

USB4 2.0 ENGINEERING CHANGE NOTICE FORM

Title: USB3 Termination/Path Indicator During Sleep Applied to: USB4 Specification Version 2.0

Brief description of the functional changes:

A Router shall implement a mechanism that allows a USB3 Gen X Adapter Layer to indicate far-end receiver termination to the Internal USB3 Gen X Component. The specification defines that this far-end receiver termination indicator shall be maintained during sleep state and only updated when the Router exits sleep state and the *Valid* bit in the USB3 Gen X Adapter Configuration Capability is set.

The purpose of this ECR is to clarify that if a disconnect occurs on the USB4 Port with a USB3 Gen X Adapter during sleep state, the far-end receiver termination can be released.

This is similarly applied to the USB3 Gen T Adapter Layer's Path Established indicator.

Benefits as a result of the changes:

Clarifies the requirement regarding far-end receiver termination indicator for a USB4 disconnect during sleep.

An assessment of the impact to the existing revision and systems that currently conform to the USB specification:

None

An analysis of the hardware implications:

None

An analysis of the software implications:

None

An analysis of the compliance testing implications:

Published USB3 Tunneling and Interop Testing do not test the affected scenario.

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Actual Change

(a). Section 9.1.1.1.2, page 541

From Text:

When a Router transitions to sleep state, a USB3 Gen X Adapter Layer shall maintain the same indicator value as before entry to sleep state. When the Router exits sleep state, the USB3 Gen X Adapter Layer shall continue to maintain the indicator value until the Valid bit in the USB3 Gen X Adapter Configuration Capability is set to 1b. After the Valid bit is set to 1b, it shall set the indicator as defined above.

To Text:

When a Router transitions to sleep state, a USB3 Gen X Adapter Layer shall maintain the same indicator value as before entry to sleep state. ~~When the Router exits sleep state, the~~ The USB3 Gen X Adapter Layer shall continue to maintain the indicator value until either:

- ~~The~~ The Valid bit in the USB3 Gen X Adapter Configuration Capability is set to 1b after the Router exits sleep state. After the Valid bit is set to 1b, ~~the USB3 Gen X Adapter Layer~~ shall set the indicator as defined above.
- A disconnect occurs on the paired USB4 Port. If a disconnect occurs on the paired USB4 Port, the Gen X Adapter Layer may remove the indicator of far-end termination.

(b). Section 9.1.5, page 557

From Text:

When a Router transitions to sleep state, a USB3 Gen T Adapter Layer shall maintain the same Path Established indicator value as before entry to sleep state. When the Router exits sleep state, the USB3 Gen T Adapter Layer shall continue to maintain the indicator value until the Valid bit in the USB3 Gen T Adapter Configuration Capability is set to 1b. After the Valid bit is set to 1b, it shall set the Path Established indicator as defined above.

To Text:

When a Router transitions to sleep state, a USB3 Gen T Adapter Layer shall maintain the same Path Established indicator value as before entry to sleep state. ~~When the Router exits sleep state, the~~ The USB3 Gen T Adapter Layer shall continue to maintain the indicator value until either:

- ~~The~~ The Valid bit in the USB3 Gen T Adapter Configuration Capability is set to 1b after the Router exits sleep state. After the Valid bit is set to 1b, ~~the USB3 Gen T Adapter Layer~~ shall set the Path Established indicator as defined above.
- A disconnect on the paired USB4 Port occurs. If a disconnect occurs on the paired USB4 Port, the USB3 Gen T Adapter Layer may set the Path Established indicator to false.