



IBIS Open Forum Minutes

Meeting Date: **April 19, 2024**

Meeting Location: **Teleconference**

VOTING MEMBERS AND 2024 PARTICIPANTS

Altair	(JuneSang Lee)
AMD (Xilinx)	(Bassam Mansour)
Analog Devices	Jermaine Lim-Abroguena
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*, Ambrish 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	(Tom Dagastino), [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	Ashkan Hashemi
Northrop Grumman Corp.	Will McCaffrey
SAE ITC	Tammy Patton*
SI-Clarity	Doug Burns
Signal Edge Solutions	Benjamin Dannan
Si-Guys	Donald Telian
Socionext America	Futoshi Terasawa
Teraspeed Labs	[Bob Ross]
Toyobo Co.	Saki Kawano
University of Illinois Urbana-Champaign	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

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

Roll Call: Graham Kus announced a total of 6 organization members attending – quorum not met by 1 at this point but have received 2 email votes from separate member organizations that were unable to attend this meeting which meets quorum of scheduled ballots for voting requirements.

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.

None were announced.

REVIEW OF MINUTES AND ARs

- March 29, 2024 Minutes
 - o Arpad Muranyi motioned, Kyle Lake Seconded. No objections, motion passed.
- Lance to reconfirm a model review committee [AR]

ANNOUNCEMENTS, CALL FOR ADDITIONAL AGENDA ITEMS

Randy Wolff called for any new announcements. None were reported.

MEMBERSHIP STATUS AND TREASURER'S REPORT

Randy Wolff reported we have 3 more member renewals completed for a total of 21. One renewal occurred in December 2023 but was not verified until recently. Some payments are in progress.

We still have 29 members with a quorum of 8.

The SAE ITC 2023 assessment has not been reported yet. A payment to Graham Kus for DesignCon expenses has been made. A 2,000 Euro payment for SPI IBIS Summit is approved by SAE ITC but not yet completed. A payment to Randy Wolff to reimburse for flowers for the Ross family is in progress.

\$9,058 Balance for 2024

\$17,608 Adjusted Balance for 2024 (adding the 2024 IBIS membership renewals received in 2023, indicated by "(7)")

WEBSITE ADMINISTRATION

Randy Wolff spoke about cost for app.ibis.org. He asked Steven Parker if there should be something to be submitted for that. Steven would request \$120 add-on for those enhancements per year. Randy stated it was a small amount and could be added to the existing Website budget for the next billing cycle that applies.

Link: <https://ibis.org/>

MAILING LIST

Randy Wolff reported for Curtis Clark there are no updates.

LIBRARY UPDATE

Randy Wolff reported for Zhiping Wang that meeting last week to discuss University Engagement, more IBIS Training, IBIS type class for MST and discussed availability for open IBIS-AMI models, etc. and would encourage any open library items to be made available on the

<https://www.ibis.org> website. Looking into potential of scholarship funds in Bob Ross' name. Waiting for more of a group discussion quorum for that discussion further.

Arpad Muranyi commented he used to give IBIS modelling classes, the material he used is still available on the website and could be possibly helpful for a starting point.

Graham Kus mentioned that SPICE is introduced for both Electrical and Computer Engineering coursework. A proposal idea is that IBIS could be co-mingled with the introduction of SPICE, as it fosters information exchange being agnostic legally for IP concerns, and agnostic for the specific design- by only describing its behavior but not the design.

INTERNATIONAL/EXTERNAL ACTIVITIES

IEC 63055/IEEE 2401, JEITA "LPB:"

- No updates reported.

Press Updates:

- No updates reported.

Related Standards:

- No updates reported.

SUMMIT PLANNING AND REVIEW

Hybrid European IBIS Summit at SPI 2024

Location:

- SPI 2024: May 12-15, 2024, Lisbon, Portugal.
- IBIS Summit: May 15, 14:00-18:00. The plan of record is to hold the IBIS Summit Wednesday afternoon, after SPI closes.

IBIS Summit Sponsors:

- SPI 2024
- Zuken

Notes:

Randy Wolff underscored that this is hybrid and encourages US members to dial in. Randy mentioned there is room for 1-2-3 more papers. There is a contract approved with SAE ITC for payment to SPI for room arrangements. Graham Kus asked if someone would attend. Randy said someone would be from Zuken. Randy reported that none of the IBIS officers can travel for this year.

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, 2024 in Phoenix, AZ.

Notes:

Randy Wolff stated still working on a room sponsored by IEEE. There is a discount code for IEEE to attend the SIPI. The discount code is for anyone affiliated or interested in IBIS or IEEE or SIPI.

IBIS Summit Sponsors:

- Sponsors to be announced.

