



## IBIS Open Forum Minutes

Meeting Date: **February 17, 2023**

Meeting Location: **Teleconference**

### VOTING MEMBERS AND 2023 PARTICIPANTS

Altair	(JuneSang Lee)
AMD (Xilinx)	(Bassam Mansour)
Analog Devices (Maxim Integrated)	(Tushar Pandey)
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
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)
MST EMC Lab	John Baprawski
SerDesDesign.com	Arpad Muranyi*, Weston Beal*, Matthew Leslie, Todd Westerhoff, Scott Wedge, Mikael Stahlberg
Siemens EDA	(Olivier Bayet)
STMicroelectronics	Ted Mido*
Synopsys	Bob Ross*
Teraspeed Labs	Zhiping Yang*
Waymo	(Shunlin Zhu)
ZTE Corporation	Michael Schäder
Zuken	Lance Wang
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

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](mailto: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.

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## INTRODUCTIONS AND MEETING QUORUM

Graham Kus declared that a quorum had not been reached with 7 member-companies attending at the start of the meeting.

## 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. Patents were not declared.

## REVIEW OF MINUTES AND ARS

Randy Wolff called for comments on the minutes of the January 27, 2023, IBIS Open Forum teleconference. Arpad Muranyi moved to approve the minutes. Bob Ross seconded the motion. There were no objections. The motion passed.

The Minutes are available at the following link:

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

Randy reviewed ARs from the previous meeting.

- Randy Wolff to meet with SAE ITC about IEEE IBIS standardization and provide update [AR]
- This was completed.
- Randy Wolff to send out DesignCon IBIS Summit Agenda [AR]
- This was completed.
- Bob Ross to respond to IEEE SPI organizers confirming IBIS Summit and get details on cost [AR]
- This was completed.
- Michael Mirmak to prepare official IBIS 7.2 document for posting [AR]
- This was completed.
- Steven Parker to post IBIS 7.2 and update IBIS home page banner [AR]
- This was completed.
- Randy Wolff to send email announcement of IBIS 7.2 once posted [AR]
- This was completed.
- Steven Parker to update Supporting Version column for IBIS 7.2 BIRDs [AR]
- This was completed.

## ANNOUNCEMENTS, CALL FOR ADDITIONAL AGENDA ITEMS

Randy Wolff asked for any announcements. Graham Kus announced that The MathWorks would like to again extend an invitation to host the IBIS Open Forum for the February 2024 session adjacent to DesignCon convention center at their Mission Tower complex in Santa Clara, CA. There was some discussion about the space being local and convenient to the DesignCon conference location.

## MEMBERSHIP STATUS AND TREASURER'S REPORT

Bob Ross reported that for 2023, we have 29 members and a quorum of 8. Membership renewals are slowly trickling in. Currently we have 10 renewals and 1 new member for 2023.

We still expect about a \$6,000 assessment from SAE ITC for 2022 services to be recorded on December 31, 2022 after the numbers are available in 2023.

One new membership is pending. We expect to pay for the DesignCon IBIS Summit dinner and catering.

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**\$26,561** Balance for 2022 (**without SAE ITC assessment**)

**\$25,311** Adjusted Balance for 2022

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**\$7,700** Balance for 2023

**\$12,750** Adjusted Balance for 2023 (Note, 2020 ZTE sponsorship moved forward to 2023)

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## **WEBSITE ADMINISTRATION**

Randy Wolff reported for Steven Parker that there are post-conference tasks to complete related to DesignCon 2023, such as minutes to post and linking in video and photos for the summit that needs to be updated. Steven to update these items [AR].

## **MAILING LIST ADMINISTRATION**

Curtis Clark reported that one attendee has switched between member companies but otherwise there are no updates. When that is confirmed the list of attendees would be updated.

## **LIBRARY UPDATE**

Zhiping Yang reported there are no updates.

## **INTERNATIONAL/EXTERNAL ACTIVITIES**

### Conferences:

SPI2023 – The 27th IEEE Workshop on Signal and Power Integrity (May 07-10, 2023, Aveiro, Portugal). Randy reported that this paper deadline is still open to submit papers through the end of the week ending February 20, 2023.

Link:

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

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

Link:

<https://emc2023.org/>

### Press Updates

Randy Wolff reported that SAE ITC would most likely post a “30 years of IBIS” note on their website. It is also expected that we would see Signal Integrity Journal publish an article by Donald Telian on 30 years of IBIS. Also, there is an upcoming SAE ITC press release on the IBIS 7.2 release. Randy took an action to provide the link when available [AR].

