


Dell EMC VxRail™ P570, P570F, V570, V570F, and S570

Owner's Manual

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.

Contents

Revision history.....	5
Chapter 1: Introduction.....	6
Dell Technologies Support.....	6
Register for a Dell Technologies Support account.....	6
Where to go for support resources.....	6
Use SolVe Online for VxRail procedures.....	7
Locating your appliance serial number.....	7
Looking up your VxRail appliance serial number in VxRail Manager.....	7
Locating the serial number and service tag number on your appliance.....	8
Chapter 2: VxRail overview.....	9
Supported configurations.....	9
Front view of the VxRail.....	11
Left control panel view.....	12
Right control panel view.....	14
Back view of the VxRail.....	15
NIC indicator codes.....	16
Power supply unit indicator codes.....	16
Hard drive indicator codes.....	19
Chapter 3: Technical specifications.....	20
Chassis dimensions.....	20
Chassis weight.....	21
Processor specifications.....	21
PSU specifications.....	21
Battery specifications.....	22
Expansion bus specifications.....	22
Memory specifications.....	22
Storage controller specifications.....	23
Drives.....	23
Ports and connectors specifications.....	23
USB ports.....	23
NIC ports.....	23
VGA ports.....	23
Serial connector.....	24
Internal Dual SD Module.....	24
Video specifications.....	24
Environmental specifications.....	24
Standard operating temperature.....	25
Expanded operating temperature.....	25
Particulate and gaseous contamination specifications.....	27
Chapter 4: Initial setup and configuration.....	28

Chapter 5: Pre-operating system management applications.....	29
Options to manage the pre-operating system applications.....	29
iDRAC configuration.....	29
Log in to iDRAC.....	29
Chapter 6: Replacing and adding hardware.....	31
Use SolVe Online for VxRail procedures.....	31
Supported hardware components.....	31
System memory.....	32
General memory module installation guidelines.....	33
Expansion cards and expansion card riser.....	34
Expansion card installation guidelines.....	34

Revision history

Date	Revision	Description of change
December 10, 2021	7	Updated the memory population guidelines.
October 21, 2021	6	Updated for VxRail self-deployment information.
April 30, 2021	5	Minor updates and corrections.
April 06, 2020	4	Updated the FRU/CRU information.
August 10, 2018	3	Minor updates and corrections.
June 01, 2018	2	Updated to add information regarding the supported hardware components.
November 7, 2017	1	Initial release.

Introduction

The VxRail appliances P570, P570F, V570, V570F, and S570 Owner's Manual provides an overview about the system, technical specifications, diagnostic tools, and guidelines describing high-level operations.

The target audience for this document includes customers, field personnel, and partners who want to operate and maintain a VxRail P570, P570F, V570, V570F, or S570. This document is designed for people familiar with:

- Dell Technologies systems and software
- VMware virtualization products
- Data center appliances and infrastructure

For the most up-to-date list of VxRail documentation, see the [VxRail Documentation Quick Reference List](#).

Topics:

- [Dell Technologies Support](#)
- [Locating your appliance serial number](#)

Dell Technologies Support

Create a Support account to access resources for your VxRail. Link your Support account with VxRail Manager to access resources without a separate login.

If you already have an account, register your VxRail to access the available resources.

For Secure Remote Services, link your Support account to VxRail Manager under the same party ID. Verify that your VxRail is in an installed state in the Install Base.

 **CAUTION: The deployment fails if the same party ID is not used.**

Register for a Dell Technologies Support account

Create a Support account to access support resources.

After you register, you can:

- Obtain product license files and software updates.
- Download VxRail product documentation.
- Access SolVe Online for VxRail, or download the SolVe Desktop application for hardware replacement and upgrade procedures.
- Browse the VxRail community and support information.
- Link your support account for access to resources from within VxRail Manager.

1. Go to [Dell Technologies Support](#).
2. Click **Sign In** and select **Create an account**.
3. Enter your first name, last name, email address, and preferred password.
4. Select whether you would like to subscribe to email updates.
5. Click **Create an Account**.

Support sends you a confirmation email within 48 hours.

Where to go for support resources

Access support resources for your VxRail system by doing any of the following:

- In the vSphere Client, select **VxRail** from the menu and use the **Support** functions on the **VxRail Dashboard**.

- Point your Web browser to <https://www.dell.com/support>.

Use SolVe Online for VxRail procedures

Step-by-step instructions for procedures such as replacing hardware or performing system administrative tasks are available through SolVe Online and the SolVe Desktop application.


You must have an online support account to use SolVe Online. Go to [SolVe Online for VxRail](#) to access SolVe. For more information about SolVe for VxRail, see [KB 000022572](#).

To avoid potential data loss, see the VxRail procedures in SolVe Online or the SolVe Desktop application before performing any hardware replacement or upgrade activity.

 **CAUTION: Potential data loss may occur if SolVe Online is not used to perform hardware replacements or upgrades.**

Locating your appliance serial number

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

 **NOTE:** Only use the VxRail appliance serial number to contact Customer Support. Sometimes, you may need to supply the 7-digit service tag number.

The two identification tags on your appliance are located as follows:

- The VxRail appliance serial number tag — You can find the serial number (PSNT) printed on the information tag on your physical appliance, or you can locate the PSNT using **VxRail Manager**.
- The service tag — You can find the service tag printed on the physical appliance.

Looking up your VxRail appliance serial number in VxRail Manager

Follow these steps to look up your VxRail appliance serial number in VxRail Manager.

1. On the main page of the vSphere Client click **Hosts and Clusters** in the left navigation bar.
2. Select your VxRail cluster.
3. Select the **Monitor** tab.
4. Select **VxRail > Physical View** from the inner left navigation bar.
5. Observe the VxRail appliance serial number, listed under each appliance ID.
The serial number is also called the "PSNT".

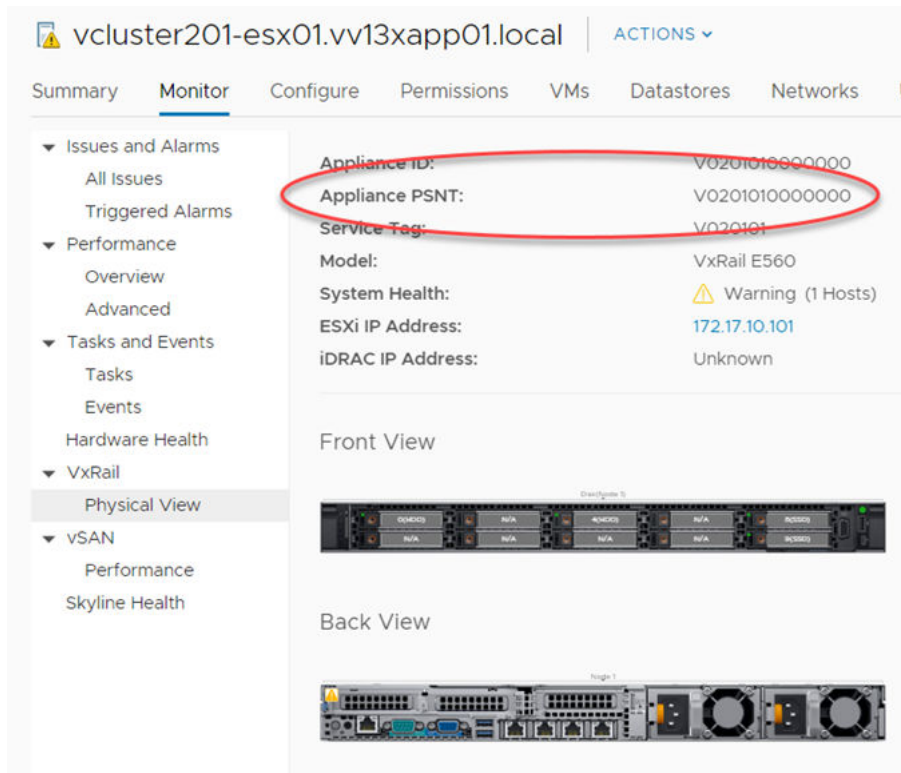


Figure 1. VxRail appliance serial number (PSNT)

Locating the serial number and service tag number on your appliance

You can identify your VxRail appliance using the unique serial number, service tag number, or express service code located on the information tag of your appliance. The information tag is located at the front of your appliance. See the System Overview for the location.

