



## IBIS Open Forum Minutes

Meeting Date: **October 27, 2017**

Meeting Location: **Teleconference**

### VOTING MEMBERS AND 2017 PARTICIPANTS

ANSYS	Curtis Clark*, Toru Watanabe, Baolong Li
Applied Simulation Technology	(Fred Balistreri)
Broadcom	[Bob Miller], (Cathy Liu)
Cadence Design Systems	Brad Brim, Sivaram Chillarige, Debabrata Das Ambrish Varma, Kumar Keshavan, Ken Willis Brad Griffin
Cisco Systems	(Bidyut Sen)
CST	Stefan Paret, Matthias Troescher, Burkhard Doliwa Danilo Di Febo, Alexander Melkozerov
Ericsson	Zilwan Mahmud
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 Masashi Shimanouchi
IO Methodology	Lance Wang
Keysight Technologies	Radek Biernacki*, Pegah Alavi, Fangyi Rao Stephen Slater, Jian Yang, Heidi Barnes
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, Jeff Shiba, Harry Shin
NXP	(John Burnett)
Qualcomm	Tim Michalka, Kevin Roselle
Raytheon	Joseph Aday
SiSoft	Mike LaBonte*, Walter Katz*, Todd Westerhoff Steve Silva
Synopsys	Kevin Li, Ted Mido*, John Ellis, Scott Wedge Wonsae Sim
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
Ilia State University	Nana Dikhaminjia
Independent	Dian Yang, Lawrence Der
John Baprawski, Inc.	John Baprawski
KEI Systems	Shinichi Maeda
Lattice Semiconductor	Maryam Shahbazi, Dinh Tran
Leading Edge	Pietro Vergine
Lexington Consulting	Mike Barg
Missouri Science and Technology EMC Lab	Giorgi Maghlakelidze
Politecnico di Torino	Claudio Siviero, Stefano Grivet-Talocia, Igor Stievano (Thomas Munns), Jose Godoy*
SAE-ITC	Jung Hwan Choi
Samsung	Ron Olisar
Signal Metrics	Wei-hsing Huang
SPISim	Tom Lee
Stanford University	Fabio Brina, Olivier Bayet
STMicroelectronics	Yasuki Torigoshi
Toshiba	Mohamed Toure
Université Blaise Pascal	Mihai Telescu
Université de Bretagne Occidentale	

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 13, 2017	Shanghai IBIS Summit – no teleconference	
November 15, 2017	Taipei IBIS Summit – no teleconference	
November 17, 2017	Tokyo IBIS Summit – no teleconference	
December 1, 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.

Jose Godoy of ARINC Industry Activities introduced himself. ARINC IA is part of SAE-ITC, the parent organization of IBIS. He works on standardization of data links for aviation communications, surveillance, and is secretary for some subcommittees. He is helping review expenses submitted by IBIS, so he is learning about IBIS now.

## **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 October 6, 2017 IBIS Open Forum teleconference. Curtis Clark moved to approve the minutes. Radek Biernacki seconded the motion. There were no objections.

Randy reviewed ARs from the previous meeting.

1. Mike LaBonte to add ZTE to the website [AR].  
Mike reported this as done.
2. Mike to put new IBIS policies and procedures document on the website [AR].  
Mike reported this as done.
3. Mike to make the link to the Touchstone parser more visible on the website [AR].  
Mike reported this as done.
4. Mike to fix the link to the TSIRD web page on the website [AR].  
Mike reported this as open.

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

Bob Ross noted that ZTE Corporation is a new member company.

Bob noted we did receive another vote for approval of the IBIS Policies & Procedures document from Huawei after the official vote concluded.

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

Bob Ross reported that we are at 26 members. Our account balance is at \$30,812 for 2017. Actual cash flow of \$29,062 has been collected in 2017. We will have payments for Summit expenses in the immediate time frame in the range of about \$1,800.

## **WEBSITE ADMINISTRATION**

Mike LaBonte reported that he has another change to make relative to the Touchstone parser and bug list. EPEPS has moved down the Summits list. We were recently charged about \$300 for all the web services we use for the year. Jose Godoy noted that he saw the \$300 submitted for approval, so the check should be issued soon.

## **MAILING LIST ADMINISTRATION**

Curtis Clark reported that it has been quiet and everything is running smoothly. Mike LaBonte noted one person asked about subscribing to the mailing list. Curtis noted he will be following up on this.

## **LIBRARY UPDATE**

No update.

