



IBIS Open Forum Minutes

Meeting Date: **November 17, 2023**

Meeting Location: **Teleconference**

VOTING MEMBERS AND 2023 PARTICIPANTS

Altair	(JuneSang Lee)
AMD (Xilinx)	(Bassam Mansour)
Ansys	Curtis Clark*, Wei-hsing Huang, Minggang Hou, Xi Hu
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, Dingru Xiao, Jianping Kong, Shengli Wang, Shiyang Fang, Zuli Qin
Celestica	(Sophia Feng), Echo Lv, Lurker Li
Cisco Systems	(Stephen Searce), Hong Wu, Sally Yang
Dassault Systemes	Stefan Paret, Longfei Bai
GE Healthcare Technologies	(Balaji Sankarshanan)
Google	(Hanfeng Wang)
Huawei Technologies	Danilo Di Febo, Marco De Stefano, Hang (Paul) Yan
Infineon Technologies AG	(Christian Sporrer)
Instituto de Telecomunicações	(Abdelgader Abdalla), Joana Catarina Mendes
Intel Corporation	Chi-te Chen, Kingor Cai*, Michael Mirmak*, Hsinho Wu*, Chuanyu Li, Alaeddin Aydiner*
Keysight Technologies	Ming Yan, [Douglas Burns], Fangyi Rao, Pegah Alavi, Hee-Soo Lee, Heidi Barnes, Chuanbao Li, Jiarui Wu
Marvell	Steven Parker
MathWorks	Graham Kus, Walter Katz, Kerry Schotz
Micron Technology	[Randy Wolff], Justin Butterfield, Akshay Shivaji Chaudhari, Dragos Dimitriu, Cheng Zhang, Chunqiang Weng, Hongyan Li, Tree Li
MST EMC Lab	Chulsoon Hwang*, Zhiping Yang*
SerDesDesign.com	John Baprawski
Siemens EDA	Arpad Muranyi*, Weston Beal*, Matthew Leslie, Mikael Stahlberg, Todd Westerhoff, Scott Wedge, Randy Wolff*
STMicroelectronics	Olivier Bayet, Rahul Kumar, Raushan Kumar, Manish-FTM Bansal, Sameer Vashishtha
Synopsys	Ted Mido*, (Tushar Pandey), Wael Dghais, Jinghua Huang, Kevin Li, Xuefeng Chen
Teraspeed Labs	Bob Ross*
Waymo	[Zhiping Yang], (Ji Zhang)
ZTE Corporation	(Shunlin Zhu), Changgang Yin, Jian Huang, Ming Zheng
Zuken	[Michael Schäder], Markus Bücken, Ralf Brüning, Hongmin Li, Zhi Yin
Zuken USA	Lance Wang*

OTHER PARTICIPANTS IN 2023

Alibaba	Wenzhi Wang
Alphawave Semi	Adrien Auge, Todd Bermensolo
Ciena	Hugues Tournier
Empyrean	Chenghan Jia, Hanqing Tian, Jiajie Zhao, Tao Zhang, Yunpeng Pei
HiSilicon	Zhengrong Xu, Si Ruan, Gengxin Chen
Hitachi Ltd.	Yutaka Uematsu
Honeywell	Bavish Vazhayil
India Institute of Technology	Jai Narayan Tripathi, Vinod Verma
Lenovo	July Rao, Sophia Yang
Montage Tech Co.	Guobing (Robin) Han, Jianbin Wei, Xiangting Wang, Xiaoliang Xu, Hannah Bian, Amy Zhu
Nanjing University of Information Science & Technology	Hongchuan Jia, Xin Cheng
Ningbo DeToolIC Technology	Zhifei Xu
Nokia	Ramiro Guzman
OMNIVISION	Sirius Tsang
Renesas	Billy Chen, Jie Pan, Mengting Liao, XiangYin Zeng, Zhong Fu Ji
SAE-ITC	Tammy Patton*
Shanghai Fullhan Microelectronics Co.	Zhengyi Zhu
Signal Edge Solutions	Ben Dannan
SI Guys	Donald Telian
Socionext, Inc.	Raymond Yakura
University of Illinois Urbana-Champaign	Jose Schutt-Aine
University of Tunisia, Electronic Laboratory	Malek Souilem
Unaffiliated	Will Hobbs, Mike LaBonte, Jon Powell, Stephen Peters
Xiangdixian Computing Technology	Lili Dai
Xidian University	Xiuqin Chu, Yajun Lv
Xpeedic	Guangmeng Ji, Jessie Zhang
Zhejiang University	Ling Zhang

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: 10 participants

New IBIS Participants: Alaeddin Aydiner introduced himself. He has worked on SI and PI at Intel for about 15 years. He has worked with Michael Mirmak on many items related to IBIS.

