

Towards consistent organization of LPI Functions, State Variables and State Diagrams.



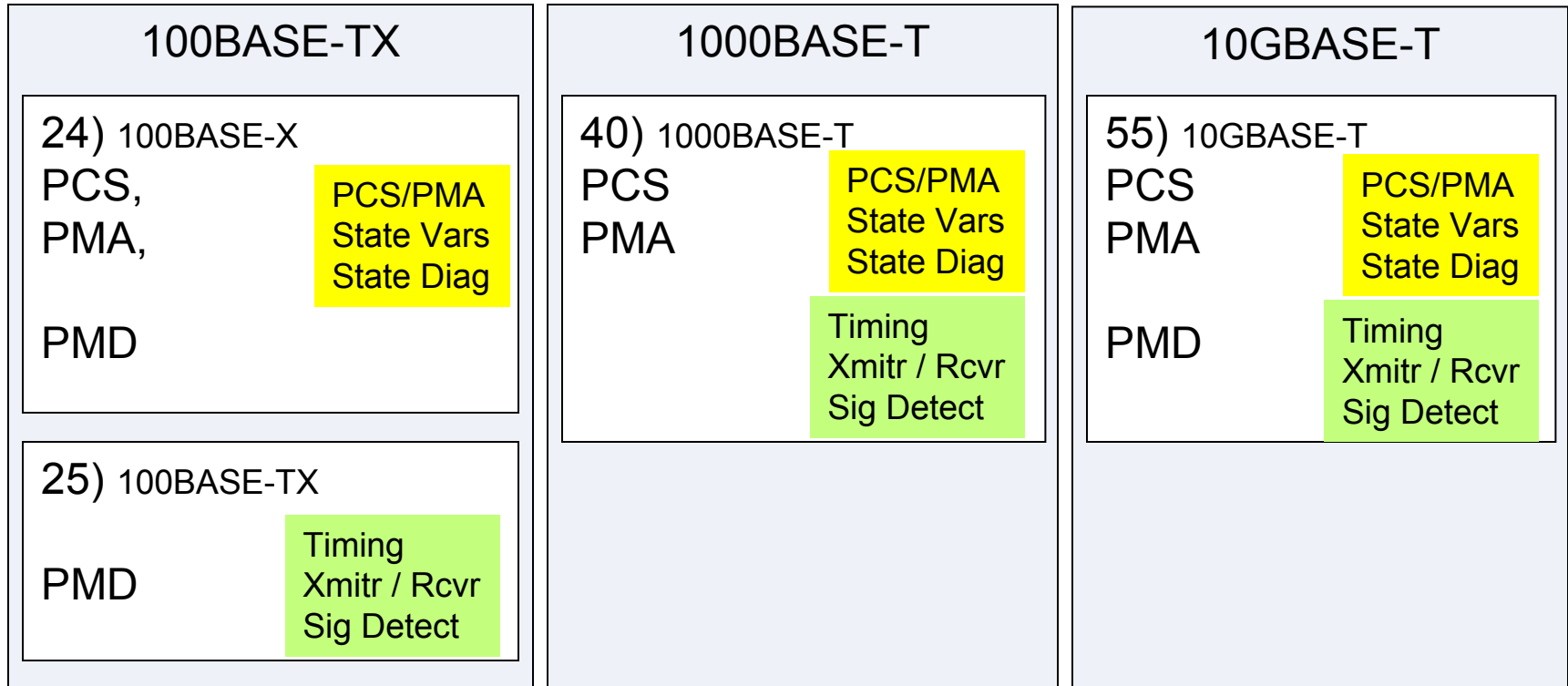
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LPI State Variables & State Diagrams

- BASE-T PHYs:
 - have state variables and diagrams in PCS/PMA sections.
 - Are rather self contained clauses
- Backplane PHYs:
 - Only describe PMD
 - Not integrated with PCS/PMA
 - Difficult to create new service interfaces for LPI signals
- Want 1000BASE-X, 10GBASE-X and 10GBASE-R generic for possible use with Fiber or 40/100G

Base-T PHYs



Current BP PHYs

1000BASE-KX	10GBASE-KX4	10GBASE-KR
<p>36) 1000BASE-X PCS PMA</p>	<p>48) 10GBASE-X PCS PMA</p>	<p>49) 10GBASE-R PCS</p>
<p>70) 100BASE-X PMD</p> <p>PCS,PMA State Vars State Diag</p> <p>Timing Xmitr / Rcvr Sig Detect</p>	<p>71) 10GBASE-KX4 PMD</p> <p>PCS,PMA State Vars State Diag</p> <p>Timing Xmitr / Rcvr Sig Detect</p>	<p>51) 10GBASE-R PMA</p>
		<p>72) 10GBASE-KR PMD</p> <p>PSC,PMA State Vars State Diag</p> <p>Timing/Train Xmitr / Rcvr Sig Detect</p>

Recommended LPI Text Location

1000BASE-KX	10GBASE-KX4	10GBASE-KR
<p>36) 1000BASE-X PCS PMA</p> <p>PSC,PMA State Vars State Diag</p>	<p>48) 10GBASE-X PCS PMA</p> <p>PSC,PMA State Vars State Diag</p>	<p>49) 10GBASE-R PCS</p> <p>PSC State Vars State Diag</p>
<p>70) 1000BASE-KX PMD</p> <p>Timing Xmitr / Rcvr Sig Detect</p>	<p>71) 10GBASE-KX4 PMD</p> <p>Timing Xmitr / Rcvr Sig Detect</p>	<p>51) 10GBASE-R PMA</p> <p>PMA</p>
		<p>72) 10GBASE-KR PMD</p> <p>Ref/Wake Training</p> <p>Timing Xmitr / Rcvr Sig Detect</p>

