Unconfirmed Meeting Minutes: IEEE P802.3dm Asymmetrical Electrical Automotive Ethernet Task Force

January 22-24, 2025
IEEE 802.3 Interim, Phoenix, AZ USA

Prepared by George Zimmerman

IEEE P802.3dm Task Force meeting convened at 1:19 PM MST, Wednesday, January 22, 2025, by Jon Lewis, IEEE P802.3dm Task Force Chair.

Attendance is listed in Appendix A
Straw Poll Roll Calls listed in Appendix B
All motions passed without objection

Presentation: https://www.ieee802.org/3/dm/public/0125/agenda_3dm_01_0125.pdf
Presenter: Jon Lewis, Chair.

Mr. Lewis turned to presentation agenda_3dm_01_0125.pdf and reviewed the agenda for the meeting.

The chair reminded the group that attendance credit would be taken from IMAT, and that as announced by the 802.3 Working Group Chair, IMAT registration would be for individual slots (AM1, AM2, PM1, and PM2) through the day's meeting.

Previous Meeting Minutes: The chair announced that the minutes from the Task Force meeting at the IEEE 802 Plenary November 11-14, 2024 had been posted and asked the group to consider any additions or corrections to them.
Additionally, the minutes from the ad hoc meetings held December 12 & December 19, 2024 were posted, and he asked the group to consider if any additions or corrections to those were necessary.

The chair entertained the following motion:
Motion #1
Move to approve:
Task Force minutes from Nov 2024
https://www.ieee802.org/3/dm/public/1124/Unconfirmed_minutes_3dm_111124.pdf

Ad Hoc Minutes:
https://www.ieee802.org/3/dm/public/adhoc/121224/Unconfirmed_minutes_3dm_121224.pdf
https://www.ieee802.org/3/dm/public/adhoc/121924/Unconfirmed_minutes_3dm_121924.pdf
• M: Bob Voss
• S: Chad Jones

75% by rule
MOTION PASSES BY UNANIMOUS CONSENT

Mr. Lewis then resumed the review of [agenda_3dm_01_0125.pdf](#), showing the agenda.

Approval of Agenda: The chair asked whether there were additions or corrections to the agenda, and there were none. He then considered the following motion:

<u>Motion #2</u>
Move to approve the agenda
M: Bob Voss
S: Peter Jones
(Procedural > 50%)
MOTION PASSES BY UNANIMOUS CONSENT

He announced that the agenda was approved.

Mr. Lewis then resumed the review of [agenda_3dm_01_0125.pdf](#)

- Mr. Lewis noted that there should be no recording or photography without permission.
- Mr. Lewis asked if anyone was attending from the press including those who would run a public blog on this meeting – there were no indications from the group.

The chair announced that the meeting was being conducted as part of the IEEE 802 plenary meeting series and that registration, including payment of meeting fees, was required for attendees. He further announced that attendance without properly registering is subject to penalties under IEEE 802 rules.

Mr. Lewis then continued review of the presentation, reviewing decorum, goals for the meeting, information for the reflector, private area, and ground rules.

The Chair announced that as this meeting was an electronic Task Force meeting, under 802.3 rules, only working group voters may vote on motions

<u>Attendance</u>
The chair reminded the group that meeting participants can only claim IMAT attendance credit if they attend 75% of a meeting slot's duration, and that officers may remove IMAT attendance if a participant is found to attend less than 75% of a slot's duration. He further reminded the group of the rules for gaining and maintaining voting rights.

The Chair advised the group that attendance would be taken from IMAT, and that zoom attendance would be used to reconcile the attendance, but IMAT was the official record. He then reminded attendees that they should show their employer & affiliation, and how to set these to make them correct.

<u>IEEE Structure, Policies</u>
Mr. Lewis continued review of the IEEE SA structure, where to find the rules, and asked whether anyone in the room or online had not seen the various policy slides this week. There were no responses. He therefore announced that he would show the slides and summarize.

IEEE SA Patent Policy, Mr. Lewis reviewed slides 0 through 4 of the IEEE SA Patent Policy (slides 15 – 19 in the agenda deck), showed and read aloud slides 1 and 2 of the IEEE SA patent policy from the agenda deck, and made the call for patents on the slide labeled "Ways to Inform IEEE" **(1:31 pm)**.

There was no response to the call for patents at **1:31pm**.
He then showed and read aloud slide 3 of the patent policy.

Other IEEE Policies
Mr. Lewis showed and read aloud the slides on the IEEE SA copyright, Participant behavior (ethics), IEEE individual participation, and fair and equitable consideration policies as shown in the agenda deck. (1:36 PM).

 There were no questions.

Mr. Lewis reviewed the standards development process for IEEE and where this Task Force is in the process.

LIAISONS
The chair noted that the Task Force had not received any liaisons.

