# IEEE 802.3 Ethernet Working Group Liaison Communication

Source: IEEE 802.3 Working Group[1]

To: Lyndon Ong, OIF Technical Committee Chair (lyong@ciena.com)

CC: Paul Nikolich, Chair, IEEE 802 LMSC (p.nikolich@ieee.org)
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Subject: Liaison to Optical Internetworking Forum PLL WG from IEEE 802.3

From: David Law – Chair, IEEE 802.3 Ethernet Working Group (David_Law@3Com.com)

Approval: Agreed to at IEEE 802.3 Plenary meeting, Atlanta, GA, November 19, 2009

Dear Lyndon,

The IEEE 802.3 Working Group thanks the Optical Internetworking Forum for their kind liaison dated October 19, 2009, which forwarded the OIF draft documents for the CEI-25G-LR and CEI-28G-SR projects for consideration.

As previously communicated by the IEEE P802.3ba Task Force, the CEI-25G-LR and CEI-28G-SR projects may be applicable to future systems based on the 100GBASE-LR4 and 100GBASE-ER4 specifications, which are based on a four lane 25 Gb/s architecture, as well as other possible members of the 100 Gigabit Ethernet family. We support the basic goal of having the two groups work together and share our mutual expertise and experience to speed up the development of these electrical specifications.

Given the prior expressed interest in these projects and the applicability of 25 Gb/s electrical signaling to 100 Gigabit Ethernet, the review of these two documents was assigned to the IEEE P802.3ba Task Force. The following feedback has been provided –

- Priority – While electrical signaling at approximately 25 Gb/s is necessary for both chip-to-chip (module) and backplane applications, it is felt that the priority for industry development is on a 4 lane 25 Gb/s electrical interface that targets chip-to-module applications, which may be used by some future module specification effort. This is not intended to imply that work in the backplane space is not necessary, but the need for prioritization, based on the opinions of members within IEEE 802.3.
- CEI-28G-SR should include specific chip-to-module specifications – While the CEI-28G-SR reference model can include a connector, the feeling is that there should be a specification specifically for chip-to-module applications. The IEEE P802.3ba Task Force was faced with the same issue in the development of CAUI, and choose to develop two normative annexes – one for chip-to-chip applications (Annex 83A) and one for chip-to-module applications (Annex 83B).

[1] This document solely represents the views of the IEEE 802.3 Working Group, and does not necessarily represent a position of the IEEE, the IEEE Standards Association, or IEEE 802.

- Connector Performance – While the IEEE does not specify connectors, normative references to connectors in other specifications are often made. It is believed that the inclusion of the Integrated Crosstalk Noise specification in OIF.2008.029.07 Section 10.2.6.7 could enable the OIF to provide guidance to the industry as to the crosstalk performance for a module connector.
- Channel Model – The CEI-28G-SR specification calls out 300mm. Given that the channel model is better than the channel model for CAUI at 250mm, it is assumed that improved FR-4 was used in the creation of the channel model. The 300mm is thought to be longer than what is necessary for chip-to-module applications, and therefore the OIF should revisit the channel model to target chip-to-module applications. At this time the IEEE 802.3WG can not provide a complete proposal for the channel model, but we have encouraged our members to further explore this issue.
- From reviewing only Document OIF2008.029.03 it is unclear that the CEI-28G-SR interface is a retimed interface. From offline discussions between members in our two bodies it is our understanding that the CEI-28G-SR interface is a retimed interface. It would be advisable to state this in the respective document, so that no faulty assumptions are made.
- Consideration of Power / Assumption of Retimed Interface – The reduction of power is critical, especially for a smaller form factor module targeting 100GBASE-LR4 and 100GBASE-ER4. Initial discussions have explored the use of a partially retimed interface, such as what is being explored in INCITS T11.While this is truly a system level issue, it is felt that it is important to share this concern with the OIF.
- Use of test compliance boards – the IEEE P802.3ba specification leverages heavily on the use of test compliance boards. We encourage the OIF to consider their use in the development of a chip-to-module electrical interface.

It is anticipated that individuals who are voting members of the IEEE 802.3 Working Group may submit comments to the OIF, either through their companies as members of the OIF or as non-members of the OIF.

We would like to continue to encourage the OIF to continue in its development efforts on these two specifications. We look forward to future communications from the OIF regarding the two programs and their respective timelines.

Sincerely,

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