# IBIS Open Forum Minutes

Meeting Date: **March 18, 2016**
Meeting Location: **Teleconference**

## VOTING MEMBERS AND 2016 PARTICIPANTS

| | |
|---|---|
| ANSYS | Curtis Clark*, Toru Watanabe |
| Applied Simulation Technology | (Fred Balistreri) |
| Broadcom (Avago Technologies) | Bob Miller |
| Cadence Design Systems | Ken Willis, Brad Brim* |
| Cisco Systems | Giuseppi Selli, Brian Baek |
| CST | Stefan Paret |
| Ericsson | Anders Ekholm, David Zhang, Zilwan Mahmod |
| GLOBALFOUNDRIES | Steve Parker |
| Huawei Technologies | (Jinjun Li) |
| IBM | Adge Hawes*, Luis Armenta |
| Infineon Technologies AG | (Christian Sporrer) |
| Intel Corporation | Hsinho Wu*, Mohammad Bapi, Michael Mirmak*, Masahi Shimanouchi, Todd Bermensolo, Zao Liu, Gong Ouyang, Udy Shrivastava |
| 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 |
| Mentor Graphics | Arpad Muranyi*, Vladimir Dmitriev-Zdorov, John Angulo |
| Micron Technology | Randy Wolff* |
| Signal Integrity Software | Mike LaBonte*, Walter Katz*, Todd Westerhoff |
| Synopsys | Ted Mido*, Kevin Li |
| Teraspeed Labs | Bob Ross* |
| Toshiba | (Yasumasa Kondo) |
| Xilinx | (Raymond Anderson) |
| ZTE Corporation | (Shunlin Zhu) |
| Zuken | Michael Schaeder, Amir Wallrabenstein |

## OTHER PARTICIPANTS IN 2016

| | |
|---|---|
| eASIC | David Banas* |
| Fujitsu Advanced Technologies | Shogo Fujimori |
| H3C | Bin Cheng, Mao Jun |
| Independent | Carl Gabrielson |
| JEITA | Yosuke Kanamaru |
| John Baprawski, Inc. | John Baprawski |
| KEI Systems | Shinichi Maeda |
| Lattice Semiconductor | Dinh Tran, Maryam Shahbazi |

| | |
|---|---|
| MathWorks | Mike Mulligan, Corey Mathis |
| Northrup Grumman | Alex Golian |
| NXP | Jon Burnett |
| Rambus | John Yan |
| Raytheon | Joseph Aday |
| SAE International | (Logen Johnson) |
| SILABTECH | Biman Chattopadhyary |
| Signal Metrics | Ron Olisar |
| SPISim | Wei-hsing Huang |

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 |
|---|---|---|
| April 8, 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.

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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 regarding the minutes of the February 26, 2016 IBIS Open Forum teleconference. Bob Ross 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 work on modifying the BIRD template proposal [AR].
   Done.
2. Mike to put BIRD 180 on the tabled list [AR].
   Done.
3. Mike to implement MD5 or SHA1 hash information for the ibischk parser executables [AR].
   Done.

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

None.

**MEMBERSHIP STATUS AND TREASURER'S REPORT**

Bob Ross reported that we are in the black for the treasury. Per SAE accounting we are at $6,740, but per Bob's accounting we are at $2,429. We have 14 paid members so far for 2016. He is expecting more payments, and he will ping some companies with reminders. We have 24 members still officially, because we haven't dropped anyone yet. Bob expects 22-26 members this year.

**WEBSITE ADMINISTRATION**

Mike LaBonte reported that he added information to the IBISCHK6 page on SHA1 checking to verify the authenticity of the downloaded executable. Mike also changed the logo display on the home page to a 4 column arrangement and adjusted the text size for companies without a logo to display. The Policies and Procedures draft date was also updated.

Mike also noted that the WebEx link for the teleconference meeting did not take people directly to the login page, instead requiring entering the meeting information. Mike will look into updating the meeting URL for the meeting [AR].

