USB 3.2 ENGINEERING CHANGE NOTICE

Title: SSP partially nullified DPP CRC-32
Applied to: USB 3.2 Revision 1.0

Brief description of the functional changes:
Require CRC32 invalidation in a partially nullified DPP.

Benefits as a result of the changes:
Products that are not compliant to the spec have been identified in dealing with partially nullified DPPs. They will accept a partially nullified DPP as a valid DPP if CRC32 is the correct value. With this ECN, a partially nullified DPP will not be accepted as a valid DPP.

An assessment of the impact to the existing revision and systems that currently conform to the USB specification:
Minimal impact. Existing products developed prior to this ECN that set valid CRC 32 in a partially nullified DPP may have interoperability issues. However, most existing implementations either invalidate CRC32, or fill CRC32 field with idle symbols, thus effectively invalidating CRC32 in a partially nullified DPP. Some other implementations never generate a partially nullified DPP.

An analysis of the hardware implications:
Proposed changes should be applied to future implementations

An analysis of the software implications:
No

An analysis of the compliance testing implications:
New test may be added if necessary. Existing product will get a waiver on this test.

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Actual Change

(a). From Text (and location): Section 7.2.1.2.2

In Gen 2 operation, a port shall always preserve the DPP boundary by completing the DPP transmission meeting the length field specification defined in its associated DPHP except for the following conditions.

1. A downstream port is directed to issue a Warm Reset.

   Note: An upstream port, before declaring the detection of Warm Reset, may already enter Recovery.

2. A port is directed to enter Recovery.

   Note: It is highly recommended that a port complete the DPP transmission before transitioning to Recovery for ease of transmit implementation.

In all other cases, a port in Gen 2 operation shall perform one of the following.

- It shall append DPPEND OS upon completing the transmission of DPP.

- In the case of a nullified DPP, it shall append DPPABORT OS immediately after its DPHP.

- In the case of partially nullified DPP, it shall append DPPABORT OS after completing the DPP as defined by the length field in its associated DPHP, similar to normal ending of DPP. A port may fill with Idle Symbols in DPP and invalidate the CRC-32 values if intended data for transmission is not available. The condition to transmit a partially nullified DPP is implementation specific.

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3. A downstream port is directed to issue a Warm Reset.

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4. A port is directed to enter Recovery.

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- It shall append DPPEND OS upon completing the transmission of DPP.

- In the case of a nullified DPP, it shall append DPPABORT OS immediately after its DPHP.

In the case of partially nullified DPP, it shall append DPPABORT OS after completing the DPP as defined by the length field in its associated DPHP, similar to normal ending of DPP. A port may fill with Idle Symbols in DPP if intended data for transmission are not available but shall invalidate the CRC-32 field. The condition to transmit a partially nullified DPP is implementation specific.