

# IEEE P802.3df 400 Gb/s and 800 Gb/s Ethernet Task Force

Approved Meeting Minutes, prepared by John D'Ambrosia, Mark Nowell, and Kent Lusted

## Tuesday, 26 September 2023

September 2023 electronic meeting session

IEEE P802.3df Task Force September 2023 Meeting Task Force Page -  
[https://www.ieee802.org/3/df/public/23\\_0926/index.html](https://www.ieee802.org/3/df/public/23_0926/index.html)

Meeting called to order at 9:00 am Eastern time (all times eastern)

Meeting called to order by John D'Ambrosia, IEEE P802.3df Task Force Chair.

Mark Nowell, Vice-Chair, reminded participants to declare their affiliation in the online meeting tool. Failure to do so will result in expulsion from the meeting.

| Presentation #1 | Agenda and General Information  |
|-----------------|---|
| Presenters      | John D'Ambrosia   |
| URL             | <a href="https://www.ieee802.org/3/df/public/23_0926/agenda_3df_a_230926.pdf">https://www.ieee802.org/3/df/public/23_0926/agenda_3df_a_230926.pdf</a> |

Chair welcomed everyone to the meeting.

Chair noted that Task Force meeting attendance would be through the IEEE Meeting Attendance Tool (IMAT). Neither the TF Recording Secretary or the WG Recording Secretary would update attendance after the meeting ends.

Chair reviewed the agenda (Slide #2). Chair noted that individuals should check the webpage for the latest version of each presentation. Chair noted that all of the presentation times were subject to change.

Chair asked if there were any objections to the agenda. There were none. The agenda was considered approved by unanimous consent.

Chair reviewed meeting decorum. (See Slide #3) Chair asked if there were any members of the press present. No one responded.

Chair reviewed attendance. (See Slide #4) Chair noted that Task Force meeting attendance would be through the IEEE Meeting Attendance (IMAT).

Chair reviewed the Task Force Project Information / Organization. (See Slide #5).

Chair reviewed ground rules. (See Slide #7)

Chair reviewed the current state of the Task Force. (See Slide #8.)

Chair reviewed voting in the task force. (See Slide #9) Chair noted that the straw polls would use the online Zoom tool. Motions would be taken with the Direct Vote Live tool if there was not unanimous consent.

Slide #10 - Chair noted that the information regarding the IEEE SA Policies had been sent out via the Task Force reflector , and requested that individuals review the following IEEE SA policies prior to the interim meeting –

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

Chair asked if anyone needed to review the policies at that time – there were no requests.

Chair presented the third slide (See Slide #28) 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 #33) 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 reminded participants of the IEEE Code of Ethics and Conduct. (see slide #36)

Chair presented the second slide (See Slide #37) 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.”

**Presentation #2:**

|            |   |
|------------|---|
| Title      | <b>Chief Editors Report</b>   |
| Presenters | Matt Brown  |
| URL        | <a href="https://www.ieee802.org/3/df/public/23_09/brown_3df_02a_2309.pdf">https://www.ieee802.org/3/df/public/23_09/brown_3df_02a_2309.pdf</a> |

The Chief Editor thanked the editors listed on slide 2.

Questions of clarification were addressed.

Matt Brown reviewed the approach to comment resolution on slide 7 of the Chief Editor's report. (see: [https://www.ieee802.org/3/df/public/23\\_09/brown\\_3df\\_02a\\_2309.pdf](https://www.ieee802.org/3/df/public/23_09/brown_3df_02a_2309.pdf) ) Chair asked if there was opposition to the approach. No one responded.

Reminded participants to declare their affiliation in the online meeting tool. Failure to do so will result in expulsion from the meeting.

