

# IBIS Open Forum Minutes

Meeting Date: **August 30, 2013**

Meeting Location: **Teleconference**

## VOTING MEMBERS AND 2013 PARTICIPANTS

Agilent	Radek Biernacki*, Pegah Alavi, Heidi Barnes, Fangyi Rao, Colin Warwick, Tarun Kalwani
Altera	David Banas, Hsinho Wu
ANSYS	Luis Armenta, Ben Franklin, Dan Dvorscak, Steve Pytel
Applied Simulation Technology	Fred Balistreri, Norio Matsui
Cadence Design Systems	Terry Jernberg, Joy Li, Yingxin Sun, Ambrish Varma*, Kevin Yao, Brad Brim
Ericsson	Anders Ekholm*, Martina Fiammengo
Foxconn Technology Group	(Sogo Hsu)
IBM	Greg Edlund, Adge Hawes*, Dale Becker
Infineon Technologies AG	(Christian Sporrer)
Intel Corporation	Michael Mirmak, Mohammad Bapi*, Stewart Gilbert, Ravindra Rudraraju
IO Methodology	Lance Wang
LSI	Brian Burdick*, Sarika Jain, Xingdong Dai
Maxim Integrated Products	Hassan Rafat, Mahbubul Bari, Ron Olisar
Mentor Graphics	Arpad Muranyi*, Ed Bartlett, Vladimir Dmitriev-Zdorov
Micron Technology	Randy Wolff
Signal Integrity Software	Walter Katz*, Mike LaBonte*, Mike Steinberger, Todd Westerhoff
Synopsys	John Ellis, Ted Mido, Scott Wedge, Rinsha Reghunath
Teraspeed Consulting Group	Bob Ross*, Tom Dagostino
Toshiba	(Yasumasa Kondo)
Xilinx	(Raymond Anderson)
Zuken	Masaud Raeisi, Reinhard Remmert, Michael Schaefer, Alfonso Gambuzza

## OTHER PARTICIPANTS IN 2013

Bayside Design	Elliot Nahas
Computer Simulation Technology	Heiko Grubrich
ECL Advantage	Thomas Iddings
Freescale	Jon Burnett
Granite River Labs	Vamshi Kandalla, Miki Takahashi
Hewlett-Packard	Yongjin Choi, Ting Zhu
KEI Systems	Shinichi Maeda
Molex	Davi Correia
National Instruments	Lee Mohrmann
Nvidia	Eric Hsu

Qualcomm	Scott Powers
QLogic	James Zhou
SAE	(Chris Denham)
TechAmerica	[Chris Denham]
Teradyne	Raymond Yakura
Université de Brest	Mihai Telescu
University of Illinois	Tom Comberiate, José Schutt-Ainé, Xu Chen
Vitesse Semiconductor	Sirius 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
September 20, 2013	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 AM to 9:55 AM 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](http://www.cisco.com/web/about/doing_business/conferencing/index.html)

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. Bob Ross led the meeting.

## CALL FOR PATENTS

Bob Ross called for any patents or pending patents related to the IBIS 3.2, IBIS 4.2, IBIS 5.1, Touchstone 2.0 or ICM 1.1 specifications. No patents were declared.

## **REVIEW OF MINUTES AND ARS**

Bob Ross called for comments regarding the minutes of the August 9, 2013 IBIS Open Forum teleconference. The minutes were approved without changes.

## **MISCELLANY/ANNOUNCEMENTS**

None.

## **CALL FOR NEW ISSUES**

None.

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

Bob Ross reported no change in membership, with 21 members currently. Two membership renewal payments are expected. Also there are two potential parser payments upcoming, one for IBISCHK and one for TSCHK.

## **WEB PAGE AND MAILING LIST ADMINISTRATION**

Mike LaBonte reported that he has had further communication with eda.org administrators regarding installation of PHP bug tracking software to replace some of our static web pages, which require manual update. They have already created two Mantis installations and remain unwilling to install another, particularly due to the need to research security considerations for Bugzilla and Redmine, which are unfamiliar to them. However, Mike has been given full administrator permission for the Mantis installation, and he believes this will allow for sufficient customization. Mike also noted that Mantis integrates with the wiki that we have been testing.

