



## IBIS Open Forum Minutes

Meeting Date: **September 30, 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, Kyle Lake*
Celestica	(Sophia Feng)
Cisco Systems	Stephen Searce
Dassault Systemes	(Stefan Paret), Longfei Bai
Google	Hanfeng Wang , Jianmin Zhang
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, Chi-te Chen, Kinger Cai
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, Hanyu Zhang, Haran Manoharan, Jiahuan Huang, Junho Joo, Reza Yazdani, Seunghun Ryu, Seungtaek Jeong, Xiangrui Su, Xu Wang, Yuanzhuo Liu, Zhekun Peng, Yifan Ding
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

Altair  
Amazon Lab126  
Ciena  
Cornelis Networks  
De Montfort University  
GE HealthCare  
IBM  
Imperial College, UK  
Mercury Systems  
National Central University, Taiwan

OVT  
Politecnico di Torino

Rivos  
SAE ITC  
SeriaLink Systems  
University of Colorado, Boulder, ECEE  
University of Illinois  
University of L'Aquila  
Unaffiliated

Junesang Lee  
Askar Hashemi  
Hugues Tournier, Kaisheng Hu  
Champion Kao  
Alistair Duffy  
Balaji Sankarshanan, Sarah Salvador  
Greg Edlund  
Cong Ling  
Vincent Tam  
Chiu-Chih Chou, Liu Huang Fu, Bohong Chai,  
Remxiang Xu, Kuan Fa, Yanting Li  
Sirius Tsang  
Stefano Grivet Talocia, Tommaso Bradde, Marco  
De Stefano, Riccardo Trincherro, Alessandro  
Zanco, Antonio Carlucci  
Yansheng Wang  
José Godoy  
Aleksy Tyshchenko, David Halupka  
Eric Bogatin  
José Schutt-Aine  
Fancesco De Paulis  
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](mailto: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](#)

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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.

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## **INTRODUCTIONS AND MEETING QUORUM**

Graham Kus declared that a quorum had been reached with 11 attendees.

## **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 items were announced.

## **REVIEW OF MINUTES AND ARS**

Randy Wolff called for comments on the minutes of the September 9, 2022 IBIS Open Forum teleconference

<https://ibis.org/minutes/>

Bob Ross motioned to approve, and Curtis Clark seconded. There were no objections.

### ARs:

- Steve Parker to add China IBIS Summit to the website [AR]
  - o Randy reports this as not yet complete
- Steve Parker to confirm payment of website hosting fees reimbursement from SAE [AR]
  - o Bob Ross reported this is completed
- Randy Wolff to write article on IEEE EMC+SIPI IBIS participation for IEEE EMC Magazine [AR]
  - o Randy reported this is completed
- Randy Wolff to send out first announcements for China and Japan IBIS Summits [AR]
  - o Randy reported this is completed
- Randy Wolff and Arpad Muranyi to prepare baseline Touchstone 3.0 document based on separation of Touchstone 1.0 and 2.0 rules [AR]
  - o Randy reported this is completed
- Steve Parker to add TSIRD4.1 with updated approval date to the website [AR]
  - o Randy reported this as not yet complete
- Bob Ross to update classifications of BUG235 and BUG236 on the website [AR]
  - o Bob reported this is completed.

## **ANNOUNCEMENTS, CALL FOR ADDITIONAL AGENDA ITEMS**

None were announced.

## MEMBERSHIP STATUS AND TREASURER'S REPORT

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Bob Ross reported we currently have 28 renewal members for 2022.

The web hosting payment of \$313 was made to Steve Parker and recorded.

One new one-half year new membership is in progress and will be recorded when SAE ITC receives the payment. It appears a PO has been submitted but the monies are yet to be received.

The following payments are expected for 2022:

- \$1,500 for IBISCHK7.02 parser development
- Approximately \$6,000 for end of year SAE ITC assessment.

No additional Summit payments are planned for 2022.

