



IBIS Open Forum Minutes

Meeting Date: **October 18, 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, Longfei Bai
Ericsson	Anders Ekholm, Anders Vennergrund, Felix Mbairi Hui Zhou, Inmyung Song, Mattias Lundqvist Wenyan Xie, Zilwan Mahmud
GLOBALFOUNDRIES	Steve Parker*
Google	Zhiping Yang, Songping Wu
Huawei Technologies	Antonio Ciccomancini
Futurewei Technologies	Albert Baek
IBM	Michael Cohen*, Greg Edlund
Infineon Technologies AG	Anke Sauerbrey, Pietro Brenner, Francesco Settino
Instituto de Telecomunicações	(Abdelgader Abdalla)
Intel Corporation	Hsinho Wu*, Michael Mirmak, Nhan Phan Kinger Cai, Eddie Frie, Wendem Beyene Yuanhong Zhao
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)
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 Schäder
Lance Wang*

OTHER PARTICIPANTS IN 2019

Apollo Giken Co.	Satoshi Endo
AVL	Wolfgang Röhrner
Carleton University	Ram Achar
Continental	Stefanie Schatt
Hitachi	Norio Chujo
IO Methodology	[Lance Wang]
John Baprawski, Inc.	John Baprawski
Hamburg University of Technology	Til Hillebrecht
KEI Systems	Shinichi Maeda
Marvell	Johann Nittmann
OmniVision	Sirius Tsang
Politecnico di Torino	Stefano Grivet-Talocia, Paolo Manfredi Alessandro Zanco
Qualcomm	Kevin Roselle
Raytheon	Joseph Aday
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
STMicroelectronics	Olivier Bayet, Aurora Sanna
Toshiba	Imi Hitoshi
Toshiba Electronic Devices & Storage Corp.	Atsushi Tomishima
Université de Bretagne Occidentale	Mihai Telescu
University of Cassino	Antonio Maffucci
University of Toronto	Fadime Bekmambetova
University of Zagreb	Adrijan Baric

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
November 22, 2019	624 227 121	IBISfriday11

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

<http://tinyurl.com/IBISfriday>

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 September 27, 2019 IBIS Open Forum teleconference. Mike LaBonte moved to approve the minutes. Bob Ross seconded the motion. There were no objections.

Randy reviewed ARs from the previous meeting.

1. Randy Wolff to find out what organizations were involved in creating JEP30 and who would make use of it [AR].
Randy noted that had contacted co-workers involved with JEDEC, and he was still tracking down details. He said this was in progress and should remain an active [AR].
2. Michael Mirmak to check on the cost of making IEEE 2401 available via the IEEE Get Program [AR].
Michael was unable to join the meeting. Randy and Bob Ross noted that Michael had gotten some information, but they suggested this be left open until Michael could attend and present an update himself. This is in progress and should remain an active [AR].
3. Randy Wolff to report on the partnership agreement with UBM for the DesignCon 2020 IBIS Summit [AR].
Randy reported that we have a signed agreement with UBM. More details below in the Summits section.
4. Mike LaBonte to update the IBIS 7.0 known issues document with details of the need for language prohibiting '\ ' as a path separator [AR].
Mike reported that this had been done, and Bob had also added additional issues to the document.

ANNOUNCEMENTS, CALL FOR ADDITIONAL AGENDA ITEMS

Randy Wolff noted that the announcement for this meeting had been sent out prior to BIRD197.5 being submitted. BIRD197.5 had since been added to today's agenda.

MEMBERSHIP STATUS AND TREASURER'S REPORT

Bob Ross reported that we have 26 members.

We have \$27,056 cash flow for 2019 and a \$29,806 adjusted balance for 2019. The \$4,688 increase relative to the previous report is the result of two summit sponsorships, one new parser license purchase, and the payout of a web hosting fee. We have seven fully signed agreements, and these organizations will receive the parser code:

ANSYS

Cadence Design Systems

Keysight Technologies

Intel

Julin (Shanghai) Microelectronics

Mentor, A Siemens Business

Zuken

Bob noted that \$7,100 from sponsorship agreements and a parser payment had been received but were not yet included in these numbers.

So far, we have received five full parser payments for \$15,000 total, with \$6,000 more expected for the final two agreements. Bob noted that later, in the ibischk parser update section of the meeting, he would move to release the \$8,000 payment to the parser developer.

Bob noted that we expect another \$8500 to come in from parser and sponsorship payments, though these may take several months to get through accounting procedures.

WEBSITE ADMINISTRATION

Steve Parker noted that the website was up to date with respect to BIRDs, minutes, summit information, etc. (note: updating the status of BIRD200 based on the approval vote at the last meeting was an [AR] and was done). Steve noted that the ibischk link on the main page now links to ibischk7 instead of ibischk6, and he thanked Mike LaBonte for creating the ibischk7 page. Bob Ross asked Steve to update the site map to include the ibischk7 page [AR].

Steve and Randy Wolff noted that they had been attempting to find a common meeting time with Jose Godoy to discuss the IBIS website and SAE's draft top-level IBIS website (<https://ibis.sae-itc.com/>).

