IBIS Open Forum Minutes

Meeting Date: **May 17, 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*
Applied Simulation Technology	Fred Balistreri, Norio Matsui
ARM	(Vipul Patel)
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)
Freescale	Jon Burnett
Huawei Technologies	(Jinjun Li)
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
Maxim Integrated Products	Hassan Rafat, Mahbubul Bari, Ron Olisar
Mentor Graphics	Arpad Muranyi*, Ed Bartlett, Vladimir Dmitriev-Zdorov
Micron Technology	Randy Wolff
Nokia Siemens Networks GmbH	(Eckhard Lenski)
QLogic	James Zhou
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
Texas Instruments	(Pavani Jella)
Toshiba	(Yasumasa Kondo)
Xilinx	(Raymond Anderson)
ZTE	(Huang Min)
Zuken	Masaud Raeisi, Reinhard Remmert, Michael Schaeder, Alfonso Gambuzza

OTHER PARTICIPANTS IN 2013

Bayside Design	Elliot Nahas
Computer Simulation Technology	Heiko Grubrich
ECL Advantage	Thomas Iddings

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
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
June 7, 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

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, Touchstone 2.0 or ICM 1.1 specifications. No patents were declared.

REVIEW OF MINUTES AND ARS
Michael Mirmak called for comments regarding the minutes of the April 26, 2013 IBIS Open Forum teleconference. The minutes were approved without changes.

MEMBERSHIP STATUS AND TREASURER'S REPORT
Bob Ross reported that, of the last report 3 weeks ago, we had 11 members. Bob has sent out renewal notices to the current members who had not already rejoined. Agilent Technologies, ANSYS, Applied Simulation Technologies and others have renewed.

WEB PAGE UPDATES
Mike LaBonte reported that he is working to explore options for bug tracking (for IBIS as a document, parsers, etc.) aside from Mantis, because of limits to Mantis configurability. Bugzilla is under consideration, as its administration is a bit easier and is customizable. Mike used Mozilla's and Linux's kernel bug databases as demonstration examples. Online forums tend to prefer Mantis over Bugzilla. Mike also reported on a service called Redmine which may be a viable alternative. Mike took the AR to create a checklist of desired functions and features for any bug tracking system.

Bob Ross suggested that filing of bugs must be moderated. We receive ill-conceived BUGs and BIRDs. For example, someone may file an entire device IBIS file, copyrighted, as an example for a BUG report. A moderator has to prevent this posting. Mike notes that this can be done after the fact. He added that none of these bug tracking platforms have moderator permissions for posting – they only allow post hoc editing. They all use posting notification, however, with moderation by delete. Michael Mirmak suggested that this feature request be brought up directly with the organizers.

Michael mentioned use of a wiki for the IBIS reference library as a discussion topic for next time. Copying links from the minutes may be problematic, according to Mike. Bob noted that press references are frequent; on-line articles on the IBIS pages are now locally stored, but out of date. Bob noted that his earlier summit presentation includes many references; data mining of NCSU website, for example, yielded considerable information. Bob suggested copying the full contents of articles over to the existing articles page.

Mike has an open AR to develop and post terms of use for the IBIS pages.

MAILING LIST ADMINISTRATION
Mike LaBonte reported that usual activity continues. Walter Katz is once again limited from sending to the list. Mike reported that 424 unique addresses are on the IBIS lists. Bob Ross suggested that messages can go through Mike LaBonte for posting when direct posting is not possible.

MODEL LIBRARY UPDATE
No update.

MISCELLANY/ANNOUNCEMENTS
None.

CALL FOR NEW ISSUES
None.

IBIS AFFILIATIONS
Michael Mirmak noted that he is deferring this topic until the next meeting.

INTERNATIONAL/EXTERNAL ACTIVITIES
- Conferences
The 22nd 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
No update.

SUMMIT PLANNING
SPI 2013 was held in Paris from May 12-15, 2013, with the IBIS Summit on the last day. Bob Ross reported that the content is now on-line, and that Randy Wolff has reported 12 attendees were at the summit, with good discussions and material.

