



IBIS Open Forum Minutes

Meeting Date: **April 26, 2019**

Meeting Location: **Teleconference**

VOTING MEMBERS AND 2019 PARTICIPANTS

ANSYS	Curtis Clark, Marko Marin, Miyo Kawata Toru Watanabe, Akira Ohta
Applied Simulation Technology	(Fred Balistreri)
Broadcom	(Yunong Gan)
Cadence Design Systems	[Brad Brim], Ambrish Varma, Ken Willis Yingxin Sun, Zhen Mu*
Cisco Systems	(Stephen Searce)
Dassault Systemes (CST)	Stefan Paret
Ericsson	Anders Ekholm, Anders Vennergrund, Felix Mbairi Hui Zhou, Inmyung Song, Mattias Lundqvist Wenyan Xie, Zilwan Mahmood
GLOBALFOUNDRIES	Steve Parker
Huawei Technologies	Antonio Ciccomancini
Futurewei Technologies	Albert Baek
IBM	Michael Cohen, Greg Edlund*
Infineon Technologies AG	Anke Sauerbrey
Instituto de Telecomunicações	(Abdelgader Abdalla)
Intel Corporation	Hsinho Wu*, Michael Mirmak*, Nhan Phan Kinger Cai, Eddie Frie, Wendem Beyene Yuanhong Zhao
IO Methodology	[Lance Wang]
Keysight Technologies	Radek Biernacki*, Hee-Soo Lee, Stephen Slater Jian Yang, Ming Yan, Pegah Alavi
Maxim Integrated	Joe Engert, Yan Liang, Charles Ganai
Mentor, A Siemens Business	Arpad Muranyi*, Raj Raghuram, Weston Beal Vladimir Dmitriev-Zdorov, Mikael Stahlberg Todd Westerhoff, Ed Bartlett, Nitin Bhagwath
Micron Technology	Randy Wolff, Justin Butterfield*
NXP	(John Burnett)
Raytheon	Joseph Aday
SiSoft (MathWorks)	Mike LaBonte*, Graham Kus, Walter Katz
SPISim	Wei-hsing Huang
Synopsys	Ted Mido, Adrien Auge, John Ellis, Sam Sim Scott Wedge
Teraspeed Labs	Bob Ross*
Xilinx	Ravindra Gali

ZTE Corporation	(Shunlin Zhu)
Zuken	(Michael Schaefer)
Zuken USA	Lance Wang*

OTHER PARTICIPANTS IN 2019

Apollo Giken Co.	Satoshi Endo
Google	Zhiping Yang, Songping Wu
Hitachi	Norio Chujo
John Baprawski, Inc.	John Baprawski
KEI Systems	Shinichi Maeda
Marvell	Johann Nittmann
OmniVision	Sirius Tsang
Qualcomm	Kevin Roselle
Renesas	Genichi Tanaka
Ricoh Co.	Kazuki Murata
SAE ITC	(Jose Godoy)
Seagate	Alex Tain
Signal Metrics	Ron Olisar
Silvaco Japan Co.	Yoshiharu Furui
Socionext	Megumi Ono, Motoaki Matsumura, Yuji Nakagawa
Toshiba	Imi Hitoshi
Toshiba Electronic Devices & Storage Corp.	Atsushi Tomishima

In the list above, attendees at the meeting 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 bridge numbers for future IBIS teleconferences are as follows:

Date	Meeting Number	Meeting Password
May 17, 2019	624 227 121	IBISfriday11

For teleconference dial-in information, use the password at the following website:

<http://tinyurl.com/y7yt7buz>

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

Mike LaBonte declared that a quorum was reached. Justin Butterfield took minutes.

Zhen Mu from Cadence introduced herself. She is now representing Cadence in the IBIS Open Forum, as Brad Brim has retired. She has been in the industry for over 30 years and has participated in IBIS off and on since 1993. Zhen is working on Signal Integrity products at Cadence.

Greg Edlund from IBM introduced himself. He is interested in IBIS accuracy and uses IBIS-AMI models frequently. Greg has joined IBIS Open Forum meetings in the past, but it has been many years.

CALL FOR PATENTS

Mike LaBonte called for declaration of any patents or pending patents related to the IBIS 3.2, IBIS 4.2, IBIS 5.1, IBIS 6.1, Touchstone 2.0, IBIS-ISS 1.0 or ICM 1.1 specifications. No patents were declared.

