

**IBIS Open Forum Minutes**

Meeting Date: **December 4, 2020**

Meeting Location: **Teleconference**

**VOTING MEMBERS AND 2020 PARTICIPANTS**

ANSYS Curtis Clark\*, Wei-hsing Huang, Marko Marin

 Shai Sayfan-Altman, Zilwan Mahmod, Baolong Li

 Usman Saeed, Miyo Kawata

Applied Simulation Technology (Fred Balistreri)

Broadcom James Church, Jim Antonellis

Cadence Design Systems Zhen Mu, Ambrish Varma, Jared James

 Kumar Keshavan, Ken Willis, Suomin Cui

 Takuya Moriya, Tadaaki Yoshimura, Benny Yan

 Shuyuan Du, Yitong Wen

Cisco Systems Stephen Scearce, Hong Wu, Han Gao, Hannah Bian

 Jun (Gene) Zhang

Dassault Systemes (CST) Stefan Paret

Ericsson [Anders Ekholm], Sungjoo Yu, Thomas Ahlstrom

Google Zhiping Yang\*, Shuai Jin, Zhenxue Xu, Hanfeng Wang

 Songping Wu, Yimajian Yan

Huawei Technologies (Hang (Paul) Yan)

IBM [Michael Cohen], Greg Edlund

Infineon Technologies AG (Christian Sporrer)

Instituto de Telecomunicações (Abdelgader Abdalla)

Intel Corporation Hsinho Wu\*, Michael Mirmak, Adrien Auge

 Fernando Mendoza, Taeyoung Kim, Wendem Beyene

 Oleg Mikulchenko, Nhan Phan, Ifiok Umoh

 Subas Bastola, Kinger Cai

Keysight Technologies Radek Biernacki\*, Hee-Soo Lee, Todd Bermensolo

 Graham Riley, Pegah Alavi, Fangyi Rao

 Stephen Slater, Toshinori Kageura, Hiroaki Sasaki

 Satoshi Nakamizo, Toshinobu Sanuki, Jiarui Wu

 Xiuguo Jiang, Jiajie Zhao

Marvell Steve Parker\*, Johann Nittmann, Shaowu Huang

Maxim Integrated Joe Engert, Charles Ganal, Dzung Tran, Yan Liang

 Tushar Pandey\*

Mentor, A Siemens Business Arpad Muranyi\*, Raj Raghuram, Todd Westerhoff

 Weston Beal, Kunimoto Mashino, Kenji Kushima

Micron Technology Randy Wolff\*, Justin Butterfield, Larry Smith

 Vijay Kanagachalam, Jingwei Cheng, Mike Bi

 Kane Wang, Pallas Fei, Tree Li, Cheng Zhang

 Yinchu Zhao, Chunqiang Weng, Jizhe Xing

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MST EMC Lab Chulsoon Hwang, Anfeng Huang, Bo Pu, Jiayi He

 Yin Sun

NXP John Burnett

SerDesDesign.com John Baprawski

SiSoft (MathWorks) Mike LaBonte\*, Walter Katz, Graham Kus

Synopsys Ted Mido\*, Andy Tai, Kevin Li, Wen (Claire) Cao, Lan Ni

 Xuefeng Chen, Jianguo Zhou, Jinghua Huang

Teraspeed Labs Bob Ross\*

Xilinx Ravindra Gali

ZTE Corporation Jinlong Li, Kaige Qiao, Changgang Yin

Zuken Michael Schäder, Kazunari Koga, Kensuke Yoshijima

 Takayuki Shiratori

 Zuken USA Lance Wang\*

**OTHER PARTICIPANTS IN 2020**

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A&D Print Engineering Co. Ryu Murota

Abeism Corp. Nobuyuki Kiyota

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Pioneer Corp. Yuichi Tamura

Privatech Kazuo Ogasawara

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Ryosan Co. Takahiro Sato

SAE ITC Jose Godoy

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Shinko Electric Industries Co. Takumi Ikeda, Manabu Nakamura

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 Atsushi Hasegawa, Yoshinori Kanno

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 Shizue Katoh, Makoto Kumazawa, Masatomo Ichioka

 Fumiyo Kawatsuji, Megumi Ohno, Yukiko Tanaka

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 Toshiba Electronic Device Youichi Sato

 Solutions Corp.

