



IBIS Open Forum Minutes

Meeting Date: **January 6, 2017**

Meeting Location: **Teleconference**

VOTING MEMBERS AND 2017 PARTICIPANTS

ANSYS	Curtis Clark*
Broadcom (Avago Technologies)	Bob Miller*
Cadence Design Systems	Brad Brim*
Cisco Systems	(Bidyut Sen)
CST	(Leonardo Sassi)
Ericsson	(Anders Ekholm)
GLOBALFOUNDRIES	Steve Parker*
Huawei Technologies	(Jinjun Li)
IBM	Luis Armenta*, Adge Hawes*
Infineon Technologies AG	(Christian Sporrer)
Intel Corporation	Michael Mirmak*, Hsinho Wu*
IO Methodology	Lance Wang*
Keysight Technologies	Radek Biernacki*
Maxim Integrated	(Mahbubul Bari)
Mentor Graphics	Arpad Muranyi*
Micron Technology	Randy Wolff*
Signal Integrity Software	Mike LaBonte*, Walter Katz*
Synopsys	Kevin Li*
Teraspeed Labs	Bob Ross*
Xilinx	(Raymond Anderson)
ZTE Corporation	(Shunlin Zhu)
Zuken	(Michael Schaefer)

OTHER PARTICIPANTS IN 2017

SAE International	(Logen Johnson)
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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
January 27, 2017	???????	IBISfriday11

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

<https://sae.webex.com/sae/j.php?MTID=m4d8ccc152fbad40525f12983b3b80505>

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

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 December 16, 2016 IBIS Open Forum teleconference. Curtis Clark moved to approve all the minutes. Bob Ross seconded the motion. There were no objections.

Randy Wolff reviewed ARs from the previous meeting.

1. Mike LaBonte to review BIRD187 language regarding Usage Out [AR].
Mike reported that Michael Mirmak generated an update to the BIRD. Mike reviewed Michael's changes and they were acceptable.

ANNOUNCEMENTS, CALL FOR ADDITIONAL AGENDA ITEMS

None.

MEMBERSHIP STATUS AND TREASURER'S REPORT

Bob Ross reported that we have 22 members. Our account is at \$19,464 for 2016. Actual cash flow of \$17,385 has been collected in 2016. We still expect about \$1,500 SAE assessment of various internal charges to the IBIS committee, so the numbers will drop by that amount. We are expecting a new member to join this year when the invoices are sent out. We are also expecting another parser license and payment. No membership renewals have gone out yet. We should see those sometime this month.

WEBSITE ADMINISTRATION

Mike LaBonte reported that he sent out emails to some members about updating roster listings. Bob Ross noticed some issues with the Asian IBIS Summit pages, and those have been fixed.

MAILING LIST ADMINISTRATION

Curtis Clark reported that everything is going smoothly with one new mailing list join to ibis-users.

LIBRARY UPDATE

No update.

INTERNATIONAL/EXTERNAL ACTIVITIES

- Conferences

None.

- Press Update

Michael Mirmak noted a new paper in the IEEE EMC magazine. The article went into some detail on IBIS, and the article specifically calls the IBIS Open Forum “an idea factory”.

Title: Present and future of I/O-buffer behavioral macromodels

Authors: Gianni Signorini (Intel); Claudio Siviero (Politecnico di Torino); Mihai Telescu (Université de Bretagne Occidentale); Igor Simone Stievano (Politecnico di Torino)

Publication: IEEE Electromagnetic Compatibility Magazine (Volume: 5, Issue: 3, Third Quarter 2016)

Date: Dec. 14, 2016

URL: <http://ieeexplore.ieee.org/document/7764256/>

- Related standards

None.

- IEEE DASC update

Michael Mirmak noted there is a DASC meeting at DVCon in Santa Clara on Thursday, March 2, but there will not be an opportunity to present any IBIS related information.

SUMMIT PLANNING AND STATUS

- DesignCon 2017 IBIS Summit

The DesignCon IBIS Summit will be held in Santa Clara, California on Friday, February 3, 2017. Mike LaBonte noted that we do not have the exact room arranged, but it will be a room in the convention center. We are beginning to receive registrations. We are open to more presentations. Another announcement will go out today. Cadence Design Systems, Keysight Technologies, Mentor Graphics and Synopsys are sponsors.