**Presentation #3:**

|            |   |
|------------|---|
| Title      | <b>Comment Resolution Agenda</b>  |
| Presenters | Matt Brown  |
| URL        | <a href="https://www.ieee802.org/3/df/public/23_0926/brown_3df_02_230926.pdf">https://www.ieee802.org/3/df/public/23_0926/brown_3df_02_230926.pdf</a> |

Chief Editor noted that the comment order was subject to change.

Chief Editor noted that the comment agenda and comment resolution input contributions might be updated each day to reflect the progress made.

Chair noted that he received a late presentation on the topic of "addressing delay values". He asked if there was an objection to hearing them. No one responded.

Chair noted that there were a few pending late presentations. He asked if there would be any objection from the Task Force to consider late presentations for the 26-28 September comment resolution series. No one responded. Chair noted that he would

Comment resolution began with Matt Brown running comment resolution.

Prior to the start of presentation #4, the author noted there was an updated version '01a' with editorial changes. He would provide it for posting to the website.

The presentation #4 was heard during the resolution of comments #I-45, I-89, I-91, I-92, I-137.

**Presentation #4:**

|       |                                |
|-------|--------------------------------|
| Title | <b>Addressing Delay Values</b> |
|-------|--------------------------------|

|            |   |
|------------|---|
| Presenters | Matt Brown  |
| URL        | <a href="https://www.ieee802.org/3/df/public/23_0926/brown_3df_01a_230926.pdf">https://www.ieee802.org/3/df/public/23_0926/brown_3df_01a_230926.pdf</a> |

There was a request for test data on the PMA and PMD delay of an 8-lane 800GbE module. Chair asked participants to consider bringing the information forward and reminded them of the proposed TF schedule.

Adam Healey noted that there was a potential problem with the corrected sub-clause on comment #I-92. Chief Editor asked if there was objection to reopening comment #I-92 to add a note with the corrected sub-clause. No one responded. The comment was opened, corrected, and closed again.

**Comment Resolution Input from Editorial Team**

See: [https://www.ieee802.org/3/df/public/23\\_0926/brown\\_3df\\_03\\_230926.pdf](https://www.ieee802.org/3/df/public/23_0926/brown_3df_03_230926.pdf)

Editorial team noted that the document would be referenced throughout comment resolution and may be updated based on discussion.

There was a request to move comment #98 ahead on the comment resolution agenda due to commenter availability. There was no opposition.

Chair reminded participants to sign into IMAT for Task Force attendance credit.

Break at 10:51 a.m. Resumed at 10:56 a.m.

Chair reminded participants to sign into IMAT for Task Force attendance credit.

The presentation #5 was heard during the resolution of comment #I-15.

**Presentation #5:**

|            |   |
|------------|---|
| Title      | <b>Supporting presentation to comment #I-15 to D3.0 of P802.3df</b>   |
| Presenters | Peter Stassar   |
| URL        | <a href="https://www.ieee802.org/3/df/public/23_0926/stassar_3df_01a_230926.pdf">https://www.ieee802.org/3/df/public/23_0926/stassar_3df_01a_230926.pdf</a> |

Author noted an error on slide 6 and 7 with the proposed modification and would provide an updated version '01a'

The presentation #6 was heard during the resolution of comment #I-82, #I-83, and I-95.

**Presentation #6:**

|            |   |
|------------|---|
| Title      | <b>Historical perspective on optical power levels in Cl. 124, related to comments #82, #83 and #95, draft 3.0 of P802.3df</b>                             |
| Presenters | Peter Stassar   |
| URL        | <a href="https://www.ieee802.org/3/df/public/23_0926/stassar_3df_02_230926.pdf">https://www.ieee802.org/3/df/public/23_0926/stassar_3df_02_230926.pdf</a> |

Questions were asked and answered.

The presentation #7 was heard during the resolution of comment #I-82, #I-83, and I-95.