 Toshiba Electronic Devices & Yoshinori Fukuba, Toshihiro Tsujimura

 Storage Corp. Atsushi Tomishima, Takahiro Aoki

Unaffiliated Colin Brench

University of Florida Shuo Wang

Unknown Affiliation Y Ao, Knox Yan, Joyce X, Jeff X

Xpeedic Technology Wei He, Zhouxiang Su

XTUS Sejin Pak

Yamaha Corporation Tetsuya Kakimoto

Yazaki Parts Co. Kenichi Fujisawa

In the list above, attendees at the meeting are indicated by \*. Principal members or other active members who have not attended are in parentheses. Participants who no longer are in the organization are in square brackets.

**UPCOMING MEETINGS**

The connection information for future IBIS teleconferences is as follows:

 <https://tinyurl.com/IBISOFfridayTeams>

[Join Microsoft Teams Meeting](https://teams.microsoft.com/l/meetup-join/19%3Ameeting_ZmIyZGI5NTQtZDM4MS00NmU5LTgyNmYtNzU4ZTllMWI5NGM4%40thread.v2/0?context=%7b%22Tid%22%3a%22fcbfc6fa-e20b-4a1d-b629-1b8e17697dbc%22%2c%22Oid%22%3a%227735c7ad-2577-4290-9e27-bce52c296030%22%7d)

Conference ID: 803 509 041#

[Local numbers](https://dialin.teams.microsoft.com/d1ae197a-e3fc-4c53-90b6-39fdeba65bc1?id=803509041) | [Learn more about Teams](https://support.microsoft.com/en-us/office/join-a-meeting-in-teams-1613bb53-f3fa-431e-85a9-d6a91e3468c9?ui=en-us&rs=en-us&ad=us) | [Meeting options](https://teams.microsoft.com/meetingOptions/?organizerId=7735c7ad-2577-4290-9e27-bce52c296030&tenantId=fcbfc6fa-e20b-4a1d-b629-1b8e17697dbc&threadId=19_meeting_ZmIyZGI5NTQtZDM4MS00NmU5LTgyNmYtNzU4ZTllMWI5NGM4@thread.v2&messageId=0&language=en-US)

Join with a video conferencing device

106010980@teams.bjn.vc VTC Conference ID: 1143484747

[Alternate VTC dialing instructions](https://support.bluejeans.com/s/article/VTC-Dial-In-Options-for-Teams-Meetings)

All teleconference meetings are 8:00 a.m. to 9:55 a.m. US Pacific Time. Meeting agendas are typically distributed seven days before each Open Forum. Minutes are typically distributed within seven days of the corresponding meeting.

NOTE: "AR" = Action Required.

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**INTRODUCTIONS AND MEETING QUORUM**

Curtis Clark declared that a quorum was reached.

**CALL FOR PATENTS**

Randy Wolff called for declaration of any patents or pending patents related to the IBIS, IBIS-ISS, ICM, or Touchstone 2.0 specifications. No patents were declared.

**REVIEW OF MINUTES AND ARS**

Randy Wolff called for comments on the minutes of the October 30, 2020 IBIS Open Forum teleconference. Mike LaBonte moved to approve the minutes. Zhiping Yang seconded the motion. There were no objections.

Randy reviewed ARs from the previous meeting.

1. Randy Wolff to send an email to the Open Forum announcing the 2021 membership dues vote [AR].
Randy reported that this had been done.
2. Randy Wolff to send an email to the Open Forum announcing the BIRD202.1 update [AR].
Randy reported that this had been done.

**ANNOUNCEMENTS**, **CALL FOR ADDITIONAL AGENDA ITEMS**

None.

**MEMBERSHIP STATUS AND TREASURER'S REPORT**

Bob Ross reported that we have 27 members. The quorum for meetings is 7. We have $28,435 cash flow for 2020 and a $26,335 adjusted balance for 2020. These figures are down $350 and $2,800 respectively from the previous meeting. These figures reflect a $350 payment to Mike LaBonte to reimburse him for the bluehost webhosting payment, a 2020 summit sponsorship payment of $2,000 being moved to 2021 (2020 summit was virtual), and one $900 annual membership fee being split into $450 in 2020 and $450 in 2021 based on the new half-rate academic membership. Total adjusted balance for 2021 is now $3,350.

