



IBIS Open Forum Minutes

Meeting Date: **February 17, 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
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 Signorini Gianni, 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 Graphics	Arpad Muranyi*, Nitin Bhagwath, Praveen Anmula Fadi Deek, Raj Raghuram, Dmitry Smirnov Bruce Yuan
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

OTHER PARTICIPANTS IN 2017

Accton	Raul Lozano
ASUS	Nick Huang, Bin-chyi Tseng
eASIC	David Banas

Extreme Networks	Bob Haller
Independent	Dian Yang
John Baprawski, Inc.	John Baprawski
KEI Systems	Shinichi Maeda
Lattice Semiconductor	Maryam Shahbazi, Dinh Tran
SAE International	(Logen Johnson)
Signal Metrics	Ron Olisar
SPISim	Wei-hsing Huang
Toshiba	Yasuki Torigoshi

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
March 10, 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.

INTRODUCTIONS AND MEETING QUORUM

Mike LaBonte declared that a quorum was reached and the meeting could begin. Justin Butterfield took minutes in the absence of Randy Wolff.

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 January 27, 2017 IBIS Open Forum teleconference. Bob Ross moved to approve the minutes. Curtis Clark seconded the motion.

There were no objections.

Mike LaBonte called for comments on the minutes of the February 3, 2017 DesignCon IBIS Summit. Bob Ross moved to approve the minutes. Walter Katz seconded the motion. There were no objections.

ANNOUNCEMENTS, CALL FOR ADDITIONAL AGENDA ITEMS

Mike LaBonte noted that BIRD186.1 has been updated.

Mike stated that BIRD189 should be added to the agenda.

MEMBERSHIP STATUS AND TREASURER'S REPORT

Bob Ross reported that we have 25 members. New members include Applied Simulation Technology, Qualcomm and Raytheon. This brings the quorum for IBIS Open Forum meetings to 7 member companies. Our account is at \$4,129 for 2017. Actual cash flow of \$2,379 has been collected in 2017. Bob reported there is a possible new member and a parser purchase is in the works. In addition, we are waiting on some of the sponsorship money from the DesignCon IBIS Summit to come in.

WEBSITE ADMINISTRATION

Mike LaBonte reported that the home page no longer advertises the DesignCon Summit as the next upcoming event. The SPI Summit now shows as the next event. The full agendas for IBIS Summits are posted with links to the presentations. Mike reported that some of the webpages show 2016 for the copyright date. Mike took an AR to change these pages to display copyright 2017. Bob Ross noted that Raytheon needs to be added to the list of member companies. Mike took an AR to ask permission to use Raytheon's logo and add them to the members list.

MAILING LIST ADMINISTRATION

Curtis Clark reported we had a net increase of two users to the mailing list.

LIBRARY UPDATE

No update.

INTERNATIONAL/EXTERNAL ACTIVITIES

- Conferences

EDI-CON will be held in Boston on September 11-13, 2017. Mike LaBonte reported the IBIS Board has discussed having a Summit at this event, and it is under consideration. Microwave Journal is very interested in having an IBIS Summit held at this event. A half-day summit is a possibility, although nothing

has been decided definitively. Bob Ross pointed out that this would be a good option for an East Coast IBIS event. Mike requested to let him know who might be able to attend.

- Press Update
None.

- Related standards
IEEE DASC at DVCon 2017
No update.

SUMMIT PLANNING AND STATUS

- DesignCon 2017 IBIS Summit review

The DesignCon IBIS Summit was held in Santa Clara, California on Friday, February 3, 2017. About 58 people representing 29 organizations attended. Cadence Design Systems, CST, Keysight Technologies, Mentor Graphics and Synopsys were sponsors.

- SPI 2017 IBIS Summit

The European IBIS Summit at SPI will be held on Wednesday afternoon, May 10, 2017. Bob Ross noted that the Summit is approved and planning is in progress. The first announcement will go out in early March. Mike LaBonte pointed out that we need someone to run the meeting. Bob Ross noted that Zuken could run the meeting in lieu of an IBIS officer.

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 group's discussion focuses on achieving quality through the best IBISCHK code.

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

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/

ADVANCED TECHNOLOGY MODELING TASK GROUP

Arpad Muranyi reported that the group is meeting regularly on Tuesdays at 12:00 p.m. PT. The group recently discussed the redriver BIRD, BIRD158, and single ended applications for AMI such as DDR5.

