CAUI-4 PHY stack ups

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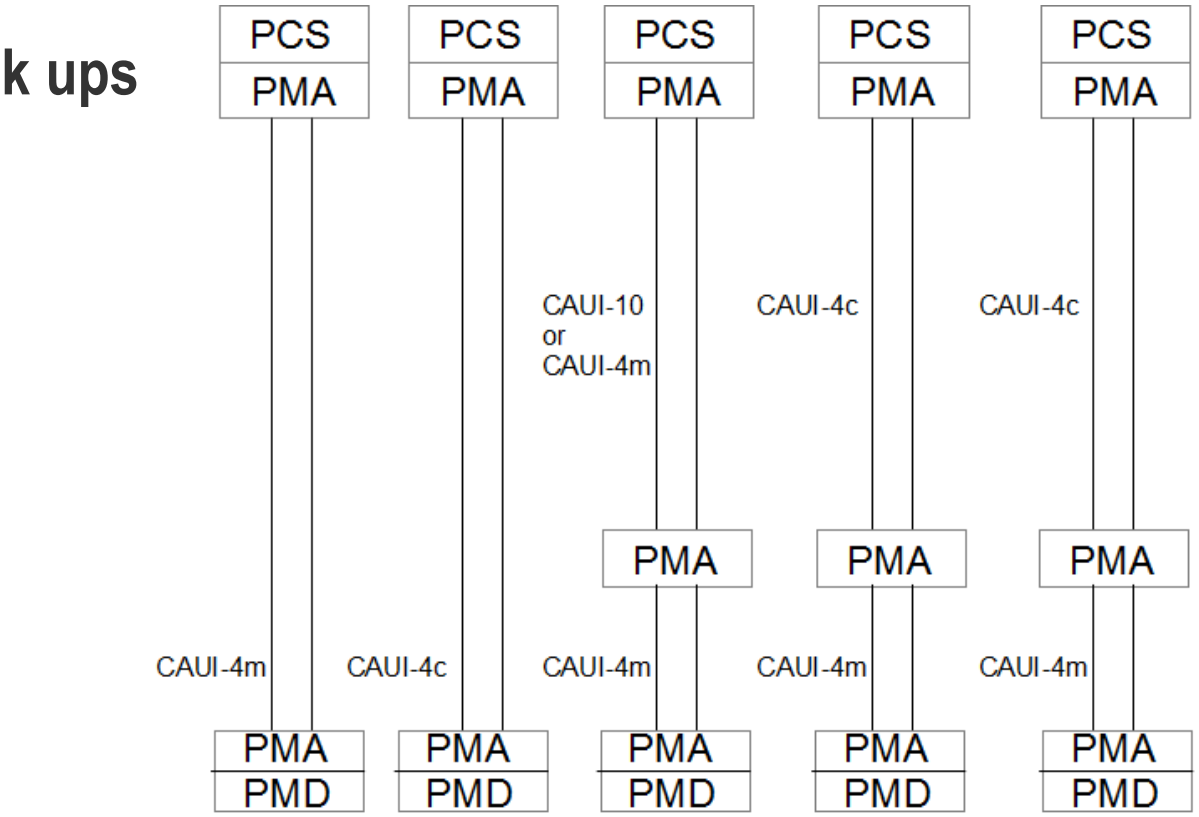
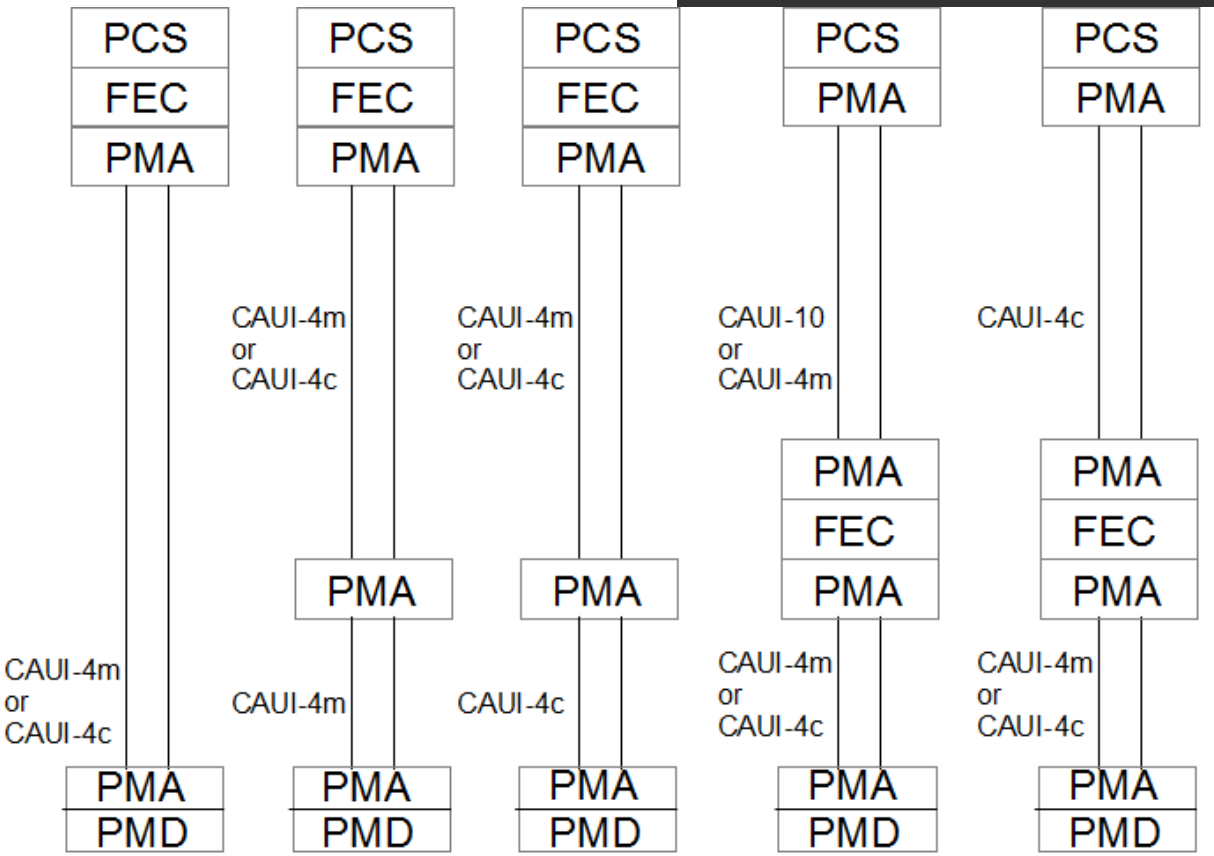
Possible 100G-LR4 stack ups



