IBIS Open Forum Minutes

Meeting Date: **March 13, 2020**
Meeting Location: **Teleconference**

VOTING MEMBERS AND 2020 PARTICIPANTS

ANSYS	Curtis Clark*, Wei-hsing Huang, Marko Marin Shai Sayfan-Altman, Zilwan Mahmod
Applied Simulation Technology	(Fred Balistreri)
Broadcom	James Church
Cadence Design Systems	Zhen Mu, Ambrish Varma, Jared James Kumar Keshavan, Ken Willis
Cisco Systems	Stephen Scearce, Hong Wuf
Dassault Systemes (CST)	Stefan Paret
Ericsson	Anders Ekholm, Sungjoo Yu, Thomas Ahlstrom
Google	Zhiping Yang, Shuai Jin, Zhenxue Xu
Huawei Technologies	(Hang (Paul) Yan)
IBM	Michael Cohen*
Infineon Technologies AG	(Christian Sporrer)
Instituto de Telecomunicações	(Abdelgader Abdalla)
Intel Corporation	Hsinho Wu*, Michael Mirmak*, Adrien Auge Fernando Mendoza, Taeyoung Kim, Wendem Beyene Oleg Mikulchenko, Nhan Phan, Ifiok Umoh Subas Bastola
Keysight Technologies	Radek Biernacki*, Hee-Soo Lee, Todd Bermensolo Graham Riley, Pegah Alavi, Fangyi Rao Stephen Slater
Marvell	Steve Parker*, Johann Nittmann
Maxim Integrated	Joe Engert, Charles Ganal, Dzung Tran, Yan Liang*
Mentor, A Siemens Business	Arpad Muranyi*, Raj Raghuram, Todd Westerhoff Weston Beal
Micron Technology	Randy Wolff*, Justin Butterfield
NXP	John Burnett
SerDesDesign.com	John Baprawski
SiSoft (MathWorks)	Mike LaBonte*, Walter Katz, Graham Kus
Synopsys	Ted Mido, Andy Tai
Teraspeed Labs	Bob Ross*
Xilinx	Ravindra Gali
ZTE Corporation	(Shunlin Zhu)
Zuken	Michael Schäder, Kazunari Koga
Zuken USA	Lance Wang*

OTHER PARTICIPANTS IN 2020

Accton	Tariq Abou-Jeyab
Achronix Semiconductor	Hansel Dsilva
Apollo Giken Co.	Satoshi Endo
Kandou Bus	Sherman Chen
KEI Systems	Shinichi Maeda
Kioxia Corporation	Yasuo Otsuka
OmniVision	Sirius Tsang
Qualcomm	Kevin Roselle, Sunil Gupta
Renesas	Genichi Tanaka
RITA Electronics	Takahide Nozaki
SAE ITC	Jose Godoy
Samsung	Wonsuk Choi
San Jose State University	Vincent Tam
Seagate	Preetesh Rathod, Alex Tain, Karthik Chandrasekar Emmanuel Atta
Signal Metrics	Ron Olisar
Silvaco Japan Co.	Yoshiharu Furui
SK Hynix Memory Solutions	Jongchul Shin, Alex Lee, James Yu
Socionext	Matsumura Motoaki, Shinichiro Ikeda Takafumi Shimada
SPISim	[Wei-hsing Huang]
Teradyne	Dongmei Han, Edward Pulscher, Sheri Zhuang Tomoo Tashiro, Paul Carlin, Tao Wang

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
April 03, 2020	627 261 744	Friday1

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

https://tinyurl.com/IBISfriday-new

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

Curtis Clark declared that a quorum was 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 patents were declared.

REVIEW OF MINUTES AND ARS

Randy Wolff called for comments on the minutes of the February 21, 2020 IBIS Open Forum teleconference. Bob Ross moved to approve the minutes. Mike LaBonte seconded the motion. There were no objections

Randy reviewed ARs from the previous meeting.

1. Randy Wolff to work with SAE ITC to get a new WebEx meeting setup for the China Regional Forum [AR].
   Randy reported that this had been done, and the China Regional Forum had held its first meeting. Further discussion is in the China Regional Forum section of these minutes.

2. Randy to provide update on the JEDEC JESD204C.1 request to use text from the IBIS specification and the legal discussion with SAE ITC [AR].
   Randy reported that the JESD204C.1 group had sent the SAE ITC copyright agreement to the head of JEDEC. He had sent some questions back to SAE ITC for their legal group to review. Randy noted that he would provide an update at the next meeting [AR].