Task group material can be found at:

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

INTERCONNECT TASK GROUP

Mike LaBonte reported that the group is meeting on Wednesdays at 8:00 a.m. PT. The group is currently working on BIRD189.1, and has discussed suspending future meetings.

Task group material can be found at:

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

EDITORIAL TASK GROUP

Mike LaBonte reported that the group remains suspended. Meetings will resume once a new IBIS specification draft of IBIS 6.2 is ready to review. Once resumed, meetings will take place at 8:00am PT on Fridays that the IBIS Open Forum does not meet.

Task group material can be found at:

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

NEW ADMINISTRATIVE ISSUES

- Second revision of IBIS Policies and Procedures

Mike LaBonte reported that the latest revision of the IBIS Policies and Procedures document was submitted to SAE for legal review. Mike has received no word on this from SAE.

The document can be found at:

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

BIRD186.1: FILE NAMING RULES

Mike LaBonte noted that Bob Ross was added as an author. Bob introduced a few changes that are detailed at the bottom of page 9 of the BIRD. Up to IBIS version 6.1 all files must reside in the same directory; however, this BIRD relaxes this requirement, and thus reverses all these statements. Another change was to cleanup places where extensions should not include the "dot". The .ims file type from BIRD189 is added anticipating its approval.

Mike asked about a possible dependency between BIRD189.1 and BIRD186.1, and if they would need to be approved at the same time or one before the other. Bob thought there is no dependency, only an editorial issue that can be resolved later on. Bob noted an exclusion that the slash "/" cannot be used in the file extension. Bob stated that the intent of this BIRD is to clean up the IBIS specification to allow for the directory structure.

Walter Katz moved to schedule a vote on BIRD186.1 for the next IBIS Open Forum meeting.

Bob commented that he would like to wait until the following meeting to schedule a vote, in order to give people more time to review the BIRD. Walter withdrew the motion.

BIRD147.6: BACK-CHANNEL SUPPORT

Bob Ross stated that a paragraph under BCI_Training was deleted. Mike LaBonte noted that this was discussed at the last Open Forum meeting and is now reflected in the BIRD. Bob thought that we could bring this BIRD up for a vote at the next meeting.

Walter Katz moved to schedule a vote on BIRD147.6 at the next IBIS Open Forum meeting. Bob Ross seconded the motion. There were no objections.

BIRD187.2: FORMAT AND USAGE OUT CLARIFICATIONS

Radek Biernacki asked about the Increment Format section and the term “swept” that is used here but not elsewhere. He also asked about the term “integer values” in the Increment Format section, and he requested that this text be reviewed. Bob Ross asked if the existing IBIS Specification has this problem. Radek replied that this is not an issue in the current version of IBIS. Mike LaBonte suggested to delay holding a vote until this technical issue is resolved in the ATM Task Group.

BIRD188.1: EXPANDED RX NOISE SUPPORT FOR AMI

Radek Biernacki moved to vote on approval of BIRD188.1. Bob Ross seconded the motion. There were no objections.

The roll call vote tally was:

ANSYS – yes
Broadcom – yes
Cadence Design Systems – yes
GLOBALFOUNDRIES – yes
IBM – yes
Intel Corporation – yes
IO Methodology – yes
Keysight Technologies – yes
Mentor Graphics – yes
Micron Technology – yes
Signal Integrity Software – yes
Teraspeed Labs - yes

The roll call vote concluded with a vote tally of Yes – 12, No – 0, Abstain – 0. The motion passed and the BIRD was accepted.

BIRD158.3: AMI TOUCHSTONE ANALOG BUFFER MODELS

Walter Katz noted that the last revision was done by Radek Biernacki. Bob Ross thought that

we were waiting on possible changes before scheduling a vote. Walter suggested for the ATM Task Group to make a recommendation on how to proceed and to defer the issue until the next IBIS Open Forum meeting.

BIRD189: INTERCONNECT MODELING USING IBIS-ISS AND TOUCHSTONE

Mike LaBonte stated that there are some changes in progress to the BIRD. Walter Katz noted that there are some errata, and we are waiting for improved graphics before issuing a BIRD189.1. Walter commented that IC vendors are currently creating broadband interconnect models, and he called on IC vendors to wrap existing models in the proposed syntax and provide feedback.

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.

BIRD166: RESOLVING PROBLEMS WITH REDRIVER INIT FLOW

Discussion was tabled.

