

## 11 January 2024 Ad hoc Electronic Teleconference Meeting

Approved Meeting Minutes, Prepared by Kent Lusted

Meeting called to order at ~6:30 am (all times Pacific) by Kent Lusted, who was chairing the meeting.

Chair noted that individuals should fill out IMAT information for attendance.

Chair reminded participants to declare their affiliation in the online meeting. Failure to do so would result in expulsion from the meeting.

<b>Presentation #1</b>	<b>Agenda</b>
Presenter	Kent Lusted
URL	<a href="https://www.ieee802.org/3/dj/public/adhoc/electrical/24_0111/agenda_3dj_01_adhoc_240111.pdf">https://www.ieee802.org/3/dj/public/adhoc/electrical/24_0111/agenda_3dj_01_adhoc_240111.pdf</a>

The chair asked if there were any modifications for the agenda (See slide #2) – there were none.

There were no objections to the approval of the agenda, and it was considered approved by unanimous consent.

Ad hoc chair noted that the minutes for the 4 January electrical ad hoc were posted to the website. (see: [https://www.ieee802.org/3/dj/public/adhoc/electrical/24\\_0104/minutes\\_3dj\\_elec\\_240104\\_unapproved.pdf](https://www.ieee802.org/3/dj/public/adhoc/electrical/24_0104/minutes_3dj_elec_240104_unapproved.pdf)) He asked if there were corrections or modifications to the posted minutes. No one responded. He asked if there was objection to approving the posted minutes. No one responded. The minutes were approved by unanimous consent

The chair noted an email had been sent out to the reflector reminding individuals to review the following IEEE SA policies-

- IEEE SA Participation Policy
- IEEE SA Copyright Policy
- IEEE SA Patent Policy

Chair asked if anyone needed any of these policies reviewed in-depth. There were no requests.

Chair presented the third slide (See Slide #25) of the IEEE SA Patent Policy slides. Chair did call for Potentially Essential Patents, and no one came forward.

Chair presented the second slide (See Slide #30) of the IEEE SA Copyright Policy slides. Chair noted – “By participating in this activity, you agree to comply with the IEEE Code of Ethics, all applicable laws, and all IEEE policies and procedures including, but not limited to, the IEEE SA Copyright Policy.”

Chair presented the second slide (See Slide #34) of the IEEE SA Participation Policy slides. Chair noted – “Participants in the IEEE-SA “individual process” shall act independently of others, including employers. By participating in standards

activities using the “individual process”, you are deemed to accept these requirements; if you are unable to satisfy these requirements then you shall immediately cease any participation.”

Chair reminded participants of the IEEE Code of Ethics and Code of Conduct. (see slide #33)

The chair reviewed meeting decorum. See Slide #4.

The chair reviewed voting. See Slide #8.

Chair reminded participants to sign into the IEEE Meeting and Attendance Tool. Kent Lusted noted that neither he nor the WG Recording Secretary Jon Lewis would update attendance records after the meeting ends for the day.

Chair reminded participants to declare their affiliation in the online meeting. Failure to do so would result in expulsion from the meeting.

Chair noted that there was a full agenda of presentations and straw polls. He noted that the meeting may run past the previously announced meeting end time so that participants can have important discussions and measure consensus through straw polls. These discussions and straw polls were vital for the Task Force to know what decisions to make at the January interim meeting.

Prior to the start of presentation #2, the author noted that there was an updated version ‘01a’ with editorial changes to slide 1.

<b>Presentation #2</b>	<b>C2M Channels for 200Gbps Update to contributed channels</b>
Presenter	Upen Reddy Kareti
URL	<a href="https://www.ieee802.org/3/dj/public/adhoc/electrical/24_0111/kareti_3dj_elec_01a_240111.pdf">https://www.ieee802.org/3/dj/public/adhoc/electrical/24_0111/kareti_3dj_elec_01a_240111.pdf</a>

Chair noted that the updated channels were posted to the 3dj Task Force Tools and Channels webpage. (see: <https://www.ieee802.org/3/df/public/tools/index.html> )

Questions were asked and answered.

<b>Presentation #3</b>	<b>Towards baseline proposals for electrical interfaces at 200 Gb/s per lane - January 2024 update</b>
Presenter	Adee Ran
URL	<a href="https://www.ieee802.org/3/dj/public/adhoc/electrical/24_0111/ran_3dj_elec_01a_240111.pdf">https://www.ieee802.org/3/dj/public/adhoc/electrical/24_0111/ran_3dj_elec_01a_240111.pdf</a>

Author noted an error on slide 16 that the jitter parameters should be TBD and would send updated version ‘01a’.  
Questions were asked and answered.

Kent Lusted passed the meeting chair responsibilities to John D’Ambrosia at 716 a.m.

