IEEE 802.3cx Improved PTP Timestamping Accuracy (ITSA) Task Force Meeting Minutes (Approved)

May 12, 2020, Virtual Meeting

- Minutes prepare by Dino Pozzebon and Steve Gorshe

Agenda and General Information Presentation by Steve Gorshe, ITSA Task Force Chair

- Steve Gorshe, meeting and task force chair, begins presenting the Agenda and General Information slides
- Chair asks all attendees to email him their name and affiliation for the meeting minutes attendees log. Chair also did a roll call of the virtual meeting attendees asking each of them to present themselves with their company affiliation (any new attendees were also asked to present themselves)
- **Agenda** – Chair presents the agenda for the meeting and asked if anyone had comments, additions or objections for the meeting agenda. The agenda was approved without opposition.
- **Task Force Decorum** - Chair reviewed slide and noted that there should be no recording or photography without permission. Chair asked if anyone was attending from the press including those who would run a public blog on this meeting – none responded.
- **Goals for Meeting** – Chair presented the goals with no comment from attendees
- **Big Ticket Items** – Chair presented the Big-Ticket items aligned to goals with no comments from attendees
- **Reflector and Web** – Chair presented the Task Force reflector and web information. All in attendance were invited to subscribe for Task Force communications and updates.
- **Task Force Private Area** – Chair reminded members of the Task Force Private Area, presented the URL to that private area and presented both the Username and Password to gain access to the URL. Chair also noted that the general IEEE 802.3 Username and Password can be used to access the URL.
- **Ground Rules** – Chair review the meeting ground rules based on IEEE 802.3 Rules.
- **Attendance** – Attendees were reminded of the IEEE 802.3 attendance procedures and asked to follow the link to those procedure for further information. IMAT tool was NOT used for this meeting.
- **IEEE Structure and Important Bylaws & Rules** – Chair review the IEEE SA structure including a review of how 802.3 WG and the Task Force is located within the structure. The important bylaws and rules were pointed out for all to refer is needed or of interest.
- **IEEE 's Patent Policy and IEEE WG Meeting Guidelines (Slides 12-16 or IEEE SA Slides 0-4)** – All 5 IEEE SA slides were presented with the chair highlighting that
    1. IEEE's patent policy is described in Clause 6 of the IEEE SA Standards Board Bylaws where they can be referred to and that the IEEE SA Standards Board Patent Committee Administrator may be contacted with further questions
    2. Early identification of patent claims which may be essential for the use of standards under development is strongly encouraged
    3. There may be Essential Patent Claims of which IEEE is not aware. Additionally, neither IEEE, the WG, nor the WG Chair can ensure the accuracy or completeness of any assurance or whether any

such assurance is, in fact, of a Patent Claim that is essential for the use of the standard under development.

4. Participants have a duty to inform the IEEE of the identity of each holder of any potential Essential Patent Claims of which they are personally aware if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents

- The chair provided an opportunity for participants to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) of which the participant is personally aware and that may be essential for the use of this standard.
  - No such claims were bought to the chair's attention.
- **Participation in IEEE 802 Meetings** – Chair review the slide
- **Overview of IEEE802.3 Standard Process (5 slides)** – Chair reviewed the standards process slides. Chair highlighted that the ITSA group had completed the Study Group Phase and moved into the Task Force Proposal Selection Phase on slide 2of5 of the Process slides.
- **Liaisons and Communications** – There were none to review for this meeting.
- **Action Items** – There were none to review for this meeting.
- **Task Force Approved Project Documents** – Task Force project documents remain unchanged and were links to the documents were provided.
- **Task Force Objectives** – Chair restated the adopted Task Force objectives.
- **Task Force Timelines** – Chair presented a first draft of a timeline. Outside this meeting it was commented that the timeline may be longer than required. No comments were made by TF members in attendance. Chair mentioned that timeline may be reviewed again at the end of this meeting.
- **Previous Meeting Minutes** - The chair mentioned that no comments had been received regarding the meeting minutes from the last meeting http://www.ieee802.org/3/cx/public/april20/Approved_Minutes_ITSA_802d3cx_0420.pdf)held on April 20,2020 (virtual call). Chair asked if any current attendees had comments regarding the April 20th, 2020 Meeting Minutes. None were received
  - Chair put forward a motion for the Task Force to approve the previous meeting minutes.

Motion #1: Approve the Meeting Minutes from the April20, 2020 virtual meeting http://www.ieee802.org/3/cx/public/april20/Approved_Minutes_ITSA_802d3cx_0420.pdf

- *Requires >50% (Procedural)*
- *Moved by : Steve Guendert Seconded by: Mark Bordogna*
- *PASSES with no objections received*

Approved meeting minutes from April20, 2020 are officially here http://www.ieee802.org/3/cx/public/april20/Approved_Minutes_ITSA_802d3cx_0420.pdf

- **Presentations** – In addition to this presentation (Agenda and General Information), 4 other presentations are on the agenda to be reviewed. Chair introduced the presentations for the day and started the presentation agenda item.

Presentation #1 - Improving PTP Timestamping Accuracy on Ethernet Interfaces, Xiang He, Huawei

- http://www.ieee802.org/3/cx/public/may20/he_3cx_01_0520.pdf

- Highlights potential issues related to high accuracy timestamping on “Split” PHYs like the oDSP currently being discussed at 802.3 ct/cw.
  - Such PHYs introduce additional PHY sublayers, delays and additional asymmetries that the ITSA TF may also want to address in their work
- Slide 5 contrasts current CL90 to option C presented in Option C in tse_3cx_02_0420 and that option C effectively alters the timestamp reference point from what is in CL90.
- Slide 7 recommend option B from tse_3cx_02_0420 may be a preferred solution for the
  - This option maintains the currently CL90 reference point
  - There was a discussion around how per lane timestamping (option C) could be supported in “Split” PHY implementations as it may require tracking the lanes across the multiple sublayers of the PHY.
- There was no clear outcome on whether Option B or C would be required or best for split PHYs.