Bob noted that we expect a deduction for SAE ITC 2020 Extra Charges in January or February 2021. Last year this charge was over $10,000. He said we also expect a new membership payment in 2021 once the dues are formally approved, and we expect a new Touchstone parser source code license payment in 2021 as well. Membership renewal invoices are expected to go out by the beginning of January.

**WEBSITE ADMINISTRATION**

Steve Parker reported that the website was up to date with respect to task groups’ minutes and documents. Updates had been made to the Past Summits and Upcoming Events pages. A new logo for Intel had been provided per their corporate requirements and added to the “Our Members” section of the home page. He had received a new library file from Zhiping Yang and updated the Models page on the website. Steve noted that he has additional updates and cleanup for the Summits pages, and he plans to introduce some PHP functionality to help streamline routine processes for updating the pages.

Bob Ross noted that a top level directory for the RAIL specification now exists at: <https://ibis.org/rail/>

He asked if a link to it existed on the website. Steve suggested that we could add a link to it from the Specifications page. Arpad Muranyi and Mike LaBonte agreed, and they suggested that the “Other Emerging I/O Specifications:” section be renamed “Other Specifications:” and the link to the RAIL specification be added there. Bob asked that the RAIL directory be added to the site map as well. Steve agreed to make these changes.

**MAILING LIST ADMINISTRATION**

Mike LaBonte reported that mailing lists were generally operating smoothly. Mike recalled that he had reported last summer that some users might not have been receiving ibis messages because the freelists server appeared on a blacklist. He had emailed the users in question to see if they were receiving IBIS messages, but they had never responded. Mike noted that the freelists server is still on that blacklist, but we are no longer seeing any bounce back messages related to it. As a year-end status summary, Mike noted that the ibis and ibis-users lists each have 290 subscribers. Between the two lists there are 345 unique addresses.

**LIBRARY UPDATE**

Zhiping Yang reported that he had run the script and generated new library supplier information, which Steve Parker had uploaded to the site. Zhiping noted that he had removed some stale links and cleaned up the company list based on mergers, etc. He said there may be more cleanup next time. Zhiping suggested that it might be best if the companies themselves provided the links to their models and could update the model library page. He said he had searched some of the companies’ websites for IBIS models without success. Mike LaBonte noted that we once had a roster page, which member organizations could update with their statements on their relationship to IBIS and the names of their primary contacts. This page had to be taken down based on GDPR, but the webmaster had been able to periodically email the contacts for updated information on models, etc. Randy Wolff said that we might want to review our processes for maintaining the model providers lists. Randy suggested that we could send an email to the IBIS list and the SI-List to make sure people are aware of the Models page and ask model providers to contact us with any updates. Mike and Zhiping agreed. Zhiping to send an email to the IBIS list and SI-List asking IBIS model providers to send him any updates for the library pages [AR].

**INTERNATIONAL/EXTERNAL ACTIVITIES**

- Conferences

SPI2021 – the 25th IEEE Workshop on Signal and Power Integrity will be held as a virtual online conference on May 10-12, 2021. An IBIS Summit will be held after the event (tentative). More information is available at:

[https://spi2021.uni-siegen.de](https://spi2021.uni-siegen.de/)

IEEE EMC + SIPI Symposium 2021 (was planned for May 13-15, Raleigh, NC – now virtual from July 27-August 13, 2021):

[https://www.emc2021.emcss.org](https://www.emc2021.emcss.org/)

EDI CON Online 2021 (August 4th, 11th, 18th, and 25th, 2021):

[https://www.edicononline.com](https://www.edicononline.com/)

- Press Update

Randy Wolff noted an SAE-ITC press release had announced the recently completed IBIS Summits in Asia:

[https://www.edacafe.com/ (Summit Press Release)](https://www.edacafe.com/nbc/articles/1/1794435/Buffer-Information-Specification-IBIS-Open-Forum-Hold-Virtual-Asian-IBIS-Summit-Meetings)

Randy noted an IEEE EMC Magazine article on the inaugural EMC+SIPI IBIS Summit:

<https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9241569&tag=1>

Bob Ross noted an article that mentioned the use of IBIS [Ramp] data:

Printed Circuit Design & Fab Circuits Assembly, November 2020

“It’s About Time: Let’s Automate High-Speed Constraints”, Charles Pfeil, pp. 24-25

<https://digital.upmediagroup.com/issue/november-2020/its-about-time-lets-automate-high-speed-constraints/>

- Related standards

None.

