies are sufficient to meet the minimum power requirements for all components in the enclosure.

Drip sensor LED

The following illustration shows the light-emitting diodes (LEDs) on the drip sensor.
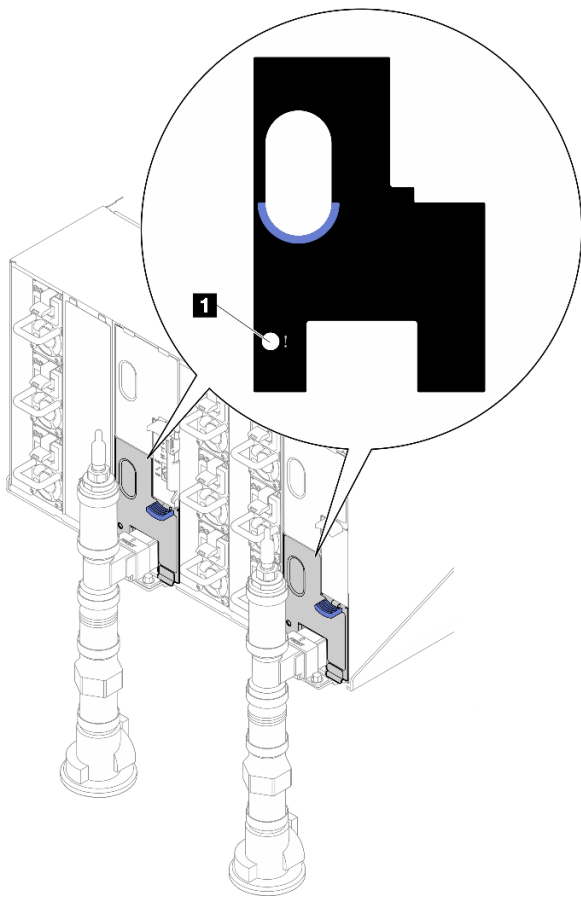
Figure 14. Drip sensor LED

Table 12. Drip sensor LED

1 Drip sensor LED (yellow)

1 **Drip sensor LED**: When this LED is lit (yellow), it indicates that the drip sensor detects water in its respective catch basin.

System-board LEDs

The following illustrations show the light-emitting diodes (LEDs) on the system board.
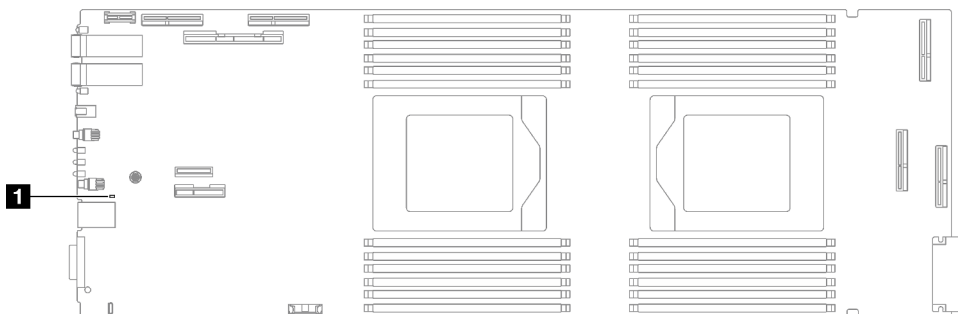
Figure 15. System-board LEDs

Table 13. System-board LEDs

1 BMC (XCC heartbeat LED) (green)

1 **XCC heartbeat LED (green) behavior:**

  Blinking slowly: XCC is functioning.

  Blinking rapidly and constantly: XCC is initializing or malfunctioning.

  On: XCC is malfunctioning.

  Off: XCC is malfunctioning.

Chapter 3.   Parts list

Use the parts list to identify each of the components that are available for your solution.

For more information about ordering parts:

1. Go to **http://datacentersupport.lenovo.com** and navigate to the support page for your solution.
2. Click **Parts**.
3. Enter the serial number to view a listing of parts for your solution.

It is highly recommended that you check the power summary data for your solution using Lenovo Capacity Planner before purchasing any new parts.

Note: Depending on the model, your solution might look slightly different from the illustration.

The parts listed in the following table are identified as one of the following:
- **T1:** Tier 1 customer replaceable unit (CRU). Replacement of Tier 1 CRUs is your responsibility. If Lenovo installs a Tier 1 CRU at your request with no service agreement, you will be charged for the installation.
- **T2:** Tier 2 customer replaceable unit (CRU). You may install a Tier 2 CRU yourself or request Lenovo to install it, at no additional charge, under the type of warranty service that is designated for your server.
- **F:** Field replaceable unit (FRU). FRUs must be installed only by trained service technicians.
- **C:** Consumable and Structural parts. Purchase and replacement of consumable and structural parts (components, such as a filler or bezel) is your responsibility. If Lenovo acquires or installs a structural component at your request, you will be charged for the service.

SD665-N V3 parts list
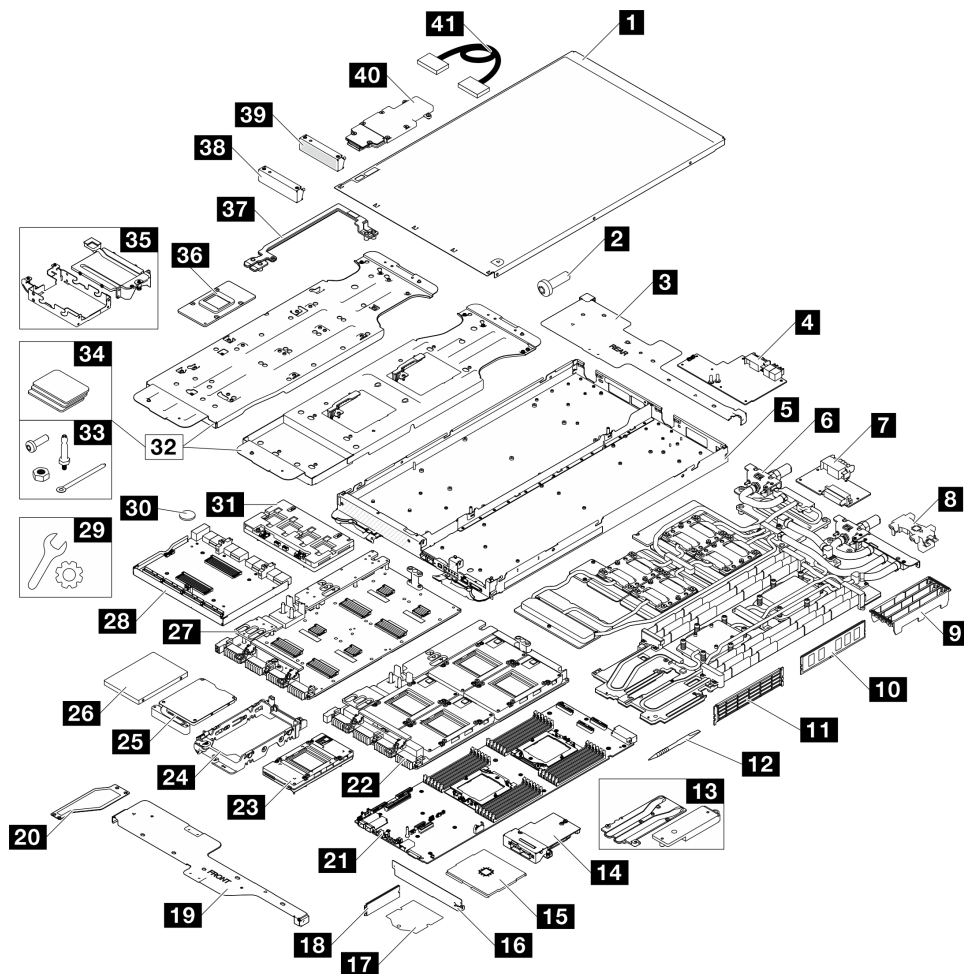
Figure 16. SD665-N V3 parts list

Table 14. SD665-N V3 parts list

Index	Description	Type
For more information about ordering parts:		
1. Go to **http://datacentersupport.lenovo.com** and navigate to the support page for your solution.		
2. Click **Parts**.		
3. Enter the serial number to view a listing of parts for your solution.		
1	Tray cover	F
2	Screw	F
3	Rear cross brace	F
4	GPU node power distribution board	F
5	SD665-N V3 tray	F
6	Water loop	F
7	Power distribution board	F
8	DIMM comb	F

Table 14. SD665-N V3 parts list (continued)

Index	Description	Type
9	DIMM cover	F
10	Memory module	F
11	Memory module filler	F
12	DIMM tool	F
13	Conduction plate kit	F
14	OSFP module	F
15	Processor	F
16	Venting hole block	F
17	Processor socket protective film	F
18	M.2 drive	F
19	Front cross brace	F
20	Cross brace–cable cover	F
21	System board	F
22	GPU board assembly (GPU board installed with four GPUs)	F
23	GPU	F
24	Drive cage	F
25	Drive cage with conduction plate	F
26	7mm drive	F
27	GPU board	F
28	Carrier board (for network board)	F
29	Miscellaneous Parts Kit	C
30	CMOS battery (CR2032)	F
31	Network board	F
32	SD665 V3 water loop Service Kit	F
33	SD665-N V3 node miscellaneous kit	F
34	Gap pad kit	F
35	E3.S cage and conduction plate	F
36	GPU PCM application jig	F
37	Bus bar	F
38	Blank bezel filler without venting	F
39	Blank bezel filler	F
40	M.2 backplane assembly	F
41	Cable	F

Power cords

Several power cords are available, depending on the country and region where the server is installed.