Meeting Quorum: Yes, 8 member companies

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.

REVIEW OF MINUTES AND ARS

- Minutes for October 27, 2023 IBIS Open Forum teleconference
Lance Wang called for comments on the minutes. Bob Ross moved to approve the minutes. Curtis Clark seconded the motion. There were no objections.
- Minutes for October 6, 2023 IBIS Open Forum teleconference
Lance Wang called for comments on the minutes. Bob Ross moved to approve the minutes. Curtis Clark seconded the motion. There were no objections.

ARs:

- Randy asks DesignCon for partnership agreement – done
Lance added that Randy contacted Suzanne Deffree of Informa Markets.

ANNOUNCEMENTS, CALL FOR ADDITIONAL AGENDA ITEMS

Lance Wang called for any new announcements.

MEMBERSHIP STATUS AND TREASURER'S REPORT

Bob reported that the following payments were made:

\$347.88 payment to Steve Parker for the IBIS.ORG URL charge.

\$1,500.00 Cadence Sponsorship payment for the Asian IBIS Summit (Shanghai)

\$2043.33.00 payment balance to Lance Wang for Shanghai Summit expenses

Some early 2024 IBIS Membership payments may occur for dues set at \$900.00. He started editing the spread sheet to record early 2024 payments.

Based on a quote, we expect to pay the parser developer \$1,500.00 for IBISCHK721 in 2023, after it is finished.

Note that Honeywell has been listed by mistake as a VOTING MEMBER. We have no record of any membership transaction. We need to move the Honeywell entry back to the OTHER PARTICIPANTS list and delete Honeywell from the SAE STANDARDS BALLOT list at the end.

\$16,354 Balance for 2023

\$21,404 Adjusted Balance for 2023 (with 2020 \$2000.00 ZTE sponsorship moved forward to 2023)

Bob noted the membership list is prepared for use by SAE ITC to send out membership dues payment requests for 2024.

A vote regarding the 2024 IBIS Membership fee decision was scheduled for this IBIS Open Forum teleconference:

2024 IBIS Membership fee will remain at 900 USD

Ballot results:

- Ansys – Yes
- Cadence – Yes
- Infineon Technologies – Yes (by email)
- Intel Corporation - Yes
- MathWorks – Yes (via email ballot)
- MST EMC Lab – Yes
- Siemens EDA – Yes
- STMicroelectronics – Yes (via email ballot)
- Synopsys – Yes
- Teraspeed Labs – Yes
- Zuken – Yes

The vote passed with a tally of 11 – Yes, 0 – No, 0 – Abstain.

WEBSITE ADMINISTRATION

Lance Wang reported no update received from Steve Parker.

MAILING LIST

Curtis Clark reported one new user subscribed to the Interconnect and users lists. Everything is running smoothly.

LIBRARY UPDATE

Zhiping Yang reported he talked with people in China during the Summit, and there is interest in generating standards-compliant IBIS models.

PRESS UPDATES

None

UNIVERSITY RELATIONS

Professor Chulsoon Hwang reported no update.

INTERNATIONAL/EXTERNAL ACTIVITIES

Michael Mirmak reported that DASC is interested in hearing about our Summits. He expects there to be additional subscriptions from DASC members to the IBIS lists after forwarding IBIS Summit invites to the DASC lists.

SUMMIT PLANNING AND REVIEW

Asian IBIS Summit (Shanghai, China)

Location:

- Parkyard Hotel, Shanghai, November 10, 2023, 8:30am-5pm

Sponsors:

- IBIS Open Forum
- ANSYS China
- Cadence Design Systems
- Empyrean
- ZTE Corporation

Notes: Lance Wang reported that everything went smoothly. In Shanghai, it is still early to have meetings in person. We had about 70 registrations, but there were 59 attendees. There were good discussions about the presentations. Zhiping Yang noted this was his first time attending in Shanghai. He was not sure why the attendance from Huawei was low. Lance noted he expected more attendees from ZTE as well, so we need to investigate how to improve for next year.

Lance noted that in 2019 we setup a vendor session for the first time, and the attendance was low. He thought most people attended through the end of the vendor session this year.

