IBIS Open Forum Minutes

Meeting Date: July 22, 2022
Meeting Location: **Teleconference**

VOTING MEMBERS AND 2022 PARTICIPANTS

AMD (Xilinx)	(Bassam Mansour)
Analog Devices (Maxim Integrated)	Tushar Pandey, Jermaine Lim, Rolynd Aquino, Aprille Hernandez-Loyola, Janchris Espinoza, Francis Ian Calubag, Toni Rose Racelis, Thi Nhu Quynh Nguyen
ANSYS	Curtis Clark*
Applied Simulation Technology	(Fred Balistreri)
Broadcom	(Yunong Gan), Jim Antonellis
Cadence Design Systems	Zhen Mu, Jared James, Ken Willis
Celestica	(Sophia Feng)
Cisco Systems	(Stephen Scearce)
Dassault Systemes	(Stefan Paret), Longfei Bai
Google	(Hanfeng Wang)
Huawei Technologies	(Hang (Paul) Yan)
Infineon Technologies AG	(Christian Sporrer)
Instituto de Telecomunicações	(Abdelgader Abdalla)
Intel Corporation	Hsinho Wu*, Michael Mirmak*, Jingbo Li, Liwei Zhao
Keysight Technologies	Ming Yan*, Fangyi Rao, Majid Ahadi Dolotsara, Pegah Alavi, Saish Sawant, [Radek Biernacki]
Luminous Computing	(David Banas)
Marvell	Steven Parker
MathWorks	Graham Kus*, Walter Katz*, [Mike LaBonte]
Micron Technology	Randy Wolff*, Aniello Viscardi, Justin Butterfield, Dragos Dimitriu
MST EMC Lab	(Chulsoon Hwang)
SerDesDesign.com	John Baprawski
Siemens EDA	Arpad Muranyi*, Weston Beal*, Amin Maher, Scott Wedge, Steve Kaufer, Todd Westerhoff, Vladimir Dmitriev-Zdorov, Ken Cantrell
Synopsys	Ted Mido*
Teraspeed Labs	Bob Ross*
Waymo	Zhiping Yang*
ZTE Corporation	(Shunlin Zhu)
Zuken	(Michael Schäder)
Zuken USA	Lance Wang*

OTHER PARTICIPANTS IN 2022

Amazon Lab126	Ashkar Hashemi
Ampere Computing	Le Duy Quang
CEMWorks	Cielo Gerrie
Ciena	Hugues Tournier
Ericsson	(Guohua Wang)
IBM	Greg Edlund

Imperial College, UK	Cong Ling
Mercury Systems	Vincent Tam
National Central University, Taiwan	Chiu-Chih Chou, Liu Huang Fu, Bohong Chai, Remxiang Xu, Kuan Fa, Yanting Li
OVT	Sirius Tsang
SAE ITC	José Godoy
SeriaLink Systems	Aleksey Tyshchenko, David Halupka
STMicroelectronics	(Olivier Bayet)
University of Colorado, Boulder, ECEE	Eric Bogatin
University of Illinois	José Schutt-Aine
Politecnico di Torino	Stefano Grivet Talocia, Tommaso Bradde, Marco De Stefano, Riccardo Trinchero, Alessandro Zanco, Antonio Carlucci
Unaffiliated	Mike LaBonte

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
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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

Graham Kus declared that a quorum had been reached.

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. No new items were announced.

REVIEW OF MINUTES AND ARS

Randy called for comments on the minutes of the June 24, 2022, IBIS Open Forum teleconference. Randy noted that the June 24, 2022 minutes did not mention BIRD213.1 had a vote scheduled for the next meeting. Michael Mirmak initiated the motion and Graham Kus seconded. There were no objections.

- Michael Mirmak to add note to TSIRD4 that no parser change is required [AR].
    - Michael reports this was completed as TSIRD4.1 and has been forward to this organization for an introduction.
    - This was considered done.

ANNOUNCEMENTS, CALL FOR ADDITIONAL AGENDA ITEMS

No new items were announced.

MEMBERSHIP STATUS AND TREASURER'S REPORT

Bob Ross reported: Currently we have 26 members plus Intel, where their payment has been made but not yet recorded, so for the purposes of this meeting Intel is considered a voting member. This makes the number 27. Ericsson has been dropped as a voting member. As for ST Microelectronics, the payment is still in progress, so cannot vote at the current time.

Sponsorship payments for DesignCon have been received and recorded.

There are no or minimal considered payments for IEEE SIPI+EMCIBIS Summit, because the IEEE EMC Society plans to pay for everything including room and refreshments.

