



## IBIS Open Forum Minutes

Meeting Date: **February 16, 2024**

Meeting Location: **Teleconference**

### VOTING MEMBERS AND 2024 PARTICIPANTS

Altair	(JuneSang Lee)
AMD (Xilinx)	(Bassam Mansour)
Ansys	Curtis Clark*
Ansys Japan	Satoshi Endo
Applied Simulation Technology	(Fred Balistreri)
Aurora System	(Dian Yang), Raj Raghuram
Broadcom	(Yunong Gan)
Cadence Design Systems	Kyle Lake, Amrbrish Varma, Jared James, John Phillips, Kristoffer Skytte
Celestica	(Sophia Feng)
Cisco Systems	(Stephen Searce), Hong-Man 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	Michael Mirmak*, Hsinho Wu*, Kinger Cai, Chi-te Chen
Keysight Technologies	Pegah Alavi, Ming Yan, David Banas, Fangyi Rao, HeeSoo Lee, Heidi Barnes
Marvell	Steven Parker*
MathWorks	Graham Kus*, Walter Katz
Micron Technology	Justin Butterfield
MST EMC Lab	Chulsoon Hwang, Zhiping Yang*
Siemens EDA	Weston Beal*, Arpad Muranyi*, Randy Wolff*, Matt Leslie, Scott Wedge, Todd Westerhoff, Zhichao Deng
STMicroelectronics	Anil-Kumar Dwivedi , Bhupendra Singh, Harsh Saini, Hemant Kumar Gangwar, Manda Padma Sindhuja, Manish Bansal, Nitin Kumar, Olivier Bayet, Pawan Verma, Pranav Singh, Rahul Kumar, Raushan Kumar, Shivam Soni, Gaurav Goel
Synopsys	Ted Mido*, (Andy Tai)
Teraspeed Labs	Bob Ross
Waymo	(Feng Wang), [Ji Zhang]
ZTE Corporation	(Zhongmin Wei), (Shunlin Zhu)
Zuken	(Ralf Brüning)
Zuken USA	Lance Wang*

### OTHER PARTICIPANTS IN 2024

Alphawave Semi	Adrien Auge, Todd Bermensolo
Applied Logix	Dan Chirpich
Ciena	Hugues Tournier
KEI Systems	Shinichi Maeda
KT Smart Future-Creations	Keita Miyasato

Meta  
Northrop Grumman Corp.  
SAE-ITC  
SI-Clarity  
Signal Edge Solutions  
Si-Guys  
Socionext America  
Toyobo Co.  
University of Illinois Urbana-Champaign

Ashkan Hashemi  
Will McCaffrey  
Tammy Patton  
Doug Burns  
Benjamin Dannan  
Donald Telian  
Futoshi Terasawa  
Saki Kawano  
Jose Schutt-Aine

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](https://teams.bjn.vc/106010980)

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

Roll Call: Graham Kus announced a meeting quorum was met with 8 member companies represented.

## 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. None were announced.

## REVIEW OF MINUTES AND ARS

- January 6, 2024 Minutes
  - o Randy Wolff motioned to approve the minutes. Curtis Clark seconded the motion. Minutes were approved.

- Minutes, February 2, 2024 IBIS Summit at DesignCon in Santa Clara, CA
  - o Randy Wolff motioned to approve the minutes. Curtis Clark seconded the motion. Minutes were approved.
  
- Lance to update the approval status of BIRD228 on the website – done.

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

Lance Wang called for any new announcements. None were announced.

## **MEMBERSHIP STATUS AND TREASURER'S REPORT**

Graham Kus reported on behalf of Bob Ross – As of Bob's email provided January 25, 2024:

"The year 2023 closes with 29 Voting Members.

Currently there are 12 membership renewals for 2024. One member has dropped, so the total is 28. This makes the quorum requirement to be 7.

However, another member re-join is pending.

One small DesignCon related expense was paid to Lance Wang. More payments are expected after DesignCon for other credit card expenses.

We also expect an SAE ITC 2023 assessment to be entered after SAE ITC closes the accounting books. The amount is usually available around February 2024.

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**\$22,504** Balance for 2023

**\$19,904** Adjusted Balance for 2023 (with 2020 \$2000.00 ZTE sponsorship moved forward to 2023 and subtracting 2024 dues payments

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**\$4,855** Balance for 2024

**\$12,516** Adjusted Balance for 2024 (adding the 2024 IBIS membership renewals received in 2023, indicated by "(7)")

## **WEBSITE ADMINISTRATION**

Steve Parker reported that everything is in order with BlueHost.com. He reported to have made updates to minutes, attachments and also updates relating to Interconnect Task Group. He reported that going forward what the IBIS Open Forum is trying to do is to have some goals with regards to the website. One goal is to let the various Task Group Leaders interact with the website to post minutes, rather than have himself (e.g. Steve) act as a gatekeeper. The objective proposal is to bring back ideas and also, how it would work through-out the life cycle of the website, for example maintenance and archives. The target is to bring a proposal to the Open Forum meeting in the March 2024 time period or thereabouts.