#### **Straw Poll #1**

I would support adopting the 200G/lane electrical baseline proposals for CR in ran\_3dj\_elec\_01\_240111 slides 6-10

Results (all): Y: 50, N: 0, A: 11

**Straw Poll #2**

I would support adopting the 200G/lane electrical baseline proposals for KR in ran\_3dj\_elec\_01\_240111 slides 12-16 (with COM jitter as TBD on slide 16)

Results (all): Y: 50 , N: 0, A: 10

**Straw Poll #3**

I would support adopting the 200G/lane electrical baseline proposals for AUI C2C in ran\_3dj\_elec\_01\_240111 slides 18-22

Results (all): Y: 50 , N: 0, A: 10

**Straw Poll #4**

I would support adopting the 200G/lane electrical baseline proposals for AUI C2M in ran\_3dj\_elec\_01\_240111 slides 24-29

Results (all): Y: 45, N: 2, A: 13

<b>Presentation #4</b>	<b>Moving Forward on AUI C2M IL Target and Ref EQ</b>
Presenter	Kent Lusted
URL	<a href="https://www.ieee802.org/3/dj/public/adhoc/electrical/24_0111/lusted_3dj_elec_01_240111.pdf">https://www.ieee802.org/3/dj/public/adhoc/electrical/24_0111/lusted_3dj_elec_01_240111.pdf</a>

Questions were asked and answered.

**Straw Poll #5**

For the 200G/lane AUI C2M electrical interfaces (using DER\_0 = 2E-5), I would support adopting a recommended channel insertion loss ILdd (die-die) target of 32.5dB.

Results (all): Y: 32, N: 9, A: 19

Results (802.3 voters): Y: 24 , N: 11, A: 9

Kent Lusted resumed the meeting chair responsibility at 8:21 a.m.

Chair reminded participants to sign into the IEEE Meeting and Attendance Tool. Kent Lusted noted that neither he nor the WG Recording Secretary Jon Lewis would update attendance records after the meeting ends for the day.

Prior to the start of presentation #5, the author noted that there was an updated version '01a' with editorial changes: fixed grammar issue, added some clarifying comments based on off-line discussions.

<b>Presentation #5</b>	<b>Reference receiver framework for 200G/lane electrical interfaces and PHYs</b>
Presenter	Adam Healey

URL	<a href="https://www.ieee802.org/3/dj/public/adhoc/electrical/24_0111/healey_3dj_elec_01a_240111.pdf">https://www.ieee802.org/3/dj/public/adhoc/electrical/24_0111/healey_3dj_elec_01a_240111.pdf</a>
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Questions were asked and answered.

Chair noted that the meeting may run past the previously announced meeting end time so that participants can have important discussions and measure consensus through straw polls. These discussions and straw polls were vital for the Task Force to know what decisions to make at the January interim meeting.

<b>Presentation #6</b>	<b>An Executive Summary of the MLSE Proposal</b>
Presenter	Hossein Shakiba
URL	version 01a. equation error

Author noted an error on slide 5 with the equation 1.c and would provide an updated version '01a'.

Chair reminded participants to sign into the IEEE Meeting and Attendance Tool.

**Straw Poll #6**

I would support including the MLSE effect in COM for 200G/lane CR:

Results (all): Y: 33 N: 6 A: 10

**Straw Poll #7**

I would support including the MLSE effect in COM for 200G/lane KR:

Results (all): Y: 33, N: 6, A: 10

**Straw Poll #8**

I would support including the MLSE effect in the reference RX for 200G/lane AUI C2M:

Results (all): Y: 20, N: 16, A: 13

**Straw Poll #9**

I would support including the MLSE effect in COM for 200G/lane AUI C2C:

Results (all): Y: 18, N:16, A: 14

**Straw Poll #9**

For the 200G/lane electrical interfaces having MLSE capability, the MLSE solution approach that I prefer is:

A. Include MLSE COM calculations based on shakiba\_3dj\_elec\_01\_240111, slide 5 with MLSE implementation penalty TBD)

B. Use MLSE coding gain as a rough estimate (i.e. shakiba\_3dj\_elec\_01\_240111, slide 6 middle graph and equation with MLSE implementation penalty TBD)

C. Relax COM margin by a fixed amount (exact amount is TBD)

(choose one)

Results (all): A: 32 , B: 2 , C: 7

John D'Ambrosia, 3dj Task Force Chair, noted that presentation requests for the January 2024 interim meeting are due 11 January 2024. He reminded participants that contributions were due 15 January 2024. Registration and a meeting fee is required to attend the January interim meeting.

Meeting adjourned at ~10:01 a.m. Pacific.

## Attendees (per IMAT)

Name	Affiliation	Employer
Akinwale, Oluwafemi	Intel Corporation	
Ben-Artzi, Liav	Marvell Semiconductor, Inc.	Marvell Semiconductor, Inc.
Bernier, Eric	Huawei Technologies Canada Co., Ltd.	Huawei Technologies Canada Co., Ltd.
Bois, Karl	NVIDIA Corporation	NVIDIA Corporation
Brown, Matthew	Alphawave	Alphawave
Bruckman, Leon	Huawei Technologies Co., Ltd	Huawei Technologies Co., Ltd
Cai, Yuefeng	Huawei Technologies Co., Ltd	Huawei Technologies Co., Ltd
Calvin, John	Keysight Technologies	Keysight Technologies
Chappell, Neveia	Keysight Technologies	Keysight Technologies
Cox, Ian	Broadcom Corporation	
D'Ambrosia, John	Futurewei Technologies, U.S. Affiliate of Huawei	Futurewei Technologies, U.S. Subsidiary of Huawei
Dawe, Piers J G	Nvidia	NVIDIA
Del Vecchio, Peter	Broadcom Corporation	
Dudek, Michael	Marvell	Marvell