Arpad Muranyi asked about dates for the Asian summits. Bob noted that the Japan summit is usually scheduled around a trade show in Yokohama. Bob took an AR to find the date for this event. Michael Mirmak noted that planning is starting for additional events in Taipei and Shanghai or Shenzhen. Bob suggested that Hsinchu be considered. The board will meet offline to discuss specifics.

QUALITY TASK GROUP
Mike LaBonte noted that the team is preparing for release of an IBISCHK documentation package. Cleaning up messages is more work than expected. The team is finding messages that may be unused but not marked as such. The Task Group continues meeting Tuesdays at 8 AM Pacific, weekly.

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

ADVANCED TECHNOLOGY MODELING TASK GROUP

Arpad Muranyi reported that the group is meeting regularly on Tuesdays at 12:00PM PT. The team is focused on the repeater/redriver BIRDs.

Task group material can be found at:

INTERCONNECT TASK GROUP

Michael Mirmak reported that the group continues to discuss draft 8 of the EMD proposal. Additional review and comments are welcome. They are also discussing interactions with IBIS after the next version.

The task group documents can be found at:

ELECTIONS

Bob Ross suggested that elections be conducted by e-mail, to close out by June 7 in line with our traditional DAC in-person voting procedure. One of the requirements for voting is that membership dues be paid. Bob wanted dues paid by June 7; if not done, the member organization loses all voting rights, including committee voting rights. Ambrish Varma asked whether the membership vote can be postponed beyond June. Is the date just traditional? Michael Mirmak explained IBIS's current charter and organizational limitations.

Bob noted that previous votes were private and that voting in a public teleconference may be intimidating. E-mail votes may inadvertently prevent last-minute announcements of runs.

Mike LaBonte suggested separate motions between voting and method of voting. Bob altered his suggestion to include conducting a staggered vote during the June 7 meeting, with private e-mails counted during the meeting. Radek Biernacki agreed.

Mike LaBonte noted that a key complication is in not knowing what the slate is before the election; he suggested having an anonymous Australian election with printed ballots. Radek suggested that having two people as "returning officers" to count ballots was a good idea.

Bob moved to conduct nominations at this meeting and via e-mail, with votes to be sent to designated individuals as ballot-counters who are not standing as candidates in the election. Mike amended the motion, with consent, to note that nominations will be accepted up to and including at the next meeting. Votes will be counted at the next meeting for the contested offices and by acclamation for uncontested offices. Bob further stated that voting will be open for a duration of at least 15 minutes during the meeting. Mike LaBonte seconded. Ambrish moved to vote by acclamation.

Bob noted that ballot counting duties may be handed off if needed during the meeting. Without objection, the motion passed.

Radek Biernacki volunteered to serve as a ballot counter. Bob Ross also volunteered to serve. Their e-mail addresses will be sent over the reflectors. Bob will start the election process early in the June 7 meeting. Bob formally nominated the existing officers as a slate. Two officer positions must be filled by member organizations: chair and vice chair. Bob took an AR to send out notice to the reflectors of the voting procedures.

NEW ADMINISTRATIVE ISSUES
None.

BIRD160.1: ANALOG BUFFER MODELING IMPROVEMENTS
Arpad Muranyi reported that he had received no comments or questions on the BIRD. Radek Biernacki requested greater understanding of how the impulse response is to be calculated for IBIS-AMI applications, but noted that he is not 100% sure it is required for this BIRD. Arpad noted that impulse response calculation isn't mentioned in this BIRD. Radek suggested it is associated with BIRD158.1 as well. Ambrish Varma suggested impulse response definitions are outside this BIRD's scope. Arpad agreed. Michael Mirmak suggested a separate BIRD be issued to address impulse responses. Radek stated that his concern is that it not be left for after the next release. Ambrish and Arpad agreed that this must be defined separately.

Radek noted, for the Editorial Committee, that the phrase "MyHigh", which is erroneously present in multiple locations, should be changed to "MyVHigh".

Arpad moved to vote. Ambrish Varma seconded. Walter Katz noted that SiSoft will vote "yes", as it supports analog modeling for IBIS-AMI models, but he has a number of reservations in a prepared statement, and he requested they be added to the minutes (these were provided in a separate e-mail). Bob requested the comments be stated.

