



## IBIS Open Forum Minutes

Meeting Date: **March 31, 2017**

Meeting Location: **Teleconference**

### VOTING MEMBERS AND 2017 PARTICIPANTS

ANSYS	Curtis Clark*, Toru Watanabe
Applied Simulation Technology	(Fred Balistreri)
Broadcom	Bob Miller
Cadence Design Systems	Brad Brim*, Sivaram Chillarige, Debabrata Das Amrish Varma
Cisco Systems	(Bidyut Sen)
CST	Stefan Paret, Matthias Troescher
Ericsson	Zilwan Mahmud
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
Micron Technology	Randy Wolff*, Justin Butterfield
Qualcomm	Tim Michalka, Kevin Roselle
Raytheon	Joseph Aday
Signal Integrity Software	Mike LaBonte*, Walter Katz*, Todd Westerhoff
Synopsys	Kevin Li, Ted Mido*, John Ellis, Scott Wedge
Teraspeed Labs	Bob Ross*
Xilinx	(Raymond Anderson)
ZTE Corporation	(Shunlin Zhu)
Zuken	Ralf Bruening

### OTHER PARTICIPANTS IN 2017

Accton	Raul Lozano
ASUS	Nick Huang, Bin-chyi Tseng
eASIC	David Banas

Extreme Networks	Bob Haller
Independent	Dian Yang
John Baprawski, Inc.	John Baprawski
KEI Systems	Shinichi Maeda
Lattice Semiconductor	Maryam Shahbazi, Dinh Tran
SAE International	(Logen Johnson)
Signal Metrics	Ron Olisar
SPISim	Wei-hsing Huang
Toshiba	Yasuki Torigoshi

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 21, 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.

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### **INTRODUCTIONS AND MEETING QUORUM**

Mike LaBonte 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 on the minutes of the March 10, 2017 IBIS Open Forum teleconference. Randy noted a correction of the name "Signorini Gianni" to "Gianni Signorini" as requested by Bob Ross. Curtis Clark moved to approve the minutes with the noted change.

Radek Biernacki seconded the motion. There were no objections.

Randy Wolff reviewed ARs from the previous meeting.

1. Michael Mirmak to schedule another Interconnect Task Group meeting [AR].  
Michael reported this as done. Meetings have restarted.

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

Mike LaBonte noted that a BIRD189.1 was submitted for review.

Bob Ross noted that we might discuss some future Summits. He also noted that Mentor Graphics sale to Siemens has completed, so Siemens will be listed instead of Mentor Graphics as a member. (Note: after the meeting this was corrected by Arpad Muranyi to be Mentor, A Siemens Business.)

Mike asked if Bob would like to share a list of BIRDS for disposition for a future IBIS release. Bob responded that he'd prefer to discuss it in the Editorial task group.

### **MEMBERSHIP STATUS AND TREASURER'S REPORT**

Bob Ross reported that we have 25 members. 14 members have paid dues so far for 2017. Our account balance is at \$8,724 for 2017. Actual cash flow of \$6,974 has been collected in 2017. Bob reported we expect more membership payments. We should have a European IBIS Summit payment made by SAE sometime in the future.

### **WEBSITE ADMINISTRATION**

Mike LaBonte reported that there have been some fixes and minor adjustments to the poster and roster pages related to new memberships. There have been some document uploads and changes to the events page.

### **MAILING LIST ADMINISTRATION**

Curtis Clark reported that everything is going smoothly. We had two email addresses go stale, and those members have not joined with new emails.

### **LIBRARY UPDATE**

No update.

### **INTERNATIONAL/EXTERNAL ACTIVITIES**

- Conferences

Mike LaBonte noted the 11<sup>th</sup> annual PA Symposium on Signal Integrity on April 21, 2017 at Penn State Harrisburg. More information is available at:

<https://harrisburg.psu.edu/center-signal-integrity/symposium>

EDI-CON will be held in Boston on September 11-13, 2017. A Summit at this event is under consideration. More information is available at:

<http://www.ediconusa.com>

- Press Update  
None.

- Related standards  
None.

### **SUMMIT PLANNING AND STATUS**

- SPI 2017 IBIS Summit

The European IBIS Summit at SPI will be held on Wednesday afternoon, May 10, 2017. Bob Ross reported that four or five presentations are penciled in so far. Zuken will be managing the event onsite. Another announcement will go out next week. CST, Siemens (Mentor Graphics), and Zuken are official sponsors.

- EPEPS

Bob reported that the 26<sup>th</sup> Conference on Electrical Performance of Electronic Packaging and Systems (EPEPS) will be held in San Jose, CA on October 15-18, 2017. This is the same location as two years ago. We have been invited to host a Summit meeting there. Three Asian Summits will be held in November, so planning this meeting adds extra work during a busy time. Radek Biernacki noted that there was a good turnout for the meeting the last time. Bob added that many of the IBIS membership companies are sponsors of EPEPS. This is the major academic conference for signal and power integrity. Bob plans to propose that we hold a Summit meeting at EPEPS.