3. Randy to forward the SAE ITC copyright license agreement to the board for review [AR].
   Randy noted that this had been done.

4. Randy to provide Informa Markets with a list of DesignCon IBIS Summit attendees [AR].
   Randy reported that this had been done. We have fulfilled all of our obligations under the barter agreement with Informa Markets and should be in good standing with them for next year.

5. Steve Parker to update approved status of the SPI IBIS Summit on the webpage [AR].
   Steve reported that this had been done, and he had updated the page with all the details Bob Ross had provided.

6. Steve to update approved status of BIRD197.7 on the webpage [AR].
   Steve reported that the website will parse the posted BIRD to extract the accepted date from the appropriate field. However, this time he couldn't find a BIRD that contained the accepted date. Bob Ross noted that Randy needs to update the date field in the BIRD. Randy said it was probably an oversight on his part. Randy to provide Steve with an updated BIRD197.7 containing the accepted date [AR].

7. Mike LaBonte to add a BUG210 resolution discussion to the Quality task group agenda and report back [AR].
   Mike reported that this had been done. Further discussion is in the Quality task group report section of these minutes.

ANNOUNCEMENTS, **CALL FOR ADDITIONAL AGENDA ITEMS**

Randy Wolff noted that he had added an agenda item for the newly submitted BIRD203.

Bob Ross noted that Wei-hsing Huang had joined ANSYS, and SPISim will no longer be an IBIS member.

MEMBERSHIP STATUS AND TREASURER'S REPORT

Bob Ross reported that the financial books for 2019 had been closed, as we had received SAE ITC's final charges of $10,254 for 2019. We had $22,227 cash flow for 2019 and an adjusted balance of $23,727 for 2019.

We now have 26 members again with the removal of SPISim, and Bob noted that he was still working with a potential new member. Thus far, thirteen organizations have paid for 2020 membership (12 renewals, and one new member). Existing members will carry over through May of 2020, and their membership will end then unless they renew for 2020. We have $5,678 cash flow for 2020 and a $6,028 adjusted balance for 2020.

Bob noted that he had broken out some accounting details differently. He had moved the Touchstone survey expenses and web hosting expenses to a consulting software maintenance column per SAE ITC request.

Bob noted that SAE ITC had reported that one member organization had paid their 2020 dues twice by mistake. As it was difficult for that organization to deal with a refund, they had simply requested that the extra payment be applied to their 2021 dues.

Bob noted that he is working with SAE ITC to track down membership payments. He reported that our bank account number for 2020 was different than it had been for 2019. Bob noted that one organization had confirmed that they paid their 2020 dues into the 2019 bank account number on January 31st, but SAE ITC had yet to confirm the payment. Bob reported that he would have to track things down more aggressively with SAE ITC. Bob noted that he would be reaching out to his contacts at the member organizations. Please be sure to reply to Bob's inquiries to ensure any payment issues can be rectified.

Randy said that he would be interested to see if the SAE ITC charges for 2020 go up, because they now break out webex meeting charges separately, and we have added some new webex meetings this year for the China Regional Forum and other meetings. Bob noted that SiSoft had provided the webex for the ATM task group in previous years and Mentor had provided the audio hosting. Now SAE ITC is providing the webex for ATM.

Radek asked how SAE ITC's overall charges had changed from 2018 to 2019. Bob reported that the total charge for 2018 was $8,362 (compared to $10,254 for 2019). Bob noted that

these charges are computed by SAE ITC based on private formulas with staff allocation data.

WEBSITE ADMINISTRATION
Steve Parker reported that the website was up to date with respect to ATM, Interconnect, and Quality task group minutes and documents. He noted that the SPI Summit page had been updated with the latest information. He had also updated the ANSYS logo on the home page and removed the SPISim logo.

Steve asked that people create unique file names for documents that are to be uploaded to the website's work archives. He noted that new versions of BIRDs provide minor version extensions, for example. However, sometimes task group drafts do not, and it would make it easier for him to track and post the updates if they were given unique filenames.

Randy Wolff noted that Kevin Li had sent the minutes from the first China Regional Forum meeting, and they could be posted to its webpage. Steve noted that he would add the CRF to his list of minutes to keep up to date.

MAILING LIST ADMINISTRATION
Mike LaBonte reported that mailing lists were operating smoothly. He reported that there was a bit more add and drop activity than usual. He said that the China Regional Forum mailing list should be up to date. He noted for reference that the max message size for our mailing lists is 1.45MB inclusive of all headers, etc. So, he suggested that we consider approximately 1MB as the maximum attachment size.

