



IBIS Open Forum Minutes

Meeting Date: **March 31, 2023**

Meeting Location: **Teleconference**

VOTING MEMBERS AND 2023 PARTICIPANTS

Altair	(JuneSang Lee)
AMD (Xilinx)	(Bassam Mansour)
Analog Devices (Maxim Integrated)	(Don Greer)
Ansys	Curtis Clark*, Wei-hsing Huang
Applied Simulation Technology	(Fred Balistreri)
Aurora System	Dian Yang, Raj Raghuram
Broadcom	(Yunong Gan)
Cadence Design Systems	Kyle Lake*, Jared James, John Philips, Kristoffer Skytte
Celestica	(Sophia Feng)
Cisco Systems	(Stephen Searce), Hong Wu
Dassault Systemes	Stefan Paret
GE Healthcare Technologies	(Balaji Sankarshanan)
Google	(Hanfeng Wang)
Huawei Technologies	(Hang (Paul) Yan)
Infineon Technologies AG	(Christian Sporrer)
Instituto de Telecomunicações	(Abdelgader Abdalla)
Intel Corporation	Chi-te Chen, Hsinho Wu, Michael Mirmak*
Keysight Technologies	Ming Yan*, Douglas Burns*, Fangyi Rao, Pegah Alavi, Hee-Soo Lee, Heidi Barnes Steven Parker
Marvell	Graham Kus*, Walter Katz*, Kerry Schotz
MathWorks	Randy Wolff*, Justin Butterfield, Akshay Shivaji Chaudhari, Dragos Dimitriu
Micron Technology	(Chulsoon Hwang), John Baprawski
MST EMC Lab	Arpad Muranyi*, Weston Beal*, Matthew Leslie, Todd Westerhoff, Scott Wedge, Mikael Stahlberg
SerDesDesign.com	(Olivier Bayet)
Siemens EDA	Ted Mido*, (Tushar Pandey) Bob Ross*
STMicroelectronics	[Zhiping Yang], (Ji Zhang)
Synopsys	(Shunlin Zhu)
Teraspeed Labs	Michael Schäder
Waymo	Lance Wang*
ZTE Corporation	
Zuken	
Zuken USA	

OTHER PARTICIPANTS IN 2023

Alphawave Semi
Ciena
Honeywell
Nokia
OMNIVISION
Signal Edge Solutions
SI Guys
Socionext, Inc.
Unaffiliated

Adrien Auge, Todd Bermensolo
Hugues Tournier
Bavish Vazhayil
Ramiro Guzman
Sirius Tsang
Ben Dannan
Donald Telian
Raymond Yakura
Will Hobbs, Mike LaBonte, Jon Powell, Stephen
Peters, Zhiping Yang*

In the list above, attendees present at the meeting are indicated by “*.” Those submitting an email ballot for their member organization for a scheduled vote 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:

Microsoft Teams meeting

Join on your computer or mobile app

[Click here to join the meeting](#)

Join with a video conferencing device

106010980@teams.bjn.vc

Video Conference ID: 114 666 897 5

[Alternate VTC dialing instructions](#)

Or call in (audio only)

[+1 267-768-8015,554664847#](tel:+12677688015554664847) United States, Philadelphia

Phone Conference ID: 554 664 847#

[Find a local number](#) | [Reset PIN](#)

[Learn More](#) | [Meeting options](#)

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.

INTRODUCTIONS AND MEETING QUORUM

Lance Wang reported he would be Chairing the meeting as Randy Wolff was unavailable to join until much later during the meeting.

Graham Kus declared that a quorum had been reached with 8 member-companies attending at the beginning of the meeting.

CALL FOR PATENTS

Lance Wang called for declaration of any patents or pending patents related to the IBIS, IBIS-ISS, ICM, or Touchstone 2.0 specifications. Patents were not declared.

REVIEW OF MINUTES AND ARS

Lance Wang called for comments on the minutes of the February 17, 2023, and March 10, 2023, IBIS Open Forum teleconferences. Bob Ross discussed that we anticipate some members switching or changing affiliations in the future meetings. Bob discussed some changes and/or corrections may be occurring going forward regarding attendees in that regard, especially starting with the minutes for March 10, 2023. Bob motioned to approve the minutes. Graham Kus seconded the motion. There were no objections. The motion passed.

The Minutes are available at the following link:

<https://IBIS.org/minutes/>

Lance Wang reviewed ARs from the previous meeting.

ARs:

- Randy Wolff to provide link to SAE ITC press release covering IBIS 7.2 release [AR]
- This item remains open: the Press Release is submitted to SAE ITC but remains open with awaiting their response or publishing action.

