Proposed Baseline text for: Chip-to-module 25 Gb/s one-lane Attachment Unit Interface (XXVAUI-1)

Tom Palkert

Molex

Jan. 5 2015

Summary

- Heavily leverages 802.3bm Annex 83E (CAUI-4 Chip to Module)
  - Changes to Intro text
  - Changes to ISO diagram and application diagram
  - Changes to PICS pro forma ‘protocol summary’ and ‘major capabilities/options’ tables
  - All other sections referenced directly with change from ‘4 lane’ to ‘1 lane’

Clause structure

Clause	Changes
X	Introduction to 25 Gb/s networks
X+1	25G RS + XXVMII
X+2	25G PCS ***
X+3	25G FEC
X+4	25G PMA
X+5	25GBASE-CR PMD (copper cable) ***
X+6	25GBASE-KR PMD (backplane)
X+7	25GBASE-SR PMD (MMF optical)
Annex (X+4)A	XXVAUI chip-to-chip
Annex (X+4)B	XXVAUI chip-to-module
Annex (X+5)A	25GBASE-CR TP parameters and channel characteristics
Annex (X+5)B	25GBASE-CR cable/host use cases ***
	*** indicates Clauses/Annexes that need significant work

- From brown_092414a_25GE_adhoc

Possible issues

- HCB/MCB performance
  - See diminico presentation
- Crosstalk parameters/test procedures
  - For single lane

Overview paragraph

This annex defines the functional and electrical characteristics for the optional chip-to-module 25 Gb/s 0ne-lane Attachment Unit Interface (XXVAUI-1). Figure X+4B–1 shows the relationship of the XXVAUI-1 chip-to-module interface to the ISO/IEC Open System Interconnection (OSI) reference model. The chip-to-module interface provides electrical characteristics and associated compliance points which can optionally be used when designing systems with pluggable module interfaces.

The XXVAUI-1 link is described in terms of a host XXVAUI-1 component, a XXVAUI-1 channel with associated insertion loss, and a module XXVAUI-1 component. Figure X+4B–2 depicts a typical XXVAUI-1 application, and summarizes the differential insertion loss budget associated with the chip-to-module application. The XXVAUI-1 chip-to-module interface comprises independent data paths in each direction. Each data path contains one differential lane which is AC coupled within the module. The nominal signaling rate is 25.78125 GBd. The chip-to-module interface is defined using a specification and test methodology that is similar to that used for CEI-28G-VSR defined in OIF-CEI-03.1 [Bx1].

