**IBIS Open Forum Minutes**

Meeting Date: **September 12, 2014**

Meeting Location: **Teleconference**

**VOTING MEMBERS AND 2014 PARTICIPANTS**

Altera David Banas, Kundan Chand, Hsinho Wu

ANSYS (Steve Pytel)

Applied Simulation Technology Fred Balistreri, Norio Matsui

Cadence Design Systems Ambrish Varma\*, Brad Brim, Joy Li, Kumar Keshavan,

Ken Willis, Yingxin Sun, Joshua Luo, John Phillips

Ericsson Anders Ekholm, Zilwan Mahmod

Infineon Technologies AG (Christian Sporrer)

Intel Corporation Michael Mirmak\*, Jon Powell, Riaz Naseer

Udy Shrivastava, Mustafa Yousuf, Jimmy Jackson

Pietro Brenner, Todd Bermensolo

IO Methodology Lance Wang\*, Michelle Coombs

Keysight Technologies (Agilent) Radek Biernacki\*, Nilesh Kamdar, Colin Warwick,

Graham Riley, Pegah Alavi, Fangyi Rao,

Heidi Barnes, Dimitrios Drogoudis

LSI (Avago) Xingdong Dai, Min Huang, Anaam Ansari, Brian Burdick

Venkatesh Avula

Maxim Integrated Products Hassan Rafat

Mentor Graphics Arpad Muranyi\*, John Angulo, Fadi Deek, Chuck Ferry

Thomas Groebli

Micron Technology Randy Wolff\*

Qualcomm Jaimeen Shah, Srinivasa Rao\*, Senthil Nagarathinam\*

Signal Integrity Software Mike LaBonte\*, Walter Katz, Todd Westerhoff,

Michael Steinberger

Synopsys Ted Mido, Scott Wedge, Kevin Cameron, Rita Horner

Teraspeed Labs Bob Ross\*, Tom Dagostino, Scott McMorrow

(Teraspeed Consulting Group)

Toshiba Hiroyuki Ikegami, Toshihiro Tsujimura, Hideo Oie\*

Xilinx Ravindra Gali

ZTE Corporation (Shunlin Zhu)

Zuken Michael Schaeder, Amir Wallrabenstein, Griff Derryberry

Reinhard Remmert

**OTHER PARTICIPANTS IN 2014**

ADVLSI Pierre Dermy, Juanna Gao

Carleton University Ramachandra Achar

Continental Automotive Catalin Negrea

CST Stefan Paret

ECL Advantage Thomas Iddings

Freescale Asher Berkovitz

Fujitsu Shogo Fujimori

Hewlett Packard Ting Zhu

Hong Kong University Lijun Jiang

Huawei Technologies Jinjun Li, Xiaoqing Dong, Zanglin Yuan, Han Li

IBM Adge Hawes

Instituto de Telecomunicações Wael Dghais

KEI Systems Shinichi Maeda

Lattice Semiconductor Xu Jiang

Mediatek Alice Lin

Mellanok Technologies Piers Dawe

Microsemi Nizar Abdallah, Ann Lau

Nanium Abel Janeiro

Oracle Stephan Mueller

Pangeya Edgar Aguirre

Proficient Design Kishor Patel

Renesas Genichi Tanaka

SAE International Chris Denham

Tabula Ben Zhou

Technische Universität Hamburg Torsten Reuschel

University of Illinois José Schutt-Ainé

Vitesse Siris Tsang

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 3, 2014 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**

Michael Mirmak declared that a quorum was reached and the meeting could begin.

Hideo Oie from Toshiba America Electronic Components (a subsidiary of Toshiba group) introduced himself. He previously worked at Intel. He is currently working on ASIC chip development. His company is working on high speed SerDes development, so he is joining to follow AMI modeling development.

Bob Ross noted that Teraspeed Consulting Group has split. He is part of Teraspeed Labs now, the official IBIS member. Teraspeed Consulting Group was purchased by Samtec.

**CALL FOR PATENTS**

Michael Mirmak called for any patents or pending patents related to the IBIS 3.2, IBIS 4.2, IBIS 5.1, IBIS 6.0, 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 August 22, 2014 IBIS Open Forum teleconference. Randy noted that Radek Biernacki asked by email for two corrections to the minutes. The first is to change a sentence in the BIRD172.1 discussion from “Radek Biernacki said this is not a relaxation” to “Radek Biernacki said this is not a relaxation to the specification.” The second change is in the BIRD173.1 discussion. The minutes read “Radek also noted that it would be even more appropriate to write "non-negative semi-definite"”. Radek did not remember saying this, so the sentence should be removed or more likely say “positive semi-definite.” The minutes were approved with the noted changes.