Other Procedures
The chair announced that the group would review a potential timeline during closing business discussions.
The chair then also announced guidelines for the meeting and use of meeting times. He indicated that as the group was considering baseline text at this stage that he would be more lenient regarding time limits this time to ensure full and complete discussion.

The Chair completed a review of the presentation, showing the order of presentations. He reviewed each page and asked each day whether there were any presenters who wished to adjust the timing of their presentation.

He made some minor adjustments to the order, resulting in the order of presentations shown in agenda_3dm_01_0125.pdf.

PRESENTATIONS

The Chair then moved to the presentations for the meeting.

(1:43PM)
Title: Cable channel IL and RL limits
URL: https://www.ieee802.org/3/dm/public/0125/Zerna_802.3dm_01_250122_IL_RL.pdf
Presenter: Conrad Zerna, Aviva Links Inc.
Discussion: The presenter discussed the process by which the cable harness insertion loss and return loss limits in ASA were derived.
Questions were asked and answered.

(2:27 PM)
Title: IL Proposal an update to RL proposal

URL: https://www.ieee802.org/3/dm/public/0125/boyer_sharma-3dm_02_RevA_01-22-25.pdf
Presenter: Rich Boyer - Aptiv (presenter) and Rohit Sharma – Molex (co-author)
Discussion: The presenter discussed a proposal for insertion loss and previewed a possible proposal for return loss.
Questions were asked and answered.

The chair paused the meeting to record attendance in IMAT and asked whether anyone had problems. There were no responses.
The chair reminded the group that the meeting was structured with time for general discussion and advised the group to focus on clarification during the presentation question period in order to keep to schedule and allow for the planned discussion.

At 3:01PM, the Chair announced that it was time for the afternoon break, to resume at 3:15PM.

(3:15PM)
Title: On the approach for determining return loss limits
URL:https://www.ieee802.org/3/dm/public/0125/ahuja_8023dm_01a_011325_on_the_approach_for_returnloss_limit.pdf
Presenter: Ramanjit Ahuja, Onsemi
Discussion: The presenter
Questions were asked and answered.

The Chair then entertained discussion of the channel presentations. There was discussion of whether the group wished to see more data, resulting in the following straw polls:

(See Appendix B for Straw Poll Roll Calls)
Straw Poll #1
Have we seen sufficient data to make an opinion on IL?
Yes: 29, No: 17

Straw Poll #2
Have we seen sufficient data to make an opinion on RL?
Yes: 21, No: 25

Straw Poll #3
I support coax and STP insertion loss limit lines as shown in
Zerna_802.3dm_01_250122_IL_RL.pdf pages 5-6 labeled _TestSpec.
Yes: 21, No: 30

Straw Poll #4
I support having separate IL limit lines for STP and Coax.
Yes: 32, No: 15

(4:30 PM) The meeting resumed with presentations on proposal updates.

Title: ACT text proposal updates
URL:https://www.ieee802.org/3/dm/public/0125/jonsson_sedarat_lo_3dm_01_01_20_25.pdf
Presenter: Ragnar Jonsson, Marvell (co-authors: Hossein Sedarat, Ethernovia, William Lo, Axonne)
Discussion: The presenter gave an update on proposed draft text describing the ACT proposal.

Questions were asked and answered on the new text.

(4:45PM)
Title: Update on TDD Baseline Proposal for 802.3dm
URL: https://www.ieee802.org/3/dm/public/0125/Chini_3dm_01a_0125.pdf
Presenter: (co-authors: Ahmad Chini, Broadcom, Claude Gauthier, NXP, Frank Wang,
                  Realtek, Kamal Dalmia, Aviva Links, Ramanjit Ahuja, Onsemi, Steve Gorshe,
                  Microchip)
Discussion: The presenter shared an update to the parameters for the TDD proposal.
Questions were asked and answered.

The Chair then entertained general discussion of the proposal overviews and parameters.
There was discussion of common ground between the two proposals, potentially 64B/65B
encoding and use of XGMII. Discussion clarified that both schemes would use an asymmetric
clock on the XGMII.

The following straw polls were offered:
Straw Poll #5
I support adopting 64B/65B encoding for all data rates and for both directions
Yes: 44, No: 2

Straw Poll #6
I support adopting XGMII for all data rates and for both directions determined by the bit rate
Yes: 44, No: 1

The meeting recessed for the day at 5:26PM, to resume at 8:30AM MST 1/23/2025.

The meeting reconvened at 8:30AM MST 1/23/2025.

Presentation: https://www.ieee802.org/3/dm/public/0125/agenda_3dm_01_0125.pdf
Presenter: Jon Lewis, Chair.

Mr. Lewis turned to presentation agenda_3dm_01_0125.pdf and briefly reviewed the agenda for
the meeting. He advised the group of hybrid meeting procedures. He went quickly to review the
IEEE patent policy, individual participation, and copyright policy slides.
Call for Patents
At **8:36 AM** he made the call for patents (slide 2 of the IEEE SA patent policy deck, "Ways to
Inform IEEE"). There were no responses.

