IBIS Open Forum Minutes

Meeting Date: August 12, 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
STMicroelectronics	(Olivier Bayet)
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
Altair	Junesang Lee*
Ciena	Hugues Tournier*, Kaisheng Hu*
Cornelis Networks	Champion Kao*

De Montfort University	Alistair Duffy*
GE HealthCare	Balaji Sankarshanan*
	Sarah Salvador*
IBM	Greg Edlund
Imperial College	Cong Ling*
Mercury Systems	Vincent Tam
National Central University, Taiwan	Chiu-Chih Chou
NXP Semiconductors	Jon Burnett*
OVT	Sirius Tsang
Rivos	Yansheng Wang*
SAE ITC	José Godoy
SeriaLink Systems	Aleksey Tyshchenko, David Halupka
University of Colorado, Boulder, ECEE	Eric Bogatin
University of Illinois	José Schutt-Aine
University of L'Aquila	Francesco De Paulis*

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#
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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.

REVIEW OF MINUTES AND ARS

Randy Wolff called for comments on the minutes of the July 22, 2022, IBIS Open Forum teleconference. Randy AR to contact IEEE for SAE IBIS standardization by IEEE [AR].

ANNOUNCEMENTS, CALL FOR ADDITIONAL AGENDA ITEMS

MEMBERSHIP STATUS AND TREASURER'S REPORT

Bob Ross reported: With adjustments from past payments and credits, we currently have 27 renewal members for 2022. The STMicroelectronics membership payment was received by SAE ITC- Note: payment was received prior to this meeting, but not recorded until after the meeting and therefore not included in the Balance amounts.

IEEE EMC supported the IBIS Summit at the recent event in Spokane, Washington.

No additional Summit payments are planned for 2022.

$20,424 Balance for 2022

$23,774 Adjusted Balance for 2022

$450 Adjusted Balance for 2023

WEBSITE ADMINISTRATION

Randy Wolff reported: Stephen Parker was not able to join this meeting, also took care of getting our Summit on the line, webpage setup for the Summit we had last Friday [August 5, 2022]. A couple to do items:

- IBIS 7.1 known issues document needs to be updated on the upcoming events page

- We have to move this summit down to recurring meetings

- We will have a report on scheduling on that later in the meeting

Randy asked if there were other requests. Bob Ross replied we will need the minutes and the link to the minutes also added for that [AR].

MAILING LIST ADMINISTRATION

Curtis Clark reported: it is quiet as can gets, everything seems to be working fine.

LIBRARY UPDATE

Zhiping Yang reported: No activity on the library side.

INTERNATIONAL/EXTERNAL ACTIVITIES

Conferences:

No new items were announced.

Press Updates

No new items were announced.

Related standards

Michael Mirmak reported: the next meeting of IEEE DASC will be early August and TBD

IEEE IBIS Standardization

Arpad Muranyi commented: If the full standard is difficult, can a pool of BIRDs be adopted by IEEE IBIS. My take is typically a keyword is not that useful for IEEE standard. I feel it is better to adopt the whole standard. Randy Wolff asked: is IEEE only interested in certain keywords? Arpad: In case there is some legal issue or pushback on mothership, it is easier and faster perspective to just look at BIRD. Randy replied: I think we'll see what SAE says. Bob Ross commented: I think we should not break apart IBIS or the standard, it would be a mess. If there is a particular case where a particular term is legally in question, we can address each one-rather than pick it apart. Arpad: I think that as well. If there is a keyword on the EMC side for example, then that can be pulled out for the EMC model. Maybe not do the IBIS but can do the EMC simulation.

SUMMIT PLANNING AND REVIEW

IBIS Summit at IEEE EMC-SI/PI:

Randy Wolff reported: IBIS Summit at IEEE EMC+SIPI last Friday (August 5, 2022), went very well as an online and in person hybrid meeting. It used a Jabra type device, that only used a single microphone for the room. Those people online heard most of the comments.

A group discussion was then held about A/V performance and suggestions to improve experience for Summit Attendees.