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**\$21,011** Balance for 2022

**\$24,361** Adjusted Balance for 2022

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**\$450** Adjusted Balance for 2023

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## WEBSITE ADMINISTRATION

Randy Wolff reported no update.

## MAILING LIST ADMINISTRATION

Curtis Clark reported that freelists.org is working normally and everything is going fine.

## LIBRARY UPDATE

Zhiping Yang reported no updates and no inquiries since last meeting. Plan a yearly update in the next few weeks. If any questions about company or library artifacts to please advise him on any questions.

## INTERNATIONAL/EXTERNAL ACTIVITIES

### Conferences:

Graham Kus reported there were no conferences to announce.

### Press Updates

Bob Ross reported that the on-line Signal Integrity Journal of August 16, 2022 has this article:

Baprawski, John. "Zero Cost SerDes System Channel Simulation," *Signal Integrity Journal* August 16, 2022 <https://www.signalintegrityjournal.com/articles/2698-zero-cost-serdes-system-channel-simulation>.

Bob said that John had presented this at the DesignCon IBIS Summit on April 8, 2022

### Related standards

Michael Mirmak reported DASC meeting scheduled for next Thursday. IEEE DASC is the collection of other design automation standards in the IEEE. One of those is 2401 (LSI package board standard) that also points to IBIS as a modelling format for the buffer in an LPB system. That update to 2401 would be delivered next week.

Randy Wolff asks if LPB would be interested in linking to 7.1 or 7.2, and Michael confirms the next version of 2401 and the next version.

### IEEE IBIS Standardization

Randy Wolff reported we are waiting for update on SAE ITC on next steps there. Randy opened one of the SAE ITC websites to show what the portal would look like in the future.

### IBIS Summits:

#### Asia IBIS Summit (China) November 4, 2022:

Randy Wolff reported this will be Virtual/Hybrid in the morning, so it will overlap Thursday Evening in the US.

#### Asia IBIS Summit (Japan) November 11, 2022:

Randy reported this will be a Virtual/Hybrid in the morning, so it will overlap Thursday Evening in the US. He said that the IBIS Committee had received an update from JEITA Japan that they only have one presentation from a member thus far. They did ask for a paper/presentation on new Keywords or features in IBIS 7.1, and Randy reports he is preparing that at present. Bob Ross reports they are looking for more presentations, and he that the Keywords would be a straight-forward presentation based on BIRDS, and Randy added he can report on upcoming in IBIS 7.2 such as PSIJ BIRD. Bob added we may be able to share the Power Integrity BIRD from Kinger Cai on a pre-recorded basis, and other presentations, as it is understanding that JEITA can contract language translation services for a broader audience at large. Ted Mido offered to provide real-time translation for a Question-and-Answer session.

#### Americas IBIS Summit (California), DesignCon (2023 TBD):

Randy reported he is reviewing a barter document from DesignCon with SAE ITC that would allow 5 complimentary passes for IBIS members. The Monday meeting space at DesignCon is still being offered.

The committee continued the discussion about either holding the IBIS Summit on Monday, January 30, 2023, or to attempt to hold the IBIS Summit Friday, February 3, 2023- but offsite at nearby Member-company campus sites as a possible alternative. There were no motions.

### **QUALITY TASK GROUP**

Bob Ross reported there is one bug on Touchstone Parser and one bug on IBISCHK Parser. That is the main activity. Plus answering questions from the Parser Developer, which relates to existing bug reports and clarification. The error is a Windows DLL reports something to the effect that it is not compatible with Windows, but the report is false. Bob said he may ask Michael Mirmak to provide the DLL that would cause the Parser issue. Michael reports the DLL was compiled for Visual Studio 2019, "has platform issue" is the error message. Thanks to

some help offline by Mike LaBonte, there should be additional diagnostics output by the Parser that were never tripped. Michael reports it is very difficult to share the DLL, so it is not likely it will be an easy issue to debug.

