



## IBIS Open Forum Minutes

Meeting Date: **July 20, 2018**

Meeting Location: **Teleconference**

### VOTING MEMBERS AND 2018 PARTICIPANTS

ANSYS	Curtis Clark*
Applied Simulation Technology	(Fred Balistreri)
Broadcom	(Yunong Gan)
Cadence Design Systems	Brad Brim*, Ken Willis, Ambrish Varma
Cisco Systems	Stephen Searce, Cassie Yan, Baosh Xu
CST	Stefan Paret
Ericsson	Anders Ekholm, Zilwan Mahmood, Guohua Wang
GLOBALFOUNDRIES	Steve Parker
Huawei Technologies	(Hang (Paul) Yan)
IBM	Greg Edlund, Luis Armenta, Hubert Harrer
Infineon Technologies AG	(Christian Sporrer)
Intel Corporation	Hsinho Wu*, Michael Mirmak, Nilesh Dattani Fernando Mendoza Hernandez, Varun Gupta Subas Bastola, Hansel Dsilva, Gianni Signorini
IO Methodology	Lance Wang
Keysight Technologies	Radek Biernacki*, Ming Yan, Heidi Barnes Pegah Alavi
Maxim Integrated	Joe Engert, Yan Liang
Mentor, A Siemens Business	Arpad Muranyi*, Weston Beal, Raj Raghuram Carlo Bleu, Mikael Stahlberg, Yasushi Kondou Vladimir Dmitriev-Zdorov, Nitin Bhagwath
Micron Technology	Randy Wolff*, Justin Butterfield
NXP	(John Burnett)
Raytheon	Joseph Aday
SiSoft	Mike LaBonte*, Walter Katz*, Todd Westerhoff
Synopsys	Ted Mido*, Adrien Auge, Scott Wedge
Teraspeed Labs	Bob Ross*
Xilinx	Ravindra Gali
ZTE Corporation	(Shunlin Zhu)
Zuken	Michael Schaefer, Takayuki Shiratori

### OTHER PARTICIPANTS IN 2018

Google	Zhiping Yang
Haskware	David Banas
John Baprawski, Inc.	John Baprawski

KEI Systems	Shinichi Maeda
Lattice Semiconductor	Dinh Tran, Maryam Shahbazi
OmniVision	Sirius Tsang
Politecnico di Milano	Flavia Grassi, Xinglong Wu
Politecnico di Torino	Tommaso Bradde, Marco De Stefano, Paulo Manfredi Riccardo Trincherio, Stefano Grivet-Talocia
Qualcomm	Kevin Roselle, Tim Michalka
Ricoh	Kazuki Murata
RITA Electronics Ltd.	Kenichi Higashiura, Hiroyuki Motoki (Jose Godoy)
SAE ITC	Ron Olisar
Signal Metrics	Megumi Ono
Socionext	Wei-hsing Huang
SPISim	Tom Lee
Stanford University	Aurora Sanna, Olivier Bayet
STMicroelectronics	Yasuki Torigoshi, Yoshinori Fukuba
Toshiba	Mihai Telescu, Charles Canaff
Université de Bretagne Occidentale	José Schutt-Aine
University of Illinois	Elmar Griese
University of Siegen	Torben Wendt
University of Technology Hamburg	

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
August 10, 2018	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.

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## INTRODUCTIONS AND MEETING QUORUM

Mike LaBonte declared that a quorum was reached and the meeting could begin.

## **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 June 29, 2018 IBIS Open Forum teleconference. Radek Biernacki moved to approve the minutes. Curtis Clark seconded the motion. There were no objections.

Mike reviewed ARs from the previous meeting.

1. Mike to update the information on the upcoming events web page [AR].  
Mike reported the information is updated.
2. Mike to make a note about the supersession of BIRD158.7 on the BIRD page [AR].  
Mike reported this as done.
3. Bob Ross to update the status of IBISCHK BUG197 on the website [AR].  
Bob reported this as done.
4. Walter Katz to send his presentation to Mike for posting and inclusion in the minutes [AR].  
Mike reported this as done.
5. Michael Mirmak to prepare a document noting the details of BIRDs as candidates for IBIS 7.0 in preparation for a motion in the next Open Forum meeting [AR].  
Mike reported this as done.

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

Arpad Muranyi requested time to present a proposal for BIRDs to include in IBIS 7.0 and to make a related motion.

