Dell EMC VxRail™ S Series Appliance

Owner's Manual

Regulatory Model: E31S Series
Regulatory Type: E31S001

Notes, cautions, and warnings

NOTE: A NOTE indicates important information that helps you make better use of your product.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

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Overview

The VxRail™ S Series appliance is a hyper-converged appliance that supports:

- Up to two Intel Xeon E5-2600 v4 processors
- Up to 24 DIMMs
- Two AC or DC redundant power supply units
- 12 drive hard drives and 2 solid state drives (SSDs)

NOTE: The appliance supports only internal, hot swappable hard drives.

NOTE: In this document, HDD generically refers to both HDD and SSD.

Topics:

Supported configurations

The VxRail™ S Series appliance supports the following configurations:

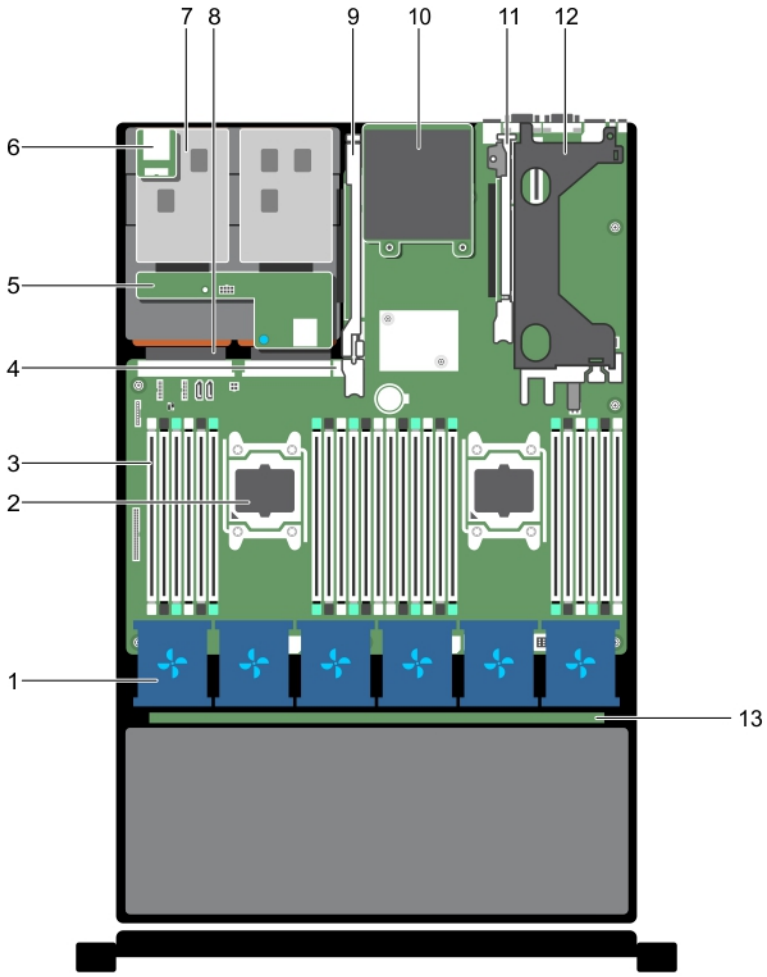

Figure 1. Supported configurations

1	Cooling fan in the cooling fan assembly (6)	2	Processor (2)
3	DIMMs (24)	4	Internal USB port
5	Hard drive backplane (back)	6	Hard drive (2) (back)
7	Power supply unit (2)	8	PSU connector
9	Expansion card riser 3	10	Network daughter card
11	Expansion card riser 2	12	Expansion card riser 1
13	Hard drive backplane		

Front panel

The front panel provides access to the features available on the front of the appliance, such as the power button, NMI button, appliance identification tag, appliance identification button, and USB ports. The diagnostic LEDs are prominently located on the front panel. The hot swappable hard drives are accessible from the front panel.

12 x 3.5-inch hard drive

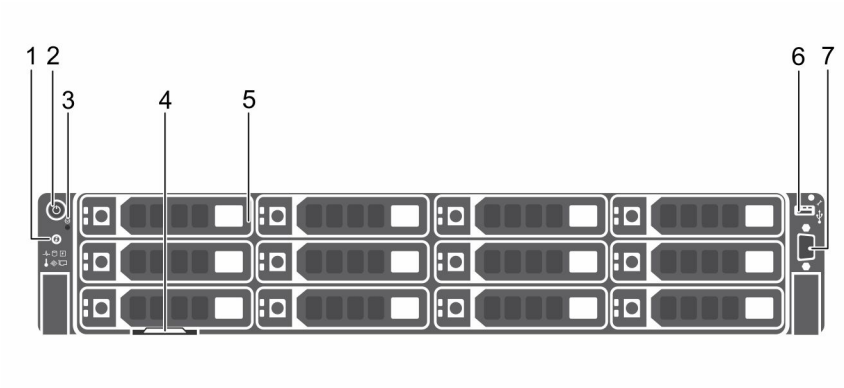

Figure 2. 12 x 3.5-inch hard drive chassis

1	Appliance identification button	2	Power button
3	NMI button	4	Information tag
5	Hard drives	6	USB management port/iDRAC Direct
7	Video connector		

Table 1. Front panel of the 12 x 3.5-inch hard drive chassis

Item	Indicator, Button, or Connector	Icon	Description
1	Appliance identification button		Enables you to locate a particular appliance within a rack. The identification buttons are located on the front and back panels. Press the appliance identification button to turn the appliance ID on or off. **NOTE:** · If the appliance stops responding during POST, press and hold the appliance ID button (for more than five seconds) to enter BIOS progress mode. · To reset the iDRAC (if not disabled in F2 iDRAC setup) press and hold the button (for more than 15 seconds).
2	Power button		Enables you to know the power status of the appliance. The power indicator turns on when the appliance power is on. The power button controls the power supply output to the appliance. **NOTE: On ACPI compliant operating systems, when the power button is used to shutdown the appliance, the operating system performs a graceful shut down the appliance power is turned off.**

Item	Indicator, Button, or Connector	Icon	Description
3	NMI button		Enables you to troubleshoot software and device driver errors when running certain operating systems. This button can be pressed by using the end of a paper clip. **NOTE: Use this button only if directed to do so by qualified support personnel or by instructions in the operating system's documentation.**
4	Information tag		Contains appliance information such as Service Tag, NIC, MAC address for your reference. The information tag is a slide-out label panel.
5	Hard drives		Up to twelve 3.5 inch hot-swappable hard drives.
6	USB management port/iDRAC Direct		The USB management port is USB 2.0 compliant. Enables you to connect USB devices to the appliance or provides access to the iDRAC Direct features. For more information, see the Integrated Dell Remote Access Controller User's Guide at **Dell.com/idracmanuals**.
7	Video connector		Enables you to connect a display to the appliance.