**ANNOUNCEMENTS**

None.

**CALL FOR ADDITIONAL AGENDA ITEMS**

None.

**MEMBERSHIP STATUS AND TREASURER'S REPORT**

Bob Ross reported that we have 21 members with one still pending payment. Our account balance stands at $32,083. A parser payment came in July that was not noted in previous minutes. We have additional income waiting to come in for sponsorships and parser payments. The DAC Summit payment is not recorded in these numbers since it has not been confirmed.

**WEB PAGE AND MAILING LIST ADMINISTRATION**

Mike LaBonte reported that he is continuing to have some issues related to email. One email was sent to the list and would not go through. It turned out to be an attachment that was too large. He has updated a note to read that while small attachments will go through there is a 200,000 character limit. Attachments need to be less than about 150k in size.

For the freelists mail lists used by IBIS, Mike is trying to resolve some questions before sending an email out to all the list members describing the lists including instructions for unsubscribing. Mike questioned if the ibis-serdes-backchan list was needed at all, since it is not actively used.

Bob Ross commented that he’d prefer not to allow attachments. Mike noted that the lists are setup to allow attachments, but the size limit is enforced for eda.org. Mike added that freelists.org allows attachments but discourages them because their server load is very high. We could try to discourage attachments. Arpad Muranyi asked how screen shots included in an email are handled. Mike noted that these images can be large and might run into the size limit.

Mike also reported that he has been updating the events page with information about the Asian IBIS Summits.

**LIBRARY UPDATE**

No update.

**INTERNATIONAL/EXTERNAL ACTIVITIES**

- Conferences

The 23rd Conference on Electrical Performance of Electronic Packaging (EPEPS) will be held October 26-29, 2014 in Portland, Oregon. There is usually some IBIS and/or signal integrity related material. More information is available at:

[http://epeps.org](http://epeps.org/)

- Press Update

None.

**SUMMIT PLANNING AND STATUS**

- Asian IBIS Summit Shanghai – November 14, 2014

This event will be held at the Parkyard Hotel.

- Asian IBIS Summit Taipei – November 17, 2014

This event will be held at the Sherwood Hotel.

- Asian IBIS Summit Yokohama – November 20, 2014

This event will be held at the Pacifico Hotel.

Michael Mirmak reported that the first call for papers for Shanghai will go out September 19, 2014. We will work with local people in Shanghai and Taipei to help distribute the invitation. Bob Ross noted sponsors for Shanghai include Huawei Technologies, IO Methodology, Synopsys, ZTE Corporation and others to be determined. Sponsors for Taipei include Cadence Design Systems, IO Methodology, Synopsys and others to be determined. Sponsors for Yokohama include JEITA, the IBIS Open Forum and others to be determined. Michael encouraged members to forward the invitations to colleagues that are not on the IBIS distribution lists. He encouraged additional sponsorships for the Summits.

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. They recently analyzed BUG157. They are also working on updating comments in the IBISCHK6 User Guide. The work in progress can be reviewed at:

<http://www.eda.org/ibis/ibischk6/ibischk_6.0.0_UserGuide_wip1.pdf>

They are also looking into the –etc option of ibischk to understand what the option is used for. Michael Mirmak noted that he talked with Jon Powell, a previous parser developer. Jon did not remember anything about that option. Mike noted that these checks are essentially unused, so they could be set as new checks if they are useful. Michael asked if the IBIS bug reporting email address could be added to ibischk so that it would be printed out to inform parser users on how to report bugs. Mike thought filing a bug report for this would be appropriate.

The Quality Task Group checklist and other documentation can be found at:

<http://www.eda.org/ibis/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 reached a dead end with BIRD147 discussions, as it does not look like the BIRD can be developed further to address concerns of all parties involved. Some final comments from Bob Ross will be addressed in the BIRD before it is finalized for submittal for vote. Bob suggested that the BIRD be put up for a vote in the ATM task group to get a sense of overall support for it. Arpad noted that the BIRD was started three years ago, so there has been some “feature creep” in that time. A critique of the BIRD is that it will not adequately support some new or upcoming technologies. Another BIRD may be written, in which case there will be debate over whether both BIRDs could coexist in the specification.

Task group material can be found at:

<http://www.eda.org/ibis/macromodel_wip/>

**INTERCONNECT TASK GROUP**

Arpad Muranyi reported that the last meeting was short. They reviewed the latest draft after Arpad provided many comments on the draft 9 of the Interconnect modeling BIRD. This became draft 10 with visible changes from draft 9. Draft 11 was also created with the changes accepted but the comments still visible.