**MAILING LIST ADMINISTRATION**

Curtis Clark reported that he updated welcome messages for the various mailing lists to refer to freelists addresses.

**LIBRARY UPDATE**

No update.

**INTERNATIONAL/EXTERNAL ACTIVITIES**
- Conferences
None.

- Press Update
Bob Ross noted a recent paper related to IBIS.

W. Dghais and J. Rodriquez, "New Multiport I/O Model for Power-Aware Signal Integrity Analysis", IEEE Transactions on Components, Packaging and Manufacturing Technology (Volume: 6, Issue: 3), March 2016, pp. 447 – 454.

**SUMMIT PLANNING AND STATUS**
- European IBIS Summit at SPI 2016
An IBIS Summit will be co-hosted with the IEEE Workshop on Signal and Power Integrity (SPI). The Summit will be a half day event on May 11, 2016 in Turin, Italy.  Bob Ross reported that planning is going well.  Zuken is a sponsor.  The second announcement will go out next week. Details are being worked out on an IBIS training tutorial.  The meeting will use the same room as the SPI conference.  We might allow registration to start about 1:30 pm and start the meeting at 2:00 pm.  The meeting will run until 6:00 pm.  There should be some papers from European participants.  Mike LaBonte noted that Zuken needs to be listed as a co-sponsor on the IBIS website [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 is discussing matters related to IBISCHK mostly, and there is a document in progress that will become a specification for an IBISCHK executables project.

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 has been discussing updates to the AMI re-driver flow from Fangyi Rao.  They are also talking about ground cleanup related questions, closely related to discussions in the Interconnect meeting related to S-parameter reference nodes.

Task group material can be found at:

**INTERCONNECT TASK GROUP**
Michael Mirmak reported that the group is meeting on Wednesdays at 8:00 a.m. PT.  The group's main focus is on a Touchstone shortcut, an abbreviated way to attach a Touchstone file in the Interconnect BIRD.  Most discussion has been on referencing of S-parameters to make the shortcut work.

Task group material can be found at:

**EDITORIAL TASK GROUP**
Michael Mirmak reported that the group is meeting on Fridays at 8:00 a.m. PT on weeks the Open Forum teleconference is not occurring.  The group is discussing ground reference language cleanup in the IBIS specification.

Task group material can be found at:

**NEW ADMINISTRATIVE ISSUES**
- BIRD template revision 1.3
Mike LaBonte shared the latest draft of the BIRD template and highlighted the changes.  There is a Solution Requirements section for enumerating each requirement.  Another section added in is the Summary of Proposed Changes.  This is an area to list items affecting the specification.  There is also a revision history section.  Radek Biernacki commented that using the word "must" for requirements seemed too strong, recommending "should".  Mike responded that he thought "must" was a requirement.  Mike noted that the document contains detailed instructions and examples.  Bob Ross commented that the submitted BIRD should delete the instructions section.  Mike showed that this requirement was listed in the instructions.  He noted that the instructions section could be deleted when submitted.  Radek and Bob recommended creating two versions of the BIRD template, one with instructions and one without.  Mike thought it would be easy to remove the instructions section after submittal.

Bob moved to vote on the BIRD template in the next meeting.  Radek seconded the motion.  There were no objections.  Radek commented that a link to the BIRD template and announcement of the vote should be sent to the email reflector.  Mike will announce the vote [AR].

- Second revision of IBIS Policies and Procedures
Mike noted that a draft 2 is posted on the webpage.  The Policies and Procedures document is

an update to what was originally called the charter. This document was updated in 2015, but the latest draft addresses feedback from SAE. Another change adds a financial practices section establishing that disbursements exceeding $500 require a vote of the membership. Other minor changes are shown in the tracked changes version of the document. Radek asked if we track the member organizations. Mike responded that the roster page of the website lists primary and alternate contacts for member organizations. Arpad Muranyi asked who makes these decisions. Mike felt that the person making the dues payment for the organization should have the final say. Mike will look into making the language more clear about the designated representative [AR]. Mike plans to get SAE to conduct a legal review of the document. After that, he will have the Board review the document and vote to advance it for a membership vote. Bob noted that approval requires positive votes by 2/3 of the member organizations. This will need to be done by an email ballot.

