

VMware[®] VMotion[™] and
64-Bit Virtual Machine

Compatibility Matrix for VMware Infrastructure 3 and Dell[™] PowerEdge[™] Systems

Notes and Cautions



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



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

Information in this document is subject to change without notice.

© 2008 Dell Inc. All rights reserved.

Reproduction of these materials in any manner whatsoever without the written permission of Dell Inc. is strictly forbidden.

Trademarks used in this text: *Dell*, *PowerEdge*, and *OpenManage* are trademarks of Dell Inc.; *AMD* and *AMD Opteron* are registered trademarks of Advanced Micro Devices, Inc.; *Intel* and *Xeon* are registered trademarks of Intel Corporation in the U.S. and other countries; *VMware* and *VMotion* are registered trademarks or trademarks (the "Marks") of VMware, Inc. in the United States and/or other jurisdictions.

Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Dell Inc. disclaims any proprietary interest in trademarks and trade names other than its own.

September 2008 Rev. A02

VMotion[®] and 32/64-Bit Virtual Machine (VM) Compatibility Matrix for VMware[®] Infrastructure 3

This document lists the compatibility matrices for Dell™ PowerEdge™ systems running VMware[®] ESX software across various processor models.

Dell-Supported System and Processor Compatibility Matrix

Table 1-1 and Table 1-2 list the compatibility matrices for Dell-supported systems and processors that enable VMotion.

Table 1-1. Dell-Supported System and Processor Compatibility Matrix-1

	Intel [®] Xeon [®] 7400 Series	Intel Xeon 7300 Series	Intel Xeon 7200 Series	Intel Xeon 7100 Series	Intel Xeon	Intel Xeon 5400 Series	Intel Xeon 5300 Series	Intel Xeon 5200 Series	Intel Xeon 5100 Series	Intel Xeon 5000 Series	Intel Xeon 800 MHz, 2x2MB L2
PowerEdge M905											
PowerEdge M805											
PowerEdge R905											
PowerEdge R900	✓	✓	✓								
PowerEdge R805											
PowerEdge M605											
PowerEdge M600						✓	✓	✓	✓		
PowerEdge 2950 III						✓	✓	✓	✓		

Table 1-1. Dell-Supported System and Processor Compatibility Matrix-I (continued)

	Intel® Xeon® 7400 Series	Intel Xeon 7300 Series	Intel Xeon 7200 Series	Intel Xeon 7100 Series	Intel Xeon	Intel Xeon 5400 Series	Intel Xeon 5300 Series	Intel Xeon 5200 Series	Intel Xeon 5100 Series	Intel Xeon 5000 Series	Intel Xeon 800 MHz, 2x2MB L2
PowerEdge 2900 III						✓	✓	✓	✓		
PowerEdge 1950 III						✓	✓	✓	✓		
PowerEdge 6950											
PowerEdge 2970											
PowerEdge 2950							✓		✓	✓	
PowerEdge 2900							✓		✓	✓	
PowerEdge 1955							✓		✓	✓	
PowerEdge 1950							✓		✓	✓	
PowerEdge 6850				✓	✓						
PowerEdge 6800				✓	✓						
PowerEdge 2850											✓
PowerEdge 2800											✓
PowerEdge 1855											✓
PowerEdge 1850											✓
PowerEdge 6650											
PowerEdge 2650											
PowerEdge 2600											

Table 1-2. Dell-Supported System and Processor Compatibility Matrix-II

	Intel Xeon 800MHz, 2MB L2	Intel Xeon 800MHz, 1MB L2	Intel Xeon 667MHz, 1MB L2, 4/8MB L3	Intel Xeon 667MHz, 1 MB L2	Intel Xeon 400MHz, 512KB L2, 1/2MB L3	AMD Opteron® 8300 Series	AMD Opteron 8200 Series	AMD Opteron 2300 Series	AMD Opteron 2200 Series
PowerEdge M905						✓	✓		
PowerEdge M805								✓	✓
PowerEdge R905						✓	✓		
PowerEdge R900									
PowerEdge R805								✓	✓
PowerEdge M605								✓	✓
PowerEdge M600									
PowerEdge 2950 III									
PowerEdge 2900 III									
PowerEdge 1950 III									
PowerEdge 6950						✓	✓		
PowerEdge 2970								✓	✓
PowerEdge 2950									
PowerEdge 2900									
PowerEdge 1955									
PowerEdge 1950									
PowerEdge 6850			✓	✓					