- Bob Ross to start IBISCHK 7.2.0 parser contract signing process [AR]
- This item was completed.

- Randy Wolff to provide example of IEEE and SAE ITC dual logo standard [AR]
- This item remains open.

ANNOUNCEMENTS, CALL FOR ADDITIONAL AGENDA ITEMS

Lance Wang asked for any announcements. Lance re-iterated that Randy Wolff may join later to discuss Officer Elections as a topic.

New Agenda Item: Initial discussion of Officer Elections.

MEMBERSHIP STATUS AND TREASURER'S REPORT

Bob Ross reported that for 2023, IBIS Open Forum has 30 members with a quorum of 8.

Currently we have 22 renewals and 2 new members for 2023.

Bob stated he is tracking 6 organizations for renewals.

Bob also reported that the IBIS Committee expects to pay for sponsorship for the European IBIS Summit. This will be discussed with more detail later in the meeting.

\$16,085 Balance for 2023

\$21,135 Adjusted Balance for 2023 (Note, 2020 ZTE sponsorship moved forward to 2023)

WEBSITE ADMINISTRATION

Steven Parker reported via email that the Website is updated with an announcement link at the top of the page for the 30-year article in SI Journal:

Link: <https://www.signalintegrityjournal.com/articles/3011-ibis-celebrates-30-years-of-collaboration-innovation-and-signal-integrity>

Lance Wang asked on Steven Parker's behalf if there are any website issues. Bob Ross stated sometimes he has email that does not get through. Also on the logo page, to place the AMD logo on the home page, and remove the Xilinx logo as AMD has acquired Xilinx. Also, Bob reported that the link to IBIS 7.2 needs to be updated to point to the correct location.

Randy Wolff reported via email the suggestion that the following two updates be made:

1. On the site map page ibis.org/directory.html the ver7.2_wip link should be ver7.2
2. The file upload I requested yesterday for the IBIS 7.1 EMD example

MAILING LIST

Arpad Muranyi reported on behalf of Curtis Clark that there were no updates or issues.

LIBRARY UPDATE

Zhiping Yang reported no updates on library, still in discussions with some people on the topic of reference IBIS models, but nothing to report yet at this time.

INTERNATIONAL/EXTERNAL ACTIVITIES

Conferences:

SPI2023 – The 27th IEEE Workshop on Signal and Power Integrity (May 07-10, 2023, Aveiro, Portugal).

Link:

<https://spi2023.av.it.pt/>

IEEE EMC+SIPI conference scheduled for July 31 – August 4, 2023, in Grand Rapids, Michigan.

Zhiping Yang reported that a room has been reserved to host the IBIS Summit August 4, 2023, at the conference site. This will be a hybrid meeting supporting on-site and online attendees, with a Teams link provided at a later date.

Link:

<https://emc2023.org/>

Press Updates

No topics were discussed.

Related Standards

No topics were discussed.

IEEE IBIS Standardization

Zhiping Yang reported there was no update at this time.

IBIS Summits:

IEEE SPI 2023 IBIS Summit (May 7-10, 2023, Aveiro, Portugal):

Link:

<https://spi2023.av.it.pt/submissions/>

Graham Kus relayed that the IBIS Summit is scheduled for the afternoon Wednesday the 10th at 2pm local time. The IEEE SPI conference runs until 12:30pm and followed by a luncheon on-site. The plan is to run an IBIS Summit after that point from 2pm-6pm. The IEEE SPI has already advertised the details on the website.

Bob Ross related that Randy Wolff will be attending in-person. Michael Mirmak also stated he would attend in-person. Bob reported that the IBIS Summit would be held after the SPI Luncheon and that arrangements are being made with the organizer of the SPI with regards to the room that afternoon. Bob reported there would be an official sponsorship package called Silver Sponsor, which will involve a payment of 2000 Euros and may include VAT.

Bob also reported we are working to gather presentations for participation virtually or on site. We expect Weston Beal, Randy Wolff and a few others to participate, but that the official SPI event agenda has not been announced. The reason is that this conference will be completely on site, so while papers may have been accepted, either the authors or proxies must commit to attendance, and we had been informed this is a reason the agenda is not published yet.

Lance Wang asked Bob to clarify the sponsorship topic. Bob stated we are looking for sponsors, where Zuken is one sponsor, and separately, the Instituto de Telecomunicações as a sponsor as they are providing the room as well as refreshments. Weston Beal suggested this be discussed during the Tuesday meeting. Bob agreed. Bob stated that two announcements have been previously sent out on this event to the IBIS email reflector (ibis@freelists.org).