**Presentation #7:**

|            |   |
|------------|---|
| Title      | <b>400GBASE-DR4-2 compliance to 400GBASE-DR4 and interoperability</b>   |
| Presenters | Piers Dawe  |
| URL        | <a href="https://www.ieee802.org/3/df/public/23_0926/dawe_3df_02_230926.pdf">https://www.ieee802.org/3/df/public/23_0926/dawe_3df_02_230926.pdf</a> |

Questions were asked and answered.

**Straw Poll #1:**

Type: Directional

Topic: Optical Power Levels

(see comment #95 in the comment reports)

**Straw Poll #2:**

Type: Decision

Topic: Optical Power Levels

(see comment #95 in the comment reports)

Chair reminded participants to sign into IMAT for Task Force attendance credit.

Chair asked participants that had requested presentations but not submitted them to send them or an update as soon as possible.

Meeting recessed for the day at 1:02 p.m.

**Wednesday, 27 September 2023**

Meeting reconvened at 9:00 a.m. eastern time zone.

Chair made opening comments and reviewed the plans for the day. (see: [https://www.ieee802.org/3/df/public/23\\_0926/agenda\\_3df\\_a\\_230926.pdf](https://www.ieee802.org/3/df/public/23_0926/agenda_3df_a_230926.pdf) )

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

Chair reminded participants to sign into IMAT for Task Force attendance credit. Kent Lusted noted that attendance would not be granted after the meeting.

Chair received a late contribution from Gary Nicholl on the “FEC degrade signaling” topic. The file was already posted to the webpage. (see: ) The participants had already agreed to

Chair noted the announcement of the 3cw/3df/3dj TF meetings at the November Plenary. The amount of time spent on 3df at the November meeting would be dependent on the comments received against D3.1. The agenda would be announced over the email reflector.

Comment resolution resumed with Matt Brown running comment resolution.

A participant noted that there was a potential problem with the response on closed comment #I-12. There was concern with alignment to the base standard. Chief Editor asked if there was objection to reopening comment #I-12 to change the response. No one responded. The comment was opened, changed, and closed again.

A participant noted that there was a potential problem with the response on closed comment #I-95. There was a need to correct the average receiver power. Chief Editor asked if there was objection to reopening comment #I-95 to change the response. No one responded. The comment was opened, changed, and closed again.

**Straw Poll #3:**

Type: Decision

Topic: Note on extinction ratio

(see comment #83 in the comment reports)

The presentation #8 was heard during the resolution of comment #I-3, I-102, I-105, I-106.

**Presentation #8:**

|            |   |
|------------|---|
| Title      | <b>FEC degrade signaling using service interface</b>  |
| Presenters | Gary Nicholl  |
| URL        | <a href="https://www.ieee802.org/3/df/public/23_0926/nicholl_3df_01_230926.pdf">https://www.ieee802.org/3/df/public/23_0926/nicholl_3df_01_230926.pdf</a> |

Reminded participants to declare their affiliation in the online meeting tool. Failure to do so will result in expulsion from the meeting.

Break at 10:59 a.m. Resumed at 11:05 a.m.

Participants notified the chair that the IMAT website was non-functional. Chair and Recording Secretary would investigate and report.

Chair provided an update with IMAT access. Due to IMAT issues, the Chair asked participants to email him and the Recording Secretary for attendance credit during the call. The Recording Secretary provided the contact email information into the online meeting tool chat window. Emails received after the meeting ended would not be accepted.

Chair noted that the IMAT tool was functional again. Participants were asked to register their attendance in IMAT (even if they sent an email as noted earlier) in order to reduce the leadership workload. Chair reminded participants to sign into IMAT for Task Force attendance credit.

**Presentation #8:**

|            |   |
|------------|---|
| Title      | <b>Codeword Examples – in support of Comment #107 on 802.3df D3.0</b>   |
| Presenters | Piers Dawe  |
| URL        | <a href="https://www.ieee802.org/3/df/public/23_0926/dawe_3df_04_230926.pdf">https://www.ieee802.org/3/df/public/23_0926/dawe_3df_04_230926.pdf</a> |

**Comment Resolution Input from Editorial Team**

See: [https://www.ieee802.org/3/df/public/23\\_0926/brown\\_3df\\_03\\_230926.pdf](https://www.ieee802.org/3/df/public/23_0926/brown_3df_03_230926.pdf)

Editorial team noted that the document would be referenced throughout comment resolution and may be updated based on discussion.

