IBIS Open Forum Minutes

Meeting Date: **March 29, 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 Scearce), 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 Gruman 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#   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 7 organization members attending, not meeting quorum of 8. Lance Wang noted there were no votes scheduled so it would not be an issue.

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
- March 8, 2024 Minutes
  - Randy Wolff motioned to approve the minutes. Michael Mirmak Seconded. There were no objections. The motion was approved.

ANNOUNCEMENTS, CALL FOR ADDITIONAL AGENDA ITEMS

Lance Wang called for any new announcements. Graham Kus suggested a Bob Ross memorial Gavel. Randy Wolff agreed. Lance suggested this be made an issue for later discussion.

MEMBERSHIP STATUS AND TREASURER'S REPORT

Randy Wolff reported we have 2 more member renewals completed for a total of 18. Some payments are in progress, and all members have been contacted with reminders about membership dues.

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 planned.

$7,258 Balance for 2024

$14,908 Adjusted Balance for 2024 (adding the 2024 IBIS membership renewals received in 2023, indicated by "(7)")

WEBSITE ADMINISTRATION

Lance Wang reported on behalf of Steven Parker that updates are pending.

Link: https://ibis.org/

MAILING LIST

Lance Wang reported on behalf of Curtis Clark that there are no updates.

LIBRARY UPDATE

Zhiping Wang reported there is no update or no email update on Library related topics.

Randy Wolff asked Lance Wang to mention having recently made a contact at Samsung regarding IBIS library, an Engineer from Samsung will attend SPI 2024 in Portugal and would be willing to research the status of that library resource. Lance replied that we should keep track of this effort and it would be monitored.

Randy asked if there was an IBIS Model to review, and if it were to be considered at this time. Lance stated there would be a PDN model for review but would like to have pre-review.

Randy asked if it were power-aware. Lance replied yes it did feature power-aware keywords. Randy stated if we get the model, he and Lance may reach out to people to look at that model, he was not sure who had previously signed up for review of models.

Lance stated if we get the model he would share it for feedback, that is the process we had before.

Zhiping Wang asked, is this part of the Quality Task Group or what is the scope of this type of work in general?

Lance Wang replied that his recollection was most people in model review were the late Bob Ross and people in model reviews. However, there had not been much activity by people in model review for over a year, so probably need to re-confirm.

[AR] – Lance to confirm model review committee and whom is part of that item.

INTERNATIONAL/EXTERNAL ACTIVITIES

Michael Mirmak reported the next DASC meeting would occur in the coming week.

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 reported that some European members are looking to discuss Touchstone topics. Zuken is a sponsor and other sponsors are welcome.

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:

Lance Wang asked Zhiping Wang to discuss sponsorship when information is available. Zhiping plans to attend in person, the IBIS Summit is planned to be hybrid in-person and online attendance.

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 that this group is open to anyone to Chair. He stated there are 2 current topics being discussed:

1. TSCHK parser

2. Bug reports related to IBISCHK

- Randy noted there are 3 bugs, but 2 remain in discussion before consideration.

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 the meetings are in the usual time slot on Tuesdays at Noon Pacific time.

Michael Mirmak submitted some items, including a clock grouping keyword from IBIS 7.1, which Michael discussed to extended the keyword capabilities, for example when a Controller in a memory interface is changing its configuration. This might end up being an extension of the keyword if we can figure out how to do it. This is currently being discussed.

Lance Wang asked for questions. None were asked.

Note: Task group material can be found at:

     https://ibis.org/macromodel_wip/

INTERCONNECT TASK GROUP

Michael Mirmak reported the current focus is on Touchstone specifications. Specifically, port map development. He stated the TSIRDs in the Technical Discussion show the key topics. For the most part the focus is on Touchstone 3.

Lance Wang asked for questions. None were asked.

EDITORIAL TASK GROUP

Michael Mirmak stated this group remains suspended.

Note: Task group material can be found at:

     https://ibis.org/editorial_wip/

NEW ADMINISTRATIVE ISSUES

Lance Wang reported there were no new issues.

ROLL CALL

Mid-meeting roll call: Graham Kus reported 7 member organizations with a quorum of 8 not met.

TECHNICAL DISCUSSION

Lance Wang reported no new updates.