## **INTERNATIONAL/EXTERNAL ACTIVITIES**

- Conferences

None.

- Press Update

None.

- Related standards

None.

## **SUMMIT PLANNING AND STATUS**

- EPEPS 2017 IBIS Summit Review

EPEPS was held in San Jose, CA on October 15-18, 2017. The IBIS Summit was held on Wednesday afternoon, October 18, 2017. Bob Ross reported there were 16 participants. Bob requested Mike to add the minutes' link to the web page [AR]. Bob noted that there was a keynote speech that was very interesting, about the laying of the transatlantic telegraph cable in the 1800s. Bob thanked the sponsors Keysight and Synopsys. Keysight also provided the projector. Mike LaBonte noted that attendance has not been as good as possible at our Summits at EDI CON and EPEPS due to overlapping content with the conferences. Bob noted that there were some regular IBIS attendees that did not come to the IBIS Summit due to attending the machine learning content at EPEPS.

- Asian IBIS Summit (Shanghai)

An IBIS Summit will be held at the Parkyard Hotel Shanghai from 8:30 a.m. to 5:00 p.m. on Monday, November 13, 2017. Bob Ross noted that payment was received from ZTE for sponsorship. 10 presentations have been submitted for the conference so far. The agenda is being worked on. Huawei is the primary sponsor, and Cadence, IO Methodology, Mentor, a Siemens Business, MostecEDA (SPISim), Synopsys, Teledyne-LeCroy, and ZTE Corporation are additional sponsors.

- Asian IBIS Summit (Taipei)

An IBIS Summit will be held at the Sherwood Hotel from 9:00 a.m. to 4:30 p.m. on Wednesday, November 15, 2017. IO Methodology, Peace Giant Technology (SPISim), and Synopsys are sponsors. Bob reported that the agenda is being worked on.

- Asian IBIS Summit (Tokyo)

An IBIS Summit will be held at the Akihabara UDX Bldg. from 12:30 p.m. to 5:00 p.m. on Friday, November 17, 2017. Bob noted there was a request to start the meeting at 1:30 p.m. and go until 5:30 p.m. There are 7 presentations planned so far, but some may need to be chopped for time concerns. JEITA will be hosting a Power Aware IBIS class in the morning that will be open to the public and free of charge. JEITA and IBIS Open Forum are sponsors.

- DesignCon 2018

DesignCon will be held in Santa Clara, CA on January 30 through February 1, 2018. Bob noted that after some discussion, Friday, February 2, 2018 seems like the best date for the Summit meeting to not conflict with other content. Mike noted he has been in contact with UBM, and there is a draft agreement in place. If the vote passes, he will work with UBM to finalize the contract. Bob noted that expenses last year were about \$8,000, and expenses may go up this year.

Bob moved to vote for IBIS to hold a summit at DesignCon on February 2, 2018 with expenses for IBIS not to exceed \$9,000. Walter Katz seconded the motion. There were no objections.

The roll call vote tally was:

ANSYS – yes  
GLOBALFOUNDRIES – yes  
Intel – yes  
Infineon – yes (by email)  
IO Methodology – yes (by email)  
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 – 0. The vote 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. There has been little activity with the main topic of discussion being the IBISCHK parser. There are currently no issues with the parser.

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 has been discussing unused port terminations questions related to the interconnect modeling BIRD189. He is expecting some discussion upcoming on simulation of DDR5.

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 is meeting at 8:00 a.m. PT on Wednesdays. The group's focus is BIRD189, and a new draft is in progress. There is a list of issues being worked through, and items are starting to be resolved. Touchstone discussion may follow BIRD189 discussions.

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 usually meets when BIRDs are approved for a new specification, and a draft needs to be worked on. When a full IBIS document is available for review, the group will resume meetings.

Task group material can be found at:

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

## **NEW ADMINISTRATIVE ISSUES**

None.

### **BIRD158.6: AMI TS4FILE ANALOG BUFFER MODELS**

Walter Katz noted that during the last discussion there was an issue of mentioning S-parameters in the “other background information” section of the BIRD. He noted that originally the BIRD mentioned S-parameters and later was written to support all network parameters supported by Touchstone. Bob noted that he’d prefer to issue a BIRD 158.7 if we vote on it, with a note about the BIRD’s intention to apply to all network parameters supported by Touchstone file data. Radek Biernacki suggested issuing a new BIRD version and deferring the vote until the next meeting. Randy Wolff confirmed that there were no email votes received from companies not present in the meeting. Bob thought this was a minor editorial change, and since all member companies who have voted by email are present in the meeting, the vote could proceed. The vote would note the additional change for clarification.