Table 1-2. Dell-Supported System and Processor Compatibility Matrix-II (continued)

	Intel Xeon 800MHz, 2MB L2	Intel Xeon 800MHz, 1MB L2	Intel Xeon 667MHz, 1MB L2, 4/8MB L3	Intel Xeon 667MHz, 1 MB L2	Intel Xeon 400MHz, 512KB L2, 1/2MB L3	AMD Opteron® 8300 Series	AMD Opteron 8200 Series	AMD Opteron 2300 Series	AMD Opteron 2200 Series
PowerEdge 6800			✓	✓					
PowerEdge 2850	✓	✓							
PowerEdge 2800	✓	✓							
PowerEdge 1855	✓	✓							
PowerEdge 1850	✓	✓							
PowerEdge 6650					✓				
PowerEdge 2650					✓				
PowerEdge 2600					✓				

Dell-Supported Processor Compatibility Matrix

Table 1-3 and Table 1-4 list the Dell-supported processor matrices across 32- and 64-bit VMs based on processor models that enable VMotion.



NOTE: For more information on VMotion requirements, see "Important Information" on page 11.

Table 1-3. VMotion and 32/64-Bit VM Compatibility Matrix Across Processor Models-I

	Intel Xeon 7400 Series	Intel Xeon 7300 Series	Intel Xeon 7200 Series	Intel Xeon 7100 Series	Intel Xeon 7000 Series	Intel Xeon 5400 Series	Intel Xeon 5300 Series	Intel Xeon 5200 Series	Intel Xeon 5100 Series	Intel Xeon 5000 Series
Intel Xeon 7400 Series	✓	×	×	×	×	✓	×	✓	×	×
Intel Xeon 7300 Series	×	✓	✓	×	×	×	✓	×	✓	×
Intel Xeon 7200 Series	×	✓	✓	×	×	×	✓	×	✓	×
Intel Xeon 7100 Series	×	×	×	✓	✓	×	×	×	×	✓
Intel Xeon 7000 Series	×	×	×	✓	✓	×	×	×	×	✓
Intel Xeon 5400 Series	✓	×	×	×	×	✓	×	✓	×	×
Intel Xeon 5300 Series	×	✓	✓	×	×	×	✓	×	✓	×
Intel Xeon 5200 Series	✓	×	×	×	×	✓	×	✓	×	×
Intel Xeon 5100 Series	×	✓	✓	×	×	×	✓	×	✓	×
Intel Xeon 5000 Series	×	×	×	✓	✓	×	×	×	×	✓
Intel Xeon 800 MHz, 2x2MB L2	×	×	×	✓	✓	×	×	×	×	✓
Intel Xeon 800 MHz, 2MB L2	×	×	×	✓	✓	×	×	×	×	✓
Intel Xeon 800 MHz, 1MB L2	×	×	×	✓	✓	×	×	×	×	✓
Intel Xeon 667 MHz, 1MB L2, 4/8MB L3	×	×	×	✓	✓	×	×	×	×	✓
Intel Xeon 667 MHz, 1 MB L2	×	×	×	✓	✓	×	×	×	×	✓
Intel Xeon 400 MHz, 512 KB L2, 1/2MB L3	×	×	×	×	×	×	×	×	×	×
AMD Opteron 8300 Series	×	×	×	×	×	×	×	×	×	×
AMD Opteron 8200 Series	×	×	×	×	×	×	×	×	×	×
AMD Opteron 2300 Series	×	×	×	×	×	×	×	×	×	×
AMD Opteron 2200 Series	×	×	×	×	×	×	×	×	×	×

Table 1-4. VMotion and 32/64-Bit VM Compatibility Matrix Across Processor Models-II