Lance Wang asked if anyone wishes or plans to attend to please email himself or Bob or Randy and stated that papers would still be considered for the IBIS Summit itself. Bob Ross added that there are sponsorship opportunities open for IBIS and for SPI at this time.

QUALITY TASK GROUP

Bob Ross reported the Parser contract is now signed, and also a new item was inserted in it which is BUG240 by Arpad Muranyi. A root name check is not included in this release due to technical issues. The developer issued the first release of the parser, and Bob will discuss that topic with more detail later during this meeting.

Lance Wang asked if there were any questions. None were asked.

Note: 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 shared that the Task Group meetings are at 12:00pm noon Pacific Time (US) on Tuesdays and encourages anyone to join if they have interest. The Task Group is still discussing Kinger Cai's PSIJ BIRD proposal, and a few smaller scope agenda topics, where for example some deal with multi-level PAMn thresholds for legacy I-V based models.

Note: Task group material can be found at:

http://www.IBIS.org/macromodel_wip/

INTERCONNECT TASK GROUP

Arpad Muranyi reported on behalf of Michael Mirmak that they are discussing a new TSIRD to consider a new Touchstone Spec in which perhaps called 2.1 to extend the option line in such a way that multiple port impedances could be listed to enhance the port definitions. The goal would be to do this without any Touchstone 2.0 keywords. There are vendors who seem to have utilized the option line with other schemes. This is a new discussion item for that Task Group. In general, there is discussion about the next Touchstone feature sets, such as port ordering, which is usually commented in the header section, to find an official way to accomplish that. Also, to reduce the file size, and there are schemes under discussion to accomplish that as well. Arpad asked Ted Mido to join as there are some questions the Task Group would have regarding technical details.

Arpad stated one of the questions was the topic of Port Ordering.

Ted Mido asked if he meant regarding the difference between old 4-port and new 4-ports?

Bob Ross clarified if you have one reference impedance, it can currently be option line impedance any order along with the S.

Ted stated he thought you can put anything other than the impedance in any order, but the impedance must occur in the end, even if it is a single value. With other types of values, you can put these in any order, however impedance values must occur at the end of the line (of arguments).

Arpad related his opinion that there is a line in the specification that appears to address this topic in question, thinks it does not define that the impedance and its value have to occur at the end of the option line, and that was his understanding.

Ted stated that if the specification allowed impedance to occur anywhere, the possibilities of mixed arguments would be too complex to handle or parse.

Ted shared an example where, in specifying multiple impedance values, which is when you have plus number of the ports, the question is what the best way is to handle this complexity. For example, in Touchstone 1.0, does not have line continuation, but no limitation for length of a line in a file either. But practically, there is some sort of hard limit. One of the goals of Touchstone 1.0 was to make it human readable to make it understandable system. To then have an option line containing thousands of numbers is not a very good way to follow that purpose.

Arpad also asked, regarding this topic, another question is if there is a line length limit, and what that is defined to be?

Ted offered to identify that in the specification and relay that information offline.

Lance Wang asked if there were any further questions. None were asked.

Note: Task group material can be found at:

http://www.IBIS.org/interconnect_wip/

EDITORIAL TASK GROUP

Lance Wang reported that this is suspended.

Note: Task group material can be found at:

http://www.IBIS.org/editorial_wip/

NEW ADMINISTRATIVE ISSUES

Lance Wang asked if there were any Administrative Issues.

Doug Burns introduced himself as a member attending on behalf of Keysight Technologies and shared his background in Chip Design, Signal Integrity, and IBIS modelling.

There were no other issues discussed.

Roll call: Graham Kus reported a mid-meeting count of 13 attendees.

NEW AND REVISED *IRDS

BIRD223: Add support for SPIM in IBIS (Kinger Cai et al)

Link: <https://ibis.org/birds/bird223.docx>

Arpad Muranyi asked that members share out the BIRD223 text for consideration and any technical or editorial feedback. He shared that the Task Group spent a lot of time in revisions, and now it is time for broader audience consideration.

Bob Ross related that Steve Slater and Heidi Barnes from Keysight Technologies and Dian Yang of Aurora System have been reviewing this BIRD. While there is nothing urgent about it, it is a big BIRD and we wish to effectively vet its content.

Lance Wang re-iterated that while not urgent, encouraged attendees to recruit assistance and to read the entire thing so that this would be an effective addition to the IBIS specification.