He then reviewed the IEEE copyright policy, IEEE codes of ethics and conduct, individual
process, and 'equitable consideration' (anti-dominance) slides, reading and displaying the slide
text.

There were no questions.
…
Following the review of process, presentations resumed in the order announced, with
presentations on the transmitter and front-end:

(8:39AM)

Title: From Concept to Circuit: Designing Effective PoC Filters
URL: https://www.ieee802.org/3/dm/public/0125/Houck_3dm_02_0121_2.pdf
Presenter: TJ Houck, Marvell
Discussion: The presenter gave an overview of parameters in power over coax filter designs and discussed how they applied to the ACT proposal.
Questions were asked and answered.

(9:07 AM)
Title: Update on PSD Mask Proposal for 802.3dm
URL: https://www.ieee802.org/3/dm/public/0125/Chini_3dm_03a_0125.pdf
Presenter: Ahmad Chini & Mehmet Tazebay, Broadcom Corporation
Discussion: The presenter presented a proposal for PSD Mask for all three speeds when considering the IL of the MDI based on the approved MDI RL.
Questions were asked and answered.

The presenter asked for a change of order of presentations before discussion.
(9:23)
Title: A Performance Analysis for TDD-based Physical Layer Transceiver
URL: https://www.ieee802.org/3/dm/public/0125/Chini_3dm_02a_0125.pdf
Presenter: Ahmad Chini & Mehmet Tazebay, Broadcom Corporation
Discussion: The presenter presented analysis of performance using the limit lines from the prior presentation, based on salz analysis.

During the presentation, audio connection for remote users was lost. After some efforts to restore audio, the chair reminded the group that the meeting was in person with remote attendance on a best effort basis, and the meeting would continue in the room with the presentation. During the presentation, audio was restored.

Questions were asked and answered.
During questions, the Chair interrupted the question period for IMAT login and for the morning break.
Break was at 10:06. Questions resumed at 10:20AM.
During questions, the remote audio once again was disrupted, and the chair paused questions while audio was reconfigured.

The chair then entertained discussion on the Transmitter and Front-End presentations. The chair noted that the "Simulation & Analysis" presentation would be discussed with the next group of presentations dealing with Performance Analysis, and that discussion here was on the first two – (PoC filters, and PSD mask).

(10:55 AM) Following discussion presentations of the "Simulation & Analysis" Group resumed.

Title: Upstream Receiver
URL: https://www.ieee802.org/3/dm/public/0125/Lo_3dm_02a_0125.pdf
Presenter: William Lo, Axonne
Discussion: The presenter discussed the relative complexity of ACT and TDD receivers, and then discussed simulated performance and a trial layout size of a receiver for the low data rate direction of ACT.
Questions were asked and answered

During the question period, the presenter mentioned contributors within his affiliation, and the chair asked him to provide a revised presentation with a contributor slide listing the contributors. The chair additionally admonished a participant, and the group as a whole, that the question period was for questions of clarification, and that there would be time for general discussion.

(11:27 AM)
Title: Exploring Receiver Tradeoffs: 100Mbps and 3Gbps Implementations
URL: https://www.ieee802.org/3/dm/public/0125/Houck_3dm_01_0121_2.pdf
Presenter: TJ Houck, Marvell
Discussion: The presenter discussed relative complexity of 100 Mbps receivers such as those needed for ACT and 3 Gbps receivers such as those needed for the TDD proposals.
Questions were asked and answered.

(11:48 PM) Following questions, the chair broke for lunch.
(1:16 PM) The meeting resumed following lunch with presentations.

Title: On Upstream Receiver Design and Performance for ACT Modulation
URL:
https://www.ieee802.org/3/dm/public/0125/ahuja_8023dm_01a_011325_on_upstream_receiver_design_and_performance_ACT.pdf
Presenter: Ramanjit Ahuja, Onsemi
Discussion: The presenter discussed simulation results for a model of a low data rate receiver in conjunction with a model of echo.
Questions were asked and answered.

(2:00PM)
Title: LDR Receiver in ACT: Equalization and Echo Cancellation
URL: https://www.ieee802.org/3/dm/public/0125/sedarat_3dm_202501.pdf
Presenter: Hossein Sedarat, Ethernovia
Discussion: The presenter discussed simulations of a low data rate receiver for ACT including echo responses.
Questions were asked and answered.

(2:41PM)
Title: simDM simulation results for ACT and TDD
URL: https://www.ieee802.org/3/dm/public/0125/jonsson_3dm_01a_01_20_25.pdf
Presenter: Ragnar Jonsson - Marvell
Discussion: The presenter discussed simulations of ACT and example TDD links on multiple cables using echo models and channel models including secondary reflections.
Questions were asked and answered.

