VMware ESXi vMotion Support on Dell PowerEdge Systems

Compatibility Matrix

DELLTechnologies

Notes, cautions, and warnings

(i) **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

Overview

This document provides information about the VMware vMotion compatibility matrices for VMware ESXi on Dell supported PowerEdge systems with supported processor models.

Topics:

*   PowerEdge systems and Intel processor compatibility matrix
*   PowerEdge systems and AMD processor compatibility matrix
*   PowerEdge processor compatibility matrix with vMotion
*   PowerEdge processor compatibility matrix with enhanced vMotion
*   Important Information

PowerEdge systems and Intel processor compatibility matrix

This document lists the VMware vSphere vMotion compatibility matrices for VMware ESXi on Dell PowerEdge systems with supported processor models. The following table lists the compatibility matrix for the Dell supported PowerEdge systems and Intel processors.

ⓘ **NOTE:** PowerEdge system XR4000w acts as a tie-breaker for the two compute nodes in the cluster and as a hosted hardware witness. It is not recommended to use this system for general use cases.

Table 1. yx6x PowerEdge systems and Intel processor compatibility matrix

PowerEdge System	Intel Xeon SP (84xx, 64xx, 54xx, 44xx, 34xx) series	Intel Xeon SP (84xx, 64xx) series	Intel Xeon SP (84xx, 64xx, 54xx, 44xx) series	Intel Xeon SP (64xx, 54xx, 44xx, 34xx) series	Intel Xeon SP (64xx, 54xx, 44xx) series	Intel Xeon SP (64xx, 54xx, 34xx) series	Intel Xeon SP(64xx, 54xx) series
R760	✓	X	X	X	X	X	X
R660	✓	X	X	X	X	X	X
MX760c	✓	X	X	X	X	X	X
C6620	✓	X	X	X	X	X	X
HS5620	✓	X	X	X	X	X	X
HS5610	✓	X	X	X	X	X	X
R760xs	✓	X	X	X	X	X	X
R660xs	✓	X	X	X	X	X	X
R960	X	✓	X	X	X	X	X
R860	X	✓	X	X	X	X	X
R760xa	X	X	✓	✓	X	X	X

Table 1. yx6x PowerEdge systems and Intel processor compatibility matrix (continued)

PowerEdge System	Intel Xeon SP (84xx, 64xx, 54xx, 44xx, 34xx) series	Intel Xeon SP (84xx, 64xx) series	Intel Xeon SP (84xx, 64xx, 54xx, 44xx) series	Intel Xeon SP (64xx, 54xx, 44xx, 34xx) series	Intel Xeon SP (64xx, 54xx, 44xx) series	Intel Xeon SP (64xx, 54xx, 34xx) series	Intel Xeon SP(64xx, 54xx) series
R760xd2	X	X	X	✓	X	X	X
XR7620	X	X	X	X	✓	X	X
XR5610	X	X	X	X	X	✓	X
T560	X	X	X	✓	X	X	X
XR8620t	X	X	X	X	X	X	✓

Table 2. yx5x PowerEdge systems and Intel processor compatibility matrix

PowerEdge System	Intel Atom (C-35xx) series	Intel Xeon (D-27xx) series	Intel Xeon E-2300 series	Intel Xeon SP (83xx, 63xx, 53xx, 43xx) series
XR4520c	X	✓	X	X
XR4510c	X	✓	X	X
XR4000w	✓	X	X	X
T150	X	X	✓	X
T350	X	X	✓	X
R250	X	X	✓	X
R350	X	X	✓	X
T550	X	X	✓	✓
XR12	X	X	X	✓
XR11	X	X	X	✓
R450	X	X	X	✓
R550	X	X	X	✓
R650xs	X	X	X	✓
R750xs	X	X	X	✓
R750xs	X	X	X	✓
R750xa	X	X	X	✓
R650xs	X	X	X	✓
MX750	X	X	X	✓

Table 2. yx5x PowerEdge systems and Intel processor compatibility matrix (continued)