Host Loss derived assuming CAUI-4c2m is 10dB and CAUI-4c2c is 20dB

Possible 100G-SR4 stack ups



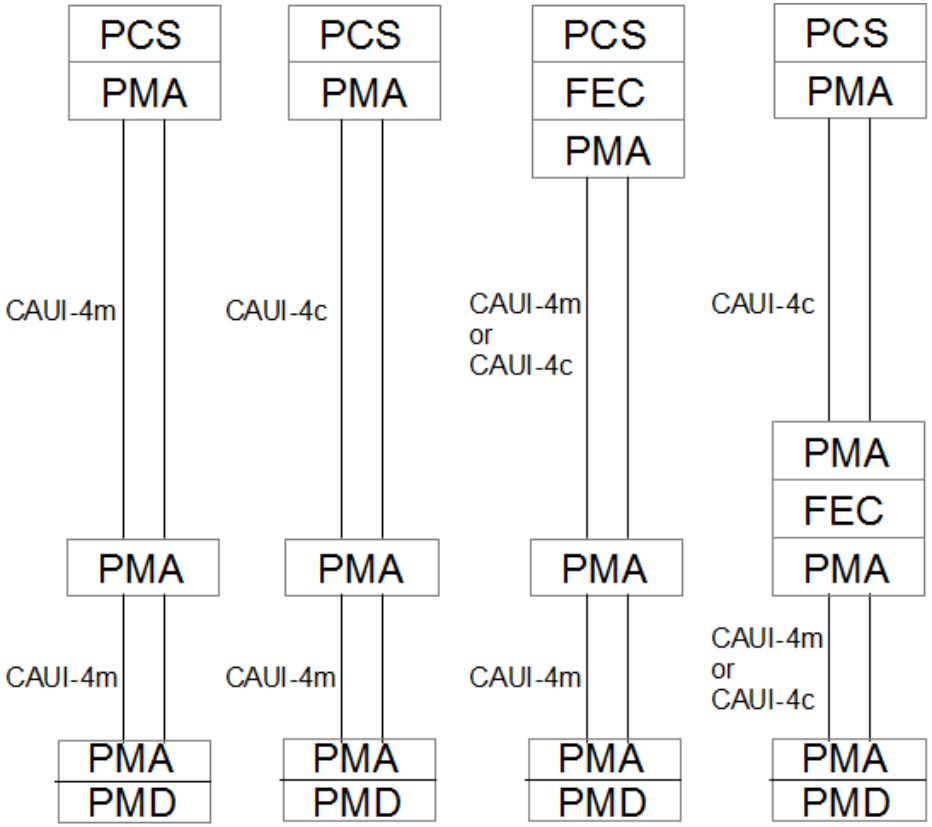
	SR4	SR4	SR4	SR4	SR4
MTTFPA	Okay	Okay	Okay	Okay	Not Safe
FEC	RS(528,514)	RS(528,514) RS(528,514)	RS(528,514) RS(528,514)	None, RS(528,514)	None, RS(528,514)
Latency					
Retimer	N/A	<10ns	<10ns	<150ns	<150ns
Fiber(100m)	490ns	490ns	490ns	490ns	490ns
Host Loss	<20dB	<30dB	<40dB	<20dB	<40dB

Re-timer latency derived from 120ns of RS-FEC latency + 30ns of 20 PCS lane alignment