Current balance is $19,524

Adjusted Balance is $22,874 for 2022

The carry forward is $450 for 2023

WEBSITE ADMINISTRATION

Steven Parker was not able to join this meeting. Randy Wolff reports he was able to post minutes from last meeting and updates on upcoming IBIS Summit, including room number and details. Randy asked if anyone had updates to suggest for the website. There were no suggestions.

MAILING LIST ADMINISTRATION

Curtis Clark reported: there were a few new subscriptions made recently. At present, every member company now has a membership of at least one individual subscribed to the IBIS list.

LIBRARY UPDATE

Zhiping Yang reported: there was one request for an IBIS model, and that person was advised to contact the IC vendor for that IBIS model. It was thought it was a question for a generic memory, so that person was advised to look up the vendor and contact them for a model.

INTERNATIONAL/EXTERNAL ACTIVITIES

Conferences:

The IEEE EMC+SIPI conference would be held in Spokane, Washington, August 1 to 5, 2022.

IEEE International Symposium on Electromagnetic Compatibility, Signal & Power Integrity (EMC+SIPI), August 1-5, 2022
https://emc2022.emcss.org

Announcing the "Ask the Experts" Panels at the 2022 IEEE International Symposium on EMC+SIPI in Spokane, Washington
https://ieeexplore.ieee.org/document/9780299

Randy reported: the IEEE EMC+SIPI conference would soon occur. There were no other suggested conferences to track.

Press Updates

No new items were announced.

Related standards

Michael Mirmak reported: the next meeting of IEEE DASC will be early August and expect to have more information after that.

IEEE IBIS Standardization

Randy reported: he has to contact SAE again, they seem to be stalled, but think that is the next step for the IBIS Committee to take. He took an AR to contact the SAE again on this topic [AR].

SUMMIT PLANNING AND REVIEW

EMC+SIPI IBIS Summit

Randy Wolff reported: IEEE EMC+SIPI had been scheduled for August 5, 2022, which would come up in 2 weeks. We would have a few people who would be able to be on site there. Others would be planning to participate in the "Ask the Experts" panel discussion on Thursday the 4th of August 2022, as a Live Event. We would be running the Summit as a Hybrid Attendance Model. A Zoom meeting link would be sent out to those who are registered with a link to the meeting.

Zhiping suggested that a Webex would be a more stable platform for a large meeting audience where online attendance could vary and be potentially large. Randy asked if it could be

administered/moderated by someone on the committee at the event. It was discussed that the venue would be Room 302A where the event would be held Live.

Randy reports that the food and concessions would be taken care of. The other item was to confirm given the hybrid nature of this forum, we would want to be sure the audio is going to function as expected.

Zhiping said he would cc Randy on email communication with AV staff to clarify if the setup can be fully understood and tested ahead of time to decide if anything extra would be required.

Randy asked Bob to talk about presentations.

Bob reports: about six presentations that have been submitted. Some have not confirmed. For example, Google had planned to be supplying one of the presentations. Zhiping reported to be in contact with the author, and could work to confirm. Bob asked to be forwarded tentative title and authors as they become available, as the agenda is expected to be sent out next week.

Randy asked whether anything on Interconnect task group should be covered during the conference. Bob replied that it could be something but there has been a lot of action on Touchstone files, and may want to have that be a separate item.

Randy said we have a planned work presentation that might be able to address Touchstone. Bob replied we have work doing separation between Touchtone 1.0 and Touchstone 2.0, especially with items such as residues and port ordering.

Randy asked if Lance has any updates on signups and also reminded those in attendance at the meeting to register if they planned to attend live or virtually.

Lance reported that there are 7 registered and 5 in person at present.

Randy asked if there was anything further for planning.

There were no further suggestions.

QUALITY TASK GROUP

Bob Ross reported that: we have other things that are on hold. Briefly those would be:

- We have not reviewed bugs recently

- We have not had an update on bug fixes to IBISCHK 7.2, we have not received a quote yet

- Touchstone parser bug which was a speed enhancement for the parser is on hold

- The main discussion is on power-aware checks. Bob asked Weston to elaborate. Weston reported: mostly we are looking at tables and composite current tables, with a view towards what can be automated, what we should specify in the quality checklist, etc. Some of the checklist items are only human readable, but we would also like to make checks that are programmatically checkable. We are looking at this both ways on IBIS and Power-related topics. Meanwhile we need to look at how to consider pin mapping and package modelling. Some are already within IBISCHK, and that can be a problem because IBIS Quality Zero says all items must pass IBISCHK. Weston concluded by stating all of these factors are being considered.