NEW AND REVISED *IRDs

TSIRD7: Standardized Pole-Residue Representation of Touchstone Data

Arpad Muranyi reported the TSIRD is a proposal to support Pole-Residue data in Touchstone files, primarily to reduce file size. Due to feedback received, Arpad will file a new version, TSIRD7.1, which will have to be discussed in the Interconnect Task Group because the changes may be substantial. This was triggered by a request to provide an equation for the "Residue_at_infinity" parameter.

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

BIRD230: Adding a Definitions Section to IBIS

Michael Mirmak reported this BIRD was split into BIRD230 and BIRD231 in order to simplify things. Randy Wolff remarked about BIRD230, so this will add a new Section 4, so all IBIS Specification Sections would get re-numbered. The way the document is structured is accommodating to this, but he would be open to add it to the end. Arpad Muranyi suggested adding to Section 3 to avoid re-numbering.

Link:

https://ibis.org/birds/

BIRD231: Clarifications on AMI Block Concepts

While not on the original agenda, this BIRD was introduced at this meeting by Michael Mirmak. Summary from BIRD231 document: the words "block" and "segment" are used in relation to the IBIS Algorithmic Modeling Interface waveform data without clear definitions in the specification text, particularly in sections related to the Back-Channel Interface.

This BIRD makes several changes to ensure that "block" and "segment" are understood refer to the same concept, and to simplify related text. Actual definitions for these and other concepts (e.g., UI and NRZ) will be handed through a separate BIRD, BIRD 230.

Link:

https://ibis.org/birds/

TSIRD8: Option line changes

Arpad Muranyi reported this proposal is to provide a keyword for everything that is defined on the option line (editor: to clarify, this is a line in Touchstone files) and to extend the rules of the [Reference] keyword slightly. Currently the [Reference] keyword has to list all ports unless the model uses a common reference impedance for all ports which is defined on the option line. The proposed change would allow the [Reference] keyword to define a single value for all ports. The purpose of all these proposals is to move away from the option line syntax and eventually be able to use keywords for everything in the future, paving the way to eliminate the need for the option line.

Link:

https://app.ibis.org/tsirds/

*IRDS ELIGIBLE FOR VOTE

BIRD 229.1: AMI Test Data Support

Michael Mirmak motioned that this be added to schedule to vote for next meeting. Lance Wang Seconded. There were no objections. The Motion was approved.

IBISCHK AND TSCHK PARSER AND BUG STATUS

Randy Wolff reported regarding BUG247 that Michael Mirmak had comments to make. Michael stated one of the checks identifies BOOL (Editor: variable type Boolean) for Microsoft compiler for same name. This causes some conflict with some compilers to expect this BOOL variable type to be definition that Microsoft uses, and this one thing causes conflicts with security compiler. This could be renamed EBOOL. Michael noted this does require lots of editing. Michael stated changing to EBOOL is not the proposal, it is one way to get around the problem. The problem shows up because we used a different compiler.

Arpad Muranyi asked if is a variable name or a variable type? That is Boolean type?

There was discussion on this topic.

[AR] - Michael took an AR to send the details to Walter Katz. Walter stated he will discuss with his colleague that builds all these tools and has knowledge of Variable Types to see what he can recommend about these issues.

Lance Wang reported Touchstone parser TSCHK2.1.0 needs a few more checks but all issues should be fixed. Lance stated probably next week to give approval to the parser developer to distribute executables.

NEW TECHNICAL ISSUES

Randy Wolff reported an editorial issue in the IBIS 7.2 specification was reported by Michael Mirmak and was added to the Known Issues document for IBIS 7.2. There were no other issues.

NEXT MEETING AGENDA AND SCHEDULING

Lance Wang stated the next IBIS Open Forum meeting would be held as a teleconference meeting on April 19, 2024 with Randy Wolff acting as Chair. The following meeting would be held May 10, 2024.

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

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NOTES

IBIS CHAIR: Lance Wang (978) 633-3388
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VICE CHAIR: Randy Wolff
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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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WEBMASTER: Steven Parker (845) 372-3294
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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

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

Organization	Interest Category	Standards Ballot Voting Status	Feb 2, 2024	Feb 16, 2024	Mar 8, 2024	Mar 29, 2024
Altair	User	Inactive	-	-	-	-
AMD (Xilinx)	Producer	Inactive	-	-	-	-
Analog Devices	Producer	Inactive	-	-	-	-
Ansys	User	Active	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	X	-
MathWorks	User	Active	X	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	-	-	-
Waymo	User	Inactive	-	-	-	-
ZTE Corp.	User	Inactive	-	-	-	-
Zuken	User	Active	X	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.