Task group material can be found at:

<http://www.eda.org/ibis/interconnect_wip/>

**NEW ADMINISTRATIVE ISSUES**

None.

**BIRD128.2: ALLOW AMI\_PARAMETERS\_OUT TO PASS AMI\_PARAMETERS\_IN DATA ON CALLS TO AMI\_GETWAVE**

Michael Mirmak noted that Radek Biernacki commented by email that he had additional concerns on the BIRD. Radek joined the meeting late and commented that some rules need to be established for the parameters. He thought the mechanism is fine, but we don’t want to be in conflict with any other statements in the specification. Arpad Muranyi requested that Radek meet with Walter Katz and Ambrish Varma offline before bringing suggestions for changes to the ATM task group.

Arpad moved to vote to postpone the BIRD vote. Bob Ross seconded the motion. There were no objections.

Bob moved to schedule the BIRD for a vote at the next Open Forum teleconference. Arpad seconded the motion. There were no objections.

**BIRD173.2: PACKAGE RLC MATRIX DIAGONALS**

Randy Wolff introduced the BIRD changes. Arpad Muranyi planned to get comments from Vladimir Dmitriev-Zdorov on the use of “positive” to indicate that “0” is included. Radek Biernacki joined the meeting late and commented that the statement “positive semi-definite” is the proper terminology and can include “0”. He was not opposed to adding in parentheses “(including zero)”. A BIRD173.3 may be filed in the next week.

Bob Ross moved to postpone the BIRD vote. Arpad seconded the motion. There were no objections.

Bob moved to schedule the BIRD for a vote at the next Open Forum teleconference. Arpad seconded the motion. There were no objections.

**BIRD169.1: DLL DEPENDENCY CHECKING**

Arpad Muranyi noted that this BIRD was updated and submitted on August 22, 2014; however, the BIRD was not posted right away. He made a minor change and feels it is ready for a vote.

Mike LaBonte moved to schedule the BIRD for a vote at the next Open Forum teleconference. Arpad seconded the motion. There were no objections.

**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.

**BIRD147: BACK-CHANNEL SUPPORT**

Discussion was tabled.

**BIRD157: PARAMETERIZE [DRIVER SCHEDULE]**

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.

**BIRD CLOSURE DATE FOR NEXT SPECIFICATION REVISION**

Michael Mirmak noted that 5 BIRDs are approved currently, 3 are close to approval, and 10 BIRDs are tabled. Ambrish Varma commented that Cadence would like to see backchannel support in the next version of IBIS. Randy Wolff commented that he’d like to see package modeling updates being worked on by the Interconnect task group in the next version of IBIS. Michael noted that several BIRDs will require a parser change, so we can’t make a “minor” release to IBIS without doing parser updates typically associated with a “major” release.

Michael questioned if we could even release a new version before next August. Arpad Muranyi and Bob Ross didn’t see the packaging BIRD being done before about January. Michael suggested that we need to set a date for cutoff of BIRDs and stick with it to ease planning of releases. He asked if any of the older BIRDs would be voted down with introduction of new BIRDs. Arpad noted that a new packaging BIRD would override BIRD163 and BIRD164. Michael encouraged consideration of a cutoff date for BIRD approvals for the next release.

**IBISCHK6 PARSER AND BUG STATUS**

Mike LaBonte reported a new bug, BUG157. A check for multiple repeater pins is not being checked once per Model, but instead once for each executable call in the Model or if there are multiple executable model calls in the file from multiple Models.

The BUG was classified as Severe severity, High priority and Open status.

Bob Ross noted that the parser developer should address BUG157. It would be nice if he addressed BUG155 as well. Closing BUG151 requires additional non-contracted work, so we should wait for a new specification release to fix this parser bug as it will require additional payment.

**NEW TECHNICAL ISSUES**

None.

**NEXT MEETING**

The next IBIS Open Forum teleconference meeting will be held October 3, 2014. Votes on BIRD128.2, BIRD173.2 and BIRD169.1 are scheduled. The following IBIS Open Forum teleconference meeting will be held October 24, 2014.

Arpad Muranyi moved to adjourn. Mike LaBonte seconded the motion. There were no objections.

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**NOTES**

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This meeting was conducted in accordance with ANSI guidance.