**SUMMIT PLANNING AND STATUS**

- Asia Summits

Japan (November 13, 2020):

Randy Wolff reported that the Japan virtual summit had gone well. We had 163 attendees representing 95 organizations. He noted that the Past Summits page on the website contains a recording of the entire meeting and recordings of individual presentations. Bob Ross said the virtual meeting had been successful, and there were good discussions. Randy thanked Ted Mido for help with translations. He said JEITA had done a nice job hosting the meeting with the Webex events platform.

China (November 20, 2020):

Randy reported that the China virtual summit had gone well. We had 46 attendees representing 17 organizations. For this summit, the Past Summits page on the website contains a recording of the entire meeting. The content was presented in a mix of English and Mandarin. Randy thanked Zuken for providing the GoToMeeting platform for the virtual summit.

Randy said that because the recordings are available, the minutes for the Japan and China summits will focus on attendee lists and capturing some of the question and answer session discussions. Randy thanked all of the presenters.

**QUALITY TASK GROUP**

Mike LaBonte reported that the group is meeting on Tuesdays at 8:00 a.m. PT. They are currently discussing how to check .iss files included by IBIS files, and they are capturing their proposal in a BUG214 (enhancement). (further discussion in the ibischk section below)

The Quality task group checklist and other documentation can be found at:

<http://www.ibis.org/quality_wip/>

**ADVANCED TECHNOLOGY MODELING TASK GROUP**

Arpad Muranyi reported that the group meets on Tuesdays at 12:00 p.m. PT. The group had recently renewed discussions about issues with the current AMI flow for redrivers. There are no clear solutions yet, but new ideas are being explored. On the topic of GDDR6x modeling, Randy Wolff had given a presentation on some simulation results comparisons for a GDDR6x scenario.

Task group material can be found at:

<http://www.ibis.org/macromodel_wip/>

**INTERCONNECT TASK GROUP**

Randy Wolff reported that the group meets at 8:00 a.m. PT on Wednesdays. He noted that the group is now working on a BIRD202.2 and addressing some of Arpad Muranyi’s comments from his latest review of BIRD202.1. He said they hope to have BIRD202.2 out for voting early in 2021. Arpad Muranyi asked if anyone, outside of the normal Interconnect task group attendees, had a chance to read and review BIRD202.1 yet.

Task group material can be found at:

<http://www.ibis.org/interconnect_wip/>

**EDITORIAL TASK GROUP**

Randy Wolff reported the task group remains suspended.

Task group material can be found at:

<http://www.ibis.org/editorial_wip/>

**CHINA REGIONAL FORUM**

Lance Wang reported that there had been no new activities other than the virtual summit.

China Regional Forum material can be found at:

<http://www.ibis.org/china_forum/>

**NEW ADMINISTRATIVE ISSUES**

- 2021 Membership Dues

Bob Ross moved to set dues for 2021 at $900 for a full membership (same as the rate for 2020) and a half-price rate for an academic membership. Mike LaBonte seconded. There were no objections.

The roll call vote tally was:

ANSYS – yes

Cadence – yes (by email)

Google – yes

Intel – yes

Keysight – yes

Marvell – yes

Maxim Integrated – yes

Mentor – yes

Micron – yes

SiSoft – yes

Synopsys – yes

Teraspeed Labs – yes

Zuken – yes

The roll call vote concluded with a vote tally of Yes – 13, No – 0, Abstain – 0. The vote passed.

**BIRD202.1: ELECTRICAL DESCRIPTIONS OF MODULES**

Randy Wolff noted that BIRD202.1 had been introduced at the previous meeting. He said that the Interconnect task group is currently working on BIRD202.2, and he asked if anyone else had any questions or feedback on BIRD202.1. There were no questions at that time.