(3:18PM) Following the question-and-answer session for the presentation, the chair announced the start of the afternoon break, and the Task Force recessed for the break.

(3:36PM) The meeting resumed with discussion on the simulation and analysis presentations. Mr. Lewis left the meeting and turned the meeting over to Vice Chair, Natalie Wienckowski.

Ms. Wienckowski (the chair) then entertained open discussion on the sets of simulation results and analysis presented. Discussion proceeded regarding simulations. Points raised included several participants mentioning the need for the Task Force to generate noise modeling environments.

Mr. Lewis resumed running the meeting. Several participants noted areas of consensus, and the following straw polls were taken:

Straw Poll #7
Do you have sufficient information concerning PAM 4 for the high-speed direction.
Y:39 N:8

Straw Poll #8
I support PAM4 modulation for 10G high-speed direction
Y:39 N:9

(4:11PM) Following the discussion and straw polls, presentations then proceeded, moving on to the "Sync, Startup, and Training" Topic.

Title: Refresh Sequence / Resync Header Proposal
URL: https://www.ieee802.org/3/dm/public/0125/Zerna_802.3dm_02_250122_Refresh_Resync.pdf
Presenter: Conrad Zerna, Aviva Links Inc.
Discussion: The presenter discussed a synchronization header for TDD frames.
Questions were asked and answered.

(4:32PM)
Title: ACT Training Sequence Proposal
URL: https://www.ieee802.org/3/dm/public/0125/Lo_3dm_01_0125.pdf
Presenter: William Lo (Axonne Inc)
Discussion: The presenter discussed a training proposal, training frames, and capability exchange for the ACT proposal.
Questions were asked and answered.

(4:46PM)
Title: ACT startup sequence
URL: https://www.ieee802.org/3/dm/public/0125/jonsson_3dm_02_01_20_25.pdf
Presenter: Ragnar Jonsson – Marvell
Discussion: The presenter discussed his views on the startup sequence for ACT, including some questions for discussion in the group.
Questions were asked and answered.

(5:00PM)
Title: Link sync proposal
URL: https://www.ieee802.org/3/dm/public/0125/Zherebtsov_razavi_Ragnar_3dm_01_Jan_2025.pdf
Presenter: Alireza Razavi – Marvell; co-authors: Aleksei Zherebtsov & Ragnar Jonsson – Marvell
Discussion: The presenter discussed challenges for link synchronization in crystal-less systems (systems with high initial clock frequency offset), and a potential solution.
Questions were asked and answered.

At **5:22PM**, the Chair announced that all the submitted presentations had been heard.

The chair reminded the group that if they wished to submit motions or straw polls for the next day, that they should send them to him.

At 5:27 PM the chair recessed for the evening until 8:34AM MST 1/24/2025.

Presentation: https://www.ieee802.org/3/dm/public/0125/agenda_3dm_01_0125.pdf
Presenter: Jon Lewis, Chair.

Mr. Lewis turned to presentation agenda_3dm_01_0125.pdf and briefly reviewed the agenda for the meeting. He advised the group of hybrid meeting procedures. He went quickly to review the IEEE patent policy, individual participation, and copyright policy slides.
Call for Patents
At **8:38 AM** he made the call for patents (slide 2 of the IEEE SA patent policy deck, "Ways to Inform IEEE"). There were no responses.

He then reviewed the IEEE copyright policy, IEEE codes of ethics and conduct, individual process, and 'equitable consideration' (anti-dominance) slides, reading and displaying the slide text.

There were no questions.

Following the review of process the chair proceeded to motions and straw polls:

STRAW POLLS AND MOTIONS (See appendices for roll call votes)

Motion #3

Move to adopt XGMII (IEEE Std 802.3 Clause 46) for all data rates and for both directions with clocks determined by direction's bit rate
M: Mehmet Tazebay
S: Max Turner
(Technical >= 75%)
802.3 voters only
Y: 44   N: 0   A: 4
MOTION PASSES WITHOUT OBJECTION.

Motion #4

Move to adopt 64B/65B encoding of the XGMII input to the PHY for both directions and all data rates.
M: Mehmet Tazebay
S: Ragnar Jonsson
(Technical >=75%)
802.3 voters only
MOTION PASSES WITHOUT OBJECTION.

At this point, the chair entertained discussion on some text to implement Motion #3, and reviewed the following presentation
Title: Text to Adopt XGMII
URL: https://www.ieee802.org/3/dm/public/0125/zimmerman_text_to_adopt_xgmii_0125a.pdf
Presenter: George Zimmerman, CME Consulting/ADI, APL Group, Cisco, Marvell, OnSemi, Sony, SenTekSe

The presenter discussed the text, during the discussion the text was amended to create a "b" version of the file, and the following motion was offered:

Motion #5

Adopt the text shown on slide 3 of zimmerman_text_to_adopt_xgmii_0125b.pdf
M: M. Tazebay
S: G. Zimmerman
MOTION PASSES WITHOUT OBJECTION.