The document can be found at:

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

- Other standards

Michael Mirmak noted that 1735-2014, the IEEE encryption standard is available through the IEEE Get program, so it is freely viewable. It might be worth having someone see if anything in the standard is relevant to IBIS. Mike suggested this might be a topic for the ATM task group to discuss. Mike added an "Other standards" section to the agenda for the next meeting to continue discussions.

The document can be found at:

http://standards.ieee.org/getieee/1735/download/1735-2014.pdf

**BIRD125.1: MAKE IBIS-ISS AVAILABLE FOR IBIS PACKAGE MODELING**
Discussion was tabled.

**BIRD128.2: ALLOW AMI_PARAMETERS_OUT TO PASS AMI_PARAMETERS_IN DATA ON CALLS TO AMI_GETWAVE**
Discussion was tabled.

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

**BIRD147: BACK-CHANNEL SUPPORT**
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.


**BIRD180: REQUIRE UNIQUE PIN NAMES IN [PIN]**
Discussion was tabled.


**IBISCHK6 PARSER AND BUG STATUS**
Bob Ross reported that he hasn't yet received a 64-bit Windows version of the parser. Bob noted that David Banas asked on the reflector if there was a parser executable available for Mac OS X. David commented that he thought the parser developer should provide this. Bob will ask the parser developer if he has the capability to do this [AR]. Bob noted that anyone that owns the parser executable could create the executable if they have the capability. David noted that on GitHub there is an OS-agnostic, makefile-based build system that the developer might utilize to support a Mac OS executable. This can be found at:

https://github.com/capn-freako/ibisami

Michael Mirmak asked if a command line executable parser for OS X would be acceptable. David replied that this was ok. Mike noted that we normally keep to a minimum the number of executables of the parser that are compiled and available on the IBIS website.

Mike reported that BUG174 was filed by Mike and Bob. The parser may sometimes output an

additional spurious "file not found" if an expected file is missing.  This comes from the "dir" command.  A simple fix has already been identified.  Bob suggested to classify the bug as annoying severity, low priority and open status.  Radek moved to accept these classifications.  Michael Mirmak seconded the motion.  There were no objections.  Mike will update the status of BUG174 on the webpage [AR].


**NEW TECHNICAL ISSUES**
None.


**NEXT MEETING**
The next IBIS Open Forum teleconference meeting will be held April 8, 2016.  A vote on the new BIRD template is scheduled.  The following IBIS Open Forum teleconference meeting will be held April 29, 2016.

Michael Mirmak moved to adjourn.  Arpad Muranyi seconded the motion.


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**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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## IBIS – SAE STANDARDS BALLOT VOTING STATUS

| Organization | Interest Category | Standards Ballot Voting Status | January 22, 2016 | February 5, 2016 | February 26, 2016 | March 18, 2016 |
|---|---|---|---|---|---|---|
| ANSYS | User | Active | X | X | X | X |
| Applied Simulation Technology | User | Inactive | - | - | - | - |
| Broadcom Ltd. | Producer | Inactive | 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 | - | - | - | - |
| Infineon Technologies AG | Producer | Inactive | - | - | - | - |
| IBM | Producer | Active | X | X | 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 Products | Producer | Active | X | X | X | X |
| Mentor Graphics | User | Active | X | X | X | X |
| Micron Technology | Producer | Active | - | 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 |
| Toshiba | Producer | Inactive | - | - | - | - |
| Xilinx | Producer | Inactive | - | - | - | - |
| ZTE | User | Inactive | - | - | - | - |
| Zuken | User | Inactive | X | - | - | - |

## I/O Buffer Information Specification Committee (IBIS)

CRITERIA FOR 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 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.