## **MAILING LIST**

Curtis Clark reported on finishing culling stale email address after confirmation of inactive status. Curtis reported two new memberships for ATM and one for IBIS Quality.

## **LIBRARY UPDATE**

Zhiping Yang reported no inquiries or changes on library side. Graham Kus reported that some vendors have moved collateral such as IBIS-AMI and .PDF behind an NDA wall. Lance asked

Graham to return with updates if specifics are available such as website links to submit information by IBIS Open Forum for access.

## **UNIVERSITY RELATIONS**

Zhiping Yang reported on behalf of Professor Chulsoon Hwang that there are no updates.

## **INTERNATIONAL/EXTERNAL ACTIVITIES**

- Conferences

SPI2024 – the 28th IEEE Workshop on Signal and Power Integrity will be held in Lisbon, Portugal on May 12-15, 2024. An IBIS Summit will be held after the event. More information is available at the following link:

<https://spi2024.av.it.pt/>

- Press Update

No updates reported.

- Related Standards: IEC 63055/IEEE 2401, JEITA "LPB"

Michael Mirmak there are no pending updates. Michael stated the next meeting for DASC will be March 7, 2024.

## **SUMMIT PLANNING AND REVIEW**

### DesignCon 2024:

Lance reported on review/retrospective that it was a good conference, with the IBIS Summit itself being held at the Mission Towers complex hosted by MathWorks. Lance also expressly thanked the other Sponsors: Cadence, Keysight and Siemens. Randy Wolff reported attendees being 60. Graham added that 2 additional dial-ins noted later on had brought the total to 62 attendees.

### SPI IBIS Summit

Location:

- May 12-15, 2024, Lisbon, Portugal. This is a Sunday-afternoon start of the conference. The plan of record is to hold the IBIS Summit Wednesday afternoon, after SPI closes.

Notes: Lance Wang reports that logistics have yet to be completed.

More information is available at the following link:

<https://spi2024.av.it.pt/ibis-summit/>

### IEEE EMC+SIPI 2024 IBIS Summit

Location:

- August 5-9, Phoenix, AZ.

Notes: Lance Wang reports the logistics will be worked on. Zhiping Yang reported that he submitted approval for a room in which to hold the event. Also, Zhiping reported that as for catering concerns, a sponsorship was secured from the IEEE EMC Society as to standard-

related activity for these items. Further details are expected to follow as the conference date approaches.

More information is available at the following link:

<https://www.emc2024.org/>

## QUALITY TASK GROUP

Randy Wolff reported on behalf of Bob Ross that this Task Group has not met for a couple of weeks. The Task Group has email correspondence with the Parser Developer regarding the Touchstone 2.1 parser, and this summarizes the issues at hand.

**Note:** The Quality Task Group checklist and other documentation can be found at:

[https://ibis.org/quality\\_wip/](https://ibis.org/quality_wip/)

## ADVANCED TECHNOLOGY MODELING TASK GROUP

Arpad Muranyi reported this Task Group just finished Michael Mirmak's proposal regarding an update to BIRD229.1, entitled "AMI Test Data Proposal." This had been submitted to IBIS Open Forum for discussion. Also, there has been some discussion about Block\_Size, and confusion about that to clarify. Most likely there will be a BIRD to make changes in the text in the IBIS Specification to clarify what is meant by block size: for example, some interpretations could be "size of UI or symbol" or "sampling interval of UI or symbol" or "a population of UIs or symbols." Also, there is a concept of place holders: where in most cases, these are declared as Variable Type "String," but if we have a parameter that is a Numerical Variable Type, we cannot use a Variable cast as a "String," so the question is what to do with numerical values should they occur. Randy Wolff stated that the main parameter of concern for this case is DC\_Offset.

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

[https://ibis.org/macromodel\\_wip/](https://ibis.org/macromodel_wip/)

## INTERCONNECT TASK GROUP

Michael Mirmak reported that the next update topic is with regards to Pole-Residue. Michael expressed thanks to Arpad Muranyi for helping to edit and review the some 22 drafts as part of the effort. Michael reported the next steps are two-fold:

- In preparation for Touchstone 3, we are returning the port mapping topic.
- Arpad reported that during his work on Pole-Residue, it was revealed that a few small changes could be made (which should not take much time to finalize) to convert the option line to keywords in Touchstone 3.**Note:** Task group material can be found at:

[https://ibis.org/interconnect\\_wip/](https://ibis.org/interconnect_wip/)

## EDITORIAL TASK GROUP

This group remains suspended.

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

[https://ibis.org/editorial\\_wip/](https://ibis.org/editorial_wip/)

## NEW ADMINISTRATIVE ISSUES

No issues reported.

## **ROLL CALL**

Mid-meeting roll call: Graham Kus reported 8 member companies with a quorum met.