## **MEMBERSHIP STATUS AND TREASURER'S REPORT**

Bob Ross reported that we have 25 members, and there have been no changes since last time. The meeting quorum is 7 participants. There is \$19,109 in the treasury.

## **WEBSITE ADMINISTRATION**

Mike LaBonte reported that he fixed the events page. It was pointed out that the on the member poster page, Maxim's logo needed to be added after their membership renewal.

Bob Ross noted that on the upcoming events page we can delete EDI CON and EPEPS or put the date and make a note of no IBIS Summit plans. Mike responded that he did this already. Bob requested Mike to re-order the two events as displayed on the webpage. Mike will change the order [AR]. Mike noted that dates for SPI 2019 are not available yet.

## **MAILING LIST ADMINISTRATION**

Curtis Clark reported that things are working fine. He continues to have problems approving new subscriptions, but John Madden at Freelists is helping with this for now. This issue may be fixed this weekend.

Arpad Muranyi noted he got an automated message from the servers when he sent out ATM task group invites noting someone with an email loop. Curtis requested that Arpad forward the message.

## **LIBRARY UPDATE**

No update.

## **INTERNATIONAL/EXTERNAL ACTIVITIES**

- Conferences

EPEPS – The 27<sup>th</sup> IEEE Conference on Electrical Performance of Electronic Packaging and Systems will be held in San Jose, CA on October 14-17, 2017. More information is available at:

<http://www.epeps.org/>

EDI CON – Electronic Design Innovation Conference & Exhibition will be held in Santa Clara, CA on October 17-18, 2018. More information is available at:

<http://www.ediconusa.com>

- Press Update

None.

- Related standards

IEC 63055/IEEE 2401, JEITA “LPB”

No update.

## **SUMMIT PLANNING AND STATUS**

- IBIS Asian Summits

An IBIS Summit will be held in Tokyo on November 12, 2018. An IBIS Summit will be held in Shanghai at the Parkyard Hotel on November 14, 2018. An IBIS Summit will be held in Taipei at the Sherwood Hotel on November 16, 2018. Bob Ross reported that Mike LaBonte and Lance Wang have taken care of contracts with the Parkyard and Sherwood hotels. No further planning is in progress at this point, but we need to start pinging some potential sponsors. Mike asked about the schedule for releasing announcements. Bob has not looked at this yet.

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. The focus is mostly on IBISHK and occasional bug reports. There have not been recent updates on bug reports beside BUG197 discussed in the last meeting. Work has continued on a document for IBIS Version 7.0 parser requirements. Arpad Muranyi asked if there will be another parser release before the IBIS 7.0 specification release. Bob Ross noted there are options of an update before IBIS 7.0 for bug fixes or a single project to handle bugs and IBIS 7.0 requirements. Arpad noted there are a couple bugs that would be nice to have fixed sooner than a parser would be released for IBIS 7.0.

The IBISCHK6 user guide work in progress can be reviewed at:

[http://www.ibis.org/ibischk6/ibischk\\_6.1.4\\_UserGuide\\_wip1.pdf](http://www.ibis.org/ibischk6/ibischk_6.1.4_UserGuide_wip1.pdf)

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 that the group is meeting regularly on Tuesdays at 12:00 p.m. PT. The group is addressing various new topics.

Task group material can be found at:

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

## **INTERCONNECT TASK GROUP**

Mike LaBonte reported that the group usually meets at 8:00 a.m. PT on Wednesdays. The group is temporarily suspended. Walter Katz added that he sent out to the Interconnect task group the first draft of a specification that applies the same interconnect modeling techniques (as BIRD189.7) to an update to EBD called Electrical Module Description (EMD). Walter did not expect discussion to resume until after the IBIS 7.0 approval.

Task group material can be found at:

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

## **EDITORIAL TASK GROUP**

Mike LaBonte reported that this group remains suspended. The task group will resume meetings on Fridays when there is no Open Forum teleconference once a vote is passed to begin IBIS 7.0 work. There is a document containing known editorial issues to address. Michael Mirmak issued a draft IBIS 7.0 document to begin reviewing and updating. Bob Ross also issued a draft of a plan for folding in changes to the document. Michael's document does not address all the proposed changes yet.

Task group material can be found at:

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

## **NEW ADMINISTRATIVE ISSUES**

None.

