IBIS Open Forum Minutes

Meeting Date: **October 6, 2017**
Meeting Location: **Teleconference**

VOTING MEMBERS AND 2017 PARTICIPANTS

ANSYS	Curtis Clark*, Toru Watanabe
Applied Simulation Technology	(Fred Balistreri)
Broadcom	[Bob Miller], (Cathy Liu)
Cadence Design Systems	Brad Brim*, Sivaram Chillarige, Debabrata Das Ambrish Varma*, Kumar Keshavan, Ken Willis Brad Griffin
Cisco Systems	(Bidyut Sen)
CST	Stefan Paret, Matthias Troescher, Burkhard Doliwa Danilo Di Febo, Alexander Melkozerov
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 Gianni Signorini, 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, A Siemens Business (formerly Mentor Graphics)	Arpad Muranyi*, Nitin Bhagwath, Praveen Anmula Fadi Deek, Raj Raghuram, Dmitry Smirnov Bruce Yuan, Carlo Bleu
Micron Technology	Randy Wolff, Justin Butterfield*, Jeff Shiba, Harry Shin
NXP	(John Burnett)
Qualcomm	Tim Michalka, Kevin Roselle
Raytheon	Joseph Aday
SiSoft	Mike LaBonte*, Walter Katz*, Todd Westerhoff Steve Silva
Synopsys	Kevin Li, Ted Mido*, John Ellis, Scott Wedge
Teraspeed Labs	Bob Ross*
Xilinx	(Raymond Anderson)
Zuken	Ralf Bruening, Michael Schaeder, Alfonso Gambuzza

OTHER PARTICIPANTS IN 2017

Accton	Raul Lozano
ASUS	Nick Huang, Bin-chyi Tseng
Continental AG	Stefanie Schatt
eASIC	David Banas
Extreme Networks	Bob Haller
Ghent University	Paolo Manfredi
Hamburg University of Technology	Torsten Revschel, Torsen Wendt
IdemWorks	Michelangelo Bandinu
Independent	Dian Yang, Lawrence Der
John Baprawski, Inc.	John Baprawski
KEI Systems	Shinichi Maeda
Lattice Semiconductor	Maryam Shahbazi, Dinh Tran
Leading Edge	Pietro Vergine
Lexington Consulting	Mike Barg
Politecnico di Torino	Claudio Siviero, Stefano Grivet-Talocia, Igor Stievano
SAE International	(Thomas Munns)
Signal Metrics	Ron Olisar
SPISim	Wei-hsing Huang
STMicroelectronics	Fabio Brina, Olivier Bayet
Toshiba	Yasuki Torigoshi
Université Blaise Pascal	Mohamed Toure
Université de Bretagne Occidentale	Mihai Telescu
ZTE Corporation	(Shunlin Zhu)

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 18, 2017	EPEPS IBIS Summit – no teleconference	
October 27, 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 the meeting minutes.

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 September 15, 2017 IBIS Open Forum teleconference. Bob Ross commented that the EPEPS IBIS Summit meeting should be listed in the Upcoming Meetings section. Walter Katz moved to approve the minutes. Bob seconded the motion. There were no objections.

Mike reviewed ARs from the previous meeting.

1. Mike LaBonte to move EDI CON to the bottom of the Summit page [AR].
   Mike reported this as done.
2. Mike LaBonte to draft policies and procedures ratification email, including Radek Biernacki [AR].
   Mike reported this as done.

ANNOUNCEMENTS, CALL FOR ADDITIONAL AGENDA ITEMS

None.

MEMBERSHIP STATUS AND TREASURER'S REPORT

Bob Ross reported that we are still at 25 members. Our account balance is at $28,744 for 2017. Actual cash flow of $26,994 has been collected in 2017. We are expecting ZTE to join as an additional member, but we are waiting on the closure of money to be received. He also noted we expect to spend some money on the upcoming summit meetings.

WEBSITE ADMINISTRATION

Mike LaBonte reported that the Broadcom contact has been changed on the roster page, and ZTE has been added to the members page.

MAILING LIST ADMINISTRATION

Curtis Clark reported that there were a few additions to the mailing list from our potential new member.

LIBRARY UPDATE

No update.

INTERNATIONAL/EXTERNAL ACTIVITIES

- Conferences

EPEPS – The 26th IEEE Conference on Electrical Performance of Electronic Packaging and Systems will be held in San Jose, CA on October 15-18, 2017. An IBIS Summit at this event is planned. More information is available at:

http://www.epeps.org/

- Press Update

None.

- Related standards

None.

