800G Delay Measurement
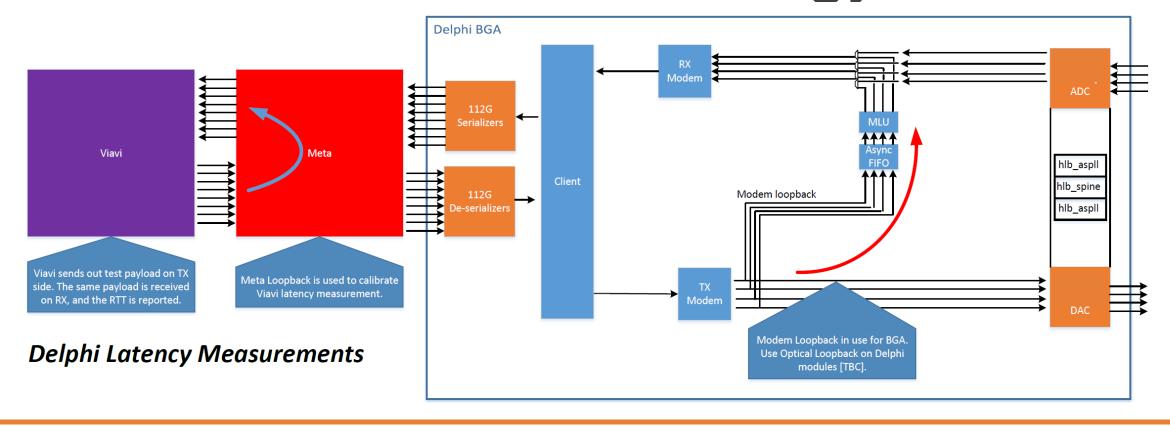
Mike Sluyski – Cisco Systems Inc.

January 21, 2025

sluyski_802_3dj_01_2501
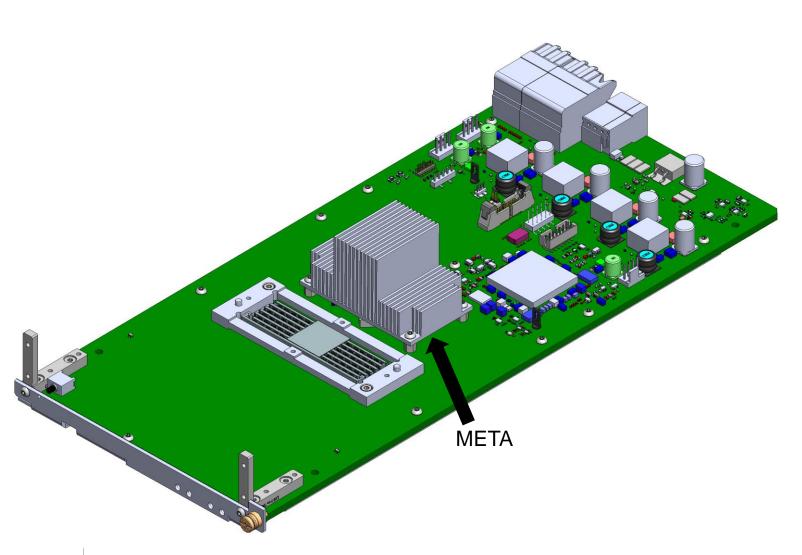
Measurement methodology
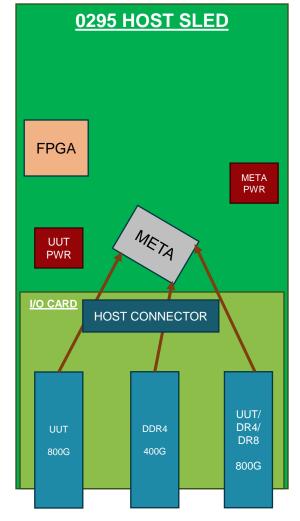

Delphi BGA

Viavi

Meta

112G Serializers

112G De-serializers

Client

RX Modem

MLU

Async FIFO

Modem loopback

TX Modem

ADC

hlb_aspll
hlb_spine
hlb_aspll

DAC

Viavi sends out test payload on TX side. The same payload is received on RX, and the RTT is reported.

Meta Loopback is used to calibrate Viavi latency measurement.

Modem Loopback in use for BGA. Use Optical Loopback on Delphi modules [TBC].

Delphi Latency Measurements

ACACIA COMMUNICATIONS, INC.

DELPHI PLUGGABLES EVALUATION CARD

DELPHI PLUGGABLES MAIN SLED

META

0295 HOST SLED

FPGA

META PWR

UUT PWR

META

I/O CARD

HOST CONNECTOR

UUT 800G

DDR4 400G

UUT/ DR4/ DR8 800G

UUT: QSFP-DD/OSFP/CFP2
PCO: DR4/DR8

Full end-to-end delay 800GAUI-8-L with Optical loopback

- DP08QSDD form factor

- Host Interface 800GAUI-8-L-C2M (SNIA SFF-8024 Host I/F = 0x52)

- Media Interface 800ER1 Power Class A (0dBm); SNIA SFF-8024 (800ZR-A (0x01), 150 GHz DWDM, Tx Output Range A)

- AM Terminate/Re-Generate

800G_16QAM_ETH_E1					
AM_Terminate					
800G_KP4_PAM4	100	3674.00	3681.28	3689.00	8	15.0

- When AM location preservation mode was enabled w/c delay measurement (CTE_L) was well within Timing Class C.