Walter's comments were:
1. The benefits for AMI modeling
    a. It is a standard way of defining an analog circuit for both AMI Tx and Rx models
    b. It supports IBIS-ISS analog buffer models, and by inference on-die S-Parameters
    c. SiSoft will be able to convert all of its IBIS-AMI models to use this syntax
    d. It eliminates the need to determine the linear operating range of non-linear IV curves
    e. It correctly describes the analog behavior of AMI buffers that the IC Vendors assume in their internal SerDes analysis tools and their AMI models
2. The problems for AMI analog buffers
    a. The language is overly complex
        i. It takes about forty lines of additional text in an IBIS file to implement what can be fully described by three parameters in an AMI file
        ii. It requires an additional ~ ten line IBIS-ISS file which must be delivered in addition to a Touchstone file

iii.　The voltage swing in the Tx D/A converter cannot be scaled like parameters within an IBIS-ISS subckt
　　　b.　AMI Tx analog buffers have analog stimulus, BIRD 160 requires a digital stimulus
　　　c.　BIRD 158, if approved will [a]meliorate many of these problems, since it defines the interface to Touchstone files directly in the AMI file with three parameters for Tx, and two parameters for Rx
　　　d.　It is not easily extensible, for example defining a shaped stimulus instead of a ramp can be easily defined in the AMI file, while will be syntactically difficult in [External Model]
　3.　The problems for non-AMI analog buffers
　　　a.　It perpetuates External Circuit and Model call
　　　b.　It is limited to LTI analog buffers
　　　　　i.　It does not support clamping diodes or non-linear IV curves in general
　　　　　ii.　It only supports a simple ramp VT curve
　　　c.　Tx voltage stimulus, rise times cannot use [Model] parameters
　　　d.　 Rx thresholds cannot use [Model] parameters
　　　e.　Although it does support PuRef, PdRef, PclRef and GclRef ports, the usage of these nodes within an IBIS-ISS subckt are problematic
　　　f.　Examples of non-AMI analog buffers have not been produced for evaluation by IC Vendors or EDA Vendors
　　　　　i.　I am a firm believer that any enhancement to IBIS should be accompanied by real examples supported by IC Vendors and EDA Vendors
　　　g.　No IC Vendor has stated the need for non-AMI analog buffers
　　　h.　Is this a solution looking for a problem?

The attendees voted as follows:
Agilent Technologies - yes
ANSYS - yes
Cadence - yes
IBM - yes
Intel - abstains
LSI - abstains
Mentor Graphics - yes
Signal Integrity Software - yes
Teraspeed - yes

BIRD160.1 was approved.

BIRD158.1: AMI TOUCHSTONE ANALOG BUFFER MODELS
Walter Katz noted that the updated BIRD adds improved graphics and a change to the source DC level translations. The BIRD defines a shortcut to [External Circuit] for on-die S-parameters, adding three new reserved parameters for TX and three new ones for RX.

Walter moved to add a vote on BIRD158.1 to the agenda for the next teleconference. Radek Biernacki seconded; he commented that this will likely be the preferred methodology for the future. He suggested that a statement of how the impulse response is calculated may be added to the document in the future. Radek also suggested that the package is to be included in the

Touchstone file that the BIRD links to IBIS. Walter stated that the Touchstone file data was intended to define on-die S-parameters only, not package interconnects. Walter summarized the key objections to the BIRD as that it changes the package definition and changes the impulse response definition.

Ambrish Varma asked whether the BIRD is truly required if it is simply a shortcut to methods already supported. Radek suggested this was a correct summary and some statement is needed as to what features supersede what other features between BIRD158.1 and BIRD160.1. Ambrish suggests this be discussed in the ATM.

Bob Ross noted that the first diagram in the BIRD still needs revision.

Ambrish objected to the scheduling of the vote. Walter withdrew the motion.

BIRD161.1: SUPPORTING INCOMPLETE AND BUFFER-ONLY [COMPONENT] DESCRIPTIONS

Michael Mirmak introduced BIRD161.1. This BIRD adds two new subparameters to the [Component] keyword to define whether an IBIS [Component] uses a complete or partial pinlist and to define whether the [Component] is intended to define an entire device or just the buffer behaviors. The BIRD further updates the [Pin] keyword usage rules to remove the requirement for completeness and to explicitly prohibit duplicate pin entries while allowing duplicate signal_name and model_name entries.