Bob Ross asked if we should add the EDI CON Beijing event in March 2018 to this list. He would like to add the conference to the Agenda and a link in the minutes, since the conference will have content on signal integrity. Mike LaBonte suggested to defer discussion and adding a line item to agenda until we get more information about the conference. Bob agreed this would be ok.

SUMMIT PLANNING AND STATUS

- EPEPS

EPEPS will be held in San Jose, CA on October 15-18, 2017. The IBIS Summit will be held on Wednesday afternoon, October 18, 2017. Bob Ross reported that we expect the agenda to go out next week, but we are waiting on confirmation from one of the presenters. He encouraged people to register, so we can get an accurate attendance count. Bob noted that Tom Lee of Stanford will provide the keynote speech. Keysight and Synopsys are sponsors.

- Asian IBIS Summit (Shanghai)

An IBIS Summit will be held at the Parkyard Hotel Shanghai from 8:30 a.m. to 5:00 p.m. on Monday, November 13, 2017. Bob added that ZTE will also be listed as a sponsor once payment is closed. Mike LaBonte will add them to the website [AR]. Bob stated he plans to send out the announcements for the Asian Summits next week. Huawei is the primary sponsor, and Cadence, IO Methodology, Mentor, MostecEDA (SPISim), Synopsys, and Teledyne-LeCroy are additional sponsors.

- Asian IBIS Summit (Taipei)

An IBIS Summit will be held at the Sherwood Hotel from 9:00 a.m. to 4:30 p.m. on Wednesday, November 15, 2017. IO Methodology, Peace Giant Technology (SPISim), and Synopsys are sponsors.

- Asian IBIS Summit (Tokyo)

An IBIS Summit will be held at the Akihabara UDX Bldg. from 12:30 p.m. to 5:00 p.m. on Friday, November 17, 2017. Bob noted that there will be a Power Aware IBIS class in the morning and will be free of charge. JEITA and IBIS Open Forum are sponsors.

- DesignCon 2018

Mike noted that we need to hold a vote to officially have a summit meeting at DesignCon in 2018. The conference is Tuesday, January 30 through Thursday, February 1, 2018. Mike commented that we need to decide on the day to hold the IBIS Summit meeting. Brad Brim noted that the format for DesignCon has changed. Tuesday will be half day tutorials, and Wednesday and Thursday will be full days of papers. Bob thought that the summit should not overlap with Thursday. Mike noted that UBM has sent a barter agreement and would like to get promotion activities started.

Bob moved that we schedule to hold a vote in the next Open Forum meeting for IBIS to hold a summit at DesignCon with expenses for IBIS not to exceed for $9,000. Michael Mirmak seconded the motion. There were no objections.

Brad asked if we can vote in this meeting. Mike noted that we typically schedule votes for the next meeting to allow people to vote over email.

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 IBISCHK6 user guide work in progress can be reviewed at:

http://www.ibis.org/ibischk6/ibischk_6.1.4_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 currently discussing some interconnect modeling topics for BIRD189.

Task group material can be found at:

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

INTERCONNECT TASK GROUP

Michael Mirmak reported that the group is meeting at 8:00 a.m. PT on Wednesdays. The group is reviewing the latest draft of BIRD189 and hopes to submit an updated BIRD by the end of the year.

Task group material can be found at:

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

EDITORIAL TASK GROUP

Michael Mirmak reported that meetings are suspended, and the group normally meets on Fridays. When a full IBIS document is available for review, the group will resume meetings.

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 vote on the updated Policies and Procedures is scheduled for today. E-mail solicitations have been sent out, as the vote requires 2/3 of all members to approve. Michael Mirmak moved to vote to ratify the updated IBIS Policies and Procedures. Walter Katz seconded the motion. There were no objections.

The roll call vote tally was:
ANSYS – yes (by email)
Broadcom – yes (by email)
Cadence – yes
CST – abstain (by email)
GLOBALFOUNDARIES – yes (by email)
IBM – yes (by email)
Infineon – yes (by email)
Intel – yes
IO Methodology – yes
Keysight – yes
Mentor – yes
Micron – yes
NXP – yes (by email)
Raytheon – yes (by email)
SiSoft – yes
Synopsys – yes
Teraspeed Labs – yes
Xilinx – yes (by email)
Zuken – yes (by email)

The roll call vote concluded with a vote tally of Yes – 18, No – 0, Abstain – 1. The vote on the new IBIS Policies and Procedures passes.

Mike will put the new IBIS Policies and Procedures on the website. Bob Ross noted that the ratified date should be today [AR].