More information is available at the following link:

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

QUALITY TASK GROUP

Randy Wolff reported doing work on Touchstone 2.1 parser. Randy stated the Quality task group is planning to not meet for next couple of weeks until May 7th 2024.

The Quality Task Group meets every Tues Morning at 9am Pacific.

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

https://ibis.org/quality_wip/

ADVANCED TECHNOLOGY MODELING TASK GROUP

Arpad Muranyi reported that a few meetings have been cancelled lately due to low activity and attendance. Otherwise in the usual time slot on Tuesdays at Noon Pacific time. Randy Wolff reported for Zhiping Yang. Regarding BIRD220, EDA companies are encouraged to speak with Chulsoon Hwang. Arpad Muranyi stated it is on agenda but not talked about in a while. Randy encouraged to talk about this topic again, and asked for any other comments about ATM. None were asked.

Note: Task group material can be found at:

https://ibis.org/macromodel_wip/

INTERCONNECT TASK GROUP

Randy Wolff reported for Michael Mirmak that have been meeting Wednesdays at 8am Pacific time, port mapping, port naming for Touchstone files. Quite a lot of discussion on that and proposals on that. Important topic as working toward Touchstone with features people would like to have. Plan to meet next week. Arpad stated that he is expecting that Touchstone TSIRD7 will be updated to 7.1 and we will have to go through some of the changes he is proposing. Hopefully will also be discussed in interconnect meeting.

Randy asked for any other comments. None were presented.

EDITORIAL TASK GROUP

Michael Mirmak was not present.

Note: Task group material can be found at:

https://ibis.org/editorial_wip/

NEW ADMINISTRATIVE ISSUES

Randy Wolff stated he wanted to review the officer election process. Arpad Muranyi volunteered to act as returning officer for the purpose of elections. Randy stated the nomination opens May 17th 2024. The IBIS Open Forum will send out nominations. That ends 2 Fridays later May 31, 2024. Voting begins June 1, 2024, so the first weekday June 3, ending on June 17. Then official officer announcements are made after that point.

This is the summary of the process. Randy stated that Lance Wang has been asking the current Officers to be accepted to nominate their current positions. However, some positions are open

to new volunteers. Randy has expressed preference for Treasurer, which opens Vice Chair to anyone interested.

Arpad requested to receive the nominations.

Randy stated votes have to be from Member Companies in good standing, and memberships have to be completed for June 1st. if someone completes membership during the period, then they can vote. Otherwise cannot. Chair and Vice-chair must be paid members, other officers can be from other organizations.

ROLL CALL

Mid-meeting roll call: Graham Kus reported 7 member organizations with a quorum of 8 not met. However, some email votes had been received to meet quorum for voting.

TECHNICAL DISCUSSION

No new updates reported.

***IRDS SCHEDULED FOR VOTE**

BIRD 229.1: AMI Test Data Support

Graham Kus motioned to vote. Arpad Muranyi seconded. There were no objections. The motion passed.

The ballot vote was as follows:

Yes to approve, No to not approve, or Abstain.

Ballot results:

Cadence	Yes
Intel	Yes
Marvell	Yes
MathWorks	Yes
Micron	Yes (email)
Siemens EDA	Yes
Synopsys	Yes
Zuken	Yes (email)

Randy Wolff announced a count of 8
Graham Kus confirmed the count 8
Randy Wolff announced the vote passed.

Link: <https://ibis.org/birds/bird229.1.docx>

***IRDS ELIGIBLE FOR VOTE**

TSIRD7: Standardized Pole-Residue Representation of Touchstone Data

Arpad Muranyi reviewed TSIRD7.1 Draft 9. Arpad stated he would ask for a motion to push back to technical committee. Arpad showed and discussed parts of the document revisions for context. He discussed some of the keywords in detail for context.

The major changes would have to be taken up in the Interconnect TG meeting and resubmit to IBIS Open Forum.

Link: https://app.ibis.org/media/doc_files/tsird7.docx

TSIRD8: Option line changes

Arpad Muranyi reported the purpose is to make a keyword for each variable on the option line.

Duplicate basically what is on the option line:

- Parameter type
- Frequency unit
- Format of the numbers (real/imag, mag/phase, etc)
- Reference keyword

Currently, if you have a common reference impedance for all ports, it is on option line, and if you have per-port reference impedance, it is in the [Reference] keyword. This rule is changed so that the [Reference] keyword can also have a single number for all ports. Eventually this would pave the way to eliminate the option line and use keywords for everything instead. This change in the [Reference] keyword and the 3 new keywords will make that possible. The reason for doing this because it is difficult to add new features to the already long option line. It doesn't scale. The purpose is to move to keywords so that additions examples should be easier and they would scale.

- Walter Katz motioned to schedule a vote. Second from Weston Beal. No objections were made. The motion passed.