To view the power cords that are available for the server:

1. Go to:

   http://dcsc.lenovo.com/#/

2. Click **Preconfigured Model** or **Configure to order**.

3. Enter the machine type and model for your server to display the configurator page.

4. Click **Power ➔ Power Cables** to see all line cords.

Notes:

- For your safety, a power cord with a grounded attachment plug is provided to use with this product. To avoid electrical shock, always use the power cord and plug with a properly grounded outlet.

- Power cords for this product that are used in the United States and Canada are listed by Underwriter's Laboratories (UL) and certified by the Canadian Standards Association (CSA).

- For units intended to be operated at 115 volts: Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a parallel blade, grounding-type attachment plug rated 15 amperes, 125 volts.

- For units intended to be operated at 230 volts (U.S. use): Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a tandem blade, grounding-type attachment plug rated 15 amperes, 250 volts.

- For units intended to be operated at 230 volts (outside the U.S.): Use a cord set with a grounding-type attachment plug. The cord set should have the appropriate safety approvals for the country in which the equipment will be installed.

- Power cords for a specific country or region are usually available only in that country or region.

Chapter 4. Unboxing and setup

Information in this section assists you on unboxing and setting up the server. When unboxing the server, check if the items in the package are correct, and learn where to find information of server serial number and Lenovo Xclarity Controller access. Make sure to follow the instructions in when setting up the server.

Solution package contents

When you receive your solution, verify that the shipment contains everything that you expected to receive.

The solution package includes the following items:

- DWC tray
- Enclosure
- Rail kit
- Four detachable chassis lift handles
- One console breakout cable (also known as a KVM Dongle)
- Material box, including items such as power cords*, accessory kit, and printed documents.

Notes:

- Some of the items listed are available on select models only.
- Items marked with asterisk(*) are optional.

If any item is missing or damaged, contact your place of purchase. Ensure that you retain your proof of purchase and packing material. They might be required to receive warranty service.

Identify the solution and access the Lenovo XClarity Controller

This section contains instruction on how to identify your solution and where to find the Lenovo XClarity Controller access information.

Identifying your solution

When you contact Lenovo for help, the machine type, model, and serial number information helps support technicians to identify your solution and provide faster service.

The illustration below shows the location of the ID label which contains the enclosure model number, machine type, and serial number of the solution. You can also add other system information labels to the front of the enclosure in the customer label spaces.
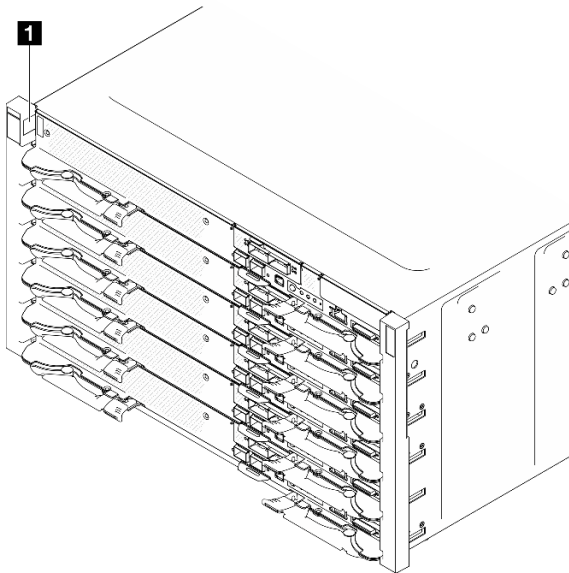
Figure 17. Enclosure label on the front of the enclosure

Table 15. Enclosure label on the front of the enclosure

1 Enclosure label

The tray model number can be found on the front of the tray, as shown in the following illustration.
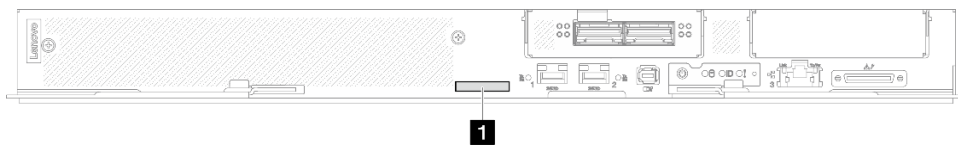
Figure 18. SD665-N V3 tray model number

Table 16. Tray model number

1 Tray model number

Lenovo XClarity Controller network access label

In addition, the Lenovo XClarity Controller network access label for both nodes can be found on the pull out information tag located at the front of the tray. You can use the information on the pull out tag to access the XCC MAC address and LLA for each node. The left node information is on the left side and the right node information is on the right side. You can also use the information tag for your own node labeling information such as the hostname, the system name and the inventory bar code.
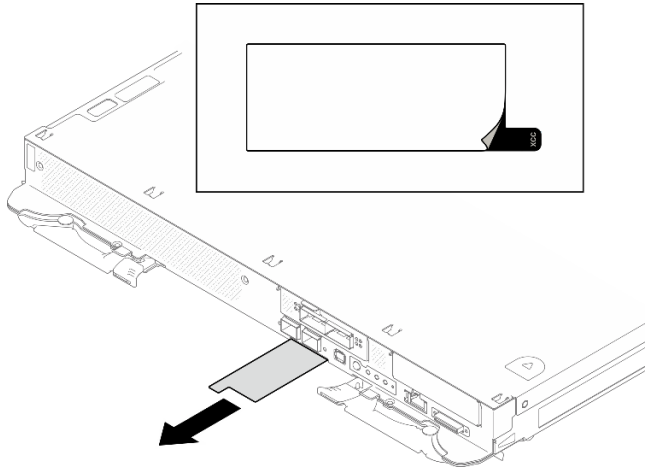
Service Label and QR code

In addition, the system Service Label is located on the inside surface of the tray cover, provides a quick response (QR) code for mobile access to service information. You can scan the QR code with a mobile device using a QR code reader application and get quick access to the Service Information web page. The Service Information web page provides additional information for parts installation and replacement videos, and error codes for solution support.
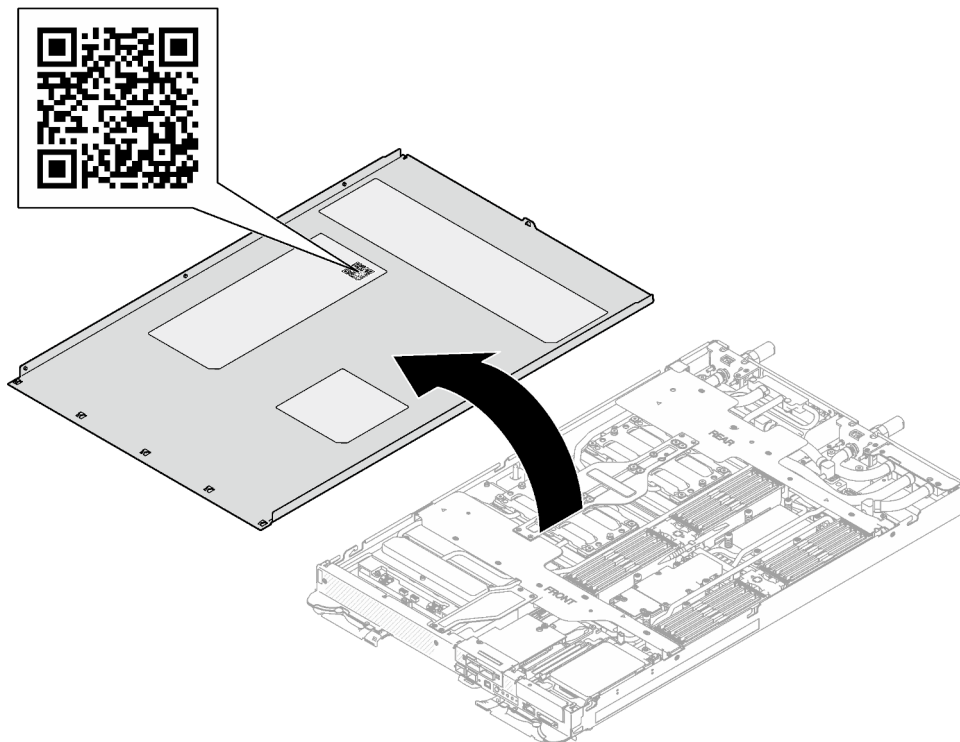
Solution setup checklist

Use the solution setup checklist to ensure that you have performed all tasks that are required to set up your solution.