Presentation #3 - Path delay variance from multi PCS lane distribution, Richard Tse, Microchip Technologies

- http://www.ieee802.org/3/cx/public/may20/tse_3cx_02_0420_correction.pdf
- Correction to April 2020 meeting presentation tse_3cx_02_0420 which now appear as tse_3cx_02a_0420
- Slide 7 of the old presentation had an error on it
- The new presentation highlights the changes to slide 7 in yellow

Presentation #4 - Implementation Considerations for PHY Delays, Richard Tse, Microchip Technologies

- http://www.ieee802.org/3/cx/public/may20/tse_3cx_03_0520.pdf
- PHY definitions have intrinsic delays which are required delays (always present) as a result of the defined functions/layer of a PHY.
  - Those delays may be a repeating value and may be mirror delays on the RX and TX
- Slide 4 shows intrinsic RX(n) and TX(n) delays being the inverse mirror of each other
- Slide 5 and 6 show the sum of effects on RX and TX separately
- Slide 7 shown to combined effects of both RX and TX
  - Processing the RX and TX delay separately is complex
  - Easier to process the combined delays.
- Proposal to support option C from tse_3cx_02a_0420 which align to summing the RX and TX delays
  - Like current CL90 support for PCS lane skew (timestamp last departing and first arriving)
- There was some confusion over implementation vs intrinsic delays. This presentation targets intrinsic delays which are not implementation related. Intrinsic delays are related to the implicit specification of the PHY sublayers.

Presentation #5 - Considerations for Forward Error Correction (FEC) Mechanisms Timestamp Inaccuracy Due to Idle Insert/Delete for AMs, Richard Tse, Microchip Technologies

- http://www.ieee802.org/3/cx/public/may20/tse_3cx_01_0520.pdf
- Slide 4 : Clarify first bullet to be “if input rate and data stream” and “if output rate and data stream”
- Presenter was looking for information regarding iterative FECs
- Presented questions related to iterative FECs.
  - None of the attendees were able to provide a definitive answer, however, Bill Powell noted that LDPC iterative decoders under consideration in P802.3ca specify a fixed decoder delay so that the decoder is constant regardless of the number of iterations used in the FEC decoding.

Presentation #6 - Multilane Timestamp Error Analysis Spreadsheet, Richard Tse, Microchip Technologies

- http://www.ieee802.org/3/cx/public/may20/tse_multilane_TE_analysis.pdf
- http://www.ieee802.org/3/cx/public/may20/tse_multilane_TE_analysis.zip
- XLS demonstrates how 100GE PCS lane delay calculations through PCS/PMA can vary based on TX Options A, B and C and RX Options 1, 2, and 3 from tse_3cx_02a_0420
- PDF file on the TFSA website is only the default view of an Excel spreadsheet
  - Action: Steve to see how the XLS can be uploaded – Steve uploaded the ZIP file above in after the meeting response to this action item. It contains the Excel spreadsheet.
  - Action : Steve to email XLS to ITSA exploder.

Task Force Timeline

- Task Force chair revisited the task force timeline to collect more information from any members that would have joined the call late. No comments were received.

FUTURE MEETINGS

- Chair reviewed future meetings proposal with the group. A Straw poll was conducted to see if the Group would prefer another meeting in 1 or 2 months or either. Majority of group voted either with one preference being to meet in 2 months.
- It was suggested that due to the OIF conflict during this current meeting, it may be best to reconvene in one month to ensure previous attendees could join the call.
- Will look to setup the next meeting in June.

Adjourn

- TF Chair proposed adjourning the meeting with the agenda having been completed.

- ***Motion #4: Adjourn the meeting***
- *Moved by: Silvana Rodrigues, Second by: Mark Bordogna*
- *Requires >50% approval*
- *PASSES with no objections received*

Attendance

IEEE 802.3cx Improving PTP Timestamping Accuracy TF IEEE 802.3cx Virtual Interim May 2020	Day 1 May 12				

By choosing to attend and sign in to this meeting, you acknowledge and agree that your personal data will be documented for IEEE standards development purposes to comply with policies and procedures, legal and accreditation requirements, and evaluation of patent claims by patent offices. See Front Page for additional information.

Last Name	First Name	Employer	Affiliations	Tues				
Bordogna	Mark	Intel	Intel	x				
Carty	Clark	Cisco	Cisco	x				
He	Xiang	Huawei	Huawei	x				
Nataraja	Sriram	Cisco	Cisco	x				
Parkholm	Ulf	Ericsson	Ericsson	x				
Powell	Bill	Nokia	Nokia	x				
Takefman	Michael	Inphi	Inphi	x				
Tse	Richard	Microchip	Microchip	x				
Wong	Denny	Xilinx	Xilinx	x				
Rodrigues	Silvana	Huawei	Huawei	x				
Klaps	Bert	Intel	Intel	x				
Wang	Xinyuan	Huawei	Huawei	x				
Gorshe	Steve	Microchip	Microchip	x				
Pozzebon	Dino	Microchip	Microchip	x				
Lv	Jingfei	Huawei	Huawei	x				
Tooyserkani	Pirooz	Cisco	Cisco	x				
Guendert	Steve	IBM	IBM	x				