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

[http://www.ibis.org/quality\\_wip/](http://www.ibis.org/quality_wip/)

## **ADVANCED TECHNOLOGY MODELING TASK GROUP**

Arpad Muranyi reported regular Tuesday Noon meeting time. He said that currently the IBIS Committee has some major proposals in BIRD draft. Two of them cover power-induced jitter: one to make the buffer models more accurate with regards to the pre-driver being affected by power supply, the second is more of a frequency-domain approach. The third BIRD covers the topic of a standard Power-Integrity model.

Bob Ross reports he has been working with Kinger Cai on SPIM regarding that topic as a BIRD but it is complex, and is being crafted as a separate chapter in IBIS, based on similar format to the Interconnect Specification.

**Note:** Task group material can be found at:

[http://www.ibis.org/macromodel\\_wip/](http://www.ibis.org/macromodel_wip/)

## **INTERCONNECT TASK GROUP**

Michael Mirmak reported this Task Group is suspended to make time available to Editorial Task Group.

**Note:** Task group material can be found at:

[http://www.ibis.org/interconnect\\_wip/](http://www.ibis.org/interconnect_wip/)

## **EDITORIAL TASK GROUP**

Michael Mirmak reported as of last meeting, all drafts have been incorporated, and the bulk of the work is done on the document. The difficulty now is to make sure that multiple edits to Clock Times in chapter 10 are taken into account all the multiple BIRDs including by Arpad, which affect RX AMI Modelling. The expectation is to be finished in the next two to three meetings. We are on schedule to provide this to the IBIS Open Forum before the end of the year.

Arpad commented on the “clock\_times” clarifications- the existing spec only discusses clock times based on existing buffers. Now that there are capabilities associated with the Clock Forwarding feature, the meaning of the “clock\_times” vector, that was only discussed in SERDES, changes in context of clock input for this DQ modelling (e.g. in a source-synchronous interface). The goal is so that EDA vendors and Model makers know precisely how to handle “clock\_times” in the GetWave mode during IBIS-AMI simulation.

**Note:** Task group material can be found at:

[http://www.ibis.org/editorial\\_wip/](http://www.ibis.org/editorial_wip/)

## **NEW ADMINISTRATIVE ISSUES**

Randy Wolff reported no new issues.

Roll call: Graham Kus reported a mid-meeting count of 13 in attendance and updated the attendee status listing accordingly.

### **NEW AND REVISED \*IRDS**

None.

### **IRDS SCHEDULED FOR VOTE**

None.

### **IRDS ELIGIBLE FOR VOTE**

None.

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

None.

### **IBISCHK AND TSCHK PARSER AND BUG STATUS**

Bob Ross reported on the following:

There is no Parser status other the existing bugs, but we need to classify BUG237, where Arpad Muranyi discovered an issue with "RX\_Use\_Clock\_Input". The only allowed strings are None, Times, and Wave (singular, not Waves). In the IBIS QA test, while many errors were detected, the wrong name was not. This correctly produces errors if Waves is the last entry in a List. Arpad discovered if you put Waves as the last entry and a correct default is put in. There are a number of these types of conditions (in the syntax) and showed various combinations of other keywords with Waves (plural) that would pass the parser. The issue is that Waves (plural) is not reported as an error in some cases.

Bob also commented there are some conditions where there are also some prohibited combinations. The bottom line is there is a syntax violation (in this case Waves plural) if Waves exists somewhere, and it should never cause another legal parameter such as Times or None to be reported as an error. The error reporting is wrong. Recommend classification of Severe and Immediate and slate for the next release of the Parser. For example, in the error reports, you must read through in detail to determine if the error report is real or false. Arpad comments the point is there are only three that are officially allowed, but the error reports are failing on many combinations. Bob commented that the QA testing puts {Arbitrary} at the end of a list, and it correctly reports an error. This is the reason the QA testing passed: because only the last member of a list was swapped out, rather than trying various combinations of the entire List. Arpad agreed that this should be marked Severe.