MAILING LIST ADMINISTRATION

Mike LaBonte noted that mailing lists were operating normally.

LIBRARY UPDATE

No update.

INTERNATIONAL/EXTERNAL ACTIVITIES

- Conferences

Nothing new was reported.

- Press Update

Nothing new was reported.

- Related standards

IEC 63055/IEEE 2401, JEITA “LPB”

Randy Wolff noted that Michael Mirmak can report on this when he is able to attend.

SUMMIT PLANNING AND STATUS

- Asia Summits

Shanghai (November 1, 2019):

Bob Ross noted that details are now coming together rapidly. We currently have 42 registered participants, seven presentations, and three vendor-specific presentations to follow the summit. Six sponsors are listed on the Upcoming IBIS Events page. Huawei is the primary sponsor, and ANSYS, Cadence Design Systems, Keysight Technologies, Synopsys, and ZTE are also sponsors. The program was full, and the agenda had been reviewed. Two new presentations were then received, so some presentations may be dropped in order to accommodate them. Bob noted that the agenda would be sent out as soon as possible because we typically receive more registrations once it is sent. Bob estimated 75 to 80 would be the attendance figure.

Taipei (November 4, 2019):

Bob noted we currently have 34 registered participants, six presentations, and one vendor-specific presentation to follow the summit. Cadence Design Systems and Synopsys are sponsors. We have slots available for more presentations.

Tokyo (November 8, 2019):

Bob noted that the JEITA session in the morning is typically booked to capacity. We get approximately 110 attendees, and we have seven presentations and six sponsors. Sponsors are seen on the Upcoming IBIS Events page because JEITA has shared the sponsor list with us already. Bob noted that we may have to drop one presentation, and we will get feedback on what JEITA wants for the agenda because they help tune it for the audience. Bob noted that because so many presentations are arriving at the last minute, we may have to reduce the normal review process. Cosmetic and minor editorial defects might not be addressed, and Bob might make some changes unilaterally if we don't have time for the full board review.

Bob and Randy Wolff noted that it had been requested that we not have booklets printed this year to save resources, but we have things available online for attendees to access during and after the summit. Bob noted that the online link to the Tokyo Summit would be turned on before the meeting so attendees can access the .pdf versions of the presentations during the meeting. IBIS officers and JEITA organizers who are attending will get a meeting package with private .pptx versions to show at the meeting. Japanese language presentations can be included for .pdf uploads and for the meeting package.

Randy and Lance Wang noted that Bob does a tremendous amount of work to organize these summits.

- DesignCon 2020 Summit (January 31, 2020)

Randy noted that we now have a signed barter agreement with UBM and their parent company Informa. He had a call with Suzanne Deffree of UBM, and the agreement is similar to last year's in terms of rooms at the convention center, advertisements and signage. We will send out three emails to our list with content they provide. We will have two banner ads that we put out in an "e-newsletter," which we have done in the past with emails announcing the summit. SAE-ITC will also put out 3 social media posts. This year UBM asked Randy to provide a quote from IBIS on the value of DesignCon. Randy noted that he was waiting to talk to UBM's representative for help with writing and reviewing a quote.

Randy noted that we will also provide the names and email addresses of summit attendees so UBM can cross check for overlap with DesignCon attendees. Bob noted that we normally don't give out email addresses, though we could make an exception for this purpose. Bob noted that we normally just read them off the sign-up sheet, and that we only ask for them on the sign-up sheet because it's helpful to have a second source for figuring out the attendees' names from the hand-written sign in entries. Bob noted that we do not use the email addresses. Randy agreed and noted that we will do the best we can and give UBM what we have.

Randy noted that we have rooms 209 and 210 at the convention center as we have in years past. He said that he'd gotten feedback from last year's summit that those rooms are getting overcrowded. Randy said that he had emailed the operations manager to see if there were any other options but had not yet heard back.

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 7.0. Mike noted that possibly pursuing an IBIS-ISS parser had been suggested by the ATM group. He noted that this topic was currently tabled but asked anyone interested in resuming the discussion to contact him.

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 feedback to the authors of BIRD198, the DC_Offset BIRD (just submitted as BIRD197.5), and Walter Katz's proposal for enhancing the AMI back channel interface (BCI) to work in statistical mode.

Task group material can be found at:

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

INTERCONNECT TASK GROUP

Michael Mirmak was not able to join the meeting. Randy Wolff reported that the group meets at 8:00 a.m. PT on Wednesdays. The group had been focusing on the EMD proposal. In particular they'd been working on the definition of terminal lines for rails as they consider a stacked die package example. Bob Ross noted that draft 22 is the current baseline

Task group material can be found at:

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

EDITORIAL TASK GROUP

Randy Wolff reported the task group remains suspended.

Task group material can be found at:

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

NEW ADMINISTRATIVE ISSUES

None.