Back panel

The back panel provides access to the features available on the back of the appliance, such as the appliance identification button, power supply sockets, cable management arm connectors, NIC ports, and USB ports. A majority of the expansion card ports can be accessed from the back panel.

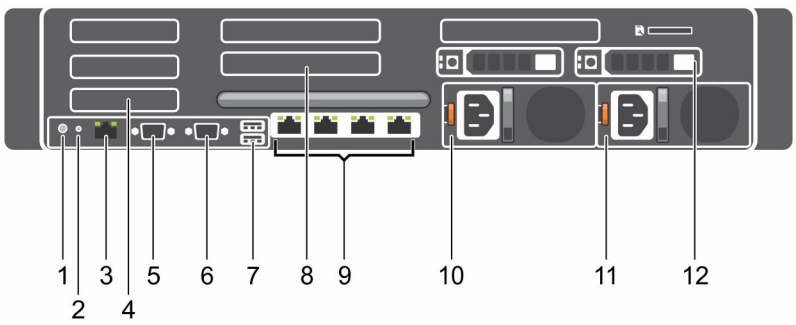

Figure 3. Back panel features

1	Appliance identification button	2	Appliance identification connector
3	iDRAC8 Enterprise port	4	Half-height PCIe expansion card slot
5	Serial connector	6	Video connector
7	USB port	8	Full-height PCIe expansion card slot
9	Ethernet connector	10	Power supply unit 1
11	Power supply unit 2	12	Hard drive

Table 2. Back panel features

Item	Indicator, button, or connector	Icon	Description
1	Appliance identification button		The identification buttons on the front and back panels can be used to locate a particular appliance within a rack. Press to toggle the appliance identification (ID) on or off. If the appliance stops responding during POST, press and hold the appliance ID button for more than five seconds to enter BIOS progress mode. To reset iDRAC (if not disabled in F2 iDRAC setup) press and hold the button for more than 15 seconds.
2	Appliance identification connector		Connects the optional appliance status indicator assembly through the optional cable management arm.
3	iDRAC8 Enterprise port		Dedicated management port.
4	Half-height PCIe expansion card slot (3)		Enables you to connect up to three half-height PCI Express expansion cards.
5	Serial connector		Enables you to connect a serial device to the appliance.
6	Video connector		Enables you to connect a VGA display to the appliance.
7	USB port (2)		Enables you to connect USB devices to the appliance. The ports are USB 3.0-compliant.
8	Full-height PCIe expansion card slot (3)		Enables you to connect up to three full-height PCI Express expansion cards.
9	Ethernet connector (4)		Four integrated connectors that include: • Two 10/100/1000 Mbps RJ45 connectors • Two 100 Mbps/1 Gbps/10 Gbps SFP+ or RJ45 connectors
10	Power supply unit (PSU1)		**AC** 1100 W or **DC** 1100 W
11	Power supply unit (PSU2)		**AC** 1100 W or **DC** 1100 W
12	Hard drive (2) (back)		Up to two hot-swappable 2.5-inch solid state drives.

Diagnostic indicators

The diagnostic indicators on the appliance indicate operation and error status.

Diagnostic indicators on the front panel

NOTE: No diagnostic indicators are lit when the appliance is turned off. To start the appliance, plug it into a working power source and press the power button.

Table 3. Diagnostic indicators

Icon	Description	Condition	Corrective action
	Health indicator	The indicator turns solid blue if the appliance is in good health.	None required.
		The indicator flashes amber: • When the appliance is turned on. • When the appliance is in standby. • If any error condition exists. For example, a failed fan, PSU, or a hard drive.	Check the System Event Log or system messages for the specific issue. For more information about error messages, see the *Dell Event and Error Messages Reference Guide* at **Dell.com/openmanagemanuals** > **OpenManage software**. The POST process is interrupted without any video output due to invalid memory configurations. See the Getting help section.
	Hard drive indicator	The indicator flashes amber if there is a hard drive error.	Check the System Event Log to determine the hard drive that has an error. Run the appropriate Online Diagnostics test. Restart the appliance and run embedded diagnostics (ePSA).
	Electrical indicator	The indicator flashes amber if the appliance experiences an electrical error (for example, voltage out of range, or a failed power supply unit (PSU) or voltage regulator).	Check the System Event Log or system messages for the specific issue. If it is due to a problem with the PSU, check the LED on the PSU. Reseat the PSU. If the problem persists, see the Getting help section.
	Temperature indicator	The indicator flashes amber if the appliance experiences a thermal error (for example, the ambient temperature is out of range or fan failure).	Ensure that none of the following conditions exist: • A cooling fan has been removed or has failed. • Appliance cover, cooling shroud, EMI filler panel, memory module blank, or back filler bracket is removed. • Ambient temperature is too high. • External airflow is obstructed. See the Getting help section.
	Memory indicator	The indicator flashes amber if a memory error occurs.	Check the system event log or system messages for the location of the failed memory. Reseat the memory module. If the problem persists, see the Getting help section.

Related links

Getting help

Hard drive indicator codes

Each hard drive carrier has an activity indicator and a status indicator. The indicators provide information about the current status of the hard drive. The activity LED indicates whether hard drive is currently in use or not. The status LED indicates the power condition of the hard drive.

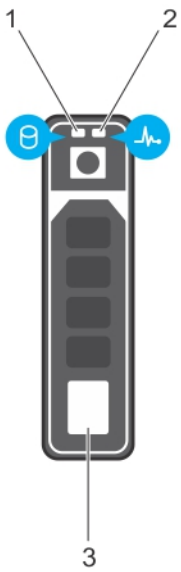

Figure 4. Hard drive indicators

1	Hard drive activity indicator	2	Hard drive status indicator
3	Hard drive		

NOTE: If the hard drive is in the Advanced Host Controller Interface (AHCI) mode, the status indicator (on the right side) does not turn on.