The information tag contains the following:

- Product serial number tag (PSNT), which provides the 14-digit VxRail serial number
- Service tag

To view the PSNT and other labels, pull out the information tag in the front of the appliance. Alternatively, information may be on a sticker on the chassis of the appliance.

The mini Enterprise Service Tag (EST) is found on the back of the appliance. This information is used by Dell to route support calls to the appropriate personnel.

VxRail overview

VxRails support the following configurations:

Table 1. VxRail VxRail supported configurations

Supported configurations	VxRail V570, V570F	VxRail P570, P570F	VxRail S570
Processor	Two Intel Xeon Processor Scalable Family processors	Up to two Intel Xeon Processor Scalable Family processors	Up to two Intel Xeon Processor Scalable Family processors
DIMM	24 DIMM slots supporting up to 1536 GB of memory	24 DIMM slots supporting up to 1536 GB of memory	24 DIMM slots supporting up to 1536 GB of memory
Power supply units	Two AC or DC redundant power supply units	Two AC or DC redundant power supply units	Two AC or DC redundant power supply units
Drives	24 hard drives or solid state drives (SSDs)	24 hard drives or solid state drives (SSDs)	12 front accessible hard drives or solid state drives (SSDs), and two rear accessible SSDs

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

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

NOTE: All instances of SAS, SATA drives, and SSDs are referred to as drives in this document, unless specified otherwise.

Topics:

- [Supported configurations](#)
- [Front view of the VxRail](#)
- [Back view of the VxRail](#)
- [Hard drive indicator codes](#)

Supported configurations

The VxRail P570, P570F, V570, V570F, and S570 VxRail support the following configurations:

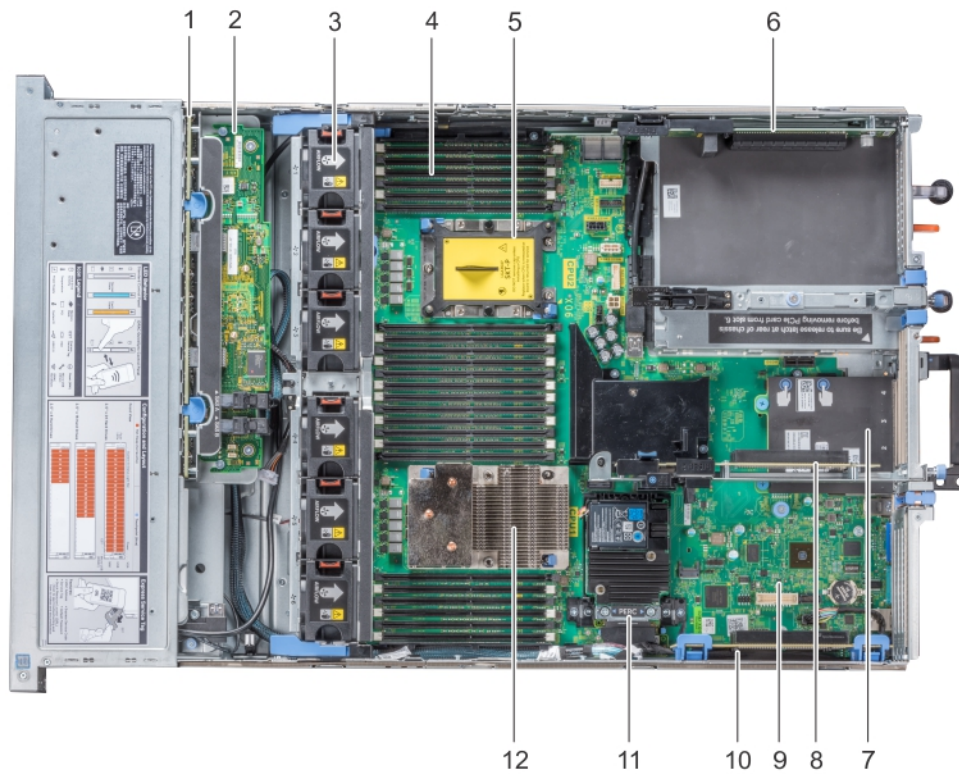


Figure 2. Supported configuration of VxRail P570, P570F, V570, and V570F

- | | |
|---|---|
| 1. drive backplane | 2. backplane expander card |
| 3. cooling fan in the cooling fan assembly (6) | 4. memory module |
| 5. CPU2 processor and heat sink module socket (with dust cover) | 6. expansion card riser 3 |
| 7. network daughter card | 8. expansion card riser 2 |
| 9. system board | 10. expansion card riser 1 |
| 11. integrated storage controller card | 12. CPU1 processor and heat sink module |

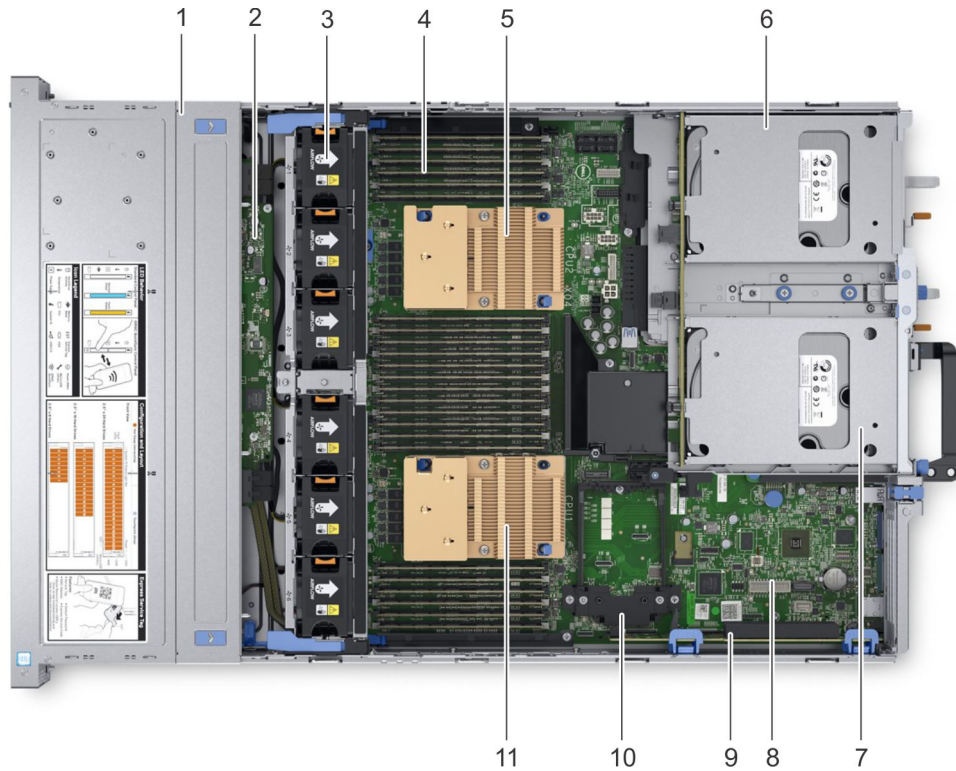


Figure 3. Supported configuration of VxRail S570

- | | |
|--|--|
| 1. drive backplane | 2. backplane expander card |
| 3. cooling fan in the cooling fan assembly (6) | 4. memory module |
| 5. CPU2 processor and heat sink module socket | 6. rear drive cage 1 |
| 7. rear drive cage 2 | 8. system board |
| 9. expansion card riser 1 | 10. integrated storage controller card |
| 11. CPU1 processor and heat sink module | |

Front view of the VxRail

The front view displays the features available on the front of the VxRail. You can access components such as the power button, left control panel, and right control panel from the front of the system. The diagnostic LEDs are prominently located on the front panel. The hot-swappable hard drives are accessible from the front panel.