Specific changes for 1000BASE-KX sub-clauses

36) 1000BASE-X

36.2.2 PCS Functions

36.2.2.x LPI Function

36.2.6 States for LPI

36.2.6.1 State Vars

36.2.6.2 State Diag

36.3.2 PMA Functions

36.3.2.x LPI Functions

70) 1000BASE-KX

70.3a PCS Reqs

70.3b PMA Reqs

70.5 MDIO

70.6.4 Signal Detect

70.6.10.1 Overview

70.6.10.2-3 Timing

70.6.10.4 State Vars

70.6.10.5 State Diag

70 1000BASE-KX

70.3a PCS Reqs

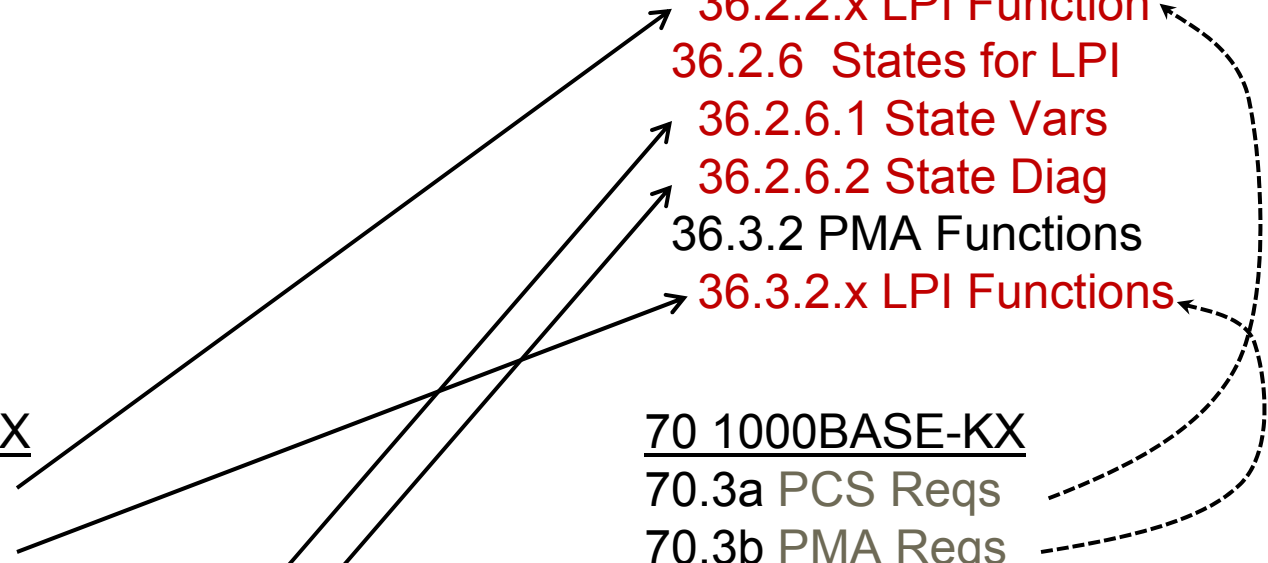
70.3b PMA Reqs

70.5 MDIO

70.6.4 Signal Detect

70.6.10.1 Overview

70.6.10.2-3 Timing



Specific changes for 10GBASE-KX4 sub-clauses

48) 10GBASE-X

48.2.2 PCS Functions

48.2.2.x LPI Function

48.2.6 State Var & Diag

48.2.6.5 States for LPI

48.2.6.5.1 State Vars

48.2.6.5.2 State Diag

48.3.1 PMA Functions

48.3.1.x LPI Functions

71) 10GBASE-KX4

71.3a PCS Reqs

71.3b PMA Reqs

71.5 MDIO

71.6.4 Signal Detect

71.6.12.1 Overview

71.6.12.2-3 Timing

71.6.12.4 State Vars

71.6.12.5 State Diag

71 1000BASE-KX

71.3a PCS Reqs

71.3b PMA Reqs

71.5 MDIO

71.6.4 Signal Detect

71.6.12.1 Overview

71.6.12.2-3 Timing

Specific changes for 10GBASE-KR sub-clauses

49) 10GBASE-R PCS

49.2.2 PCS Functions

49.2.2.x LPI Function

49.2.13 State Var & Diag

49.2.13 States

49.2.13.2 LPI State Vars

49.2.13.2 LPI State Diag

51) 10GBASE-R PMA

51.3.1 PMA Functions

51.3.1.x LPI Functions

72) 10GBASE-KR

72.3a PCS Reqs

72.3b PMA Reqs

72.5 MDIO

72.6.4 Signal Detect

72.6.10.2 Training

72.6.11.1 LPI Overview

72.6.11.2-3 Timing

72.6.11.4 State Vars

72.6.11.5 State Diag

72) 10GBASE-KR

72.3a PCS Reqs

72.3b PMA Reqs

72.5 MDIO

72.6.4 Signal Detect

72.6.10.2 Training

72.6.11.1 LPI Overview

72.6.11.2-3 Timing

72.6.11.4 Training State Vars

72.6.11.5 Training State Diag

Summary

- Recommend moving PCS & PMA functions from BP PMD clauses and into the appropriate PCS/PMA clauses.
- Ensure that PCS & PMA are generic to support other PMDs like: SX, LX, CX4, LR, SR.. etc..
- Split KR state diagram(s) in two. One generic state diagram for clause 49 for common case and fiber, and one specific to KR-PMD specific training version of refresh & wake.