IBIS Open Forum Minutes

Meeting Date: **August 1, 2014**
Meeting Location: **Teleconference**

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
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 Consulting Group	Bob Ross*, Tom Dagostino, Scott McMorrow
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
Huawei Technologies	Jinjun Li, Xiaoqing Dong, Zanglin Yuan, Han Li
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
Toshiba	Hiroyuki Ikegami, Toshihiro Tsujimura
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
August 22, 2014	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:

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

NOTE: "AR" = Action Required.

INTRODUCTIONS AND MEETING QUORUM
Mike LaBonte declared that a quorum was reached and the meeting could begin. Mike ran the meeting in Michael Mirmak's absence.

CALL FOR PATENTS
Mike LaBonte 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 July 11, 2014 IBIS Open Forum teleconference. The minutes were approved without changes.

ANNOUNCEMENTS
None.

CALL FOR ADDITIONAL AGENDA ITEMS
Bob Ross asked for time to discuss "node 0" and asked Brad Brim to lead the discussion.

MEMBERSHIP STATUS AND TREASURER'S REPORT
Bob Ross reported that there are 20 paid members. The treasury sits at $38,683. We are awaiting a parser payment and additional membership renewals. There is no confirmation yet that our payment to the parser developer has gone through.

WEB PAGE AND MAILING LIST ADMINISTRATION
Mike LaBonte reported on his ongoing project to update the webpage to a PHP based system. He is still researching options. Regarding the mailing list, one of the SMTP servers at Stanford still has a poor reputation, and this is causing some emails to be rejected. This amounted to about 129 emails in July for 21 members. He has emailed eda.org support to request assistance. He has not received a response. This applies to the ibis@eda.org and ibis-users@eda.org mailing lists.

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.

SUMMIT PLANNING AND STATUS
- Asian IBIS Summit Shanghai – November 7
 Bob Ross reported that Lance Wang signed the Parkyard hotel contract.
- Asian IBIS Summit Taipei – November 17
Bob reported that Michael Mirmak is working with SAE to sign the contract for the Sherwood hotel in Taipei.
- Asian IBIS Summit Yokohama – November 20

Bob noted that announcements will start to go out in the September time frame. Lance has contacted potential 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. Their only project has been to write a user guide for ibischk to make it easier to use for parser purchasers. Mike is open to new ideas for quality topics for the task group to work on after the user guide is complete.

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 actively working on back-channel modeling proposals.

Task group material can be found at:

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

INTERCONNECT TASK GROUP
Arpad Muranyi reported that the group is working out details of the package and on-die

interconnect proposal. A major topic of discussion has been handling of grounds and ideal ground in subcircuits and unused port terminations.

Task group material can be found at:

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

NEW ADMINISTRATIVE ISSUES
None.

BIRD169: DLL DEPENDENCY CHECKING
Radek Biernacki commented that the sentence fragment "models should be tested on each platform released" did not make sense since we are not releasing platforms. He recommended an editorial change to say "models should be tested on each operating system for which they are released". There were no objections to this change.

Arpad Muranyi moved to cancel the vote on the BIRD. Bob Ross seconded the motion. There were no objections.

Bob moved to schedule a vote on the BIRD during the next teleconference meeting. Radek seconded the motion. There were no objections.

BIRD170: DELETE EXTRA PARAGRAPH FOR PORTS UNDER [EXTERNAL CIRCUIT]
Bob Ross summarized the BIRD. It is a cleanup BIRD for the specification. The BIRD removes a paragraph that essentially repeats several sentences found in the previous paragraph. This is found on page 121 under the [External Circuit] section.

Bob moved to vote on the BIRD by acclimation for acceptance in the next version of IBIS. Radek Biernacki seconded the motion. There were no objections.

BIRD171.1: CLARIFY THAT EMPTY ROOT NAME IS NOT PERMITTED IN AMI FILES
Bob Ross introduced the BIRD changes. He addressed Adge Hawe's comment that no branch name should be empty. Mike LaBonte requested that an example should be added to show what is disallowed. The BIRD was also changed to define a non-empty string. Radek Biernacki commented that the statement "A branch under…" should be "A branch name under…"

Bob plans to make some changes to the BIRD.

Mike LaBonte moved to cancel the vote on the BIRD. Bob seconded the motion. There were no objections.

Bob moved to schedule a vote on the BIRD during the next teleconference meeting. Radek Biernacki seconded the motion. There were no objections.

BIRD172: EXTEND MULTILINGUAL PARAMETER AND CONVERTER PARAMETER RULES

Bob Ross introduced the BIRD. The BIRD clarifies issues seen when creating the ibischk6 parser. Clarification statements are added to paragraphs describing Parameter and Converter_Parameter rules under [External Model] and [External Circuit]. The BIRD clarifies legal file extensions for parameter files. Also, embedded spaces are not allowed in the Parameters reference line after the parameter file name. Mike LaBonte did not agree with the rule disallowing spaces. Defining a rule to allow spaces will require a parser change. Radek Biernacki suggested a change to the IBIS file formats statement to mention that .ami files are permitted. Bob noted that the last change is parameters described in parameter trees cannot be of AMI Format Table, Gaussian, Dual-Dirac or DjRj.