Chair noted that the IMAT tool was functional again. Participants were asked to register their attendance in IMAT (even if they sent an email as noted earlier) in order to reduce the leadership workload. Chair reminded participants to sign into IMAT for Task Force attendance credit.

Chief Editor noted that there were approximately 24 comments remaining to address.

Chair noted that the meeting on Thursday would continue until comment resolution and closing business was completed. He targeted 1:00 p.m. completion.

Chair noted that the IMAT tool was functional again. Participants were asked to register their attendance in IMAT (even if they sent an email as noted earlier) in order to reduce the leadership workload. Chair reminded participants to sign into IMAT for Task Force attendance credit.

Meeting recessed for the day at 1:01 p.m.

**Thursday, 28 September 2023**

Meeting reconvened at 9:00 a.m.

Chair made opening comments and reviewed the plans for the day. (See: [https://www.ieee802.org/3/df/public/23\\_0926/agenda\\_3df\\_a\\_230926.pdf](https://www.ieee802.org/3/df/public/23_0926/agenda_3df_a_230926.pdf))

Chair reminded participants to sign into the IEEE Meeting Attendance Tool for attendance credit. Kent Lusted noted that attendance would not be granted after the meeting.

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

Comment resolution resumed.

#### **Comment Resolution Input from Editorial Team**

See: [https://www.ieee802.org/3/df/public/23\\_0926/brown\\_3df\\_03a\\_230926.pdf](https://www.ieee802.org/3/df/public/23_0926/brown_3df_03a_230926.pdf)

Editorial team noted that the document would be referenced throughout comment resolution and may be updated based on discussion. Changes were made to the document and saved as version '03a'

Chair reminded participants to sign into the IEEE Meeting Attendance Tool for attendance credit. Chair reminded remote participants to declare their affiliation in the online tool. Failure to do so will result in expulsion from the meeting.

Break at 10:52 a.m. Resumed at 10:57 a.m.

Chair reminded participants to sign into the IEEE Meeting Attendance Tool for attendance credit. Chair reminded remote participants to declare their affiliation in the online tool. Failure to do so will result in expulsion from the meeting.

Kent Lusted withdrew comment #I-79.

Adee Ran withdrew comment #I-44.

Chair reminded participants to sign into the IEEE Meeting Attendance Tool for attendance credit. Chair reminded remote participants to declare their affiliation in the online tool. Failure to do so will result in expulsion from the meeting.

Comment resolution concluded at 12:22 p.m.

Chair reminded participants to sign into the IEEE Meeting Attendance Tool for attendance credit. Chair reminded remote participants to declare their affiliation in the online tool. Failure to do so will result in expulsion from the meeting.

Chair reviewed future meetings. (see slide #12 in the agenda). He was not aware of any planned 3df Task Force ad hoc meetings. If ad hoc meetings were needed, then it would be announced over the email reflector.

Chair noted that the November plenary meeting agenda was still in development. He would try to schedule the optic topics to avoid the P802.3dk Task Force meeting. He noted that additional meetings may be announced as needed.

Kent Lusted provided a status on the open electrical items for the P802.3dj Task Force. He encouraged offline consensus building.

The Chief Editor confirmed that there were no remaining comments to address.