REVIEW OF MINUTES AND ARS

Mike LaBonte called for comments on the minutes of the April 5, 2019 IBIS Open Forum teleconference. Michael Mirmak moved to approve the minutes. Radek Biernacki seconded the motion. There were no objections.

Mike reviewed ARs from the previous meeting.

1. Mike to discuss BIRD199 in the Quality task group as it relates to the parser [AR]. Mike reported this is on the Quality task group agenda, but it has not yet been discussed.

ANNOUNCEMENTS, CALL FOR ADDITIONAL AGENDA ITEMS

Bob Ross noted we need to elect a returning officer for the upcoming IBIS officer elections. Mike LaBonte agreed and stated we will discuss this as a new administrative issue.

Bob commented that he did not mention last meeting that we have a new member, Instituto de Telecomunicações, in Portugal.

MEMBERSHIP STATUS AND TREASURER'S REPORT

Bob Ross reported that we have 27 members including the new member, Instituto de Telecomunicações. 22 members have paid for 2019. He expects one additional new member and two members to drop. We have \$10,971 cash flow for 2019 and a \$13,721 adjusted balance for 2019. We do expect a payment to be made soon for the European IBIS Summit of about \$1,650 (1,500 Euros).

WEBSITE ADMINISTRATION

Mike LaBonte reported that the logo of the new member, Instituto de Telecomunicações, has been added to the member list.

Michael Mirmak asked about the email archive links, found under the Support web page, that were broken. Mike replied he has fixed these links.

MAILING LIST ADMINISTRATION

Mike LaBonte noted Curtis Clark sent an update by email that noted no issues currently with the mailing list.

LIBRARY UPDATE

No update.

INTERNATIONAL/EXTERNAL ACTIVITIES

- Conferences

SPI2019 – the 23rd IEEE Workshop on Signal and Power Integrity will be held in Chambéry, France on June 18-21, 2019. An IBIS Summit will be held after the event. More information is available at:

<https://spi2019.sciencesconf.org/>

- Press Update

Michael Mirmak asked if there is any plan to have a presence at DAC this year. Mike LaBonte asked when the conference is. Michael replied it is June 2-6 in Las Vegas, Nevada. Mike noted we have in the past had summit meetings at DAC, but we have not done so in a long time.

- Related standards

IEC 63055/IEEE 2401, JEITA “LPB”

Michael reported the IEEE P2401, which is discussing the LPB specification, had a meeting on April 15, 2019 US time. Draft 3 of the LPB specification was approved. He anticipates a draft 4 will be issued and sent to the IEEE editorial committee. There is expected to be a face-to-face meeting on June 3, 2019 at DAC to discuss draft 4. Mike asked if this meeting is open to anyone. Michael stated he will find out if the IEEE P2401 meeting at DAC is open to anyone [AR]. Michael is planning to attend. Mike asked if there are likely to be topics the IBIS Open Forum would need to act on. Michael replied he does not anticipate any, but this would be the last chance to make technical changes to the LPB document.

SUMMIT PLANNING AND STATUS

- IEEE SPI Summit

SPI will be held in Chambéry, France on June 18-21, 2019. An IBIS Summit is planned in the afternoon of June 21, 2019. The conference will be held in Room B of Le Manège. Mike

LaBonte commented we have added sponsors. Bob Ross noted Mentor and Zuken are now sponsors. Mike stated the first announcement has been sent out seeking presentations, participants, and sponsors.

Mike noted he has been contacted by JEITA about planning for an IBIS summit in Tokyo in November. They would like to plan a date ahead of time. He will provide an update with their proposed summit date options next meeting.

Sponsorship opportunities for all upcoming IBIS summits are available, with sponsors receiving free mentions in the minutes, agenda, and other announcements. Contact the IBIS Board for further details.

QUALITY TASK GROUP

Mike LaBonte reported that the group is meeting on Tuesdays at 8:00 a.m. PT. Most of the activity has been regarding the IBISCHK7 parser. BIRD199 is also a topic of discussion. Mike asked if Arpad Muranyi would be able to attend the next meeting. Arpad asked if he can send the meeting invite directly. Mike agreed to add Arpad to the Quality task group meeting invite [AR].