Zhiping Yang commented: it seems that a lot of people did not understand IBIS model. Some EMC attendees seemed interested in SI/PI simulation, lot of attendance in training workshop. One idea is to maybe think of doing our own or combining with short course or workshop tutorial, so people are aware. Hopefully more people can participate. Also, I heard they are working on two possible short courses: One focused on fundamental in EMC, this year short course in antenna, and next year they are discussion two possible topics for short course- one SI/PI, second maybe machine learning. Maybe we can add one power topic on that.

Randy Wolff commented: next year the IEEE EMC+SIPI conference is at Grand Rapids Michigan and asked if anyone knows of other topics? Michael Mirmak: they also mentioned cyber security. Zhiping: they mentioned automotive as well.

<u>Asian IBIS Summit (Japan):</u>

Randy reported: Friday November 11, 2022 is the planned for a virtual Japan IBIS Summit. USA attendees would be able to attend Thursday evening. JEITA will put together a list of speakers and presentations, and we can add some presentations. We are planning for the first announcement on Friday September 9, 2022. JEITA should have a list of presentations or topics available by then.

Randy asked if there were any questions? No questions were asked. Randy commented it should be no cost, so we do not have to do any voting on approval on that conference.

QUALITY TASK GROUP

Bob Ross reported: No new bugs for IBISCHK or Touchstone check parsers. We did receive a quote on IBISCHK 7.1.1 bug fixes to be discussed. We have moved forward with contract signature signing. The Touchstone speed enhancement is on hold until we fix the bugs for IBISCHK. That speed enhancement should go quickly.

The main discussion related to power aware checks. We are pushing a few suggested rules, but the primary rule is not checkable nor documented in data sheets - that is the assignment of power and ground pins with pin mapping to various buffer I/O's.. Bob asked for questions? None were asked.

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: our meetings are as usual on Tuesday. The discussion topic these days is power integrity related topics. We got into some discussion in multi-level buffer modelling capabilities. Michael had some questions about clock receiver modelling, that we may have overlooked and may need to consider a new keyword to group clocked receiver devices, relating to their organization.

Arpad ask for any questions. One question came up about PDN modelling. Arpad responded that a BIRD was going to be worked on, and a draft may be available in a few weeks.

Note: Task group material can be found at:

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

INTERCONNECT TASK GROUP

Michael Mirmak reported: we had meeting past Wednesdays. Topics include a new ISSIRD draft, to change the IBIS ISS specification in essence to formalize the use of S-parameter data underneath the W-line structure . Some EDA tools already support this to allow W-elements perform scaling of frequency domain data. There's some additional research to allow it to be developed further and then passed to the IBIS Open Forum, but that would be with IBIS Version 7.2 looming, there was a lot of discussion about what activities would continue vs. suspending interconnect in favor of editorial activities.

It is undecided whether the Interconnect Task Group or the Editorial Task Group will meet next week.

Michael asked for any questions, none were asked.

Note: Task group material can be found at:

EDITORIAL TASK GROUP

Randy Wolff asked Michael Mirmak if this was covered in the Interconnect Task Group discussion and Michael agreed it had been.

Note: Task group material can be found at:

NEW ADMINISTRATIVE ISSUES

Randy Wolff reported there were no new issues at this time.

NEW AND REVISED *IRDS

None.

IRDS SCHEDULED FOR VOTE

BIRD219.1: AMI PARAMETER ROOT NAME CLARIFICATION

Randy Wolff reported this BIRD219.1 was scheduled for a vote at this Open Forum meeting.

Randy asked Michael Mirmak if there were any comments on the BIRD219.1. Michael replied he had not received any additional feedback. So no suggestions or changes.

Bob Ross moved to vote on this BIRD219.1.

Randy announced: we have one email vote on BIRD219.1.

Arpad Muranyi asked what is the BIRD219.1 description in brief please.

Michael replied: to clarify the IBIS specification about the Root Name, where the first line of the file is used for identifier of parameter tree, but also the first string in AMI Parameters Out string (Michael went on to describe further, please see BIRD219.1 for official description -GK).

Randy stated that we had a move to vote and asked if there was a second for the motion.