Bob moved to vote on approval of BIRD158.6 with the clarification in the “other background information” section to be issued as BIRD158.7. Arpad Muranyi seconded the motion. There were no objections.

The roll call vote tally was:

ANSYS – yes

GLOBALFOUNDRIES – yes

Intel – 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 – 9, No – 0, Abstain – 0. The vote passed.

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

Mike LaBonte noted that Michael Mirmak, the BIRD author, recommended rejection of the BIRD to remove the BIRD from the queue. Most of the provisions in this BIRD are being duplicated in other BIRDs, and a new BIRD would be needed. Bob Ross noted that BIRD191 covers a similar topic in a different manner. Bob noted a ‘no’ vote is recommended. Michael intends to issue a new BIRD related to the incomplete buffer-only components at some point.

Bob moved to vote on BIRD161.1 with a recommendation to vote no. Radek Biernacki seconded the motion. There were no objections.

The roll call vote tally was:

ANSYS – no

GLOBALFOUNDRIES – abstain

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 – 8, Abstain – 1. The vote failed and BIRD161.1 is rejected.

**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.

**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.

**BIRD166.4: RESOLVING PROBLEMS WITH REDRIVER INIT FLOW**

Discussion was tabled.

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

Discussion was tabled.

**BIRD189.4: INTERCONNECT MODELING USING IBIS-ISS AND TOUCHSTONE**

Discussion was tabled.

**BIRD190: CLARIFICATION FOR REDRIVER FLOW**

Discussion was tabled.

**IBISCHK6 PARSER AND BUG STATUS**

Bob Ross reported no new bugs. There are about 5 pending bug reports that need to be refined and issued in the future once examples are added to them. Mike LaBonte noted there are four open bugs with three having annoying severity and one having moderate severity. Bob noted it might be appropriate to issue a new release of the parser if a critical bug is discovered.

**NEW TECHNICAL ISSUES**

Bob Ross noted Mike LaBonte should update his Summit presentation with the new BIRD status. Bob also noted it would be good to schedule some time with Jose Godoy for further discussion.

**NEXT MEETING**

The next IBIS Open Forum teleconference meeting will be held December 1, 2017. The following IBIS Open Forum teleconference meeting is tentatively scheduled on December 15, 2017.

The Asian IBIS Summit in Shanghai will be held November 13, 2017. The Asian IBIS Summit in Taipei will be held November 15, 2017. The Asian IBIS Summit in Tokyo will be held November 17, 2017. No teleconferences will be available for the Summit meetings.

Michael Mirmak moved to adjourn. Curtis Clark seconded the motion. The meeting adjourned.

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**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>

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## SAE STANDARDS BALLOT VOTING STATUS

Organization	Interest Category	Standards Ballot Voting Status	September 15, 2017	October 6, 2017	October 18, 2017	October 27, 2017
ANSYS	User	Active	-	X	X	X
Applied Simulation Technology	User	Inactive	-	-	-	-
Broadcom Ltd.	Producer	Inactive	-	X	-	-
Cadence Design Systems	User	Inactive	-	X	-	-
Cisco Systems	User	Inactive	-	-	-	-
CST	User	Inactive	-	X	-	-
Ericsson	Producer	Inactive	-	-	-	-
GLOBALFOUNDRIES	Producer	Inactive	-	X	-	X
Huawei Technologies	Producer	Inactive	-	-	-	-
IBM	Producer	Inactive	-	X	-	-
Infineon Technologies AG	Producer	Inactive	-	X	-	X
Intel Corp.	Producer	Active	X	X	X	X
IO Methodology	User	Active	X	X	-	X
Keysight Technologies	User	Active	X	X	X	X
Maxim Integrated	Producer	Inactive	-	-	-	-
Mentor, A Siemens Business	User	Active	X	X	X	X
Micron Technology	Producer	Active	X	X	-	X
NXP	Producer	Inactive	-	X	-	-
Qualcomm	Producer	Inactive	-	-	X	-
Raytheon	User	Inactive	-	X	-	-
SiSoft	User	Active	X	X	-	X
Synopsys	User	Active	X	X	X	X
Teraspeed Labs	General Interest	Active	X	X	X	X
Xilinx	Producer	Inactive	-	X	-	-
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.