Figure 4. Front view of VxRail P570, P570F, V570, and V570F – 24 x 2.5 inch drive VxRail

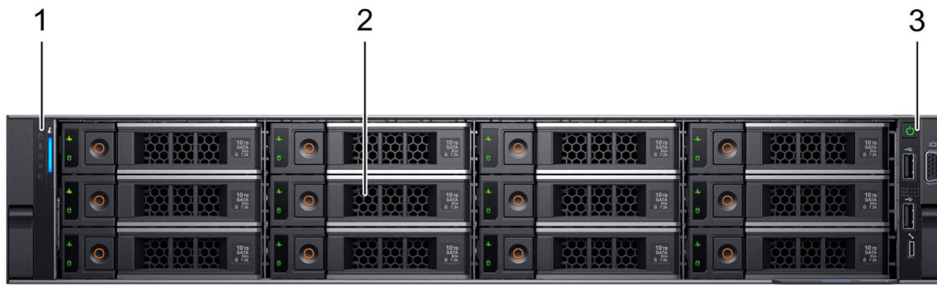


Figure 5. Front view of VxRail S570 –12 x 3.5 inch drive VxRail

Table 2. Features available on the front of the VxRail

Item	Panels and slots	Icon	Description
1	Left control panel	N/A	Contains VxRail health and VxRail ID, status LED.
2	Hard drives	N/A	Enable you to install drives that are supported on your VxRail. For more information about drives, see Technical specifications on page 20.
3	Right control panel	N/A	Contains the power button, VGA port, iDRAC Direct micro-USB port and two USB 2.0 ports.
4	Information tag	N/A	The Information Tag is a slide-out label panel that contains VxRail information such as Service Tag, Product Serial Number Tag (PSNT), NIC, MAC address, and so on.

Left control panel view

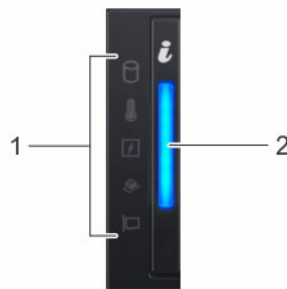


Figure 6. Left control panel view






Table 3. Left control panel features

Item	Indicator	Icon	Description
1	Status LED indicators	N/A	Indicate the status of the VxRail. For more information, see Status LED indicators .
2	VxRail health and VxRail ID indicator		Indicates the VxRail health. For more information, see VxRail health and VxRail ID indicator codes on page 13.

Status LED indicators

NOTE: The status LED indicators are always off and only turns on to a solid amber if any error occurs.

Table 4. Status LED indicators and descriptions

Icon	Description	Condition	Corrective action
	Hard drive indicator	The indicator turns solid amber if there is a hard drive error.	Check the System Event Log to determine if the drive has an error. If the problem persists, see Support .
	Temperature indicator	The indicator turns solid amber if the VxRail experiences a thermal error (for example, the ambient temperature is out of range or there is a fan failure).	Ensure that none of the following conditions exist: <ul style="list-style-type: none"> • A cooling fan has been removed or has failed. • VxRail cover, air shroud, memory module blank, or back filler bracket is removed. • Ambient temperature is too high. • External airflow is obstructed. If the problem persists, see Support .
	Electrical indicator	The indicator turns solid amber if the VxRail 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 VxRail 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 Support .
	Memory indicator	The indicator turns solid amber if a memory error occurs.	See the Support section.
	PCIe indicator	The indicator turns solid amber if a PCIe card experiences an error.	See the Support section. NOTE: For more information about the supported PCIe cards, see Expansion card installation guidelines .

VxRail health and VxRail ID indicator codes

The VxRail health and VxRail ID indicator is located on the left control panel of your VxRail.



Figure 7. VxRail health and VxRail ID indicators

Table 5. VxRail health and VxRail ID indicator codes

VxRail health and VxRail ID indicator code	Condition
Solid blue	Indicates that the VxRail is turned on, VxRail is healthy, and VxRail ID mode is not active. Press the VxRail health and VxRail ID button to switch to VxRail ID mode.
Blinking blue	Indicates that the VxRail ID mode is active. Press the VxRail health and VxRail ID button to switch to VxRail health mode.
Solid amber	Indicates that the VxRail is in fail-safe mode. If the problem persists, see Support .
Blinking amber	Indicates that the VxRail is experiencing a fault. If the problem persists, see Support .

Right control panel view

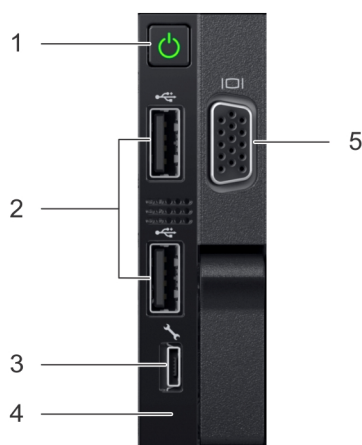






Figure 8. Right control panel view

Table 6. Right control panel features

Item	Indicator, button, or connector	Icon	Description
1	Power button		Indicates if the VxRail is turned on or off. Press the power button to manually turn on or off the VxRail. NOTE: Press the power button to gracefully shut down an ACPI-compliant operating system.
2	USB port (2)		The USB ports are 4-pin, 2.0-compliant. These ports enable you to connect USB devices to the VxRail.
3	iDRAC Direct port		The iDRAC Direct port is micro USB 2.0-compliant. This port enables you to access the iDRAC Direct features. For more information, see the iDRAC User's Guide at Dell.com/idracmanuals .
4	iDRAC Direct LED	N/A	The iDRAC Direct LED indicator lights up to indicate that the iDRAC Direct port is connected. For more information, see iDRAC Direct LED indicator codes on page 14.
5	VGA port		Enables you to connect a display device to the VxRail. For more information, see Technical specifications on page 20.

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.

iDRAC Direct LED indicator is located below the iDRAC Direct port on the right control panel.

You can configure iDRAC Direct by using a USB to micro USB (type AB) cable, which you can connect to your laptop or tablet. The following table describes iDRAC Direct activity when the iDRAC Direct port is active:

Table 7. iDRAC Direct LED indicator codes

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

Table 7. iDRAC Direct LED indicator codes (continued)

iDRAC Direct LED indicator code	Condition
Turns off	Indicates that the laptop or tablet is unplugged.

Back view of the VxRail

The back view displays the features available on the back of the VxRail.