Arpad seconded the motion.

Randy noted there were no objections.

Vote Results:

- ANSYS: yes
- Email vote from Cadence: yes
- Intel: yes
- Keysight Technologies: yes
- MathWorks: yes
- Micron Technology: yes

- Siemens EDA: yes

- Synopsys: yes

- Teraspeed Labs: yes

- Waymo: yes

Randy noted there were 10 yes votes, vote passes. Randy said he would take an AR to update date accepted [AR].

IRDS ELIGIBLE FOR VOTE

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

Michael Mirmak reported: no comments or questions or suggestion for changes have been received on this either. This is specific to Touchstone, this makes a number of very small editorial changes. Michael described the TSIRD [Please see the TSIRD for official description].

Arpad Muranyi motioned to schedule the vote for this. Michael seconded the motion.

There were no objections.

Randy Wolff noted the Motion passes and took an AR to send out a vote solicitation email [AR].

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

None.

IBISCHK AND TSCHK PARSER AND BUG STATUS

Randy Wolff announced we had an email based vote for parser funding and noted the Vote was successful: 6 Yes votes. 0 No votes. 0 abstains. Graham Kus confirmed all those votes with Randy.

Arpad Muranyi asked if this is basically to clean up parser before starting development again and if that was correct. Randy replied that yes that will take care of almost all IBISCHK bugs out there except one which is really related to IBIS Version 7.2.

Bob Ross reports: on the timeline, basically the vote confirmed the quote of $1500 was approved and moved forward with the signature process on the agreement with that number inserted and the parser developer suggested mid-September 2022, we padded this with September 30, 2022 as a due date, and that is usually a soft due date due to review and feedback that may take another cycle or two. So the contract has been set up. We have not received a reply yet. We will get the developer signature first, then SAE signature, then Randy's signature. Then the contract starts. Bob then had to update his files to reflect most recent bugs in this regard and Randy assisted.

Randy motioned that we classify BUG234 as severe and medium priority- Arpad seconded.

Randy asked if there was anything else on parser? Nothing further was discussed.

NEW TECHNICAL ISSUES

Randy Wolff reported a vote solicitation email. We discussed the last meeting the content we would like to see in IBIS 7.2. We can move forward with a motion to approve this list of BIRDs we would like, and he had already sent out email to solicit votes [see email for detailed list of BIRDs]. Randy asked if there were any comments?

Arpad Muranyi moved to pass the motion. Michael Mirmak seconded. There were no objections.

Randy continued to report, approving list of BIRDs to include in IBIS 7.2, we can also add BIRDs that come out of the Editorial Task Group process later. A vote was counted:

Vote Results:

- ANSYS: yes

- Intel: yes

- Keysight Technologies: yes

- MathWorks: yes

- Micron Technology: yes

- Siemens EDA: yes

- Synopsys: yes

- Teraspeed Labs: yes

- Waymo: (did not vote, had dropped from call earlier -GK)

Randy reported: that is all the votes, others not captured by email. Total is 8 Yes votes and the motion passes with 0 No votes and 0 abstains.

Arpad asked if this [vote result] means this next meeting with be an Editorial Task Group meeting? Michael replied yes, so given motion approved, then we will switch immediately to Editorial Task Group meetings at the Wednesday time slot. Michael offered to take an AR to send out email detailing this. Randy took the AR to send to IBIS Editorial Task Group list for 7.1 as a starting point [AR].

Michael stated he would like to discuss BUG227.

Randy agreed and gave Michael the floor.

Michael continued This bug was actually what kicked off BIRD218. the bug was that the parser does not check root name between AMI in and out. Because this was seen as potentially significant but outside specification, it was deferred until part of specification. So now we have our first bug against our parser for a specification that has not been released yet. Randy: we talked about classifying this as an enhancement. there was some work in the IBIS Quality Task Group on this, to try to exercise the AMI functions to get an output where the root name would be printed out and the parser could check that. against the AMI file Root Name. That work was successful.

Randy asked Bob if there would be IBIS parser discussions. Bob said it would have to be brought up in next meeting.