The Policy and Procedures document can be found at:

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

BIRD158.6: AMI TS4FILE ANALOG BUFFER MODELS

Arpad Muranyi has submitted BIRD158.6 on behalf of the authors. Walter Katz reported that there were a lot of editorial changes to get nomenclature correct. The Ts4file_Boundary has been removed and the buffer terminal boundary has been selected. Michael Mirmak asked if any changes would be required for BIRD189 based on BIRD158.6. Walter replied that there should not be. Radek Biernacki commented that there is some relationship between this BIRD and the Interconnect BIRD. He noted there was also some controversy on setting the boundary at the buffer. Walter noted the boundary is the same as it is for [External Model]. Radek commented that we need to make sure there is no confusion on how these things work. Bob Ross commented that we now know what the Interconnect BIRD would be connected to, and he thought that BIRD158.6 stands by itself with the boundary as the buffer. The issue is what do with the references. Walter commented he would like to decide if we can schedule a vote. Bob thought we could schedule it, but if issues come up, we can delay the vote.

Walter moved to schedule a vote on BIRD158.6 at the next IBIS Open Forum. Bob seconded the motion. There were no objections.

BIRD161.1: SUPPORTING INCOMPLETE AND BUFFER-ONLY [COMPONENT] DESCRIPTIONS

Michael Mirmak reported that much of the changes proposed by this BIRD are now addressed by BIRD180 and BIRD184. He commented that the additional changes would require too many edits, and this is not a critical BIRD for IBIS 7.0. He recommended to reject this BIRD. Bob Ross thought there is no hurry to vote on it. Walter Katz commented that if it is voted on and rejected, we always have the document for reference. Michael stated he plans to resubmit the idea of addressing complete vs. incomplete [Component]s as a new BIRD.

Walter moved to schedule a vote on this next time with a recommendation to reject. Radek Biernacki 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.

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.

BIRD166.4: RESOLVING PROBLEMS WITH REDRIVER INIT FLOW

Discussion was tabled.

BIRD181.1: I-V TABLE CLARIFICATIONS

Discussion was tabled.

BIRD189.4: INTERCONNECT MODELING USING IBIS-ISS AND TOUCHSTONE

Discussion was tabled.

BIRD190: CLARIFICATION FOR REDRIVER FLOW

Discussion was tabled.

IBISCHK6 PARSER AND BUG STATUS

Bob Ross reported that no new bugs have been submitted, although there are some pending bugs that are not officially submitted. There are no parser updates.

NEW TECHNICAL ISSUES

Michael Mirmak stated that looking ahead past IBIS 7.0 there is some interest in updates to Touchstone. He asked if the Interconnect Task Group would be the best place to have those discussions. Bob Ross replied, yes, this should be discussed in the Interconnect Task Group. Michael stated that there are some TSIRDs that were approved but have not yet been implemented in any version of Touchstone. Walter Katz commented that he has some concerns with the approved TSIRDs.

Mike LaBonte will fix the link to the TSIRD page [AR], as it is missing from website.

Michael noted that there are three approved TSIRDs pending for Touchstone 2.1 or 3.0. Walter would also like to add the capability to organize Touchstone files by “S_{ij}” rather than by frequency. Bob noted that we have not yet decided between calling the next version of Touchstone version 2.1 or version 3.0. He stated that we need to discuss what changes to include in the next version of Touchstone and how those changes interact. Radek Biernacki noted that we also need to consider the financial implications, as some of the proposed changes could require significant effort for parser development. He agreed we should discuss adding these enhancements.

Mike noted that adoption of Touchstone 2.0 has been low. Walter commented that we need to do a better job of understanding the requirements of the industry before creating a new Touchstone specification. He noted it is difficult for companies to update their parsers to use Touchstone 2.0. Walter commented that we should have made optional records to state the reference impedance per port, but instead we added a lot of other features.

Bob noted that any company can purchase the Touchstone parser for $1000. He commented that Touchstone 2.0 features are now done in a consistent manner. He stated the new features include mixed mode file support, per port reference impedance, and several other technical features that are not in Touchstone 1.

Radek noted that he does see Touchstone 2.0 files in industry, and that his tool’s parser handles both Touchstone 1 and 2.0. Walter clarified that the issue is not with the EDA tools supporting Touchstone 2.0 but rather with custom software developed internally by various companies. He has seen some power integrity tools which use the per port reference impedance feature. But, he noted that for internal software, companies are forced to rewrite their basic parsers, since there are new required elements in Touchstone 2.0. Bob stated that we do have a free executable code to convert from Touchstone 1 to Touchstone 2.0.