AVAGO TECHNOLOGIES

Same 100G-LR4 & SR4 stack ups

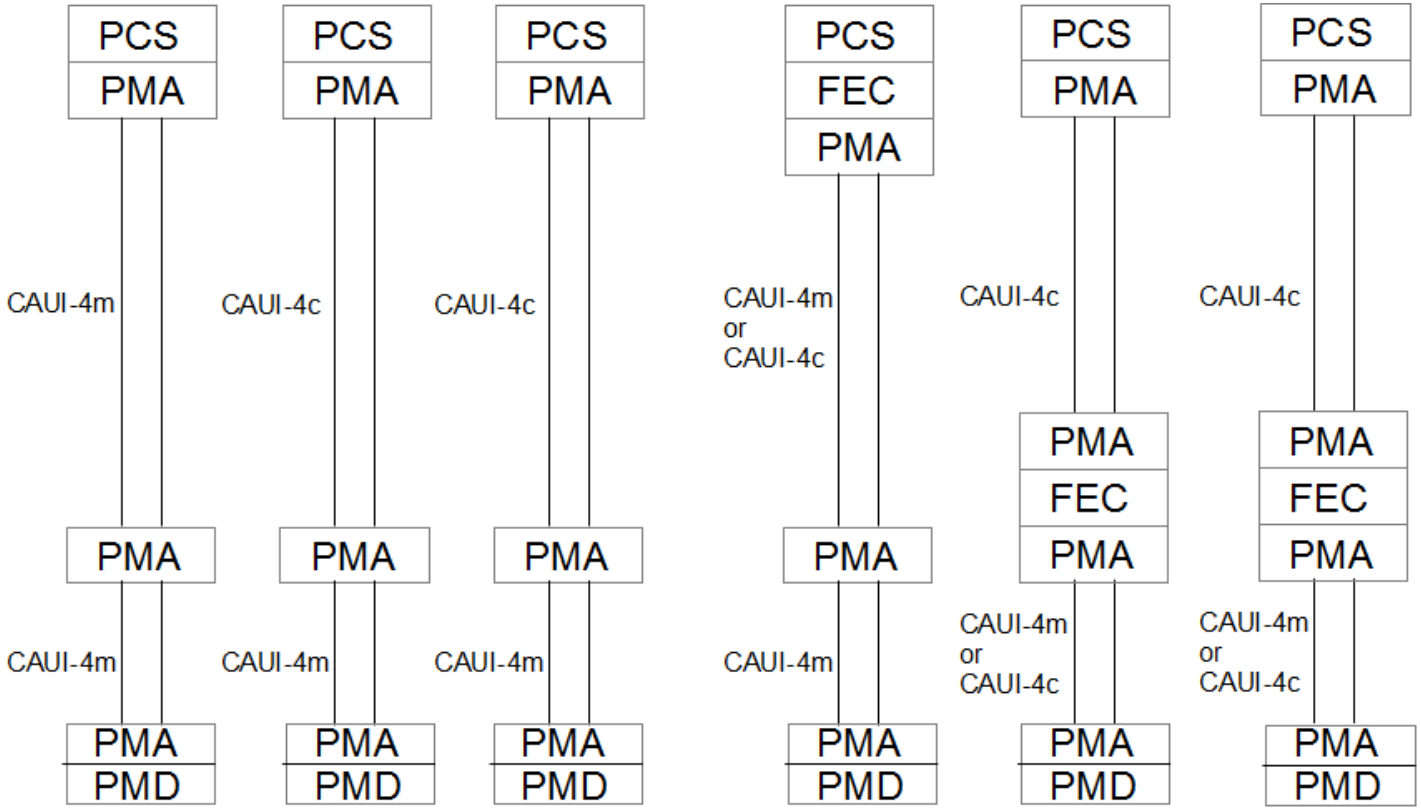
To support both LR4 & SR4 with the same layout you have to place the re-timer such that both sides of the re-timer adhere to CAUI-4c2m to meet MTTFPA.



	LR4	LR4	SR4	SR4
MTTFPA	Okay	Not Safe	Okay	Not Safe
FEC	None None	None None	RS(528,514) RS(528,514)	None, RS(528,514)
Latency				
Retimer	<10ns	<10ns	<10ns	<150ns
Fiber(100m)	490ns	490ns	490ns	490ns
Host Loss	<20dB	<30dB	<30dB	<40dB

FEC on all CAUI-4c2c interfaces

Requiring a form of FEC on the CAUI-c2c interface makes MTTFPA okay.



	LR4	LR4	LR4	SR4	SR4	SR4
MTTFPA	Okay	Not Safe	Okay	Okay	Not Safe	Okay
FEC	None None	None None	RS(165,161) None	RS(528,514) RS(528,514)	None, RS(528,514)	RS(165,161) RS(528,514)
Latency						
Retimer	<10ns	<10ns	<35ns	<10ns	<150ns	<150ns
Fiber(100m)	490ns	490ns	490ns	490ns	490ns	490ns
Host Loss	<20dB	<30dB	<30dB	<30dB	<40dB	<40dB

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Summary

- Requiring FEC be present on all CAUI-4 c2c interfaces enables adherence to MTTFPA requirements
- Defining a new RS(165,161,m=8) FEC provides a lower latency, power, area option compared to RS(528,514) for situations in which adding FEC would be necessary to meet the above requirement.