- SPI 2017 IBIS Summit

The European IBIS Summit at SPI will be on Wednesday afternoon, May 10, 2017. Bob Ross

noted this will be our 20th consecutive year of the meeting in Europe. One issue is there is an overlapping conference that afternoon using the same venue, but it should not have a large effect on the IBIS meeting.

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 is focused on IBISCHK development for improving the quality of IBIS files. They have a goal to finish the IBISCHK user guide this month.

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

http://www.ibis.org/ibischk6/ibischk_6.1.2_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 is discussing BIRD158 and some editorial related topics. Task group material can be found at:

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

INTERCONNECT TASK GROUP

Michael Mirmak reported that the group is meeting on Wednesdays at 8:00 a.m. PT. Randy Wolff provided some comments on draft 45 that the group is reviewing.

Task group material can be found at:

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

EDITORIAL TASK GROUP

Michael Mirmak reported that the group remains suspended. Meetings will resume once there is a new IBIS specification draft to review. Mike LaBonte noted there is a table of concepts for review for IBIS 6.2 that the task group was maintaining. That table is being reviewed currently in the ATM task group.

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 reviewed by the board. A few minor refinements were made. A clean copy of the document, draft 10, was sent to SAE for legal review. It would be good if this new document was in effect before the officer elections period in May. Ratification of the new document would need to start in the March timeframe. Mike will upload the latest draft to the IBIS website [AR].

The document can be found at:

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

BIRD187.1: FORMAT AND USAGE OUT CLARIFICATIONS

Michael Mirmak reported that this was submitted to make a couple of readability changes. The red highlighting is one change. There is a large amount of text in the original IBIS specification that was not part of the original BIRD submission and is not being changed in the BIRD. This text is useful for context so needs to be reviewed along with this BIRD. There are also minor changes to the Combination and Corner Rules section. Some comments from Curtis Clark were sent out to the ATM list yesterday and are not folded into the BIRD yet. A version BIRD187.2 will need to be issued. Radek Biernacki commented that he noticed in Curtis' comments that there is a statement about something being sent to the "executable model file", but nothing is sent to an executable "file" but only to a "model".

Bob Ross noted a redundant statement of rules on page 202. Michael noted that this needs further discussion in the ATM task group.

BIRD147.4: BACK-CHANNEL SUPPORT

Radek Biernacki asked about the BCI_GetWave_Block_UI parameter. There is a formula introduced, and he wondered if it would resolve to an integer. Bob Miller responded that "bit_time/sample_interval" should resolve to the number of samples per UI. However, there is no guarantee this resolves to an integer. Radek thought there could be a simple solution using a ceiling function, but maybe it should be clarified. Walter Katz thought it could be stated that it needs to be an integer. Mike LaBonte added that a floor function might be more appropriate. Arpad Muranyi questioned if we should specify the exact rounding mechanism to deal properly with the value of xx.5. Mike added that AMI GetWave is supposed to work with any block size. Hsinho Wu asked about the need for this parameter since GetWave is supposed to work with any block size. Bob responded that as adaptation occurs, some model makers will want to specify a block size to ensure the dynamics of the Tx and Rx interaction aid in convergence. Hsinho asked if it would be good to specify min/max limits of the block size. Mike thought this could affect more than just this parameter but could be universal to AMI. Bob added that this parameter does only work when backchannel analysis is being done.

Curtis Clark asked if there was an expectation of model makers to allow integer values of the block size versus UI, since the formula calculates block size. Bob thought this would cause the name of the parameter to be confusing. Walter thought we don't need to worry if one tool rounds up and one tool rounds down. Bob commented that the parameter is not meant to exactly emulate what may occur in silicon. Unusually large block sizes may be impractical in simulation. So, a model may need to handle accounting of smaller block sizes sent from the EDA tool in order to obtain the block size the model wants. Bob noted that BCI_GetWave_Block_UI size will be defined when a protocol is defined, so discussion of the best value could be deferred to when a protocol is defined. Hsinho added that he'd prefer to see the nearest integer value rounded up. Bob thought that in almost every case the value of "bit_time/sample_interval" will be very close to an integer, so it would be appropriate to round to the nearest integer.

Bob moved to vote on BIRD147.4 with the noted change of adding "nearest integer" to the Usage Rules section of BCI_GetWave_Block_UI. Radek commented that the BCI_Training_UI parameter should also be defined as an integer. Bob withdrew his motion. The BIRD will be discussed at the next ATM meeting.

