

Application Note

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Updating the DXM-A with Ivy Bridge-compatible firmware

This application note describes how to update the Teradici firmware on DXM-A offload cards to ensure they are compatible with Dell M series blade servers fitted with Intel Ivy Bridge processors.

If preferred, you can manually update the DXM-A firmware, following the instructions in this application note. Briefly, to update the DXM-A firmware to the correct version, you must install a new ESXi driver, revision 033571. This ESXi driver is included in the PCoIP Hardware Accelerator drivers package version 2.3.5 from Teradici.

Alternatively, you can return your affected DXM-A units to Amulet Hotkey technical support, who will perform the firmware updates on your behalf.

Notes

- Teradici have released four versions of PCoIP Hardware Accelerator drivers package 2.3.5 – for ESXi 4.1, 5.0, 5.1 and 5.5 respectively. Amulet Hotkey have successfully tested the ESXi 5.5 driver with DXM-A cards on Ivy Bridge blades. We fully expect the drivers for ESXi 4.1, 5.0 and 5.1 to be equally successful in providing compatibility for the DXM-A on Ivy Bridge blades.
- For full details about the PCoIP Hardware Accelerator drivers package 2.3.5, see the *Teradici PCoIP® Hardware Accelerator (APEX 2800) Driver Release Notes Issue 14*, available to registered users from the Teradici Support Center.

Background

The DXM-A is a PCoIP® offload card for Dell M series blade servers. It is based on the Teradici PCoIP Hardware Accelerator and works with VMware® Horizon View™ to dynamically offload PCoIP image encoding in VDI environments, so reducing CPU utilization and increasing consolidation ratios.

However, a firmware incompatibility issue means that DXM-A cards fail to enumerate in ESXi servers on blades with Intel Xeon E5-26xx v2 Ivy Bridge CPUs. In turn, this prevents the blade from starting up and users are unable to access their virtual machines.



DXM-A offload card for Dell M series blade servers

Solution: Return DXM-A units to Amulet Hotkey

If you prefer, Amulet Hotkey technical support can update the Teradici firmware on your DXM-A cards.

Likewise, if you are unable to update the DXM-A firmware yourself (for example, because you do not have access to a non-Ivy Bridge blade), Amulet Hotkey technical support can update the firmware for you.

In either case, please contact your Amulet Hotkey representative for details about returning any affected DXM-A cards to Amulet Hotkey technical support.

UK telephone:	+44 (0)20 7960 2400
US telephone:	+1 (212) 269 9600
European tech support:	eurosupport@amulethotkey.com
US tech support:	ussupport@amulethotkey.com
Asia tech support:	apsupport@amulethotkey.com

Solution: Update the DXM-A firmware

To update the Teradici firmware on your DXM-A cards, you must:

1. Obtain the appropriate ESXi driver; see [page 3](#).
2. Prepare an ESXi server on a temporary 'patching blade'. This must be a blade that does *not* have Ivy Bridge processors. See [page 3](#)
3. Install the new ESXi driver on your patching blade; see [page 4](#).
4. Install the new ESXi driver on your blade with Ivy Bridge processors; see [page 5](#).
5. Update the DXM-A with Ivy Bridge-compatible firmware; see [page 5](#).
To do this, install the DXM-A card in the patching blade. The ESXi server detects the DXM-A and automatically applies the new firmware.
6. Install the updated DXM-A in your Ivy Bridge blade; see [page 5](#).
Now swap the updated DXM-A card out of the patching blade and into your Ivy Bridge blade.

These steps are described in the following sections.

Requirement

You require a new ESXi driver, revision 033571 on your Ivy Bridge blades. This new driver provides the ESXi server includes updated firmware for DXM-A cards. This updated firmware provides compatibility with Ivy Bridge processors.

Package versions

The ESXi driver is included in **PCoIP Hardware Accelerator drivers package version 2.3.5**. Four versions of this drivers package are available, for EXSi 4.1, 5.0, 5.1 and 5.5 respectively. Obtain the appropriate package for your version of ESXi.

Registered users can download these packages from the Teradici Support Center or from the Downloads page on the Amulet Hotkey website.

Package components

The drivers package contains two components:

- **ESXi driver, release 2.3.5:** The file name for this driver is:
apex2800- 2. 3. 5- rel - esxi - <ESXi ver>- 033571. zi p
Where <ESXi ver> is the ESXi version number and '033571' is the ESXi driver and firmware revision.
For example:
apex2800- 2. 3. 5- rel - esxi - 5. 5. 0- 033571. zi p
- **Virtual machine driver, release 2.3.4:** The file name for this driver is:
apex2800-2.3.4-rel-31865.exe

Do I install both components?

Only the ESXi driver has changed in release 2.3.5 of the PCoIP Hardware Accelerator drivers package. The virtual machine driver has not changed since release 2.3.4, but is included in this package for convenience.

If you previously attempted to install DXM-A cards on your Ivy Bridge blades (by installing release 2.3.4 of the drivers package), you only need to install the ESXi driver (release 2.3.5) on these blades. You do not need to re-install the virtual machine driver (release 2.3.4).

