



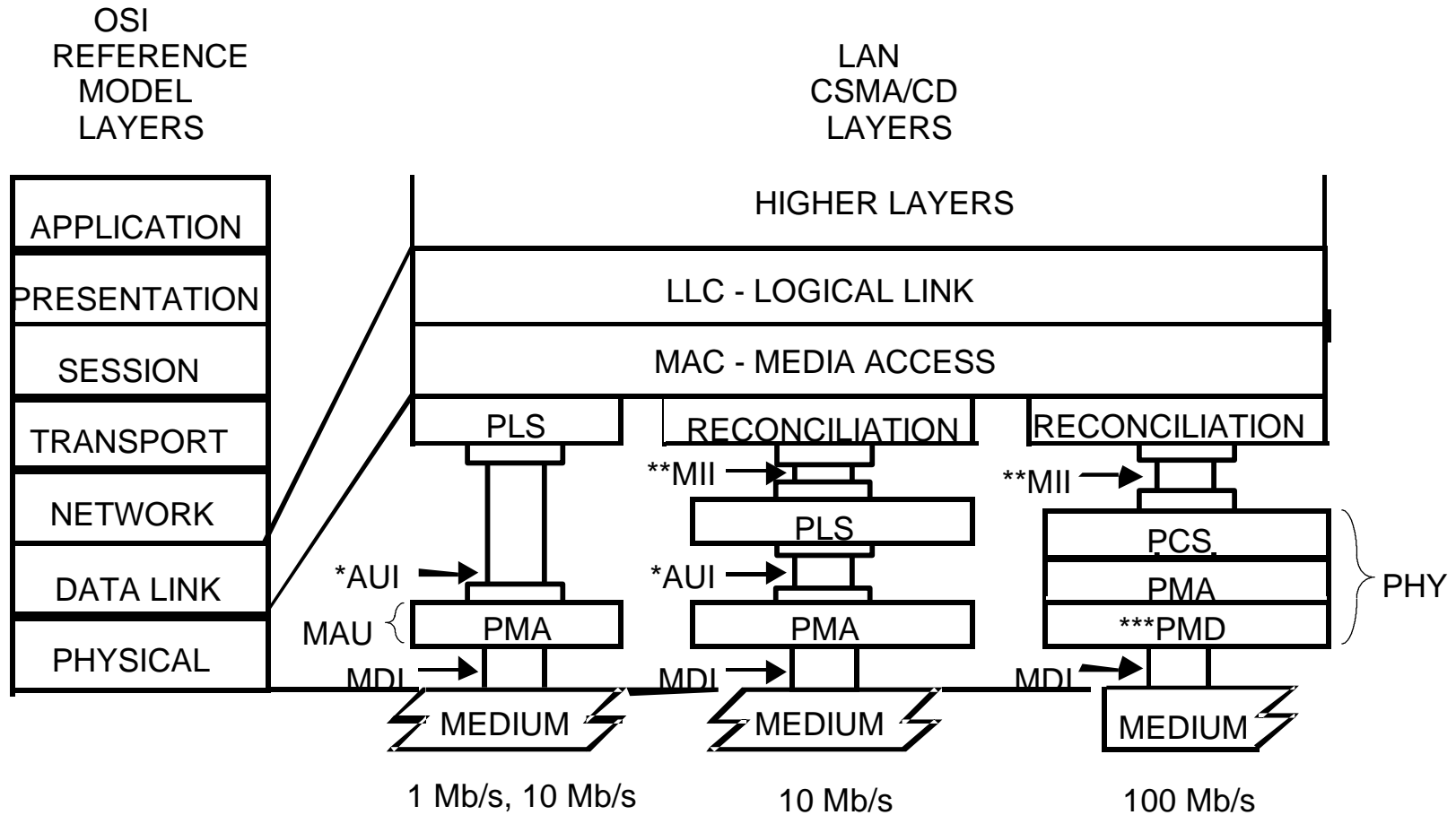
Architectural Overview (a proposal)