The solution setup procedure varies depending on the configuration of the solution when it was delivered. In some cases, the solution is fully configured and you just need to connect the solution to the network and an

AC power source, and then you can power on the solution. In other cases, the solution needs to have hardware options installed, requires hardware and firmware configuration, and requires an operating system to be installed.

The following steps describe the general procedure for setting up a solution.

Setup the solution hardware

Complete the following procedures to setup the solution hardware.

1. Unpack the solution package. See "Solution package contents" on page 29.

2. Install any required hardware or solution options. See the related topics in "Hardware replacement procedures" in *User Guide* or *Hardware Maintenance Guide*.

3. Connect all external cables to the solution. See "Server components" in *User Guide* or *Hardware Maintenance Guide* for connectors locations.

   Typically, you will need to connect the following cables:

   - Connect solution to the power source

   - Connect solution to the data network

   - Connect the solution to the storage device

   - Connect the solution to the management network

4. Power on the solution.

   Power button location and power LED are specified in "Troubleshooting by system LEDs and diagnostics display" on page 10.

   The solution can be turned on (power LED on) in any of the following ways:

   - You can press the power button.

   - The solution can restart automatically after a power interruption.

   - The solution can respond to remote power-on requests sent to the Lenovo XClarity Controller.

   Note: You can access the management processor interface to configure the system without powering on the solution. Whenever the solution is connected to power, the management processor interface is available. For details about accessing the management solution processor, see "Opening and Using the XClarity Controller Web Interface" section in the XCC documentation compatible with your solution at https://pubs.lenovo.com/lxcc-overview/.

5. Validate the solution. Make sure that the power LED, Ethernet connector LED, and network LED are lit with green light, which means the solution hardware was set up successfully.

   See "Troubleshooting by system LEDs and diagnostics display" on page 10 for more information on the LED indications.

Configure the system

Complete the following procedures to configure the system. For detailed instructions. refer to Chapter 5 "System configuration" on page 35.

1. Set the network connection for theLenovo XClarity Controller to the management network.

2. Update the firmware for the solution, if necessary.

3. Configure the firmware for the solution.

   The following information is available for RAID configuration:

   - https://lenovopress.lenovo.com/lp0578-lenovo-raid-introduction

   - https://lenovopress.lenovo.com/lp0579-lenovo-raid-management-tools-and-resources

4. Install the operating system.

5. Back up the solution configuration.

6. Install the applications and programs for which the solution is intended to be used.

Chapter 5. System configuration

Complete these procedures to configure your system.

Set the network connection for the Lenovo XClarity Controller

Before you can access the Lenovo XClarity Controller over your network, you need to specify how Lenovo XClarity Controller will connect to the network. Depending on how the network connection is implemented, you might need to specify a static IP address as well.

The following methods are available to set the network connection for the Lenovo XClarity Controller if you are not using DHCP:

- If a monitor is attached to the server, you can use Lenovo XClarity Provisioning Manager to set the network connection.

  Complete the following steps to connect the Lenovo XClarity Controller to the network using the Lenovo XClarity Provisioning Manager.

  1. Start the server.

  2. Press the key specified in the on-screen instructions to display the Lenovo XClarity Provisioning Manager interface. (For more information, see the "Startup" section in the LXPM documentation compatible with your server at https://pubs.lenovo.com/lxpm-overview/.)

  3. Go to **LXPM ➙ UEFI Setup ➙ BMC Settings** to specify how the Lenovo XClarity Controller will connect to the network.

     - If you choose a static IP connection, make sure that you specify an IPv4 or IPv6 address that is available on the network.
     - If you choose a DHCP connection, make sure that the MAC address for the server has been configured in the DHCP server.

  4. Click **OK** to apply the setting and wait for two to three minutes.

  5. Use an IPv4 or IPv6 address to connect Lenovo XClarity Controller.

     Important: The Lenovo XClarity Controller is set initially with a user name of USERID and password of PASSW0RD (with a zero, not the letter O). This default user setting has Supervisor access. It is required to change this user name and password during your initial configuration for enhanced security.

- If no monitor is attached to the server, you can set the network connection through the Lenovo XClarity Controller interface. Connect an Ethernet cable from your laptop to XCC system management port on your server. For the location of the XCC system management port, see Chapter 2 "Server components" on page 3.

  Note: Make sure that you modify the IP settings on the laptop so that it is on the same network as the server default settings.

  The default IPv4 address and the IPv6 Link Local Address (LLA) is provided on the Lenovo XClarity Controller Network Access label that is affixed to the Pull Out Information Tab. See "Identify the solution and access the Lenovo XClarity Controller" on page 29.

- If no monitor is attached to the server, you can set the network connection through the System Management Module interface. Connect an Ethernet cable from your laptop to the Ethernet port on the System Management Module, which is located at the rear of the server.

Note: Make sure that you modify the IP settings on the laptop so that it is on the same network as the server default settings.

To access the System Management Module interface, the System Management Module network must be enabled. For more information about accessing the System Management Module, see: *System Management Module User's Guide* at https://pubs.lenovo.com/mgt_tools_smm2/.

The default IPv4 address and the IPv6 Link Local Address (LLA) is provided on the Lenovo XClarity Controller Network Access label that is affixed to the Pull Out Information Tab. See "Identify the solution and access the Lenovo XClarity Controller" on page 29.

- If you are using the Lenovo XClarity Administrator Mobile app from a mobile device, you can connect to the Lenovo XClarity Controller through the Lenovo XClarity Controller USB connector on the server. For the location of the Lenovo XClarity Controller USB connector, see Chapter 2 "Server components" on page 3.

  Note: The Lenovo XClarity Controller USB connector mode must be set to manage the Lenovo XClarity Controller (instead of normal USB mode). To switch from normal mode to Lenovo XClarity Controller management mode, hold the ID button on the server for at least 3 seconds until its LED flashes slowly (once every couple of seconds). See Chapter 2 "Server components" on page 3 for the location of the ID button.

  To connect using the Lenovo XClarity Administrator Mobile app:

  1. Connect the USB cable of your mobile device to the Lenovo XClarity Controller USB connector on the server.
  2. On your mobile device, enable USB tethering.
  3. On your mobile device, launch the Lenovo XClarity Administrator mobile app.
  4. If automatic discovery is disabled, click **Discovery** on the USB Discovery page to connect to the Lenovo XClarity Controller.

  For more information about using the Lenovo XClarity Administrator Mobile app, see:

  https://pubs.lenovo.com/lxca/lxca_usemobileapp

- If you are using the Lenovo XClarity Administrator Mobile app from a mobile device, you can connect to the Lenovo XClarity Controller through the Lenovo XClarity Controller USB connector or USB 3.0 Console Breakout Cable. For location of Lenovo XClarity Controller USB connector and USB 3.0 Console Breakout Cable connector, see "Front view" on page 3.

  To connect using the Lenovo XClarity Administrator Mobile app:

  1. If applicable, connect the USB 3.0 Console Breakout Cable to the front panel.
  2. Connect the USB cable of your mobile device to the Lenovo XClarity Controller USB connector or USB 3.0 Console Breakout Cable.
  3. On your mobile device, enable USB tethering.
  4. On your mobile device, launch the Lenovo XClarity Administrator mobile app.
  5. If automatic discovery is disabled, click **Discovery** on the USB Discovery page to connect to the Lenovo XClarity Controller.

  For more information about using the Lenovo XClarity Administrator Mobile app, see:

  https://pubs.lenovo.com/lxca/lxca_usemobileapp

Set USB port for Lenovo XClarity Controller connection

Before you can access the Lenovo XClarity Controller through the USB port, you need to configure the USB port for Lenovo XClarity Controller connection.

