



IBIS Open Forum Minutes

Meeting Date: **February 22, 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 |
| Cisco Systems | (Stephen Searce) |
| CST (Dassault Sytemes) | Stefan Paret |
| Ericsson | Anders Ekholm, Anders Vennergrund, Felix Mbairi Hui Zhou, Inmyung Song, Mattias Lundqvist Wenyan Xie, Zilwan Mahmod |
| GLOBALFOUNDRIES | Steve Parker* |
| Huawei Technologies | Antonio Ciccomancini |
| Futurewei Technologies | Albert Baek |
| IBM | Michael Cohen*, Greg Edlund |
| Infineon Technologies AG | Anke Sauerbrey |
| 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
Zuken USA

(Michael Schaefer)
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 |
| 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 |

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 |
| March 15, 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 in the absence of Randy Wolff.

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 January 11, 2019 IBIS Open Forum teleconference. Michael Mirmak moved to approve all the minutes. Lance Wang seconded the motion. There were no objections.

Mike called for comments on the minutes of the February 1, 2019 DesignCon IBIS Summit. Bob Ross noted some corrections to the minutes. The first is that Dassault Systemes acquired CST. Stephan Paret should be listed as part of “CST (Dassault Systemes)”, and CST should be credited as attending in the voting status section at the end of the minutes. Bob had also noticed Yingxin Sun’s name was misspelled on page 12. Michael Mirmak noted a duplicated listing of Norio Chujo from Hitachi. Removing that duplicated listing would mean changing the attendance total to 75 attendees. Bob added that Songping Wu of Google was a participant that was not listed in the check-in, bringing the total attendees back to 76. Michael moved to approve the minutes with the noted changes. Lance seconded the motion. There were no objections.

Mike reviewed ARs from the previous meeting.

1. Mike LaBonte to make an announcement about the availability of the IBISCHK6.1.5 executables [AR].
Mike reported that this has been done and that the website has been updated accordingly with all the executable files typically provided.
2. Mike LaBonte to look for a banner that displays the 20% DesignCon discount or add text about the discount to update the webpage [AR].
Mike reported that this has been done.

ANNOUNCEMENTS, CALL FOR ADDITIONAL AGENDA ITEMS

Bob noted that we have a new member, SPISim, which was announced at the DesignCon IBIS Summit.

MEMBERSHIP STATUS AND TREASURER'S REPORT

Bob Ross reported that we have 26 members. So far, 10 members have paid for 2019. Bob plans to send reminders out for payments. We have a (\$1,829) cash flow loss for 2019 and a \$921 adjusted balance for 2019. We are waiting on some payments for the DesignCon Summit and for more membership payments.

Michael Cohen noted that he has not yet received an invoice. Bob will look into it, and he may need to update the primary contact for some companies.

Mike LaBonte noted that one of the IBIS policies is that when one company owns another, only the joint company can be listed as a member. Mike noted that SiSoft is now a wholly owned subsidiary of MathWorks. We need some record of the ownership in the membership list. Bob suggested that both companies be listed in some way. Michael Mirmak noted that we need a policy on the virtual poster if we allow both companies, parent and subsidiary, to be listed on the poster. Bob suggested to only allow one logo per member. Bob will ask these questions to the representatives of each of the companies that have changed recently [AR].

WEBSITE ADMINISTRATION

Mike LaBonte reported that Lance Wang's email address has been corrected on the website. The SPISim logo and membership has been added.

Mike and Bob Ross had some discussions about the IBIS website with SAE. SAE has created a new website for us. Mike is in the process of checking this new website against the existing website, and there are several adjustments to be made. Michael Mirmak asked if the IBIS logo is trademarked. Mike responded that this is a question for SAE. Bob Ross noted that there is a long list of feedback items on the new website. Mike stated that SAE does not intend to give us a login to upload documents. This could be an issue, as we are frequently uploading documents that are too large to send by email. Mike stated that his understanding is that SAE would like IBIS to move to this new website. Bob noted that many of the links on the new website are links to files on the current website. The new website is found at:

<https://ibis.sae-itc.com/>

MAILING LIST ADMINISTRATION

Curtis Clark reported that there a few new subscribers on the mailing list.

Curtis asked if SAE would like IBIS to move the mailing lists from FreeLists. Mike responded that our current use of FreeLists is good, because it is free, but it is not without issues. Mike plans to bring up this issue with SAE and discuss the details. Bob Ross noted that our mailing list is very large and that could be an issue, and there could be some costs associated with going through SAE.