- EDI-CON

Mike LaBonte noted that we have discussed with the organizers the possibility of a Summit meeting at the event. Mike may attend since it is local to him.

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's discussion lately has focused on IBISCHK development bugs.

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

[http://www.ibis.org/ibischk6/ibischk\\_6.1.3\\_UserGuide\\_wip1.pdf](http://www.ibis.org/ibischk6/ibischk_6.1.3_UserGuide_wip1.pdf)

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

[http://www.ibis.org/quality\\_wip/](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 BIRD158 and the redriver flow.

Task group material can be found at:

[http://www.ibis.org/macromodel\\_wip/](http://www.ibis.org/macromodel_wip/)

### **INTERCONNECT TASK GROUP**

Michael Mirmak reported that the group resumed meeting on Wednesdays at 8:00 a.m. PT. With the submission of BIRD189.1, there may be just one additional meeting, and the group may then suspend again.

Task group material can be found at:

[http://www.ibis.org/interconnect\\_wip/](http://www.ibis.org/interconnect_wip/)

### **EDITORIAL TASK GROUP**

Michael Mirmak reported that meetings take place at 8:00am PT on Fridays that the IBIS Open Forum does not meet. The group is focused on planning the next version of IBIS including what it should include and whether it should be version 6.2 or 7.0.

Task group material can be found at:

[http://www.ibis.org/editorial\\_wip/](http://www.ibis.org/editorial_wip/)

### **NEW ADMINISTRATIVE ISSUES**

- Second revision of IBIS Policies and Procedures

Mike LaBonte reported that the latest revision of the IBIS Policies and Procedures document was submitted to SAE for legal review. Mike has asked SAE for a status update as it has been some time. There are some changes going on at SAE and we will have a new representative and be part of the ARINC branch.

Bob Ross noted that with respect to officer election, our policies are close enough to the new procedures that the impact will be very small. The board is coordinating a meeting with the new SAE representative for next week.

The document can be found at:

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

### **BIRD189.1: INTERCONNECT MODELING USING IBIS-ISS AND TOUCHSTONE**

Michael Mirmak noted this is a minor update anticipated when the BIRD was issued. Three of the figures were replaced. The language is improved related to unused port termination rules and also updated is the language about Aggressor\_Only related to incomplete crosstalk.

Bob Ross commented that he has a couple very minor editorial changes. He suggested Walter Katz be listed as the main author along with the Interconnect task group, possible listing task group members. Walter suggested listing all the members. Mike LaBonte commented that a long list of authors would make the BIRD page listing stretch over several inches of text. Bob added that he had a minor editorial change on page 23. The column header “aggressor\_only” is suggested to be “Aggressor\_Only” so as not to create a variant of the label. Mike note that this word is described as a token. He wondered if the column is showing allowed tokens, and if there could be expansions to additional tokens in the future. Bob commented that he saw this as just another optional column in the Terminal entry. The usage of “Aggressor\_Only” is shown on page 19, so we should match that usage. (Note that “Aggressor\_only” was mentioned by Bob during the meeting, but Bob requested after the meeting for this to be “Aggressor\_Only” in the minutes.)

Michael noted that we’d like to solicit more feedback on the BIRD, especially from those coming to the BIRD fresh. Radek Biernacki commented maybe we should more actively ask the hardware vendors to provide comments. Walter added that we are doing some subtle editorial work right now, but substantively the BIRD hasn’t changed in a while. He suggested we make a motion at the next meeting to hold a vote at the following meeting.

### **BIRD187.3: FORMAT AND USAGE OUT CLARIFICATIONS**

Michael Mirmak noted a few changes were made to address concerns from Radek Biernacki regarding Increment. Radek supplied new text that was added to the BIRD. Also, a sentence was added to the definition of Range.

Bob Ross moved to schedule a vote on BIRD187.3 at the next meeting. Michael seconded the motion. There were no objections.

### **BIRD186.1: FILE NAMING RULES**

Arpad Muranyi commented that he was concerned about forward looking references in the BIRD that are related to BIRD189. As a general rule, we don’t like to have references pointing to non-existing features. If this BIRD goes into the spec without BIRD189, then perhaps the references should be removed. Walter Katz commented that the next version of IBIS may be 7.0 and include both BIRDs. Arpad commented that there is no issue if we decide upon this path. Radek Biernacki commented that he was not sure how to handle the situation if both BIRDs are not in the next version of IBIS. Bob commented that we could require both BIRDs to

be in the same version. In this case, the BIRD stands as-is. Radek asked if we should vote with the requirement that both BIRDS be in the same version of the specification. Bob commented that we could say that these BIRDS would not be in a version 6.2 minor release if we create one. He noted that it interacts with backchannel, BIRD189, and all file references in IBIS. There are substantial changes to the specification.

