



## IBIS Open Forum Minutes

Meeting Date: **May 12, 2017**

Meeting Location: **Teleconference**

### VOTING MEMBERS AND 2017 PARTICIPANTS

ANSYS	Curtis Clark*, Toru Watanabe
Applied Simulation Technology	(Fred Balistreri)
Broadcom	Bob Miller
Cadence Design Systems	Brad Brim, Sivaram Chillarige, Debabrata Das Ambrish Varma
Cisco Systems	(Bidyut Sen)
CST	Stefan Paret, Matthias Troescher, Burkhard Doliwa Danilo Di Febo, Alexander Melkozerov
Ericsson	Zilwan Mahmod
GLOBALFOUNDRIES	Steve Parker*
Huawei Technologies	(Jinjun Li)
IBM	Luis Armenta, Adge Hawes*, Greg Edlund
Infineon Technologies AG	(Christian Sporrer)
Intel Corporation	Michael Mirmak, Hsinho Wu*, Eddie Frie Gianni Signorini, Barry Grquinovic
IO Methodology	Lance Wang*
Keysight Technologies	Radek Biernacki*, Pegah Alavi, Fangyi Rao Stephen Slater, Jian Yang
Maxim Integrated	Joe Engert, Don Greer, Yan Liang, Hock Seow
Mentor, A Siemens Business (formerly Mentor Graphics)	Arpad Muranyi*, Nitin Bhagwath, Praveen Anmula Fadi Deek, Raj Raghuram, Dmitry Smirnov Bruce Yuan, Carlo Bleu
Micron Technology	Randy Wolff*, Justin Butterfield
Qualcomm	Tim Michalka, Kevin Roselle
Raytheon	Joseph Aday
Signal Integrity Software	Mike LaBonte*, Walter Katz*, Todd Westerhoff
Synopsys	Kevin Li, Ted Mido*, John Ellis, Scott Wedge
Teraspeed Labs	Bob Ross*
Xilinx	(Raymond Anderson)
ZTE Corporation	(Shunlin Zhu)
Zuken	Ralf Bruening, Michael Schaefer, Alfonso Gambuzza

### OTHER PARTICIPANTS IN 2017

Accton	Raul Lozano
ASUS	Nick Huang, Bin-chyi Tseng

Continental AG	Stefanie Schatt
eASIC	David Banas
Extreme Networks	Bob Haller
Ghent University	Paolo Manfredi
Hamburg University of Technology	Torsten Revschel, Torsen Wendt
IdemWorks	Michelangelo Bandinu
Independent	Dian Yang
John Baprawski, Inc.	John Baprawski
KEI Systems	Shinichi Maeda
Lattice Semiconductor	Maryam Shahbazi, Dinh Tran
Leading Edge	Pietro Vergine
Politecnico di Torino	Claudio Siviero, Stefano Grivet-Talocia, Igor Stievano
SAE International	(Thomas Munns)
Signal Metrics	Ron Olisar
SPISim	Wei-hsing Huang
STMicroelectronics	Fabio Brina, Olivier Bayet
Toshiba	Yasuki Torigoshi
Université Blaise Pascal	Mohamed Toure
Université de Bretagne Occidentale	Mihai Telescu

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
June 2, 2017	624 999 876	IBISfriday11

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

<http://tinyurl.com/zeulerr>

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

Randy Wolff 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**

Randy Wolff called for comments on the minutes of the April 21, 2017 IBIS Open Forum teleconference. He noted a correction found by Bob Ross to change a reference to BIRD161.1 to BIRD166.1 in the ATM Task Group report. Arpad Muranyi moved to approve the minutes with the noted change. Walter Katz seconded the motion. There were no objections.

There were no ARs to review.

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

None.

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

Bob Ross reported that we have 25 voting members with 20 paid memberships for 2017. Our account balance is at \$17,154 for 2017. Actual cash flow of \$15,404 has been collected in 2017. We expect one sponsor payment for the European IBIS Summit to come in, and we have a payment to make for the Summit. May 31 is the last day to retain voting membership rights for those members that have not paid for 2017 dues. That applies to at least three active members.

## **WEBSITE ADMINISTRATION**

Mike LaBonte reported that there have been some logo sizing adjustments. Zuken had an updated logo. Everything should be working well on the website.

## **MAILING LIST ADMINISTRATION**

Curtis Clark reported that we had three addresses age out, but otherwise everything is running smoothly.

## **LIBRARY UPDATE**

No update.

## **INTERNATIONAL/EXTERNAL ACTIVITIES**

- Conferences

EDI CON – Electronic Design Innovation Conference & Exhibition will be held in Boston, MA on September 11-13, 2017. A Summit at this event is under consideration. More information is available at:

<http://www.ediconusa.com>

EPEPS – The 26<sup>th</sup> IEEE Conference on Electrical Performance of Electronic Packaging and Systems will be held in San Jose, CA on October 15-18, 2017. A Summit at this event is under consideration. More information is available at:

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

- Press Update  
None.