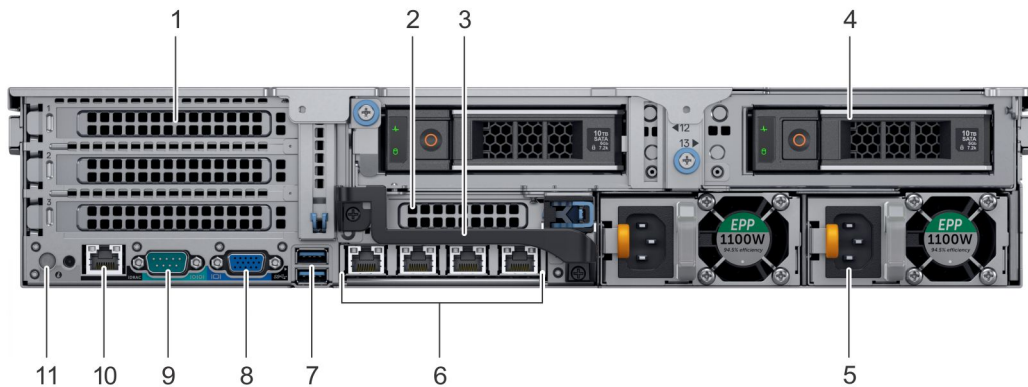


Figure 9. Back view of VxRail S570 2 – x 3.5 inch drive VxRail

Table 8. Features available on the back view







Item	Panels, ports and slots	Icon	Description
1	Full-height PCIe expansion card slot (3)	N/A	The PCIe expansion card slot (riser 1) connects up to three full-height PCIe expansion cards to the VxRail. For more information, see Expansion card installation guidelines on page 34.
2	Half-height PCIe expansion card slot	N/A	The PCIe expansion card slot (riser 2) connects one half-height PCIe expansion cards to the VxRail. For more information, see Expansion card installation guidelines on page 34.
3	Rear handle	N/A	The rear handle can be removed to enable any external cabling of PCIe cards that are installed in the PCIe expansion card slot 6.
4	Drives	N/A	Enable you to install drives that are supported on your VxRail. For more information about drives, see Technical specifications on page 20.
5	Power supply unit (2)	N/A	For more information, see Technical specifications on page 20.
6	NIC ports		The NIC ports that are integrated on the network daughter card (NDC) provide network connectivity. For more information about the supported configurations, see Technical specifications on page 20.
7	USB port (2)		The USB ports are 9-pin and 3.0-compliant. These ports enable you to connect USB devices to the VxRail.
8	VGA port		Enables you to connect a display device to the VxRail. For more information, see Technical specifications on page 20.
9	Serial port		Enables you to connect a serial device to the VxRail. For more information, see Technical specifications on page 20.
10	iDRAC9 dedicated port		Enables you to remotely access iDRAC. For more information, see the iDRAC User's Guide at www.dell.com/poweredgemanuals .

Table 8. Features available on the back view (continued)

Item	Panels, ports and slots	Icon	Description
11	VxRail identification button		The VxRail Identification (ID) button is available on the front and back of the VxRail. Press the button to identify an VxRail in a rack by turning on the VxRail ID button. You can also use the VxRail ID button to reset iDRAC and to access BIOS using the step through mode.

NIC indicator codes

Each NIC on the back panel has indicators that provide information about the activity and link status. The activity LED indicator indicates if data is flowing through the NIC, and the link LED indicator indicates the speed of the connected network.

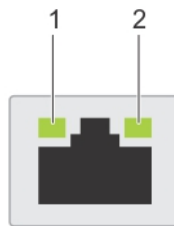


Figure 10. NIC indicator codes

1. link LED indicator
2. activity LED indicator

Table 9. NIC indicator codes

Status	Condition
Link and activity indicators are off	The NIC is not connected to the network.
Link indicator is green and activity indicator is blinking green	The NIC is connected to a valid network at its maximum port speed and data is being sent or received.
Link indicator is amber and activity indicator is blinking green	The NIC is connected to a valid network at less than its maximum port speed and data is being sent or received.
Link indicator is green and activity indicator is off	The NIC is connected to a valid network at its maximum port speed and data is not being sent or received.
Link indicator is amber and activity indicator is off	The NIC is connected to a valid network at less than its maximum port speed and data is not being sent or received.
Link indicator is blinking green and activity is off	NIC identify is enabled through the NIC configuration utility.

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.

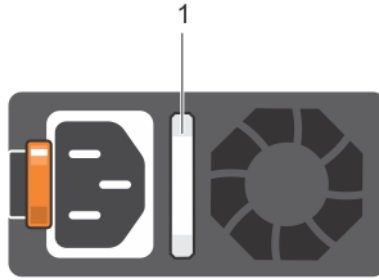


Figure 11. AC PSU status indicator

1. AC PSU status indicator/handle

Table 10. AC PSU status indicator codes

Power indicator codes	Condition
Green	A valid power source is connected to the PSU and the PSU is operational.
Blinking amber	Indicates a problem with the PSU.
Not illuminated	Power is not connected to the PSU.
Blinking green	When the firmware of the PSU is being updated, the PSU handle blinks green. ⚠ CAUTION: Do not disconnect the power cord or unplug the PSU when updating firmware. If firmware update is interrupted, the PSUs do not function.
Blinking green and turns off	When hot-plugging a PSU, the PSU handle blinks green five times at a rate of 4 Hz and turns off. This indicates a PSU mismatch with respect to efficiency, feature set, health status, or supported voltage. ⚠ CAUTION: If two PSUs are installed, both the PSUs must have the same type of label; for example, Extended Power Performance (EPP) label. Mixing PSUs from previous generations servers is not supported, even if the PSUs have the same power rating. This results in a PSU mismatch condition or failure to turn the VxRail on. ⚠ CAUTION: When correcting a PSU mismatch, replace only the PSU with the blinking indicator. Swapping the PSU to make a matched pair can result in an error condition and unexpected VxRail shutdown. To change from a high output configuration to a low output configuration or vice versa, you must turn off the VxRail. ⚠ CAUTION: AC PSUs support both 240 V and 120 V input voltages with the exception of Titanium PSUs, which support only 240 V. When two identical PSUs receive different input voltages, they can output different wattages, and trigger a mismatch. ⚠ 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.

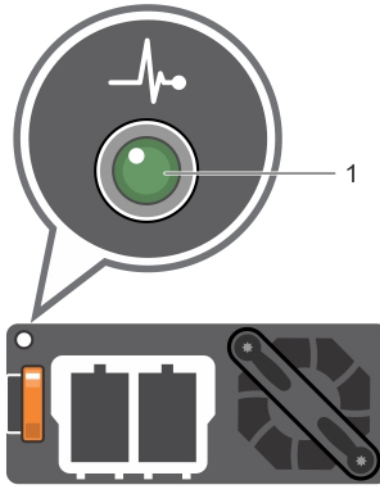


Figure 12. DC PSU status indicator

1. DC PSU status indicator

Table 11. DC PSU status indicator codes

Power indicator codes	Condition
Green	A valid power source is connected to the PSU and the PSU is operational.
Blinking amber	Indicates a problem with the PSU.
Not illuminated	Power is not connected to the PSU.
Blinking green	<p>When hot-plugging a PSU, the PSU indicator blinks green. This indicates that there is a PSU mismatch with respect to efficiency, feature set, health status, or supported voltage.</p> <p>⚠ CAUTION: If two PSUs are installed, both the PSUs must have the same type of label; for example, Extended Power Performance (EPP) label. Mixing PSUs from previous generations servers is not supported, even if the PSUs have the same power rating. This results in a PSU mismatch condition or failure to turn the VxRail on.</p> <p>⚠ CAUTION: When correcting a PSU mismatch, replace only the PSU with the blinking indicator. Swapping the PSU to make a matched pair can result in an error condition and unexpected VxRail shutdown. To change from a High Output configuration to a Low Output configuration or vice versa, you must turn off the VxRail.</p> <p>⚠ CAUTION: If two PSUs are used, they must be of the same type and have the same maximum output power.</p> <p>⚠ CAUTION: Combining AC and DC PSUs is not supported and triggers a mismatch.</p>

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 the hard drive is currently in use or not. The status LED indicates the power condition of the hard drive.