Regarding email, Mike said that it appears Stanford University has resolved their SMTP server reputation issue, and email has been flowing fairly smoothly to recipients. Some quirks remain, such as people at certain companies not receiving list emails sent by others at the same company.

## **MODEL LIBRARY UPDATE**

No update.

## **INTERNATIONAL/EXTERNAL ACTIVITIES**

- Conferences

The 22<sup>nd</sup> IEEE Workshop on Electrical Performance of Electronic Packaging and Systems (EPEPS 2013) will be held October 27-30, 2013 in San Jose, California. There may be content related to IBIS modeling. More information is available at:

<http://epeps.ece.illinois.edu/>

- Press Update

Bob Ross noted that the idea of using Latency Insertion Method for IBIS simulation by Cadence and U. of Illinois was discussed at several Summits. An additional paper citation he found is:

"IBIS Simulation Using the Latency Insertion Method (LIM)",  
IEEE Trans. Components, Packaging and Manufacturing Technology,  
July, 2013, pp. 1228-1236. J. Schutt-Aine, P.Liu, J. Tan, A. Varma,

## **SUMMIT PLANNING AND STATUS**

- Asia Events

Bob Ross reported that hotel facilities are reserved for the November 15 summit in Shanghai and the November 19 summit in Taipei. The Yokohama summit will be November 22, but no announcement has yet been sent for that. The Shanghai lead sponsor will again be Huawei. Intel and IO Methodology will also sponsor Shanghai as well as Taipei.

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 no meetings have taken place in the last 3 weeks. Mike has continued to work on the spreadsheet of IBISCHK messages and he should have progress to report next month. Meetings will then resume to review this in the Tuesday at 8:00 a.m. PT time slot.

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

[http://www.eda.org/ibis/quality\\_wip/](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. They are currently discussing BIRD 155, which is approaching finalization. BIRD 147 for backchannel support is also under discussion.

Task group material can be found at:

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

## **INTERCONNECT TASK GROUP**

Arpad Muranyi reported that the group has resumed meeting and has discussed the Si2 specification as it relates to our work. Also, EMD and BIRD 125 have been discussed. Arpad would like to see other members represented in the meetings, especially IC vendors.

Bob Ross asked if all proposals support stacked dies. Arpad said there has been discussion of

that, but didn't remember whether the proposals provide a solution for that. Bob suggested we might move BIRD 145 discussion back to ATM to accommodate Ambrish Varma's schedule. Arpad said that and other topics might be moved to the ATM meetings since those meetings seem to have better attendance. Bob confirmed that an ATM meeting would be held this Tuesday.

The task group documents can be found at:

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

### **EDITORIAL TASK GROUP**

Arpad Muranyi reported that there have been no formal meetings. The draft IBIS 6.0 specification has remained unchanged since its introduction in the last open forum meeting. Arpad suggested this agenda item can be dropped after the IBIS 6.0 vote.

The draft IBIS 6.0 document is available for review at:

[http://www.eda.org/ibis/ver6.0\\_wip/](http://www.eda.org/ibis/ver6.0_wip/)

### **NEW ADMINISTRATIVE ISSUES**

None.

### **IBIS 6.0 DRAFT SPECIFICATION**

Bob Ross noted that the draft is available for review and is linked directly from the main IBIS web page. Mike LaBonte showed the document and Bob described editorial changes that have been made. Arpad Muranyi asked if [Repeater Pin] should be marked in the "required" column. Radek Biernacki agreed. Ambrish Varma noted that he had suggested spelling corrections. Bob showed that these corrections have been made. Ambrish asked if the PDF version of the document could have bookmarks for easy navigation. Mike will look into that.

