



IBIS Open Forum Minutes

Meeting Date: **June 23, 2023**

Meeting Location: **Teleconference**

VOTING MEMBERS AND 2023 PARTICIPANTS

Altair	(JuneSang Lee)
AMD (Xilinx)	(Bassam Mansour)
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, BAI Longfei
GE Healthcare Technologies	(Balaji Sankarshanan)
Google	(Hanfeng Wang)
Honeywell	Bavish Vazhayil
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, Kinger Cai*, Michael Mirmak*, Hsinho Wu*
Keysight Technologies	Ming Yan*, Douglas Burns, Fangyi Rao, Pegah Alavi, Hee-Soo Lee, Heidi Barnes
Marvell	Steven Parker*
MathWorks	Graham Kus*, Walter Katz, Kerry Schotz
Micron Technology	[Randy Wolff], Justin Butterfield, Akshay Shivaji Chaudhari, Dragos Dimitriu
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
Teraspeed Labs	Bob Ross*
Waymo	[Zhiping Yang], (Ji Zhang)
ZTE Corporation	(Shunlin Zhu)
Zuken	Michael Schäder, Markus Bücken, Ralf Brüning
Zuken USA	Lance Wang*

OTHER PARTICIPANTS IN 2023

Alphawave Semi	Adrien Auge, Todd Bermensolo
Ciena	Hugues Tournier
Hitachi Ltd.	Yutaka Uematsu
Honeywell	Bavish Vazhayil
India Institute of Technology	Jai Narayan Tripathi, Vinod Verma
Nokia	Ramiro Guzman
OMNIVISION	Sirius Tsang
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

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

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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#

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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

Lance Wang reported. Graham Kus reported an attendance of representative 11 member organizations meeting quorum.

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. Patents were/not declared.

REVIEW OF MINUTES AND ARS

Lance Wang called for review of minutes, which are in process, and will be reviewed in the next meeting.

- Randy Wolff to send a vote solicitation email for BIRD224.
- This is marked completed.

ANNOUNCEMENTS, CALL FOR ADDITIONAL AGENDA ITEMS

Lance Wang called for any announcements. Bob Ross stated BUG245 would be discussed.

MEMBERSHIP STATUS AND TREASURER'S REPORT

Bob Ross reported, For June 23, 2023, we have 29 voting members and a quorum of 8. We temporarily restored Cadence Design Systems because there may have been system related payment issues.

Currently we have 27 renewals and 2 new members (for a total of 29) for 2023.

Cadence Design Systems (payment activity is still in progress).

We are still waiting for another sponsorship payment for the European IBIS Summit.

There is no change in the numbers from the June 2, 2023, report.

\$15,975 Balance for 2023

\$21,025 Adjusted Balance for 2023 (Note, 2020 ZTE sponsorship moved forward to 2023)

Lance asked if there were questions. None were asked.

WEBSITE ADMINISTRATION

Steven Parker reported in terms of website updates, have updated email forwarding consistent with election results. Some other items TSIRDS portion of website, on the website www.IBIS.org under specifications, we now have additions. These are text files only because the PERL script that processes these only understands text and could be updated to understand .docx format at a later point. Observers may note that the TSIRD ID#: is at the top of the .txt file. We plan to update the Banner showing the most recent events. There is still an action to post documents provided by Michael Mirmak [AR]. Also, there is a link to the European IBIS Summit. Bob Ross stated we do have the recording for it, and the summary page, but the minutes would be uploaded later point when they are revised. Everything else looks correct.

MAILING LIST

Curtis Clark reported no updates.

LIBRARY UPDATE

Zhiping Yang reported no updates.

UNIVERSITY RELATIONS

Professor Hwang reported that, Shuo Wang from University of Florida, and Francesco De Paulis from University of L'Aquila, Italy, both attended the IEEE SPI Europe symposium this year, and forward the collateral to those professors and they may also in turn have some collateral this year relating to IBIS.

INTERNATIONAL/EXTERNAL ACTIVITIES

Conferences:

Lance Wang reported no updates.

Press Updates

No updates were reported.

Related Standards

Michael Mirmak reported no updates.

IEEE IBIS Standardization

Lance Wang reported no action on this topic.

IBIS Summits:

IEEE EMC+SIPI conference, with IBIS Summit held Friday August 4, 2023

Lance Wang asked Zhiping Yang to comment: Zhiping reported there is no cost to the IBIS Open Forum, sponsorship of room and refreshments would be covered by the IEEE host organization. Lance stated we plan to have this as a hybrid meeting. Dr. Hwang and Weston Beal plan to attend. Lance asked if there was a motion to hold the summit at that time. Michael Mirmak moved, Zhiping seconded. There were no objections. The motion passed.