Bob clarified the Bug is that the Waves will pass the Parser depending on its position in the List. He would find it satisfactory if we got whenever Waves occurred, it would be declared illegal, such that all occurrences would be found in a test case.

Randy Wolff asked if Arpad agreed on classification. Arpad clarified it should be done in the next version. Based on this, Bob revised his recommendation to severity Severe and priority High, so that it is done in the next version. Arpad asked question on whether priority High will trigger an immediate release- Bob replied triggering a new release is subject to the contract,

and this bug would be part of a release governed by this contract- there would not be a separate release.

BUG237: Randy asked if there was a motion to mark this as severity Severe, priority High. Bob moved and Arpad seconded. There were no objections.

BUG6-TSCHK: Bob reports there are three areas in the source code that require attention in terms of improving security.

- 1) Specifically dealing with overflow risk. Michael Mirmak reports there are differences which are controversial between OS vendors, such as specific commands supported by Microsoft Windows. However, there should be specific commands where the security scanning software would confirm proper security was enforced such as to avoid overflow conditions.
- 2) Some commercial scanning software will flag use of "sprintf," where instead it is allegedly more secure to use "sprintf\_s." Michael emphasized that some of these commands are supported by only one OS and not another- to avoid running a search-and-replace, as some of these commands are not supported by Unix/Linux for example and would result in compiler errors.
- 3) Similarly, if there is "memset," it would be preferable to use "memset\_s."

It was re-iterated by discussion that there are potential OS-specific solutions which could be abstracted to allow OS-agnostic solutions at compile time, in order to avoid use of Compiler-only syntax (e.g. implement an Object-Oriented Programming scheme rather than specific-syntax commands that only compile for a particular Operating System).

Randy asked if there was a motion to mark this Bug as severity Moderate, priority Medium. Bob moved and Arpad seconded the motion. There were no objections.

## NEW TECHNICAL ISSUES

Randy asked if there were any new technical issues. No new issues were discussed.

## NEXT MEETING

Randy Wolff stated that three weeks from now would be the next IBIS Open Forum Meeting on October 21, 2022. The following meeting date would be November 18, 2022 to avoid conflict with Japan Summit occurring November 10, 2022. Randy asked if there was a motion to approve meeting date November 18, 2022. Bob Ross moved, and Randy seconded. There were no objections.

Motion to adjourn by Bob. Michael Mirmak seconded. 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](mailto: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](mailto:ibis@freelists.org) and/or [ibis-users@freelists.org](mailto:ibis-users@freelists.org) email lists (formerly [ibis@eda.org](mailto:ibis@eda.org) and [ibis-users@eda.org](mailto: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](mailto:ibis-macro@freelists.org), [ibis-interconn@freelists.org](mailto:ibis-interconn@freelists.org), [ibis-editorial@freelists.org](mailto:ibis-editorial@freelists.org), or [ibis-quality@freelists.org](mailto: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](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	August 5, 2022	August 12, 2022	Sept. 9, 2022	Sept. 30, 2022
AMD (Xilinx)	Producer	Inactive	-	-	-	-
Analog Devices (Maxim Integrated)	Producer	Inactive	-	-	-	-
ANSYS	User	Active	-	X	X	X
Applied Simulation Technology	User	Inactive	-	-	-	-
Broadcom Ltd.	Producer	Inactive	-	-	-	-
Cadence Design Systems	User	Active	X	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	X
Keysight Technologies	User	Active	X	X	X	-
Luminous Computing	General Interest	Inactive	-	-	-	-
Marvell	Producer	Active	-	-	-	-
MathWorks	User	Active	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
STMicroelectronics	Producer	Active	=	-	X	X
Synopsys	User	Active	X	-	X	X
Teraspeed Labs	General Interest	Active	X	X	X	X
Waymo	User	Active	X	X	X	X
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.