Bob Ross suggested that the BIRD be moved to the Interconnect Task Group for further discussion. He added that IBIS was initially intended to be component-centric. Walter Katz noted that these kinds of incomplete or partial IBIS files are common in industry today. A pad-centric IBIS file is really a bare die IBIS file, and many files are often interface-centric. Discussion will continue in the IBIS Interconnect Task Group.

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.

BIRD 131: IBIS-AMI REPEATERS
Discussion was tabled.

BIRD145.2: 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.

BIRD153.1: PARAMETER TREE KEYWORD
Discussion was tabled.

BIRD154: USING IBIS-AMI LEAF LABELS IN LIST PARAMETERS
Discussion was tabled.

BIRD155: NEW AMI API TO RESOLVE DEPENDENT MODEL PARAMETER
Discussion was tabled.

BIRD156.1: IBIS-AMI EXTENSION FOR MID-CHANNEL REDRIVER
Discussion was tabled.

BIRD157: PARAMETERIZE [DRIVER SCHEDULE]
Discussion was tabled.

IBIS SPECIFICATION CHANGE STATUS
Due to lack of time, discussion was deferred until the next meeting.

The document is available at the following link:

       http://www.eda.org/ibis/docs/ibis-version-change-strategy-v2p8.pdf

IBISCHK5 PARSER AND BUG STATUS
Due to lack of time, discussion was deferred until the next meeting.

NEW TECHNICAL ISSUES
None.

NEXT MEETING

The next IBIS Open Forum teleconference will be held June 7, 2013 from 8:00 AM to 10:00 AM US Pacific Time.

Radek Biernacki moved to adjourn. Arpad Muranyi seconded the motion. There were no objections.

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NOTES

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This meeting was conducted in accordance with the TechAmerica Legal Guides and TechAmerica Manual of Organization and Procedure.

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

To create an account on the TechAmerica KAVI workspace, check out:

http://workspace.techamerica.org/kwspub/join/

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IBIS – TECHAMERICA STANDARDS BALLOT VOTING STATUS

I/O Buffer Information Specification Committee (IBIS)

Organization	Interest Category	Standards Ballot Voting Status	April 5, 2013	April 26, 2013	May 15, 2013	May 17, 2013
Agilent Technologies	User	Active	-	X	-	X
Altera	Producer	Inactive	X	X	-	-
ANSYS	User	Active	-	-	X	X
Applied Simulation Technology	User	Inactive	-	-	-	-
ARM	Producer	Inactive	-	-	-	-
Cadence Design Systems	User	Active	X	X	-	X
Ericsson	Producer	Inactive	-	-	X	-
Foxconn Technology Group	Producer	Inactive	-	-	-	-
Freescale	Producer	Inactive	-	-	-	-
Huawei Technologies	Producer	Inactive	-	-	-	-
IBM	Producer	Active	X	X	X	X
Infineon Technologies AG	Producer	Inactive	-	-	-	-
Intel Corp.	Producer	Active	X	X	-	X
IO Methodology	User	Inactive	X	-	X	-
LSI	Producer	Inactive	X	-	-	X
Maxim Integrated Products	Producer	Inactive	-	-	-	-
Mentor Graphics	User	Active	X	X	-	X
Micron Technology	Producer	Active	X	X	X	-
Nokia Siemens Networks	Producer	Inactive	-	-	-	-
QLogic	Producer	Inactive	-	-	-	-
Signal Integrity Software	User	Active	X	X	-	X
Synopsys	User	Inactive	-	-	-	-
Teraspeed Consulting	General Interest	Active	X	X	-	X
Texas Instruments	Producer	Inactive	-	-	-	-
Toshiba	Producer	Inactive	-	-	-	-
Xilinx	Producer	Inactive	-	-	-	-
ZTE	User	Inactive	-	-	-	-
Zuken	User	Inactive	-	-	X	-

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 TECHAMERICA 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.