Arpad agreed by relaying that even if someone is not specifically interested, then please spread the word so you know someone who is, we would appreciate the feedback.

Lance asked for comments or questions on the BIRD223.

No additional topics were discussed.

IRDS SCHEDULED FOR VOTE

None.

IRDS ELIGIBLE FOR VOTE

None.

TABLED IRDS: (NO DISCUSSION WITHOUT MOTION TO "UNTABLE")

BIRD220: Pre-driver PSIJ Sensitivity Keyword

Ding et al

Link:

<https://IBIS.org/birds/bird220.docx>

Arpad Muranyi reported that the reason BIRD220 is tabled is so that we can consider it along side BIRD223 so that a decision can be made whether their content can co-exist in the IBIS Specification or if they should be considered one or the other in the event there is technical overlap. This would provide the opportunity to make that side-by-side comparison.

IBISCHK AND TSCHK PARSER AND BUG STATUS

IBISCHK Parser:

Bob Ross reported that the IBIS parser contract has been signed. The first version of the parser has been delivered for evaluation. Bob is working with the Quality Task Group to evaluate but he is doing a lot of the work, for example 15 test cases that are new parts of the parser for IBIS7.2.0. The way the parser Developer works is they can do multiple tests in one file. Some of the test cases can have up to 40 or 50 error messages issued and each be evaluated to be sure that in the IBIS7.2.0 release. We have included all the BIRDS we have to date, which is 6 to 7 BIRDS as well as BUG240 because that was a crash, and easy to fix.

The status is we are evaluating the release and if there are problems, we will feed them back to the parser Developer and then that would result in a new release. We are not clear on the timeline. For example, if this release were clean, then he would distribute it to the license to licenses owners. Bob shared that members that own the license are free to evaluate the current version of the parser.

Also, some other bugs such as BUG227 are pushed to later versions of the parser release.

In summary, there are several issues that can occur. For example, the symbol size can cause an unstable crash mode. The Root_Name can also cause a crash. Therefore, while these will be in the IBIS specification, they will not be tested by the IBIS parser in this release. It is a complicated scenario and so it will be pushed for those reasons to a future Parser release.

TSCHK Parser:

No updated was reported.

NEW ADMINISTRATIVE ISSUES

Lance Wang asked Bob Ross to begin discussion about Officer Elections.

Bob mentioned that several people would be changing Affiliations. The issue is that several people may be willing to serve but would require permission from their organization to serve. Bob summarized the current IBIS Officer Positions and Members serving in these roles (see NOTES section below). Bob reminded the attendees that by IBIS Policy, the Officers that require formal IBIS membership are by the Chair and Vice Chair. All other Officers do not have to be affiliated with a member company.

Arpad Muranyi asked when the Officer nominations and voting would occur.

Bob shared it would be beginning of May when nominations would occur and then according to IBIS Policies and Procedures it would conclude in the June time frame. People are permitted to be nominated or self-nominate.

Lance stated that people are encouraged to join the organization and any recommended companies or individuals in the industry would be considered.

Bob relayed that the nomination period would run approximately May 15 to May 29 for 2 weeks, followed by a voting period approximately between May 30 to June 15, at the conclusion of which time, the Officers take positions immediately.

Bob expressed a caveat would be these dates are only for discussion, the actual dates would have to be weekday or working days. And the specific dates would be finalized at a later date. He summarized the policies and procedures for the voting period as well as a summary of the voting eligibility of member organizations where there are currently 24 member companies at this point for 2023.

The Vice Chair, Lance Wang recognized that the Chair, Randy Wolff joined the meeting.

Randy shared that he is leaving Micron after 23 years and will be taking a position at Siemens in the same team with Arpad Muranyi. Randy shared that he intends to step away from the Chair role in June but will continue to be involved in IBIS in the future.

Bob Ross suggested that support would be provided to the new Chair as there are many issues dealing with and the existing Officers would provide support during the transition of roles.

Randy shared he held the Chair role for some 4 years and related that it is a role that comes with support from various veteran members. He shared the role involves occasionally operating as signature authority representing IBIS on contracts, but more typically involves sharing out IBIS Site / Summit / Conference Announcements and arranging reservations for conference and IBIS Summit meeting rooms and other logistics such as ensuring the cake is not a lie.

Randy stated that all Officer Positions are open, and that those considering continuing their role are encouraged to do so. Randy asked please consider a Board Position and to let the Board (by email to Randy or Lance Wang) if there are any nominations.

Bob related that he would be monitoring the official voting members and as Treasurer would be keeping track of that during the transition.

Lance Wang asked if there were any further questions or topics.

