Demonstration of a 224Gbps-PAM4-LR SERDES in Supporting a 1 Meter Passive DAC Long Reach Channel

Mike Li (Intel)
Nathan Tracy (TE)

May 15, 2023
Contributors

Intel:
Ariel Cohen
Cyril Gaillard
Karthik Ghantasala
Cindy Goh
Itai Gur
Ahmad Hajeer
Jeff Hockert
Amir Laufer
Itamar Levin
Yawen Luo
Velkovich Moshe
Ilia Radashkevich

TE:
Tony Daughtry
Justin Pickel
Dustin Rowe
Megha Shanbhag
Rahul Sharma
Kyle Klinger
Background and Introduction

- Intel and TE collaboratively demonstrated a 224 Gbps-PAM4-LR end-to-end (E2E) link with Intel SERDES test chip and TE 1 m DAC copper cable at OFC 2023.

- This presentation highlights the demo characteristics and results, and discusses the implications to the 802.3dj 200G/lane C2M, C2C, CR, KR specifications under development.
A 224Gbps-PAM4-LR Demonstration Link System

Intel 224Gbps-PAM4 Long Reach SERDES TC and boards [1], [2], [3]

TE OSFP Connector

TE 1 Meter Passive DAC
A 224Gbps-PAM4-LR E2E Channel Characteristics

IL: ~36 dB at 53 GHz
RL: ~< 10 dB at 53 GHz
Demonstration at 2023 OFC: Intel Booth, Mar 7-9, San Diego Convention Center, USA

Pre-FEC BER: 3-4e-4
Summary

• Intel and TE collaboratively demonstrated a 224 Gbps-PAM4-LR end-to-end link with Intel SERDES test chip and TE 1 m DAC copper cable at OFC, Mar 2023, and have achieved pre-FEC BER of 3-4e-4

• It is anticipated that SERDES technology will continue improving in performance and power, and 1 m DAC copper cable will continue improving in performance.

• The demonstrated 224 Gbps-PAM4-LR SERDES technology and 1 m DAC, as well as end-to-end channel, provide solid and helpful momentum in developing 802.3dj 200G/lane C2M, C2C, CR, KR with PAM4 signaling specifications.
References