The chair reminded the group to sign into IMAT and asked whether there were any problems.

The following straw poll was offered:
Straw Poll #9
I support adding the following objective.
The resulting standard will not preclude crystal-less operation of the high-data rate transmitter.

Y: 27
N: 24
Poll count: 69 (72 minus 3 (2 hosts and room computer))

At **9:55AM**, the Chair then announced a break for 30 minutes
10:26AM – The chair called the meeting back to order, and hearing motions and straw polls resumed.

Motion #6
Move to adopt PAM4 modulation for the 10G transmitter
M: Hossein Sedarat
S: Mehmet Tazebay
Technical (>=75%)
802.3 voters only
During discussion, several participants noted that the motion was only for the 10Gb/s data rate (in the high data rate direction).
MOTION PASSES WITHOUT OBJECTION.

At this point, the chair entertained discussion on some text to implement Motion #6, and reviewed the following presentation
Title: Proposed Text for PAM4 Encoding in 10Gb/s
URL: https://www.ieee802.org/3/dm/public/0125/MotionPam4For10G.pdf
Presenter: Hossein Sedarat, Ethernovia
The presenter discussed the text proposed.
Questions were asked and answered.

Motion #7
Adopt the text shown on slide 3 of MotionPam4For10G for clause 200.4.2.2.17
M: H. Sedarat
S: TJ Houck
Technical (>=75%)
802.3 voters only
MOTION PASSES WITHOUT OBJECTION.

(10:48 AM)

The following straw poll was offered:
Straw Poll #10
I support including impedance information (either as requirements or recommendations) for Power over Coax and Power over Data Line filtering in the 802.3dm draft.
Y:30
N:20
(participant count is 64)

At 11:06AM there were no further motions offered, and the chair turned towards the editor's report.

Editor's Report
Title: IEEE P802.3dm Draft 0.2
URL: https://www.ieee802.org/3/dm/public/0125/zimmerman_text_to_adopt_xgmii_0125a.pdf
Presenter: Natalie Wienckowski, IVN Solutions/ Ethernovia (Chief Editor)
The chief editor reviewed the current content in draft 0.2, incorporating decisions from the prior meeting, and highlighting things that need to be filled out.

Timeline
The chair then entertained discussion of the timeline for the project. The vice-chair and editor discussed the timeline, as detailed in the agenda deck.

FUTURE MEETINGS
Mr. Lewis reviewed future meetings and announced the next scheduled meeting would be March 10-14 at the IEEE 802 plenary in Atlanta, GA USA. The meeting would be a one-day meeting on Monday afternoon (Mar 10) and Tuesday morning (Mar 11).

The chair then suggested chartering a general purpose ad hoc prior to the March plenary meeting, and entertained discussion.

Following discussion, the chair announced that he would charter a general purpose ad hoc, and appoint Jason Sisk as chair of the ad hoc, and will work with the chair POPI Study Group to determine the date(s) of the ad hoc.

The Chair indicated that the agenda had been exhausted.

Mr. Lewis adjourned the meeting at **11:31AM MST.**

Appendix A: Attendees at the IEEE P802.3dm Asymmetrical Electrical Automotive Ethernet Task Force Meeting, January 22-24, 2025

Name	Employer	Affiliation	Wed IMAT	Wed zoom	Thurs IMAT	Thurs zoom	Fri IMAT	Fri zoom
Agarwal, Uttam	Texas Instruments Inc.	Texas Instruments Inc.	2	X	4	X	2	X
Ahuja, Ramanjit	ON Semiconductor	ON Semiconductor	2	X	4	X	2	X
Baggett, Tim	Microchip Technology, Inc.	Microchip Technology, Inc.	1	X				
Bar-Niv, Amir	Aquantia Corp	Marvell	2	X	4	X	2	X
Beauregard, Francois	Belden Canada ULC	Belden	1	X				
Benyamin, Saied	Ethernovia	Ethernovia	2	X	4	X	2	X
Boyer, Rich	Aptiv - Signal and Power Solutions	Aptiv Signal and Power Solutions	2	X	4	X	2	X
Brillhart, Theodore	Fluke Corporation	Fluke Corporation	1					
Brychta, Michal	Analog Devices Inc.	Analog Devices Inc.	2	X	1	X		
Chini, Ahmad	Broadcom Corporation	Broadcom Corporation	2	X	4	X	2	X
Cordaro, Jay		Analog Devices Inc.	2	X	4	X	2	X
Dalmia, Kamal	Aviva Links Inc	Aviva Links Inc	2	X	3	X	2	X
de Koos, Andras	Microchip Technology Inc	Microchip Technology Inc	2	X	3	X	2	X
Fellhauer, Felix	Robert Bosch GmbH	Robert Bosch GmbH	2	X	4	X	2	X
Fuller, Paul		Marvell	1	X		X	2	X
Ganesan, Aravind	Texas Instruments Inc.	Texas Instruments Inc.	2	X	4	X	2	X
Gauthier, Claude	NXP Semiconductors	NXP Semiconductors		X	4	X	2	X
Goel, Sachin	Aviva Links Inc	Aviva Links Inc	2	X	4	X	2	X
Gopal, Amrit	Ford Motor Company	Ford Motor Company	2	X	4	X	1	X
Gorshe, Steven Scott	Microchip Technology, Inc.	Microchip Technology, Inc.	2	X	4	X	2	X
Graba, James	Broadcom Corporation	Broadcom Corporation	2	X	4	X	2	X
Graber, Steffen	Pepperl+Fuchs SE	Pepperl+Fuchs SE	1	X	2	X		
Gupta, Ajeya		General Motors Company	2	X	4	X	2	X
Hogenmueller, Thomas	Robert Bosch GmbH	Robert Bosch GmbH	2	X	2	X	2	X
Houck, TJ	Marvell Semiconductor, Inc.	Marvell	2	X	4	X	2	X
Hu, Mark		Aptiv	1	X	2	X	1	X