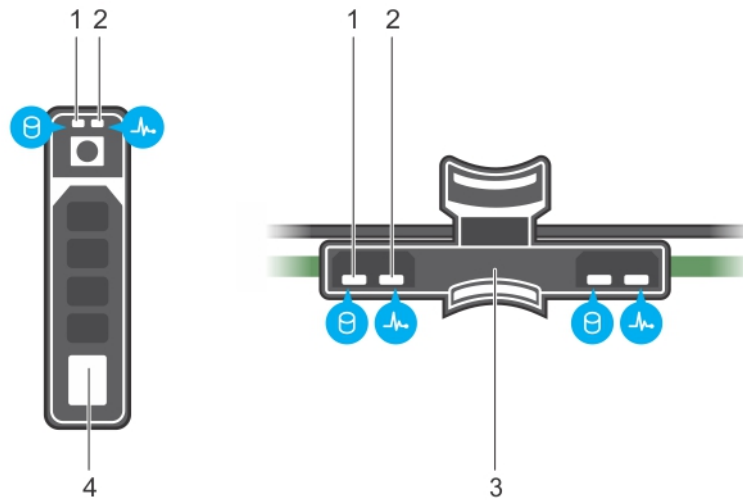


Figure 13. Hard drive indicators on the hard drive and the hard drive tray backplane

- 1. Hard drive activity indicator
- 2. Hard drive status indicator
- 3. Hard drive backplane on hard drive tray
- 4. Hard drive

Table 12. Hard drive indicator codes

Hard drive status indicator code	Condition
Flashes green twice per second	Identifying drive or preparing for removal.
Off	Hard drive ready for removal. <i>i</i> NOTE: The hard drive status indicator remains off until all drives are initialized after the VxRail is turned on. Hard drives are not ready for removal during this time.
Flashes green, amber, and then turns off	Predicted drive failure.
Flashes amber four times per second	Hard drive failed.
Solid green	Hard drive online.

Technical specifications

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

Topics:

- Chassis dimensions
- Chassis weight
- Processor specifications
- PSU specifications
- Battery specifications
- Expansion bus specifications
- Memory specifications
- Storage controller specifications
- Drives
- Ports and connectors specifications
- Video specifications
- Environmental specifications

Chassis dimensions

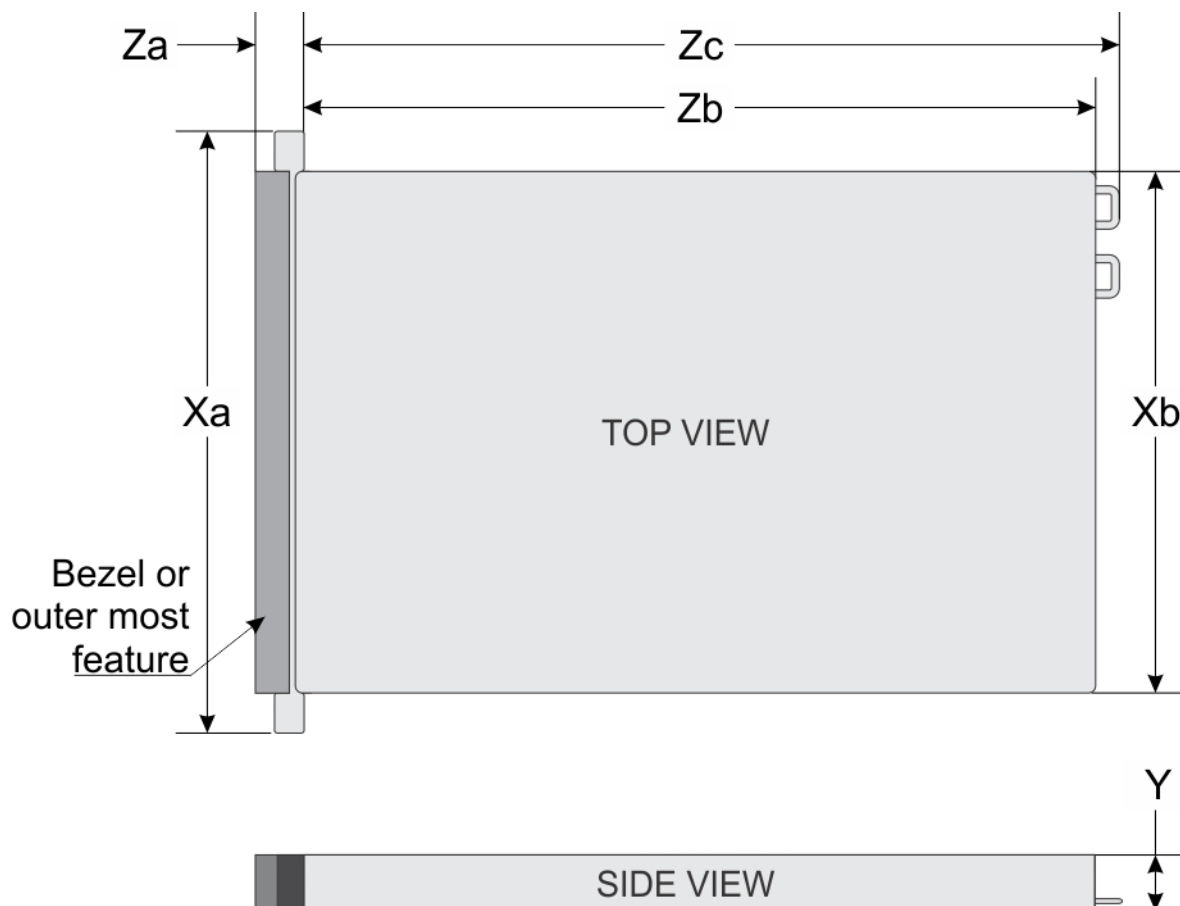


Figure 14. Chassis dimensions

Table 13. Dimension details

VxRail	Xa	Xb	Y	Za (with bezel)	Za (without bezel)	Zb	Zc
P570, P570F, V570, V570F, and S570	482.0 mm (18.98 inches)	434.0 mm (17.09 inches)	86.8 mm (3.42 inches)	35.84 mm (1.41 inches)	22.0 mm (0.87 inches)	678.8 mm (26.72 inches)	715.5 mm (28.17 inches)

Chassis weight

Table 14. Chassis weight

VxRail	Maximum weight (with all hard drives/SSDs)
VxRail P570, P570F, V570, and V570F – 2.5 inch drive VxRail	28.1 kg (61.95 lb)
VxRail S570 – 3.5 inch drive VxRail	33.1 kg (72.91 lb)

Processor specifications

Table 15. Processor specifications

VxRail	Maximum number of supported processors
VxRail V570 and V570F VxRail	Two Intel Xeon Processor Scalable Family processors
VxRail P570, P570F, and S570 VxRail	Up to two Intel Xeon Processor Scalable Family processors

PSU specifications

The VxRail P570, P570F, V570, V570F, and S570 VxRail supports two AC or DC redundant power supply units (PSUs).

Table 16. PSU specifications

Supported VxRail configurations	PSU	Class	Heat dissipation (maximum)	Frequency	Voltage	Current
VxRail P570, P570F, V570, V570F, and S570 VxRail	1100 W AC	Platinum	4100 BTU/hr	50/60 Hz	100–240 V AC, autoranging	12 A–6.5 A
	1100 W DC	N/A	4416 BTU/hr	N/A	–(48–60) V DC, autoranging	32 A
VxRail P570, P570F, V570, and V570F VxRail	1600 W AC	Platinum	6000 BTU/hr	50/60 Hz	100–240 V AC, autoranging	10 A
VxRail V570 and V570F VxRail	2000 W AC	Platinum	7500 BTU/hr	50/60 Hz	100–240 V AC, autoranging	11.5 A

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

NOTE: This VxRail is also designed to connect to the IT power systems with a phase to phase voltage not exceeding 240 V.