	Intel Xeon 800 MHz, 2x2MB L2	Intel Xeon 800MHz, 2MB L2	Intel Xeon 800MHz, 1MB L2	Intel Xeon 667MHz, 1MB L2, 4/8MB L3	Intel Xeon 667MHz, 1 MB L2	Intel Xeon 400MHz, 512KB L2, 1/2MB L3	AMD Opteron 8300 Series	AMD Opteron 8200 Series	AMD Opteron 2300 Series	AMD Opteron 2200 Series
Intel Xeon 7400 Series	×	×	×	×	×	×	×	×	×	×
Intel Xeon 7300 Series	×	×	×	×	×	×	×	×	×	×
Intel Xeon 7200 Series	×	×	×	×	×	×	×	×	×	×
Intel Xeon 7100 Series	✓	✓	✓	✓	✓	×	×	×	×	×
Intel Xeon 7000 Series	✓	✓	✓	✓	✓	×	×	×	×	×
Intel Xeon 5400 Series	×	×	×	×	×	×	×	×	×	×
Intel Xeon 5300 Series	×	×	×	×	×	×	×	×	×	×
Intel Xeon 5200 Series	×	×	×	×	×	×	×	×	×	×
Intel Xeon 5100 Series	×	×	×	×	×	×	×	×	×	×
Intel Xeon 5000 Series	✓	✓	✓	✓	✓	×	×	×	×	×
Intel Xeon 800 MHz, 2x2MB L2	✓	✓	✓	✓	✓	×	×	×	×	×
Intel Xeon 800 MHz, 2MB L2	✓	✓	✓	✓	✓	×	×	×	×	×
Intel Xeon 800 MHz, 1MB L2	✓	✓	✓	✓	✓	×	×	×	×	×
Intel Xeon 667 MHz, 1MB L2, 4/8MB L3	✓	✓	✓	✓	✓	×	×	×	×	×
Intel Xeon 667 MHz, 1 MB L2	✓	✓	✓	✓	✓	×	×	×	×	×
Intel Xeon 400 MHz, 512 KB L2, 1/2MB L3	×	×	×	×	×	✓	×	×	×	×
AMD Opteron 8300 Series	×	×	×	×	×	×	✓	×	✓	×

Table 1-4. VMotion and 32/64-Bit VM Compatibility Matrix Across Processor Models-II (continued)

	Intel Xeon 800 MHz, 2x2MB L2	Intel Xeon 800MHz, 2MB L2	Intel Xeon 800MHz, 1MB L2	Intel Xeon 667MHz, 1MB L2, 4/8MB L3	Intel Xeon 667MHz, 1 MB L2	Intel Xeon 400MHz, 512KB L2, 1/2MB L3	AMD Opteron 8300 Series	AMD Opteron 8200 Series	AMD Opteron 2300 Series	AMD Opteron 2200 Series
AMD Opteron 8200 Series	×	×	×	×	×	×	×	✓	×	✓
AMD Opteron 2300 Series	×	×	×	×	×	×	✓	×	✓	×
AMD Opteron 2200 Series	×	×	×	×	×	×	×	✓	×	✓

Legends

	Support for 32-bit VMs only
	Support for 32-bit and 64-bit VMs; supports Virtualization Technology (VT)
✓	VMotion works for 32-bit and 64-bit guests between the corresponding processor models
×	VMotion fails with CPU incompatibility error message

Dell-Supported Processor Compatibility Matrix for Enhanced VMotion

Table 1-5 lists the compatibility matrix across 32- and 64-bit VMs based on processor models that enable Enhanced VMotion.

 **NOTE:** For more information on VMotion requirements, see "Important Information" on page 11.

Table 1-5. Enhanced VMotion and 32/64-Bit VM Compatibility Matrix Across Processor Models