Name	Employer	Affiliation	Wed IMAT	Wed zoom	Thurs IMAT	Thurs zoom	Fri IMAT	Fri zoom
HYAKUTAKE, YASUHIRO	Orbray Co., Ltd.	Orbray Co., Ltd.	2	X	3	X	2	X
Jones, Chad	Cisco Systems, Inc.	Cisco Systems, Inc.	2	X	2		2	X
Jones, Peter	Cisco Systems, Inc.	Cisco Systems, Inc.	2	X	2	X		
Jonsson, Ragnar	Marvell Semiconductor, Inc.	Marvell	2	X	4	X	2	X
Kagami, Manabu	Nagoya Institute of Technology	Nagoya Institute of Technology (NITech)	2	X	3	X	2	X
Kapoor, Samay	Aviva Links	Aviva Links Inc.	2	X	4	X	2	X
Kikuta, Tomohiro	Orbray Co., Ltd.	Orbray Co., Ltd.	2	X	4	X	2	X
Kim, Yongbum	Tenstorrent	General Motors Company	2	X	3	X	2	X
Kleinwaechter, Mathias	in-tech GmbH	in-tech GmbH			4	X	2	X
Kock, Joerg	NXP Semiconductors	NXP Semiconductors	2	X	4	X	2	X
Kotani, Yasuhiro	DENSO	DENSO	2	X	4	X	2	X
Lackner, Hans	QoSCom GmbH	QoSCom GmbH	2	X	1	X	2	X
Lasry, Ariel	Qualcomm Technologies, Inc	Qualcomm Technologies, Inc	2	X	4	X	2	X
Law, David	Hewlett Packard Enterprise	Hewlett Packard Enterprise			1		2	X
Lewis, Jon	Dell Technologies	Dell Technologies	2	X	4	X	2	X
Lo, William	Axonne Inc.	Axonne Inc.	2	X	4	X	2	X
Lou, Wei		Broadcom Corporation	2	X	4	X		X
Maguire, Valerie	Copperopolis	Copperopolis, affiliated with CME Consulting and Cisco			2	X	2	X
Mark, Simon	Wurth Electronik Group	Wurth Electronik Group	2	X	4	X	2	X
Mash, Chris	Nupero Ltd	Ethernovia Inc	2	X	3	X	1	X
Matheus, Kirsten	BMW Group	BMW Group	2	X			2	X
McClellan, Brett	Marvell Semiconductor, Inc.	Marvell Semiconductor, Inc.	2	X	4	X	2	X
Murray, Brian	Analog Devices Inc.	Analog Devices Inc.	2	X	4	X		
Ng, Hiok Tiaq	Aviva Links Inc.	Aviva Links Inc; Aviva Links Inc.	2	X	4	X	2	X
Oberg, Mats	Marvell Semiconductor, Inc.	Marvell	2	X	4	X	2	X
Oishi, Eiichiro		Yazaki Corporation	2	X	4	X		
Pal, Debajyoti		ON Semiconductor	1	X	4	X		X