Table 4. Hard drive indicator codes

Drive-status indicator pattern	Condition
Flashes green twice per second	Identifying drive or preparing for removal.

NIC indicator codes

The NIC on the back panel has an indicator that provides information about the network activity and link status. The activity LED indicates whether the NIC is currently connected or not. The link LED indicates the speed of the connected network.

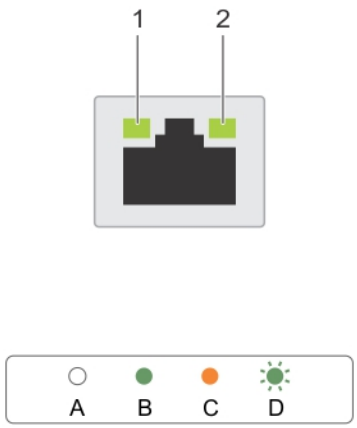

Figure 5. NIC indicators

1	link indicator	2	activity indicator

Table 5. NIC indicators

Convention	Status	Condition
A	Link and activity indicators are off	The NIC is not connected to the network.
B	Link indicator is green	The NIC is connected to a valid network at its maximum port speed (1 Gbps or 10 Gbps).
C	Link indicator is amber	The NIC is connected to a valid network at less than its maximum port speed.
D	Activity indicator is flashing green	Network data is being sent or received.

Power supply unit indicator codes

AC power supply units (PSUs) have an illuminated translucent handle that serves as an indicator and DC PSUs have an LED that serves as an indicator. The indicator shows whether power is present or a power fault has occurred.

Figure 6. AC PSU status indicator

1 AC PSU status indicator/handle

Table 6. AC PSU status indicators

Convention	Power indicator pattern	Condition
A	Green	A valid power source is connected to the PSU and the PSU is operational.
B	Flashing green	When the firmware of the PSU is being updated, the PSU handle flashes green.
C	Flashing green and turns off	When hot-adding a PSU, the PSU handle flashes green five times at 4 Hz rate and turns off. This indicates a PSU mismatch with respect to efficiency, feature set, health status, and supported voltage. **NOTE: Ensure that both the PSUs are of the same capacity.** **CAUTION: For AC PSUs, use only PSUs with the Extended Power Performance (EPP) label on the back.**
D	Flashing amber	Indicates a problem with the PSU. **CAUTION: When correcting a PSU mismatch, replace only the PSU with the flashing indicator. Swapping the PSU to make a matched pair can result in an error condition and unexpected appliance shutdown. To change from a high output configuration to a low output configuration or vice versa, you must turn off the appliance.** **CAUTION: If two PSUs are used, they must be of the same type and have the same maximum output power.** **CAUTION: Combining AC and DC PSUs is not supported and triggers a mismatch.**
E	Not lit	Power is not connected.

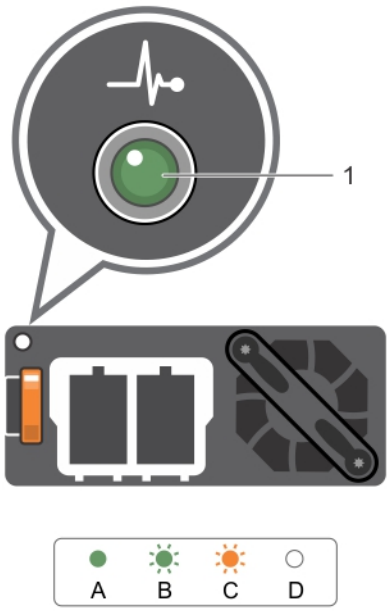

Figure 7. DC PSU status indicator

1 DC PSU status indicator

Table 7. DC PSU status indicators

Convention	Power indicator pattern	Condition
A	Green	A valid power source is connected to the PSU and that the PSU is operational.
B	Flashing green	When hot-adding a PSU, the PSU indicator flashes green. This indicates that there is a PSU mismatch with respect to efficiency, feature set, health status, and supported voltage. Ensure that both the PSUs are of the same capacity.
C	Flashing amber	Indicates a problem with the PSU. **CAUTION: When correcting a PSU mismatch, replace only the PSU with the flashing indicator. Swapping the PSU to make a matched pair can result in an error condition and unexpected appliance shutdown. To change from a High Output configuration to a Low Output configuration or vice versa, you must turn off the appliance.** **CAUTION: If two PSU are used, they must be of the same type and have the same maximum output power.** **CAUTION: Combining AC and DC PSU is not supported and triggers a mismatch.**
D	Not lit	Power is not connected.

iDRAC Direct LED indicator codes

The iDRAC Direct LED indicator lights up to indicate that the port is connected and is being used as a part of the iDRAC subsystem.

NOTE: The iDRAC Direct LED indicator does not turn on when the USB port is used in the USB mode.

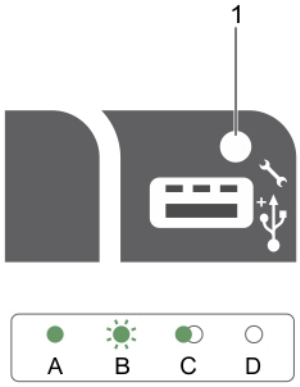

Figure 8. iDRAC Direct LED indicator

1 iDRAC Direct status indicator

The iDRAC Direct LED indicator table describes iDRAC Direct activity when configuring iDRAC Direct by using the management port (USB XML Import).

Table 8. iDRAC Direct LED indicators

Convention	iDRAC Direct LED indicator pattern	Condition
A	Green	Turns green for a minimum of two seconds to indicate the start and end of a file transfer.
B	Flashing green	Indicates file transfer or any operation tasks.
C	Green and turns off	Indicates that the file transfer is complete.
D	Not lit	Indicates that the USB is ready to be removed or that a task is complete.

The following table describes iDRAC Direct activity when configuring iDRAC Direct by using your laptop and cable (Laptop Connect):

Table 9. iDRAC Direct LED indicator patterns

iDRAC Direct LED indicator pattern	Condition
Solid green for two seconds	Indicates that the laptop is connected.
Flashing green (on for two seconds and off for two seconds)	Indicates that the laptop connected is recognized.
Turns off	Indicates that the laptop is unplugged.