- ❖ Overall Block Diagram
- ❖ Details (for 8B10B)
- ❖ Outline of Standard

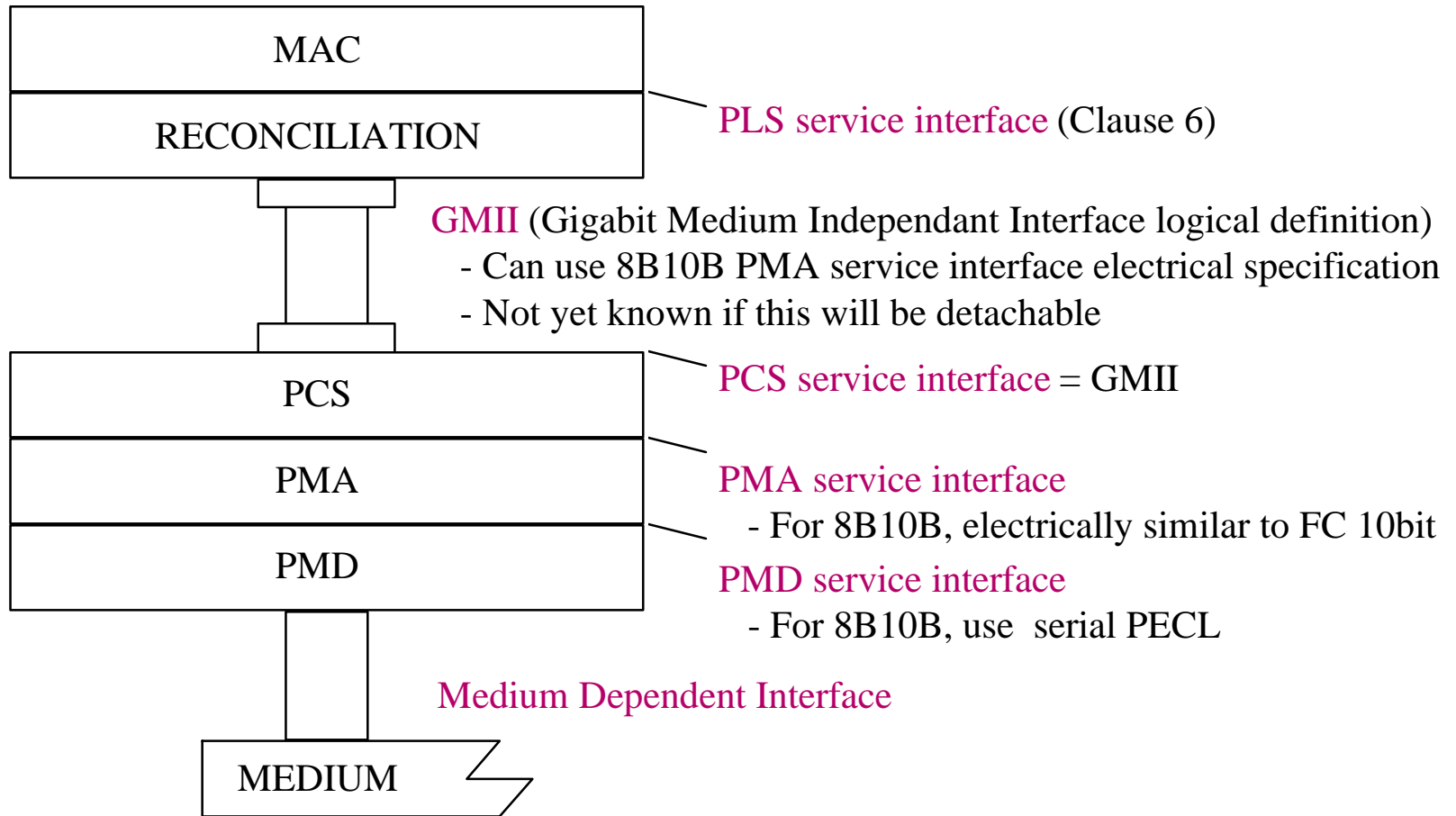
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September 4, 1996

