USB4 1.0 ENGINEERING CHANGE NOTICE FORM

Title: IRQ Delay During and After Link Training
Applied to: USB4 Specification Version 1.0

Brief description of the functional changes:
A DP OUT shall wait after reporting link training completion, before it sends an IRQ SET_CONFIG Packet.

Benefits as a result of the changes:
The specification will ensure better interoperability with the existing ecosystem.

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:
Introduce a delay for a specific scenario.

An analysis of the software implications:
None

An analysis of the compliance testing implications:
A test or a check needs to be added.

USB4 1.0 ENGINEERING CHANGE NOTICE FORM

Actual Change

(a). 10.4.3.3 IRQ

10.4.3.3 IRQ

A DP OUT Adapter detects an IRQ as defined in the DisplayPort 1.4a Specification. Upon IRQ detection, a DP OUT Adapter shall send a SET_CONFIG Packet of MSG type IRQ to the DP IN Adapter. However, if Link training is in process or it just ended, a DP OUT Adapter ~~may wait until~~ shall wait tIRQDelay after it sent a SET_CONFIG Packet to DP IN, reporting the Link training ~~is complete~~completion, before sending the IRQ SET_CONFIG Packet.

(b). Table 10-22

*** Editor Note *** : Convert the table to have Minimum and Maximum and add a line at the end of the table.

Table 10-22. DP Adapter Timing Parameters

Parameter	Description	~~Value~~Min	Max	Units
tDPAckResponse	Maximum time between receiving a SET_CONFIG or HPD Packet and sending the corresponding ACK.	~~4~~	4	µs
tDPAckTimeout	Maximum time after sending a SET_CONFIG or HPD Packet that a DP Adapter waits for the corresponding ACK Packet.	~~400~~	400	µs
tDPSetConfigGap	Minimum time between receiving an ACK Packet and sending a SET_CONFIG Packet.	50		µs
tDPPlug	Maximum time a Router can wait after detection of a Source/Sink Connect/Disconnect before sending the corresponding Hot Plug/Hot Removal Event. Maximum time a DP OUT Adapter can wait after transitioning to the Paired state before sending an HPD Packet.	~~150~~	150	µs
tDPInit	Maximum time between receiving a SET_CONFIG Packet as part of DP Adapters Init Flow and responding with a SET_CONFIG Packet.	~~1~~	1	ms
tDPPLLAdjust	Maximum time between detecting an Adjust PLL Event and completing the PLL adjustment.	~~100~~	100	µs
tDPClockSync	Maximum time to send a DP Clock Sync Packet.	~~100~~	100	µs
tIRQDelay	The time a DP OUT Adapter waits after Link training is complete, before it sends SET_CONFIG IRQ.	200	300	µs