PowerEdge System	Intel Atom (C-35xx) series	Intel Xeon (D-27xx) series	Intel Xeon E-2300 series	Intel Xeon SP (83xx, 63xx, 53xx, 43xx) series
C6520	X	X	X	✓

Table 3. yx4x PowerEdge systems and Intel processor compatibility matrix

PowerEdge System	Intel Xeon SP (82xx, 62xx, 52xx, 42xx, 32xx) series	Intel Xeon SP (81xx, 61xx, 51xx, 41xx, 31xx) series	Intel Xeon E-2100 Series	Intel Xeon E-2200 Series
T640	✓	✓	X	X
T440	✓	✓	X	X
T340	X	X	✓	✓
T140	X	X	✓	✓
R940	✓	✓	X	X
R940xa	✓	✓	X	X
R840	✓	✓	X	X
R740xd	✓	✓	X	X
R740xd2	✓	✓	X	X
R740	✓	✓	X	X
R640	✓	✓	X	X
R540	✓	✓	X	X
R440	✓	✓	X	X
R340	X	X	✓	✓
R240	X	X	✓	✓
MX840c	✓	✓	X	X
MX740c	X	X	✓	✓
M640	✓	✓	X	X
FC640	✓	✓	X	X

PowerEdge systems and AMD processor compatibility matrix

The following table lists the compatibility matrix for the Dell supported PowerEdge systems and AMD processor.

Table 4. PowerEdge systems and AMD processor compatibility matrix

PowerEdge System	AMD EPYC 9xx4 series	AMD EPYC 7xx3 series	AMD EPYC 7XX2 series	AMD EPYC 7XX1 series
R7625	✓	X	X	X
R7615	✓	X	X	X
R6625	✓	X	X	X
R6615	✓	X	X	X
R7525	X	✓	✓	X
R7515	X	✓	✓	X
R6525	X	✓	✓	X
R6515	X	✓	✓	X
C6525	X	✓	✓	X
R7425	X	X	X	✓
R7415	X	X	X	✓
R6415	X	X	X	✓

PowerEdge processor compatibility matrix with vMotion

The following table lists the Dell supported Intel processor matrix across 32-bit and 64-bit virtual machines (VMs) that can enable vMotion.

Table 5. vMotion and 32-bit and 64-bit VM compatibility matrix across Intel processor models

Intel Processors	Intel Xeon SP(84xx, 64xx, 54xx, 44xx, 34xx) series	Intel Atom (C-35xx) series	Intel Xeon (D-27xx) series	Intel Xeon E-2300 series	Intel Xeon SP (83xx, 63xx, 53xx, 43xx)	Intel Xeon SP (82xx, 62xx, 52xx, 42xx, 32xx)	Intel Xeon SP (81xx, 61xx, 51xx, 41xx, 31xx)	Intel Xeon E-2100 Series	Intel Xeon E-2200 Series
Intel Xeon SP(84xx, 64xx, 54xx, 44xx, 34xx) series	✓	X	X	X	X	X	X	X	X

Table 5. vMotion and 32-bit and 64-bit VM compatibility matrix across Intel processor models (continued)

Intel Processors	Intel Xeon SP(84xx, 64xx, 54xx, 44xx, 34xx) series	Intel Atom (C-35xx) series	Intel Xeon (D-27xx) series	Intel Xeon E-2300 series	Intel Xeon SP (83xx, 63xx, 53xx, 43xx)	Intel Xeon SP (82xx, 62xx, 52xx, 42xx, 32xx)	Intel Xeon SP (81xx, 61xx, 51xx, 41xx, 31xx)	Intel Xeon E-2100 Series	Intel Xeon E-2200 Series
Intel Atom(C-35xx) series	X	✓	X	X	X	X	X	X	X
Intel Xeon (D-27xx) series	X	X	✓	X	X	X	X	X	X
Intel Xeon E-2300 series	X	X	X	✓	X	X	X	X	X
Intel Xeon SP (83xx, 63xx, 53xx, 43xx) series	X	X	X	X	✓	X	X	X	X
Intel Xeon SP (82xx, 62xx, 52xx, 42xx, 32xx) series	X	X	X	X	X	✓	X	X	X
Intel Xeon SP (81xx, 61xx, 51xx, 41xx, 31xx) series	X	X	X	X	X	X	✓	X	X
Intel Xeon E- 2100 Series	X	X	X	X	X	X	X	✓	X
Intel Xeon E- 2200 Series	X	X	X	X	X	X	X	X	✓

The following table lists the Dell supported AMD processor matrix across 32-bit and 64-bit VMs that support vMotion.

