

# Solutions for comments #135 and #177 (also #137 and #181)

Offline discussion group

Nov 24, 2021

# Overview

- Comments #135 and #177 were not resolved at the P802.3cx meeting on Nov 10, 2021
- Action was taken to have an offline discussion and find solutions before the next P802.3cx meeting, on Nov 24, 2021
- Comments #137 and #181 are the same as #135 and #177, respectively, except they apply to RX\_num\_unit\_change instead of to TX\_num\_unit\_change
  - The same solution can be used for these comments

# Volunteer Participants in Offline Discussion Group

- Jeff Slavick, Broadcom
- Jingfei Lv, Huawei
- Marek Hajduczenia, Charter Communications
- Mark Bordogna, Intel
- Richard Tse, Microchip Technology
- Silvana Rodrigues, Huawei
- Xiang He, Huawei

# Comment #135

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<i>Cl</i> 90	<i>SC</i> 90.4.4.1	<i>P</i> 48	<i>L</i> 50	# 135
Tse, Richard		Microchip Technology		
<i>Comment Type</i>	E	<i>Comment Status</i>	A	<i>defer</i>
<p>The last sentence in this paragraph applies only to physical interfaces. However, this is not clear because both physical interfaces and intra-chip interfaces are mentioned earlier in this paragraph..</p>				
<i>SuggestedRemedy</i>				
Change				
<p>"TX_num_unit_change is intended for the use with intra-chip interfaces. TX_num_unit_change is not available over physical interfaces such as instantiated xMII or AUI. In order to achieve high accuracy timestamping, it is recommended to avoid AM insertion, CWM insertion, and Idle insertion/removal in sublayers lower than these interfaces."</p>				
to				
<p>"TX_num_unit_change is intended for the use with intra-chip interfaces. TX_num_unit_change is not available over physical interfaces such as instantiated xMII or AUI. In order to achieve high accuracy timestamping with these physical interfaces, it is recommended to avoid AM insertion, CWM insertion, and Idle insertion/removal in sublayers lower than these interfaces."</p>				
<i>Response</i>	<i>Response Status</i> C			
ACCEPT IN PRINCIPLE.				
Change per comment + convert the last sentence into a NOTE.				

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# Comment #177

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<i>Cl</i> 90	<i>SC</i> 90.4.4.1	<i>P</i> 48	<i>L</i> 50	# 177
Slavick, Jeff		Broadcom		
<i>Comment Type</i>	TR	<i>Comment Status</i>	D	<i>defer</i>
The definition of the service interface is not an appropriate place to insert a "recommendation".				
<i>SuggestedRemedy</i>				
Remove the last sentence of the 2nd paragraph of 90.4.4.1				
<i>Proposed Response</i>	<i>Response Status</i>		W	
PROPOSED ACCEPT IN PRINCIPLE.				
See comment #135				

# Solution 1/3

- Delete the final sentence from these paragraphs to address comments #177 and #181

## 90.4.4.1 TX\_num\_unit\_change<15:0> signal

TX\_num\_unit\_change is intended for the use with intra-chip interfaces. TX\_num\_unit\_change is not available over physical interfaces such as instantiated xMII or AUI. ~~In order to achieve high accuracy timestamping, it is recommended to avoid AM insertion, CWM insertion, and Idle insertion/removal in sublayers lower than these interfaces.~~

## 90.4.4.2 RX\_num\_unit\_change<15:0> signal

RX\_num\_unit\_change is intended for the use with intra-chip interfaces. RX\_num\_unit\_change is not available over physical interfaces such as instantiated xMII or AUI. ~~In order to achieve high accuracy timestamping, it is recommended to avoid AM removal, CWM removal, and Idle insertion/removal in sublayers lower than these interfaces.~~

# Solution 2/3

- Insert NOTE 6 at the end of 90.7 to address comments #135 and #137.

NOTE 6 — When TX num unit change and RX num unit change are not available (e.g., over physical interfaces such as instantiated xMII or AUI), it is recommended to, when possible, avoid Idle insertion/removal, alignment marker insertion/removal, and/or codeword marker insertion/removal in the sublayers below the xMII/AUI to reduce the number of timestamping accuracy impairments (see Annex 90A).

*comment #246 might cause these signals in these paragraphs to be changed to parameters.*

# Solution 3/3

- Insert sentence at the end of each of these two paragraphs in 90.7 to improve description of TX/RX\_num\_unit\_change operation:

For a PHY that inserts alignment markers or codeword markers and/or performs rate adaptation (e.g., adds/removes Idles), the transmit path data delay measurement starting point (the PTP message timestamp point at the xMII input) should be adjusted to account for the [AMalignment marker](#) or [CWMcodeword marker](#) insertion and any Idle insertion/removal that occurs in the PHY (between the xMII input and the MDI output). Based on this adjustment, the result is a transmit path data delay measurement that appears as if the [AMalignment marker](#) or [CWMcodeword marker](#) insertion and any Idle insertion/removal had been performed before the Tx xMII. [The PHY provides its transmit path delay variance information to the TimeSync client via the TX\\_num\\_unit\\_change signal.](#)

For a PHY that removes alignment markers or codeword markers and/or performs rate adaptation (e.g., adds/removes Idles), the receive path data delay measurement ending point (the PTP message timestamp point at the xMII output) should be adjusted to account for [AMalignment marker](#) or [CWMcodeword marker](#) removal and any Idle insertion/removal that occurs in the PHY (between the MDI input and xMII output). Based on this adjustment, the result is a receive path data delay measurement that appears as if the [AMalignment marker](#) or [CWMcodeword marker](#) removal and any Idle insertion/removal had been performed after the Rx xMII. [The PHY provides its receive path delay variance information to the TimeSync client via the RX\\_num\\_unit\\_change signal.](#)

The dynamic [path](#) delay variance ~~of~~caused by [AMalignment marker](#), [CWMcodeword marker](#), or Idle insertion or removal is not to be included in the TimeSync PCS transmit path data delay or the TimeSync PCS receive path data delay registers. ~~The dynamic delay variance is reported by the TX\_num\_unit\_change and RX\_num\_unit\_change signals.~~



Thank you!

Any questions or comments?