Radek commented that on page 4 there is a statement that “There may not be a “/” in the file name.” He thought the word “may” should be “shall”. Walter stated that the sentence should be reworded to “There shall not be a “/” in the file name of a “.pkg”, “.ibs” or “.ebd” file.” Arpad commented that the file name of a “.ims” file also cannot include a “/”. Walter amended his earlier statement to say that the change could simply be “may” changed to “shall”.

Mike LaBonte noted that we use the term “file name” before defining what it is. We could add a statement to say “the file name appearing after the [File Name] keyword”. Walter also noted that the description of [File Name] says “Specifies the name of the .ibs file.”, and this is not technically correct anymore.

Radek though this BIRD misses the distinction that we use the term “file name” to refer to the name of the file after the [File Name] keyword.

Mike added that we also made a change to reference extensions as “ibs” instead of “.ibs” for instance.

The vote was postponed so that the editorial task group could address two changes. The first is revising “may” to “shall” and the second is revising the Description text. Bob also commented that the word “Labs” in “Teraspeed Labs” should be shifted in the header area of the BIRD to align with other text.

### **BIRD158.3: AMI TOUCHSTONE ANALOG BUFFER MODELS**

Radek Biernacki commented that a BIRD158.4 draft is in progress. Bob plans to comment on the new BIRD draft once available.

### **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.

### **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.

### **BIRD181.1: I-V TABLE CLARIFICATIONS**

Discussion was tabled.

### **IBISCHK6 PARSER AND BUG STATUS**

Bob Ross reported that five new bugs need to be classified. These can be dealt with in a future release of the parser.

BUG185 was introduced by Mike LaBonte. IBISCHK 6.1.3 compiled for MacOS reports that it is compiled for Linux, and it checks AMI DLL files as though for Linux. This bug affects people running on Macintosh. The parser will do all checks except the ones that look inside DLLs. Mike suggested classifying the bug as moderate severity and medium priority. Bob moved to classify the bug as moderate severity and medium priority. Michael Mirmak seconded the motion. There were no objections.

BUG186 was introduced by Mike. When the parser says it is unable to load a code file on Linux SO, the message prints an unnecessary “./” ahead of the file name. Windows OS issues a different message that is missing the name of the file. Bob moved to classify the bug as annoying severity and low priority. Curtis Clark seconded the motion. There were no objections.

BUG187 was introduced by Mike. A new line is missing in the printout of a warning message about unreferenced models. This occurs only on 64-bit operating systems. Mike suggested moderate severity, since EDA tools that parse for warnings would expect to see the warning label at the start of a new line. Bob moved to classify the bug as moderate severity and low priority. Curtis Clark seconded the motion. There were no objections.

BUG188 was introduced by Bob. This bug has existed since day one. If an empty file is checked by the parser, no message is issued. If the file contains even a single “|” character,

then an error message is issued. A completely empty .ami file with no root name does not cause an error. Bob suggested that we fix the issue, although we could classify it as “will not fix”. Bob moved to classify the bug as moderate severity and low priority. Michael seconded the motion. There were no objections.

BUG189 was introduced by Bob. Yingxin Sun found that the parser crashes when [Model Selector] points to a non-existent [Model]. Bob moved to classify the bug as severe severity and high priority. Arpad Muranyi seconded the motion. There were no objections. Radek Biernacki commented that the title of the bug is not correct and should mention “Model” not “File”.

Bob plans to get a preliminary estimate for a parser update to fix BUG181 through BUG189. We may need to create a specification for the parser developer. We are providing some code fixes to the developer for some of the bugs, but others require more work.

## **NEW TECHNICAL ISSUES**

None.

## **NEXT MEETING**

The next IBIS Open Forum teleconference meeting will be held April 21, 2017. A vote on BIRD187.3 is scheduled. The following IBIS Open Forum teleconference meeting will tentatively be held May 12, 2017.

Radek Biernacki moved to adjourn. Michael Mirmak seconded. The meeting adjourned.

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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](mailto: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](mailto:ibis@freelists.org) and/or [ibis-users@freelists.org](mailto:ibis-users@freelists.org) email lists (formerly [ibis@eda.org](mailto:ibis@eda.org) and [ibis-users@eda.org](mailto:ibis-users@eda.org)).
- To subscribe to one of the task group email lists: [ibis-macro@freelists.org](mailto:ibis-macro@freelists.org), [ibis-interconn@freelists.org](mailto:ibis-interconn@freelists.org), or [ibis-quality@freelists.org](mailto: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](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	February 3,	February 17, 2017	March 10, 2017	March 31, 2017
			2017			
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	-	-	-	-
IBM	Producer	Active	X	X	X	X
Infineon Technologies AG	Producer	Inactive	-	-	-	-
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	Producer	Inactive	X	-	-	-
Mentor, A Siemens Business	User	Active	X	X	X	X
Micron Technology	Producer	Active	X	X	X	X
Qualcomm	Producer	Inactive	X	-	-	-
Raytheon	User	Inactive	X	-	-	-
Signal Integrity Software	User	Active	X	X	X	X
Synopsys	User	Active	X	-	X	X
Teraspeed Labs	General Interest	Active	X	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.