## **TECHNICAL DISCUSSION**

Randy Wolff reported on the IBIS 7.2, "Known Issues" document. For example, this document is how editorial fixes are tracked. Lance Wang reported that on the IBIS website, navigating to the page link for IBIS version 7.2, a listing is available. Lance thanked Michael Mirmak for reviewing the document for editorial updates.

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

BIRD229.1: AMI Test Data Support

Link: <https://ibis.org/birds/bird229.docx>

Michael Mirmak reported this is a set of relatively small changes to support the "ami\_configuration" keyword. If one reviews the IBIS Summit material, Michael states he provided an overview of features of that this BIRD would enable. This being, to remove repeated text, and also change one of the parameters from optional to required. This is after significant review in IBIS ATM. Otherwise the text is unchanged. Michael asks others to please do give it a read and review the presentation of the IBIS Summit; feedback is welcome.

TSIRD7: Standardized Pole-Residue Representation of Touchstone Data

Link: [https://app.ibis.org/media/doc\\_files/tsird7.docx](https://app.ibis.org/media/doc_files/tsird7.docx)

Arpad Muranyi reported that the main goal of this TSIRD is to reduce file size by replacing the frequency table formatted model data to pole-residue format. The technique of Pole Residue is familiar to the EDA Vendors at large. Arpad stated this technology has existed for 20 years if not more, which means that (expectedly - editor) there is no new technical content in this proposal. The goal is to just standardize the pole-residue data format for easier file exchange between customers and vendors. Arpad said there have been 22 versions of the draft, including extensive discussions for over a year, and this is the result of that work. Arpad requested that people take a serious look at the proposal and provide feedback so that it could become useful for everybody.

Michael Mirmak commented that the Touchstone 2.1 specification does not support some TSIRDS which are listed on the website, so that needs to be corrected. Lance Wang asked if Binary support was one of those (yes - editor). Randy Wolff stated that those cells could just be left empty. The discussion concluded.

## **IRDS SCHEDULED FOR VOTE**

None reported.

## **IRDS ELIGIBLE FOR VOTE**

None reported.

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

- BIRD220: Pre-driver PSIJ Sensitivity Keyword                      Ding et al

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

**IBISCHK AND TSCHK PARSER AND BUG STATUS**

Randy Wolff reported on behalf of Bob Ross that BUG246 was classified during the previous IBIS Open Forum teleconference meeting, but needs to be updated on the website. Randy stated there is a TSCHK to parse Touchstone files for Touchstone 2.1, which is in progress and the Parser Developer is close to having a release ready for test. Randy stated there may be a TSCHK parser available for use in approximately a 2-3 week timeframe.

**NEW TECHNICAL ISSUES**

None reported.

**NEXT MEETING AGENDA AND SCHEDULING**

Lance Wang stated the next IBIS Open Forum teleconference meeting would be held as a teleconference meeting on March 8, 2024, and the following date of March 29, 2024.

Michael Mirmak motioned to adjourn. Curtis Clark 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](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: `ibischk7`, `tschk2`, `icmchk1`, `s2IBIS`, `s2IBIS2` and `s2iplt`.

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

<https://ibis.org/bugs/ibischk/>  
<https://ibis.org/bugs/ibischk/bugform.txt>

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

<https://ibis.org/bugs/tschk/>  
<https://ibis.org/bugs/tschk/bugform.txt>

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

<https://ibis.org/bugs/icmchk/>  
[https://ibis.org/bugs/icmchk/icm\\_bugform.txt](https://ibis.org/bugs/icmchk/icm_bugform.txt)

To report `s2IBIS`, `s2IBIS2` and `s2iplt` bugs, use the Bug Report Forms which reside at:

<https://ibis.org/bugs/s2IBIS/bugs2i.txt>  
<https://ibis.org/bugs/s2IBIS2/bugs2i2.txt>  
<https://ibis.org/bugs/s2iplt/bugsplt.txt>

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



<https://ibis.org/>

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

<https://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 5, 2024	Jan 26, 2024	Feb 2, 2024	Feb 16, 2024
Altair	User	Inactive	-	-	-	-
AMD (Xilinx)	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	Inactive	X	X	X	-
Celestica	User	Inactive	-	-	-	-
Cisco Systems	User	Inactive	-	-	X	-
Dassault Systemes	User	Inactive	-	-	-	-
GE Healthcare Technologies	User	Inactive	-	-	-	-
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
MathWorks	User	Active	-	X	X	X
Micron Technology	Producer	Inactive	-	-	X	-
MST EMC Lab	User	Active	X	X	X	X
Siemens EDA	User	Active	X	X	X	X
STMicroelectronics	Producer	Inactive	-	-	X	-
Synopsys	User	Active	X	X	X	X
Teraspeed Labs	General Interest	Inactive	X	X	X	-
Waymo	User	Inactive	-	-	-	-
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.