



IBIS Open Forum Minutes

Meeting Date: **June 10, 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*
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
Mentor Graphics	Arpad Muranyi*, Vladimir Dmitriev-Zdorov, John Angulo, Mikael Stahlberg
Micron Technology	Randy Wolff*
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 Schaedler, 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	Wael Dghais

Appliquées et de Technologie de
Sousse

JEITA

John Baprawski, Inc.

KEI Systems

Lattice Semiconductor

Leading Edge

MathWorks

Monsoon Solutions

Northrup Grumman

NXP

Politecnico di Torino

Rambus

Raytheon

SAE International

SILABTECH

Signal Metrics

SiGuys

Sony Corporation

Sony LSI Design

SPISim

STMicroelectronics

Technoprobe

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Yosuke Kanamaru

John Baprawski

Shinichi Maeda

Dinh Tran, Maryam Shahbazi

Pietro Vergine

Mike Mulligan, Corey Mathis

Nathan Hirsch

Alex Golian

Jon Burnett

Claudio Siviero, Stefano Grivet-Talocia,

Igor Simone Stievano

John Yan

Joseph Aday

(Logen Johnson)

Biman Chattopadhyary

Ron Olisar

Donald Telian

Hiroaki Ammo

Takashi Hasegawa

Wei-hsing Huang

Fabio Brina, Olivier Bayet

Alberto Berizzi, Lorenzo Bernasconi, Simona Cucchi

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
July 1, 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:

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 regarding the minutes of the May 11, 2016 IBIS Summit at SPI. Lance Wang moved to approve the minutes. Bob Ross seconded the motion. There were no objections. Randy called for comments on the minutes of the May 20, 2016 IBIS Open Forum teleconference. Curtis Clark moved to approve the minutes. Lance Wang seconded the motion. There were no objections.

Randy reviewed ARs from the previous meeting.

1. Mike LaBonte to clarify Policies and Procedures language about designated representatives [AR].
Mike reported that progress has been ongoing. The Policies and Procedures updates are still in the works and potential changes are still being discussed. This item can be removed from the AR list.
2. Bob Ross to review nominations procedure portion of Policies and Procedures [AR].
Bob reported this as done. It will be discussed further in the P&P review. This item can be removed from the AR list.

ANNOUNCEMENTS, CALL FOR ADDITIONAL AGENDA ITEMS

Bob Ross asked for time to discuss upcoming votes on the Asian and EPEPS IBIS Summits. He also asked for time to discuss the China regional group report from Lance Wang. There is also a parser BUG179 to report.

MEMBERSHIP STATUS AND TREASURER'S REPORT

Bob Ross reported that we have 21 members after the June 1 renewal cutoff. One renewal is still pending with SAE. We have a total of \$18,590. Actual cash flow of \$14,605 has been collected this year. We have a potential IBISCHK parser purchase in the works.

WEBSITE ADMINISTRATION

Mike LaBonte reported no significant changes to the webpage. He noted that he takes care of some uploading, but he created a secure login utility allowing some other members to update specific webpages.

Radek Biernacki noted that some TSIRDs have links to documents in PDF format. The links are now wrong, and he could not find these documents anywhere on the website. Mike will update the links in these documents [AR].

Bob Ross noted that the roster page has been updated to reflect the official membership as of June 1. Mike noticed that the poster page needs to be updated. Bob added that Applied Simulation Technology and Toshiba should be removed. The Cisco payment is pending, so they could be left on the poster page.

MAILING LIST ADMINISTRATION

Curtis Clark reported that there was very little activity. One Avago email went dead, and he could not contact them at a Broadcom address, so they will have to rejoin the list by request.

LIBRARY UPDATE

No update.

INTERNATIONAL/EXTERNAL ACTIVITIES

- Conferences

The 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>

- Press Update

None.

- Related standards

None.

- China Regional IBIS Group

Lance Wang reported that the group met June 2. There were 15 attendees from 11 companies. They discussed how the group would be conducted and their purpose. They agreed to have Liu Shuyao from Huawei as chair, Zhu Shunlin from ZTE as vice-chair and Chengxia (Sophia) Feng from Celestica as secretary to take minutes. They decided to hold the meetings once every three months to start. The next meeting was planned for the end of June but an exact date was not scheduled yet.

SUMMIT PLANNING AND STATUS

- Asian IBIS Summit Votes

Bob Ross moved to vote on the following motion:

"IBIS shall conduct the 12th Asian IBIS Summit Meeting in China (Shanghai or another location) around November, 2016, at a date to be coordinated with other Asian Summits, and with an estimated maximum expense budget of \$10,000 that is expected to be offset by Sponsorship contributions."

He noted that this is a meeting in the People's Republic of China. There is sponsorship money already collected in anticipation of holding the Summit. Expenses were about \$6,700 last year, and sponsorship exceeded this. The budget of \$10,000 is to cover any unanticipated expenses. \$6,100 in sponsorship has already been collected, and \$1,000 in sponsorship is committed from a company to be paid directly to the hotel. Radek Biernacki seconded the motion.