Weston Beal requested whether there would be a call for papers sent out, considering it is close by on the calendar year at this point. Lance agreed there would be an effort to put out a call for papers. Zhiping offered to support this. Lance asked for any other questions. None were asked.

Asian Summits:

Japan IBIS Summit (organized by JEITA), November 22, 2023:

Lance stated this would be an in-person IBIS Summit- would be handling all expenses and provide a room for the IBIS Summit along with refreshments. There is discussion to push this date earlier a week or two. They would also support Hybrid attendance.

Shanghai IBIS Summit (China Sub-committee)

Lance stated this would be an in-person IBIS Summit- date is November 3, or November 10, 2023, which is being discussed. Currently, this is not planned to be Hybrid due to internet connectivity issues with the Hotel.

Bob Ross recommended that the IBIS Open Forum Committee continue to work on the logistics in order to support Hybrid and to ensure there is a method to provide a recording. Lance stated he is planning to attend both Summits.

QUALITY TASK GROUP

Bob Ross reported there are many topics/items in process. One would be Weston Beal's introduction of Quality Level 3. It is now uploaded. We also suggested classification of BUG243, BUG244, BUG245 which would be discussed in the PARSER portion of this agenda.

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

http://www.IBIS.org/quality_wip/

ADVANCED TECHNOLOGY MODELING TASK GROUP

Arpad Muranyi reported we are meeting on Tuesdays Noon Pacific time (US). He reported Kingler Cai has returned from sabbatical and would hold a review next week, and then plans to introduce to IBIS Open Forum after that point. Also another proposal was provided by Michael Mirmak, entitled "Test Load for EMI Purposes," and discussed a draft that is being updated based on discussion thus far. Lance asked if there were questions, none were asked.

Note: Task group material can be found at:

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

INTERCONNECT TASK GROUP

Michael Mirmak reported to meet weekly Wednesdays at 8am US Pacific time, at present TSIRD5 is updated, and forwarded to the IBIS Open Forum, and assembling a list of formal Touchstone 2.1 proposal. Will be forwarded to the Open Forum after additional discussion by Interconnect Task Group, and would potentially be brought forward for a vote.

Note: Task group material can be found at:

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

EDITORIAL TASK GROUP

Michael Mirmak reported remains suspended as there are no updates.

Note: Task group material can be found at:

http://www.IBIS.org/editorial_wip/

NEW ADMINISTRATIVE ISSUES

Lance Wang reported there are Officer election results. Arpad Muranyi reported announcing results as follows:

- Chair Lance Wang, Zuken USA
- Vice-Chair Randy Wolff, Siemens EDA
- Treasurer Bob Ross, Teraspeed Labs
- Secretary Graham Kus, MathWorks
- Webmaster Steve Parker, Marvell
- Librarian Zhiping Yang, Waymo
- Postmaster Curtis Clark, ANSYS

Bob Ross thanked Arpad for holding the election position. Lance also expressed thanks to the returning team and encouraged working to an improved IBIS specification in the future.

Roll call: Graham Kus reported a mid-meeting count of 14 attendees.

NEW AND REVISED *IRDS

TSIRD5: Per Port Reference Resistance on the Option Line

Link: <https://www.IBIS.org/tsirds/tsird5.txt>

Arpad Muranyi stated this was to add support for multiple reference impedance values on the option line. In Touchstone 1.0, we only allowed a single reference impedance value on the option line. Yet there are numerous Touchstone files in circulation with multiple reference impedance values on the option line, and several EDA vendors support these files. Basically

these files use illegal syntax according to the specification, so we want to update the specification to make it legal. Arpad asked if there were any questions. Weston Beal asked why the [Version] keyword uses 2.1 if Touchstone 2.0 already supports multiple impedance values in the [Reference] keyword? Arpad stated that the proposed update to the specification distinguishes between 1.0 and 1.1 simply to be able to describe the rules for the option line. Since 1.0 or 1.1 Touchstone files do not have the [Version] keyword, the only way the TSCHK Parser can determine the version of the file is by reading the option line and check how many reference impedance values are present. Regarding using 2.1 for the [Version] keyword, Arpad said that there was some discussion/argument about that in the meetings, since the rules and content for 2.1 files are identical to 2.0 files. However, the Touchstone specification and the parser would be called version 2.1, so it would make sense to use 2.1 in the [Version] keyword also. Weston asked if it is really 2.1 because we updated the specification. Arpad said yes. Weston agreed this made sense. Arpad stated that the new parser will no longer issue errors with such Touchstone files. Weston agreed this made sense. Arpad said that there is a note about this in the proposed text, so model makers and users would not be left wondering what the difference is between 2.0 and 2.1.