Thanks to SUN and many others for their
support in developing this proposal

Overview from 100BASE-T



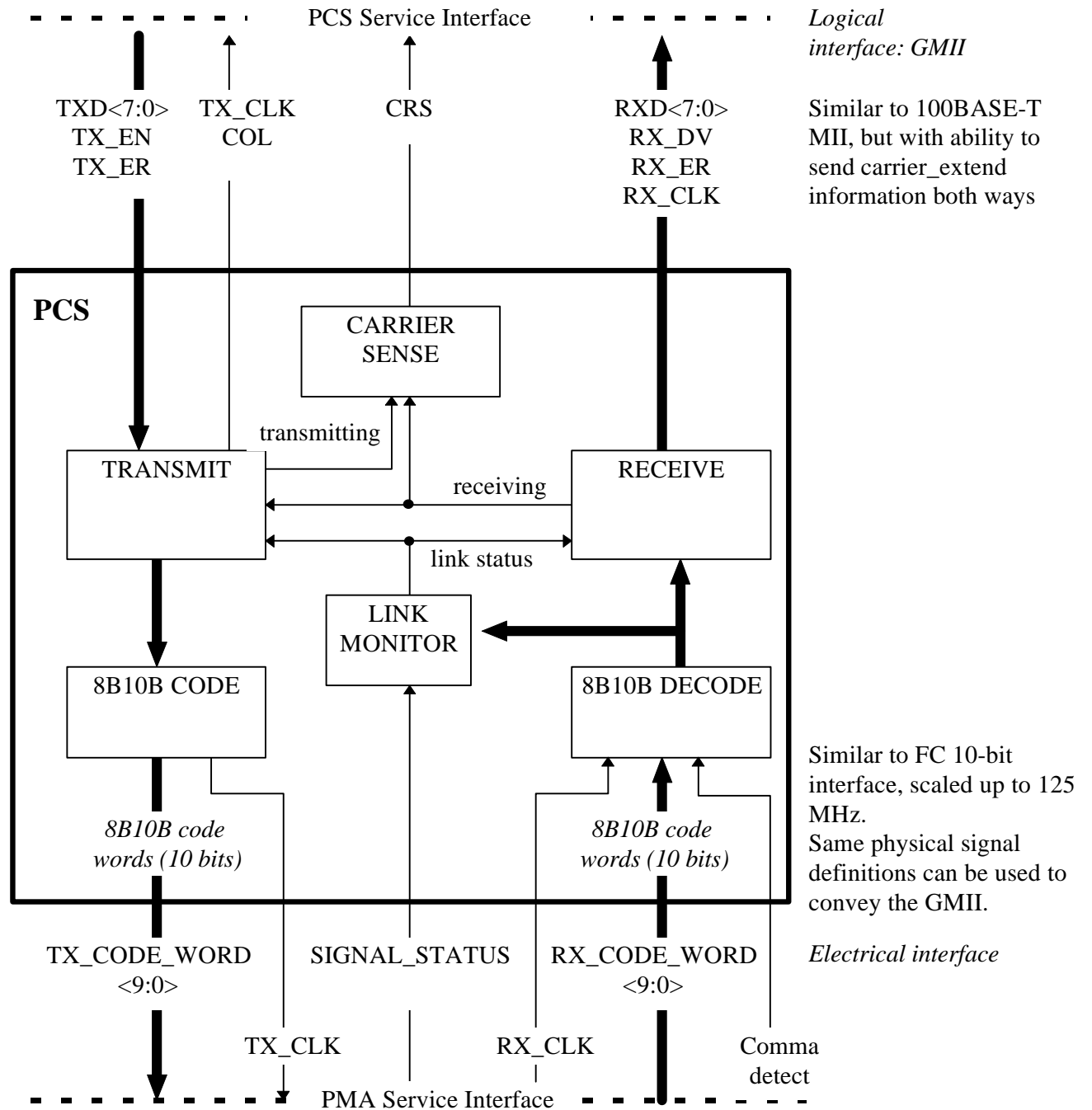
1000 Mb/s Block Diagram



1.00 Gb/s delivered data <=> 1.25 Gbaud in 8B10B format

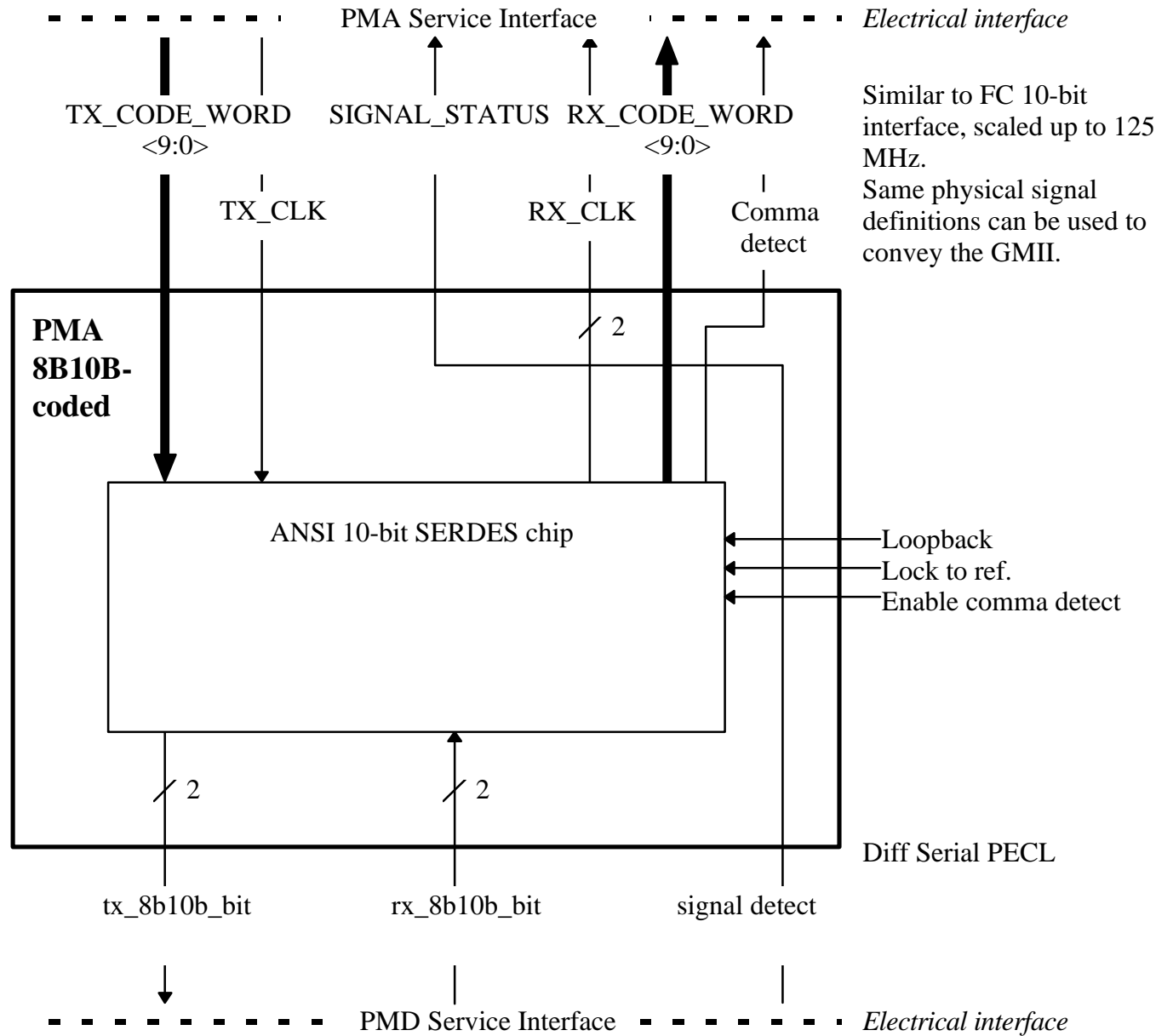


PCS Layer for 8B10B



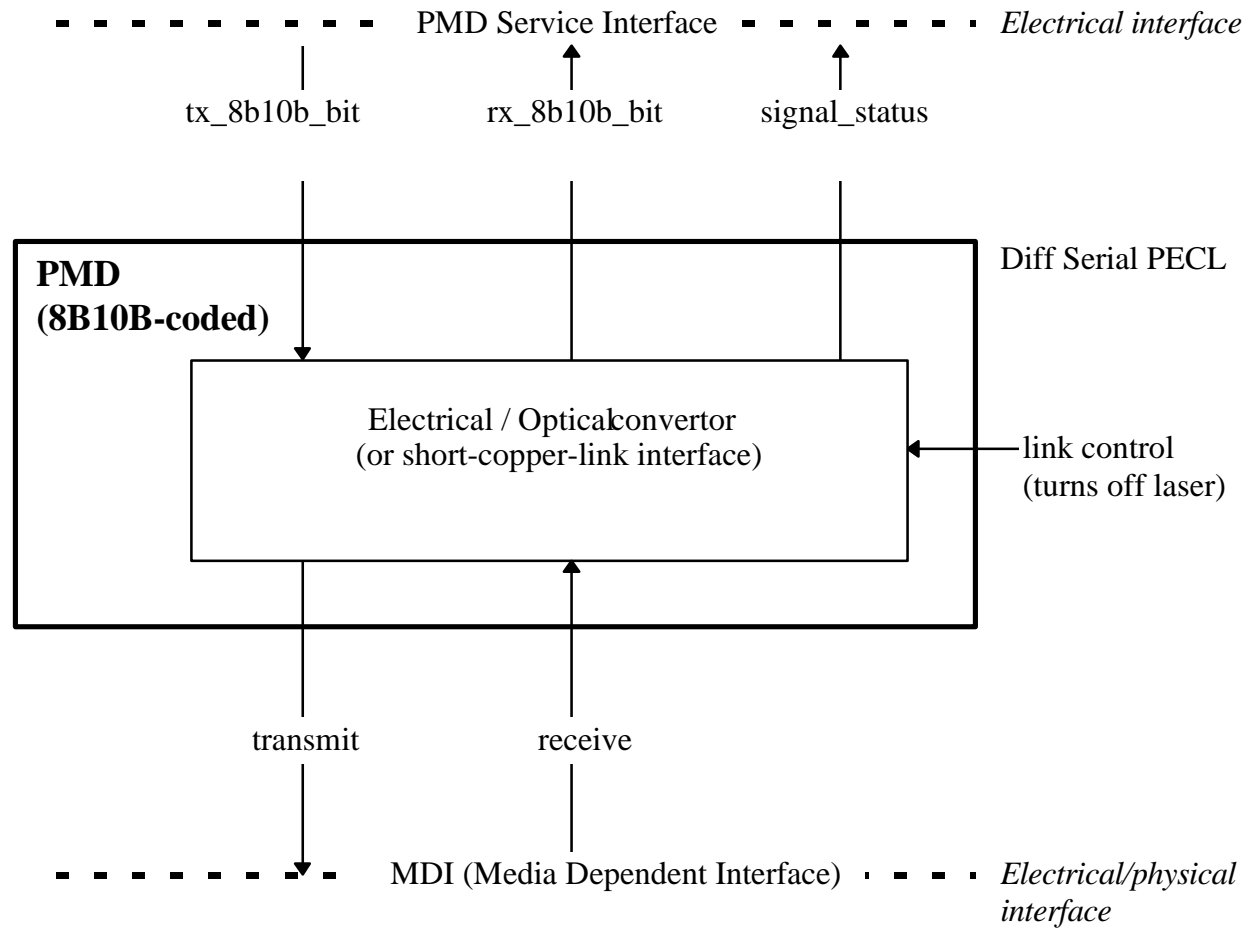


PMA Layer for 8B10B





PMD Layer for 8B10B Optics



Outline of Standard

- 06 PLS Service Interface (existing clause 6)
- 34 Reconciliation sublayer and GMII
- 35 8B10B PCS and PMA layers
- 36 PMD: SWL optics
- 37 PMD: LWL optics
- 38 PMD: Copper jumpers
- 39 UTP PHY (all layers)
- 40 Repeater for 1000 Mb/s baseband networks
- 41 System considerations for multi-segment 1000 Mb/s networks
- * Plus change pages to base standard, as necessary e.g. clauses 1, 4, 28, and 30