Name	Affiliation	Employer
Ghiasi, Ali	Ghiasi Quantum LLC; Marvell Semiconductor, Inc.	Ghiasi Quantum LLC
Gore, Brandon	Samtec, Inc.	Samtec, Inc.
He, Xiang	Huawei Technologies Co., Ltd	Huawei Technologies Co., Ltd
Healey, Adam	Broadcom Inc.	Broadcom Inc.
Heck, Howard	Intel	Intel
Hegde, Rajmohan	Broadcom Ltd.	Broadcom Corporation
Hidaka, Yasuo	Credo Semiconductor	Credo Semiconductor
Hutchins, Jeff	Ranovus	Ranovus
Jackson, Kenneth	Sumitomo Electric Industries, LTD	Sumitomo Electric Industries, LTD
Jiang, Chenhui	Sicoya	Sicoya
Kareti, Upen	Cisco Systems, Inc.	Cisco Systems, Inc.
Kim, Kihong/Joshua	Hirose Electric (USA), Inc.	Hirose Electric (USA), Inc.
Kimber, Eric	Semtech Ltd	Semtech Ltd
Klempa, Michael	Alphawave Semi	Alphawave Semi
Kocsis, Sam	Amphenol Corporation	Amphenol Corporation
Kugel, Valery	Juniper Networks, Inc.	
Kuschnerov, Maxim	Huawei Technologies Duesseldorf GmbH	Huawei Technologies Duesseldorf GmbH

Name	Affiliation	Employer
Le Cheminant, Greg	Keysight Technologies	Keysight Technologies
Li, Mike-Peng	Intel	Intel
Li, Pei-Rong	MediaTek Inc.	MediaTek Inc.
Liu, Cathy	Broadcom Corporation	Broadcom Corporation
Liu, Karen	Nubis Communications	Nubis Communications
Louchet, Hadrien	Keysight Technologies	Keysight Technologies
Lusted, Kent	Intel	Intel
Maki, Jeffery	Juniper Networks, Inc.	Juniper Networks, Inc.
Malicoat, David	Malicoat Networking Solutions; SENKO Advanced Components	Malicoat Networking Solutions
Mellitz, Richard	Samtec, Inc.	Samtec, Inc.
Moorwood, Charles	Keysight Technologies	Keysight Technologies
MURAKAMI, YUKI	Fujitsu Limited	FUJITSU LIMITED
Murty, Ramana	Broadcom Corporation	Broadcom Inc.
Muth, Karlheinz	Broadcom Corporation	Broadcom Corporation
Nicholl, Gary	Cisco Systems, Inc.	Cisco Systems, Inc.
Noujeim, Leesa	Google	Google
Nowell, Mark	Cisco Systems, Inc.	Cisco Systems, Inc.

Name	Affiliation	Employer
Opsasnick, Eugene	Broadcom Inc.	Broadcom Inc.
Palkert, Thomas	Samtec-Macom	Macom,&nbsp;Samtec
PARK, CHUL SOO	Juniper Networks, Inc.	Juniper Networks Inc.
Piehler, David	Dell	Dell Technologies
Rabinovich, Rick	Keysight Technologies	Keysight Technologies
Ran, Adee	Cisco Systems, Inc.	Cisco Systems, Inc.
Rechtman, Zvi	NVIDIA	NVIDIA
Ren, Hao	Huawei Technologies Co., Ltd	Huawei Technologies Co., Ltd
Rodes, Roberto	II-VI	II-VI
Rysin, Alexander	NVIDIA	NVIDIA
Sakai, Toshiaki	socionext	Socionext Inc.
Shakiba, Mohammad	Huawei Technologies Canada; Huawei Technologies Co., Ltd	Huawei Technologies Canada
Shanbhag, Megha	TE Connectivity	Tyco
Shoval, Ayal	Synopsys, Inc.	Synopsys, Inc.
Shrikhande, Kapil	Marvell Semiconductor, Inc.	Marvell Semiconductor, Inc.
Shukla, Priyank	Synopsys, Inc.	Synopsys, Inc.

Name	Affiliation	Employer
Simms, William	NVIDIA Corporation	NVIDIA Corporation
Sommers, Scott	Molex Incorporated	Molex LLC
Son, Yung Sung	Optomind Inc	Optomind Inc
Toyserkani, Pirooz	Cisco Systems, Inc.	Cisco Systems, Inc.
Tracy, Nathan	TE Connectivity	TE Connectivity
Weaver, James	Arista Networks	Arista Networks
Whiteman, Cameron	Infinera Corporation	Infinera Corporation
Wingrove, Michael	Ciena Corporation	Ciena Corporation
Yin, Shuang	Google	