NOTE: If an VxRail with 2000 W AC PSU operates at low line 100–120 V AC, then the power rating per PSU is derated to 1000 W.

NOTE: If an VxRail with 1600 W AC PSU operates at low line 100–120 V AC, then the power rating per PSU is derated to 800 W.

NOTE: If an VxRail with 1100 W AC PSU operates at low line 100–120 V AC, then the power rating per PSU is derated to 1050 W.

Battery specifications

The VxRail P570, P570F, V570, V570F, and S570 VxRail supports CR 2032 3.0-V lithium coin cell battery.

Expansion bus specifications

The VxRail P570, P570F, V570, V570F, and S570 VxRail support PCI express (PCIe) generation 3 expansion cards, that can be installed on the system board by using expansion card risers. These VxRail support three types of expansion card risers. The following table provides detailed information about the expansion card riser specifications:

Table 17. Expansion card riser specifications

Supported VxRail config	Riser config. and supported risers	Slot desc	PCIe slots on riser 1 (Height and length)	Proc conn	PCIe slots on riser 2 (Height and length)	Proc conn	PCIe slots on riser 3 (Height and length)	Proc conn
VxRail P570, P570F, and S570 VxRail	Riser configuration 1 with or without rear storage (1B+2B)	Four x8 slots and rear storage	Slot 1: x8 full-height, full length	Processor 1	Slot 4: x8 low profile, half length	Processor 1	N/A	N/A
			Slot 2: x8 full-height, full length	Processor 1				
			Slot 3: x8 full-height, half length	Processor 1				
VxRail P570, P570F, V570, and V570F VxRail	Riser configuration 4 (1A+2A+3A)	Three x8 and four x16 slots	Slot 1: x16 full-height, full length	Processor 1	Slot 4: x16 full-height, full length	Processor 2	Slot 7: x8 full-height, full length	Processor 2
			N/A	N/A	Slot 5: x8 full-height, full length	Processor 2	Slot 8: x16 full-height, full length	Processor 2
			Slot 3: x16 full-height, half length	Processor 1	Slot 6: x8 low profile, half length	Processor 1		

Memory specifications

The VxRail P570, P570F, V570, V570F, and S570 VxRail support up to twenty four 288-pins RDIMMs, and LRDIMMs with speeds of 2666 MT/s, 2400 MT/s and 2133 MT/s with support for memory optimized operation.

Table 18. Memory specifications

DIMM type	DIMM rank	DIMM capacity	Single processor		Dual processors	
			Minimum RAM	Maximum RAM	Minimum RAM	Maximum RAM
LRDIMM	Quad rank	64 GB	384 GB	768 GB	768 GB	1536 GB
RDIMM	Dual rank	16 GB	96 GB	192 GB	192 GB	384 GB

Table 18. Memory specifications (continued)

DIMM type	DIMM rank	DIMM capacity	Single processor		Dual processors	
			Minimum RAM	Maximum RAM	Minimum RAM	Maximum RAM
RDIMM	Dual rank	32 GB	192 GB	384 GB	384 GB	768 GB

Storage controller specifications

The VxRail P570, P570F, V570, V570F, and S570 VxRail supports the following internal storage controller cards:

- HBA330
- Boot Optimized Server Storage (BOSS-S1)

Drives

The VxRail P570, P570F, V570, V570F, and S570 VxRail supports NVMe, SAS, SATA, Nearline SAS drives, or SSDs.

Table 19. Supported drive options for the VxRail P570, P570F, V570, V570F, and S570 VxRail

VxRail S570 VxRail configuration	14 drives VxRail	Up to 12 3.5 inch (Nearline SAS) front accessible drives in slots 0 to 11, and up to two 3.5 inch (SAS) rear accessible drives in slots 12 to 13.
VxRail P570 and P570F VxRail configuration	24 drives VxRail	Up to 24 2.5 inch (NVMe, SAS, SATA or Nearline SAS) front accessible drives in slots 0 to 23. i NOTE: VxRail P Series appliance supports NVMe drives in cache tier, slots 20 to 23 only.
VxRail V570 and V570F VxRail configuration	24 drives VxRail	Up to 24 2.5 inch (SAS, SATA or Nearline SAS) front accessible drives in slots 0 to 23.

Ports and connectors specifications

USB ports

The VxRail P570, P570F, V570, V570F, and S570 VxRail supports:

- Two USB 2.0-compliant ports on the front of the VxRail
- One internal USB 3.0-compliant port
- One micro USB 2.0-compliant port in the front of the VxRail for iDRAC Direct
- Two USB 3.0-compliant ports on the back of the VxRail

NIC ports

The VxRail P570, P570F, V570, V570F, and S570 VxRail supports up to four Network Interface Controller (NIC) ports that are integrated on the network daughter card (NDC), and are available in the following configurations:

- Four RJ-45 ports that support 100 M, 1 G, and 10 Gbps
- Four SFP+ ports that support up to 10 Gbps

i **NOTE:** You can install additional PCIe NIC cards. For more information on the PCIe NIC cards, see [Expansion card installation guidelines](#) on page 34.

VGA ports

The Video Graphic Array (VGA) port enables you to connect the VxRail to a VGA display. The VxRail P570, P570F, V570, V570F, and S570 VxRail supports two 15-pin VGA ports on the front and back panels.

Serial connector

The VxRail P570, P570F, V570, V570F, and S570 VxRail supports one serial connector on the back panel, which is a 9-pin connector, Data Terminal Equipment (DTE), 16550-compliant.

Internal Dual SD Module

The VxRail P570, P570F, V570, V570F, and S570 VxRail support Internal Dual SD module (IDSDM). The IDSDM is located at the back of the VxRail, in a Dell-proprietary slot. IDSDM card supports two micro SD cards. Micro SD cards capacity for IDSDM are 64 GB.

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

Video specifications

The VxRail P570, P570F, V570, V570F, and S570 VxRail supports integrated Matrox G200eW3 graphics controller with 16 MB of video frame buffer.

Table 20. Supported video resolution options

Resolution	Refresh rate (Hz)	Color depth (bits)
1024 x 768	60	8, 16, 32
1280 x 800	60	8, 16, 32
1280 x 1024	60	8, 16, 32
1360 x 768	60	8, 16, 32
1440 x 900	60	8, 16, 32
1600 x 900	60	8, 16, 32
1600 x 1200	60	8, 16, 32
1680 x 1050	60	8, 16, 32
1920 x 1080	60	8, 16, 32
1920 x 1200	60	8, 16, 32

NOTE: 1920 x 1080 and 1920 x 1200 resolutions are only supported in reduced blanking mode.

Environmental specifications

Table 21. 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.
Maximum temperature gradient (operating and storage)	20°C/h (36°F/h)

Table 22. 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.

Table 22. Relative humidity specifications (continued)

Relative humidity	Specifications
Operating	10% to 80% relative humidity with 29°C (84.2°F) maximum dew point.

Table 23. 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 24. 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 VxRail) of 71 G for up to 2 ms.

Table 25. Maximum altitude specifications

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

Table 26. 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).

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 27. 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 VxRail can operate continuously in temperatures as low as 5°C and as high as 40°C. For temperatures between 35°C to 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.

Table 27. Expanded operating temperature specifications (continued)

Expanded operating temperature	Specifications
	<p>i NOTE: Outside the standard operating temperature (10°C to 35°C), the VxRail can operate down to -5°C or up to 45°C for a maximum of 1% of its annual operating hours.</p> <p>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).</p>

i **NOTE:** When operating in the expanded temperature range, VxRail performance may be impacted.

i **NOTE:** When operating in the expanded temperature range, 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).
- 150 W/8 core, 165 W/12 core and higher wattage processor [Thermal Design Power (TDP)>165 W] are not supported.
- Redundant power supply units are required.
- Non-Dell EMC qualified peripheral cards and/or peripheral cards greater than 25 W are not supported.
- Mid drive tray is not supported.
- Rear storage devices or drives are not supported.
- GPU is not supported.

