



IBIS Open Forum Minutes

Meeting Date: **September 23, 2016**

Meeting Location: **Teleconference**

VOTING MEMBERS AND 2016 PARTICIPANTS

ANSYS	Curtis Clark*, Toru Watanabe
Broadcom (Avago Technologies)	Bob Miller
Cadence Design Systems	Ken Willis, Brad Brim*
CST	Stefan Paret
Ericsson	Anders Ekholm, David Zhang, Zilwan Mahmod
GLOBALFOUNDRIES	Steve Parker*
Huawei Technologies	(Jinjun Li)
IBM	Adge Hawes, Luis Armenta*, Trevor Timpane*
Infineon Technologies AG	(Christian Sporrer)
Intel Corporation	Hsinho Wu*, Mohammad Bapi, Michael Mirmak*, Masahi Shimanouchi, Todd Bermensolo, Zao Liu, Gong Ouyang, Udy Shrivastava, Gianni Signorini, Richard Mellitz
IO Methodology	Lance Wang*
Keysight Technologies	Radek Biernacki*, Heidi Barnes, Jian Yang, Fangyi Rao, Stephen Slater, Pegah Alavi, Edwin Young
Maxim Integrated Products	Yan Liang, Don Greer, Thinh Nguyen, Joe Engert, Hock Seon, Ahmed Gendy
Mentor Graphics	Arpad Muranyi*, Vladimir Dmitriev-Zdorov, John Angulo, Mikael Stahlberg
Micron Technology	Randy Wolff*, Justin Butterfield
Signal Integrity Software	Mike LaBonte*, Walter Katz*, Todd Westerhoff, Richard Allred
Synopsys	Ted Mido*, Kevin Li, Massimo Prando
Teraspeed Labs	Bob Ross*
Xilinx	(Raymond Anderson)
ZTE Corporation	(Shunlin Zhu)
Zuken	Michael Schaefer, Amir Wallrabenstein

OTHER PARTICIPANTS IN 2016

Cisco Systems	Giuseppi Selli, Brian Baek
eASIC	David Banas
Fujitsu Advanced Technologies	Shogo Fujimori
Ghent University	Paolo Manfredi
H3C	Bin Cheng, Mao Jun
Hamburg University of Technology	Jan Preibisch, David Dahl

Independent	Carl Gabrielson
Institut Supérieur des Sciences Appliquées et de Technologie de Sousse	Wael Dghais
JEITA	Yosuke Kanamaru
John Baprawski, Inc.	John Baprawski
KEI Systems	Shinichi Maeda
Lattice Semiconductor	Dinh Tran, Maryam Shahbazi
Leading Edge	Pietro Vergine
MathWorks	Mike Mulligan, Corey Mathis
Monsoon Solutions	Nathan Hirsch
Northrup Grumman	Alex Golian
NXP	Jon Burnett
Politecnico di Torino	Claudio Siviero, Stefano Grivet-Talocia, Igor Simone Stievano
Rambus	John Yan
Raytheon	Joseph Aday
SAE International	(Logen Johnson)
SILABTECH	Biman Chattopadhyary
Signal Metrics	Ron Olisar
SiGuys	Donald Telian
Sony Corporation	Hiroaki Ammo
Sony LSI Design	Takashi Hasegawa
SPISim	Wei-hsing Huang
STMicroelectronics	Fabio Brina, Olivier Bayet
Technoprobe	Alberto Berizzi, Lorenzo Bernasconi, Simona Cucchi
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
October 14, 2016	205 475 958	IBIS

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

<https://ciscosales.webex.com/ciscosales/j.php?J=205475958>

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. When calling into the meeting, follow the

prompts to enter the meeting ID. For new, local international dial-in numbers, please reference the bridge numbers provided by Cisco Systems at the following link:

http://www.cisco.com/web/about/doing_business/conferencing/index.html

NOTE: "AR" = Action Required.

INTRODUCTIONS AND MEETING QUORUM

Randy Wolff declared that a quorum was reached and the meeting could begin.