BIRD184.2: MODEL_NAME AND SIGNAL_NAME RESTRICTION FOR POWER AND GND PINS

Bob Ross reported that some editorial changes were suggested by Michael Mirmak, and those changes were made.

Radek Biernacki moved to vote on the BIRD. Bob seconded the motion. There were no objections.

The roll call vote tally was:

ANSYS – yes
Broadcom – yes
Cadence – yes
GLOBALFOUNDRIES – yes
IBM – yes
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 – 13, No – 0, Abstain – 0. The motion passed and the BIRD was accepted.

BIRD185.2: SECTION 3 RESERVED WORD GUIDELINE UPDATE

Bob Ross reported some minor editorial changes were requested by Michael Mirmak.

Bob moved to vote on the BIRD. Michael Mirmak seconded the motion. There were no objections.

The roll call vote tally was:

ANSYS – yes
Broadcom – yes
Cadence – yes
GLOBALFOUNDRIES – yes
IBM – yes
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 – 13, No – 0, Abstain – 0. The motion passed and the BIRD was accepted.

BIRD188: EXPANDED RX NOISE SUPPORT FOR AMI

Michael Mirmak reported there have been no comments or offline commentary. Radek Biernacki noted a couple cases where the word “Where” should be “where”. Michael noted this occurs in the original IBIS specification text. Mike LaBonte suggested this be added to the “Known Issues” document for the editorial committee. Bob Ross commented that the indentation of the Description line in the example is indented too far and should be fixed by the editorial committee.

Mike will record these issues in the “Known Issues” document [AR].

Radek Biernacki moved to vote on the BIRD. Michael seconded the motion. There were no objections.

The roll call vote tally was:

ANSYS – yes
Broadcom – yes
Cadence – yes
GLOBALFOUNDRIES – yes
IBM – yes
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 – 13, No – 0, Abstain – 0. The motion passed and the BIRD was accepted.

BIRD158.3: AMI TOUCHSTONE ANALOG BUFFER MODELS

Arpad Muranyi noted that this BIRD is being discussed in the ATM task group.

BIRD166: RESOLVING PROBLEMS WITH REDRIVER INIT FLOW

Arpad Muranyi noted that this BIRD is being discussed in the ATM task group. Fangyi Rao is expected to submit soon an alternative proposal for discussion.

BIRD186: FILE NAMING RULES

Walter Katz reported that he and Bob Ross had some disagreement in language. Walter is waiting for some suggested changes from Bob.

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 parser licensees have been given the latest source code and executables are uploaded on the website. An updated error code spreadsheet has been uploaded but the user guide for 6.1.3 still needs to be updated.

NEW TECHNICAL ISSUES

None.

NEXT MEETING

The next IBIS Open Forum teleconference meeting will be held January 27, 2017. The DesignCon IBIS Summit will be held February 3, 2017. No teleconference will be available. The following IBIS Open Forum teleconference meeting will tentatively be held February 17, 2017.

Michael Mirmak moved to adjourn. Curtis Clark 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/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	November 18, 2016	December 2, 2016	December 16, 2016	January 6, 2017
ANSYS	User	Active	X	X	X	X
Broadcom Ltd.	Producer	Inactive	-	X	-	X
Cadence Design Systems	User	Active	X	X	X	X
Cisco Systems	User	Inactive	-	-	-	-
CST	User	Inactive	-	-	-	-
Ericsson	Producer	Inactive	X	-	-	-
GLOBALFOUNDRIES	Producer	Inactive	-	X	-	X
Huawei Technologies	Producer	Inactive	-	-	-	-
Infineon Technologies AG	Producer	Inactive	-	-	-	-
IBM	Producer	Active	-	X	X	X
Intel Corp.	Producer	Active	-	X	X	X
IO Methodology	User	Active	-	X	X	X
Keysight Technologies	User	Active	X	X	-	X
Maxim Integrated	Producer	Inactive	-	-	-	-
Mentor Graphics	User	Active	X	X	X	X
Micron Technology	Producer	Active	X	-	X	X
Signal Integrity Software	User	Active	X	X	X	X
Synopsys	User	Inactive	-	X	-	X
Teraspeed Labs	General Interest	Active	-	X	X	X
Xilinx	Producer	Inactive	X	-	-	-
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.