If you are installing the DXM-A for the first time on your Ivy Bridge blades, you must install both the ESXi driver (release 2.3.5) and the virtual machine driver (release 2.3.4) on these blades.

1. Obtain the ESXi driver version 033571

Follow these steps:

- a. Download the appropriate PCoIP Hardware Accelerator drivers package from the Teradici Technical Support website or from the Amulet Hotkey website.
On the Amulet Hotkey website, the packages are listed on the Support > Downloads > Offload Cards > DXM-A page. For example:
Teradici Drivers Package 2.3.5 for Hardware_Accelerator ESXi 5.1
Teradici Drivers Package 2.3.5 for Hardware_Accelerator ESXi 5.5
- b. Extract the package contents to a convenient network PC.

2. Prepare the ESXi server on your patching blade

Follow these steps:

- a. If you have not already done so, install an ESXi server on a blade that does *not* have Ivy Bridge processors. For example, use a blade with Sandy Bridge processors.
This non-Ivy Bridge blade is your '*patching blade*'.
Note: If you do not have a non-Ivy Bridge blade, please return your DXM-A units to Amulet Hotkey who will update the DXM-A firmware on your behalf.
- b. Shut down all virtual machines hosted by the patching blade or migrate them to another server.
- c. In the VMware vSphere client, locate the ESXi server in the Inventory and put it in Maintenance Mode.

3. Install the new ESXi driver on your patching blade

For full details about installing this driver, see the *Teradici PCoIP® Hardware Accelerator (APEX 2800) Administrator's Guide*. Briefly, you must:

- a. Enable remote login on the ESXi server on your patching blade.
See your VMware documentation for details. This step is also described in the *Teradici PCoIP® Hardware Accelerator (APEX 2800) Administrator's Guide*.
- b. Use WinSCP (Windows Secure Copy) to securely copy the ESXi drivers package to the ESXi server from the network PC. We recommend that you copy the drivers package to the `/tmp` folder.
- c. Install the ESXi driver package using an SSH client such as PuTTY.
Verify that the ESXi server is in Maintenance Mode. Then navigate to the folder containing the drivers package (such as `/tmp`) and start the installation. The command syntax is:

```
esxcli software vib install -d <drivers package file>
```


For example, to install the drivers package for ESXi 5.5, run:

```
esxcli software vib install -d apex2800-2.3.5-rel-esxi-5.5.0-033571.zip
```
- d. Wait for the installation result output to be displayed.
- e. Reboot the ESXi server.
- f. Using VMware vSphere, exit the ESXi server from Maintenance Mode.
- g. Using an SSH client such as PuTTY, verify that the DXM-A and ESXi driver were installed successfully.
- h. Verify that the ESXi server has the new driver installed. To output the driver details, run:

```
/opt/teradici/pcoip-ctrl -I
```


The output lists the ESXi driver version number (033571) under **APEX2800 Driver Information > SVN Revision**.
For more information about the command output, see the 'Viewing the Hardware Accelerator Status' section in the *Teradici PCoIP® Hardware Accelerator (APEX 2800) Administrator's Guide*.
- i. Verify the Global Policies settings on your View Connection Server. Specifically, using VMware View Administrator you must verify that:
 - The 'PCoIP hardware acceleration' policy is set to Allow if any policies inherit from it.
 - The option for enabling and disabling PCoIP hardware acceleration is set to Allow in any custom policies.

4. Install the new ESXi driver on your Ivy Bridge blade

Now install the new ESXi driver on your blade with Ivy Bridge processors.

- a. In the VMware vSphere client, go to the Inventory and locate the ESXi server on the Ivy Bridge blade and put it in Maintenance Mode.
- b. Follow the instructions in [3. Install the new ESXi driver on your patching blade.](#)

5. Update the DXM-A with Ivy Bridge-compatible firmware

Follow these steps:

- a. Install the DXM-A card(s) into the patching blade.
See the *Amulet Hotkey DXM-A Quick Start Guide* for installation details. Versions are available for download on the Amulet Hotkey web site for M520 and M620 blades.
- b. When the patching blade restarts with the DXM-A installed, the ESXi server detects the older firmware on the DXM-A and automatically copies the updated firmware to the DXM-A.
- c. Verify that the DXM-A now has the correct firmware. The firmware version number should be the same as the ESXi driver version number ie, 033571.

To output the driver details, run:

```
/opt/teradici/pcoip-ctrl -I
```

The output lists the DXM-A firmware version (033571) under **APEX2800 Device Summary > Firmware SVN Revision**.

For more information about the command output, see the 'Viewing the Hardware Accelerator Status' section in the *Teradici PCoIP® Hardware Accelerator (APEX 2800) Administrator's Guide*.

This completes the firmware update procedure. You now install the DXM-A in an Ivy Bridge blade.

6. Install the DXM-A in an Ivy Bridge blade

Note: This step assumes that you have already installed an ESXi server on the Ivy Bridge blade.

You can now swap the updated DXM-A out of the patching blade and install it into your blade with Ivy Bridge processors. When the Ivy Bridge blade restarts, the DXM-A now successfully enumerates.