Locating serial number of your appliance

To get support for your appliance, use the VxRail Appliance serial number, also called the "PSNT" (Product Serial Number Tag). The PSNT is a 14-digit number used to identify your appliance to Dell EMC support.

NOTE: Only use the VxRail Appliance serial number to contact Customer Support. Sometimes, you may need to supply the 8-digit Service Tag number

There are two identification tags on your appliance:

- The VxRail appliance serial number—You can find the serial number in **VxRail Manager**, or printed on the information tag.
- The Service Tag — You can find the Srvice Tag printed on the physical appliance.

Looking up your appliance serial number in VxRail Manager

1 In **VxRail Manager**, on the left navigation bar, click **Health**.
2 To display appliance information, click **Physical**.
3 Observe the VxRail Appliance serial number, listed under the appliance ID as the **PSNT**.

Locating your physical VxRail™ Service Tag number

Your hardware is identified by a unique Service Tag number. The Service Tag is found on the front of the appliance by pulling out the information tag.

Alternatively, the information may be on a sticker on the chassis of the appliance. This information is used by Dell EMC to route support calls to the appropriate personnel.

NOTE: Use the 8-digit Service Tag, only if instructed by Technical Support.

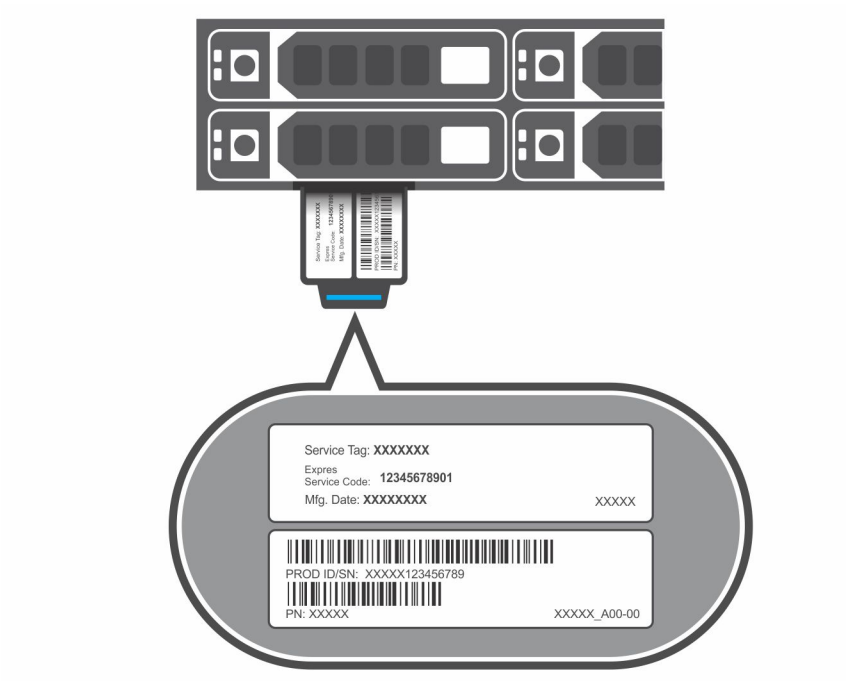

Figure 9. VxRail™ Service Tag

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Documentation matrix

The documentation matrix provides information on documents that you can refer to for setting up and managing your appliance.

Table 10. Documentation matrix

Document	Provides information about...	Location
Software Documents		
Online help in the VxRail Manager UI	All admin tasks, licensing, and product architecture information.	VxRail Manager Online Help
Administrator Guide	Help with admin tasks and includes conceptual information.	**emc.com/vxrailsupport**
Release Notes	Product-related information that includes critical information about the release.	**emc.com/vxrailsupport**
Hardware Documents		
Getting started with your appliance	Technical specifications.	**emc.com/vxrailsupport**
Owner's Manual	All the hardware details for your appliance along with technical specifications.	**emc.com/vxrailsupport**
Service Procedure Documents		
SolVe Desktop application	The SolVe Desktop application gathers critical information from EMC product guides and combines it with expert Dell EMC support advice to generate a procedure document that is concise and task driven.	EMC Online Support site **NOTE: Download the SolVe Desktop application, all generators are available within the Solve Desktop.**

3

Technical specifications

The technical and environmental specifications of your appliance are outlined in this section.