Walter Katz interjected: I would comment on what can be done with respect the way the BIRD was approved. One: the parser can run with .dll with AMI Init, and the correct tree name root tree name as an AMI file, and what the parser can do is look at two things:

1. First is output string, and that root name should be the same as AMI file.
2. Second, the .dll or.so is required to put in a message, but there is nothing the IBISCHK can do to verify them is correct since there is no constrained.

Michael stated: the request here is for what it can check, to give one minimal response.

Randy commented: to run AMI Init, you can just pass in all default settings from the AMI file, and maybe an impulse response.

Walter added: and bit time, and some things like that.

Randy: and any items that any AMI file would need.

Randy asked for any motions.

Bob Ross: I move to classify this as enhancement, low, and can be fixed in next IBIS Version 7.2 release. Michael seconded the motion.

Arpad asked: if the parser gets a response out of it, does it imply some time would be to get this out?

Discussion held about turning flag to do this check on or off.

Walter commented: so this will run on old models as well.

Bob replied: it might be backwards compatible.

Randy asked if any objections. there were none. The motion passed.

Bob Ross will take AR to update classification on BUG227 [AR].

This concluded technical issues discussion.

NEXT MEETING
Randy Wolff stated that the next IBIS Open Forum Meeting would be held September 9, 2022 and the following meeting date would be three weeks later on September 30, 2022.

Graham Kus moved to adjourn. Bob Ross seconded the motion. The meeting was adjourned.

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NOTES

IBIS CHAIR: Randy Wolff (208) 363-1764
　　　　rrwolff@micron.com
　　　　Principal Engineer, Silicon SI Group, Micron Technology, Inc.
　　　　8000 S. Federal Way
　　　　P.O. Box 6, Mail Stop: 01-720
　　　　Boise, ID 83707-0006

VICE CHAIR: Lance Wang (978) 633-3388
　　　　lance.wang@ibis.org
　　　　Solutions Architect, Zuken USA
　　　　238 Littleton Road, Suite 100
　　　　Westford, MA 01886

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 (650) 214-0868
zhipingyang@google.com
Sr. Hardware Manager, Google LLC
1600 Amphitheatre Parkway
Mountain View, CA 94043

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.
150 Baker Ave Ext
Concord, MA 01742

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

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

Organization	Interest Category	Standards Ballot Voting Status	June 3, 2022	June 24, 2022	July 22, 2022	August 5, 2022	August 12, 2022
AMD (Xilinx)	Producer	Inactive	-	-	-	-	-
Analog Devices (Maxim Integrated)	Producer	Inactive	-	-	-	-	-
ANSYS	User	Active	X	X	X	-	X
Applied Simulation Technology	User	Inactive	-	-	-	-	-
Broadcom Ltd.	Producer	Inactive	-	-	-	-	-
Cadence Design Systems	User	Inactive	X	-	-	X	X
Celestica	User	Inactive	-	-	-	-	-
Cisco Systems	User	Inactive	-	-	-	X	-
Dassault Systemes	User	Inactive	-	-	-	-	-
Google	User	Inactive	-	-	-	X	-
Huawei Technologies	Producer	Inactive	-	-	-	-	-
Infineon Technologies AG	Producer	Inactive	-	-	-	-	-
Instituto de Telecomunicações	User	Inactive	-	-	-	-	-
Intel Corp.	Producer	Active		=	X	X	X
Keysight Technologies	User	Active	X	-	X	X	X
Luminous Computing	General Interest	Inactive	-	-	-	-	-
Marvell	Producer	Active	X	X	-	-	-
MathWorks	User	Active	X	X	X	X	X
Micron Technology	Producer	Active	X	-	X	X	X
MST EMC Lab	User	Inactive	-	-	-	X	-
SerDesDesign.com	User	Inactive	-	-	-	-	-
Siemens EDA (Mentor)	User	Active	X	X	X	X	X
STMicroelectronics	Producer	Inactive	-	=	=	=	-
Synopsys	User	Active	X	X	X	X	-
Teraspeed Labs	General Interest	Active	X	X	X	X	X
Waymo	User	Active	X	X	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.