### **BIRD125.1: MAKE IBIS-ISS AVAILABLE FOR IBIS PACKAGE MODELING**

Bob Ross moved to vote on approval of BIRD125.1. Mike LaBonte noted that BIRD189.7 has superseded BIRD125.1, BIRD145.3, BIRB163 and BIRD164. He added that the recommendation as discussed in the previous Open Forum meeting and described in the emailed vote motion is to vote 'No' on all four BIRDS. Walter Katz seconded the motion. There were no objections.

The roll call vote tally was:

ANSYS – no  
Cadence – no  
Infineon – no (by email)  
Intel – no  
Keysight – no  
Mentor – no/reject  
Micron – no  
SiSoft – no  
Synopsys – no  
Teraspeed Labs – no/reject

The roll call vote concluded with a vote tally of Yes – 0, No – 10, Abstain – 0. The vote failed and the BIRD was rejected.

### **BIRD145.3: CASCADING IBIS I/O BUFFERS WITH [EXTERNAL CIRCUIT]S USING THE [MODEL CALL] KEYWORD**

Radek Biernacki moved to approve BIRD145.3. Arpad Muranyi seconded the motion. There were no objections.

The roll call vote tally was:

ANSYS – no  
Cadence – no  
Infineon – no (by email)  
Intel – no  
Keysight – no  
Mentor – no

Micron – no  
SiSoft – no  
Synopsys – no  
Teraspeed Labs – no

The roll call vote concluded with a vote tally of Yes – 0, No – 10, Abstain – 0. The vote failed and the BIRD was rejected.

**BIRD163: INSTANTIATING AND CONNECTING [EXTERNAL CIRCUIT] PACKAGE MODELS WITH [CIRCUIT CALL]**

Radek Biernacki moved to approve BIRD163. Arpad Muranyi seconded the motion. There were no objections.

The roll call vote tally was:

ANSYS – no  
Cadence – no  
Infineon – no (by email)  
Intel – no  
Keysight – no  
Mentor – no  
Micron – no  
SiSoft – no  
Synopsys – no  
Teraspeed Labs – no

The roll call vote concluded with a vote tally of Yes – 0, No – 10, Abstain – 0. The vote failed and the BIRD was rejected.

**BIRD164: ALLOWING PACKAGE MODELS TO BE DEFINED IN [EXTERNAL CIRCUIT]**

Radek Biernacki moved to approve BIRD164. Arpad Muranyi seconded the motion. There were no objections.

The roll call vote tally was:

ANSYS – no  
Cadence – no  
Infineon – no (by email)  
Intel – no  
Keysight – no  
Mentor – no  
Micron – no  
SiSoft – no  
Synopsys – no

Teraspeed Labs – no

The roll call vote concluded with a vote tally of Yes – 0, No – 10, Abstain – 0. The vote failed and the BIRD was rejected.

Mike LaBonte will update the status of all the BIRD votes on the webpage [AR].

### **BIRD195.1: ENABLING [RGND] AND [RPOWER] KEYWORDS FOR ALGORITHMIC INPUT MODELS**

Radek Biernacki moved to schedule a vote on BIRD195.1 for the next IBIS Open Forum meeting. Arpad Muranyi seconded the motion. There were no objections.

### **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.

### **IBIS VERSION 7.0 DISCUSSION**

Arpad Muranyi shared a presentation including two motions prepared by Michael Mirmak. The presentation can be found at:

[http://ibis.org/minutes/min2018/m072018\\_docs/IBIS-motions-7p0-r2.pptx](http://ibis.org/minutes/min2018/m072018_docs/IBIS-motions-7p0-r2.pptx)

Arpad moved to consider the following statement: “The Editorial Task Group shall resume regular meetings and assemble a draft IBIS 7.0 document for consideration by the IBIS Open Forum, including changes from the lists of known issues at [http://ibis.org/ver6.1/ver6\\_1\\_known\\_issues.docx](http://ibis.org/ver6.1/ver6_1_known_issues.docx) and [http://www.ibis.org/ver7.0\\_wip/](http://www.ibis.org/ver7.0_wip/), and the technical changes described in the approved BIRDS below: (The list includes BIRD147.6, BIRD165.1, BIRD179, BIRD180, BIRD182, BIRD183, BIRD184.2, BIRD185.2, BIRD186.4, BIRD187.3, BIRD188.1, BIRD189.7, BIRD191.2, BIRD192.1, BIRD193, and BIRD194.” Mike LaBonte noted BIRD195.1 is not on the list. Bob Ross seconded the motion. There were no objections.