- Related standards  
None.

### **SUMMIT PLANNING AND STATUS**

#### **- SPI 2017 IBIS Summit Review**

The European IBIS Summit at SPI was held on Wednesday afternoon, May 10, 2017. Bob Ross reported that we got a brief report from Michael Schaefer that the Summit went well. We are waiting for more reports to generate the minutes. 22 people attended. The Summit ended a little early. There were five presentations. Mike LaBonte thanked Michael Schaefer for running the meeting. ANSYS, CST, Mentor, A Siemens Business, and Zuken were official sponsors.

#### **- EDI CON**

EDI CON will be held in Boston, MA on September 11-13, 2017. Mike noted we were approached by Janine Love about hosting an IBIS Summit during the event. There is a luncheon and an evening gathering on Monday of the event, and an afternoon Summit between these two events could work well.

Bob Ross moved to vote to hold a Summit at EDI CON on Monday, September 11, 2017 in the afternoon with a cost that would not exceed \$3,000. Lance Wang seconded the motion. Walter questioned if there were any other days during or after the conference that could make better sense than the first day. Bob accepted an amended motion to not include a specific date yet. The amended motion was seconded by Lance Wang.

The roll call vote tally was:

ANSYS – abstain  
GLOBALFOUNDRIES – yes  
IBM – yes  
Infineon – yes (by email)  
Intel – yes  
IO Methodology – yes  
Keysight – yes  
Mentor – yes  
Micron – yes  
SiSoft – yes  
Synopsys – yes

Teraspeed Labs – yes

The roll call vote concluded with a vote tally of Yes – 11, No – 0, Abstain – 1. The motion passed.

Mike will create an EDI CON event on the website [AR].

#### - EPEPS

EPEPS will be held in San Jose, CA on October 15-18, 2017. Bob Ross noted that we held a Summit at EPEPS two years ago, but we did not last year due to its moving from San Jose to San Diego. With the event moving back to San Jose this year, Bob suggested that we hold an IBIS Summit on Wednesday afternoon, October 18, 2017.

Bob moved to vote to hold a Summit on October 18, 2017 with a cost that would not exceed \$3,000. Radek Biernacki seconded the motion.

The roll call vote tally was:

ANSYS – abstain  
GLOBALFOUNDRIES – abstain  
IBM – yes  
Infineon – yes (by email)  
Intel – yes  
IO Methodology – yes  
Keysight – yes  
Mentor – yes  
Micron – yes  
SiSoft – yes  
Synopsys – yes  
Teraspeed Labs – yes

The roll call vote concluded with a vote tally of Yes – 10, No – 0, Abstain – 2. The motion passed.

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. Ongoing discussion is about IBISCHK development.

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

[http://www.ibis.org/ibischk6/ibischk\\_6.1.3\\_UserGuide\\_wip1.pdf](http://www.ibis.org/ibischk6/ibischk_6.1.3_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 has been discussing the AMI flow corrections for redrivers.

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 was meeting on Wednesdays at 8:00 a.m. PT. BIRD189.3 was released. The group had one meeting in the last three weeks, and meetings are suspended unless more work is needed. Mike asked if any other changes were needed to the Interconnect BIRD. Walter Katz responded that he thinks the BIRD is ready for a vote. Radek Biernacki commented that there may need to be some changes related to file naming. He also requested more time to review the BIRD. Radek wondered if any feedback was solicited from hardware vendors on the BIRD. Bob Ross noted that terminology in BIRD186.3 may impact slightly the language in BIRD189.

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 meetings take place at 8:00 a.m. PT on Fridays that the IBIS Open Forum does not meet. The group has discussed a list of BIRDs targeted for an IBIS 7.0 release. Bob Ross commented that the group's main focus will be on BIRD186.2.

Task group material can be found at:

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

### **NEW ADMINISTRATIVE ISSUES**

- Nominations for IBIS Officer Elections

Mike LaBonte reported that officer elections must be held every year. The opening of nominations period must start no later than May 17. Mike declared the nominations period open. Chair and Vice-chair positions can only be held by a person from a member company. Bob Ross noted that the voting period will open June 1 and end on June 15. The nomination period ends May 31.

Bob nominated the existing officers for their existing positions. Bob also asked Radek Biernacki

if he would be the returning officer for the elections process. Mike noted that we should hold a motion.

Bob moved that Radek serve as the returning officer for the elections. Walter Katz seconded the motion. There were no objections.

Mike noted that any questions about officer positions could be directed to him or to any of the existing officers. He added that self-nominations are accepted.

- Second revision of IBIS Policies and Procedures

Mike noted that we are awaiting approval from SAE's legal department on the latest revision of the document. He added that the document should not be changed during the officer elections process. Bob added that the new revision requires a 2/3 vote of the members for approval. The new revision makes some changes requested by SAE after approval of the last document. Mike will send the new revision to Tom Munns at SAE to inform him of the reasons we are updating the P&P document.