Table 6. vMotion and 32-bit and 64-bit VM compatibility matrix across AMD processor models

AMD Opteron Processors	AMD EPYC 9xx4 series	AMD EPYC 7xx3 series	AMD EPYC 7XX2 series	AMD EPYC 7XX1 series
AMD EPYC 9xx4 series	✓	X	X	X
AMD EPYC 7xx3 series	X	✓	X	X
AMD EPYC 7XX2 series	X	X	✓	X
AMD EPYC 7XX1 series	X	X	X	✓

PowerEdge processor compatibility matrix with enhanced vMotion

The following table lists the compatibility matrix across 32-bit and 64-bit VMs based on Intel processor models that enable enhanced vMotion. For more information about vMotion requirements, see Important Information.

Table 7. Enhanced vMotion and 32/64-bit VM compatibility matrix across Intel processor models

Intel Processors	Intel Xeon SP(84xx, 64xx, 54xx, 44xx, 34xx) series	Intel Atom (C-35xx) series	Intel Xeon (D-27xx) series	Intel Xeon E-2300 series	Intel Xeon SP (83xx, 63xx, 53xx, 43xx) series	Intel Xeon SP (82xx, 62xx, 52xx, 42xx, 32xx) series	Intel Xeon SP (81xx, 61xx, 51xx, 41xx, 31xx) series	Intel Xeon E-2100 Series	Intel Xeon E-2200 Series
Intel Xeon SP(84xx, 64xx, 54xx, 44xx, 34xx) series	✔	✔	✔	✔	✔	✔	✔	✔	✔
Intel Xeon (D-27xx) series	✔	✔	✔	✔	✔	✔	✔	✔	✔
Intel Atom(C-35x) series	✔	✔	✔	✔	✔	✔	✔	✔	✔
Intel Xeon E-2300 series	✔	✔	✔	✔	✔	✔	✔	✔	✔
Intel Xeon SP (83xx, 63xx, 53xx, 43xx) series	✔	✔	✔	✔	✔	✔	✔	✔	✔
Intel Xeon SP (82xx, 62xx, 52xx, 42xx, 32xx) series	✔	✔	✔	✔	✔	✔	✔	✔	✔
Intel Xeon SP (81xx, 61xx, 51xx, 41xx, 31xx) series	✔	✔	✔	✔	✔	✔	✔	✔	✔
Intel Xeon E- 2100 Series	✔	✔	✔	✔	✔	✔	✔	✔	✔
Intel Xeon E- 2200 Series	✔	✔	✔	✔	✔	✔	✔	✔	✔

The following table lists the compatibility matrix across 32-bit and 64-bit VMs based on AMD processor models that enable Enhanced vMotion.

Table 8. Enhanced vMotion and 32/64-bit VM compatibility matrix across AMD processor models

AMD Opteron Processors	AMD EPYC 9xx4 series	AMD EPYC 7xx3 series	AMD EPYC 7XX2 series	AMD EPYC 7XX1 series
AMD EPYC 9xx4 series	✓	✓	✓	✓
AMD EPYC 7xx3 series	✓	✓	✓	✓
AMD EPYC 7XX2 series	✓	✓	✓	✓
AMD EPYC 7XX1 series	✓	✓	✓	✓

Important Information

This document provides information about the VMware vMotion compatibility matrices for VMware ESXi on Dell supported PowerEdge systems with supported processor models.