Trevor Timpane introduced himself. He is a Senior SI engineer with IBM. He is serving as a backup to Luis Armenta on the committee. Trevor is a longtime user of IBIS for simulation and system design, and he is also jumping into using AMI models.

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 September 2, 2016 IBIS Open Forum teleconference. Radek Biernacki moved to approve the minutes. Bob Ross seconded the motion. There were no objections.

Randy Wolff reviewed ARs from the previous meeting.

1. Mike LaBonte and Bob Ross to incorporate Radek Biernacki's suggestions into BIRD181 [AR].
Bob reported the AR as still open. Mike noted that there were some email exchanges but the BIRD is not updated.

ANNOUNCEMENTS, CALL FOR ADDITIONAL AGENDA ITEMS

Mike LaBonte noted that some BIRDS were submitted since the agenda was sent out including BIRD184.1 and BIRD185.

MEMBERSHIP STATUS AND TREASURER'S REPORT

Bob Ross reported that we have 21 members. We are still waiting for a renewal payment to go through. We picked up a \$2,500 IBISCHK6 parser payment from Missouri University of Science and Technology from someone working on PAM4 issues. Our account is at \$24,416 for 2016. Actual cash flow of \$20,105 has been collected this year. We are also waiting on more Summit payments.

WEBSITE ADMINISTRATION

Mike LaBonte reported that everything is running smoothly on the website. A tschk bug was submitted, but the email for the bug got caught up in an old email address for bug submissions. The tschk info page was updated to correct the email listed.

MAILING LIST ADMINISTRATION

Curtis Clark reported that there is a continuing issue when we get emails from people not on the list. The emails do not automatically forward to list administrators for approval. This does not happen often, and sending an email to info@ibis.org works well.

LIBRARY UPDATE

No update.

INTERNATIONAL/EXTERNAL ACTIVITIES

- Conferences

The IEEE conference on Electrical Performance of Electronic Packages and Systems (EPEPS) is in San Diego, CA October 23-26, 2016. EPEPS sometimes includes specific IBIS content as well as general SI and PI content.

<http://www.epeps.org>

The IEEE conference on Electrical Design of Advanced Packaging and Systems (EDAPS) is in Honolulu, HI December 14-16, 2016. EDAPS covers SI and PI issues, although IBIS does not affiliate with it.

<http://edaps2016.org/>

The Electronic Design Innovation Conference (EDI CON) was in Boston, MA on September 20, 2016. IBIS was mentioned in a presentation given by SiSoft and MathWorks similar to a presentation at DesignCon earlier this year. Mike LaBonte will follow this new conference to see if it becomes a good venue for possible IBIS Summits. Janine Love was the conference organizer, and a new SI journal was introduced at the conference. The journal is linked at:

<https://www.signalintegrityjournal.com/>

- Press Update

None.

- Related standards

None.

SUMMIT PLANNING AND STATUS

- Asian IBIS Summit (Shanghai)

The meeting will take place November 11, 2016 at the Parkyard Hotel. Lance Wang noted that

he is working on further sponsorship. Sign-ups are low so far. Bob Ross noted that we are waiting for payment to clear from another sponsor. We have one presentation from SPISim that has been reviewed. We are looking for further presentations. Lance noted he is also pushing for a report from the IBIS China Regional group. Bob added that the second Summit announcement has been sent out. Huawei Technologies is the primary sponsor and additional sponsors include Xpeedic Technology, SPISim and ZTE Corporation.

- Asian IBIS Summit (Taipei)

The meeting will take place November 14, 2016 at the Sherwood Hotel. Mike LaBonte noted that additional sponsorship is in progress. Peace Giant Corporation and Xpeedic Technology are sponsors.

- Asian IBIS Summit (Tokyo)

The meeting will take place November 18, 2016. This will be a half day meeting. Bob noted that we will get more information on the meeting arrangements and sponsorships from JEITA later on. Bob added that there is a Japanese language link in the announcement email announcing an IBIS class in the morning before the Summit. JEITA and IBIS are sponsors.