Thermal restrictions

Following table lists the configuration required for efficient cooling.

Table 28. Thermal restrictions configuration

Supported VxRail Config	Number of proc	Heatsink	Processor/DIMM blank	DIMM blanks	Type of air shroud	Fan
VxRail P Series VxRail	1	One 1U standard heat sink for CPU ≤ 125 W	Required	Not required	Standard	Four standard fans and one blank to cover two fan slots
		One 2U standard heat sink for CPU > 125 W				
VxRail P Series VxRail	2	Two 1U standard heat sink for CPU ≤ 125 W	Not required	Not required	Standard	Six standard fans
		Two 2U standard heat sink for CPU > 125 W				
VxRail S Series VxRail	1	One 1U high performance heat sink	Required	Required	Not required	Six high performance fans
VxRail S Series VxRail	2	Two 1U high performance heat sink	Not required	Required	Not required	Six high performance fans
VxRail V Series VxRail	2	Two 1U high performance heat sink	Not required	Not required	GPU air shroud	Six high performance fans

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. Remediation of environmental conditions is the responsibility of the customer.

Table 29. Particulate contamination specifications

Particulate contamination	Specifications
Air filtration	<p>Data center air filtration as defined by ISO Class 8 per ISO 14644-1 with a 95% upper confidence limit.</p> <p>i 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.</p> <p>i NOTE: Air entering the data center must have MERV11 or MERV13 filtration.</p>
Conductive dust	<p>Air must be free of conductive dust, zinc whiskers, or other conductive particles.</p> <p>i NOTE: This condition applies to data center and non-data center environments.</p>
Corrosive dust	<ul style="list-style-type: none"> • Air must be free of corrosive dust. • Residual dust present in the air must have a deliquescent point less than 60% relative humidity. <p>i NOTE: This condition applies to data center and non-data center environments.</p>

Table 30. 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.

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

Initial setup and configuration

To install and configure your new VxRail, you can purchase deployment services, or choose the VxRail self-deploy (no installation services) option.


If you purchased deployment services for your VxRail, do not rack the VxRail or connect power. Contact your Dell account team or reseller to arrange for deployment by Dell certified technicians.

If you chose the VxRail self-deploy option, go to www.dell.com/installvxrail for deployment instructions and guidance.

Extensive network experience, understanding of VxRail infrastructure planning, and deployment knowledge are required for self-deployment.

 **NOTE:**

- If you are uncertain you can complete the end-to-end deployment process, contact your sales representative for Dell Technologies Services.
- If you are unable to complete the deployment, contact your sales representative for Dell Technologies Services.

 **CAUTION:** During the VxRail deployment process, an iDRAC account that is named vxadmin or PTAdmin is created. This account provides hardware information to the VxRail Manager and is required for the VxRail Manager and the cluster to function properly. Ensure that you do not modify or delete this account.

Pre-operating system management applications

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

If you purchased deployment services for your VxRail, do not rack the VxRail or connect power. Contact your Dell account team or reseller to arrange for deployment by Dell certified technicians.

If you chose the VxRail self-deploy option, go to www.dell.com/installvxrail for deployment instructions and guidance.

Extensive network experience, understanding of VxRail infrastructure planning, and deployment knowledge are required for self-deployment.

NOTE:

- If you are uncertain you can complete the end-to-end deployment process, contact your sales representative for Dell Technologies Services.
- If you are unable to complete the deployment, contact your sales representative for Dell Technologies Services.

 **CAUTION:** Dell EMC has optimized your VxRail. It is not recommended to change any of these settings.

Topics:

- [Options to manage the pre-operating system applications](#)
- [iDRAC configuration](#)

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 it is not recommended to 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

If you have opted for secure default access to iDRAC, the iDRAC secure default password is available on the back of the appliance Information tag. If you have not opted for secure default access to iDRAC, then 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.

 **NOTE:** Ensure that you change the default user name and password after setting up the iDRAC IP address.

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.

Replacing and adding hardware

You may be able to add or replace hardware components on your VxRail Appliance such as hard disk drives (HDDs), solid state drives (SSDs), power supplies, and so on. Only qualified personnel should perform these procedures. For some hardware components, you may need to contact Customer Support to arrange for repair or replacement.

Topics:

- [Use SolVe Online for VxRail procedures](#)
- [Supported hardware components](#)
- [System memory](#)
- [Expansion cards and expansion card riser](#)

Use SolVe Online for VxRail procedures

Step-by-step instructions for procedures such as replacing hardware or performing system administrative tasks are available through SolVe Online and the SolVe Desktop application.

You must have an online support account to use SolVe Online. Go to [SolVe Online for VxRail](#) to access SolVe. For more information about SolVe for VxRail, see [KB 000022572](#).

To avoid potential data loss, see the VxRail procedures in SolVe Online or the SolVe Desktop application before performing any hardware replacement or upgrade activity.

 **CAUTION: Potential data loss may occur if SolVe Online is not used to perform hardware replacements or upgrades.**

Supported hardware components

The following table describes the supported hardware components for VxRail P570, P570F, V570, V570F, and S570 VxRail.

Table 31. Supported hardware components

Hardware component	V570 and V570F		P570 and P570F		S570	
	Customer Replaceable Unit (CRU)	Field Replaceable Unit (FRU)	Customer Replaceable Unit (CRU)	Field Replaceable Unit (FRU)	Customer Replaceable Unit (CRU)	Field Replaceable Unit (FRU)
System Memory	Yes	Yes	Yes	Yes	Yes	Yes
Hard Drive	Yes	Yes	Yes	Yes	Yes	Yes
Solid State Drive (SAS/SATA)	Yes	Yes	Yes	Yes	Yes	Yes
Solid State Drive (NVMe)	N/A	N/A	Yes	Yes	N/A	N/A
PCIe Network Interface Cards	Yes	Yes	Yes	Yes	Yes	Yes
Graphical Processing Unit (GPU)	Yes	Yes	Yes	Yes	N/A	N/A
Micro SDHC Card	Yes	Yes	Yes	Yes	Yes	Yes
Power Supply Unit	Yes	Yes	Yes	Yes	Yes	Yes
Processors	No	Yes	No	Yes	No	Yes

Table 31. Supported hardware components (continued)

Hardware component	V570 and V570F		P570 and P570F		S570	
	Customer Replaceable Unit (CRU)	Field Replaceable Unit (FRU)	Customer Replaceable Unit (CRU)	Field Replaceable Unit (FRU)	Customer Replaceable Unit (CRU)	Field Replaceable Unit (FRU)
System Motherboard	No	Yes	No	Yes	No	Yes
Host Bus Adapter (HBA330)	No	Yes	No	Yes	No	Yes
BOSS controller card and M.2 SATA disk	No	Yes	No	Yes	No	Yes
Network Daughter Card (NDC)	No	Yes	No	Yes	No	Yes

NOTE: The preceding table provides a non-exhaustive list of FRUs that reflects the common top-level assembly parts.