LIBRARY UPDATE

Mike LaBonte noted that the model library page was updated on January 21, 2019. Anders Ekholm has made some updates to add new links and include improved instructions regarding locating IBIS models.

INTERNATIONAL/EXTERNAL ACTIVITIES

- Conferences

None.

- Press Update
None.

- Related standards

IEC 63055/IEEE 2401, JEITA “LPB”

Michael Mirmak reported that the IEEE 2401 “LPB” met to discuss some of the comments on the latest draft 2. The group will meet again on March 12, 2019 Japan time to issue a draft 3. Michael believes draft 3 will be close to the final document.

SUMMIT PLANNING AND STATUS

- DesignCon 2019 IBIS Summit Review

DesignCon was held in Santa Clara, CA on January 29 through January 31, 2019. An IBIS Summit was held on Friday, February 1, 2019. There were 76 attendees from 33 organizations. Cadence Design Systems, Keysight Technologies, Mentor, a Siemens Business, and Synopsys were sponsors.

Mike LaBonte thanked Bob Ross for his work on the agenda and working with the speakers. Mike also thanked all the presenters.

Arpad Muranyi asked if it would be possible to get a larger room next year. Mike agreed this would be a good idea and noted it is something to consider for next year. Bob Ross noted that the cost went up this year, as we are charged on a per person basis. There were significant costs with the DesignCon IBIS Summit. Mike noted that UBM does pay for the room as part of our agreement. Bob stated that since the Summit is after the DesignCon event, UBM does have to reserve a room after the event.

-IEEE SPI Summit

Mike has contacted the chair of SPI regarding holding an IBIS Summit. Unlike DesignCon where UBM sponsors the Summit, SPI would want about 1,500 Euros for the Summit. Bob moved that we hold an IBIS Summit at the SPI Workshop in Chambéry, France on Friday afternoon, June 21, 2019 with expenses not to exceed \$2,800. Michael Mirmak seconded the motion. Mike noted we will schedule a vote for next time. Michael asked if any IBIS officers will be able to make it. Mike responded that he is unsure if any officers can make it. He noted Michael Schaefer will be there and could run the meeting if necessary. There were no objections to the motion. Mike will send an email soliciting email votes regarding the SPI Summit [AR].

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. Mike noted the primary discussion topic recently is the IBIS parser.

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 normally meets regularly on Tuesdays at 12:00 p.m. PT. Arpad reported that the agenda has been light the last few weeks. A new BIRD draft on the Rx_Receiver_Sensitivity parameter, which had an incorrect example with a negative value, has been submitted. The BIRD draft is to clarify the Rx_Receiver_Sensitivity parameter rules and is up for discussion in upcoming ATM meetings.

Task group material can be found at:

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

INTERCONNECT TASK GROUP

Michael Mirmak reported that the group usually meets at 8:00 a.m. PT on Wednesdays. The group remains suspended until IBIS 7.0 editorial activities are completed. We plan to resume in mid-March to discuss the EMD proposal as a successor to EBD.

Task group material can be found at:

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

EDITORIAL TASK GROUP

Michael Mirmak reported that the group has been suspended as we are waiting to see if any additional work comes up on IBIS 7.0. He noted we may resume the Editorial task group to lay the ground work for IBIS 7.1 and to discuss lesser issues. Mike LaBonte noted we did find a number of issues that would need some further work and discussion, and the Editorial group could work on these issues between versions. Michael suggested we could spend some money on a SAE technical writer for editorial review in the future.

Task group material can be found at:

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

NEW ADMINISTRATIVE ISSUES

Michael Mirmak reported that the IBIS 7.0 draft 3 was issued to correct a couple of spelling issues. The only feedback received thus far was from Arpad Muranyi on the pagination. Michael also noted that Ambrish Varma did ask during the DesignCon IBIS Summit if the DC_Offset BIRD would be integrated in IBIS 7.0. Michael thought the answer currently is no. Arpad Muranyi noted that when the BIRD was introduced Walter Katz stated it was not intended

for IBIS 7.0. Bob Ross noted, when we go to vote on IBIS 7.0, you could vote “No” on the ratification and push out the approval to wait for more BIRDS. Mike LaBonte noted that BIRD197, which adds the DC_Offset parameter, is not an approved BIRD.

Bob moved to schedule a vote to ratify draft 3 of IBIS 7.0. Arpad seconded the motion. Michael asked if we plan to schedule the vote on March 15, 2019. Arpad stated that this is correct. There were no objections. Mike will send an email scheduling the vote for IBIS 7.0 [AR].

