



IBIS Open Forum Minutes

Meeting Date: **April 13, 2018**

Meeting Location: **Teleconference**

VOTING MEMBERS AND 2018 PARTICIPANTS

ANSYS	Curtis Clark*
Applied Simulation Technology	(Fred Balistreri)
Broadcom	(Yunong Gan)
Cadence Design Systems	Brad Brim*, Ken Willis, Ambrish Varma
Cisco Systems	Stephen Searce, Cassie Yan, Baosh Xu
CST	Stefan Paret
Ericsson	Anders Ekholm, Zilwan Mahmod, Guohua Wang
GLOBALFOUNDRIES	Steve Parker*
Huawei Technologies	(Hang (Paul) Yan)
IBM	Greg Edlund
Infineon Technologies AG	(Christian Sporrer)
Intel Corporation	Hsinho Wu*, Michael Mirmak*, Nilesh Dattani
	Fernando Mendoza Hernandez, Varun Gupta
	Subas Bastola, Hansel Dsilva
IO Methodology	Lance Wang*
Keysight Technologies	Radek Biernacki*, Ming Yan, Heidi Barnes
	Pegah Alavi
Maxim Integrated	Joe Engert, Yan Liang
Mentor, A Siemens Business	Arpad Muranyi*, Weston Beal, Raj Raghuram
	Carlo Bleu, Mikael Stahlberg, Yasushi Kondou
	Vladimir Dmitriev-Zdorov
Micron Technology	Randy Wolff*, Justin Butterfield
NXP	(John Burnett)
Qualcomm	Kevin Roselle, Tim Michalka
Raytheon	Joseph Aday
SiSoft	Mike LaBonte*, Walter Katz*, Todd Westerhoff
Synopsys	Ted Mido, Adrien Auge, Scott Wedge
Teraspeed Labs	Bob Ross*
Xilinx	Ravindra Gali
ZTE Corporation	(Shunlin Zhu)
Zuken	Michael Schaefer, Takayuki Shiratori

OTHER PARTICIPANTS IN 2018

Google	Zhiping Yang
Haskware	David Banas

John Baprawski, Inc.
KEI Systems
Lattice Semiconductor
OmniVision
Ricoh
RITA Electronics Ltd.
SAE-ITC
Signal Metrics
Socionext
SPISim
Stanford University
Toshiba

John Baprawski
Shinichi Maeda
Dinh Tran, Maryam Shahbazi
Sirius Tsang
Kazuki Murata
Kenichi Higashiura, Hiroyuki Motoki
(Jose Godoy)
Ron Olisar
Megumi Ono
Wei-hsing Huang
Tom Lee
Yasuki Torigoshi, Yoshinori Fukuba

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
May 4, 2018	624 227 121	IBISfriday11

For teleconference dial-in information, use the password at the following website:

<http://tinyurl.com/y7yt7buz>

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.

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 March 23, 2018 IBIS Open Forum teleconference. Radek Biernacki moved to approve the minutes. Curtis Clark seconded the motion. There were no objections.

Mike reviewed ARs from the previous meeting.

1. Mike to update website with BIRD193 vote changes [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 at 26 members. There have been 16 renewals for 2018 so far. There is \$12,040 in the treasury. We expect to record the payment for the SPI Summit as well as one or two more sponsor payments to be made. He will start reminding people of membership payments soon. Invoices went out in January. Mike LaBonte noted that about 10 more membership payments are anticipated.

WEBSITE ADMINISTRATION

Mike LaBonte reported that Qualcomm has updated their logo, so that new logo is updated on the website. He has been contacted by SAE-ITC saying that they are intending to add some kind of news item to their website to promote our Summit meeting in May. They are asking for photo assets for that. This is part of increased engagement recently from SAE-ITC including website enhancements and integrations with IBIS.

MAILING LIST ADMINISTRATION

Curtis Clark reported this has been a typical period. Some emails went stale, and he contacted the people and their new addresses have been updated. Mike LaBonte noted we have IBIS addresses such as info@ibis.org, and he has received inquiries recently through these addresses. He has passed these questions on to Curtis to see if the people would like to subscribe to the mailing lists.

LIBRARY UPDATE

None.

INTERNATIONAL/EXTERNAL ACTIVITIES

- Conferences

SPI2018 – the 22nd IEEE Workshop on Signal and Power Integrity will be held in Brest, France on May 22-25, 2018. An IBIS Summit will be held after the event. More information is available at:

<https://spi2018.sciencesconf.org/>

- Press Update
None.

- Related standards
IEC 63055/IEEE 2401, JEITA “LPB”

Michael Mirmak reported a solicitation went out for LPB to determine the dates of their next meetings. These should occur sometime in May.

SUMMIT PLANNING AND STATUS

- European IBIS Summit at SPI 2018

SPI 2018 will be held in Brest, France on May 22 through May 25, 2018. An IBIS Summit will be held the afternoon of Friday, May 25, 2018. Presentations are welcome. Mentor, a Siemens Business, SiSoft, Teraspeed Labs, and Zuken are sponsors.

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. Discussion continues to be about IBISCHK. Mike was contacted by a model developer who was having an issue related to IBISCHK and [ISSO *] keyword information. A bug report may come out of this discussion.

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 discussing topics to help the completion of BIRD189 related to A_gnd and Node 0 usage in subcircuits.

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 Friday Editorial task group time slot is also used on occasion. There is a strong focus on referencing and the A_gnd concept, with focus on one set of passages about the treatment of references through subcircuit hierarchies. There is a lot of reflector activity on this topic.

Task group material can be found at:

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

EDITORIAL TASK GROUP

Mike LaBonte reported that this group remains suspended. Should there be any official document to review such as IBIS 7.0, the task group will resume meetings on Fridays when there is no Open Forum teleconference.