Mike will ask Michael Mirmak to convene the Editorial task group and begin work on IBIS 7.0 [AR]. Arpad asked about inclusion of BIRD195.1. Walter Katz noted that we can have a future discussion on whether BIRD195.1 should be added to the list once the BIRD is approved.

Arpad shared a second motion from Michael stating “No additional technical BIRDS, beyond

those listed above, shall be included in IBIS 7.0 without recommendation from the Editorial Task Group.” Radek Biernacki did not agree with the motion since it blocked the Open Forum from voting on inclusion of more BIRDs, giving that power to the Editorial task group. Arpad noted the intent was to avoid mission creep. Walter agreed with rejecting the motion. He noted that the Editorial group is a significant number of voters overlapping the Open Forum membership, and we’d want to see the Editorial Task Group making a recommendation on inclusion of any other BIRDs.

Arpad made the motion as stated above. Walter seconded the motion. There were no objections to voting on the motion. Mike noted the issue with the motion is giving veto power to the Editorial task group.

The roll call vote tally was:

ANSYS – no  
Cadence – no  
Intel – yes  
Keysight – no  
Mentor – yes  
Micron – no  
SiSoft – no  
Synopsys – no  
Teraspeed Labs – no

The roll call vote concluded with a vote tally of Yes – 2, No – 7, Abstain – 0. The motion failed.

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

Bob Ross reported there has been progress on looking ahead at IBISCHK7 parser requirements.

Arpad Muranyi asked if we can do a short term release of the parser to fix open bugs instead of waiting to fix the bugs in an IBISCHK7 parser. Bob noted he preferred a short term parser release. Arpad asked if this would require paying the parser developer. Bob responded we will need to pay the developer, although the developer may fix many of these bugs out of integrity for his work. Walter Katz thought it would be good to do the work now. Mike LaBonte commented that, in looking at the list, there are some code bugs as well as clarification and cleanup bugs. Clarification and cleanup bugs would not be candidates for free bug fixes. Walter thought this would be good to do some development now to create a clean slate for the IBISCHK7 parser.

Walter asked if a motion was needed to proceed. Mike responded that a quote will need to be prepared first. Arpad asked if the cost will be different between a parser update now versus including the parser changes in IBISCHK7 development. Bob did not see a big difference, only a time difference in delaying IBISCHK7 development.

Arpad moved to submit a proposal to the parser developer for an update to IBISCHK6. Walter seconded the motion. There were no objections. Bob will prepare and submit a proposal to the

parser developer [AR].

## **NEW TECHNICAL ISSUES**

None.

## **NEXT MEETING**

The next IBIS Open Forum teleconference meeting will be held on August 10, 2018. A vote is scheduled for BIRD195.1. The following IBIS Open Forum teleconference meeting is tentatively scheduled on August 31, 2018.

Arpad Muranyi 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](mailto: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](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)).
- To subscribe to 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), or [ibis-quality@freelists.org](mailto: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](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](http://www.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	May 25,	June 8,	June 29,	July 20,
			2018	2018	2018	2018
ANSYS	User	Active	-	X	X	X
Applied Simulation Technology	User	Inactive	-	-	-	-
Broadcom Ltd.	Producer	Inactive	-	-	-	-
Cadence Design Systems	User	Active	-	-	X	X
Cisco Systems	User	Inactive	-	-	-	-
CST	User	Inactive	-	-	-	-
Ericsson	Producer	Inactive	-	-	X	-
GLOBALFOUNDRIES	Producer	Inactive	-	-	X	-
Huawei Technologies	Producer	Inactive	-	-	-	-
IBM	Producer	Inactive	X	-	-	-
Infineon Technologies AG	Producer	Active	-	-	X	X
Intel Corp.	Producer	Active	X	X	X	X
IO Methodology	User	Inactive	-	-	-	-
Keysight Technologies	User	Active	-	X	X	X
Maxim Integrated	Producer	Inactive	-	-	-	-
Mentor, A Siemens Business	User	Active	X	-	X	X
Micron Technology	Producer	Active	-	X	X	X
NXP	Producer	Inactive	-	-	-	-
Raytheon	User	Inactive	-	-	-	-
SiSoft	User	Active	X	X	X	X
Synopsys	User	Active	-	-	X	X
Teraspeed Labs	General Interest	Active	-	X	X	X
Xilinx	Producer	Inactive	-	-	-	-
ZTE Corp.	User	Inactive	-	-	-	-
Zuken	User	Inactive	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.