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 the group meets on Tuesdays at 12:00 p.m. PT. The group has been discussing BIRD197.3 and a response letter to the BIRD198 authors.

Task group material can be found at:

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

INTERCONNECT TASK GROUP

Michael Mirmak reported that the group meets at 8:00 a.m. PT on Wednesdays. The focus has been drafting a survey seeking feedback on Touchstone. He thanked Mike LaBonte for the behind the scenes work to create the survey. Michael noted the goal of the survey is to shape the direction of the Touchstone specification. The group is also working on the EMD proposal, as an upgrade to EBD.

Arpad Muranyi asked if the survey can be filled out by more than one participant per company. Mike noted this was not mentioned in the survey, and the closing date of the survey was also not stated. He will plan to send a reminder about the survey and add a closing date later. Mike commented it might be asking too much to coordinate who responds to the survey across a company. Bob Ross asked if it lets you take the survey more than once. Mike commented that users are prevented from responding more than once from the same IP address.

Bob asked if there is a way to see the results near the end of the survey period. Mike noted we can look at the results at any time, but he was not sure if a normal user can go look at the results after they have taken the survey.

Mike commented he has asked SAE to add the survey to their newsfeed. Michael asked if the survey has been sent to the SI List. Mike replied it has been sent out to the SI List as well as posted on several LinkedIn groups.

Mike will send out a reminder about the Touchstone survey noting the end date [AR].

Task group material can be found at:

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

EDITORIAL TASK GROUP

Michael Mirmak reported the task group remains suspended.

Task group material can be found at:

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

NEW ADMINISTRATIVE ISSUES

Mike LaBonte noted the IBIS officer election period begins on May 17. Mike asked if Radek Biernacki would be willing to fulfil the returning officer duties and collect the votes. Radek agreed to be the returning office for the election. Mike stated Radek will send out an email on May 17 to the IBIS reflector and provide voting instructions. Mike noted on June 15 the new officers will be announced.

BIRD198: KEYWORD ADDITIONS FOR ON DIE PDN (POWER DISTRIBUTION NETWORK) MODELING

Mike LaBonte noted the ATM group has sent a response email to the BIRD198 authors and are discussing this BIRD.

BIRD199: FIX RX_RECEIVER_SENSITIVITY INCONSISTENCIES

Mike LaBonte noted we are waiting on further discussions on the parser implications to take place in the Quality group before deciding on this BIRD.

BIRD197.2: NEW AMI RESERVED PARAMETER DC_OFFSET

Discussion was tabled.

BIRD166.4: RESOLVING PROBLEMS WITH REDRIVER INIT FLOW

Discussion was tabled.

BIRD181.1: I-V TABLE CLARIFICATIONS

Discussion was tabled.

BIRD190: CLARIFICATION FOR REDRIVER FLOW

Discussion was tabled.

IBISCHK PARSER AND BUG STATUS

Bob Ross reported we had de-classified BUG202, which deals with C_comp modeling. Mike LaBonte commented the issue is that we could not agree whether the specification should change, and this should become an error. It is unclear if C_comp_pullup and C_comp_pulldown would be allowed for input models, since there would be no Pullup_ref and Pulldown_ref to connect to. The most the parser could do without a specification change would be to issue a warning, caution, or note. Bob commented that, in IBIS 7.0, this is legal and should be processed by the EDA tool. We could add some sort of message to the IBISCHK parser, but we have not agreed on a resolution. Lance Wang noted the reason for this BUG report is this is a case that does not make sense. Radek Biernacki suggested a clarification to the specification would be the best way to resolve this. Mike commented the intent of a parser message would be to remind model makers, if they really intended this.

Bob moved to classify BUG202 as an enhancement, with a low priority, and add a caution message. Mike asked if we would change the bug report to say a caution message is recommended. Bob suggested to add a note at the bottom of the bug report saying we discussed and agreed in this meeting to give a caution message. We can issue warnings, cautions, or notes if there are inconsistencies in the model.