Task group material can be found at:

http://www.ibis.org/editorial_wip/

NEW ADMINISTRATIVE ISSUES

None.

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.

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.

IBISCHK PARSER AND BUG STATUS

Bob Ross reported there are no new bugs and no new work on IBISCHK6. The specification for IBISCHK7 is being worked on to be part of the parser contract.

NEW TECHNICAL ISSUES

Arpad Muranyi shared an email recently sent to the Interconnect and ATM task group reflectors. Arpad was attempting to understand some comments from Radek Biernacki regarding the use of Node 0 inside IBIS-ISS subcircuits.

Arpad showed how an IBIS-ISS subcircuit using Node 0 does not have a terminal on the subcircuit line for Node 0. He thinks Radek Biernacki's warning message is meant to say that we need to count use of Node 0 as having an extra terminal on the subcircuit line. Radek responded he did not suggest to re-write the subcircuit definition to add an extra terminal.

Arpad's next drawing showed a connection of the IBIS-ISS subcircuit to a PCB trace model that also uses Node 0. This is a proper connection between the package and the PCB models. We are acting as if there was an 11th terminal through the use of Node 0 as a global concept. If an 11th terminal was brought out, then the subcircuit could get its connection through an explicit terminal. But, Node 0 is handled implicitly as a global node. Radek noted he could adopt language saying Node 0 is treated as if it is an additional terminal. However, it is not treated explicitly. We should understand that if we have Node 0 inside, that we treat it as-if it is an additional terminal.

Michael Mirmak noted we get stuck on the automation piece. If we have Node 0 inside a subcircuit, do we have any way of forcing the treatment outside of the subcircuit terminal line? Do all the subcircuit lines have to change to force Node 0 to be physically called out? Arpad noted a tool will see Node 0 and have to connect that node to its reference node. Automation will guide the tool to use Node 0 if it exists within a subcircuit.

Walter Katz noted we are supporting IBIS-ISS which supports Node 0 inside subcircuits. Any simulator that does not support Node 0 is not IBIS-ISS compliant. It is the problem of that simulator to solve if it does not support Node 0 as a global SPICE node. Walter added that if no current goes to Node 0, then it doesn't matter. He doesn't think this is an IBIS issue.

Radek thinks the user should be informed if Node 0 exists in a model. Walter said IBISCHK could inform the user of models that contain Node 0. Randy Wolff commented that he did not see EDA tools warning users now about Node 0 inside subcircuits. Michael asked if we are talking about a warning specific to the IBIS-ISS parser or IBISCHK. Walter said IBISCHK would need to parse the full model. Bob Ross said this would need to be the IBIS-ISS parser if it existed. He suggested just having a warning message in the specification.

Arpad noted that just because there is a Node 0 in a subcircuit, it doesn't mean that the reference is not handled properly for the subcircuit. In BIRD158, we can guarantee the S-parameter blocks are referenced to A_gnd. If we have a warning, the EDA tool or user may make incorrect judgements about the use of Node 0. Walter noted the EDA tool has no choices, since it is just hooking up the terminals as indicated by the model maker. You can make BIRD189 models any way you want including not using Node 0. We should not say which are good and bad models, since this is up to the model maker to make models that are up to their requirements. We might make a warning about use of Node 0 at the most. Supporting documents that are not part of the BIRD could contain useful information. Bob commented that all we can do at best is issue a warning, but issue a warning in the specification and not through the parser.

Arpad noted that the package model example from Randy shows a use of Node 0, and the warning may be misleading when the referencing is done properly, even though the subcircuit uses Node 0. Randy noted he supported a warning in the specification about use of Node 0, but he thought it was going too far to add a search for Node 0 in the parser. Mike LaBonte added he thought a note in the specification is good, but maybe even the use of warning language is too strong.

Mike asked about the example from Arpad. This reminds him of the issue in package modeling of where the package ends and the board begins. Randy noted you may model a reference for a package as being somewhere on a PCB. When you join the two models, you know where the reference to the package is. Walter noted there may be x,y locations you can figure out to connect references when BGA balls connect to the PCB.

NEXT MEETING

The next IBIS Open Forum teleconference meeting will be held on May 4, 2018. Mike LaBonte will be at the SPI meeting on May 25. Mike moved to schedule June 1 for the following meeting. Arpad seconded the motion. There were no objections. The following IBIS Open Forum teleconference meeting is tentatively scheduled on June 1, 2018.

Arpad Muranyi moved to adjourn. Bob Ross seconded the motion. The meeting adjourned.

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	February 16, 2018	March 9, 2018	March 23, 2018	April 13, 2018
ANSYS	User	Active	X	X	X	X
Applied Simulation Technology	User	Inactive	-	-	-	-
Broadcom Ltd.	Producer	Inactive	-	-	-	-
Cadence Design Systems	User	Active	-	-	X	X
Cisco Systems	User	Inactive	-	-	-	-
CST	User	Inactive	-	-	-	-
Ericsson	Producer	Inactive	-	-	-	-
GLOBALFOUNDRIES	Producer	Active	X	X	-	X
Huawei Technologies	Producer	Inactive	-	-	-	-
IBM	Producer	Inactive	-	-	-	-
Infineon Technologies AG	Producer	Inactive	-	-	-	-
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	Producer	Inactive	-	-	-	-
Mentor, A Siemens Business	User	Active	-	X	X	X
Micron Technology	Producer	Active	X	X	X	X
NXP	Producer	Inactive	-	-	-	-
Qualcomm	Producer	Inactive	-	-	-	-
Raytheon	User	Inactive	-	-	-	-
SiSoft	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 Corp.	User	Inactive	-	-	-	-
Zuken	User	Inactive	-	-	-	-

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.