Chair noted that he would try to take the motion by unanimous consent and proceed to DVL if needed.

|                              |  |
|------------------------------|--|
| <b>Motion #1:</b>            | Move that the IEEE P802.3df Task Force generate Draft 3.1 for the first IEEE SA Ballot Recirculation from D3.0 and the closed comments |
| <b>Moved by</b>              | Matt Brown   |
| <b>Second by</b>             | Piers Dawe   |
| <b>Technical (&gt;= 75%)</b> |  |
| <b>Results 802.3 (y/n/a)</b> | Passed by unanimous consent. 12:33 p.m.  |

Chair noted that the closed comments included the bucket1 comments that were closed on 14 September 2023 in motion #1 during the joint 3cw/3df/3dj September 2023 interim meeting.

Chief Editor provided a schedule estimate for D3.1 availability. Details would be announced at a later date. Chair asked if there were any questions. No one responded.

Chair reminded participants to sign into the IEEE Meeting Attendance Tool for attendance credit. Chair reminded remote participants to declare their affiliation in the online tool. Failure to do so will result in expulsion from the meeting.

Chair noted that the agenda was complete.

Meeting adjourned at 12:36 p.m.

## Attendees

| Name                | Employer  | Affiliation                                       | Tu | Wed | Th |
|---------------------|---|---|----|-----|----|
| Bernier, Eric       | Huawei Technologies Canada Co., Ltd.              | Huawei Technologies Canada Co., Ltd.              | X  | X   | X  |
| Bovington, Jock     | Cisco Systems, Inc.                               | Cisco Systems, Inc.                               | X  |     |    |
| Brown, Matthew      | Alphawave   | Alphawave   | X  | X   | X  |
| Bruckman, Leon      | Huawei Technologies Co., Ltd                      | Huawei Technologies Co., Ltd                      | X  | X   | X  |
| Cai, Yuefeng        | Huawei Technologies Co., Ltd                      | Huawei Technologies Co., Ltd                      | X  | X   |    |
| Calvin, John        | Keysight Technologies                             | Keysight Technologies                             | X  | X   | X  |
| Chappell, Neveia    | Keysight Technologies                             | Keysight Technologies                             | X  | X   | X  |
| Chen, Chan          | Self Employed                                     | Independent/AOI                                   | X  |     | X  |
| Choudhury, Golam    | OFS   | OFS   | X  | X   | X  |
| Cox, Ian            |   | Broadcom Corporation                              |    | X   |    |
| D'Ambrosia, John    | Futurewei Technologies, U.S. Subsidiary of Huawei | Futurewei Technologies, U.S. Subsidiary of Huawei | X  | X   | X  |
| Dawe, Piers J G     | NVIDIA  | Nvidia  | X  | X   | X  |
| de Koos, Andras     | Microchip Technology Inc                          | Microchip Technology, Inc.                        | X  | X   | X  |
| Deandrea, John      | Finisar Corporation                               | Finisar Corporation                               |    |     | X  |
| Del Vecchio, Peter  |   | Broadcom Corporation                              | X  | X   | X  |
| Donahue, Curtis     | Rohde & Schwarz                                   | Rohde & Schwarz                                   | X  | X   | X  |
| Dudek, Michael      | Marvell   | Marvell   | X  | X   | X  |
| FUKUSHIMA, TAKAHITO | Dexerials Corporation                             | Dexerials Corporation                             | X  | X   |    |
| Ghiasi, Ali         | Ghiasi Quantum LLC                                | Ghiasi Quantum LLC; Marvell Semiconductor, Inc.   | X  | X   | X  |
| Gustlin, Mark       | Cisco Systems, Inc.                               | Cisco Systems, Inc.                               | X  | X   |    |
| He, Xiang           | Huawei Technologies Co., Ltd                      | Huawei Technologies Co., Ltd                      | X  | X   |    |