Bob moved to schedule a vote on an updated BIRD during the next teleconference meeting. Brad Brim seconded the motion. There were no objections.

BIRD173: PACKAGE RLC MATRIX DIAGONALS

Randy Wolff introduced the BIRD. This BIRD was a response to ibischk BUG151. It makes changes to the RLC Matrix Notes section of the [Resistance Matrix], [Inductance Matrix] and [Capacitance Matrix] keyword section. The BIRD specifically describes how diagonal matrix entries of the R, L and C matrices should be only positive values. Clarifying this rule allows the parser to add checks for the rule, and this could improve model quality. Randy noted that there was discussion of the BIRD in the ATM task group. Vladimir Dmitriev-Zdorov made comments by email that there are other checks that could be done to the matrices to help ensure passive data, including that they should all be positive definite. Randy noted that discussion took place in the ATM task group about whether it made sense to add language about these other matrix qualifications.

Arpad Muranyi felt that the specification should describe the rules of valid matrices while stating what the parser actually checks. Randy noted an equivalent check could be made for Touchstone, but we don't want to require a parser to check those conditions. Bob Ross felt that the parser could be modified to check for some of the simple conditions described by Vladimir. Radek Biernacki agreed with checking the diagonal matrix entries but not with checking additional rules. Bob thought all of Vladimir's rules should be stated, but that doesn't mean the parser has to check all of them. Arpad noted that Vladimir described a case where the diagonal matrix entries could actually be negative. Mike LaBonte's preference is to state only rules that are always true. For instance with passivity and causality, there are tests that may require thresholds. Radek stated that thresholds should not be required for these checks.

Randy noted he did not object to changing the BIRD to add statements about valid matrix conditions with the understanding that the parser does not have to check all these rules. Bob noted that there are four types of matrices to deal with in the parser, so that will complicate the parser changes. Brad Brim commented that he felt any rules in the specification should be checked by the parser.

Randy took the AR to work with Arpad to make changes to the BIRD.

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.

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 noted that no new bugs have been filed. He is still waiting for payment confirmation of the ibischk6 parser payment to the developer.

He and Mike LaBonte have worked on a user guide for the ibischk6 parser. Bob introduced the user guide. It can be found in the ibischk6 folder at:

http://www.eda.org/ibis/ibischk6/

TOUCHSTONE 2.1
Brad Brim mentioned that there are a number of issues agreed upon that need to be added to the specification. Further discussion in the Interconnect task group is needed to make some decisions.

V-T TABLES AND RAMP WITH TYPICAL-ONLY DATA
Arpad Muranyi questioned if we should put rules in the specification about dependencies between keywords when some combinations of min/max data are missing. Mike LaBonte noted that there is nothing preventing EDA software from rejecting models that are missing certain data tables. Arpad felt this would be directed to model makers to describe what they should be expected to put in the models. Bob Ross thought that there should be a strong recommendation that all columns be filled in if you want to expect valid results. He felt tool vendors should issue warnings or not simulate if there is incomplete data. Arpad felt the specification should state some rules about what data can or cannot be missing. He did not think there are many keywords to deal with. Randy Wolff suggested this could be a good discussion topic for the quality task group.

NEW TECHNICAL ISSUES
Brad Brim noted the Interconnect task group has been discussing the use of global node 0 in package and on-die interconnect models. The group is considering disallowing the use of node 0 in these models. Walter Katz commented that there are some circumstances where using global ground is dangerous. The issue is that there are many cases where global ground doesn't lead to problems and disallowing its use is burdensome to model makers. Walter noted this discussion is ongoing in the Interconnect task group meeting and may move to the ATM meeting. Brad noted that a wider audience for this question is desired. There is a decision on the table that is scheduled to be voted on in the Interconnect task group meeting in two weeks, and more participation is desired. This question does not address issues within the existing IBIS buffer model.

NEXT MEETING
The next IBIS Open Forum teleconference meeting will be held August 22, 2014. The following IBIS Open Forum teleconference meeting will be held September 12, 2014.

Radek Biernacki moved to adjourn. Brad Brim 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
>   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:

http://www.eda.org/ibis/directory.html

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IBIS – SAE STANDARDS BALLOT VOTING STATUS

Organization	Interest Category	Standards Ballot Voting Status	June 5, 2014	June 20, 2014	July 11, 2014	August 1, 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	-	-	-	-
Infineon Technologies AG	Producer	Inactive	-	-	-	-
Intel Corp.	Producer	Active	X	X	X	-
IO Methodology	User	Inactive	-	X	-	-
Keysight Technologies (Agilent)	User	Active	X	X	X	X
LSI (Avago)	Producer	Inactive	X	X	-	-
Maxim Integrated Products	Producer	Inactive	-	-	-	-
Mentor Graphics	User	Active	-	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 Consulting	General Interest	Active	X	X	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.