Chassis dimensions

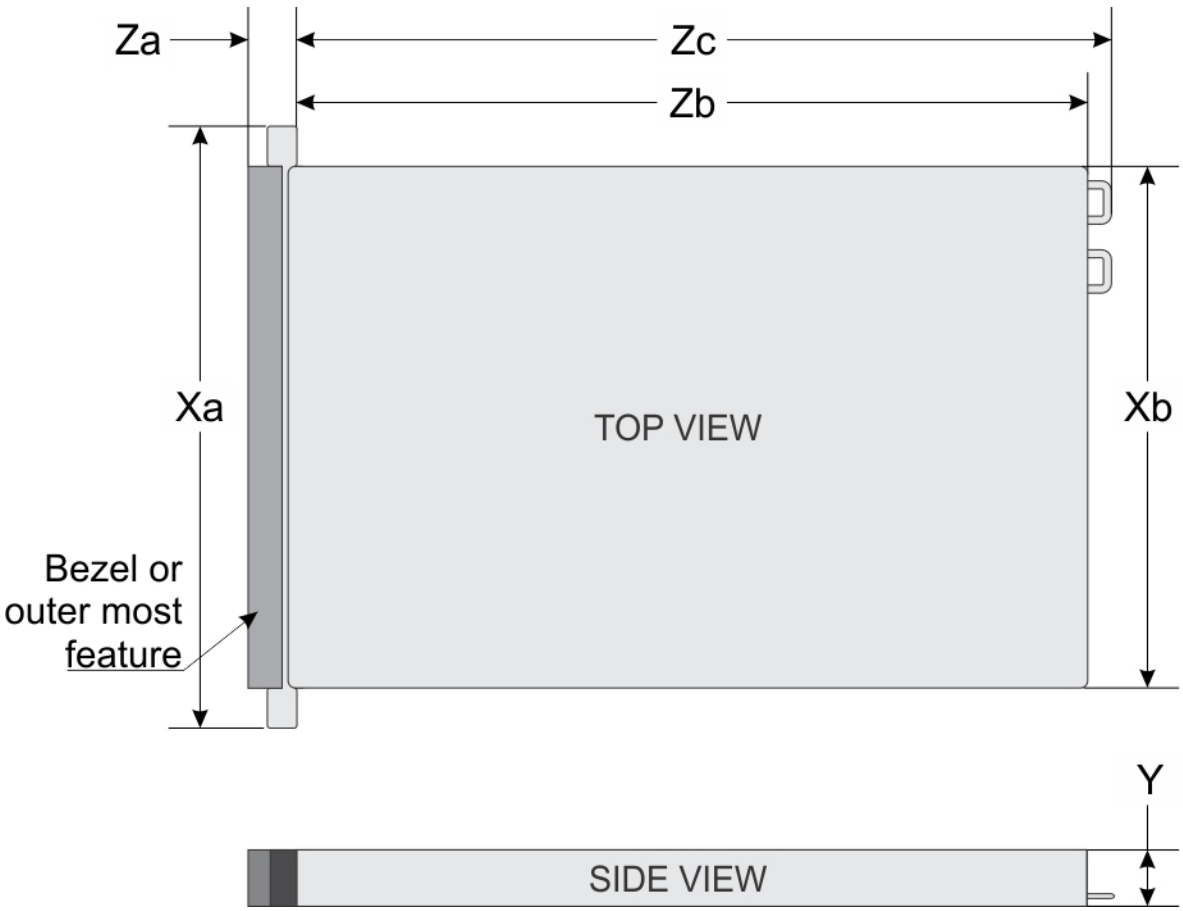

Figure 10. Chassis dimensions

Table 11. Dimension details

Appliance	Xa	Xb	Y	Za (with bezel)	Za (without bezel)	Zb	Zc
12 x 3.5-inch hard drive	482.4 mm	444.0 mm	87.3 mm	32.0 mm	18.0 mm	684.0 mm	723.0 mm

Chassis weight

The VxRail™ S Series appliance supports 12 x 3.5-inch hard drive and two 2.5-inch back-accessible hard drives with maximum weight of 36.5 kg (80.47 lb)

Processor specifications

The VxRail™ S Series appliance supports two Intel Xeon E5-2600 v4 product family processors.

PSU specifications

The VxRail™ S Series appliance supports two AC or DC redundant power supply units (PSUs).

Table 12. PSU specifications

PSU	Class	Heat dissipation (maximum)	Frequency	Voltage
1100 W AC	Platinum	4100 BTU/hr	50/60 Hz	100–240 V AC, autoranging
1100 W DC	N/A	4416 BTU/hr	N/A	–(48–60) V DC

NOTE: Heat dissipation is calculated by using the PSU wattage rating.

NOTE: This appliance is also designed to connect to the IT power systems with a phase to phase voltage not exceeding 230 V.

Battery specifications

The VxRail™ S Series appliance supports CR 2032 3.0-V lithium coin cell battery.

Expansion bus specifications

The VxRail™ S Series appliance supports PCI express (PCIe) generation 3 expansion cards, which must be available on the system board by using expansion card risers. This appliance supports three types of expansion card risers. The following table provides detailed information about the expansion card riser specifications:

NOTE: When using slot 1 and slot 2 on the riser, ensure that both the processors are available on the appliance.

Table 13. Expansion card riser specifications

Expansion card riser	PCIe slots on the riser	Height	Length	Link
Riser 1	Slot 1	half-height	low-profile	x8
Riser 1	Slot 2	half-height	low-profile	x8
Riser 1	Slot 3	half-height	low-profile	x8
Riser 2	Slot 4	full-height	full-length	x16
Riser 2	Slot 5	full-height	full-length	x8
Riser 3 (alternate)	Slot 6	full-height	full-length	x16

NOTE: When using slots 1 through 4 on the riser, ensure that both the processors are available on the appliance.

Memory specifications

The VxRail™ S Series appliance supports DDR4 registered DIMMs (RDIMMs) and load-reduced DIMMs (LRDIMMs). Supported memory bus frequencies are 1866 MT/s, 2133MT/s, or 2400 MT/s.

Table 14. Memory specifications

Memory module sockets	Memory capacity	Minimum RAM	Maximum RAM
Twenty-four 288-pins	• 16 GB or 32 GB dual rank (RDIMMs) • 64 GB quad rank (LRDIMMs)	• 128 GB with dual processors (minimum four memory modules per processor) • 64 GB with single processor (minimum four memory modules)	• LRDIMM up to 786 GB with a single processor • LRDIMM up to 1,536 GB with dual processors • RDIMM up to 384 GB with a single processor • RDIMM up to 786 GB with a dual processor

Hard drive specifications

The VxRail™ S Series appliance supports up to twelve 3.5-inch hard drives and two 2.5-inch back-accessible solid-state drives (SSDs).

Ports and connectors specifications

USB ports

The VxRail™ S Series appliance supports:

- One 4-pin USB 2.0 - compliant port on the front panel
- One USB management port/iDRAC Direct on the front panel
- Two 9-pin USB 3.0 - complaint ports on the back panel

NIC ports

The VxRail™ S Series appliance supports four Network Interface Controller (NIC) ports on the back panel, which is available in one of the following NIC configurations:

- Two 1 Gbps RJ45 connectors and two 10 Gbps SFP+ or RJ45 connectors

Serial connector

The serial connector connects a serial device to the appliance. The VxRail™ S Series appliance supports one serial connector on the back panel, which is a 9-pin connector, Data Terminal Equipment (DTE), 16550-compliant.

VGA ports

The Video Graphic Array (VGA) port enables you to connect the appliance to a VGA display. The S series appliance supports two 15-pin VGA ports on the front and back panels.

Internal dual SD Module

The Internal Dual SD module (IDSDM) provides you with a redundant SD card solution. The IDSDM card offers the following feature:

- Dual card operation — Maintains a mirrored configuration by using SD cards in both the slots and provides redundancy.

NOTE: The IDSDM on the VxRail appliance is pre-configured for appliance bare metal recovery. Do not change any of the settings.

Video specifications

The S series appliance supports Matrox G200eR2 graphics card with 16 MB capacity.