Bob noted that the contact page on our website needs to update the SAE contact listed as Logen Johnson. Mike will update the SAE contact from Logen Johnson to Tom Munns. [AR]

The Policy and Procedures document can be found at:

<http://www.ibis.org/policies/>

### **BIRD158.5: AMI TS4FILE ANALOG BUFFER MODELS**

Walter Katz reported that Michael Mirmak found some typos in BIRD158.5 and had some questions on the BIRD. A vote on the BIRD will be suspended to address the editorial issues and answer questions in the next ATM task group meeting.

Walter Katz moved to schedule a vote on BIRD158.x in the next IBIS Open Forum teleconference. Bob Ross seconded the motion. There were no objections.

### **BIRD166.2: RESOLVING PROBLEMS WITH REDRIVER INIT FLOW**

Walter Katz stated that many of our flows rely on every model being a dual model using both Init and GetWave functions. Some of our flows don't work well with models that do not contain both functions. Walter noted he has a presentation for the next ATM task group meeting related to this issue.

Bob Ross asked if there is any change in BIRD166.2 that could be made in the flow step that would make it acceptable as a simplified BIRD that we could approve for IBIS 7.0 but not block future advances. Walter responded that yes, there will be a BIRD166.3 to address all of the issues.

Mike LaBonte noted that the co-sponsor of the BIRD, Darshan Shah is no longer with F5 Networks. Walter will check to see if the company name can be updated.

### **BIRD186.3: FILE NAMING RULES**

Mike LaBonte noted that a BIRD186.3 with changes to BIRD186.2 was expected and scheduled for a vote. An updated BIRD was not submitted. Walter Katz asked if there was a formal recommendation on submitting BIRD186.3. Bob Ross responded that BIRD186.3 draft 6 was circulating, but there are changes to terminology in the BIRD that are still needed. Walter added that terminology related to file name is in review. Mike added that it is the intent of the Editorial task group to update this BIRD and submit it for the next Open Forum teleconference meeting.

### **BIRD189.3: INTERCONNECT MODELING USING IBIS-ISS AND TOUCHSTONE**

Mike LaBonte noted that we could schedule a motion to vote at the next meeting to encourage review of the BIRD. Walter Katz suggested that IC vendors that make IBIS models should provide feedback and statements of support on the BIRD.

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

Discussion was tabled.

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

Discussion was tabled.

### **BIRD161.1: SUPPORTING INCOMPLETE AND BUFFER-ONLY [COMPONENT] DESCRIPTIONS**

Discussion was tabled.

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

Discussion was tabled.

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

Discussion was tabled.

### **BIRD165: PARAMETER PASSING IMPROVEMENTS FOR [EXTERNAL CIRCUIT]S**

Discussion was tabled.

### **BIRD181.1: I-V TABLE CLARIFICATIONS**

Discussion was tabled.



## **IBISCHK6 PARSER AND BUG STATUS**

Bob Ross reported that he requested an update from the developer on progress of the parser code changes. There should be code available by June 2 for review, although issues found by the developer may cause the schedule to slip. Changes will bring the parser up to date on bug fixes for IBIS 6.1.

## **NEW TECHNICAL ISSUES**

None.

## **NEXT MEETING**

The next IBIS Open Forum teleconference meeting will be held June 2, 2017. The following IBIS Open Forum teleconference meeting is tentatively scheduled on June 23, 2017.

Walter Katz moved to adjourn. Curtis Clark seconded. The meeting adjourned.

## **NOTES**

IBIS CHAIR: Mike LaBonte

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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 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	March 31, 2017	April 21, 2017	May 10, 2017	May 12, 2017
ANSYS	User	Active	X	X	-	X
Applied Simulation Technology	User	Inactive	-	-	-	-
Broadcom Ltd.	Producer	Inactive	-	X	-	-
Cadence Design Systems	User	Inactive	X	X	-	-
Cisco Systems	User	Inactive	-	-	-	-
CST	User	Inactive	-	-	X	-
Ericsson	Producer	Inactive	-	-	X	-
GLOBALFOUNDRIES	Producer	Active	-	X	-	X
Huawei Technologies	Producer	Inactive	-	-	-	-
IBM	Producer	Active	X	X	-	X
Infineon Technologies AG	Producer	Inactive	-	-	-	X
Intel Corp.	Producer	Active	X	X	X	X
IO Methodology	User	Active	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
Qualcomm	Producer	Inactive	-	-	-	-
Raytheon	User	Inactive	-	-	-	-
Signal Integrity Software	User	Active	X	X	-	X
Synopsys	User	Active	X	X	-	X
Teraspeed Labs	General Interest	Active	X	X	-	X
Xilinx	Producer	Inactive	-	-	-	-
ZTE	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.