Lance Wang asked if there were any further questions. Arpad stated we would like to issue the Touchstone 2.1 relatively soon. The plan would be to do this rather soon, and then any larger issues or items like port residue or port mapping as Touchstone 3.0 after that point.

IRDS SCHEDULED FOR VOTE

BIRD224: New AMI Reserve Parameter for TS4file Port Order

Link: <https://www.IBIS.org/birds/>

Lance Wang asked Michael Mirmak for comments. Michael stated this BIRD simply changes the port ordering to be specific about port ordering and allow common port ordering to be used/implemented. Motion by Kyle Lake, Arpad Muranyi seconded. There were no objections. The motion carried.

Lance held a vote as recorded by Graham Kus, with votes options of Yes, No, or Abstain:

- Ansys: Yes
- Cadence Design Systems: Yes
- Intel Corporation: Yes
- Keysight Technologies: Yes
- Marvell: Yes
- MathWorks: Yes
- MST EMC Lab: Yes
- Siemens EDA: Yes
- Synopsys: Yes
- Teraspeed: Yes
- Zuken USA: Yes

Lance Wang counted 11 votes for Yes. Graham Kus concurred. BIRD224 is voted to be approved June 23, 2023. Lance to work with Steven Parker to update the approval date of BIRD224 on the website [AR].

IRDS ELIGIBLE FOR VOTE

BIRD223: Add support for SPIM in IBIS (Cai et al)

Link: <https://IBIS.org/birds/bird223.docx>

BIRD 223: Lance Wang noted Kinger Cai had joined attendance. Kinger summarized the BIRD and recommended review of the BIRD document itself, as it is detailed and lengthy.

Michael Mirmak motioned to schedule this BIRD for vote. Graham Kus seconded. Bob Ross suggested as a comment that this be scheduled for a vote but it may be kicked back to the ATM committee. This was not an objection. The motion passed. Lance to send vote solicitation email for BIRD223 [AR].

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

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

Link:

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

Lance reported this would remain tabled. He asked if there were any questions. There were none.

IBISCHK AND TSCHK PARSER AND BUG STATUS

IBISCHK Parser:

BUG243: Bob Ross reported that Graham Kus reported warnings and Curtis Clark concurred. They are listed as co-authors. The results provided are for multiple architectures. Including Windows, Linux, and Ubuntu, etc. Bob scrolled through the document and showed some of the warning messages during compilation. The warnings were provided by members that observed them. The request is to remove the warning messages during compilation. Bob reported the Parser Developer understood this fully, and the suggested resolution can be tedious. But the suggested resolution in the classification area- is to go do compile IBISCHK. Then the suggestion is mark Severity: Annoying, Priority: Low, Status: Open. We suggest that this be fixed for compilers for Windows (Visual Studio 2017 or later), and for Linux (GCC version 7.1.0 or later), be used as starting points to resolving the issues, and earlier versions would not be addressed. Bob asked if there were questions. Bob motioned to classify these. Weston Beal seconded. There were no objections. The motion to classify the BUG passed.

BUG244: False IBIS Ver Compatibility Error for EMD and IBIS File Checking

Bob Ross reported that this relates to EMD and IBISCHK Parser, with regard to Arpad Muranyi's earlier reporting. The analysis shows the IBIS file itself is okay with BIIS 3.1 or 3.2 file. The current IBISCHK parser generates 2 errors. Error E0730 and E5808, where this was the false message. The trace thru is very complicated, and thanked Randy Wolff for tracing thru this bug. The .ibs file has zero errors, but with the EMD, we have an incorrect message and so the gist of the bug report is to fix the message.

Arpad stated the issue is where line E5808 where the IBIS statement is required, and the specification does not say anything. So we either have to update the spec or get rid of the error message.

Bob suggested that it could be an editorial change to the spec later. We proposed a BIRD to just add that as a requirement. First of all, there is no error. So the message statement is incorrect. If there were an error or the .ibs file 3.1 had a bus label reference that was incompatible with EMD or even a false bus label, then the requirement would pop up. In this particular bug report, there is no error so the gist of the bug report is to mitigate that.

Arpad suggested you can have an IBIS 3 or 4 or 5 model that passes IBISCHK parser without error. As soon as an EMD file references that, there is a rule in the EMD portion of the spec to parse older files against the 7.0 spec, because of the bus label rules in the specification.