Table 15. Resolution information for video modes

Resolution	Refresh rate (Hz)	Color depth (bit)
640 X 480	60, 70	8, 16, 32
800 X 600	60, 75, 85	8, 16, 32
1024 X 768	60, 75, 85	8, 16, 32
1152 X 864	60, 75, 85	8, 16, 32
1280 X 1024	60, 75	8, 16, 32
1440 X 900	60	8, 16, 32

Environmental specifications

Table 16. Temperature specifications

Temperature	Specifications
Storage	–40°C to 65°C (–40°F to 149°F)
Continuous operation (for altitude less than 950 m or 3117 ft)	10°C to 35°C (50°F to 95°F) with no direct sunlight on the equipment. **NOTE: Maximum of 120 W 18 core processors is supported in the appliance.**
Maximum temperature gradient (operating and storage)	20°C/h (36°F/h)

Table 17. Relative humidity specifications

Relative humidity	Specifications
Storage	5% to 95% RH with 33°C (91°F) maximum dew point. Atmosphere must be non-condensing at all times.
Operating	10% to 80% relative humidity with 29°C (84.2°F) maximum dew point.

Table 18. Maximum vibration specifications

Maximum vibration	Specifications
Operating	0.26 G_{rms} at 5 Hz to 350 Hz (all operation orientations).
Storage	1.88 G_{rms} at 10 Hz to 500 Hz for 15 min (all six sides tested).

Table 19. Maximum shock specifications

Maximum shock	Specifications
Operating	Six consecutively executed shock pulses in the positive and negative x, y, and z axes of 40 G for up to 2.3 ms.
Storage	Six consecutively executed shock pulses in the positive and negative x, y, and z axes (one pulse on each side of the appliance) of 71 G for up to 2 ms.

Table 20. Maximum altitude specifications

Maximum altitude	Specifications
Operating	3048 m (10,000 ft)
Storage	12,000 m (39,370 ft)

Table 21. Operating temperature de-rating specifications

Operating temperature de-rating	Specifications
Up to 35°C (95°F)	Maximum temperature is reduced by 1°C/300 m (1°F/547 ft) above 950 m (3,117 ft).
35°C to 40°C (95°F to 104°F)	Maximum temperature is reduced by 1°C/175 m (1°F/319 ft) above 950 m (3,117 ft).
40°C to 45°C (104°F to 113°F)	Maximum temperature is reduced by 1°C/125 m (1°F/228 ft) above 950 m (3,117 ft).

Particulate and gaseous contamination specifications

The following table defines the limitations that help avoid any equipment damage or failure from particulates and gaseous contamination. If the levels of particulates or gaseous pollution exceed the specified limitations and result in equipment damage or failure, you may need to rectify the environmental conditions. Re-mediation of environmental conditions is the responsibility of the customer.

Table 22. Particulate contamination specifications

Particulate contamination	Specifications
Air filtration	Data center air filtration as defined by ISO Class 8 per ISO 14644-1 with a 95% upper confidence limit. **NOTE: This condition applies only to data center environments. Air filtration requirements do not apply to IT equipment designed to be used outside a data center, in environments such as an office or factory floor.** **NOTE: Air entering the data center must have MERV11 or MERV13 filtration.**
Conductive dust	Air must be free of conductive dust, zinc whiskers, or other conductive particles. **NOTE: This condition applies to data center and non-data center environments.**
Corrosive dust	• Air must be free of corrosive dust. • Residual dust present in the air must have a deliquescent point less than 60% relative humidity. **NOTE: This condition applies to data center and non-data center environments.**

Table 23. Gaseous contamination specifications

Gaseous contamination	Specifications
Copper coupon corrosion rate	<300 Å/month per Class G1 as defined by ANSI/ISA71.04-1985.
Silver coupon corrosion rate	<200 Å/month as defined by AHSRAE TC9.9.

NOTE: Maximum corrosive contaminant levels measured at ≤50% relative humidity.

Standard operating temperature

The standard operating temperature for altitude less than 950 meters or 3117 feet ranges from 10°C to 35°C (50°F to 95°F) with no direct sunlight on the equipment.

Expanded operating temperature

Table 24. Expanded operating temperature specifications

Expanded operating temperature	Specifications
Continuous operation	5°C to 40°C at 5% to 85% RH with 29°C dew point. **NOTE: Outside the standard operating temperature (10°C to 35°C), the appliance can operate continuously in temperatures as low as 5°C and as high as 40°C.**

Expanded operating temperature	Specifications
	For temperatures between 35°C and 40°C, de-rate maximum allowable temperature by 1°C per 175 m above 950 m (1°F per 319 ft).
≤ 1% of annual operating hours	–5°C to 45°C at 5% to 90% RH with 29°C dew point. **NOTE: Outside the standard operating temperature (10°C to 35°C), the appliance can operate down to –5°C or up to 45°C for a maximum of 1% of its annual operating hours.** For temperatures between 40°C and 45°C, de-rate maximum allowable temperature by 1°C per 125 m above 950 m (1°F per 228 ft).

NOTE: When operating in the expanded temperature range:

- The performance of the appliance may be impacted.
- The ambient temperature warnings may be reported in the System Event Log.

Expanded operating temperature restrictions

- Do not perform a cold startup below 5°C.
- The operating temperature specified is for a maximum altitude of 3050 m (10,000 ft).
- Redundant power supply units are required.
- Non-Dell qualified peripheral cards and/or peripheral cards greater than 25 W are not supported.
- The 3.5-inch hard drive chassis supports a maximum of 120 W processor.
- The chassis supports a maximum of 145 W processor.
- Only SSDs are allowed in the hard drive slots at the back of the chassis.

4

Initial setup and configuration

This appliance requires installation and deployment services. Contact your Dell EMC account team or your reseller for installation services.

WARNING: During the VxRail deployment process, an iDRAC account is created called either vxadmin or PTAdmin, which provides hardware information to VxRail Manager. This account is required for VxRail Manager and the cluster to function properly. Do not modify or delete this account.

NOTE: Do not install the appliance into rack, or turn on the appliance.

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Pre-operating systems

You can manage basic settings and features of a appliance without booting to the operating system by using the appliance firmware.

CAUTION:

- This appliance requires installation and deployment services. Do not rack this appliance, or turn on the power. Contact your Dell EMC Account Team or your reseller for setting up your appliance.
- Dell EMC has optimized your appliance. Do not change any of these settings.

