USB4 2.0 ENGINEERING CHANGE NOTICE FORM

Title: PTM TMU Time
Applied to: USB4 Specification Version 2.0

Brief description of the functional changes:

When calculating the TMU_to_PTM parameters and when reconstructing the PTM time, the Host Router time to be used is the Nanosecond portion of the Host Router time.

Benefits as a result of the changes:

Accurately describes the 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:

PTM implementation over USB4 must implement to this change.

An analysis of the software implications:

None.

An analysis of the compliance testing implications:

None.

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Actual Change

(a). 11.2.4.3.1   TMU_to_PTM Parameters

The TMU_to_PTM Parameters are calculated from two samples of PTM Master Time and *Nanosecond field of the* TMU Host Router Time ((tmu0, ptm0) and (tmu1, ptm1)). In general the TMU_to_PTM Parameters can be calculated by solving the following set of equations:

$$ptm0 = TMU\_to\_PTM\_A * tmu0 + TMU\_to\_PTM\_B$$

$$ptm1 = TMU\_to\_PTM\_A * tmu1 + TMU\_to\_PTM\_B$$

(b). 11.2.4.3.2   PTM Master Time Reconstruction

A Parameter Consumer shall reconstruct the PTM Master Time as follows:

$$PTM\_Master\_Time(t) = TMU\_to\_PTM\_A * TMU\_time(t) + TMU\_to\_PTM\_B$$

where:

- TMU_time(t) is the *Nanosecond* field of the TMU Host Router Time.

- TMU_to_PTM_A and TMU_to_PTM_B are the most recent TMU_to_PTM Parameters received on the Upstream Facing Port