IBIS Open Forum Minutes

Meeting Date: **October 3, 2014**
Meeting Location: **Teleconference**

VOTING MEMBERS AND 2014 PARTICIPANTS

Altera	David Banas, Kundan Chand, Hsinho Wu
ANSYS	(Steve Pytel)
Applied Simulation Technology	Fred Balistreri, Norio Matsui
Cadence Design Systems	Ambrish Varma, Brad Brim*, Joy Li, Kumar Keshavan, Ken Willis, Yingxin Sun, Joshua Luo, John Phillips
Ericsson	Anders Ekholm, Zilwan Mahmod
Huawei Technologies	Jinjun Li, Xiaoqing Dong, Zanglin Yuan, Han Li
Infineon Technologies AG	(Christian Sporrer)
Intel Corporation	Michael Mirmak*, Jon Powell, Riaz Naseer Udy Shrivastava, Mustafa Yousuf, Jimmy Jackson Pietro Brenner, Todd Bermensolo
IO Methodology	Lance Wang*, Michelle Coombs
Keysight Technologies (Agilent)	Radek Biernacki*, Nilesh Kamdar, Colin Warwick, Graham Riley, Pegah Alavi, Fangyi Rao, Heidi Barnes, Dimitrios Drogoudis
LSI (Avago)	Xingdong Dai, Min Huang, Anaam Ansari, Brian Burdick Venkatesh Avula
Maxim Integrated Products	Hassan Rafat
Mentor Graphics	Arpad Muranyi*, John Angulo, Fadi Deek, Chuck Ferry Thomas Groebli
Micron Technology	Randy Wolff*
Qualcomm	Jaimeen Shah, Srinivasa Rao, Senthil Nagarathinam
Signal Integrity Software	Mike LaBonte*, Walter Katz*, Todd Westerhoff, Michael Steinberger
Synopsys	Ted Mido*, Scott Wedge, Kevin Cameron, Rita Horner
Teraspeed Labs (Teraspeed Consulting Group)	Bob Ross*, Tom Dagostino, Scott McMorrow
Toshiba	Hiroyuki Ikegami, Toshihiro Tsujimura, Hideo Oie*
Xilinx	Ravindra Gali
ZTE Corporation	(Shunlin Zhu)
Zuken	Michael Schaeder, Amir Wallrabenstein, Griff Derryberry Reinhard Remmert

OTHER PARTICIPANTS IN 2014

ADVLSI	Pierre Dermy, Juanna Gao
Carleton University	Ramachandra Achar
Continental Automotive	Catalin Negrea
CST	Stefan Paret

ECL Advantage	Thomas Iddings
Freescale	Asher Berkovitz
Fujitsu	Shogo Fujimori
Hewlett Packard	Ting Zhu
Hong Kong University	Lijun Jiang
IBM	Adge Hawes*
Instituto de Telecomunicações	Wael Dghais
KEI Systems	Shinichi Maeda
Lattice Semiconductor	Xu Jiang
Mediatek	Alice Lin
Mellanok Technologies	Piers Dawe
Microsemi	Nizar Abdallah, Ann Lau
Nanium	Abel Janeiro
Oracle	Stephan Mueller
Pangeya	Edgar Aguirre
Proficient Design	Kishor Patel
Renesas	Genichi Tanaka
SAE International	Chris Denham
Tabula	Ben Zhou
Technische Universität Hamburg	Torsten Reuschel
University of Illinois	José Schutt-Ainé
Vitesse	Siris 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
October 24, 2014	205 475 958	IBIS
November 14, 2014	Asian IBIS Summit – Shanghai – no teleconference	
November 17, 2014	Asian IBIS Summit – Taipei – no teleconference	
November 20, 2014	Asian IBIS Summit – Yokohama – no teleconference	

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:

http://www.cisco.com/web/about/doing_business/conferencing/index.html

NOTE: "AR" = Action Required.

INTRODUCTIONS AND MEETING QUORUM
Michael Mirmak declared that a quorum was reached and the meeting could begin.

CALL FOR PATENTS
Michael Mirmak called for any patents or pending patents related to the IBIS 3.2, IBIS 4.2, IBIS 5.1, IBIS 6.0, 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 September 12, 2014 IBIS Open Forum teleconference. The minutes were approved without changes.

