VMware® VMotion and 64-bit VM Compatibility Matrix for VMware Infrastructure 3.0.2 Update 1 and Dell™ PowerEdge™ Servers

December 2007

THESE MATRICES ARE FOR INFORMATIONAL PURPOSES ONLY, AND MAY CONTAIN TYPOGRAPHICAL ERRORS AND TECHNICAL INACCURACIES. THE CONTENT IS PROVIDED AS IS, WITHOUT EXPRESS OR IMPLIED WARRANTIES OF ANY KIND.

VMotion and 64-bit VM compatibility matrix for VMware Infrastructure

The following tables provide the VMotion and 64-bit Virtual Machine compatibility matrix for Dell™ PowerEdge™ (PE) servers (Table 1) and across supported processors (Table 2). Read the *Important Notes* section for important VMotion requirements and information.

Table 1: VMotion and 64-bit VM compatibility across Dell PowerEdge servers

VMotion Compatibility Matrix for Dell PowerEdge (PE) Servers		Legacy	PowerEdge 8G		PowerEdge 9G (Intel® Xeon® 5000 Series)	PowerEdge 9G (Intel® Xeon® 5100/5300 Series)	PowerEdge 9G (AMD Opteron® 2200/8200 Series)		PowerEdge 9G III (Intel® Xeon® 5400 Series)	PowerEdge 10G (Intel® Xeon® 7200/7300 Series
		PE 6650	PE 1850/1855/ 2850/6850	PE 6850 (Intel® Xeon® 7000/ 7100 Series)	PE 1950/1955/ 2900/2950	PE 1950/1955/ 2900/2950	PE 2970	PE 6950	PE 1950/ 2900/2950	PE R900
Legacy	PE 6650	Yes	No	No	No	No	No	No	No	No
PowerEdge 8G	PE 1850/1855/ 2850/6850	No	Yes	Yes	Yes	No	No	No	No	No
	PE 6850 (Intel® Xeon® 7000/7100 Series)	No	Yes	Yes	Yes	No	No	No	No	No
PowerEdge 9G (Intel® Xeon® 5000 Series)	PE 1950/1955/ 2900/2950	No	Yes	Yes	Yes	No	No	No	No	No
PowerEdge 9G (Intel® Xeon® 5100/5300 Series)	PE 1950/1955/ 2900/2950	No	No	No	No	Yes	No	No	No	Yes
PowerEdge 9G (AMD Opteron® 2200/8200 Series)	PE 2970	No	No	No	No	No	Yes	Yes	No	No
	PE 6950	No	No	No	No	No	Yes	Yes	No	No
PowerEdge 9G III (Intel® Xeon® 5400 Series)	PE 1950 /2900/2950	No	No	No	No	No	No	No	Yes	No
PowerEdge 10G (Intel® Xeon® 7200/7300 Series)	PE R900	No	No	No	No	Yes	No	No	No	Yes

Legend:

	Support for only 32-bit Virtual Machines
	Support for 32-bit and 64-bit Virtual Machines; supports Virtualization Technology (VT)
Yes	VMotion works for 32-bit guests between the corresponding server models
Yes	VMotion works for 32-bit and 64-bit guests between the corresponding server models
No	VMotion fails with CPU incompatibility error message

Table 2: VMotion and 64-bit VM compatibility across processor models

This following table provides the VMotion and 64-bit VM compatibility matrix based on processor models.