**BIRD208: CLOCK-DATA PIN RELATIONSHIP KEYWORD**

Randy Wolff summarized the BIRD, which had been introduced several meetings earlier. It introduces a new [Clock Pins] keyword, which simply identifies the fact that there is a clocking relationship between two pins. He said it could be helpful for automating the setup of timing simulations for DDR5 or other clock forwarded interfaces. Randy said the proposal had been thoroughly review in the ATM task group, and he thought it was safe to schedule a vote for the next meeting.

Bob Ross moved to schedule a vote on the BIRD at the January 8, 2021 IBIS Open Forum teleconference. Curtis Clark seconded. There were no objections. Randy to send an email to the Open Forum announcing the vote [AR].

**BIRD166.4: RESOLVING PROBLEMS WITH REDRIVER INIT FLOW**

Discussion was tabled.

**BIRD181.1: I-V TABLE CLARIFICATIONS**

Discussion was tabled.

**BIRD190: CLARIFICATION FOR REDRIVER FLOW**

Discussion was tabled.

**IBISCHK PARSER AND BUG STATUS**

Bob Ross said there were no new parser BUGs to report. The Interconnect task group had completed the BUG214 report. BUG214, “Connecting IBIS and Interconnect Models to IBIS-ISS”, is a proposed enhancement to add IBIS-ISS checking to the ibischk parser. Bob characterized it as a set of specifications for linking IBIS to IBIS-ISS models. He said that currently ibischk only checks for the existence of a referenced IBIS-ISS file. The new proposal would:

* Check the subcircuit call line only
	+ subcircuit name, nodes (or terminals)
	+ parameters that are passed into the subcircuit (we only support string or numeric)
		- not checking parameter value, only whether it’s a number or a string
* Checking invoked automatically if an IBIS-ISS model is used in an Interconnect model or multi-lingual model.
	+ .ibs files or .ims files
	+ name and number of terminals
	+ checks for prohibited use of global node 0
* For multi-lingual models, the check would apply retroactively to IBIS 6.0 models.
* For .ims files the check applies retroactively to IBIS 7.0.

In the example accompanying BUG214, Bob noted that there might be an issue with the Touchstone file that is supposed to represent a two-port series short that is open to ground.

Bob said the Interconnect task group would like to send the proposal to the developer so he can start to scope it out. He said he thought IBIS 7.1 items mentioned in the future enhancements section of BUG214 (e.g., BIRD200, BIRD202.x) should probably be considered. Mike LaBonte said he had some concerns about this from a timing standpoint. He said that once IBIS 7.1 is approved, people will be in a hurry for a new parser. Since we aren’t sure how big a development effort this will be, we might want to consider starting development of the IBIS 7.0 portion of BUG214 now (perhaps an ibischk7.0.3). We may not want to start development on this with respect to IBIS 7.1 features until they are fully approved, but we may not want to incur the delay in releasing an ibischk7.1 that this project might cause.

Bob suggested we classify BUG214 as enhancement, medium, open, but he said we did not need to formally vote on the classification yet.

Mike said that he had been thinking about this project in terms of 3 types of mistakes a model maker could make while developing a model using IBIS-ISS.

1. HSPICE or some other tool that supports a superset of IBIS-ISS might have been used during development. Therefore, the .iss files might accidentally contain non-IBIS-ISS constructs.
2. The top level test circuits may have been generated by hand, or by a program that isn’t yet IBIS-ISS validated. Thus, the interface between .ibs/.ims and .iss could be incorrect.
3. The tested files may be packaged into a released set that has not been unpacked and tested in a known good IBIS simulator. Files could be missing, at the wrong level, etc.

Mike emphasized that BUG214 is only designed to address issue 2. It does not catch issues 1 and 3. He asked everyone to let the Interconnect task group know how important you think issue 1, 3, or any other issues may be to check.

**NEW TECHNICAL ISSUES**

- None.

**NEXT MEETING**

The next IBIS Open Forum teleconference meeting will be held on January 8, 2021. The following teleconference meeting is tentatively scheduled for January 29, 2021.

Mike LaBonte moved to adjourn. Ted Mido seconded the motion. The meeting adjourned.

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**NOTES**

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This meeting was conducted in accordance with SAE ITC guidelines.