- For general information about VMware vMotion, see VMware vMotion and CPU Compatibility Information Guide at vmware.com.
- vMotion compatibility depends on the model and stepping of the processor involved. It does not depend on the model of the PowerEdge system or the speed of the processor. For more processor-specific information, see the below knowledge base (KB) articles 1991, 1992, and 1993:
  - vMotion CPU compatibility requirements for Intel processors (1991)
  - VMotion CPU Compatibility Requirements for AMD Processors (1992)
  - vMotion CPU Compatibility - Migrations Prevented Due to CPU Mismatch - How to Override Masks (1993)
- For more information about Enhanced vMotion Compatibility (EVC) processor support, see the VMware Knowledge Base article VMware EVC and CPU Compatibility FAQ.
- To determine if the processor support exists in a specific ESXi release, see the specific Systems Compatibility Guide at VMware Documentation.
- When you migrate between certain processor models, turn off the NX bit on the VMware vSphere Client interface.
- Perform the following steps to turn off the NX bit:
  - Right-click Virtual Machine and select Edit Settings→ Options→ Advanced Settings.
  - Select the Hide the NX flag from guest option. The NX bit is now turned off.
- VT must be enabled to run 64-bit guest operating systems on Intel platforms.
- Create consistent virtual switch names on each ESXi host.
- vMotion requires the setup of a Gigabit Ethernet migration network between all copies of ESXi. Dell recommends isolating this network from other production network traffic.

Getting help

Topics:

- Contacting Dell
- Related information for virtualization solutions
- Documentation resources
- Identifying the series of your Dell PowerEdge servers
- Download drivers and firmware
- Documentation feedback

Contacting Dell

Dell provides several online and telephone-based support and service options. Availability varies by country, region, and product, and some services may not be available in your area.

About this task

To contact Dell for sales, technical assistance, or customer service issues, see www.dell.com/contactdell.

If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or the product catalog.

Related information for virtualization solutions

Table 9. Related information for virtualization solutions

If you need information about	See
Dell VMware documentation	www.dell.com/virtualizationsolutions
OpenManage documentation	https://www.dell.com/openmanagemanuals
PowerEdge documentation	https://www.dell.com/poweredgemanuals
Basic configuration information for running ESXi on a Dell PowerEdge server	Getting Started Guide at www.dell.com/virtualizationsolutions
• Information about downloading, installing, and configuring ESXi • Supported hardware configurations for running ESXi on a Dell PowerEdge server	Installation Instructions and Important Information Guide at www.dell.com/virtualizationsolutions
PowerEdge systems and compatibility with vMotion	*VMware ESXi vMotion Support on Dell PowerEdge Servers Compatibility Matrix* at www.dell.com/virtualizationsolutions
PowerEdge systems compatibility information for running ESXi	*VMware vSphere on Dell PowerEdge Servers Compatibility Matrix* at www.dell.com/virtualizationsolutions
Known issues and resolutions	*VMware vSphere ESXi 8.x on Dell PowerEdge Server Release Notes* at www.dell.com/virtualizationsolutions

Table 9. Related information for virtualization solutions (continued)

If you need information about	See
ESXi ISO image customization information	*VMware ESXi on Dell PowerEdge Systems Image Customization Information* at www.dell.com/virtualizationsolutions
UEFI Boot order management utility in VMware ESXi 7.x and above	www.dell.com/support/article/en-us/sln321019
Dell Add-on for VMware vSphere 7.x and above	www.dell.com/support/article/en-us/sln320956
Dell ESXi 7.0 Quick Boot compatibility guide	www.dell.com/support/article/en-us/sln320746

Technical support resources

- vmware.com/support
- www.dell.com/support/home
- Dell.com/services

Discussion forums

- Communities.vmware.com/community/vmtn
- Dell Community

Knowledge base

- kb.vmware.com/kb

Virtualization videos for Dell PowerEdge servers

All the supported virtualization videos for PowerEdge systems are available in the Supported Operating Systems for Dell PowerEdge systems playlist.

