PCI-to-PCI Express Bridge Interoperability Issues in Some Windows Platforms

Introduction

This document is to alert users to a potential interoperability problem that affects use of PLX's PCI/PCI-X to PCI Express reverse bridges and PCI Express switches with Non-Transparent port feature in PCI Express-native platforms running Windows Vista, Server 2008 and later operating systems. Affected PLX products include:

- PEX 8111, configured as a Reverse PCI to PCI Express bridge
- PEX 8112, configured as a Reverse PCI to PCI Express bridge
- PEX 8114, configured as a Reverse PCI/PCI-X to PCI Express bridge
- PEX 85xx PCI Express Switches (Non-Transparent port only)
- Deneb Family PEX 86xx PCI Express Switches (Non-Transparent port only), including
    - PEX 8612, PEX 8616, PEX 8624, PEX 8632, PEX 8648
- Sirius, Cygnus Family PEX 86xx PCI Express Switches with NT_P2P support disabled (Non-Transparent port only)
    - PEX 8604, PEX 8606, PEX 8608, PEX 8609, PEX 8613, PEX 8614, PEX 8615, PEX 8617, PEX 8618, PEX 8619
    - PEX 8625, PEX 8636, PEX 8649, PEX 8664, PEX 8680, PEX 8696

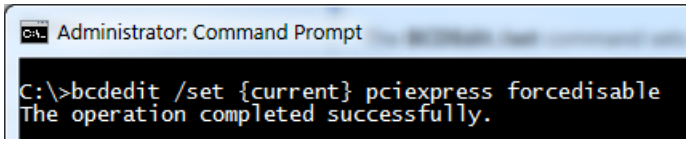
Problem Summary

Microsoft operating systems including Windows Vista, Windows Server 2008, and later versions include a feature called PCI Express Native Control. Many current motherboards now advertise support for PCI Express Native Control feature in their BIOS. When the operating system invokes the PCI Express Native Control feature, it enforces mandatory features that are not implemented in the products listed above. As a result, the default PCI-to-PCI bridge driver normally used for these devices will not start (Code 10). There are no plans to revise the silicon for any of the above products to be compatible with the operating-system-supplied bridge driver in these platforms.

Disabling the PCI Express Native Control Feature in Windows

PCI Express Native Control can be disabled from an administrator-level command prompt window using the "BCDEdit /set" command, which sets a boot entry option value in the Windows boot configuration data store (BCD). The procedure is listed below.

1. Boot to Windows normally.
2. Open a command prompt window with administrator rights. (right-click C:\Windows\System32\cmd.exe and select "Run as Administrator")
3. Enter the command "bcdedit /set {current} pciexpress forcedisable", as illustrated below.



4. Re-start the computer.

Disabling PCI Express Native mode may cause loss of other system features, such as Hot Plug, which require PCI Express Native mode. This setting can be reversed by either of the following BCDEdit commands:

- "bcdedit /deletevalue {current} pciexpress" OR
- "bcdedit /set {current} pciexpress default"

For More Information

- About BCDEdit /set command: http://msdn.microsoft.com/en-us/library/windows/hardware/ff542202(v=vs.85).aspx?ppud=4
- About PCI Express Native Control: http://msdn.microsoft.com/en-us/windows/hardware/gg487424
- ACPI Website: http://www.acpi.info/
- PCI-SIG Website: http://www.pcisig.com/home