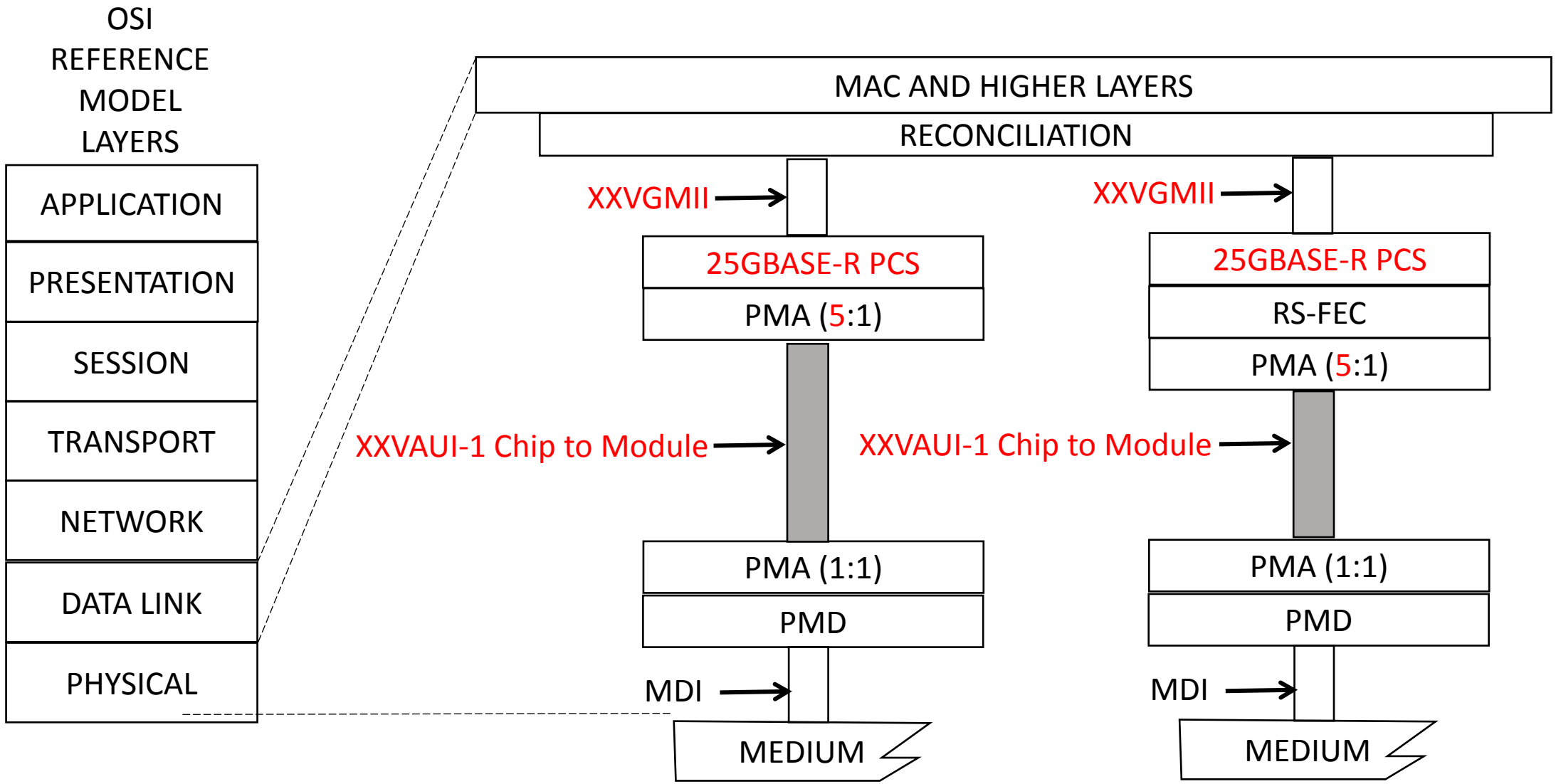

Figure X+4B–1—Example XXVAUI-1 chip-to-module relationship to the ISO/IEC Open System Interconnection reference model and the IEEE 802.3 CSMA/CD LAN model