Mike will add links to the Summit announcements to the Summits webpage [AR].

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 has discussed achieving quality through the best possible IBISCHK parser.

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

http://www.ibis.org/ibischk6/ibischk_6.1.1_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's discussion topics have slowed down a little bit after submitting several BIRDs to the Open Forum.

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. The group is going through draft 41 of the Interconnect proposal. The document should be scrubbed within a couple more meetings, and then they need to decide on voting to submit it as a BIRD to the Open Forum.

Task group material can be found at:

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

EDITORIAL TASK GROUP

Michael Mirmak reported that the group remains suspended. It is expected that the group will start meeting again after a more complete draft of the IBIS specification is available for review.

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 an update was sent out yesterday to the board for review.

The document can be found at:

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

- EIASTD656B due for 5 year review

Mike LaBonte reported that the standard EIASTD656B (IBIS 4.2) requires a 5 year review. A vote was scheduled for today in the previous teleconference meeting. We are at IBIS 6.1 currently, working on IBIS 6.2. A few times in the past the specifications were turned into official standards. The EIASTD656B was based on IBIS 4.2 and is available on the SAE website. The document was due for review by SAE, with reaffirmation of the standard recommended.

Bob Ross moved to vote to reaffirm the standard EIASTD656B. Radek Biernacki seconded the motion. Bob noted that he supports the motion, and he doesn't see any issues with approval.

The roll call vote tally was:

ANSYS – yes

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 – 12, No – 0, Abstain – 0. The motion passed.

BIRD184.1: MODEL_NAME AND SIGNAL_NAME RESTRICTION FOR POWER AND GND PINS

Bob Ross noted that the updated BIRD changed two locations of “any pins” to “a pin”.

BIRD185: SECTION 3 RESERVED WORD GUIDELINE UPDATE

Bob Ross introduced the BIRD. This is an editorial BIRD that updates a statement in section 3 that gives some general rules. This section defines the reserved words POWER, GND, NC, NA and CIRCUITCALL. One statement is changed to allow reserved words to be described with other usage elsewhere in the document. An additional statement is added to note that these words can be used elsewhere in a case-sensitive manner when they comply with other rules.

Radek Biernacki commented that this was clear and a good clarification.

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

Walter Katz noted that this BIRD was un-tabled during the last meeting since it was related to BIRD180 and needed some discussion. Walter moved to table BIRD125.1 for discussion. Bob Ross seconded the motion. There were no objections.

BIRD128.2: ALLOW AMI_PARAMETERS_OUT TO PASS AMI_PARAMETERS_IN DATA ON CALLS TO AMI_GETWAVE

Walter Katz moved to schedule a vote for the next meeting to reject the BIRD. Bob Ross seconded the motion. Walter noted that BIRD147.1 supersedes this BIRD, and BIRD128.2 is no longer needed and should be rejected. Bob noted that he thought motions should be only to vote on a BIRD with a vote of yes to approve and no to reject. Walter thought that the motion should be made clear about the intended outcome of the vote, where a no or tie vote would leave the BIRD unapproved and still open for discussion.

Radek Biernacki commented that AMI_parameters_out was not handled properly in the BIRD. Mike LaBonte asked if the ATM task group formally made a recommendation to reject the BIRD. Arpad Muranyi commented that he did not remember a specific recommendation. Bob added that he thought the BIRD should be rejected.

Mike noted that he looked through Roberts Rules of Order, and a motion should indicate the

desired outcome of a vote. However, we are not a legislative body, and we have three states for our BIRDs unlike legislation that is simply passed or not passed. As chair, Mike needs to make clear what the votes of yes or no mean for any vote. Bob stated that he did not support motions to reject, but he did support language in any emails describing recommended voting outcomes.

Walter asked that the vote motion be clear for the email that Mike will send out announcing the vote and soliciting email votes. Radek added that he thought the board could discuss the motion procedure offline and come back with a recommendation on how to formulate BIRD motions. Arpad stated that he favored the usual procedure of making motions to schedule a vote and at voting time state that yes means approval and no means rejection of the BIRD.