| Name                  | Employer                          | Affiliation  | Tu | Wed | Th |
|-----------------------|-----------------------------------|--|----|-----|----|
| Healey, Adam          | Broadcom Inc.                     | Broadcom Inc.  | X  | X   | X  |
| Hidaka, Yasuo         | Credo Semiconductor               | Credo Semiconductor                                      | X  | X   | X  |
| Huber, Thomas         | Nokia                             | Nokia  | X  | X   | X  |
| Hutchins, Jeff        | Ranovus                           | Ranovus  | X  |     |    |
| Issenhuth, Tom        | Issenhuth Consulting, LLC         | Huawei Technologies Co., Ltd                             | X  | X   |    |
| Jackson, Kenneth      | Sumitomo Electric Industries, LTD | Sumitomo Electric Industries, LTD                        | X  |     |    |
| Kao, Chienping        | Intel                             | Cornelis Networks  | X  | X   | X  |
| Kareti, Upen          | Cisco Systems, Inc.               | Cisco Systems, Inc.                                      | X  | X   | X  |
| Kim, Kihong/Joshua    | Hirose Electric (USA), Inc.       | Hirose Electric (USA), Inc.                              | X  |     |    |
| Kimber, Eric          | Semtech Ltd                       | Semtech Ltd  | X  | X   |    |
| Klempa, Michael       | Alphawave Semi                    | Alphawave Semi   | X  | X   |    |
| Klingensmith, William | U.S. Federal Government           | DoD  | X  | X   | X  |
| Kocsis, Sam           | Amphenol Corporation              | Amphenol Corporation                                     | X  |     |    |
| Kondo, Taiji          | MegaChips Corporation             | Dexerials Corporation                                    | X  | X   |    |
| Le Cheminant, Greg    | Keysight Technologies             | Keysight Technologies                                    | X  | X   |    |
| Li, Pei-Rong          | MediaTek Inc.                     | MediaTek Inc.  | X  | X   | X  |
| Liu, Karen            | Nubis Communications              | Nubis Communications                                     |    | X   |    |
| Lusted, Kent          | Intel                             | Intel  | X  | X   | X  |
| Maki, Jeffery         | Juniper Networks, Inc.            | Juniper Networks, Inc.                                   | X  | X   | X  |
| Malicoat, David       | Malicoat Networking Solutions     | Malicoat Networking Solutions; SENKO Advanced Components |    | X   | X  |
| Maniloff, Eric        | Ciena Corporation                 | Ciena Corporation  | X  | X   | X  |
| Mellitz, Richard      | Samtec, Inc.                      | Samtec, Inc.   | X  | X   | X  |
| mi, guangcan          | Huawei Technologies Co., Ltd      | Huawei Technologies Co., Ltd                             |    | X   |    |
| Mohajeri,             | Ensphere Solutions                | HM Consulting  | X  | X   | X  |

| Name              | Employer                     | Affiliation                  | Tu | Wed | Th |
|-------------------|------------------------------|------------------------------|----|-----|----|
| Hessam            |                              |                              |    |     |    |
| Moorwood, Charles | Keysight Technologies        | Keysight Technologies        | X  | X   | X  |
| Muhigana, Ernest  |                              | Lumentum                     | X  | X   |    |
| Muller, Shimon    | Enfabrica Corp.              | Enfabrica                    | X  | X   | X  |
| MURAKAMI, YUKI    | FUJITSU LIMITED              | Fujitsu Limited              | X  | X   | X  |
| Muth, Karlheinz   | Broadcom Corporation         | Broadcom Corporation         |    | X   | X  |
| Nering, Raymond   | Cisco Systems, Inc.          | Cisco Systems, Inc.          | X  |     | X  |
| Nicholl, Gary     | Cisco Systems, Inc.          | Cisco Systems, Inc.          | X  | X   |    |
| Nowell, Mark      | Cisco Systems, Inc.          | Cisco Systems, Inc.          | X  | X   | X  |
| Ofelt, David      | Juniper Networks, Inc.       | Juniper Networks, Inc.       |    | X   | X  |
| Opsasnick, Eugene | Broadcom Inc.                | Broadcom Inc.                | X  | X   | X  |
| Palkert, Thomas   | Macom,&nbsp;Samtec           | Samtec-Macom                 | X  | X   | X  |
| PARK, CHUL SOO    | Juniper Networks Inc.        | Juniper Networks, Inc.       |    | X   | X  |
| Parsons, Earl     | CommScope, Inc.              | CommScope, Inc.              |    |     | X  |
| Rabinovich, Rick  | Keysight Technologies        | Keysight Technologies        | X  | X   | X  |
| Ran, Adee         | Cisco Systems, Inc.          | Cisco Systems, Inc.          | X  | X   | X  |
| Rechtman, Zvi     | NVIDIA                       | NVIDIA                       |    | X   | X  |
| Ren, Hao          | Huawei Technologies Co., Ltd | Huawei Technologies Co., Ltd |    | X   |    |
| Rodes, Roberto    | II-VI                        | II-VI                        |    | X   |    |
| Sakai, Toshiaki   | Socionext Inc.               | socionext                    | X  | X   | X  |
| Savi, Olindo      | Hubbell Incorporated         | Hubbell Incorporated         |    |     | X  |
| Sekel, Steve      |                              | Wilder Technologies          | X  | X   | X  |
| Shah, Anup        | Siemens Corporation          | Siemens EDA                  | X  |     | X  |
| Shanbhag,         | Tyco                         | TE Connectivity              |    | X   |    |