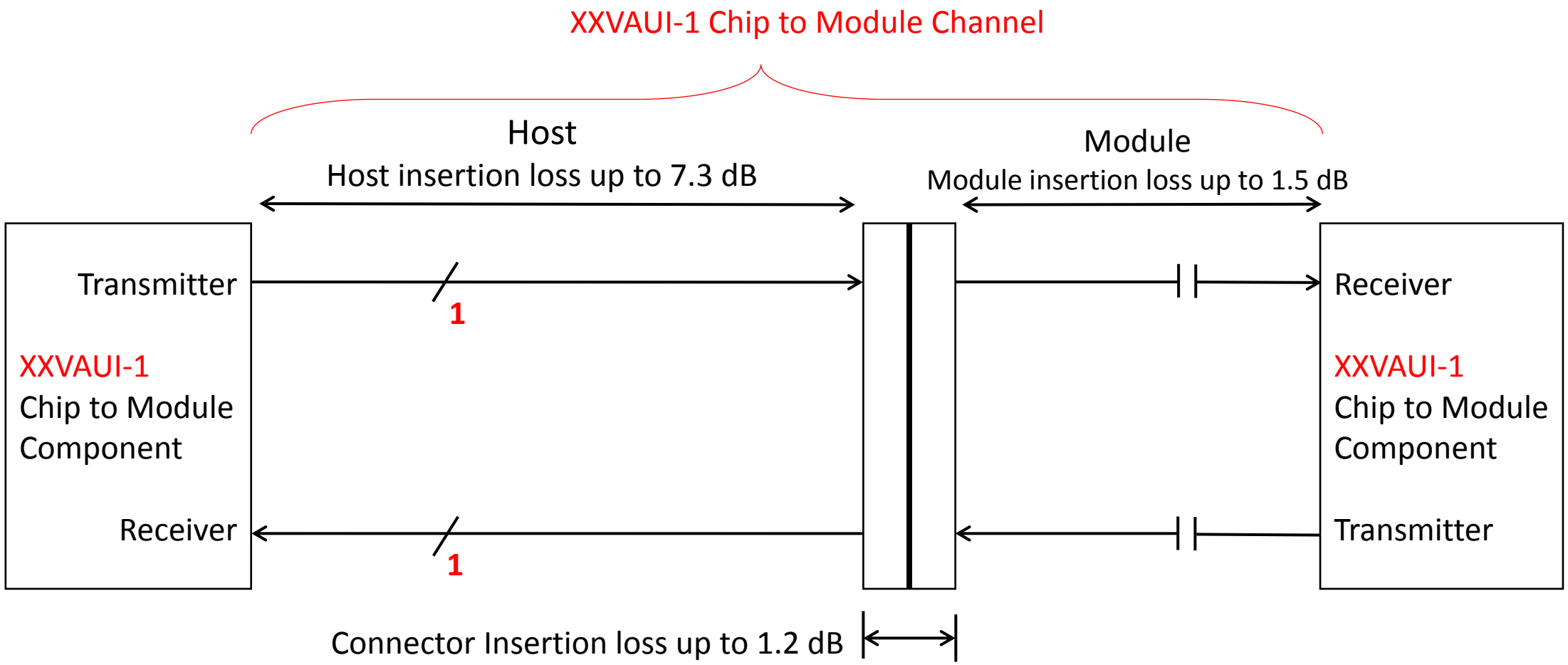

Figure X+4B.2: Chip-to-module insertion loss budget at 12.89 GHz

83E.5.2.2 Protocol summary

IEEE Std 802.3by-201x, Annex X+4B, Chip to module one-lane 25Gb/s Attachment Unit Interface (XXVAUI-1)

Identification of protocol standard	IEEE Std 802.3bm-201x, Annex 83E, Chip-to-module four-lane 100 Gb/s Attachment Unit Interface (CAUI-4)
Identification of amendments and corrigenda to this PICS proforma that have been completed as part of this PICS	
Have any Exception items been required? No [ ] Yes [ ] (See Clause 21; the answer Yes means that the implementation does not conform to IEEE Std 802.3bm-201x.)	

83E.5.3 Major capabilities/options

One

Item	Feature	Subclause	Value/Comment	Status	Support
NOL	Number of differential AC coupled lanes	83E.1	Four independent data paths in each direction	M	Yes [ ]
BER	Meets CAUI-4 BER requirement	83E.1.1	See 83E.1.1	M	Yes [ ]
ADR	Adaptive receiver	83E.3.4.1.1	Module CAUI-4 receiver does not use *Recommended_CTLE_value*	O	Yes [ ] No [ ]

Proposed text if compliance board performance is different than CAUI-4

X+4B.4 XXVAUI-1 measurement methodology

X+4B.4.1 HCB / MCB characteristics This subclause describes common measurement tools and methodologies to be used for the XXVAUI-1 chip-to-module interface. Details of HCB and MCB characteristics are given in X+4B.4.1 and details of the eye diagram measurement methodology are given in 83E.4.2.

X+4B.4.1 HCB/MCB characteristics

HCB characteristics are described in xx.xx.1 where the HCB performs the equivalent function as the TP2 or TP3 test fixture. The MCB characteristics are described in xx.xx.2 where the MCB performs the equivalent functionality as the cable assembly test fixture.