A roll-call vote was called for by Walter and Bob.

The roll call vote tally was:

ANSYS – 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 – 12, No – 0, Abstain – 0. The motion passed.

BIRD147.1: BACK-CHANNEL SUPPORT

Bob Ross noted there was a concern about the BIRD that was not addressed yet concerning handling of some parameters and whether they are required or not.

Walter Katz moved to send the BIRD to the ATM task group for referral. Bob Ross seconded the motion. There were no objections.

BIRD180: REQUIRE UNIQUE PIN NAMES IN [PIN]

Bob Ross moved to schedule a vote for the next meeting. Walter Katz seconded the motion. There were no objections.

BIRD181: I/V TABLE CLARIFICATIONS

Bob Ross noted that he'd like to change the title to use "I-V" instead of "I/V". Bob and Mike

LaBonte have an AR to address Radek Biernacki's comments from the last meeting.

BIRD182: POWER AND GND [PIN] SIGNAL NAME AS [PIN MAPPING] BUS LABEL

Bob Ross noted that we are in general agreement that this BIRD should be folded into the next IBIS version, and a slight parser change is needed.

Walter Katz moved to schedule a vote to approve the BIRD for the next meeting. Bob Ross seconded the motion. There were no objections.

BIRD183: [MODEL DATA] MATRIX SUBPARAMETER TERMINOLOGY CORRECTION

Bob Ross moved to schedule a vote on the BIRD for the next meeting. Walter Katz seconded the motion. There were no objections.

Arpad Muranyi discussed the voting procedure further, noting that he thought that combining motions to hold a vote with stating the expected result for the vote of approval or rejection was not appropriate, and they should be dealt with in separate motions. Mike LaBonte further discussed Robert's Rules of Order. Mike noted he will continue the discussion by email.

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

Discussion was tabled.

BIRD158.3: AMI TOUCHSTONE ANALOG BUFFER MODELS

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.

IBISCHK6 PARSER AND BUG STATUS

Bob Ross reported that the release is delayed, because the code crashed with some BUG179 checks. Mike noted that it flagged errors on .dll file names that should not be errors.

Discussion on three new bugs was deferred until the next meeting due to time constraints.

NEW TECHNICAL ISSUES

None.

NEXT MEETING

The next IBIS Open Forum teleconference meeting will be held October 14, 2016. Votes are scheduled for BIRD128.2, BIRD180, BIRD182 and BIRD183. The following IBIS Open Forum teleconference meeting will tentatively be held November 4, 2016.

Curtis Clark moved to adjourn. Walter Katz seconded the motion.

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>

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SAE STANDARDS BALLOT VOTING STATUS

Organization	Interest Category	Standards Ballot Voting Status	July 22, 2016	August 12, 2016	September 2, 2016	September 23, 2016
ANSYS	User	Active	X	X	-	X
Broadcom Ltd.	Producer	Inactive	-	-	-	-
Cadence Design Systems	User	Active	X	X	X	X
CST	User	Inactive	-	-	-	-
Ericsson	Producer	Inactive	-	-	-	-
GLOBALFOUNDRIES	Producer	Inactive	-	-	-	X
Huawei Technologies	Producer	Inactive	-	-	-	-
Infineon Technologies AG	Producer	Inactive	-	-	-	-
IBM	Producer	Active	-	-	X	X
Intel Corp.	Producer	Active	X	X	X	X
IO Methodology	User	Active	-	-	X	X
Keysight Technologies	User	Active	X	X	X	X
Maxim Integrated Products	Producer	Active	X	X	X	-
Mentor Graphics	User	Active	X	X	X	X
Micron Technology	Producer	Active	X	X	X	X
Signal Integrity Software	User	Active	X	X	X	X
Synopsys	User	Active	X	X	X	X
Teraspeed Labs	General Interest	Active	X	X	X	X
Xilinx	Producer	Inactive	-	-	-	-
ZTE	User	Inactive	-	-	-	-
Zuken	User	Inactive	-	-	-	-

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.