Mike asked if this bug was discussed in an ATM meeting. Arpad replied the ATM discussion had concluded this was not a bug, and the possibility of writing a BIRD to clarify this issue was discussed. Arpad asked what an enhancement to the parser means. Mike replied that an enhancement would be a nice-to-have feature. Arpad suggested to be careful to not read things into the specification that are not there. Mike asked what Arpad is proposing. Lance stated this is a nice-to-have option to flag models that do not make sense. Arpad commented that all I-V curves are optional, and there could be complications if we start making requirements for having I-V curve tables. Bob stated we can still specify all four reference nodes whether an I-V table exists. Mike suggested to take this up in the Quality task group to determine the message. Bob withdrew his motion.

Bob noted we signed the agreement with the parser developer for IBISCHK7.0.0, and the developer has not yet sent a status report or asked any questions. Mike asked what the expected delivery date is. Bob replied the target date is June 21, 2019. Michael Mirmak asked if this is when we receive the parser or delivery to the industry. Bob replied this should be the date for release, but it could take some additional time if testing reveals issues. Mike commented that he and Bob will do some additional testing. Bob stated it could be mid-July before it is released. He noted there could be additional updates for bug fixes.

Bob asked if we want to keep the parser source code price the same at \$2,500 or increase the price to \$3,000. He noted the increase would be used to pay for future enhancements and updates. Mike asked how many parser purchases we expect. Bob replied he expects about 8 purchasers, and the life time cost for the IBISCHK7 parser to be around \$20,000. Mike noted some of the additional funds could go towards an IBIS-ISS parser, which could be a separate tool, and it is unclear if there would be any interest in purchasing the source code for it. Mike asked if this is something we need to collect feedback. Bob noted he would like to settle this soon, as we need to set this for the parser source code contract. Arpad asked if we are running low on money and if we have enough money to pay the parser developer. He also asked if features are more complicated or if we are looking for future features. Bob replied both are an issue. Mike suggested to have a basis for a parser price increase. Bob noted the price increase would be based on significantly increased functionality. Radek noted the increase in functionality is incremental, and we need to look at the life span and how many minor revisions we are going to have. Bob suggested to have a motion next time to set the parser source code price. Mike suggested to discuss this in the Quality group.

NEW TECHNICAL ISSUES

None.

NEXT MEETING

The next IBIS Open Forum teleconference meeting will be held on May 17, 2019. The following teleconference meeting is tentatively scheduled for June 7, 2019.

Arpad Muranyi moved to adjourn. Michael Mirmak seconded the motion. The meeting 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 the official ibis@freelists.org and/or ibis-users@freelists.org email lists (formerly ibis@eda.org and ibis-users@eda.org).
- To subscribe to one of the task group email lists: ibis-macro@freelists.org, ibis-interconn@freelists.org, or ibis-quality@freelists.org.
- 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

Organization	Interest Category	Standards Ballot Voting Status	February 22, 2019	March 15, 2019	April 5, 2019	April 26, 2019
ANSYS	User	Active	X	X	X	-
Applied Simulation Technology	User	Inactive	-	-	-	-
Broadcom Ltd.	Producer	Inactive	-	-	-	-
Cadence Design Systems	User	Inactive	-	-	-	X
Cisco Systems	User	Inactive	-	-	-	-
Dassault Systemes	User	Inactive	-	-	-	-
Ericsson	Producer	Inactive	-	-	-	-
GLOBALFOUNDRIES	Producer	Inactive	X	-	-	-
Huawei Technologies	Producer	Inactive	-	-	-	-
IBM	Producer	Active	X	X	X	X
Infineon Technologies AG	Producer	Inactive	-	-	-	-
Instituto de Telecomunicações	User	Inactive	-	-	-	-
Intel Corp.	Producer	Active	X	X	X	X
IO Methodology	User	Inactive	-	-	-	-
Keysight Technologies	User	Active	X	X	X	X
Maxim Integrated	Producer	Inactive	-	-	-	-
Mentor, A Siemens Business	User	Active	X	X	X	X
Micron Technology	Producer	Active	X	X	X	X
NXP	Producer	Inactive	-	X	-	-
Raytheon	User	Inactive	-	-	-	-
SiSoft	User	Active	X	X	X	X
SPISim	User	Inactive	X	-	-	-
Synopsys	User	Inactive	-	X	-	-
Teraspeed Labs	General Interest	Active	X	X	X	X
Xilinx	Producer	Inactive	-	-	-	-
ZTE Corp.	User	Inactive	-	-	-	-
Zuken	User	Active	X	X	X	X

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

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.