LIBRARY UPDATE
No update.

INTERNATIONAL/EXTERNAL ACTIVITIES
- Conferences
24th IEEE Workshop on Signal and Power Integrity (SPI 2020, May 17-20, Cologne, Germany)

   https://spi2020.uni-siegen.de/

2020 IEEE International Symposium on EMC + SIPI (July 27-31, Reno, NV)
Randy Wolff noted that we have an update regarding the possibility of holding an IBIS Summit or other IBIS event in conjunction with the symposium. Further discussion is in the Summit Planning and Status section of these minutes.

   https://www.emc2020.emcss.org/

- Press Update
None.

- Related standards
IEC 63055/IEEE 2401, JEITA "LPB"
Randy noted that he had attempted to download this standard, but it is not available through IEEE Xplore membership. One has to have the standards association membership or pay approximately $150 to download it.

JEDEC JESD204C.1
Randy had noted in the ARs section that the head of JEDEC had responded to SAE ITC legal with questions about its copyright agreement. Randy said he would provide an update at the next meeting if he heard back from them [AR].

SUMMIT PLANNING AND STATUS
- IEEE SPI Summit 2020 (May 17-20, Cologne, Germany)
Randy Wolff noted that we had planned to hold an IBIS Summit at SPI on the afternoon of May 20, 2020, and this had been approved by a vote at the previous meeting. Bob Ross noted that Zuken is a primary sponsor. He said that it is likely that no international participants will be able to attend the summit, and we are considering the possibility of setting it up as a teleconference so people can join remotely. Bob noted that our first announcement should go out on the 18th of March. Randy agreed and said that we will keep watching to see if the conference itself will be postponed. Bob mentioned that we had not yet received an invoice from the conference, so they might be holding off.

- IEEE EMC + SIPI Symposium (July 27-31, Reno, NV)
Bob noted that a slot has been reserved for us on Friday, July 31st in the afternoon. It will be provided at no cost to us, so it's not a financial issue that requires a vote. He said we can plan on it. Like the SPI summit, we might end up considering a teleconference so presentations can be seen remotely. Randy noted that the organizers said they would have that set up for us.

Randy said that the primary interest here is introducing IBIS to a new audience. Many of our normal attendees might not be there, and the presentation would probably focus on what IBIS is about and what we are working on. Bob said there were several members who might be able to provide an introduction to IBIS by adapting some of their existing overview presentations for this conference. He suggested that the presentation could also be given remotely. Michael Mirmak noted that Zhiping Yang had mentioned that this event is closer to people in the Sacramento, CA area than the San Francisco area events are. Michael confirmed that he would be able to attend assuming travel is permitted at that time. He said that he could present if we came up with a presentation. Randy noted that they might want an IBIS talk that's focused on EMC and PI issues.

QUALITY TASK GROUP
Mike LaBonte reported that the group is meeting on Tuesdays at 8:00 a.m. PT. The group

continues to focus on ibischk. Mike noted that Randy Wolff had submitted BIRD203 as a clarification BIRD to address the confusion that had led to BUG207. BIRD203 is introduced and discussed in the Technical Discussion section of these minutes.

Mike reported that the task group had discussed BIRD210, which was filed because of confusing error messages produced about "orphan" keywords. Mike had taken an AR in the Quality task group to add more detail and better phrasing to the messages. Bob Ross noted that BUG210 had not yet been classified, but they were working on its resolution. The text for as many as 38 messages may have to be edited.

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 had recently been discussing a variety of topics including Fangyi Rao's proposal for a new GetWave() type function for clock forwarded DDR simulations and Walter Katz's BCI protocols for AMI statistical flow.

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. He noted that the focus is still on the EMD proposal (BIRD202). He reported that they are still working through the bin list of changes, and additional drafts will be coming.

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/

CHINA REGIONAL FORUM
Randy Wolff noted that the first new meeting had occurred on February 28th, and Kevin Li had sent out the minutes. Randy said he had asked Lance Wang to provide a short update for us at

the Open Forum teleconferences. Lance reported there had been five attendees at the recent meeting, which was the first meeting after years of inactivity. The discussions had centered on how to bring the CRF back into regular use. One of the attendees is located in Shanghai and said they were willing to give a presentation next time. The title is not yet known, but the presentation is related to EDA tools and how they handle certain IBIS features. Their next meeting will be on March 27th, at 3PM China Standard Time (3AM EDT, Midnight PDT).