All inquiries may be sent to info@ibis.org. Examples of inquiries are:

* To obtain general information about IBIS.
* To ask specific questions for individual response.
* To subscribe to the official ibis@freelists.org and/or ibis-users@freelists.org email lists (formerly ibis@eda.org and ibis-users@eda.org).
* To subscribe to one of the task group email lists: ibis-macro@freelists.org, ibis-interconn@freelists.org, or ibis-quality@freelists.org.
* To inquire about joining the IBIS Open Forum as a voting Member.
* To purchase a license for the IBIS parser source code.
* To report bugs or request enhancements to the free software tools: ibischk6, tschk2, icmchk1, s2ibis, s2ibis2 and s2iplt.

The BUG Report Form for ibischk resides along with reported BUGs at:

<http://www.ibis.org/bugs/ibischk/>
[http://www.ibis.org/ bugs/ibischk/bugform.txt](http://www.ibis.org/%20bugs/ibischk/bugform.txt)

The BUG Report Form for tschk2 resides along with reported BUGs at:

<http://www.ibis.org/bugs/tschk/>
<http://www.ibis.org/bugs/tschk/bugform.txt>

The BUG Report Form for icmchk resides along with reported BUGs at:

<http://www.ibis.org/bugs/icmchk/>
<http://www.ibis.org/bugs/icmchk/icm_bugform.txt>

To report s2ibis, s2ibis2 and s2iplt bugs, use the Bug Report Forms which reside at:

<http://www.ibis.org/bugs/s2ibis/bugs2i.txt>
<http://www.ibis.org/bugs/s2ibis2/bugs2i2.txt>
<http://www.ibis.org/bugs/s2iplt/bugsplt.txt>

Information on IBIS technical contents, IBIS participants and actual IBIS models are available on the IBIS Home page:

<http://www.ibis.org/>

Check the IBIS file directory on ibis.org for more information on previous discussions and results:

<http://www.ibis.org/directory.html>

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**SAE STANDARDS BALLOT VOTING STATUS**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Organization** | **Interest Category** | **Standards Ballot Voting Status** | **October 30, 2020** | **November 13, 2020** | **November 20, 2020** | **December 04, 2020** |
| ANSYS | User | Active | X | X | X | X |
| Applied Simulation Technology | User | Inactive | - | - | - | - |
| Broadcom Ltd. | Producer | Inactive | - | - | - | - |
| Cadence Design Systems | User | Active | X | X | X | X |
| Cisco Systems | User | Inactive | - | - | X | - |
| Dassault Systemes | User | Inactive | - | - | - | - |
| Ericsson | Producer | Inactive | - | - | - | - |
| Google | User | Inactive | X | - | - | X |
| Huawei Technologies | Producer | Inactive | - | - | - | - |
| Infineon Technologies AG | Producer | Inactive | - | - | - | - |
| Instituto de Telecomunicações | User | Inactive | - | - | - | - |
| IBM | Producer | Inactive | - | - | - | - |
| Intel Corp. | Producer | Inactive | X | - | - | X |
| Keysight Technologies | User | Active | X | X | X | X |
| Marvell | Producer | Inactive | X | - | - | X |
| Maxim Integrated | Producer | Inactive | X | - | - | X |
| Mentor, A Siemens Business | User | Active | X | X | - | X |
| Micron Technology | Producer | Active | X | X | X | X |
| MST EMC Lab | User | Inactive | - | - | X | - |
| NXP | Producer | Inactive | - | - | - | - |
| SerDesDesign.com | User | Inactive | - | - | - | - |
| SiSoft  | User | Active | X | X | X | X |
| Synopsys | User | Active | X | X | X | X |
| Teraspeed Labs | General Interest | Active | X | X | X | X |
| Xilinx | Producer | Inactive | - | - | - | - |
| ZTE Corp. | User | Inactive | - | - | X | - |
| Zuken | User | Active | X | X | X | X |

Criteria for SAE member in good standing:

* Must attend two consecutive meetings to establish voting membership
* Membership dues current
* Must not miss two consecutive meetings

Interest categories associated with SAE standards ballot voting are:

* Users - members that utilize electronic equipment to provide services to an end user.
* Producers - members that supply electronic equipment.
* General Interest - members are neither producers nor users. This category includes, but is not limited to, government, regulatory agencies (state and federal), researchers, other organizations and associations, and/or consumers.