VMotion Matrix by processor models	Intel® Xeon® 400MHz, 512KB L2, 1/2/4MB L3	Intel® Xeon® 800MHz, 1MB L2	Intel® Xeon® 800MHz, 2MB L2	Intel® Xeon® 667MHz, 1 MB L2	Intel® Xeon® 667MHz, 1MB L2, 4/8MB L3	Intel® Xeon® 800 MHz, 2x2MB L2	Intel® Xeon® 7000 Series	Intel® Xeon® 7100 Series	Intel® Xeon® 5000 Series	Intel® Xeon® 5100 Series	Intel® Xeon® 5300 Series	AMD Opteron® 2200 Series	AMD Opteron® 8200 Series	Intel® Xeon® 5400 Series	Intel® Xeon® 7300 Series	Intel® Xeon® 7200 Series
Intel® Xeon® 400MHz, 512KB L2, 1/2/4MB L3	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Intel® Xeon® 800MHz, 1MB L2	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No
Intel® Xeon® 800MHz, 2MB L2	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No
Intel® Xeon® 667MHz, 1MB L2	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No
Intel® Xeon® 667MHz,1MB L2, 4/8MB L3	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No
Intel® Xeon® 800 MHz, 2x2MB L2	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No
Intel® Xeon® 7000 Series	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No
Intel® Xeon® 7100 Series	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No
Intel® Xeon® 5000 Series	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No
Intel® Xeon® 5100 Series	No	No	No	No	No	No	No	No	No	Yes	Yes	No	No	No	Yes	Yes
Intel® Xeon® 5300 Series	No	No	No	No	No	No	No	No	No	Yes	Yes	No	No	No	Yes	Yes
AMD Opteron® 2200 Series	No	No	No	No	No	No	No	No	No	No	No	Yes	Yes	No	No	No
AMD Opteron® 8200 Series	No	No	No	No	No	No	No	No	No	No	No	Yes	Yes	No	No	No
Intel® Xeon® 5400 Series	No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	No	No
Intel® Xeon® 7300 Series	No	No	No	No	No	No	No	No	No	Yes	Yes	No	No	No	Yes	Yes
Intel® Xeon® 7200 Series	No	No	No	No	No	No	No	No	No	Yes	Yes	No	No	No	Yes	Yes

Legend:

- Support for only 32-bit Virtual Machines
- Support for 32-bit and 64-bit Virtual Machines; supports Virtualization Technology (VT)
- Yes — VMotion works for 32-bit guests between the corresponding processor models
- Yes — VMotion works for 32-bit and 64-bit guests between the corresponding processor models

No	VMotion fails with CPU incompatibility error message

Important Notes:

- VMotion compatibility depends on the model and stepping of the processor involved, rather than on the server model. It does not depend on the speed of the processor. Above tables are for informational purpose to help customers understand VMotion compatibility with respect to Dell PowerEdge servers. For more information on processor specific information, refer to the KB articles 1991, 1992, 1993 at http://www.vmware.com/support/kb.
- To determine if processor support exists in a specific VMware ESX release, please refer to the appropriate Systems Compatibility Guide at http://www.vmware.com/support/pubs/vi_pubs.html
- Each server model listed in the Table 1 includes all currently supported processor models, stepping and speeds with that server.
- Each processor specification/model number/series includes all supported processor variants of the family.
- Refer to ESX Server 3.x System Compatibility Guide at http://vmware.com/pdf/vi3_systems_guide.pdf for latest information on ESX server support matrix for Dell PowerEdge servers.
- Update all servers to latest BIOS version available at http://support.dell.com. VMotion between servers with older BIOS versions may fail.
- Migrating between certain processor models require NX bit to be turned off. This can be accomplished from VI client interface: right click on the Virtual Machine and select *Edit Settings* > *Options* tab > *Advanced Settings* and select the *"Hide the NX flag from guest"* radio button.
- 64-bit guest operating systems are fully supported starting ESX 3.0.1. To run 64-bit guest operating systems on Intel platforms, support for Virtualization Technology (VT) is required. As illustrated in tables above, for Intel platforms VT is available only on PE 6850 (with Intel® Xeon® 7000 and 7100 series processors), 1950, 1955, 2950, and 2900 and must be enabled in BIOS. VMware ESX Server does not use VT to run 64-bit guest operating systems on AMD platforms. Refer to above tables for 64-bit guest operating system VMotion compatibility.
- The Demand Based Switching (DBS) feature on Intel platforms must be disabled 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 be isolated from other production network traffic.

Using OpenManage to configure VT and DBS:

In addition to using the BIOS utility, OpenManage can be used to configure Virtualization Technology and DBS (on Intel platforms). Refer to the document *Installing Dell OpenManage Software in a VMware ESX Server Software Environment* at http://www.dell.com/vmware > Support documents for OpenManage installation steps.

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 server to get processor information:

```
$ omreport chassis processors
```