Michael stated that he has received requests for Touchstone 2.0 models. He commented that one barrier to adoption is a lack of a binary formatting option, as the size of the model data can be quite large. Michael noted that there is some difficulty with not having an automatic conversion to and from mixed mode. He also stated that there is a lack of awareness about the Touchstone 2.0 parser, and that it checks both versions. Mike will make the link to the Touchstone parser more visible on the website [AR].

Bob stated that we need to resolve the requirements for the next version of Touchstone.

NEXT MEETING

The EPEPS IBIS Summit will be held on October 18, 2017. No teleconference will be available.

The next IBIS Open Forum teleconference meeting will be held October 27, 2017. A vote on holding an IBIS Summit meeting at DesignCon 2018 is scheduled. Votes on BIRD158.6 and BIRD161.1 are also scheduled. The following IBIS Open Forum teleconference meeting is tentatively scheduled on December 1, 2017.

The Asian IBIS Summit in Shanghai will be held November 13, 2017. The Asian IBIS Summit in Taipei will be held November 15, 2017. The Asian IBIS Summit in Tokyo will be held November 17, 2017. No teleconferences will be available for the Summit meetings.

Arpad Muranyi proposed December 15, 2017 and January 5, 2018 as tentative future meeting dates. Mike LaBonte agreed and added these tentative dates to the schedule. These are not on the regular three-week schedule but were chosen due to conflicts with the Tokyo Summit and year end U.S. holidays.

Arpad moved to adjourn. Michael Mirmak seconded the motion. The meeting adjourned.

==

NOTES

IBIS CHAIR: Mike LaBonte
mlabonte@sisoft.com
IBIS-AMI Modeling Specialist, SiSoft
6 Clock Tower Place, Suite 250
Maynard, MA 01754

VICE CHAIR: Lance Wang (978) 633-3388
lwang@iometh.com
President/CEO, IO Methodology, Inc.
PO Box 2099
Acton, MA 01720

SECRETARY: Randy Wolff (208) 363-1764
rrwolff@micron.com
Principal Engineer, Silicon SI Group Lead, Micron Technology, Inc.
8000 S. Federal Way
P.O. Box 6, Mail Stop: 01-711
Boise, ID 83707-0006

TREASURER: Bob Ross (503) 246-8048
bob@teraspeedlabs.com
Engineer, Teraspeed Labs
10238 SW Lancaster Road
Portland, OR 97219

LIBRARIAN: Anders Ekholm (46) 10 714 27 58, Fax: (46) 8 757 23 40
ibis-librarian@ibis.org
Digital Modules Design, PDU Base Stations, Ericsson AB
BU Network
Färögatan 6
164 80 Stockholm, Sweden

WEBMASTER: Mike LaBonte
mlabonte@sisoft.com
IBIS-AMI Modeling Specialist, SiSoft
6 Clock Tower Place, Suite 250

Maynard, MA 01754

POSTMASTER: Curtis Clark
curtis.clark@ansys.com
ANSYS, Inc.
150 Baker Ave Ext
Concord, MA 01742

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	August 25, 2017	September 13, 2017	September 15, 2017	October 6, 2017
ANSYS	User	Active	X	X	-	X
Applied Simulation Technology	User	Inactive	-	-	-	-
Broadcom Ltd.	Producer	Inactive	-	-	-	X
Cadence Design Systems	User	Active	X	X	-	X
Cisco Systems	User	Inactive	-	-	-	-
CST	User	Inactive	-	-	-	X
Ericsson	Producer	Inactive	-	-	-	-
GLOBALFOUNDRIES	Producer	Inactive	-	-	-	X
Huawei Technologies	Producer	Inactive	-	-	-	-
IBM	Producer	Inactive	-	-	-	X
Infineon Technologies AG	Producer	Inactive	-	-	-	X
Intel Corp.	Producer	Active	X	-	X	X
IO Methodology	User	Active	X	X	X	X
Keysight Technologies	User	Active	X	-	X	X
Maxim Integrated	Producer	Inactive	-	-	-	-
Mentor, A Siemens Business	User	Active	X	-	X	X
Micron Technology	Producer	Active	X	X	X	X
NXP	Producer	Inactive	-	-	-	X
Qualcomm	Producer	Inactive	-	-	-	-
Raytheon	User	Inactive	-	-	-	X
SiSoft	User	Active	X	X	X	X
Synopsys	User	Active	X	-	X	X
Teraspeed Labs	General Interest	Active	X	-	X	X
Xilinx	Producer	Inactive	-	-	-	X
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.