BIRD197.5: NEW AMI RESERVED PARAMETERS DC_OFFSET

Walter Katz noted that this newly introduced version of the BIRD was now almost back where it started. DC_Offset is now an In parameter only. The definition of what the EDA tool does to generate the input value is the same (i.e., it is the mid-point of the step response of the analog channel). The new BIRD clarifies the output of the Rx AMI_GetWave (e.g., output waveform centered around zero volts). The new BIRD clarifies what the EDA tool may do when analyzing the output of Rx AMI_GetWave (e.g., it may add the input value of DC_Offset to the output waveform if it wants to compare it to the single-ended waveform at the latch). Walter noted that ATM had reviewed the draft language and voted to submit it to the Open Forum.

Bob Ross asked if the application scenario that was added is part of the Example section. He suggested that it should be moved into another paragraph of Usage Notes if it isn't. Walter and Randy Wolff suggested that Bob create a modified version of the draft for review in ATM. Bob agreed to do so [AR], but noted that this would probably not happen until after the Asia Summits.

BIRD166.4: RESOLVING PROBLEMS WITH REDRIVER INIT FLOW

Discussion was tabled.

BIRD181.1: I-V TABLE CLARIFICATIONS

Mike LaBonte noted that we had covered this sufficiently last time. He again noted that he had created a draft BIRD181.2, but there had been no new discussion since the last meeting, and he needed to get the proposal into ATM for review.

BIRD190: CLARIFICATION FOR REDRIVER FLOW

Discussion was tabled.

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

Discussion was tabled. Randy Wolff and Bob Ross noted that this proposal had been discussed in ATM, and Randy was preparing a response to the BIRD's authors. Randy noted that the authors will be presenting at the Tokyo summit.

IBISCHK PARSER AND BUG STATUS

Bob Ross reported that summit planning had taken precedence, and he was not prepared to continue discussion on resolving and classifying BUG207, which was introduced at the last meeting. Bob said we will defer discussion until the next meeting.

Bob noted that no BUGs had yet been filed against the new parser. He said that source code was sent out to license purchasers on October 8th, and the package contained pre-built versions of ibischk .exes that could be used immediately. Bob noted the new web page for ibischk7:

<http://ibis.org/ibischk7/>

and thanked Mike LaBonte for generating the SHA1 digests.

Bob noted that the new parser is successfully dealing with references to files included in subdirectories. Bob said that one test case uses ibischk7 on an .ebd file that brings in a .ibs file that itself brings in an Interconnect Model Set that is also checked. The recursive checking continues until it gets to a .ISS or touchstone file, at which point the parser merely verifies the existence of the file.

Bob noted that the official release notification for ibischk7 would be sent out that day. Randy Wolff agreed to send the announcement notice [AR]. Mike noted that we are now providing Red Hat 6 binaries for Linux instead of Red Hat 5. He also noted that 32-bit macOS binaries are no longer provided. Mike noted that if anyone needs something built for a specific OS we don't cover, purchasing the source code and compiling it yourself is the best solution.

Bob moved to pay the parser developer the contracted price of \$8,000. He noted that the parser contract itself had been approved by a roll call vote, and this motion was to accept the software and proceed with the payment. Walter Katz seconded. There were no objections. Bob agreed to ask SAE-ITC to release the payment [AR].

Mike mentioned a question about distribution rights for the pre-built executables. He noted that "Redistribution is permitted" language appears on the ibischk web page. Bob noted that source code purchasers are allowed to make modifications, recompile, and distribute executables based on the source code. Mike agreed and wondered if we should restrict redistribution of binaries to source code license holders. Bob and Randy Wolff said this would be too much to manage, and Mike agreed it would be hard to enforce anyway. Wei-hsing Huang noted that it would not work anyway, as tools would simply direct their users to download the ibischk executables.

NEW TECHNICAL ISSUES

None.

NEXT MEETING

The next IBIS Open Forum teleconference meeting will be held on November 22, 2019. The following teleconference meeting is tentatively scheduled for December 13, 2019.

The Asian IBIS Summit in Shanghai will be held November 1, 2019. The Asian IBIS Summit in Taipei will be held November 4, 2019. The Asian IBIS Summit in Tokyo will be held November 8, 2019. No teleconferences will be available for the Summit meetings.

Bob Ross moved to adjourn. Mike LaBonte 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 `s2iptl`.

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/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

Organization	Interest Category	Standards Ballot Voting Status	August 9,	September	September	October 18,
			2019	6, 2019	27, 2019	2019
ANSYS	User	Active	X	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	Active	-	X	-	X
Google	User	Active	-	X	X	-
Huawei Technologies	Producer	Inactive	-	-	-	-
Infineon Technologies AG	Producer	Active	-	X	X	-
Instituto de Telecomunicações	User	Inactive	-	-	-	-
IBM	Producer	Active	X	X	X	X
Intel Corp.	Producer	Active	X	X	X	X
Keysight Technologies	User	Active	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	-	-	-	-
SiSoft	User	Active	X	X	X	X
SPISim	User	Active	-	X	X	X
Synopsys	User	Active	X	X	X	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.