The vote passed with the following vote tally:

ANSYS – yes

Cadence – yes

Ericsson – yes (by email)

GLOBALFOUNDRIES – yes

IBM – yes

Intel – yes

IO Methodology – yes

Keysight – yes

Mentor – yes

Micron – yes

SiSoft – yes

Synopsys – yes

Teraspeed Labs – yes

Bob moved to vote on the following motion:

"IBIS shall conduct the 11th Asian IBIS Summit Meeting in Japan (Tokyo) around November, 2016, at a date to be coordinated with other Asian Summits, and with an estimated maximum IBIS expense budget of \$1,000 for possible incidentals. This Summit will be organized by the JEITA IBIS Promotion Working Group and actual expenses and Sponsorship contributions will be handled by JEITA outside of IBIS funding."

Radek seconded the motion. Bob noted that we have typically paid \$0 extra in the past, but the \$1,000 is to cover incidentals.

The vote passed with the following vote tally:

ANSYS – yes

Cadence – yes

Ericsson – yes (by email)

GLOBALFOUNDRIES – yes

IBM – yes

Intel – yes

IO Methodology – yes

Keysight – yes

Mentor – yes
Micron – yes
SiSoft – yes
Synopsis – yes
Teraspeed Labs – yes

- EPEPS 2016 Consideration

Bob Ross noted that we held a meeting at EPEPS in Santa Clara last year. This year, the meeting would be in San Diego on October 26, 2016. Mike LaBonte noted that we aren't sure who would travel to the meeting and if any IBIS officers could attend. Bob stated that it is a logistics overload due to the Asian IBIS Summits in November. We need to make sure there would be a core group of attendees to make the meeting valuable. Last year, José Schutt-Ainé was a co-chair and active in IBIS. This year, Paul Franzen is a co-chair and was active in the S2IBIS software development. We have a long relationship with participants in EPEPS. We might be able to leverage some of the Asian IBIS Summit presentations. Several IBIS member companies usually have participants at EPEPS and might contribute papers. Bob asked for members to consider not voting to support the Summit if they don't have anyone from their company who could attend.

Radek asked if there were any non-IBIS participants who might attend. Bob was not sure of any except maybe Qualcomm. He wondered if any members in the San Jose area would attend the meeting just for the day. Mike LaBonte added that sometimes sponsorships cover the cost of the Summits, but sometimes they don't. We have funds of \$18,590, but we should not commit to a worst-case expenditure for all the Summits that would be more than this. Bob also clarified that the Summit would be a half-day event, and it cost \$1,350 last year where the cost was completely covered by sponsorships.

Bob moved to schedule a vote for the July 1 teleconference on the following motion:

"IBIS shall conduct the 2nd EPEPS IBIS Summit Meeting in San Diego, California on the afternoon of October 26, 2016 and with an estimated maximum expense budget of \$2,500 that is expected to be partially or totally offset by Sponsorship contributions."

Mike will send the motion by email to allow votes by email before the July 1 meeting. Randy Wolff seconded the motion. There were no objections.

Bob moved to schedule a vote for the July 1 teleconference on the following motion:

"IBIS shall conduct the 7th Asian IBIS Summit Meeting in Taipei, Taiwan around November, 2016, at a date to be coordinated with other Asian Summits, and with an estimated maximum expense budget of \$10,000. This is expected to be partially offset by Sponsorship contributions, but we may have a loss of up to \$5,000 that can be covered by accumulated Summit funds." Curtis Clark seconded the motion. There were no objections.

Bob noted that the Taiwan Summit has operated at a loss for several years. We spent in 2015 \$6,432 with only \$2,720 in sponsorship. One sponsor decided to sponsor only the Shanghai Summit last year, resulting in a profit for that Summit and a loss for the Taipei Summit. Mike noted that attendance last year was around 75 people. There were not many locally submitted papers. Bob added that there has been a core group of IBIS members who have attended in the past.

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 focused on IBISCHK considerations such as bugs, the parser, documentation, etc.

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 is discussing pin referencing for the various voltages in IBIS with a couple proposals under consideration.

Task group material can be found at:

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

INTERCONNECT TASK GROUP

Mike LaBonte reported that the group is meeting on Wednesdays at 8:00 a.m. PT. The group is making some progress and is at draft 36 of the Interconnect BIRD. There is now a solutions requirements section for the new BIRD template. They are also discussing crosstalk models and victim/aggressor considerations.

Task group material can be found at:

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

EDITORIAL TASK GROUP

Mike LaBonte reported that the group is meeting on Fridays at 8:00 a.m. PT on weeks the Open Forum teleconference is not held. There has been some discussion of the reference nodes used for model creation and when a model is being used in a simulation.

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 document is still under review with a few other changes possible. We cannot officially change the document during the officer elections period.