Server support

To see if your server supports accessing Lenovo XClarity Controller through the USB port, check one of the following:

- Refer to Chapter 2 "Server components" on page 3.

- ![wrench icon] If there is a wrench icon on the USB port of your server, you can set the management USB port to connect to Lenovo XClarity Controller. It is also the only USB port that supports USB automation update of the system I/O board (or firmware and RoT security module).

Setting the USB port for Lenovo XClarity Controller connection

You can switch the USB port between normal and Lenovo XClarity Controller management operation by performing one of the following steps.

- Hold the ID button for at least 3 seconds until its LED flashes slowly (once every couple of seconds). See Chapter 2 "Server components" on page 3 for ID button location.
- From the Lenovo XClarity Controller management controller CLI, run the usbfp command. For information about using the Lenovo XClarity Controller CLI, see the "Command-line interface" section in the XCC documentation compatible with your server at https://pubs.lenovo.com/lxcc-overview/.
- From the Lenovo XClarity Controller management controller web interface, click **BMC Configuration ➙ Network ➙ USB Management Port Assignment**. For information about Lenovo XClarity Controller web interface functions, see the "Description of XClarity Controller functions on web interface" section in the XCC documentation compatible with your server at https://pubs.lenovo.com/lxcc-overview/.

Checking USB port current setting

You can also check the current setting of the USB port using the Lenovo XClarity Controller management controller CLI (usbfp command) or the Lenovo XClarity Controller management controller web interface (**BMC Configuration ➙ Network ➙ USB Management Port Assignment**). See the "Command-line interface" and "Description of XClarity Controller functions on web interface" sections in the XCC documentation compatible with your server at https://pubs.lenovo.com/lxcc-overview/.

Update the firmware

Several options are available to update the firmware for the server.

You can use the tools listed here to update the most current firmware for your server and the devices that are installed in the server.

- Best practices related to updating firmware is available at the following site:

  - https://lenovopress.lenovo.com/lp0656-lenovo-thinksystem-firmware-and-driver-update-best-practices
- The latest firmware can be found at the following site:

  - https://datacentersupport.lenovo.com/products/servers/thinksystem/sd665nv3/7daz/downloads/driver-list/
- You can subscribe to product notification to stay up to date on firmware updates:

  - https://datacentersupport.lenovo.com/solutions/ht509500

Update Bundles (Service Packs)

Lenovo typically releases firmware in bundles called Update Bundles (Service Packs). To ensure that all of the firmware updates are compatible, you should update all firmware at the same time. If you are updating

firmware for both the Lenovo XClarity Controller and UEFI, update the firmware for Lenovo XClarity Controller first.

Update method terminology

- **In-band update**. The installation or update is performed using a tool or application within an operating system that is executing on the server's core CPU.
- **Out-of-band update**. The installation or update is performed by the Lenovo XClarity Controller collecting the update and then directing the update to the target subsystem or device. Out-of-band updates have no dependency on an operating system executing on the core CPU. However, most out-of-band operations do require the server to be in the S0 (Working) power state.
- **On-Target update.** The installation or update is initiated from an installed operating system executing on the target server itself.
- **Off-Target update.** The installation or update is initiated from a computing device interacting directly with the server's Lenovo XClarity Controller.
- **Update Bundles (Service Packs)**. Update Bundles (Service Packs) are bundled updates designed and tested to provide the interdependent level of functionality, performance, and compatibility. Update Bundles (Service Packs) are server machine-type specific and are built (with firmware and device driver updates) to support specific Windows Server, Red Hat Enterprise Linux (RHEL) and SUSE Linux Enterprise Server (SLES) operating system distributions. Machine-type-specific firmware-only Update Bundles (Service Packs) are also available.

Firmware updating tools

See the following table to determine the best Lenovo tool to use for installing and setting up the firmware:

Tool	Update Methods Supported	Core System Firmware Updates	I/O Devices Firmware Updates	Drive Firmware Updates	Graphical user interface	Command line interface	Supports Update Bundles (Service Packs)
Lenovo XClarity Provisioning Manager (LXPM)	In-band[2] On-Target	√			√		
Lenovo XClarity Controller (XCC)	In-band[4] Out-of-band Off-Target	√	Selected I/O devices	√[3]	√		√
Lenovo XClarity Essentials OneCLI (OneCLI)	In-band Out-of-band On-Target Off-Target	√	All I/O devices	√[3]		√	√

Tool	Update Methods Supported	Core System Firmware Updates	I/O Devices Firmware Updates	Drive Firmware Updates	Graphical user interface	Command line interface	Supports Update Bundles (Service Packs)
Lenovo XClarity Essentials UpdateXpress (LXCE)	In-band Out-of-band On-Target Off-Target	√	All I/O devices		√		√
Lenovo XClarity Essentials Bootable Media Creator (BoMC)	In-band Out-of-band Off-Target	√	All I/O devices		√ (BoMC application)	√ (BoMC application)	√
Lenovo XClarity Administrator (LXCA)	In-band[1] Out-of-band[2] Off-Target	√	All I/O devices	√	√		√
Lenovo XClarity Integrator (LXCI) for VMware vCenter	Out-of-band Off-Target	√	Selected I/O devices		√		
Lenovo XClarity Integrator (LXCI) for Microsoft Windows Admin Center	In-band Out-of-band On-Target Off-Target	√	All I/O devices		√		√

Notes:

1. For I/O firmware updates.

2. For BMC and UEFI firmware updates.

3. Drive firmware update is only supported by the tools and methods below:

   - XCC Bare Metal Update (BMU): In-band, and requires system reboot.

   - Lenovo XClarity Essentials OneCLI:

     - For OneCLI version earlier than 5.0.0:

       - For drives supported by ThinkSystem V2 and V3 products (legacy drives): In-band, and does not require system reboot.

       - For drives supported only by ThinkSystem V3 products (new drives): Staging to XCC and complete the update with XCC BMU (In-band, and requires system reboot.).

     - For OneCLI 5.0.0 and later versions: In-band, and does not require system reboot.

4. Bare Metal Update (BMU) only.

- **Lenovo XClarity Provisioning Manager**

  From Lenovo XClarity Provisioning Manager, you can update the Lenovo XClarity Controller firmware, the UEFI firmware, and the Lenovo XClarity Provisioning Manager software.

  Note: By default, the Lenovo XClarity Provisioning Manager Graphical User Interface is displayed when you start the server and press the key specified in the on-screen instructions. If you have changed that default to be the text-based system setup, you can bring up the Graphical User Interface from the text-based system setup interface.

  For additional information about using Lenovo XClarity Provisioning Manager to update firmware, see:

  "Firmware Update" section in the LXPM documentation compatible with your server at https://pubs.lenovo.com/lxpm-overview/

- **Lenovo XClarity Controller**

  If you need to install a specific update, you can use the Lenovo XClarity Controller interface for a specific server.

  Notes:

  – To perform an in-band update through Windows or Linux, the operating system driver must be installed and the Ethernet-over-USB (sometimes called LAN over USB) interface must be enabled.

    For additional information about configuring Ethernet over USB, see:

    "Configuring Ethernet over USB" section in the XCC documentation version compatible with your server at https://pubs.lenovo.com/lxcc-overview/

  – If you update firmware through the Lenovo XClarity Controller, make sure that you have downloaded and installed the latest device drivers for the operating system that is running on the server.

  For additional information about using Lenovo XClarity Controller to update firmware, see:

  "Updating Server Firmware" section in the XCC documentation compatible with your server at https://pubs.lenovo.com/lxcc-overview/

- **Lenovo XClarity Essentials OneCLI**

  Lenovo XClarity Essentials OneCLI is a collection of command line applications that can be used to manage Lenovo servers. Its update application can be used to update firmware and device drivers for your servers. The update can be performed within the host operating system of the server (in-band) or remotely through the BMC of the server (out-of-band).

  For additional information about using Lenovo XClarity Essentials OneCLI to update firmware, see:

  https://pubs.lenovo.com/lxce-onecli/onecli_c_update

- **Lenovo XClarity Essentials UpdateXpress**

  Lenovo XClarity Essentials UpdateXpress provides most of OneCLI update functions through a graphical user interface (GUI). It can be used to acquire and deploy Update Bundles (Service Packs) update packages and individual updates. Update Bundles (Service Packs) contain firmware and device driver updates for Microsoft Windows and for Linux.

  You can obtain Lenovo XClarity Essentials UpdateXpress from the following location:

  https://datacentersupport.lenovo.com/solutions/lnvo-xpress

- **Lenovo XClarity Essentials Bootable Media Creator**

  You can use Lenovo XClarity Essentials Bootable Media Creator to create bootable media that is suitable for firmware updates, VPD updates, inventory and FFDC collection, advanced system configuration, FoD Keys management, secure erase, RAID configuration, and diagnostics on supported servers.