ANNOUNCEMENTS
None.

CALL FOR ADDITIONAL AGENDA ITEMS
None.

MEMBERSHIP STATUS AND TREASURER'S REPORT
Bob Ross reported that Huawei is officially a voting member again after receiving their payment. We now have 22 paid members. We have recently received a parser payment and made the DAC payment and a Taiwan Summit payment for holding the room. The treasury sits at $35,184.

WEB PAGE AND MAILING LIST ADMINISTRATION
Mike LaBonte reported that the email situation is bad. A lot of spam goes through our system, although it is not reaching members, only administrators. The spam goes through eda.org and the Stanford SMTP server. That server's reputation is very low, so certain end recipient servers are rejecting messages from the Stanford server (smtp-grey@stanford.edu). For the first time, a few emails from the eda.org server are going to the Stanford server, and the Stanford server is rejecting them. Mike is trying to get help from the eda.org administrators.

Mike has started a document that addresses our needs for IT services. It is a starting point in

case we need to shop around for other services. So far it describes what we have today. The next section to add will describe in more detail our websites. Then a section will describe all the things we'd like to have.

Michael Mirmak asked if a move to freelists would be a good solution. Mike thought this might be a good idea, since we don't have a lot of traffic. He likes the way the freelists mailing lists work.

LIBRARY UPDATE
No update.

INTERNATIONAL/EXTERNAL ACTIVITIES
- Conferences
The 23rd Conference on Electrical Performance of Electronic Packaging (EPEPS) will be held October 26-29, 2014 in Portland, Oregon. There is usually some IBIS and/or signal integrity related material. More information is available at:

http://epeps.org

- Press Update
None.

-P1735 IEEE IP encryption standard
Michael Mirmak reported that the entire package has been moved through the IEEE process, and by December 10 or 11, the revisions committee and standards boards will be considering it. If they approve, it will be published as a standard by mid March 2015. We could make use of this in IBIS for multi-lingual approaches in the future.

SUMMIT PLANNING AND STATUS
- Asian IBIS Summit Shanghai – November 14, 2014
This event will be held at the Parkyard Hotel. Bob Ross reported that seven presentations are tentatively planned. Two new sponsors are ANSYS and Teledyne LeCroy. Sponsors for Shanghai now include Huawei Technologies, ANSYS, IO Methodology, Synopsys, Teledyne LeCroy, ZTE Corporation and others to be determined.

- Asian IBIS Summit Taipei – November 17, 2014
This event will be held at the Sherwood Hotel. Bob Ross noted that ANSYS is a new sponsor. There are about 15 sign-ups so far. Sponsors for Taipei include ANSYS, Cadence Design Systems, IO Methodology, Synopsys and others to be determined.

- Asian IBIS Summit Yokohama – November 20, 2014
This event will be held at the Pacifico Hotel. Sponsors for Yokohama now include JEITA, IBIS Open Forum, ANSYS, Cadence Design Systems, Cybernet Systems, Mentor Graphics Corporation, MoDeCH, Zuken and others to be determined.

Michael Mirmak noted that the first announcement and call for papers has gone out for each event. He encouraged additional sponsorships for the Summits. He noted that tables will be available at the Summits for sponsors to advertise their companies.

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. They are continuing to work on the IBISCHK6 User Guide. They will be asking the parser developer to eliminate the –etc option in ibischk. Lance Wang joined recently in the meeting. The work in progress can be reviewed at:

>   http://www.eda.org/ibis/ibischk6/ibischk_6.0.0_UserGuide_wip1.pdf

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

>   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. The group is talking about backchannel modeling with BIRD147. They are looking at what the industry needs and what expectations are to see if the BIRD satisfies them or not.

Task group material can be found at:

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

INTERCONNECT TASK GROUP
Michael Mirmak reported that group is meeting regularly on Wednesdays at 8:00 a.m. PT. They have a list of nine action items to complete before the Interconnect BIRD will be finished. Draft 12 of the BIRD will be posted soon. It has been going through some private editing.

Task group material can be found at:

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

NEW ADMINISTRATIVE ISSUES
None.