Name	Employer	Affiliation	Wed IMAT	Wed zoom	Thurs IMAT	Thurs zoom	Fri IMAT	Fri zoom
Pineda, Luis	LP Tech Advisors, LLC	LP Tech Advisors, LLC; 7Rays; Ethernovia; Samsung	2	X	4	X	2	X
Pischl, Neven	Broadcom Corporation	Broadcom Corporation	2	X	4	X	2	X
Razavi, Alireza	Marvell	Marvell	2	X	4	X	2	X
Royer, Tyler	SENKO Advanced Components	Senko Advanced Components					2	X
Schreiner, Stephan	Rosenberger Hochfrequenztechnik GmbH & Co. KG	Rosenberger	2	X				
Sedarat, Hossein	Ethernovia	Ethernovia		X	4	X	2	X
Sharma, Rohit		Molex Incorporated	2	X	4	X	2	X
Shirani, Ramin	Ethernovia	Aquantia	2	X	4	X	2	X
Sisk, Jason	University of New Hampshire InterOperability Laboratory (UNH-IOL)	University of New Hampshire InterOperability Laboratory (UNH-IOL)	2	X	4	X	2	X
Stencel, Leonard		TDK Corporation of America	2	X	4	X	2	X
Stewart, Heath	Analog Devices Inc.	Analog Devices Inc.	1	X	1	X		
Sun, jingcong		Motorcomm Electronic Technology Co	2	X	4	X	2	X
Tan, Yuxuan	Motorcomm	Motorcomm	2	X	4	X	2	X
Tanc, Ahmet		NXP Semiconductors; NXP Semiconductors	2	X	3	X	2	X
TAZEBAY, MEHMET	Broadcom Corporation	Broadcom Corporation	2	X	4	X	2	X
Thompson, Geoffrey	GraCaSI S.A.	INDEPENDENT	2	X	2	X	2	X
Torres, Luisma	Knowledge Development for Plastic Optical Fiber	Knowledge Development for Plastic Optical Fiber	2	X	4	X	2	X
Tu, Mike	Broadcom Corporation	Broadcom Corporation	2	X	4	X	2	X
Turner, Max	Ethernovia	Ethernovia	2	X	4	X	2	X
Veloso Cauce, Gumersindo	BMW Group	BMW AG; BMW Group	2	X	2	X	2	X
Voss, Robert	Panduit Corp.	Panduit Corp.	2	X	2			

Name	Employer	Affiliation	Wed IMAT	Wed zoom	Thurs IMAT	Thurs zoom	Fri IMAT	Fri zoom
Wang, Shun-Sheng	Realtek Semiconductor Corp.	Realtek Semiconductor Corp.	2	X	4		2	X
Watanabe, Yuji	AGC Inc.	AGC	2	X	4	X	2	X
Wienckowski, Natalie	IVN Solutions LLC	IVN Solutions LLC; Ethernovia	2	X	4	X	2	X
Wu, Dance	Marvell Semiconductor, Inc.	Marvell Semiconductor, Inc.	2		3	X	2	X
Wu, Peter	Marvell Semiconductor, Inc.	Marvell Semiconductor, Inc.	2	X	4	X	2	X
Zerna, Conrad	Aviva Links Inc	Aviva Links Inc	2	X	4	X	1	X
Zhang, Tingting	Huawei Technologies Co., Ltd	Huawei Technologies Co., Ltd	1	X	1	X		X
Zhuang, Yan	Huawei Technologies Co., Ltd	Huawei Technologies Co., Ltd	2	X	1	X		
Zimmerman, George	CME Consulting, Inc.	CME Consulting/Analog Devices, APL Group, Cisco, Marvell, OnSemi, SenTekSe LLC, Sony	2	X	4	X	2	X

ZOOM PARTICIPATION ONLY – NO IMAT RECORD

Name	Employer	Affiliation	Mon IMAT	Mon zoom	Tues IMAT	Tues zoom	Wed IMAT	Wed zoom
Castro, Jose		Panduit		X				
Haasz, Jodi		IEEE SA		X		X		X
Malicoat, David		Independent/Senko		X				X
Paul, Michael		Analog Devices		X				
Swenson, Norman						X		
Tang, Randi						X		