BIRD197.2: NEW AMI RESERVED PARAMETER DC_OFFSET

Mike LaBonte noted that there was no markup in the current version of BIRD197.2. Mike stated he can create a change comparison document and publish it as a way to include the markup [AR].

Mike noted there were a couple of editorial changes in the latest version of the BIRD including spelling, punctuation, and formatting. There were also some slight wording changes. Bob Ross stated he is okay waiting to schedule the vote on this BIRD. Radek Biernacki agreed with waiting to schedule the vote.

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 that the source code for IBISCHK6.1.5 has been distributed to the parser source code licensees and executables for all the usual operating systems have been posted to the IBIS webpage. Bob noted that there have been some discussions on enhancements to the parser. The Quality task group has also had some discussions on issues seen on older 32-bit systems, such as Windows XP. Companies can always buy the source code and compile their own executable to resolve these issues.

Mike LaBonte noted there are a couple issues brought up by Michael Mirmak. One issue is that companies are going away from using open source code. Mike stated he has posed the question to the parser developer if the parser makes use of any open source code, and he is in the process of reviewing the code himself. Michael Mirmak noted, for instance, that GPL has a “viral effect” with some very restrictive language in the license that specifies any code that uses the GPL code must also be open source. The issue depends on the open source license restrictions. Mike asked if there is a list of acceptable open source licenses. Michael replied there is a good list on Wikipedia. There are also code scanners and services to review code for

these issues, but these would have some cost. Michael agreed with the current course of action, which is to review the current parser code. Mike stated, if the parser is all original code, then we can require that it must remain that way. He does not anticipate the need to include new open source code for the parser. Mike noted the other issue is with code signing. He asked if anyone else has had any issues with the parser not being a signed executable. Mike has asked SAE if they have ways to digitally sign executables, but he has not received any feedback yet.

Bob noted we have a prototype specification for the IBIS 7.0 parser, and we have sent this to the parser developer for a quote. We have also added terms to the contract that no open source code be used. But, we have not yet received the quote. We may consider raising the price of the parser source code in the future, but this would require a motion and vote.

NEW TECHNICAL ISSUES

Michael Mirmak noted that DASC will be meeting on Thursday in Santa Clara, California at DVCon. He has asked if they would be interested in having a face-to-face meeting at DesignCon.

NEXT MEETING

The next IBIS Open Forum teleconference meeting will be held on March 15, 2019. The following teleconference meeting is tentatively scheduled for April 5, 2019.

Curtis Clark moved to adjourn. Bob Ross seconded the motion. The meeting adjourned.

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NOTES

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This meeting was conducted in accordance with ANSI guidance.

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 | December 21, 2018 | January 11, 2019 | February 1, 2019 | February 22, 2019 |
|-------------------------------|-------------------|--------------------------------|-------------------|------------------|------------------|-------------------|
| ANSYS | User | Active | X | X | X | X |
| Applied Simulation Technology | User | Inactive | - | - | - | - |
| Broadcom Ltd. | Producer | Inactive | - | - | - | - |
| Cadence Design Systems | User | Active | X | X | X | - |
| Cisco Systems | User | Inactive | - | - | - | - |
| CST | User | Inactive | - | - | X | - |
| Ericsson | Producer | Inactive | - | - | X | - |
| GLOBALFOUNDRIES | Producer | Active | - | X | X | X |
| Huawei Technologies | Producer | Inactive | - | - | X | - |
| IBM | Producer | Active | - | X | X | X |
| Infineon Technologies AG | Producer | Inactive | - | - | X | - |
| Intel Corp. | Producer | Active | X | X | X | X |
| IO Methodology | User | Inactive | X | X | - | - |
| Keysight Technologies | User | Active | X | X | X | X |
| Maxim Integrated | Producer | Inactive | - | - | X | - |
| Mentor, A Siemens Business | User | Active | X | X | X | X |
| Micron Technology | Producer | Active | X | X | X | X |
| NXP | Producer | Inactive | - | - | - | - |
| Raytheon | User | Inactive | - | - | - | - |
| SiSoft | User | Active | X | X | X | X |
| SPISim | User | Active | - | - | X | X |
| Synopsys | User | Active | - | X | X | - |
| Teraspeed Labs | General Interest | Active | X | X | X | X |
| Xilinx | Producer | Inactive | - | - | X | - |
| ZTE Corp. | User | Inactive | - | - | - | - |
| Zuken | User | Active | - | - | 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.