You can obtain Lenovo XClarity Essentials BoMC from the following location:

https://datacentersupport.lenovo.com/solutions/lnvo-bomc

- **Lenovo XClarity Administrator**

  If you are managing multiple servers using the Lenovo XClarity Administrator, you can update firmware for all managed servers through that interface. Firmware management is simplified by assigning firmware-compliance policies to managed endpoints. When you create and assign a compliance policy to managed endpoints, Lenovo XClarity Administrator monitors changes to the inventory for those endpoints and flags any endpoints that are out of compliance.

  For additional information about using Lenovo XClarity Administrator to update firmware, see:

  https://pubs.lenovo.com/lxca/update_fw

- **Lenovo XClarity Integrator offerings**

  Lenovo XClarity Integrator offerings can integrate management features of Lenovo XClarity Administrator and your server with software used in a certain deployment infrastructure, such as VMware vCenter, Microsoft Admin Center, or Microsoft System Center.

  For additional information about using Lenovo XClarity Integrator to update firmware, see:

  https://pubs.lenovo.com/lxci-overview/

Configure the firmware

Several options are available to install and set up the firmware for the server.

Note: UEFI **Legacy Mode** is not supported by ThinkSystem V4 products.

- **Lenovo XClarity Provisioning Manager (LXPM)**

  From Lenovo XClarity Provisioning Manager, you can configure the UEFI settings for your server.

  Notes: The Lenovo XClarity Provisioning Manager provides a Graphical User Interface to configure a server. The text-based interface to system configuration (the Setup Utility) is also available. From Lenovo XClarity Provisioning Manager, you can choose to restart the server and access the text-based interface. In addition, you can choose to make the text-based interface the default interface that is displayed when you start LXPM. To do this, go to **Lenovo XClarity Provisioning Manager ➔ UEFI Setup ➔ System Settings ➔ <F1>Start Control ➔ Text Setup**. To start the server with Graphic User Interface, select **Auto** or **Tool Suite**.

  See the following documentations for more information:

  – Search for the LXPM documentation version compatible with your server at https://pubs.lenovo.com/lxpm-overview/
  – *UEFI User Guide* at https://pubs.lenovo.com/uefi-overview/

- **Lenovo XClarity Essentials OneCLI**

  You can use the config application and commands to view the current system configuration settings and make changes to Lenovo XClarity Controller and UEFI. The saved configuration information can be used to replicate or restore other systems.

  For information about configuring the server using Lenovo XClarity Essentials OneCLI, see:

  https://pubs.lenovo.com/lxce-onecli/onecli_c_settings_info_commands

- **Lenovo XClarity Administrator**

You can quickly provision and pre-provision all of your servers using a consistent configuration. Configuration settings (such as local storage, I/O adapters, boot settings, firmware, ports, and Lenovo XClarity Controller and UEFI settings) are saved as a server pattern that can be applied to one or more managed servers. When the server patterns are updated, the changes are automatically deployed to the applied servers.

Specific details about configuring the server using Lenovo XClarity Administrator are available at:

https://pubs.lenovo.com/lxca/server_configuring

- **Lenovo XClarity Controller**

  You can configure the management processor for the server through the Lenovo XClarity Controller Web interface, the command-line interface, or Redfish API.

  For information about configuring the server using Lenovo XClarity Controller, see:

  "Configuring the Server" section in the XCC documentation compatible with your server at https://pubs.lenovo.com/lxcc-overview/

Configure management port

Refer to the following section for more information on configuring management port.

Management port

The following Ethernet ports can be configured as management port in SD665-N V3 tray installed in DW612S.

1. Ethernet port on SMM2 (default)
2. 1 Gb RJ45 Ethernet port on the front of the node
3. 25 Gb SFP28 Ethernet port with share-NIC feature. Its location is specified in "Front view" on page 3.

Configure the management port

Use Lenovo XClarity Essentials OneCLI to configure the management port.

1. **Configure 25 Gb SFP28 Ethernet port with share-NIC feature as management port**
   `onecli config set IMM.SharedNicMode` *Shared* `--bmc` *<bmc_user_id>*:*<bmc_password>*@*<bmc_external_IP>*
2. **Configure 1 Gb RJ45 Ethernet port on the front of the node as management port**
   `onecli config set IMM.SharedNicMode` *Shared:nic0* `--bmc` *<bmc_user_id>*:*<bmc_password>*@*<bmc_external_IP>*
3. **Configure SMM2 Ethernet port as management port**
   `onecli config set IMM.SharedNicMode` *Dedicated* `--bmc` *<bmc_user_id>*:*<bmc_password>*@*<bmc_external_IP>*

Verify the result of management port configuration

Use the OneCLI command to verify the result of management port configuration:

`onecli config show IMM.SharedNicMode`

`Shared` or `Dedicated` would appear on the screen—`Shared` indicates 1 Gb RJ45 Ethernet port or 25 Gb SFP28 Ethernet port on ConnectX-6 LOM is the management port; `Dedicated` indicates SMM2 Ethernet port is the management port.

UEFI setup menu also shows the management port configuration. Go to **LXPM → UEFI Setup → BMC Settings → Network Settings → Network Interface Port**, and check whether the setting is `Shared` or `Dedicated`.
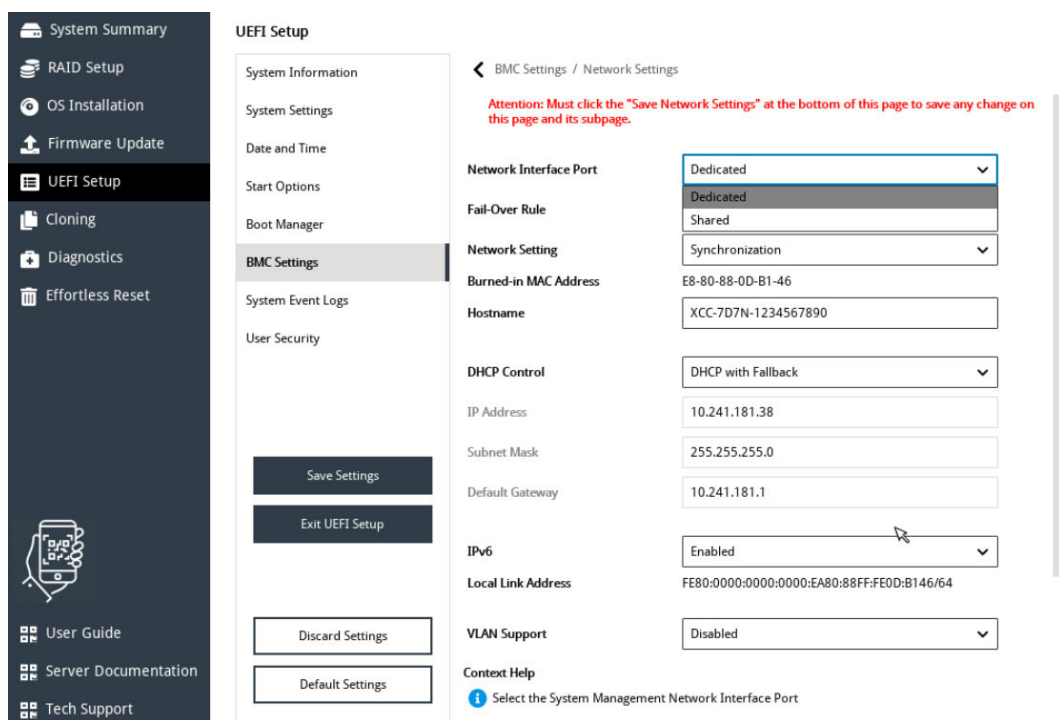
Memory module configuration

Memory performance depends on several variables, such as memory mode, memory speed, memory ranks, memory population and processor.

Information about optimizing memory performance and configuring memory is available at the Lenovo Press website:

https://lenovopress.lenovo.com/servers/options/memory

In addition, you can take advantage of a memory configurator, which is available at the following site:

https://dcsc.lenovo.com/#/memory_configuration

PSU configuration

Refer to the following section for more information on the PSU configurations.

SD665-N V3 PSU configurations

PSU support matrix

Validate the power requirements for your configuration using the latest version of the Power Configurator to ensure that the number of power supplies selected are adequate for supporting your chassis configuration. The Power Configurator tool can be found at https://datacentersupport.lenovo.com/solutions/lnvo-lcp.