Topics:

Options to manage the pre-operating system applications

Your appliance has the following options to manage the pre-operating system applications:

- System Setup
- Boot Manager
- Dell Lifecycle Controller
- Preboot Execution Environment (PXE)

NOTE: Dell EMC has optimized your appliance and recommends that you do not change any of these settings.

iDRAC configuration

The Integrated Dell Remote Access Controller (iDRAC) is designed to make appliance administrators more productive and improve the overall availability of Dell EMC appliances. iDRAC alerts administrators to appliance issues, helps them perform remote appliance management, and reduces the need for physical access to the appliance.

Log in to iDRAC

You can log in to iDRAC as:

- iDRAC user
- Microsoft Active Directory user
- Lightweight Directory Access Protocol (LDAP) user

The default user name and password are `root` and `calvin`. You can also log in by using Single Sign-On or Smart Card.

NOTE: You must have iDRAC credentials to log in to iDRAC.

For more information about logging in to iDRAC and iDRAC licenses, see the latest Integrated Dell Remote Access Controller User's Guide at **Dell.com/idracmanuals**.

The iDRAC IP address is pre-configured for DHCP. This can be changed to a static IP address by logging into iDRAC.

NOTE:

- To access iDRAC, connect the network cable to the Ethernet connector 1 on the system board.
- Ensure that you change the default user name and password after setting up the iDRAC IP address.

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Replacing and adding hardware

You can add or replace hardware components, on your VxRail™ appliance, such as hard disk drives (HDDs), solid state drives (SSDs), and power supplies. Only Dell EMC certified service technicians should perform these procedures. For certain hardware components, you may need to contact Customer Support for repair or replacement.

Using SolVe Desktop application for VxRail Series hardware tasks

Step-by-step hardware component tasks such as replacement and upgrade procedures are available through the SolVe Desktop application.

Prerequisites

You must have an online support account to use the SolVe Desktop application.

About this task

CAUTION: To avoid data loss, ensure that you refer to the VxRail Series procedures in the SolVe Desktop application before replacing hardware or performing any upgrade procedures.

Steps

1. Log in to the EMC Online Support site.
2. Click **SolVe** on the main page.
3. Click the download link for the SolVe Desktop application.
4. Save the executable file and then run it to install the SolVe Desktop.

Memory

The appliance supports DDR4 registered DIMMs (RDIMMs) and load reduced DIMMs (LRDIMMs). Memory holds the instructions that are executed by the processor.

CAUTION: To avoid data loss, ensure that you refer to the procedures in the SolVe Desktop application before performing any memory or expansion card replacement or upgrade procedures.

NOTE: MT/s indicates DIMM speed in MegaTransfers per second.

Memory bus operating frequency can be 1866 MT/s, 2133 MT/s, or 2400 MT/s depending on the following factors:

- DIMM type (RDIMM or LRDIMM)
- Number of DIMMs populated per channel
- System profile selected (for example, Performance Optimized, Custom, or Dense Configuration Optimized)
- Maximum supported DIMM frequency of the processors

Your appliance contains 24 memory sockets split into two sets of 12 sockets, one set per processor. Each 12-socket set is organized into four channels. In each channel, the release tabs of the first socket are marked white, the second socket black, and the third socket green.

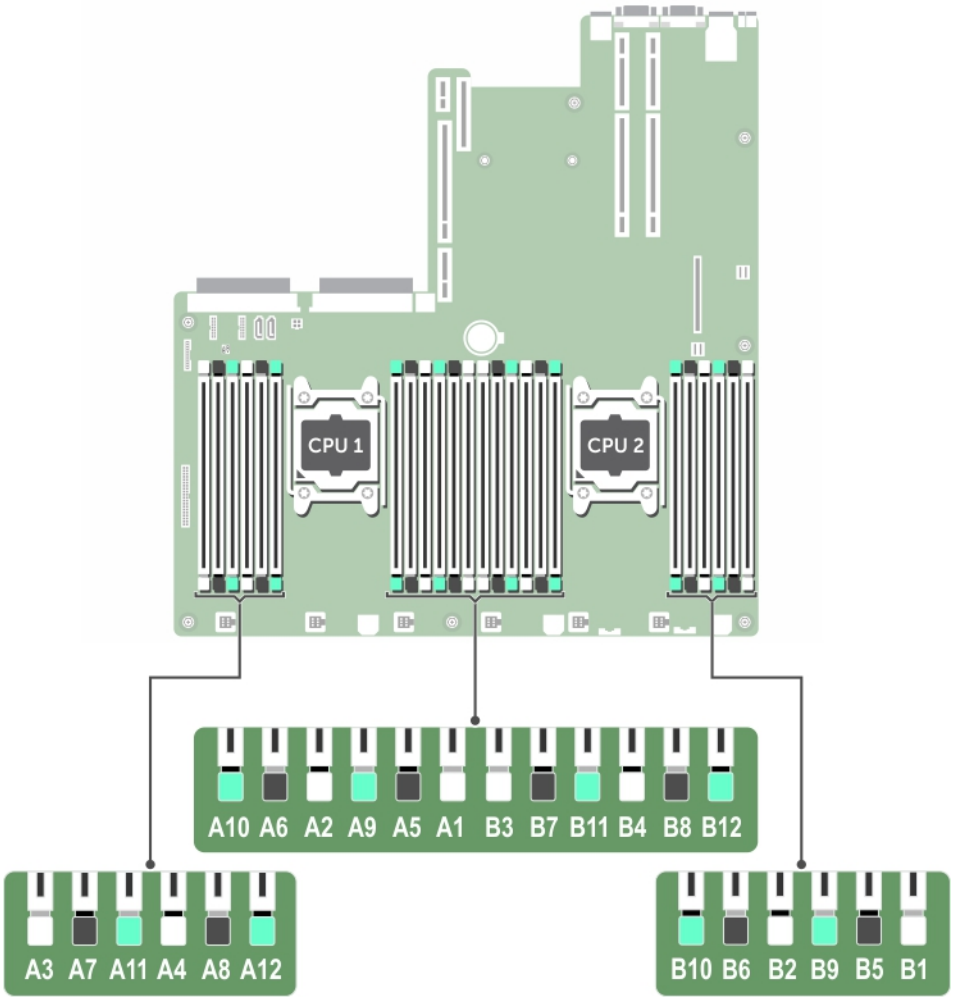

Figure 11. Memory socket locations

Memory channels are organized as follows:

