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Notice regarding incompatibility of certain 3rd party DisplayPort video cables

Summary

When using certain incorrectly manufactured 3rd party Mini DisplayPort to DisplayPort cables to connect a display to a host computer, problems such as the following may arise:

1. Host computer is unable to power on.
2. Host computer is unable to correctly enter sleep modes.
3. Host computer is unable to correctly resume from sleep modes.
4. Display is unable to be turned on or display video correctly.
5. Incorrect display resolution or corrupted video is shown.

This issue has been identified in several configurations including when displays are connected to Apple Mac Pro computers, with video cards such as the ATI Radeon 5870 or 5770. However, it may also impact other Apple products when connected to a display via the Mini DisplayPort connector. This issue may also impact other non-Apple products that use a Mini DisplayPort connector.

Impacted models of NEC displays include: PA231W-BK, PA231W-BK-SV, PA241W-BK, PA241W-BK-SV, PA271W-BK, PA271W-BK-SV, PA301W-BK and PA301W-BK-SV only when connected via DisplayPort.

Cause

Certain Mini DisplayPort to DisplayPort cables available in the market were incorrectly manufactured and do not adhere to the DisplayPort design specification. This defect can cause the above symptoms to appear. The defective cables may be marked or sold as "DisplayPort certified" and contain the DisplayPort logo.

These cables are not manufactured or sold by NEC.

Current Status

At this time NEC is still investigating the brands of cables that have this problem, and is working with the manufacturers to correct their design. Until the full extent of this issue is determined, NEC is unable to recommend a certain specific model or brand of cable that is guaranteed to be manufactured correctly.

NEC recommends the following if you are experiencing any of the above symptoms when using a Mini DisplayPort to DisplayPort cable:

- a) Return the cable to the reseller or manufacturer and ask if a DisplayPort-compliant replacement is available.

- b) If possible, use an alternate video link such as DVI-D until a compliant DisplayPort cable can be obtained.
- c) A male Mini DisplayPort to female DisplayPort "dongle" is available from several resellers which, when used together with the NEC supplied DisplayPort to DisplayPort cable, is compliant. The dongle is a small adapter and generally available for about US\$5-10.
- d) Once reliable source(s) of fully compliant Mini DisplayPort to DisplayPort cables has been determined by NEC, a list of recommended cable vendors and models may be made available by NEC.

Technical description of cause

Certain Mini DisplayPort to DisplayPort cables available in the market do not adhere to the DisplayPort design wiring specification. This incorrect design causes power-related issues with the display and/or host computer.

The DisplayPort specification states that a display (known as a "sink" device) must output power on its DisplayPort input connector. The specification also states that a graphics adapter (known as a "source" device) must also output power on its DisplayPort output connector. The idea for providing power on both the "source" and "sink" devices is that certain other devices connected between the two can receive power. Such devices may be, for example, a repeater or a converter of some sort.

When a cable is used to connect a display directly to a graphics adapter, the DisplayPort specification states that the cable must not connect the power line, and the power outputs of the two devices should not be connected together via the cable.

The cables that were manufactured incorrectly connect the power line through the cable and allow the power outputs of the display and graphics adapter to be connected together - a condition that is forbidden in the DisplayPort specification.

Because the two power sources are connected together when using one of these cables, situations can arise in which one device is actually supplying power to the other. For example, if the host computer is powered off but the display is on (or even in standby mode), the display will inadvertently supply power to the host computer, which may cause problems such as not being able to power on, enter sleep modes or resume correctly. Similarly, if the host computer is powered on but the display is off, the computer will be supplying power to the display, which may cause problems with the display powering on.

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