CAUTION:
Failure to validate the configuration with the Power Configurator tool could result in system errors, failure to power on, or microprocessor throttling, and limiting system's ability to leverage all the microprocessor performance.

Notes:

- The tables below are based on nodes with all DIMM slots, PCIe slots, and hard disk drives populated.
- Installing different DWC trays in the DW612S enclosure requires specific PSU configuration, see Guidance on mixing trays configuration for the DW612S enclosure.

Component	SD665-N V3 support configurations
ThinkSystem 2600W (230V) v2 Titanium PSU	9 PSUs **Note:** Mixing PSUs manufactured by different vendors is not supported.
7200W Titanium DWC PSU	3 PSUs
High Power Midplane	Supported
SMM2	Supported

Power policy

Component	SD665-N V3 power policy
ThinkSystem 2600W (230V) v2 Titanium PSU	9 PSU: 8+1 without OVS
7200W Titanium DWC PSU	3 PSUs configured as 8+1 redundancy without OVS

Note: OVS (Oversubscription) of the power system allows for more efficient use of the available system power.

GPU power capping settings (trained technician only)

Refer to the following section for more information on GPU power capping. **This procedure is trained technician only.**

GPU power capping tools

You can set GPU power capping through XCC IPMI command. See the following sections for IPMI command.

XCC and firmware version

Make sure XCC firmware version is QGX312Q or above. To update XCC frimware, see "Update the firmware" on page 37.

Set up GPU power capping after replacing the system board

After replacing the system board, make sure to configure GPU power capping.

- To follow the same GPU power capping value as the replaced GPU, do the following:
  1. Before powering off the server, read the GPU power capping value, see "Reading GPU power capping value" on page 44.
  2. After powering on the server, configure the GPU power capping value, see "Configure GPU power capping with IPMI commands" on page 45.
- To set new power capping value, go to "Configure GPU power capping with IPMI commands" on page 45.

Reading GPU power capping value

Use IPMI command to read the GPU power capping value. See following for more details.

Steps:

1. Read user-defined GPU power capping value with command line below:

```
ipmitool raw 0x3a 0x6 0xc0 [Slot]
```

The return value would be as below:

```
ipmitool raw 0x3a 0x6 0xc0 [Slot]
[x] [y]
```

where
- [Slot] is GPU numbering—GPU 1: [Slot]= [3], GPU 2: [Slot]= [4], GPU 3: [Slot]= [5], GPU 4: [Slot]= [6]
- [x] is the first digit and [y] is the second and third digits of a three-digit hexadecimal number. Convert the hexadecimal number to decimal number. The decimal number is the power capping value.

For example, the return value below shows that the power capping value for GPU 3 is 600W. (converted from hexadecimal number 258).

```
ipmitool raw 0x3a 0x6 0xc0 3
02 58
```

Read every GPU power capping value and note down the power capping value.

If the value returned as "fail", proceed to Step 2.

2. **(Skip Step 2 if power capping value was read successfully in Step 1.)**

   Read default GPU power capping value with command line below:

   ```
   ipmitool raw 0x3a 0x0b 0xf2 0x0 0x10 0x02
   ```

   The return value would be as below:

   ```
   ipmitool raw 0x3a 0x0b 0xf2 0x0 0x10 0x02
   [x] [y]
   ```

   where [x] is the first digit and [y] is the second and third digits of a three-digit hexadecimal number. Convert the hexadecimal number to decimal number. The decimal number is the power capping value.

   For example, the return value below shows that the GPU power capping value is 600W. (converted from hexadecimal number 258).

   ```
   ipmitool raw 0x3a 0x0b 0xf2 0x0 0x10 0x02
   02 58
   ```

   Note down the power capping value.

Configure GPU power capping with IPMI commands

Notes:
- All four GPUs are power capped to the same wattage value.
- The GPUs can be configured to the following three power capping values:
  - TGP Max mode: 700W (default mode, maximum 4 trays in the enclosure)
  - TGP User selected optimal: 600W (maximum 5 trays in the enclosure)
  - TGP User selected minimum: 500W (maximum 6 trays in the enclosure)

Steps:

1. Convert the power capping wattage value from decimal number to hexadecimal number.

   Take 600W as an example, the decimal number 600 converts to hexadecimal number is: **258**

2. Set power capping with command line below:

   ```
   ipmitool raw 0x3a 0x6 0xc0 0xff [x] [y]
   ```

   where [slot] is the GPU numbering; [x] is the first digit and [y] is the second and third digits of the converted hexadecimal number.

   For example, the command line for power capping GPU to 600W is:

   ```
   ipmitool raw 0x3a 0x6 0xc0 0xff 0x2 0x58
   ```

3. After 30 to 50 seconds, read the power capping value with the following command:

```
ipmitool raw 0x3a 0x6 0xc0 [Slot]
```

The return value would be as below:
```
ipmitool raw 0x3a 0x6 0xc0 [Slot]
[x] [y]
```

where
- [Slot] is GPU numbering—GPU 1: [Slot]= [3], GPU 2: [Slot]= [4], GPU 3: [Slot]= [5], GPU 4: [Slot]= [6]
- [x] is the first digit and [y] is the second and third digits of a three-digit hexadecimal number. Convert the hexadecimal number to decimal number. The decimal number is the power capping value.

For example, the return value below shows that the power capping value for GPU 3 is 600W. (converted from hexadecimal number 258).
```
ipmitool raw 0x3a 0x6 0xc0 3
02 58
```

4. Read every GPU power capping value. If the response power capping value is incorrect, perform DC cycle to the system, and repeat step 2 to verify the value. If the problem persists, perform AC cycle or virtual reseat, and verify again.

Deploy the operating system

Several options are available to deploy an operating system on the server.

Available operating systems

- Red Hat Enterprise Linux
- SUSE Linux Enterprise Server

Complete list of available operating systems: https://lenovopress.lenovo.com/osig.

Tool-based deployment

- **Multi-server**

  Available tools:

  – Lenovo XClarity Administrator

    https://pubs.lenovo.com/lxca/compute_node_image_deployment

  – Lenovo XClarity Essentials OneCLI

    https://pubs.lenovo.com/lxce-onecli/onecli_r_uxspi_proxy_tool

  – Lenovo XClarity Integrator deployment pack for SCCM (for Windows operating system only)

    https://pubs.lenovo.com/lxci-deploypack-sccm/dpsccm_c_endtoend_deploy_scenario

- **Single-server**

  Available tools:

  – Lenovo XClarity Provisioning Manager

    "OS Installation" section in the LXPM documentation compatible with your server at https://pubs.lenovo.com/lxpm-overview/

  – Lenovo XClarity Essentials OneCLI

    https://pubs.lenovo.com/lxce-onecli/onecli_r_uxspi_proxy_tool

  – Lenovo XClarity Integrator deployment pack for SCCM (for Windows operating system only)

    https://pubs.lenovo.com/lxci-deploypack-sccm/dpsccm_c_endtoend_deploy_scenario

Manual deployment

If you cannot access the above tools, follow the instructions below, download the corresponding *OS Installation Guide*, and deploy the operating system manually by referring to the guide.

1. Go to https://datacentersupport.lenovo.com/solutions/server-os.

2. Select an operating system from the navigation pane and click **Resources**.

3. Locate the "OS Install Guides" area and click the installation instructions. Then, follow the instructions to complete the operation system deployment task.

Back up the server configuration

After setting up the server or making changes to the configuration, it is a good practice to make a complete backup of the server configuration.

Make sure that you create backups for the following server components:

- **Management processor**

  You can back up the management processor configuration through the Lenovo XClarity Controller interface. For details about backing up the management processor configuration, see:

  "Backing up the BMC configuration" section in the XCC documentation compatible with your server at https://pubs.lenovo.com/lxcc-overview/.

  Alternatively, you can use the `save` command from Lenovo XClarity Essentials OneCLI to create a backup of all configuration settings. For more information about the `save` command, see:

  https://pubs.lenovo.com/lxce-onecli/onecli_r_save_command

- **Operating system**

  Use your backup methods to back up the operating system and user data for the server.

Guidance on mixing trays configuration for the DW612S enclosure

Refer to the following section for more information on installing various direct water cooling trays into the DW612S enclosure.

DWC trays supported by the DW612S enclosure

1. SD650 V2

2. SD650-N V2

3. SD650 V3

4. SD650-I V3

5. SD650-N V3

6. SD665 V3

7. SD665-N V3

Mixing tray guidance

DW612S enclosure allows mixing trays configuration, which is installing different supporting trays in the same DW612S enclosure. Mixing trays configuration must meet the following requirements.