BIRD128.2: ALLOW AMI_PARAMETERS_OUT TO PASS AMI_PARAMETERS_IN DATA ON

CALLS TO AMI_GETWAVE

Bob Ross noted the need to remove "Draft 1" from the title of the BIRD. Radek Biernacki commented that the BIRD needed some clarifications of what the parameters are to be passed in each direction. This BIRD was originally intended to be put together with BIRD147 which does describe the parameters. As a standalone BIRD, it needs to have additional text to add what is in BIRD147. Arpad Muranyi commented that the BIRD is on the list for further discussion in the ATM task group, and the authors need time to make any necessary updates.

Walter Katz moved to table the BIRD. Bob Ross seconded the motion. There were no objections.

BIRD169.1: DLL DEPENDENCY CHECKING

Radek Biernacki moved to vote on the BIRD for inclusion in the next version of the IBIS specification. Bob Ross seconded the motion. There were no objections. The BIRD passed with the following vote tally:

Cadence – yes
Intel – yes
IO Methodology – yes
Keysight – yes
Mentor – yes
Micron – yes
SiSoft – yes
Synopsys – yes
Teraspeed Labs – yes
Toshiba – abstain

BIRD173.3: PACKAGE RLC MATRIX DIAGONALS

Randy Wolff introduced the BIRD changes. A minor change was made to add "including zero" so a statement would read "all eigenvalues are real and non-negative, including zero."

Radek Biernacki moved to vote on the BIRD for inclusion in the next version of the IBIS specification. Bob Ross seconded the motion. There were no objections. The BIRD passed with the following vote tally:

Cadence – yes
Intel – yes
IO Methodology – yes
Keysight – yes
Mentor – yes
Micron – yes
SiSoft – yes
Synopsys – yes
Teraspeed Labs – yes
Toshiba – abstain

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.

BIRD147: BACK-CHANNEL SUPPORT

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.

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.

IBISCHK6 PARSER AND BUG STATUS

Bob Ross reported a new bug, BUG158: Disable Undocumented –etc Flag for Added Multi-Lingual Checks. A –etc option was inserted in ibischk during the ibischk4 development. The checks are not valid specification checks and are undocumented. The BUG solution is to disable the flag.

The BUG was classified as Annoying severity, Low priority and Open status.

Michael Mirmak asked if it would take a lot of work to remove the code. Bob commented that we would not remove the code but just hard code the boolean value to false. Mike LaBonte stated that he'd prefer the code section be commented out at least so it wouldn't look like active code.

Bob reported that there will be a version 6.0.1 release of ibischk6 to fix BUG157 and BUG155 that the parser developer is starting.   Bob will alert the developer of BIRD158, and it may be fixed as well. There will also be some re-organization of the source code files to clean up the directory structure.

Bob noted that the BUG151 report may need to be updated with the approval of BIRD173.3. A comment might be added to reference BIRD173.3 to note that more extensive tests of the RLC package matrices may be required in a future parser release.

Bob moved to add comments as noted above to the BUG151 report. Radek Biernacki seconded the motion. There were no objections.

Michael asked about BUG155. Bob clarified that we should be able to add in checking that Vinh is greater than Vinl. This check was not desired originally before hysteresis was added to IBIS.

NEW TECHNICAL ISSUES

Walter Katz shared a presentation from the Interconnect task group relating signal_name and [Pin Mapping]. Signal_name in the [Pin] section is only mentioned as being a databook name for the signal on a pin. Walter noted that there is a common understanding that two pins with the same name, such as on power or ground pins, are meant to have a common voltage. You can actually have a pin with signal_name VDDQ connected to the model_name POWER and another pin with signal_name VDDQ connected to the model_name GND. This does not get flagged as a problem by the parser. Bus labels in [Pin Mapping] can also short together power pins with different signal names. Walter thinks that signal_name should have some meaning when it comes to power and ground pins, and this would allow us to enhance [Pin Mapping].

Bob Ross confirmed that there is no checking on signal_name by the parser except for length of the name. Best practice is to match the signal_name to the data book name. Walter noted that this issue is related to power delivery models. Complex PDN models could connect many terminals at the pins to many terminals at each buffer. However, using a simplified model with single terminals at the pin and buffer require more information about which buffers connect to the PDN. Michael Mirmak asked if anyone had examples of the signal_name being used to describe connections of pins. Walter asked if anyone could come up with an example of an instance where two pins with the same signal_name (such as VDD) would be connected on the PCB to different voltages. Bob expressed concern with using the terminology of connected versus nodes that have the same voltage. Walter stated that he was talking about nets with a

low impedance connection.