The document can be found at:

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

- 2016 officer elections report

Radek Biernacki reported that we are in the voting period. The nomination period ended at the end of May. The vote is open through next Tuesday. About half of the membership votes are in. The results are expected to be announced on June 15 as scheduled.

According to the current Policies and Procedures (P&P) document, write-in votes are permitted. What we don't say is a requirement for the nominees to agree to be nominated. So, we must consider write-in votes valid even if the person has not agreed to be nominated. Radek thought these votes should be valid. Bob Ross noted that he thinks anyone that is elected must agree to serve. It is nice to have confirmation beforehand. If the person does not agree to serve, then we would have to schedule another election as soon as possible. Radek thought that we should address this issue in the revised P&P. Mike noted that we could revise the P&P to have the returning officer check with the write-in candidate to make sure they accept the nomination. Mike plans to include Radek in reviewing the updated P&P. Brad Brim asked if our intention is to require that write-in candidates must accept their nomination. Radek noted that this still needs to be decided.

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]

Bob Ross moved to un-table the BIRD for the purpose of scheduling a vote for the next meeting. Walter Katz seconded the motion.

Arpad Muranyi commented that there was discussion in the Interconnect task group. In one of Arpad's proposals for interconnect modeling, duplicated pin names would be useful for splits in signals. That proposal is on hold pending the Interconnect BIRD under discussion. Walter noted that the Interconnect group is assuming this BIRD will be approved, but he doesn't mind waiting to vote on it until after the Interconnect BIRD is approved. Bob's purpose was to bring up the BIRD in order to let it fix part of the specification being discussed by the Editorial task group. Arpad felt we should not schedule a vote and keep the BIRD tabled for now. Bob noted the parser already checks for this condition, and it will remain so.

Bob withdrew the motion. The BIRD will go back to tabled status.

IBISCHK6 PARSER AND BUG STATUS

Bob Ross reported we are in the process of getting a quote on an IBISCHK 6.1.3 upgrade. This includes 5 bugs to be fixed and implementing .dll/.so checking. 4 bugs haven't been classified yet.

BUG176 was found by Arpad Muranyi and relates to [External Model]. An error should be issued for a declared but unused port. Arpad wondered if a BIRD should be created for the specification. Should user-defined node names which are used between A_to_D and D_to_A converters be required in Node Declarations? Bob noted there is a second bug related to this. Bob moved to classify BUG176 as moderate severity and medium priority. Radek Biernacki seconded the motion. There were no objections.

BUG177 was found by Arpad. An error should be issued for empty [Node Declarations]. The parser crashes under this condition. Bob moved to classify BUG177 as severe severity and medium priority. Radek Biernacki seconded the motion. There were no objections.

Bob will update the status of the bugs and fix the spelling of Arpad's last name on the website [AR].

BUG178 was found by Michael Schaefer. There is an error where under [Algorithmic Model] a [Model] with Model_type I/O_* and with Executable_Tx and Executable_Rx subparameters should support identical Platform_Compiler_Bits. Radek commented that he wasn't sure if the example was correct showing a single .ami file. Bob noted that the bug exists for a single or multiple .ami files. Mike LaBonte suggested making the .ami file names unique in the example. Bob moved to classify BUG178 as severe severity and high priority. Curtis Clark seconded the motion. There were no objections.

BUG179 was found by Bob, Mike and Lance Wang. DLL/SO checking is formally issued as a bug report so the technical addition to the parser is documented. This is the main content addition to the parser that is being quoted to the parser developer. Bob noted that this is simple checking that doesn't pass a waveform into the .dll/.so, but that could be added later. Bob moved to classify BUG179 as enhancement severity and medium priority. Curtis Clark seconded the motion. There were no objections.

NEW TECHNICAL ISSUES

None.

NEXT MEETING

The next IBIS Open Forum teleconference meeting will be held July 1, 2016. A vote will be held to approve the Taipei and EPEPS Summits. The following IBIS Open Forum teleconference meeting will be held July 22, 2016.

Curtis Clark moved to adjourn. Arpad Muranyi 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/bugspl.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	April 29, 2016	May 11, 2016	May 20, 2016	June 10, 2016
ANSYS	User	Active	X	-	X	X
Broadcom Ltd.	Producer	Inactive	-	-	-	-
Cadence Design Systems	User	Active	-	-	X	X
CST	User	Inactive	-	X	-	-
Ericsson	Producer	Inactive	-	X	-	-
GLOBALFOUNDRIES	Producer	Inactive	-	-	-	X
Huawei Technologies	Producer	Inactive	-	-	-	-
Infineon Technologies AG	Producer	Inactive	-	-	-	-
IBM	Producer	Inactive	-	-	-	X
Intel Corp.	Producer	Active	X	X	X	X
IO Methodology	User	Active	X	X	X	X
Keysight Technologies	User	Active	X	X	X	X
Maxim Integrated Products	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
Synopsys	User	Active	X	X	X	X
Teraspeed Labs	General Interest	Active	X	-	X	X
Xilinx	Producer	Inactive	-	-	-	-
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.