### Related Standards

Michael Mirmak reported that DASC will be having their conference in Person in the first week of March 2, 2023. No major announcements or changes are expected. Michael will update the Open Forum on anything else discussed.

Link:

<https://dvcon.org/>

## IEEE IBIS Standardization

Randy Wolff reported there was a meeting three weeks ago with Bob Ross, met with Michael McNair and Jose Godoy to discuss dual logo process with IEEE and SAE ITC. Action items that came out of the discussion- for one we talked about the “right home” for IBIS. Michael was curious if we had researched having IBIS as part of the IEEE umbrella. We have discussed this with IEEE-DASC. Michael’s AR was if IEEE has any consortium equivalent to Consortium like SAE ITC. The Consortium has membership by-company, where IEEE has membership-by-individual. Michael is going to do more research on that. Michael will also find out the process of dual logo with SAE ITC and IEEE, which has happened before. Michael would also gather information on the official standards process that SAE ITC have used. Randy said we need to understand how to standardize a version of IBIS on this path.

Zhiping Yang reported as having had some discussion with IEEE previously on related topics, and offered to contribute with the meetings going forward with Michael McNair. Randy agreed that would be helpful and to forward the relevant email thread.

Michael Mirmak asked whether there has there been any action under the IEEE Get program, where the IBIS Standard would be provided free of charge to the industry, if it still exists.

Graham Kus asked about whether the IBIS Open Forum should consider independence as observed with PCI-SIG or USB-IF or OIF.

Michael reported that these organizations are all managed by the same company- the same economic management, incorporated, access to attorney, accounting, etc., is outsourced to the same standards non-profit management organization.

Bottom line is that the costs moving to that independent model would be prohibitive or result in prohibitive dues for IBIS Open Forum membership. Randy agreed that the costs were found to be prohibitive in a previous evaluation.

## IBIS Summits:

DesignCon 2023 IBIS Summit (February 3, 2023, Santa Clara, CA):

Link:

<https://IBIS.org/summits/feb23/>

Randy Wolff reported that this overall went well at the meeting room at the MathWorks building in Santa Clara, CA. Catering of the meal was of good quality. Conversely, when it came to the second caterer responsible for the cake, it was so late it was postulated that the cake was a lie. However, in the end, there was cake after all. The audio was very good compared to pass years using an audio puck. Bob Ross reported that people could not do remote presentations. This is most likely a Microsoft Teams issue with those settings. Bob reported there were 10 presentations and that it was a full meeting schedule-wise. Randy compiled the videos into a single recording. Randy stated it was a health sized crowd to see at the 30 year of IBIS celebration and everyone enjoyed the presentations, specifically recommended to review the History of IBIS presentation in the video link.

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

Link:

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

Randy Wolff reported we are continuing to plan on this. This would be the IBIS summit the afternoon Wednesday the 10<sup>th</sup> at 2pm local time. The SPI runs until 12:30pm and followed by a lunch. The plan is to run a 2pm-6pm. IEEE SPI has already advertised the details on the website. Bob Ross stated this would be a hybrid meeting rather than on-site meeting only. However SPI requires on-site attendance so any contributors would have to attend in person. Bob stated that Zuken would be a co-sponsor where in the past they have picked up the refreshment/meal tab. There was discussion about how to handle this with anticipated low attendee count. Randy stated he will take an AR for Steven Parker to put a link on the website for this conference [AR].

The Open Forum members held discussion about the IEEE EMC+SIPI conference.

Link:

<https://www.emcs.org/ieee-symposia-schedule.html>

Bob Ross reported that this is an on-site only meeting this year. Therefore, it is not certain whether IBIS Open Forum would be permitted to conduct a hybrid summit. We would anticipate choosing August 4<sup>th</sup> for the Summit. There was discussion about the logistics of how to set up a hybrid summit with a Microsoft Teams meeting that would enable remote presentations and so forth. Zhiping Yang stated he would reach out to confirm the details. Also, that if there were interest to create an IBIS track, he would be willing to support that. Also, if there would be interest to do an IBIS panel, that might be of interest.

## QUALITY TASK GROUP

Bob Ross reported that Michael Schäder of Zuken wanted to contribute to the quality report. Also, that Weston Beal wanted to contribute to the specification update. We also discussed the parser contract which will come up later in the meeting. Randy Wolff clarified that Weston's presentation covered some of the Power Integrity issues for IBIS.