On page 99 Bob described a section that was discussed in the last ATM meeting. The section is dedicated to [External Model] only, and Bob said that since an AMI model cannot be instantiated through [External Circuit], model parameters couldn't come from .ami files. Arpad responded that the [Model] which has [External Circuit] is not required to have an [Algorithmic Model] in it, but the [External Circuit]'s parameter could still come from an .ami file, if it exists. Radek suggested this is a minor confusion and could be addressed later. He noted however that a phrase "couldn't be used" constituted poor grammar in one sentence. Bob suggested not changing that for now.

Arpad recalled that any changes must be submitted at least 2 weeks ahead of the vote scheduled for September 20. Bob said changes will be made in time, but also that a vote with agreed changes is an option.

On page 188 Ambrish asked if all three values are required in a Corner format, noting that IBIS allows missing min and max values. Bob said they are and the parser will flag an error if any are

missing.

Mike and Bob will work to complete the 3 editorial changes. A vote for approval is scheduled for the next open forum meeting.

**BIRD125.1: MAKE IBIS-ISS AVAILABLE FOR IBIS PACKAGE MODELING**

Discussion was tabled.

**BIRD128: 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.

**BIRD150: IBIS-AMI NEW RESERVED PARAMETERS FOR DEPENDENCY TABLES**

Discussion was tabled.

**BIRD155: NEW AMI API TO RESOLVE DEPENDENT MODEL PARAMETER**

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.

**IBISCHK5 PARSER AND BUG STATUS**

Bob Ross reported that all bugs have been closed. He noted that we need to sort out our funding to pay for future parser work. Arpad Muranyi asked whether bidding was required, or can we just rehire the current parser developer. Bob said that the contract idea has not been formally proposed yet, and that bidding is not required unless the open forum votes to require it.

## **NEW TECHNICAL ISSUES**

None.

## **NEXT MEETING**

The next IBIS Open Forum teleconference will be held September 20, 2013 from 8:00 a.m. to 10:00 a.m. US Pacific Time. A vote is scheduled at this meeting on the IBIS 6.0 specification. The following meeting will be held October 11, 2013.

Arpad Muranyi moved to adjourn. Radek Biernacki 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.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.org)

To join, change, or drop from either or both:  
IBIS Open Forum Reflector ([ibis@eda.org](mailto:ibis@eda.org))  
IBIS Users' Group Reflector ([ibis-users@eda.org](mailto:ibis-users@eda.org))  
State your request.

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

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/)  
[http://www.eda.org/ibis/tschk\\_bugs/bugform.txt](http://www.eda.org/ibis/tschk_bugs/bugform.txt)

[icm-bug@eda.org](mailto:icm-bug@eda.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.org/ibis/icm_bugs/)  
[http://www.eda.org/ibis/icm\\_bugs/icm\\_bugform.txt](http://www.eda.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.org/ibis/bugs/s2ibis2/bugs2i2.txt>  
<http://www.eda.org/ibis/bugs/s2iplt/bugspl.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>

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## IBIS – SAE STANDARDS BALLOT VOTING STATUS

### I/O Buffer Information Specification Committee (IBIS)

Organization	Interest Category	Standards Ballot Voting Status	June 28, 2013	July 19, 2013	August 9, 2013	August 30, 2013
Agilent Technologies	User	Active	X	X	X	X
Altera	Producer	Active	X	-	X	-
ANSYS	User	Inactive	-	-	-	-
Applied Simulation Technology	User	Inactive	-	-	-	-
Cadence Design Systems	User	Active	-	X	-	X
Ericsson	Producer	Inactive	-	-	-	X
Foxconn Technology Group	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	Inactive	X	X	-	-
LSI	Producer	Active	-	-	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	X
Synopsys	User	Inactive	-	-	-	-
Teraspeed Consulting	General Interest	Active	X	X	X	X
Toshiba	Producer	Inactive	-	-	-	-
Xilinx	Producer	Inactive	-	-	-	-
Zuken	User	Inactive	-	-	-	-

#### 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.