Link: <https://app.ibis.org/tsirds/>

BIRD230: Adding a Definitions Section to IBIS

Randy Wolff reported for Michael Mirmak to review the BIRD via screen share.

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

Tabled for discussion until Michael can comment section re-ordering.

Randy took an [AR] for Michael to update this BIRD in that regard.

BIRD231: Clarifications on AMI Block Concepts

Randy Wolff covered this and stated the revision is editorial in nature. Randy asked for comments. Arpad Muranyi clarified this was separated because it is editorial and not technical.

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

NEW AND REVISED *IRDS

No new updates reported.

TABLED *IRDS

BIRD220: Pre-driver PSIJ Sensitivity keyword

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

IBISCHK AND TSCHK PARSER AND BUG STATUS

TSCHK2.1.0 approval vote.

Arpad Muranyi motioned to vote, Kyle Lake seconded. Randy announced a vote. No objections were made.

Ballot results:

Cadence	Yes
Intel	Yes
Marvell	Yes
MathWorks	Yes
Siemens EDA	Yes
Synopsys	Yes
Zuken	Yes (email)

Randy Wolff announced a count of 7

Graham Kus confirmed the count 7

0 Abstains

Randy Wolff announced the vote passed.

[AR] Randy to send parser developer invoice to SAE ITC to start the payment process.

BUG237

Randy discussed a recommended fix. We do need to classify this bug. It was suggested enhancement low priority. Weston Beal expressed it is a macro that was discovered that has always existed so it is an enhancement not a bug. There was brief discussion. Randy motioned to classify as enhancement and low priority. Arpad Muranyi Seconded. There were no objections. The motion passed.

BUG248

This BUG was a result of security testing. This causes a crash with ibischk 7 of AMI flag. Long name is what tool created a couple files that accompany this, an illegal character in AMI file causes crash. This was reported by Michael Mirmak at Intel. Randy stated it has been reviewed at Siemens by code developer there. A fix could be using the parser code while built into EDA

tool, don't use the IASSERT macro that causes this issue. Is probably common that people do changes to the code to similarly eliminate this. Suggestions are how to get rid of this issue.

The suggested classification is Fatal (causes crash of parser), and Medium priority for fix.

Randy Wolff motioned, Arpad Muranyi Seconded. There were no objections. The motion passed.

BUG239

Based on C code- Summary of leakage for Parser Developer:

- This is a small memory leak
- This could turn into a larger memory leak
- Annoying, recommend priority as Low

Randy Wolff motioned to classify as Annoying and Low priority. Kyle Lake seconded. There were no objections. Arpad Muranyi asked which parser this showed up, how far back it goes? Do we care? Randy said it was as far back as 710.

NEW TECHNICAL ISSUES

Randy Wolff reported no issues.

NEXT MEETING AGENDA AND SCHEDULING

Lance Wang stated the next IBIS Open Forum meeting would be held as a teleconference meeting on May 10, 2024. The following meeting would be held May 31, 2024.

Graham Kus motioned to adjourn. Arpad Muranyi seconded the motion. The meeting adjourned.

NOTES

IBIS CHAIR: Lance Wang (978) 633-3388

lance.wang@ibis.org

Solutions Architect, Zuken USA
238 Littleton Road, Suite 100
Westford, MA 01886

VICE CHAIR: Randy Wolff

vice-chair@ibis.org

Product Architect, Siemens EDA

SECRETARY: Graham Kus

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Senior Engineer, The MathWorks, Inc.
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TREASURER (Acting): Randy Wolff

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Product Architect, Siemens EDA

LIBRARIAN: Zhiping Yang

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POSTMASTER: Curtis Clark

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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:

<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

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	Feb 16, 2024	Mar 8, 2024	Mar 29, 2024	Apr 19, 2024
Altair	User	Inactive	-	-	-	-
AMD (Xilinx)	Producer	Inactive	-	-	-	-
Analog Devices	Producer	Inactive	-	-	-	-
Ansys	User	Active	X	X	-	-
Applied Simulation Technology	User	Inactive	-	-	-	-
Aurora System	User	Inactive	-	-	-	-
Broadcom Ltd.	Producer	Inactive	-	-	-	-
Cadence Design Systems	User	Inactive	-	X	X	X
Celestica	User	Inactive	-	-	-	-
Cisco Systems	User	Inactive	-	-	-	-
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	-	-	-	-
Marvell	Producer	Active	X	X	-	X
MathWorks	User	Active	X	X	X	X
Micron Technology	Producer	Inactive	-	-	-	-
MST EMC Lab	User	Active	X	X	X	-
Siemens EDA	User	Active	X	X	X	X
STMicroelectronics	Producer	Inactive	-	-	-	-
Synopsys	User	Active	X	X	X	X
Teraspeed Labs	General Interest	Inactive	-	-	-	-
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.