Arpad Muranyi gave an example of having a complicated PDN model with isolated supply connections to multiple buffers. Walter responded that this could be handled but you still needed to inform the tool of the supply connections.

Arpad asked if Walter's intention was not to talk about node names as in Spice but more the concept of extended nets. Walter confirmed this. He noted that signal_name should be treated like a CAD net name. Radek Biernacki noted that we only have meaning in the signal_name if we start using it for interconnect modeling. Radek and Bob discussed using precedence rules, such as starting with [Pin Mapping], then looking at signal_name if [Pin Mapping] isn't used.

Walter stated that he was concluding that a new keyword would be needed so as not to change how [Pin Mapping] was interpreted. Bob stated that he was not so sure a new keyword was needed – that more discussion was required.

Walter's presentation can be found at:

> http://www.eda.org/ibis/minutes/min2014/m100314_docs/m100314_walterkatz.pdf

NEXT MEETING
The next IBIS Open Forum teleconference meeting will be held October 24, 2014. The Asian IBIS Summit in Shanghai will be held November 14, 2014. The Asian IBIS Summit in Taipei will be held November 17, 2014. The Asian IBIS Summit in Yokohama will be held November 20, 2014. No teleconferences will be available for the Summit meetings. The following IBIS Open Forum teleconference meeting will tentatively be held December 5, 2014.

Mike LaBonte moved to adjourn. Radek Biernacki seconded the motion. There were no objections.

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NOTES

IBIS CHAIR: Michael Mirmak (916) 356-4261, Fax (916) 377-3788
> michael.mirmak@intel.com
> Data Center Platform Applications Engineering
> Intel Corporation
> FM5-239
> 1900 Prairie City Rd.,
> Folsom, CA 95630

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, Fax: (208) 368-3475
rrwolff@micron.com
Principal Engineer, Silicon SI Group Lead, Micron Technology, Inc.
8000 S. Federal Way
Mail Stop: 01-711
Boise, ID 83707-0006

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

WEBMASTER: Mike LaBonte
mikelabonte@eda.org
IBIS-AMI Modeling Specialist, Signal Integrity Software
6 Clock Tower Place
Maynard, MA 01754

POSTMASTER: Mike LaBonte
mikelabonte@eda.org
IBIS-AMI Modeling Specialist, Signal Integrity Software
6 Clock Tower Place
Maynard, MA 01754

This meeting was conducted in accordance with ANSI guidance.

The following e-mail addresses are used:

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

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

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

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

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/bugform.txt

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/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/bugsplt.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:

Other trademarks, brands and names are the property of their respective owners.

IBIS – SAE STANDARDS BALLOT VOTING STATUS

Organization	Interest Category	Standards Ballot Voting Status	August 1, 2014	August 22, 2014	September 12, 2014	October 3, 2014
Altera	Producer	Inactive	-	X	-	-
ANSYS	User	Inactive	-	-	-	-
Applied Simulation Technology	User	Inactive	-	-	-	-
Cadence Design Systems	User	Active	X	X	X	X
Ericsson	Producer	Inactive	-	-	-	-
Huawei Technologies	Producer	Inactive	-	-	-	-
Infineon Technologies AG	Producer	Inactive	-	-	-	-
Intel Corp.	Producer	Active	-	X	X	X
IO Methodology	User	Active	-	-	X	X
Keysight Technologies (Agilent)	User	Active	X	X	X	X
LSI (Avago)	Producer	Inactive	-	-	-	-
Maxim Integrated Products	Producer	Inactive	-	-	-	-
Mentor Graphics	User	Active	X	X	X	X
Micron Technology	Producer	Active	X	-	X	X
Qualcomm	Producer	Active	-	X	X	-
Signal Integrity Software	User	Active	X	X	X	X
Synopsys	User	Inactive	-	-	-	X
Teraspeed Labs	General Interest	Active	X	X	X	X
Toshiba	Producer	Active	-	-	X	X
Xilinx	Producer	Inactive	-	-	-	-
ZTE	User	Inactive	-	-	-	-
Zuken	User	Inactive	-	-	-	-

I/O Buffer Information Specification Committee (IBIS)

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.