Lance noted one question about whether they could have vendor-specific presentations as part of the meeting. Randy and Bob Ross said they might be able to do something modeled after what had been introduced at the Shanghai and Taipei IBIS Summits. They could conduct an IBIS meeting, finish the official business, close the meeting, and then allow some time for vendor-specific presentations. They would have to support the ability of all vendors to make presentations. Randy noted that Kevin Li should be familiar with the process.

Lance noted that the CRF has typically been a bit challenging in terms of bringing in attendees. He thought they were on the right track by finding interesting technical topics to discuss. Randy noted that if it helps generate interest in the summits, working on BIRDs, etc., it would be great.

China Regional Forum material can be found at:

   http://www.ibis.org/china_forum/

NEW ADMINISTRATIVE ISSUES
None.

BIRD203: SUBMODEL CLARIFICATIONS
Randy Wolff noted that BUG207 involved an issue with the way the parser checks models and submodels. The parser provides a top-level model check for the consistency of I-V tables and V-T tables. Submodels are not considered in this process. Randy had been working with a model with on-die termination in a dynamic clamp that was always on. His v(t) curves were generated with the submodels enabled, and the parser's checking had reported failures. Discussion in the Quality task group had concluded that this was not a parser bug. No change was made to the parser, but Randy created BIRD203 to add clarifying language regarding the relationship between model and submodel data during extraction and in simulation.

The BIRD introduces two new sentences to the Usage Rules of [Add Submodel]:
"Top-level model I-V and V-T data extraction is self-consistent and done with all submodels removed or de-embedded. Submodel behaviors are added in simulation according to the submodel mode described below."

Randy noted that we could leave this BIRD open for comment for a while and eventually move to schedule a vote.

BIRD202: ELECTRICAL DESCRIPTIONS OF MODULES
Discussion was tabled.

BIRD201: BACK-CHANNEL STATISTICAL OPTIMIZATION
Randy Wolff noted this this BIRD is also open for comments and feedback.

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.

BIRD198: KEYWORD ADDITIONS FOR ON DIE PDN (POWER DISTRIBUTION NETWORK) MODELING
Discussion was tabled.

IBISCHK PARSER AND BUG STATUS
Bob noted that the Quality task group is still working on the suggested ibischk message changes to resolve BUG210. Bob suggested that once they have cleaned up the language of the proposed solution to BUG210, we can then discuss classifying it.

Bob noted that we might consider an ibischk7.0.2 parser update to address four or five current BUGs.

Bob reported that the Quality task group has to get back to the parser developer with more information on the IBIS-ISS parser proposal. They had not provided enough detail in the original proposal for him to provide a reliable estimate. He had reported that if he could use certain open source code the project might take one to two months. However, Bob noted that this might require some review, as the open source code's licensing might render it impossible for some parser customers to use.

NEW TECHNICAL ISSUES
None.

NEXT MEETING
The next IBIS Open Forum teleconference meeting will be held on April 03, 2020. The following teleconference meeting is tentatively scheduled for April 24, 2020.

Curtis Clark 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

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SAE STANDARDS BALLOT VOTING STATUS

Organization	Interest Category	Standards Ballot Voting Status	January 10, 2020	January 31, 2020	February 21, 2020	March 13, 2020
ANSYS	User	Active	X	X	X	X
Applied Simulation Technology	User	Inactive	-	-	-	-
Broadcom Ltd.	Producer	Inactive	-	X	-	-
Cadence Design Systems	User	Active	X	X	X	-
Cisco Systems	User	Inactive	-	X	-	-
Dassault Systemes	User	Inactive	-	X	-	-
Ericsson	Producer	Inactive	-	X	-	-
Google	User	Active	-	X	X	-
Huawei Technologies	Producer	Inactive	-	-	-	-
Infineon Technologies AG	Producer	Inactive	-	-	X	-
Instituto de Telecomunicações	User	Inactive	-	-	-	-
IBM	Producer	Active	-	-	X	X
Intel Corp.	Producer	Active	X	X	X	X
Keysight Technologies	User	Active	X	X	X	X
Marvell (GLOBALFOUNDRIES)	Producer	Active	X	X	X	X
Maxim Integrated	Producer	Active	-	X	X	X
Mentor, A Siemens Business	User	Active	X	X	X	X
Micron Technology	Producer	Active	X	X	X	X
NXP	Producer	Inactive	-	X	-	-
SerDesDesign.com	User	Inactive	-	X	-	-
SiSoft	User	Active	X	X	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	-	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.