Weston Beal suggested in addition there is no actual error, but the referenced IBIS file must be checked against IBIS 7, and that is not true. This bug says we will change E580 that since the IBIS is EMD, we will check due to IBIS 7. And that error only shows up if previous error is found.

Bob stated that Randy Wolff suggested this order. Bob asked to group review the .ibs file, an 3.2 IBIS file, and the error shows up, however the file is already compatible with 7.0. there is no conflict. So if you just change to IBIS 7.0 it just goes away. Checking IBIS 3.2 for IBIS 7.0 compatibility is ok, so no error should be reported (e.g. [IBIS ver] from 3.2 to 7.0 in a .ibs file).

The issue is the 3.2 compatibility message is false. It turns out this a very simple 3 pin bus label file, and no conflict with the EMD file pins.

There was further detailed discussion and debate.

Summary: proposed BUG classification:

Severity: Moderate

Priority: Medium

Status: Open

Bob moved to classify the bug. Lance Wang asked Arpad if he wanted to move back to Quality Task Group. Arpad declined and declined to object to the motion. Weston Beal seconded the motion. The motion carried. [AR].

BUG245: Error message "<filename> has platform issue."

Weston Beal reports as a parser tries to load a file, indicates it has a parser issue. Which would be an inconsistency between OS and bit width- 32 bit vs. 64 bit for example. In speaking with Parser developer, the check gets done before it gets to this point. The point is anything that tries to call AMI_Init function from executable library, it just lets the error float up through the hierarchy of the stack, and gives the wrong impress. We want to make it clear, that when the .dll or .so file function is called, try to get to AMI_Init function, and then just state it cannot run. That doesn't indicate a platform issue- it indicates that some library file is missing- which as been the case observed. The case is to make the error message more clear.

Summary: proposed BUG classification:

Severity: Moderate

Priority: Low

Status: Open

Weston moved to accept the classification. Arpad Muranyi seconded. The motion carried [AR].

TSCHK Parser:

No updated was reported.

NEW TECHNICAL ISSUES

Weston Beal discussed a new quality specification.

Link: https://www.IBIS.org/quality_ver3.0_wip/

Weston Beal summarized the presentation and stated this is the document for actually updating the specification. The issue is that the IBIS quality specification level 2 listed 4. Weston changed it to power aware analysis. Added a few more paragraphs or points to add pin mapping, and other requirements. Received feedback from Michael Schäder after a presentation, and also from Arpad Muranyi about package quality. These updates have been made and integrated. Especially section 3.4 is new or updated- around packaging, packing model, etc. Weston asked for the group to review this updated version.

Arpad brought up the question of EMD files. Weston stated there where no plans to address EMD files at this time. He agreed it can be complicated, but not sure how to fit in the quality specification at this time. He suggested maybe it would fit in Quality Level 4 specification relating to Power Topics, or perhaps a separate presentation in a number of IBIS Summits, and what the pitfalls are of EMD files. Weston suggested they discuss it next week and we could work to how to fit in EMD as a discussion, or at least an Appendix as a comment to their quality. Arpad and Lance Wang agreed.

Lance recommended the group take time to review the document and encouraged feedback be provided to Weston to help move this along. Lance asked if there were further questions. There were none.

NEXT MEETING

Lance Wang stated the next meeting would be July 14, 2023, and due to August 4 being IEEE-SIPI IBIS Summit, following Open Forum meeting would be August 25, 2023.

Arpad Muranyi moved to adjourn. Ted Mido seconded. The meeting was adjourned.

NOTES

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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>
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 - <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/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>

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

Organization	Interest Category	Standards Ballot Voting Status	May 10, 2023	May 12, 2023	June 2, 2023	June 23, 2023
Altair	User	Inactive	-	-	-	-
AMD (Xilinx)	Producer	Inactive	-	-	-	-
Ansys	User	Active	-	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	X	-	-	-
GE Healthcare Technologies	User	Active	-	-	-	-
Google	User	Inactive	-	-	-	-
Honeywell	User	Active	-	-	-	-
Huawei Technologies	Producer	Inactive	X	-	-	-
Infineon Technologies AG	Producer	Inactive	-	-	-	-
Instituto de Telecomunicações	User	Inactive	X	-	-	-
Intel Corp.	Producer	Active	X	X	X	X
Keysight Technologies	User	Inactive	-	-	-	X
Marvell	Producer	Active	-	-	X	X
MathWorks	User	Active	X	X	X	X
Micron Technology	Producer	Active	-	-	X	-
MST EMC Lab	User	Inactive	-	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	Active	-	-	-	-
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.