The following e-mail addresses are used:

[majordomo@eda.org](mailto:majordomo@eda-stds.org)

In the body, for the IBIS Open Forum Reflector:

subscribe ibis <your e-mail address>

In the body, for the IBIS Users' Group Reflector:

subscribe ibis-users <your e-mail address>

Help and other commands:

help

[ibis-request@eda.org](mailto:ibis-request@eda-stds.org)

To join, change, or drop from either or both:

IBIS Open Forum Reflector ([ibis@eda.org](mailto:ibis@eda-stds.org))

IBIS Users' Group Reflector ([ibis-users@eda.org](mailto:ibis-users@eda-stds.org))

State your request.

[ibis-info@eda.org](mailto:ibis-info@eda-stds.org)

To obtain general information about IBIS, to ask specific questions for individual response, and to inquire about joining the IBIS Open Forum as a full Member.

[ibis@eda.org](mailto:ibis@eda-stds.org)

To send a message to the general IBIS Open Forum Reflector. This is used mostly for IBIS Standardization business and future IBIS technical enhancements. Job posting information is not permitted.

[ibis-users@eda.org](mailto:ibis-users@eda-stds.org)

To send a message to the IBIS Users' Group Reflector. This is used mostly for IBIS clarification, current modeling issues, and general user concerns. Job posting information is not permitted.

[ibis-bug@eda.org](mailto:ibis-bug@eda-stds.org)

To report ibischk parser BUGs as well as tschk2 parser BUGs. The BUG Report Form for ibischk resides along with reported BUGs at:

<http://www.eda.org/ibis/bugs/ibischk/>

[http://www.eda.org/ibis/bugs/ibischk/bugform.txt](http://www.eda-stds.org/ibis/bugs/ibischk/bugform.txt)

The BUG Report Form for tschk2 resides along with reported BUGs at:

<http://www.eda.org/ibis/tschk_bugs/>

<http://www.eda.org/ibis/tschk_bugs/bugform.txt>

[icm-bug@eda.org](mailto:icm-bug@eda-stds.org)

To report icmchk1 parser BUGs. The BUG Report Form resides along with reported

BUGs at:

[http://www.eda.org/ibis/icm\_bugs/](http://www.eda-stds.org/ibis/icm_bugs/)

[http://www.eda.org/ibis/icm\_bugs/icm\_bugform.txt](http://www.eda-stds.org/ibis/icm_bugs/icm_bugform.txt)

To report s2ibis, s2ibis2 and s2iplt bugs, use the Bug Report Forms which reside at:

[http://www.eda.org/ibis/bugs/s2ibis/bugs2i.txt](http://www.eda-stds.org/ibis/bugs/s2ibis/bugs2i.txt)

[http://www.eda.org/ibis/bugs/s2ibis2/bugs2i2.txt](http://www.eda-stds.org/ibis/bugs/s2ibis2/bugs2i2.txt)

[http://www.eda.org/ibis/bugs/s2iplt/bugsplt.txt](http://www.eda-stds.org/ibis/bugs/s2iplt/bugsplt.txt)

Information on IBIS technical contents, IBIS participants and actual IBIS models are available on the IBIS Home page:

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

Check the IBIS file directory on eda.org for more information on previous discussions and results:

[http://www.eda.org/ibis/directory.html](http://www.eda-stds.org/ibis/directory.html)

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**IBIS – SAE STANDARDS BALLOT VOTING STATUS**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Organization** | **Interest Category** | **Standards Ballot Voting Status** | **July 11, 2014** | **August 1, 2014** | **August 22, 2014** | **September 12, 2014** |
| Altera | Producer | Inactive | - | - | X | - |
| ANSYS | User | Inactive | - | - | - | - |
| Applied Simulation Technology | User | Inactive | - | - | - | - |
| Cadence Design Systems | User | Active | X | X | X | X |
| Ericsson | Producer | Inactive | - | - | - | - |
| Infineon Technologies AG | Producer | Inactive | - | - | - | - |
| Intel Corp. | Producer | Active | X | - | X | X |
| IO Methodology | User | Inactive | - | - | - | X |
| Keysight Technologies (Agilent) | User | Active | X | X | X | X |
| LSI (Avago) | Producer | Inactive | - | - | - | - |
| Maxim Integrated Products | Producer | Inactive | - | - | - | - |
| Mentor Graphics | User | Active | X | X | X | X |
| Micron Technology | Producer | Active | X | X | - | X |
| Qualcomm | Producer | Active | X | - | X | X |
| Signal Integrity Software | User | Active | X | X | X | X |
| Synopsys | User | Inactive | - | - | - | - |
| Teraspeed Labs | General Interest | Active | X | X | X | X |
| Toshiba | Producer | Inactive | - | - | - | X |
| Xilinx | Producer | Inactive | - | - | - | - |
| ZTE | User | Inactive | - | - | - | - |
| Zuken | User | Inactive | - | - | - | - |

**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.