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

[http://www.IBIS.org/quality\\_wip/](http://www.IBIS.org/quality_wip/)

## ADVANCED TECHNOLOGY MODELING TASK GROUP

Arpad Muranyi reported it is usually meeting time on Tuesdays at 12:00 noon Pacific US time. One of the issues on hand is Standard Power Integrity Model (SPIM) modelling by Kinger Cai's group. The other is power supply induced jitter which we have not discussed in great deal, which would be the next. Arpad stated he sent feedback on the draft and anticipates draft review at some point. Another topic is to add multi-level stimulus to IBIS to support PAMn modelling with the legacy model keyword basically. Also, another item related to AMI Buffer GetWave Block size when we have "continually-adapting" models would potentially be discussed in the future.

**Note:** Task group material can be found at:

[http://www.IBIS.org/macromodel\\_wip/](http://www.IBIS.org/macromodel_wip/)

## **INTERCONNECT TASK GROUP**

Michael Mirmak reported that this task group has resumed by completing its 2<sup>nd</sup> meeting previous Wednesday. It is held 8:00 am Pacific US on Wednesdays. It continues to discuss lack of support for Touchstone 2.0 features, can we ensure that Touchstone 1.0 does not have to be re-done to support port ordering or compression. Any individuals interested are more than welcome to subscribe to the reflectors to contribute.

**Note:** Task group material can be found at:

[http://www.IBIS.org/interconnect\\_wip/](http://www.IBIS.org/interconnect_wip/)

## **EDITORIAL TASK GROUP**

Michael Mirmak reported that meetings are suspended at this time.

**Note:** Task group material can be found at:

[http://www.IBIS.org/editorial\\_wip/](http://www.IBIS.org/editorial_wip/)

## **NEW ADMINISTRATIVE ISSUES**

Randy Wolff asked if there were any new issues. Some/None were raised.

Roll call: Graham Kus reported a mid-meeting count of 8 organizations in attendance, establishing a Quorum.

## **NEW AND REVISED \*IRDS**

None.

## **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>

There was no discussion on this topic.

## **IBISCHK AND TSCHK PARSER AND BUG STATUS**

IBISCHK Parser:

Bob Ross reported that we have Apple intel and M CPU complied executables. Thanks to Randy on providing updated checksums. We still have a user guide in development. This is what Weston Beal has recently worked on and we will take a look and see and that is likely to

be uploaded later. For this parser page, most of the collateral is completed. Bob noted that David Banas of Cadence supplied the MAC executables. Please contact Bob if any issues with checksum mismatch are found.

TSCHK Parser:

Bob reported that we now have a 64-bit TSCHK2 Parser and that Michael Schäder of Zuken provided the 64-bit TSCHK2 executable.

Possible bugs or enhancements:

Bob reported we are still discussion old platform issues with IBISCHK, static vs. dynamic link library. This could become a bug report or possible enhancement. Michael Mirmak suggested the error message could be made more clear.

IBISCHK 7.2.0 Parser Contract

Bob reported the numbers are \$2000 for delivery of open forum code. The delivery date is March 20, 2023. The reason this has been pushed out due to time estimate. The reason is the developer would be on vacation. We want to approve or pre-approve the expenditure of this contract as we have a Quorum in this meeting.

Bob motioned to approve this expenditure. Michael Mirmak seconded. Randy Wolff asked if there were any objections. There were no objections. The motion carried.

Bob took the AR to start the signature process for the Parser Contract [AR].

## NEW TECHNICAL ISSUES

None.

## NEXT MEETING

Randy Wolff stated that the next IBIS Open Forum meeting date would be March 10, 2023. The following IBIS Open Forum meeting is scheduled for March 31, 2023. There were no objections.

Michael Mirmak moved to adjourn. Arpad Muranyi seconded. There were no objections. The meeting was adjourned.

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## NOTES

IBIS CHAIR: Randy Wolff (208) 363-1764

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This meeting was conducted in accordance with SAE ITC guidelines.

All inquiries may be sent to [info@IBIS.org](mailto: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](mailto:IBIS@freelists.org) and/or [IBIS-users@freelists.org](mailto:IBIS-users@freelists.org) email lists (formerly [IBIS@eda.org](mailto:IBIS@eda.org) and [IBIS-users@eda.org](mailto: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](mailto:IBIS-macro@freelists.org), [IBIS-interconn@freelists.org](mailto:IBIS-interconn@freelists.org), [IBIS-editorial@freelists.org](mailto:IBIS-editorial@freelists.org), or [IBIS-quality@freelists.org](mailto: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: 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>

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](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>

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	Jan. 6, 2023	Jan. 27, 2023	Feb. 3, 2023	Feb. 17, 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	-
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	-	-	-	-
Marvell	Producer	Inactive	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
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.