06 PLS Service Interface (existing clause 6)

- ❖ Use as is, with amendments for
 - Full-duplex, and with
 - Possible extension to provide carrier_extend indication

34 *Reconciliation sublayer and GMII*

- ❖ Analogous to 100BASE-T clause 22 but without electrical/physical definitions
- ❖ Defines a common logical service interface that must be supported by all gigabit PCS devices
- ❖ Maps the PLS service primitives to logical signals like TXD, TX_EN, TX_ER, RXD, RX_DV, and RX_ER (see figure 22-3 in 802.3u)
- ❖ The GMII can be conveyed using the same electrical definitions defined in the 8B10B PMA service interface (with appropriate pin mappings) - that means you can easily make one chip that implements either the GMII or the 8B10B PMA service interface (= 10-bit SERDES interface).

35 8B10B PCS and PMA layers

- ❖ 8B10B PCS sublayer
 - Analogous to the PCS layer in 100BASE-X (clause 24)
 - Contains 8B10B coder for use with optical or short copper links
- ❖ 8B10B PMA service interface
 - Similar to FC 10-bit serializer interface (scaled up to 1.25 Gbaud)
 - 10-bits parallel, at 125 MHz
- ❖ 8B10B PMA sublayer
 - Similar to ANSI 10-bit SERDES chip
 - Used for all 8B10B-coded physical interface types
- ❖ 8B10B PMD service interface
 - Probably serial PECL
 - Used for all 8B10B-coded physical interface types

36 *PMD: SWL optics*

- ❖ Used with 8B10B PMA
- ❖ Wavelength range of 770-860 nm
- ❖ Works on 50 or 62.5 um MMF
- ❖ Include specification of fiber types
- ❖ Include specification of media connector

37 *PMD: LWL optics*

- ❖ Used with 8B10B PMA
- ❖ Wavelength range of 1270-1355 nm
- ❖ Works on SMF
- ❖ Also works on 50 or 62.5 um MMF
- ❖ Include specification of fiber types (includes repetition of same MMF parameters as used for SWL)
- ❖ Include specification of media connector



38 *PMD: Copper jumpers*

- ❖ Used with 8B10B PMA
- ❖ Include specification of media and media connector

39 UTP PHY (all layers)

- ❖ Includes PCS sublayer appropriate for horizontal copper
- ❖ Includes other sublayers as needed

NOTE: For 8B10B links, we have three PMD's that all use the same PCS/PMA sublayer stack. The three PMD's each therefore have their own clause number. The UTP PHY is less configurable. It will be written in one clause, like 100BASE-T2 or 100BASE-T4.



For more information...

- ❖ See Thatcher, Hanson, Swirhun proposal for contents of 8B10B optical PMD's
- ❖ See Johnson, Taborek et. al, proposal for contents of 8B10B PCS layer