| <b>Name</b>         | <b>Employer</b>                                | <b>Affiliation</b>                             | <b>Tu</b> | <b>Wed</b> | <b>Th</b> |
|---------------------|--|--|-----------|------------|-----------|
| Megha               |  |  |           |            |           |
| Shoval, Ayal        | Synopsys, Inc.                                 | Synopsys, Inc.                                 | X         | X          | X         |
| Shrikhande, Kapil   | Marvell Semiconductor, Inc.                    | Marvell Semiconductor, Inc.                    | X         | X          | X         |
| Simms, William      | NVIDIA Corporation                             | NVIDIA Corporation                             | X         | X          | X         |
| Slavick, Jeff       | Broadcom Inc                                   | Broadcom Inc                                   | X         | X          | X         |
| Sommers, Scott      | Molex LLC                                      | Molex Incorporated                             | X         | X          | X         |
| Son, Yung Sung      | Optomind Inc                                   | Optomind Inc                                   | X         | X          | X         |
| Sorbara, Massimo    | GLOBALFOUNDRIES                                | GLOBALFOUNDRIES                                | X         | X          |           |
| Stassar, Peter      | Huawei Technologies Co., Ltd                   | Huawei Technologies Co., Ltd                   | X         | X          |           |
| Sun, Yi             |  | OFS  | X         |            |           |
| TAN, SISI           | Huawei Technologies Co., Ltd                   | Huawei Technologies Co., Ltd                   | X         | X          | X         |
| Theodoras, James    | HG Genuine                                     | HG Genuine                                     | X         | X          |           |
| Tooyserkani, Pirooz | Cisco Systems, Inc.                            | Cisco Systems, Inc.                            | X         |            | X         |
| Tracy, Nathan       | TE Connectivity                                | TE Connectivity                                | X         | X          | X         |
| Tran, Viet          | Keysight Technologies                          | Keysight Technologies                          | X         | X          | X         |
| Wang, Haojie        | China Mobile Communications Corporation (CMCC) | China Mobile Communications Corporation (CMCC) | X         |            |           |
| Welch, Brian        | Cisco Systems, Inc.                            | Luxtera  | X         | X          |           |
| Williams, Tom       | Cisco Systems, Inc.                            | Cisco Systems, Inc.                            |           | X          |           |
| Wingrove, Michael   | Ciena Corporation                              | Ciena Corporation                              | X         | X          | X         |
| Yin, Shuang         |  | Google   | X         | X          | X         |
| Zhang, Bo           | Marvell Technology, Inc                        | Marvell Technology, Inc                        |           |            | X         |