	Intel Xeon 7400 Series	Intel Xeon 7300 Series	Intel Xeon 7200 Series	Intel Xeon 5400 Series	Intel Xeon 5300 Series	Intel Xeon 5200 Series	Intel Xeon 5100 Series	AMD Opteron 8300 Series	AMD Opteron 8200 Series	AMD Opteron 2300 Series	AMD Opteron 2200 Series
Intel Xeon 7400 Series	✓	✓	✓	✓	✓	✓	✓				
Intel Xeon 7300 Series	✓	✓	✓	✓	✓	✓	✓	×	×	×	×
Intel Xeon 7200 Series	✓	✓	✓	✓	✓	✓	✓	×	×	×	×
Intel Xeon 5400 Series	✓	✓	✓	✓	✓	✓	✓	×	×	×	×
Intel Xeon 5300 Series	✓	✓	✓	✓	✓	✓	✓	×	×	×	×
Intel Xeon 5200 Series	✓	✓	✓	✓	✓	✓	✓	×	×	×	×
Intel Xeon 5100 Series	✓	✓	✓	✓	✓	✓	✓	×	×	×	×
AMD Opteron 8300 Series	×	×	×	×	×	×	×	✓	✓	✓	✓
AMD Opteron 8200 Series	×	×	×	×	×	×	×	✓	✓	✓	✓
AMD Opteron 2300 Series	×	×	×	×	×	×	×	✓	✓	✓	✓
AMD Opteron 2200 Series	×	×	×	×	×	×	×	✓	✓	✓	✓

Legends

✓	VMotion works for 32-bit and 64-bit guests between the corresponding processor models
×	VMotion fails with CPU incompatibility error message

Important Information

- VMotion compatibility depends on the model and stepping of the processor involved. It does not depend on the model of the system or speed of the processor. Table 1-3, Table 1-4, and Table 1-5 illustrate VMotion compatibility with respect to Dell PowerEdge systems.

For more information on processor specific information, see the Knowledge Base articles 1991, 1992, 1993 on the VMware Knowledge Base website at vmware.com/support/kb.

- To determine if the processor support exists in a specific VMware ESX release, see the appropriate *Systems Compatibility Guide* on the VMware website at vmware.com.
- Each system model listed in Table 1-1 and Table 1-2 includes all currently supported processor models, stepping, and processor speeds with that system.
- Each processor specification or model number or series includes all supported processor variants of the family.
- For the latest information on ESX support matrix for Dell PowerEdge systems, see the *Systems Compatibility Guide For ESX Server 3.x* on the VMware website at vmware.com.
- Before enabling VMotion, update all systems to the latest BIOS version available on the Dell Support website at support.dell.com.



NOTE: VMotion between systems with older BIOS versions may fail.

- When you migrate between certain processor models turn the NX bit off from the VI client interface.

Perform the following steps to turn the NX bit off:

- a Right-click **Virtual Machine** and select **Edit Settings**→ **Options**→ **Advanced Settings**.
- b Select **Hide the NX flag from guest radio button**.
The NX bit is turned off.

- The 64-bit guest operating systems running ESX 3.0.1 onwards are supported. Virtualization Technology (VT) is required to run 64-bit guest operating systems on Intel platforms. The ESX software does not use VT to run 64-bit guest operating systems on AMD platforms. For more information on 64-bit guest operating system VMotion compatibility, see Table 1-3, Table 1-4, and Table 1-5.
- Disable the Demand Based Switching (DBS) feature in the BIOS of Intel platforms.
- Create consistent Virtual Switch names on each copy of ESX software.
- VMotion requires the setup of a Gigabit Ethernet migration network between all copies of ESX software. It is recommended that this network is isolated from other production network traffic.
- You can get the processor model number during system boot or using the BIOS utility or using OpenManage. In OpenManage, run the following command on the system to obtain the processor model number:

```
$ omreport chassis processors
```

Using Dell OpenManage™ to Configure VT and DBS

In addition to using the BIOS utility, Dell OpenManage can be used to configure VT and DBS (on Intel platforms). For more information on OpenManage installation, see *Installing Dell OpenManage Software in a VMware ESX Server Software Environment* on the Dell Support website at support.dell.com.

To verify the current BIOS Settings for VT and DBS, run the following command:

```
$ omreport chassis biossetup
```

To enable VT, run the following command and reboot the system:

```
$ omconfig chassis biossetup attribute=cpuvt setting=enabled
```

To disable DBS, run the following command and reboot the system:

```
$ omconfig chassis biossetup attribute=dbs setting=disabled
```