Asian IBIS Summit (Tokyo, Japan)

Location:

- Tokyo, November 14, 2023 9:00-12:00 (JST)

Sponsors:

- IBIS Open Forum
- Japan Electronic and Information Technology Industries Association (JEITA)

Co-Sponsors:

- ANSYS, Inc.
- Apollo Giken Co.
- Keysight Technologies Japan K.K.
- Seiko Epson Corporation
- Toshiba Corporation
- Zuken Inc.

Notes: Lance Wang reported that most people attended on-line. About 20 people attended in the room including JEITA members and working group leaders. Bob Ross noted seeing about 125 people attending on-line. The meeting ran about 30 minutes over time. There was a Q&A session for Japan attendees. Lance had commented that the Summit is only once a year, but it would be good to host additional Q&A type sessions during the year. Ted Mido helped with translations, and Lance thanked him for that. Ted added that it was a productive meeting with a lot of discussions about EMD, AI/ML, and creating more dedicated discussions for training. Bob commented that several remote/on-site presentations were pre-recorded and had alternative language captions. Bob asked for Ted to help get the participant list with translated names including first names. Ted said we should request this from JEITA.

DesignCon IBIS Summit 2024 (Santa Clara, CA)

Location:

- February 2, 2024, Mission Towers I, First Floor Training Room, 3975 Freedom Circle, Santa Clara CA

Sponsors:

- IBIS Open Forum

Co-Sponsors:

- The MathWorks, Inc.
- Others to be determined.

Notes: Agreement signed with MathWorks for use of the meeting room. Lance Wang reported that the partnership agreement with DesignCon (Informa Markets) is signed. Randy Wolff added that the partnership with DesignCon gives us 5 all-access conference passes. These are available to IBIS members who are not able to obtain passes through other means. Bob noted that we are seeking additional sponsorships. Bob noted we should look into the audio in the room to improve the online experience.

QUALITY TASK GROUP

Bob Ross reported they have been working with the parser developer on IBISCHK7.2.1 development. There have been many discussions on the fix for BUG244. There has also been discussion on preparing for a parser for Touchstone 2.1. There have also been discussions about preparing a presentation for the 2024 DesignCon IBIS Summit on using the new Quality Checklist spreadsheet.

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

https://www.ibis.org/quality_ver3.0/

ADVANCED TECHNOLOGY MODELING TASK GROUP

Arpad Muranyi reported the group recently discussed BIRD220 and BIRD226 relating to PSIJ. Kinger Cai gave a presentation on differences between the BIRDS. There was general agreement that BIRD226 was ready to be scheduled for a vote soon. Reviews on BIRD220 have resulted in some questions sent to the BIRD authors for feedback. Arpad encouraged EDA vendors to review BIRD220 technical details.

Note: Task group material can be found at:

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

INTERCONNECT TASK GROUP

Michael Mirmak reported Touchstone 2.1 has been released by the task group. The group has been discussing the pole/residue TSIRD for Touchstone 3.0, and this proposal is close to completion.

Note: Task group material can be found at:

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

EDITORIAL TASK GROUP

Michael Mirmak reported the group remains suspended.

Note: Task group material can be found at:

NEW ADMINISTRATIVE ISSUES

None.

ROLL CALL

Mid-meeting roll call: 15

TECHNICAL DISCUSSION

Touchstone 2.1 Draft Review

Michael Mirmak gave an overview of the changes in Touchstone 2.1, with the main one being support for per-port reference impedances in the option line in the Touchstone 1.0 format, considered Touchstone 1.1. Bob Ross noted that a draft 2 has been prepared that adds some additional references on the last page. Randy suggested we send out another email asking for review. Arpad suggested to include the list of TSIRDs supported in Touchstone 2.1 into the document. Michael will bring a new draft for review in the next Interconnect task group meeting. Any vote will be postponed until the new draft has been submitted for review. Bob suggested any list of supported TSIRDs be added in an appendix.

NEW AND REVISED *IRDS

BIRD227 AMI Ignore Block Feature Aydiner et al
Link: <https://ibis.org/birds/bird227.docx>

Notes: Alaeddin Aydiner introduced the BIRD. It creates a new IBIS-AMI parameter, Adaptation_Valid. This Boolean output indicates the EQ tracking status or locking status of an RX AMI, which becomes 1 when the simulation data of that block can be consumed for eye generation. Use of this parameter by EDA tools could result in shorter simulation times relative to waiting for the Ignore_bits time to pass before starting to collect eye statistics.

Arpad Muranyi noted a question related to the BIRD, if it is useful to save the internal states of the model to re-use it without having to go through the Ignore_bits timing in a new simulation. Alaeddin suggested this should be a different BIRD. Michael noted the need for discussion about how to store the internal states, such as in a binary format or readable format. Alaeddin suggested there may not be usefulness to this, and the states would likely need to be encrypted.