System memory

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

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

Memory bus operating frequency can be 2666 MT/s, 2400 MT/s, or 2133 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, or Custom [can be run at high speed or lower])
- Maximum supported DIMM frequency of the processors

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

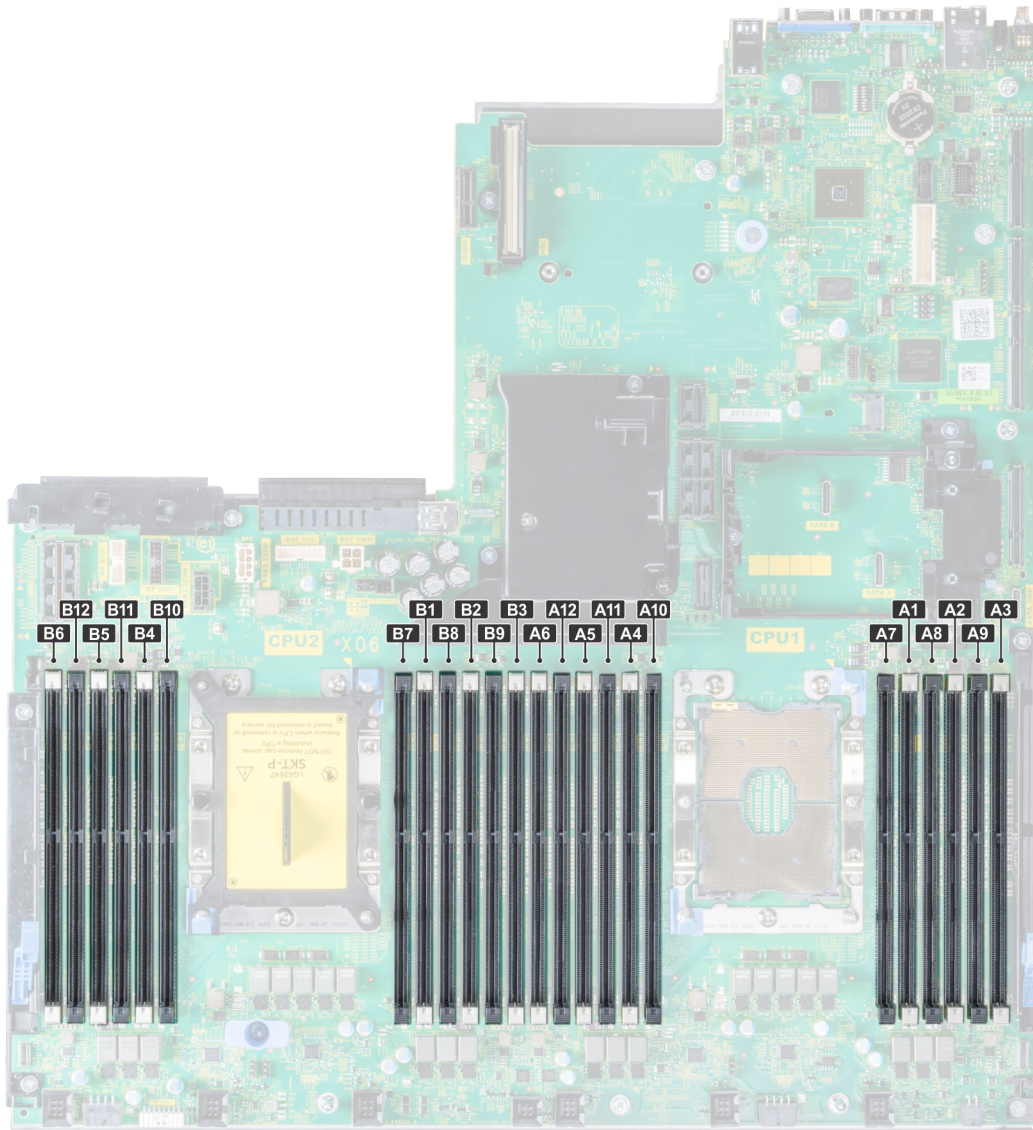


Figure 15. Memory socket locations

Memory channels are organized as follows:

Table 32. Memory channels

Proc	Channel 0	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5
Processor 1	Slots A1 and A7	Slots A2 and A8	Slots A3 and A9	Slots A4 and A10	Slots A5 and A11	Slots A6 and A12
Processor 2	Slots B1 and B7	Slots B2 and B8	Slots B3 and B9	Slots B4 and B10	Slots B5 and B11	Slots B6 and B12

General memory module installation guidelines

To ensure optimal performance of your system, follow the general guidelines when configuring your system memory. If your system's memory configurations fail to observe these guidelines, your system might not boot, stop responding during memory configuration, or operate with reduced memory.

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 following are the recommended guidelines for installing memory modules:

- DIMM, RDIMMs, and LRDIMMs must not be mixed.
- Up to two RDIMMs can be populated per channel.
- Up to two LRDIMMs can be populated per channel.
- 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 VxRail, sockets A1 to A12 are available. For dual-processor VxRail, sockets A1 to A12 and sockets B1 to B12 are available.
- Populate all the sockets with white release tabs first, and then followed by the black release tabs.
- Mixing of more than two memory module capacities in an appliance is not supported.
- 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.
- VxRail appliances require that you populate six memory modules per processor for single processor configurations and twelve memory modules per processor for dual-processor configurations. One memory module per channel at a time to maximize performance.

Expansion cards and expansion card riser

An expansion card in the VxRail 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 VxRail 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 VxRail from turning on and no BIOS POST message or F1/F2 pause is displayed.

Expansion card installation guidelines

The VxRail P570, P570F, V570, V570F, and S570 VxRail support PCI express (PCIe) generation 3 expansion cards, that can be installed on the system board using expansion card risers. The following table provides detailed information about the expansion card riser specifications:

Table 33. Expansion card riser specifications

Supported VxRail config	Riser config and supported risers	Slot desc	PCIe slots on riser 1 (Height and length)	Proc conn	PCIe slots on riser 2 (Height and length)	Proc conn	PCIe slots on riser 3 (Height and length)	Proc conn
VxRail P570, P570F, and S570 VxRail	Riser configuration 1 with or without rear storage (1B+2B)	Four x8 slots and rear storage	Slot 1: x8 full-height, full length	Processor 1	Slot 4: x8 low profile, half length	Processor 1	N/A	N/A
			Slot 2: x8 full-height, full length	Processor 1				
			Slot 3: x8 full-height, half length	Processor 1				
VxRail P570, P570F, V570, and V570F VxRail	Riser configuration 4 (1A+2A+3A)	Three x8 and four x16 slots	Slot 1: x16 full-height, full length	Processor 1	Slot 4: x16 full-height, full length	Processor 2	Slot 7: x8 full-height, full length	Processor 2
			N/A	N/A	Slot 5: x8 full-height, full length	Processor 2	Slot 8: x16 full-height, full length	Processor 2

Table 33. Expansion card riser specifications (continued)

Supported VxRail config	Riser config and supported risers	Slot desc	PCIe slots on riser 1 (Height and length)	Proc conn	PCIe slots on riser 2 (Height and length)	Proc conn	PCIe slots on riser 3 (Height and length)	Proc conn
			Slot 3: x16 full-height, half length	Processor 1	Slot 6: x8 low profile, half length	Processor 1		

Table 34. Riser configurations with 4 PCIe slots [Riser configuration 1 with or without rear storage (1B+2B)]

Card Type	Slot priority	Maximum number of cards
Internal storage adapter	Integrated slot	1
10 GB NIC	1, 2, 3	3
BOSS	4	1

Table 35. VxRail P series dual processor, and VxRail V570 and V570F configurations — Riser configurations with greater than 4 PCIe slots [Riser configuration 4 (1A+2A+3A), and Riser configuration 5 (1B+2A+3A)]

Card Type	Slot priority	Maximum number of cards
GPU (double width) – Supported on VxRail V570 and V570F VxRail only	1, 8, 4	3
Internal storage adapter	6	1
10 GB NIC	4, 5, 7, 8	4
BOSS	3	1

NOTE: For information about slot form factor, see the Expansion card riser configurations table.

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