VMware® VMotion™ and 64-bit VM Compatibility Matrix for VMware Infrastructure 3 and Dell™ PowerEdge™ Systems

Notes and Notices

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

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

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VMotion and 32/64-bit VM Compatibility Matrix for VMware Infrastructure 3

For more information and important VMotion™ requirements, see "Important Notes" on page 5. Figure 1-1 displays the Dell supported server and processor compatibility matrix table.

Figure 1-1. Supported Server and Processor Compatibility Matrix

	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® 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 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		✓	✓										✓	✓					
PowerEdge 6800		✓	✓										✓	✓					
PowerEdge 2850										✓	✓	✓							
PowerEdge 2800										✓	✓	✓							
PowerEdge 1855										✓	✓	✓							
PowerEdge 1850										✓	✓	✓							
PowerEdge 6650															✓				
PowerEdge 2650															✓				
PowerEdge 2600															✓				

Figure 1-2 displays the VMotion and 32/64-bit VM compatibility matrix table based on processor models.

Figure 1-2. VMotion and 32/64-Bit VM Compatibility Across Processor Models

	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, 2x2 MB L2	Intel Xeon 800 MHz, 2 MB L2	Intel Xeon 800 MHz, 1 MB L2	Intel Xeon 667 MHz, 1 MB L2, 4/8 MB L3	Intel Xeon 667 MHz, 1 MB L2	Intel Xeon 400 MHz, 512 KB L2, 1/2 MB L3	AMD Opteron® 8300 Series	AMD Opteron 8200 Series	AMD Opteron 2300 Series	AMD Opteron 2200 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	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✓

Legend

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

Important Notes

- 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. Figure 1-1and Figure 1-2 illustrate VMotion compatibility with respect to Dell PowerEdge systems.

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

- To determine if processor support exists in a specific VMware ESX release, refer to the appropriate Systems Compatibility Guide on the VMware website at **www.vmware.com.**

- Each system model listed in Figure 1-1 includes all currently supported processor models, stepping, and speeds with that system.

- Each processor specification/model number/series includes all supported processor variants of the family.

- For the latest information on ESX server support matrix for Dell PowerEdge systems, see the *Systems Compatibility Guide For ESX Server 3.0.x* on the VMware website at **www.vmware.com**.

- 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.

- Migrating between certain processor models require the NX bit to be turned off. This can be accomplished from VI client interface.

  To migrate, right-click **Virtual Machine** and select **Edit Settings**→ **Options**→ **Advanced Settings**.

  Select **Hide the NX flag from guest** radio button.

- 64-bit guest operating systems are fully supported starting with ESX 3.0.1. Virtualization Technology (VT) is required to run 64-bit guest operating systems on Intel platforms. VMware ESX Server 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 Figure 1-2.

- Disable the the Demand Based Switching (DBS) feature on Intel platforms, in BIOS.

- Create consistent Virtual Switch names on each of the ESX Servers.
- VMotion requires the setup of a Gigabit Ethernet migration network between all ESX Servers configured for VMotion. It is recommended that this network is isolated from other production network traffic.

Using Dell OpenManage™ to Configure VT and DBS

In addition to using the BIOS utility, Dell OpenManage can be used to configure Virtualization Technology 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 website at **www.dell.com/vmware**.

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

```
$ omreport chassis biossetup
```

To enable VT (if it is disabled), run the following command and reboot the system:

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

To disable DBS (if it is enabled), run the following command and reboot the system:

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

Using OpenManage to Obtain Processor Information

Processor information, such as model number, is available during boot up and through the BIOS utility. Additionally, OpenManage may be used. Run the following command on the system to get the processor information:

```
$ omreport chassis processors
```