25GE PMA sublayer baseline proposal

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Introduction

- Propose a baseline structure and content for the PMA sublayer.

New Clause
(from brown_3bj_02_0115)

Clause	Changes
Front matter	Title page, etc.
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
Annex (X+5)C	25GBASE-CR and XXVAUI C2M test fixtures and form factors *** tentative ***

Considerations

- PMA sublayer connects PCS and FEC sublayers to the PMD sublayer or the XXVAUI interface.

- Since all exposed 25 Gb/s electrical and optical interfaces are serial the PMA is not required to convert between exposed interfaces with different number of lanes.

General Proposal

- Use Clause 51 as the starting point
  - This is the PMA for serial 10 Gb/s Ethernet interfaces.
- Use portions of Clause 83 as a basis for specification of other enhancements including:
  - use of PMA for the XXVAUI interface and related layering considerations
  - test patterns
  - service interface conventions

PMA Subclause Content

- Use Clause 51 as a starting point with the following changes:
  - Changes references to 10GBASE-R to 25GBASE-R.
  - Remove content relating to 10GBASE-W.
  - Remove content relating to XSBI.
    - In particular, remove 51.4.
- Incorporate specifications based on Clause 83 as follows:
  - CAUI introduction in 83.1 (for XXVAUI)
  - PMA position and MMD numbering in 83.1.4
    - See modifications to Figures 83-1 and 83-2 on the following slides.
  - service interface naming conventions in 83.3
  - signal drivers in 83.5.6
  - local and remote loopback in 83.5.8 and 83.5.9
    - loopbacks are optional to implement
  - PMA test patterns in 83.5.10

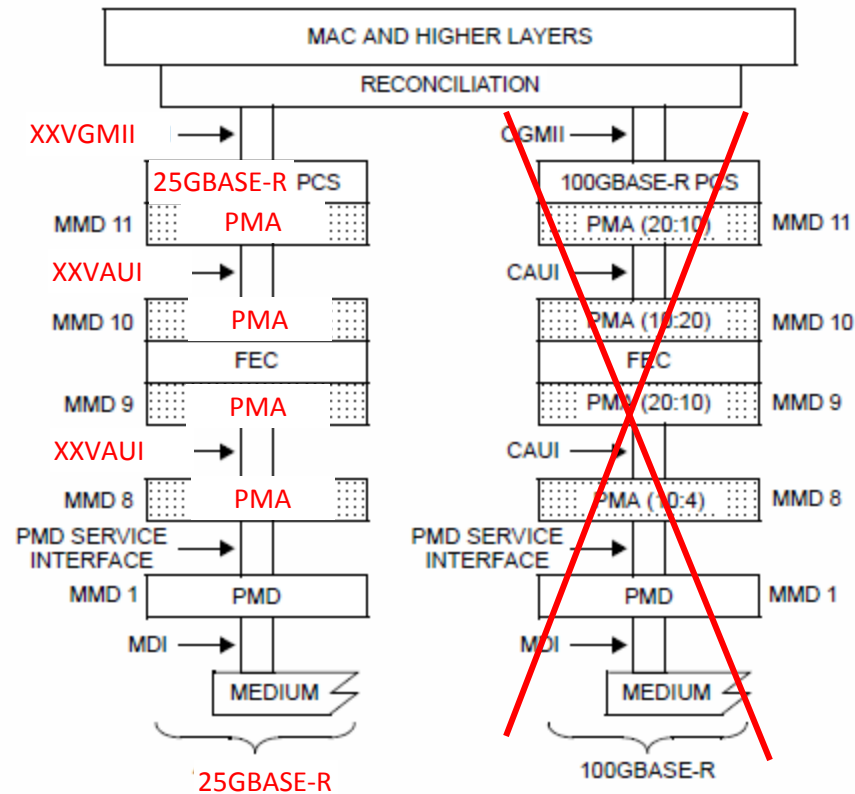# Relationship to ISO/IEC OSI reference model
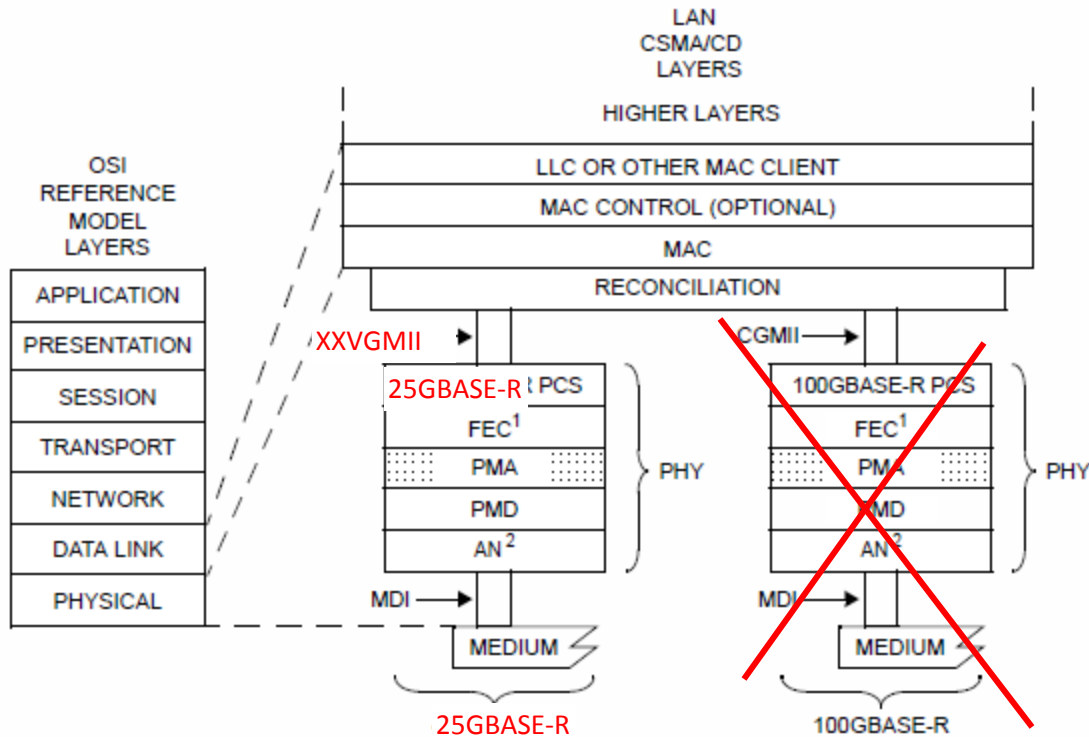
Figure 83–1– 25GBASE-R PMA relationship to the ISO/IEC Open Systems Interconnection (OSI) reference model and IEEE 802.3 CSMA/CD LAN model

PMA layering example

Figure 83–2—Example 25GBASE-R PMA layering

Conclusions

- Consider using this proposal as a baseline specification for the 25 Gb/s PMA sublayer.

Supplementary Slides

Other Considerations

- Since PRBS31 pattern is included in the proposed PMA, consider excluding the PCS requirement for the CL49 PRB31 pattern generator.
- Align the architecture figures with XXVAUI chip to module and chip to chip annexes.

Thanks!