BIRD181.1: I-V TABLE CLARIFICATIONS

Discussion was tabled.

IBISCHK6 PARSER AND BUG STATUS

Bob Ross reported that there is no update on the parser. There are four bug reports that are approved. He expects three more bug reports to be issued. Right now he would like to process these existing bugs before issuing a possible 6.1.4 version.

Radek Biernacki asked for a rough time frame for a parser update. Bob replied that if we only consider the bugs currently approved, we would be roughly two months out. Mike LaBonte noted that the last parser version was released in January and the Quality committee would like to give more time for people to use the latest version.

Mike commented that there is work ongoing to improving some of messages issued by the parser based on the user guide. Bob added that one of the improvements is for the parser to state thresholds when they have been exceeded in various checks.

NEW TECHNICAL ISSUES

Walter Katz asked about the plan for IBIS 6.2. He noted several changes have been made to clarify the meaning of “ground” in the IBIS specification. Some work remains to change the graphics replacing the earth ground symbol with the reference node symbol. He would like to see an IBIS 6.2 which incorporates these BIRDs and changes. We do not necessarily need to approve it, and we can use this as a starting point for IBIS 7.0.

Bob Ross noted that we have several options. The first is to approve an IBIS 6.2, then an IBIS 7.0. The second option is to go straight to IBIS 7.0. The third option is to create an unofficial IBIS 6.2 then an official IBIS 7.0. Bob recommended that we not create an unofficial IBIS 6.2, as our processes were not designed for creating an unofficial document. We have never done an unofficial version in the past, and it would create confusion. Walter agreed and thought the parser changes would be minor for IBIS 6.2. Bob thought we should approve IBIS 6.2 then go to IBIS 7.0. Bob thought we can start on IBIS 6.2 as soon as the BIRDs have been approved. Bob noted that big changes such as BIRD189 and BIRD147.6 should go to IBIS 7.0. Mike LaBonte noted that there are some changes that do not have BIRDs such as some figure changes.

Bob suggested completing the process of deciding which BIRDs to include in IBIS 6.2, and we need to approve those BIRDs before starting the editorial process. Mike showed a possible schedule for IBIS 6.2 and IBIS 7.0 from his [Chair's Status Report](#) given at the DesignCon Summit meeting. He also showed a list of possible BIRDs for IBIS 6.2 and IBIS 7.0.

Mike took an AR to discuss with Michael Mirmak what unwritten changes need to go into IBIS 6.2 and how to proceed with reconvening the Editorial Committee.

Walter suggested to reconvene the Editorial Committee to come up with the best process to proceed.

NEXT MEETING

The next IBIS Open Forum teleconference meeting will be held March 10, 2017. A vote on BIRD147.6 is scheduled. The following IBIS Open Forum teleconference meeting will tentatively be held March 31, 2017.

Bob Ross moved to adjourn. Radek Biernacki seconded. The meeting adjourned.

NOTES

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This meeting was conducted in accordance with ANSI guidance.

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/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](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	January 6, 2017	January 27, 2017	February 3, 2017	February 17, 2017
ANSYS	User	Active	X	X	X	X
Applied Simulation Technology	User	Inactive	-	-	-	-
Broadcom Ltd.	Producer	Inactive	X	X	-	-
Cadence Design Systems	User	Active	X	X	X	X
Cisco Systems	User	Inactive	-	-	-	-
CST	User	Inactive	-	-	X	-
Ericsson	Producer	Inactive	-	-	X	-
GLOBALFOUNDRIES	Producer	Active	X	-	X	X
Huawei Technologies	Producer	Inactive	-	-	-	-
IBM	Producer	Active	X	X	X	X
Infineon Technologies AG	Producer	Inactive	-	-	-	-
Intel Corp.	Producer	Active	X	X	X	X
IO Methodology	User	Active	X	X	X	X
Keysight Technologies	User	Active	X	X	X	X
Maxim Integrated	Producer	Inactive	-	-	X	-
Mentor Graphics	User	Active	X	X	X	X
Micron Technology	Producer	Active	X	X	X	X
Qualcomm	Producer	Inactive	-	-	X	-
Raytheon	User	Inactive	-	-	X	-
Signal Integrity Software	User	Active	X	X	X	X
Synopsys	User	Active	X	X	X	-
Teraspeed Labs	General Interest	Active	X	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.