Table 25. Memory channels

Processor	Channel 0	Channel 1	Channel 2	Channel 3
Processor 1	Slots A1, A5, and A9	Slots A2, A6, and A10	Slots A3, A7, and A11	Slots A4, A8, and A12
Processor 2	Slots B1, B5, and B9	Slots B2, B6, and B10	Slots B3, B7, and B11	Slots B4, B8, and B12

The following table shows the memory populations and operating frequencies for the supported configurations:

Table 26. Memory population

DIMM Type	DIMMs Populated/ Channel	Voltage	Operating Frequency (in MT/s)	Maximum DIMM Rank/Channel
RDIMM	1		2400, 2133, 1866	Dual rank or single rank
	2	1.2 V	2400, 2133, 1866	Dual rank or single rank
	3		1866	Dual rank or single rank

DIMM Type	DIMMs Populated/ Channel	Voltage	Operating Frequency (in MT/s)	Maximum DIMM Rank/Channel
LRDIMM	1		2400, 2133, 1866	Quad rank
	2	1.2 V	2400, 2133, 1866	Quad rank
	3		2133, 1866	Quad rank

General memory module installation guidelines

NOTE: Memory configurations that fail to observe these guidelines can prevent your appliance from booting, stop responding during memory configuration, or operating with reduced memory.

The appliance supports Flexible Memory Configuration, enabling the appliance to be configured and run in any valid chipset architectural configuration. The following are the recommended guidelines for installing memory modules:

- RDIMMs and LRDIMMs must not be mixed.
- x16 and x32 DRAM based memory modules can be mixed.
- Up to three dual- or single-rank RDIMMs can be populated per channel.
- Up to three LRDIMMs can be populated per channel regardless of rank count.
- If memory modules with different speeds are installed, they will operate at the speed of the slowest installed memory module(s) or slower depending on appliance DIMM configuration.
- Populate memory module sockets only if a processor is installed. For single-processor systems, sockets A1 to A12 are available. For dual-processor systems, sockets A1 to A12 and sockets B1 to B12 are available.
- Populate all the sockets with white release tabs first, followed by the black release tabs, and then the green release tabs.
- Mixing of more than two memory module capacities in a appliance is not supported.
- When mixing memory modules with different capacities, populate the sockets with memory modules with highest capacity first. For example, if you want to mix 16 GB and 32 GB memory modules, populate 32 GB memory modules in the sockets with white release tabs and 16 GB memory modules in the sockets with black release tabs.
- In a dual-processor configuration, the memory configuration for each processor should be identical. For example, if you populate socket A1 for processor 1, then populate socket B1 for processor 2, and so on.
- Memory modules of different capacities can be mixed provided other memory population rules are followed (for example, 16 GB and 32 GB memory modules can be mixed).
- Mixing of more than two memory module capacities in a appliance is not supported.
- VxRail Appliances require that you populate four memory modules per processor (one DIMM per channel) at a time to maximize performance.

Expansion cards and expansion card riser

An expansion card in the appliance is an add-on card that can be inserted into an expansion slot on the system board or riser card to add enhanced functionality to the appliance through the expansion bus.

NOTE: To avoid data loss, ensure that you refer to the procedures in the SolVe Desktop application before performing any memory or expansion card replacement or upgrade procedures.

NOTE: A System Event Log (SEL) event is logged if an expansion card riser is unsupported or missing. It does not prevent your appliance from turning on and no BIOS POST message or F1/F2 pause is displayed.

Expansion card guidelines

Your appliance supports PCI Express Generation 3 expansion cards.

Table 27. Guidelines for appliance supporting three PCIe expansion cards

Riser	PCIe Slot	Processor Connection	Height	Length	Link Width	Slot Width
1	1	Processor 2	Low Profile	Half Length	x8	x16
1	2	Processor 2	Low Profile	Half Length	x8	x16
1	3	Processor 2	Low Profile	Half Length	x8	x16
2	4	Processor 2	Full Height	Full Length	x16	x16
2	5	Processor 1	Full Height	Full Length	x8	x16
3	6	Processor 1	Full Height	Full Length	x16	x16

NOTE: To use PCIe slots 1 through 4 on the risers 1 and 2, both the processors must be available.

NOTE: The expansion card slots are not hot-swappable.

The following table provides a guideline for expansion cards priority to ensure proper cooling and mechanical fit.

Table 28. Expansion card priority (1 CPU configuration)

Card Priority	Card Type	Slot Priority	Max allowed
1	10 Gb NICs (full height)	6,5	1
2	Integrated Storage Controller	Integrated Slot	1
3	NDC	Integrated Slot	1
4	SATADOM	SATA connector	1

Table 29. Expansion card priority (2 CPU configuration)

Card Priority	Card Type	Slot Priority	Max allowed
1	10 Gb NICs (full height) 10 Gb NICs (low profile)	4, 6,5 2,3,1	1 1
2	Integrated Storage Controller	Integrated Slot	1
3	NDC	Integrated Slot	1
4	SATADOM	SATA connector	1

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Getting help

Topics:

Contacting Dell EMC

You can link your Online Support account with **VxRail Manager** and access support resources without having to log in separately.

NOTE: If you plan to set up EMC Secure Remote Services (ESRS), you have to link your Online Support account to VxRail Manager under the same ID or it may not work properly.

Registering for online support

You can create an **Online Support** account to access support resources such as:

- Register your appliance.
- Obtain product license files and software updates.
- Download Dell EMC VxRail Series product documentation.
- Download the SolVe Desktop Procedure Generator.
- Browse the Dell EMC VxRail Series community and support information.
- Link your support account for access to resources from within **VxRail Manager**.

To register for online support:

1. Point your Web browser to **emc.com/vxrailsupport** or **support.emc.com**.
2. Click **Register here**.
3. Fill in the required information.

Support will send you a confirmation email, typically within 48 hours.

Accessing support resources

You can access support resources for your VxRail™ Series by one of the following:

- VxRail Manager Support
- **emc.com/vxrailsupport** (or **support.emc.com**)
- **https://solve.emc.com**

NOTE: Additional VxRail™ Series information is available through the SolVe desktop tool. SolVe includes step-by-step procedures for replacing certain hardware components, and other tasks.