Table 10. Virtualization videos for Dell PowerEdge servers

Video title	Links
Downloading the Dell customized ESXi image from support site	www.youtube.com/watch?v=YnVxtkAkYTI
Downloading Dell customized ESXi image from VMware website	www.youtube.com/watch?v=TnWyuyxuk5k
Operating system Deployment (VMware ESXi)—Installing Using CD/DVD	www.youtube.com/watch?v=-EbufUS86zA
Enabling and Configuring Fault Resilient Memory on Dell PowerEdge servers	www.youtube.com/watch?v=retSh-XIsK0
OS Deployment (VMware ESXi)—Installing on BOSS S1 device	www.youtube.com/watch?v=TB1loXpFFME
OS Deployment (VMware ESXi)—Installing on IDSDM	www.youtube.com/watch?v=EC-Xntg5mgw

Documentation resources

This section provides information about the documentation resources for your server.

Table 11. Additional documentation resources for your server

Task	Document	Location
Setting up your server	For information about installing the server into a rack, see the rack documentation included with your rack solution or the *Getting Started Guide* that is shipped with your server.	https://www.dell.com/poweredgemanuals
	For information about turning on the server and the technical specifications of your server, see the *Getting Started Guide* that is shipped with your server.	https://www.dell.com/poweredgemanuals
Configuring your server	For information about the iDRAC features, configuring and logging in to iDRAC, and managing your server remotely, see the *Integrated Dell Remote Access Configuration Tool User's Guide.*	https://www.dell.com/idracmanuals
	For information about installing the operating system, see operating system documentation.	https://www.dell.com/operatingsystemmanuals
	For information about understanding Remote Access Controller Admin (RACADM) subcommands and supported RACADM interfaces, see the *Integrated Dell Remote Access Controller RACADM CLI Guide.*	https://www.dell.com/idracmanuals
	For information about updating drivers and firmware, see Download drivers and firmware topic in this document.	www.dell.com/support/drivers
Managing your server	For information about server management software offered by Dell, see the Dell *Systems Management Overview Guide.*	https://www.dell.com/openmanagemanuals
	For information about setting up, using, and troubleshooting OpenManage, see the Dell *OpenManage Server Administrator User's Guide.*	https://www.dell.com/openmanagemanuals
	For information about installing, using, and troubleshooting Dell OpenManage Essentials, go to *www.dell.com/ openmanagemanuals > OpenManage Essentials User's Guide.*	https://www.dell.com/openmanagemanuals

Table 11. Additional documentation resources for your server (continued)

Task	Document	Location
	For information about installing and using Dell SupportAssist, see the Dell *SupportAssist Enterprise User's Guide*.	https://www.dell.com/serviceabilitytools
	For understanding the features of Dell Lifecycle Controller (LC), see the *Dell Lifecycle Controller User's Guide*.	https://www.dell.com/idracmanuals
	For information about partner programs enterprise systems management, see the *OpenManage Connections Enterprise Systems Management* documents.	https://www.dell.com/esmmanuals
	For information about viewing inventory, performing configuration, and monitoring tasks, remotely turning on or off servers, and enabling alerts for events on servers and components using the Dell Chassis Management Controller (CMC), see the *Chassis Management Controller User's Guide* .	https://www.dell.com/esmmanuals
Working with the Dell PowerEdge RAID controllers	For information about understanding the features of the Dell PowerEdge RAID controllers (PERC) and deploying the PERC cards, see the Storage controller documentation.	www.dell.com/storagecontrollermanuals
Understanding event and error messages	For information about checking the event and error messages generated by the system firmware and agents that monitor server components, see the Dell Event and Error Messages Reference Guide.	www.dell.com/openmanagemanuals
Troubleshooting your system	For information about identifying and troubleshooting the PowerEdge server issues, see the *PowerEdge Servers Troubleshooting Guide*.	https://www.dell.com/poweredgemanuals
Configuring Dell PowerEdge VRTX shared storage for VMware vSphere environment	For information on configuring Dell PowerEdge VRTX shared storage for VMware vSphere environment, see Dell White papers.	Configuring Dell PowerEdge VRTX shared storage for VMware vSphere Environment