IRDS SCHEDULED FOR VOTE

BIRD223.1 Add support for SPIM in IBIS Cai et al
Link: <https://ibis.org/birds/bird223.1.docx>

Kinger Cai reported that BIRD223.1 is a revision to BIRD223, which was approved in July.

BIRD223.1 made the below revisions from BIRD223:

- 1) Corrected the over-sighted editorial typo error of [Device Model] to [Device SPIM].
- 2) Updated [Device SPIM] to "Required in a .spim file, illegal in a .ibs file" in Table 2.
- 3) Simplified the description by eliminating the redundancy and updated for keyword: [Device SPIM], according to item#2.
- 4) Updated the description and example of the keyword [Device SPIM Group], according to item#2.

- 5) Updated “standard” to “streamlined” for the “S” in SPIM.
- 6) Simplified description for adding [Device SPIM Group] & [End Device SPIM Group] keyword pair, into the “tree” of .ibs file.
- 7) Corrected some minor editorial typo errors & wording format.

Michael Mirmak moved to approve the BIRD. Bob Ross seconded the motion. A vote was taken.

Ballot results:

- Ansys – Yes
- Cadence – Yes
- Intel Corporation - Yes
- MathWorks – Yes (via email ballot)
- MST EMC Lab – Yes (via email ballot)
- Siemens EDA – Yes
- Synopsys – Yes
- Teraspeed Labs – Yes
- Zuken – Yes

The vote passed with a tally of 9 – Yes, 0 – No, 0 – Abstain.

Lance Wang and Bob Ross will update the status of BIRD223.1 and correct the BIRD webpage for BIRD223 [AR].

IRDS ELIGIBLE FOR VOTE

BIRD220: Pre-driver PSIJ Sensitivity Keyword Ding et al

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

Arpad Muranyi reported that the BIRD is undergoing review and discussion in the ATM task group. Randy Wolff added that the BIRD has been reviewed by Siemens EDA developers, and this has led to some ongoing discussions with the BIRD authors about possible changes.

BIRD226 PSIJ Sensitivity Cai et al

Link: <https://ibis.org/birds/bird226.docx>

Arpad Muranyi moved to schedule a vote on the BIRD for the next Open Forum meeting. Michael Mirmak seconded the motion. There were no objections.

Lance Wang to send out a vote solicitation email for BIRD226 [AR].

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

Notes:

IBISCHK AND TSCHK PARSER AND BUG STATUS

Bob Ross reported the Quality task group is preparing a parser specification for a TSCHK2.1 parser.

Randy Wolff asked if the IBISCHK7.2.1 parser is expected before the end of the year. Bob noted that it is, but the release date is unknown. The parser developer is working on BUG244 currently.

NEW TECHNICAL ISSUES

None

NEXT MEETING AGENDA AND SCHEDULING

The next IBIS Open Forum teleconference meeting would be held as a teleconference meeting December 8, 2023, and the following date of January 5, 2024.

Motion to Adjourn: Arpad Muranyi moved to adjourn. Michael Mirmak 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

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

YangZhip@mst.edu

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/bugspl.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 (attendee X; absent -)

Organization	Interest Category	Standards Ballot Voting Status	Sept 15, 2023	Oct 6, 2023	Oct 27, 2023	Nov 17, 2023
Altair	User	Inactive	-	-	-	-
AMD (Xilinx)	Producer	Inactive	-	-	-	-
Ansys	User	Active	X	X	X	X
Applied Simulation Technology	User	Inactive	-	-	-	-
Aurora System	User	Inactive	-	-	-	-
Broadcom Ltd.	Producer	Inactive	-	-	-	-
Cadence Design Systems	User	Active	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	-	-	-	X
Instituto de Telecomunicações	User	Inactive	-	-	-	-
Intel Corp.	Producer	Active	X	X	X	X
Keysight Technologies	User	Inactive	-	-	-	-
Marvell	Producer	Inactive	X	-	-	-
MathWorks	User	Active	X	X	X	X
Micron Technology	Producer	Inactive	X	-	-	-
MST EMC Lab	User	Active	X	X	-	X
SerDesDesign.com	User	Inactive	-	-	-	-
Siemens EDA	User	Active	X	X	X	X
STMicroelectronics	Producer	Inactive	-	-	-	X
Synopsys	User	Active	X	X	X	X
Teraspeed Labs	General Interest	Active	X	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.