USB4 2.0 ENGINEERING CHANGE NOTICE FORM

Title: Local Time Counter Additional Requirement
Applied to: USB4 Specification Version 2.0

Brief description of the functional changes:
Although the TMU is not active in CL2 state, the Router still needs to keep the Local Time Counter with its value to avoid situations that requires Time Posting since the Connection Manager is not aware of CL2 exits.

Benefits as a result of the changes:
TMU remains autonomous also on CL2 exit and there is no need for Time Posting.

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:
Need to verify that Local Time Counter is not clear when enters CL2 state.

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Actual Change

(a). Section 7.1.2.1 – Local Time

To Text:

The Local Time counter shall be incremented up with the Local Clock. The Local Time Counter shall not be cleared when the TMU is enabled. The Local Time counter holds an unsigned fractional value.

(b). Section 7.3.1.2 – Uni-Directional Time Sync Handshake

To Text:

IMPLEMENTATION NOTE

Pausing Time Sync Handshakes affects time synchronization accuracy in an Upstream Facing Port. When resuming Time Sync Handshakes, the value of the timestamp in the first Follow Up Packet may not be as expected ~~(for example, the Local Time counter may restart from 0 upon exiting the Low Power state)~~. Accuracy is not guaranteed until tConvergeTime after Time Sync Handshakes are resumed. It is important that a Router implementation take this into consideration when pausing and resuming Time Sync Handshakes in order to not disrupt tunneled traffic.