Identifying the series of your Dell PowerEdge servers

The PowerEdge series of servers from Dell are divided into different categories based on their configuration. They are referred as YX2X, YX3X, YX4X, YX4XX, or YX5XX series of servers. The structure of the naming convention is described below:

The letter Y denotes the character in the server model number. The character denotes the form factor of the server. The form factors are listed below:
- C- Cloud
- F- Flexible
- M or MX- Modular
- R- Rack
- T- Tower

The letter X denotes the numbers in the server model number. The number denotes multiple characteristics about the server. They are listed as follows:.
- The first digit (X) denotes the value stream or class of the server.
  - 1-5—iDRAC basic
  - 6-9—iDRAC Express
- The second digit denotes the series of the server. It is retained in the server naming convention and does not replace the letter X.
  - 0—series 10
  - 1—series 11
  - 2—series 12
  - 3—series 13
  - 4—series 14
  - 5—series 15
- The last digit (X) always denotes the make of the processor as described below:
  - 0-Intel
  - 5-AMD

(i) **NOTE:** For servers that use an AMD processor, the model number is made up of four digits instead of three. The third digit (X) denotes the number of processor sockets that the series of server supports.
- 1—one socket server
- 2—two socket server

Table 12. PowerEdge servers naming convention and examples

YX3X servers	YX4X systems	YX4XX systems	YX5XX
PowerEdge M630	PowerEdge M640	PowerEdge R6415	PowerEdge R6515
PowerEdge M830	PowerEdge R440	PowerEdge R7415	PowerEdge R7515
PowerEdge T130	PowerEdge R540	PowerEdge R7425	PowerEdge R6525

Download drivers and firmware

It is recommended that you download and install the latest BIOS, drivers, and systems management firmware on your system.

Prerequisites

Ensure that you clear the web browser cache before downloading the drivers and firmware.

Steps

1. Go to www.dell.com/support/drivers.
2. In the **Drivers & Downloads** section, enter the Service Tag of your system in the **Enter a Dell Service Tag, Dell Product ID, or Model** text box, and then click the right arrow button.
   (i) **NOTE:** If you do not have the Service Tag, click **Detect PC** to allow the system to automatically detect your Service Tag.
3. Click **Drivers & Downloads**.
   A list of applicable downloads is displayed.
4. Download the drivers or firmware to a USB drive, CD, or DVD.

Download Dell customized ESXi image and Dell add-on from Dell support site

About this task

ⓘ **NOTE:** Ensure that you clear the web browser cache before downloading the drivers and firmware.

Steps

1. Go to www.dell.com/support/drivers.
2. In the **Drivers & Downloads** section, enter the Service Tag of your system in the **Enter a Dell Service Tag, Dell Product ID, or Model** box, and then click the right arrow button. If you do not have the Service Tag, select **Detect PC** to allow the system to automatically detect the service tag, or click **Browse all products**, and then navigate to your product.
3. Click **Drivers & Downloads**.

   The drivers that are applicable to your system are displayed.

4. From the **Operating System** list, select the appropriate VMware version.
5. In the **Category** list, select **Enterprise Solutions**.

   The latest Dell VMware ESXi customized image files are displayed.

6. Click **Download**.
   The Dell customized image file is successfully downloaded from the Dell support site.

Download Dell customized ESXi image file from VMware site

About this task

ⓘ **NOTE:** Ensure that you clear the web browser cache before downloading the drivers and firmware.

ⓘ **NOTE:** To download the drivers and firmware, you must be a registered user in VMware Customer Connect.

To download the ESXi image file, do the following:

Steps

1. Go to VMware Customer Connect and log in with your admin credentials.
2. Select **View & Download products** > **All Products** and then click the **View Download Components** link of **VMware vSphere**.
3. Select the image version from the **Select Version** list.
4. Click **Custom ISOs**.
5. Expand the **OEM Customized Installer CDs** option, and then click **Go to Downloads** to download the image.

Documentation feedback

You can rate the documentation or write your feedback on any of our Dell documentation pages and click **Send Feedback** to send your feedback.