No additional topics were raised.

NEXT MEETING

Lance Wang stated that the next IBIS Open Forum meeting date would be April 21, 2023. The European IBIS Summit with IEEE SPI is scheduled for May 10, 2023. The following IBIS Open Forum meeting is scheduled for May 12, 2023.

Lance asked if there were any further topics or questions.

None were raised.

Lance asked if there was a motion to adjourn. Arpad Muranyi moved to adjourn. Curtis Clark seconded. There were no objections. The meeting was adjourned.

NOTES

IBIS CHAIR: Randy Wolff
randy.wolff@ibis.org

VICE CHAIR: Lance Wang (978) 633-3388
lance.wang@ibis.org
Solutions Architect, Zuken USA
238 Littleton Road, Suite 100
Westford, MA 01886

SECRETARY: Graham Kus
graham.kus@ibis.org
Senior Engineer, The MathWorks, Inc.
3 Apple Hill Drive
Natick, MA 01760

TREASURER: Bob Ross (503) 246-8048
bob@teraspeedlabs.com
Engineer, Teraspeed Labs
10238 SW Lancaster Road
Portland, OR 97219

LIBRARIAN: Zhiping Yang
zhiping.yang@ibis.org

WEBMASTER: Steven Parker (845) 372-3294
sparker@marvell.com
Senior Staff Engineer, DSP, Marvell
2070 Route 52
Hopewell Junction, NY 12533-3507

POSTMASTER: Curtis Clark
curtis.clark@ansys.com
Ansys, Inc.
400 Fifth Avenue
Suite 500
Waltham, MA 02451

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 or unsubscribe from the official ibis@freelists.org and/or ibis-users@freelists.org email lists (formerly ibis@eda.org and ibis-users@eda.org):
 - <https://www.freelists.org/list/ibis>
 - <https://www.freelists.org/list/ibis-users>
- To subscribe to or unsubscribe from one of the task group email lists: ibis-macro@freelists.org, ibis-interconn@freelists.org, ibis-editorial@freelists.org, or ibis-quality@freelists.org:
 - <https://www.freelists.org/list/ibis-macro>
 - <https://www.freelists.org/list/ibis-interconn>
 - <https://www.freelists.org/list/ibis-editorial>
 - <https://www.freelists.org/list/ibis-quality>
- 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: `ibischk7`, `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>

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](http://www.ibis.org) for more information on previous discussions and results:

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

Other trademarks, brands and names are the property of their respective owners.

SAE STANDARDS BALLOT VOTING STATUS (attendee X; absent -)

Organization	Interest Category	Standards Ballot Voting Status	Feb. 3, 2023	Feb. 17, 2023	Mar. 10, 2023	Mar. 31, 2023
Altair	User	Inactive	-	-	-	-
AMD (Xilinx)	Producer	Inactive	-	-	-	-
Analog Devices (Maxim Integrated)	Producer	Inactive	-	-	-	-
Ansys	User	Active	X	X	X	X
Applied Simulation Technology	User	Inactive	-	-	-	-
Aurora System	User	Inactive	X	-	-	-
Broadcom Ltd.	Producer	Inactive	-	-	-	-
Cadence Design Systems	User	Active	X	-	X	X
Celestica	User	Inactive	-	-	-	-
Cisco Systems	User	Inactive	X	-	-	-
Dassault Systemes	User	Inactive	X	-	-	-
GE Healthcare Technologies	User	Active	-	-	-	-
Google	User	Inactive	-	-	-	-
Huawei Technologies	Producer	Inactive	-	-	-	-
Infineon Technologies AG	Producer	Inactive	-	-	-	-
Instituto de Telecomunicações	User	Inactive	-	-	-	-
Intel Corp.	Producer	Active	X	X	X	X
Keysight Technologies	User	Inactive	-	-	-	X
Marvell	Producer	Active	X	-	X	X
MathWorks	User	Active	X	X	X	X
Micron Technology	Producer	Active	X	X	X	X
MST EMC Lab	User	Inactive	-	-	-	-
SerDesDesign.com	User	Inactive	X	-	-	-
Siemens EDA	User	Active	X	X	X	X
STMicroelectronics	Producer	Inactive	-	-	-	-
Synopsys	User	Active	X	X	X	X
Teraspeed Labs	General Interest	Active	X	X	X	X
Waymo	User	Active	-	X	X	-
ZTE Corp.	User	Inactive	-	-	-	-
Zuken	User	Active	X	-	X	X

= Temporarily not a voting member

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 (voting by email counts as attendance)

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.