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 that in the last few weeks we have been discussing standardization of power delivery models, and at some point would like to discuss multi-level buffer modelling.

Note: Task group material can be found at:

http://www.ibis.org/macromodel_wip/

INTERCONNECT TASK GROUP

Michael Mirmak reports that they are back to holding regular meetings on Wednesdays. The focus has been on Touchstone 3.0, including port naming, and as well as pole residues. There is expected to be a lot of work focused on Touchstone 3.0 in upcoming meetings.

Note: Task group material can be found at:

http://www.ibis.org/interconnect_wip/

EDITORIAL TASK GROUP

Randy Wolff reported this is current suspended but may begin for IBIS 7.2 work.

Note: Task group material can be found at:

http://www.ibis.org/editorial_wip/

NEW ADMINISTRATIVE ISSUES

Randy Wolff reported that: IBIS known issues for 7.1 document has been updated, and will issue an AR to have Stephen update that on the website [AR].

Bob Ross reported that Arpad Muranyi asked for the Touchstone 1.0 specification, and while Bob could find the version 1.1 draft as part of the 2.0 repository, he was still searching but not able to find version 1.0. There was discussion about various archives where it may be located. It was stated that the goal is to reference a Touchstone specification from the IBIS Committee as opposed to a commercial version.

Michael Mirmak added that a lot of the work involving Touchstone was done under Connector and ICM on the IBIS website, and there may be some minutes associated with Connector that may help.

NEW AND REVISED *IRDS

None.

IRDS SCHEDULED FOR VOTE

BIRD213.1: EXTENDING IBIS-AMI FOR PAMn ANALYSIS

Randy Wolff reports this was scheduled for voting this meeting.

Arpad Muranyi reports he did not get any questions comments.

Walter Katz said all the changes have been editorial recently, over the past weeks.

Randy says it has been out of ATM and in review for some time.

Walter moves to vote, and Michael Mirmak seconded.

Secretary Graham Kus reports an Email from Walter for a vote of Yes. Walter was in attendance and restated his vote. The votes were as follows:

ANSYS – yes

Intel – yes

Keysight -yes

MathWorks – yes

Micron – yes

Siemens EDA – yes

Synopsys – yes

Teraspeed Labs – yes

Waymo – yes

Zuken – yes

Randy reported the vote passes.

Randy took an AR to update this with date accepted and to be added and updated on the website [AR]. Michael asked if it was targeted for any particular release of IBIS, and Randy replied it would be in IBIS 7.2, and would bring up details on the topic later in the meeting.

IRDS ELIGIBLE FOR VOTE

TSIRD4.1: [END] KEYWORD CORRECTIONS AND OTHER EDITORIAL CHANGES

Michael Mirmak reported that there were a few additional changes that had to be made, and some readability changes, and to also include a statement that no changes to parser would be required. One of the major comments was number format- it was not clear that it was acceptable to have floating point that did not have a leading zero. So some statements were added to note this, and for readability the examples have been altered to show only with leading zero. This was a summary of the changes, but there were focused on changing the document to match the parser, but the parser itself was expected to be unaffected.

Randy said these changes would be planned for a rollup into Touchstone 3.0, not into Touchstone 2.1 for example, and to be clear restated that it would be rolled up in Touchstone 3.0.

Bob suggested a vote be scheduled at the next meeting, or a future time to collect votes on this topic.

BIRD219.1: AMI PARAMETER ROOT NAME CLARIFICATION

Randy Wolff reported that this BIRD is not scheduled for a vote, but is ready to be scheduled. Randy asked if Michael Mirmak had any comments on this BIRD. Michael reported he has not received any additional comments or suggestions about this BIRD, and has none to add.

Michael moved to schedule to vote this on the next Open Forum meeting– Arpad Muranyi seconded. There were no objections.

Randy took an AR to send out a vote notice solicitation email on this BIRD [AR].

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

TBD/No discussion.

IBISCHK AND TSCHK PARSER AND BUG STATUS

Bob Ross reported that there are no new bugs, no change to the parser project quote. Randy asked if a response is expected from the vendor. Bob replied what we have done in the past is write the contract, then we wait to fill in the numbers so it is a complete contract with cost and delivery time, and we are waiting for the vendor to come back with those details. Bob took an AR to contact the parser vendor if necessary to get status of the quote.

There were no other questions.

NEW TECHNICAL ISSUES

Randy Wolff reported that a couple Open Forum meetings ago, there was a discussion for what BIRDS would be in 7.2, and looking for votes on BIRD content. Randy shared slides on the BIRD population [listed below- Graham Kus].