Mixing tray requirements

1. Enclosure total power consumption is reviewed and approved in Lenovo Capacity Planner (LCP): https://datacentersupport.lenovo.com/solutions/lnvo-lcp.

2. SMM2 is updated to the latest firmware.

3. If SD665-N V3 or SD650-N V3 is installed in the enclosure, only 2600W or 7200W PSUs are supported.

4. If SD650 V2 or SD650 V3 is installed in the enclosure and shared I/O configuration is enabled, the shared I/O special node power on/off sequence must be followed. See Shared I/O configuration specific power on and power off sequence.

5. Install the tray starting from enclosure bottom to top (node 1-2 to node 11-12). The tray placement order in the enclosure should be:

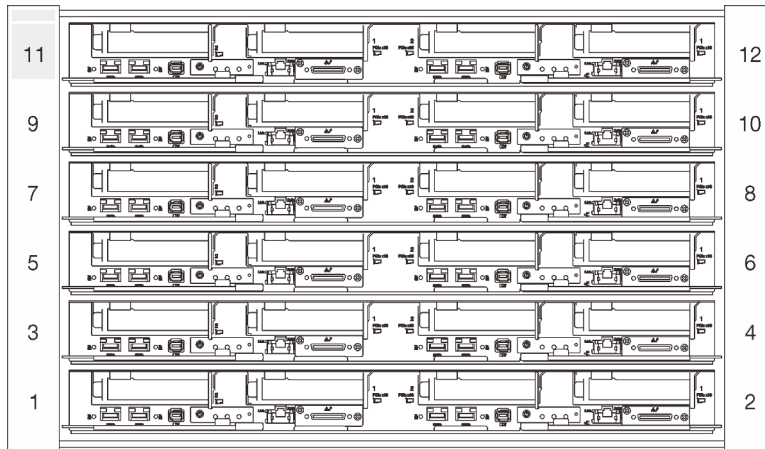**SD665-N V3 → SD650-N V3 → SD650-I V3 → SD650-N V2 → SD665 V3 → SD650 V3 → SD650 V2**

Figure 19. Front view of DW612S enclosure installed with six SD650 V3 tray

6. Refer to Lenovo Press https://lenovopress.lenovo.com/ for individual tray's maximum inlet water temperature supported and minimum flow rate required. Set CDU temperature setpoint to ensure the lowest maximum supported inlet water is not exceeded. Set CDU flow setpoint to ensure the largest minimum flow rate is delivered to every tray.

7. If encounter system error in mixing trays configurations, check if the system meets the requirements above. If system error remains, contact Lenovo technician.

Shared I/O configuration specific power on and power off sequence

- When viewed from the front of the tray, the right node is installed with main adapter, while the left node is either installed with the auxiliary adapter kit or connected to main adapter with the shared I/O cable.

- Power on sequence: first, power on the right node; then, power on the left node.

- Power off sequence: first, power off the left node; then, power off the right node.
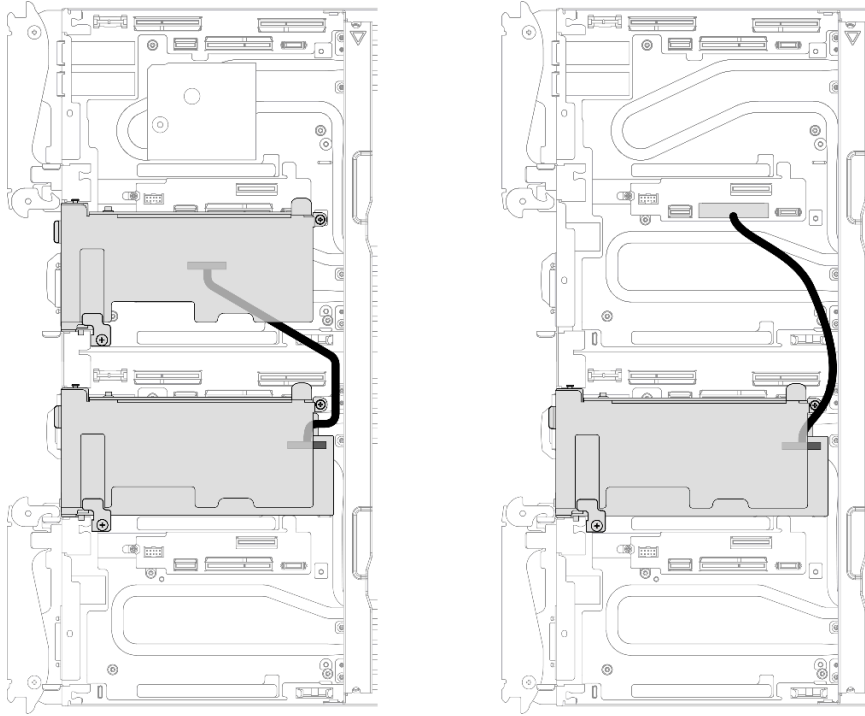
Figure 20. Left: shared I/O with auxiliary adapter kit, right: shared I/O with cable

Appendix A. Getting help and technical assistance

If you need help, service, or technical assistance or just want more information about Lenovo products, you will find a wide variety of sources available from Lenovo to assist you.

On the World Wide Web, up-to-date information about Lenovo systems, optional devices, services, and support are available at:

http://datacentersupport.lenovo.com

Note: IBM is Lenovo's preferred service provider for ThinkSystem.

Before you call

Before you call, there are several steps that you can take to try and solve the problem yourself. If you decide that you do need to call for assistance, gather the information that will be needed by the service technician to more quickly resolve your problem.

Attempt to resolve the problem yourself

You can solve many problems without outside assistance by following the troubleshooting procedures that Lenovo provides in the online help or in the Lenovo product documentation. The online help also describes the diagnostic tests that you can perform. The documentation for most systems, operating systems, and programs contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, see the documentation for the operating system or program.

You can find the product documentation for your ThinkSystem products at the following location:

https://pubs.lenovo.com/

You can take these steps to try to solve the problem yourself:

- Check all cables to make sure that they are connected.
- Check the power switches to make sure that the system and any optional devices are turned on.
- Check for updated software, firmware, and operating-system device drivers for your Lenovo product. (See the following links) The Lenovo Warranty terms and conditions state that you, the owner of the Lenovo product, are responsible for maintaining and updating all software and firmware for the product (unless it is covered by an additional maintenance contract). Your service technician will request that you upgrade your software and firmware if the problem has a documented solution within a software upgrade.

  - Drivers and software downloads

    - https://datacentersupport.lenovo.com/products/servers/thinksystem/sd665nv3/7daz/downloads/driver-list/

  - Operating system support center

    - https://datacentersupport.lenovo.com/solutions/server-os

  - Operating system installing instructions

    - https://pubs.lenovo.com/thinksystem#os-installation

- If you have installed new hardware or software in your environment, check https://serverproven.lenovo.com to make sure that the hardware and software are supported by your product.

- Refer to "Problem Determination" in *User Guide* or *Hardware Maintenance Guide* for instructions on isolating and solving issues.

- Go to http://datacentersupport.lenovo.com and check for information to help you solve the problem.

  To find the Tech Tips available for your server:

  1. Go to http://datacentersupport.lenovo.com and navigate to the support page for your server.
  2. Click on **How To's** from the navigation pane.
  3. Click **Article Type → Solution** from the drop-down menu.

     Follow the on-screen instructions to choose the category for the problem that you are having.
- Check Lenovo Data Center Forum at https://forums.lenovo.com/t5/Datacenter-Systems/ct-p/sv_eg to see if someone else has encountered a similar problem.

Gathering information needed to call Support

If you require warranty service for your Lenovo product, the service technicians will be able to assist you more efficiently if you prepare the appropriate information before you call. You can also go to http://datacentersupport.lenovo.com/warrantylookup for more information about your product warranty.

Gather the following information to provide to the service technician. This data will help the service technician quickly provide a solution to your problem and ensure that you receive the level of service for which you might have contracted.

- Hardware and Software Maintenance agreement contract numbers, if applicable
- Machine type number (Lenovo 4-digit machine identifier). Machine type number can be found on the ID label, see "Identify the solution and access the Lenovo XClarity Controller" on page 29.
- Model number
- Serial number
- Current system UEFI and firmware levels
- Other pertinent information such as error messages and logs

As an alternative to calling Lenovo Support, you can go to https://support.lenovo.com/servicerequest to submit an Electronic Service Request. Submitting an Electronic Service Request will start the process of determining a solution to your problem by making the pertinent information available to the service technicians. The Lenovo service technicians can start working on your solution as soon as you have completed and submitted an Electronic Service Request.

