USB Power Delivery ENGINEERING CHANGE NOTICE

Title: tTypeCSinkWaitCap removal for Bus Powered Devices
Applied to: USB Power Delivery Specification Revision 3.1 Version 1.8

Brief description of the functional changes proposed:
Remove tTypeCSinkWaitCap requirement for Bus powered devices because having them send a Hard Reset will only result in the failed process repeating.

Benefits as a result of the proposed changes:
Allow bus powered devices a longer time to boot time up

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

An analysis of the hardware implications:
NA

An analysis of the software implications:
NA

An analysis of the compliance testing implications:
Test on the timer should be skipped in case on bus powered application

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Actual Change Requested

(a). Section 2.6.2 Sink Operation, P.66

From Text:

• At Attach (no PD Connection or Contract):

- Sink detects Source Attachment through the presence of ***vSafe5V***.
- For a DRP that toggles the Port becomes a Sink Port on Attachment of a Source.
- Once the Sink detects the presence of ***vSafe5V*** on VBUS it waits for a ***Source_Capabilities*** Message indicating the presence of a PD capable Source.
- If the Sink does not receive a ***Source_Capabilities*** Message within ***tTypeCSinkWaitCap*** then it issues ***Hard Reset*** Signaling in order to cause the Source Port to send a ***Source_Capabilities*** Message if the Source Port is PD capable.

To Text:

• At Attach (no PD Connection or Contract):

o Sink detects Source Attachment through the presence of ***vSafe5V***.

o For a DRP that toggles the Port becomes a Sink Port on Attachment of a Source.

o Once the Sink detects the presence of ***vSafe5V*** on VBUS it waits for a ***Source_Capabilities*** Message indicating the presence of a PD capable Source.

o If the Sink does not receive a ***Source_Capabilities*** Message within ***tTypeCSinkWaitCap*** then it can issue~~s~~ ***Hard Reset*** Signaling in order to cause the Source Port to send a ***Source_Capabilities*** Message if the Source Port is PD capable.

(b). Section 6.6.3.2 SinkWaitCapTimer, P.217

From Text:

The Sink ***Shall*** support the ***SinkWaitCapTimer***.

In SPR Mode when a Sink observes an absence of ***Source_Capabilities*** Messages, after V_{BUS} is present, for a duration of ***tTypeCSinkWaitCap*** the Sink ***Shall*** issue ***Hard Reset*** Signaling in order to restart the sending of ***Source_Capabilities*** Messages by the Source (see Section 6.7.4).

To Text:

The Sink ***Shall*** support the ***SinkWaitCapTimer***.

In SPR Mode when Sink observes an absence of ***Source_Capabilities*** Messages, after V_{BUS} is present, for a duration of ***tTypeCSinkWaitCap,*** the Sink ~~***Shall***~~***May*** issue ***Hard Reset*** Signaling in order to restart the sending of ***Source_Capabilities*** Messages by the Source (see Section 6.7.4) or continue to operate at USB Type-C Current.

(c). Section 8.3.3.3.8 PE_SNK_Hard_Reset State, P.694

From Text:

The Policy Engine ***Shall*** transition to the ***PE_SNK_Hard_Reset*** state from any state when:

- • ((***SinkWaitCapTimer*** timeout |
- • PSTransitionTimer timeout) &

- • (***HardResetCounter*** ≤ ***nHardResetCount***)) |
- • Hard Reset request from Device Policy Manager or

• In EPR Mode and ○ An ***EPR_Source_Capabilities*** Message is received with an EPR PDO in object positions 1…7 or
○ A ***Source_Capabilities*** Message is received that has not been requested using a ***Get_Source_Cap*** Message.

Note: if the ***SinkWaitCapTimer*** times out and the ***HardResetCounter*** is greater than ***nHardResetCount*** the Sink ***Shall*** assume that the Source is non-responsive.

To Text:

The Policy Engine ***Shall*** transition to the ***PE_SNK_Hard_Reset*** state from any state when:

- • (~~(***SinkWaitCapTimer*** timeout |~~
- • PSTransitionTimer times out &
- • (***HardResetCounter*** ≤ ***nHardResetCount***)) |
- • Hard Reset request from Device Policy Manager or

• In EPR Mode and ○ An ***EPR_Source_Capabilities*** Message is received with an EPR PDO in object positions 1…7 or
○ A ***Source_Capabilities*** Message is received that has not been requested using a ***Get_Source_Cap*** Message.

The Policy Engine ***May*** transition to the ***PE_SNK_Hard_Reset*** state from any state when:

- the ***SinkWaitCapTimer*** times out (see Section 6.6.3.2).

Note: if the ***SinkWaitCapTimer*** times out and the ***HardResetCounter*** is greater than ***nHardResetCount*** the Sink ***Shall*** assume that the Source is non-responsive