Last	First	Affiliation	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Agarwal	Uttam	Texas Instruments Inc.	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ahuja	Ramanjit	Onsemi	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Bar-Niv	Amir	Marvell	No	No	No	No	Yes		Yes	Yes	No	Yes
Benyamin	Saied	Ethernovia		No	No	No	Yes			Yes	Yes	Yes
Boyer	Rich	Aptiv	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Brychta	Michal	Analog Devices Inc.					Yes					
Chini	Ahmad	Broadcom	Yes	Yes	Yes	Yes	Yes	Yes			No	No
Cordaro	Jay	Analog Devices Inc.	Yes	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Dalmia	Kamal	Aviva Links	Yes	Yes		Yes	Yes	Yes	No	No	No	No
de Koos	Andras	Microchip Technology Inc	Yes	Yes	Yes			No	Yes	Yes	Yes	Yes
Fellhauer	Felix	Bosch	No	No	No	Yes	Yes		Yes	Yes	Yes	
Fuller	Paul	Marvell	Yes		Yes	No	Yes				Yes	Yes
Ganesan	Aravind	Texas Instruments Inc.	No	No	No	No	Yes	Yes	Yes	Yes	Yes	
Gauthier	Claude	NXP		Yes	Yes	Yes	Yes	Yes		No	No	No
Goel	Sachin	Aviva Links	Yes	Yes	Yes	Yes		Yes		Yes	No	No
Gopal	Amrit	Ford Motor Company	No	No	No	Yes			Yes	Yes		
Gorshe	Steve	Microchip	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Graba	James	Broadcom Corporation	Yes		Yes	Yes		Yes	No	No	No	No
Graber	Steffen	Pepperl+Fuchs SE					Yes					
Gupta	Ajeya	General Motors	No	No	No	Yes		Yes	Yes	Yes	Yes	
Hogenmueller	Thomas	Robert Bosch										Yes
Houck	TJ	Marvell	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Hyakutake	Yasuhiro	Orbray Co., Ltd.	Yes	Yes	Yes	Yes	No	Yes				
Jones	Chad	Cisco Systems, Inc.									Yes	Yes
Jonsson	Ragnar	Marvell	No	No	No	No	Yes	Yes	Yes	Yes	No	Yes
Kagami	Manabu	NITech		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kapoor	Samay	Aviva Links		Yes	Yes	Yes	Yes	Yes	Yes		No	No
Kikuta	Tomohiro	Orbray Co., Ltd.	Yes							Yes		No
Kim	Yong	General Motors	No	No	No	No	Yes	Yes	Yes	Yes	Yes	
Kleinwaechter	Mathias	In-Tech GmbH							No		No	No
Kock	Jörg	NXP Semiconductors		No	Yes	Yes	Yes	Yes	Yes		No	Yes
Koeppendoerfer	Erwin	Leoni Kabel GmbH										
Kotani	Yasuhiro	Denso							Yes	No	No	No
Lackner	Hans	QoSCom			Yes	Yes	Yes	Yes			No	
Lasry	Ariel	Qualcomm	Yes	Yes	No		Yes	Yes	Yes	Yes	Yes	Yes
Law	David	Hewlett Packard Enterprise									No	
Lo	William	Axonne	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lou	Wei	Broadcom	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No

Last	First	Affiliation	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Mark	Simon	Wurth Electronik Group	Yes	Yes	Yes				Yes	Yes		Yes
Mash	Chris	Ethernovia									Yes	
Matheus	Kirsten	BMW	Yes	Yes	Yes	Yes	Yes	Yes			No	No
McClellan	Brett	Marvell	No		No			Yes	Yes	Yes	Yes	Yes
Murray	Brian	Analog Devices Inc.	No	No	No	Yes	Yes	Yes	Yes	Yes		
Ng	Hiok Tiaq	Aviva Links	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
Oberg	Mats	Marvell				No	No	Yes		Yes	Yes	Yes
Pal	Debajyoti	ON Semiconductor					Yes					
Pineda	Luis	LP Tech Advisors, LLC (Samsung; 7Rays; Ethernovia)			No	No	Yes	Yes	Yes	Yes		Yes
Pischl	Neven	Broadcom	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
Razavi	Alireza	Marvell	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sedarat	Hossein	Ethernovia	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Sharma	Rohit	Molex LLC	Yes	Yes	No	No	Yes	Yes	Yes	Yes		
Shirani	Ramin	Ethernovia	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Sisk	Jason	UNH-IOL	No	No	No	Yes					Yes	Yes
Stencel	Len	TDK		No	No	No					Yes	No
Stewart	Heath	Analog Devices Inc.						Yes				
Sun	Jingcong	Motorcomm		No	No		Yes	Yes	Yes	Yes	Yes	Yes
Tan	Sisi	Huawei Technologies Co., Ltd.				No						
Tan	Yuxuan	Motorcomm	No	No			Yes	Yes		Yes		
Tanc	Korhan	NXP							Yes	Yes		Yes
Tazebay	Mehmet	Broadcom	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
Thompson	Geoff	GraCaSI S.A. - Independent							Yes		No	
Torres	Luisma	KD	No	No	No	Yes	Yes	Yes			No	Yes
Tu	Mike	Broadcom	Yes			Yes	Yes	Yes		Yes		No
Turner	Max	Ethernovia	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Vanderlaan	Paul	UL Solutions										
Veloso	Gumersindo	BMW							Yes		No	No
Voss	Robert	Panduit Corp.	No	No	No							
Wang	Frank S.-S. (Shun-Sheng)	Realtek	Yes		Yes	Yes	Yes	Yes	Yes	Yes	No	
Watanabe	Yuji	AGC	No	No		Yes		Yes	Yes	Yes	Yes	Yes
Wu	Dance	Marvell							No	No		No
Wu	Peter	Marvell	Yes	No	No		Yes	Yes	Yes	Yes		Yes
Zerna	Conrad	Aviva Links	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Zimmerman	George	CME Cnsltg /various	Yes	No	Yes		Yes		Yes	Yes	Yes	Yes

Last	First	Affiliation	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Total responses			46	46	51	47	46	45	47	48	51	50
Total yes			29	21	21	32	44	44	39	39	27	30
Total no			17	25	30	15	2	1	8	9	24	20