Collecting service data

To clearly identify the root cause of a server issue or at the request of Lenovo Support, you might need collect service data that can be used for further analysis. Service data includes information such as event logs and hardware inventory.

Service data can be collected through the following tools:

- **Lenovo XClarity Provisioning Manager**

  Use the Collect Service Data function of Lenovo XClarity Provisioning Manager to collect system service data. You can collect existing system log data or run a new diagnostic to collect new data.

- **Lenovo XClarity Controller**

  You can use the Lenovo XClarity Controller web interface or the CLI to collect service data for the server. The file can be saved and sent to Lenovo Support.

  – For more information about using the web interface to collect service data, see the "Backing up the BMC configuration" section in the XCC documentation compatible with your server at https://pubs.lenovo.com/lxcc-overview/.

- For more information about using the CLI to collect service data, see the "XCC `ffdc` command" section in the XCC documentation compatible with your server at https://pubs.lenovo.com/lxcc-overview/.

- **Lenovo XClarity Administrator**

  Lenovo XClarity Administrator can be set up to collect and send diagnostic files automatically to Lenovo Support when certain serviceable events occur in Lenovo XClarity Administrator and the managed endpoints. You can choose to send diagnostic files to Lenovo Support using Call Home or to another service provider using SFTP. You can also manually collect diagnostic files, open a problem record, and send diagnostic files to the Lenovo Support.

  You can find more information about setting up automatic problem notification within the Lenovo XClarity Administrator at https://pubs.lenovo.com/lxca/admin_setupcallhome.

- **Lenovo XClarity Essentials OneCLI**

  Lenovo XClarity Essentials OneCLI has inventory application to collect service data. It can run both in-band and out-of-band. When running in-band within the host operating system on the server, OneCLI can collect information about the operating system, such as the operating system event log, in addition to the hardware service data.

  To obtain service data, you can run the `getinfor` command. For more information about running the `getinfor`, see https://pubs.lenovo.com/lxce-onecli/onecli_r_getinfor_command.

Contacting Support

You can contact Support to obtain help for your issue.

You can receive hardware service through a Lenovo Authorized Service Provider. To locate a service provider authorized by Lenovo to provide warranty service, go to https://datacentersupport.lenovo.com/serviceprovider and use filter searching for different countries. For Lenovo support telephone numbers, see https://datacentersupport.lenovo.com/supportphonelist for your region support details.

Appendix B. Documents and supports

This section provides handy documents, driver and firmware downloads, and support resources.

Documents download

This section provides introduction and download link for handy documents.

Documents

Download the following product documentations at:

https://pubs.lenovo.com/sd665-n-v3/pdf_files

- *Rail Installation Guides*

  – Rail Installation Guide for DW612S Enclosure

- *SD665-N V3 Neptune DWC Tray User Guide*

  Complete overview, system configuration, hardware components replacing, and troubleshooting.

  Selected chapters from *User Guide*:

  – *System Configuration Guide* : Server overview, components identification, system LEDs and diagnostics display, product unboxing, setting up and configuring the server.

  – *Hardware Maintenance Guide* : Installing hardware components, cable routing, and troubleshooting.

- *SD665-N V3 Message and Code Reference*

  XClarity Controller, LXPM, and uEFI events

  For SMM2 Messages, see *ThinkSystem DW612S Neptune DWC Enclosure SMM2 Messages and Codes Reference*.

- *UEFI Manual*

  – UEFI setting introduction

Notes: SD665-N V3 tray can be installed in the DW612S 6U enclosure, which can be installed in the ThinkSystem Heavy Duty Full Depth Rack Cabinets. The documentations below are available for download:

- *DW612S Enclosure User Guide*
- *ThinkSystem Heavy Duty Full Depth Rack Cabinets User Guide*

Support websites

This section provides driver and firmware downloads and support resources.

Support and downloads

- Drivers and Software download website for ThinkSystem SD665-N V3

  – https://datacentersupport.lenovo.com/products/servers/thinksystem/sd665nv3/7daz/downloads/driver-list/

- Lenovo Data Center Forum

  – https://forums.lenovo.com/t5/Datacenter-Systems/ct-p/sv_eg

- Lenovo Data Center Support for ThinkSystem SD665-N V3

  – https://datacentersupport.lenovo.com/products/servers/thinksystem/sd665nv3/7daz

- Lenovo License Information Documents

  - https://datacentersupport.lenovo.com/documents/lnvo-eula

- Lenovo Press website (Product Guides/Datasheets/White papers)

  - https://lenovopress.lenovo.com/

- Lenovo Privacy Statement

  - https://www.lenovo.com/privacy

- Lenovo Product Security Advisories

  - https://datacentersupport.lenovo.com/product_security/home

- Lenovo Product Warranty Plans

  - http://datacentersupport.lenovo.com/warrantylookup

- Lenovo Server Operating Systems Support Center website

  - https://datacentersupport.lenovo.com/solutions/server-os

- Lenovo ServerProven website (Options compatibility lookup)

  - https://serverproven.lenovo.com

- Operating System Installation Instructions

  - https://pubs.lenovo.com/thinksystem#os-installation

- Submit an eTicket (service request)

  - https://support.lenovo.com/servicerequest

- Subscribe to Lenovo Data Center Group product notifications (Stay up to date on firmware updates)

  - https://datacentersupport.lenovo.com/solutions/ht509500

Appendix C. Notices

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Any performance data contained herein was determined in a controlled environment. Therefore, the result obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

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Important notes

Processor speed indicates the internal clock speed of the processor; other factors also affect application performance.

CD or DVD drive speed is the variable read rate. Actual speeds vary and are often less than the possible maximum.

When referring to processor storage, real and virtual storage, or channel volume, KB stands for 1 024 bytes, MB stands for 1 048 576 bytes, and GB stands for 1 073 741 824 bytes.

When referring to hard disk drive capacity or communications volume, MB stands for 1 000 000 bytes, and GB stands for 1 000 000 000 bytes. Total user-accessible capacity can vary depending on operating environments.

Maximum internal hard disk drive capacities assume the replacement of any standard hard disk drives and population of all hard-disk-drive bays with the largest currently supported drives that are available from Lenovo.

Maximum memory might require replacement of the standard memory with an optional memory module.

Each solid-state memory cell has an intrinsic, finite number of write cycles that the cell can incur. Therefore, a solid-state device has a maximum number of write cycles that it can be subjected to, expressed as `total bytes written` (TBW). A device that has exceeded this limit might fail to respond to system-generated commands or might be incapable of being written to. Lenovo is not responsible for replacement of a device that has exceeded its maximum guaranteed number of program/erase cycles, as documented in the Official Published Specifications for the device.

Lenovo makes no representations or warranties with respect to non-Lenovo products. Support (if any) for the non-Lenovo products is provided by the third party, not Lenovo.

Some software might differ from its retail version (if available) and might not include user manuals or all program functionality.

Electronic emission notices

When you attach a monitor to the equipment, you must use the designated monitor cable and any interference suppression devices that are supplied with the monitor.

Additional electronic emissions notices are available at:

Taiwan region BSMI RoHS declaration

單元 Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛Lead (PB)	汞Mercury (Hg)	鎘Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr^{+6})	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
機架	○	○	○	○	○	○
外部蓋板	○	○	○	○	○	○
機械組合件	–	○	○	○	○	○
空氣傳動設備	–	○	○	○	○	○
冷卻組合件	–	○	○	○	○	○
內存模組	–	○	○	○	○	○
處理器模組	–	○	○	○	○	○
電纜組合件	–	○	○	○	○	○
儲備設備	–	○	○	○	○	○
印刷電路板	–	○	○	○	○	○

備考1.〝超出0.1 wt %〞及〝超出0.01 wt %〞係指限用物質之百分比含量超出百分比含量基準值。

Note1 : "exceeding 0.1wt%" and "exceeding 0.01 wt%" indicate that the percentage content
of the restricted substance exceeds the reference percentage value of presence condition.

備考2.〝○〞係指該項限用物質之百分比含量未超出百分比含量基準值。

Note2 : "○"indicates that the percentage content of the restricted substance does not exceed the
percentage of reference value of presence.

備考3.〝-〞係指該項限用物質為排除項目。

Note3 : The "-" indicates that the restricted substance corresponds to the exemption.

Taiwan Region import and export contact information

Contacts are available for Taiwan Region import and export information.

委製商/進口商名稱: 台灣聯想環球科技股份有限公司
進口商地址: 台北市南港區三重路 66 號 8 樓
進口商電話: 0800-000-702