Randy said we are working on IBISCHK7.1.1 to clear a list of bugs so it would be a starting point for 7.2 parser. As soon as the 7.1.1 parser is complete we would be starting work on 7.2 parser in parallel with editorial task group. We could prepare a motion to pass the BIRDs after the 219.1 is ready.

Michael Mirmak asked if we should decide or vote whether IBIS 7.2 work is more important than Touchstone 3.0 work, because many people are overlapping, even in the same time slots for meetings.

Bob Ross suggested that the group continue the technical updates, and while difficult offline, members could review the IBIS offline, but is a 500 page document. So eventually when we decide to start, would favor IBIS first.

Arpad Muranyi commented that he shares the opinion that we should continue the IBIS editorial and put Touchstone 3.0 in the background, primarily to work with Randy offline on the 1.0 vs. 2.0 version text, which involves a lot of potential rewriting, and hopefully by IBIS 7.2 we would have made progress on that. Another option would be to use the Friday time slot, we have done that before.

Arpad also asked whether Michael would agree to lead the group again, and also as a general question what software we would use for the next version, in order to avoid the struggles previously experienced with Microsoft Word due to the size of the specification.

There was discussion about which editor to use instead of Word. Graham suggested FrameMaker, especially as it is available as a subscription on a monthly basis so can be utilized only while needed. Arpad suggested that OpenOffice also be considered, if it is able to handle the large documents, as it is freely available as an open-source application. Bob asked if we could still export or otherwise support Word format. Different editors were suggested. Michael suggested that we have a small number of "Actual Editors" and have a PDF or other portable document that can facilitate comments from a larger group, and that would be sufficient. Randy

suggested we have a meeting about this topic in more detail as editorial. Bob suggested we have it part of the interconnect task group meeting. Randy agreed we would figure out next steps in interconnect task group meeting.

Randy stated that if we can get started on IBIS 7.2, we would be on track for completion by end of this year. Michael asked if we should schedule the vote for the list of technical BIRDs now, for the next meeting.

Arpad moved to schedule the vote for next meeting on the list of BIRDs (BIRD211.4, BIRD213.1, BIRD216, BIRD217, BIRD218, and BIRD219.1) Michael seconded. There were no objections. Randy took an AR to send out vote solicitation for next meeting [AR].

NEXT MEETING

Randy Wolff stated that three weeks from now would be the next Open Forum Meeting on August 12, 2022. But noted that the planned following meeting date, September 2, 2022, would not work well for many members to attend. Randy moved that meeting be instead held September 9, 2022. Graham Kus Seconded. There were no objections.

Graham moved to adjourn. Bob Ross seconded the motion. The meeting was 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. 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: ibischk6, 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

Other trademarks, brands and names are the property of their respective owners.

SAE STANDARDS BALLOT VOTING STATUS (attendance X absent -)

Organization	Interest Category	Standards Ballot Voting Status	May 26, 2022	June 3, 2022	June 24, 2022	July 22, 2022
AMD (Xilinx)	Producer	Inactive	-	-	-	-
Analog Devices (Maxim Integrated)	Producer	Inactive	X	-	-	-
ANSYS	User	Active	-	X	X	X
Applied Simulation Technology	User	Inactive	-	-	-	-
Broadcom Ltd.	Producer	Inactive	X	-	-	-
Cadence Design Systems	User	Inactive	-	X	-	-
Celestica	User	Inactive	-	-	-	-
Cisco Systems	User	Inactive	-	-	-	-
Dassault Systemes	User	Inactive	X	-	-	-
Google	User	Inactive	-	-	-	-
Huawei Technologies	Producer	Inactive	-	-	-	-
Infineon Technologies AG	Producer	Inactive	-	-	-	-
Instituto de Telecomunicações	User	Inactive	-	-	-	-
Intel Corp.	Producer	Active	-		=	X
Keysight Technologies	User	Active	-	X	-	X
Luminous Computing	General Interest	Inactive	-	-	-	-
Marvell	Producer	Active	-	X	X	-
MathWorks	User	Active	-	X	X	X
Micron Technology	Producer	Active	X	X	-	X
MST EMC Lab	User	Inactive	-	-	-	-
SerDesDesign.com	User	Inactive	-	-	-	-
Siemens EDA (Mentor)	User	Active	X	X	X	X
STMicroelectronics	Producer	Inactive	-	-	=	=
Synopsys	User	Active	-	X	X	X
Teraspeed Labs	General Interest	Active	X	X	X	X
Waymo	User	Active	-	X	X	X
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.