IBIS Open Forum Minutes

Meeting Date: **April 25, 2014**
Meeting Location: **Teleconference**

VOTING MEMBERS AND 2014 PARTICIPANTS

Agilent Technologies	Radek Biernacki*, Nilesh Kamdar, Colin Warwick, Graham Riley, Pegah Alavi, Fangyi Rao, Heidi Barnes
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
Foxconn Technology Group	(Sogo Hsu)
Huawei Technologies	Jinjun Li, Xiaoqing Dong
IBM	Adge Hawes
Infineon Technologies AG	(Christian Sporrer)
Intel Corporation	Michael Mirmak*, Jon Powell, Riaz Naseer Udy Shrivastava, Mustafa Yousuf, Jimmy Jackson
IO Methodology	Lance Wang, Michelle Coombs
LSI	Xingdong Dai, Min Huang, Anaam Ansari, Brian Burdick
Maxim Integrated Products	Hassan Rafat
Mentor Graphics	Arpad Muranyi*, John Angulo, Fadi Deek
Micron Technology	Randy Wolff*
Signal Integrity Software	Mike LaBonte*, Walter Katz*, Todd Westerhoff, Michael Steinberger
Synopsys	Ted Mido, Scott Wedge
Teraspeed Consulting Group	Bob Ross*, Tom Dagostino, Scott McMorrow
Toshiba	(Yasumasa Kondo)
Xilinx	Ravindra Gali
Zuken	Michael Schaeder, Amir Wallrabenstein, Griff Derryberry

OTHER PARTICIPANTS IN 2014

ECL Advantage	Thomas Iddings
Hewlett Packard	Ting Zhu
KEI Systems	Shinichi Maeda
Lattice Semiconductor	Xu Jiang
Mellanok Technologies	Piers Dawe
Pangeya	Edgar Aguirre
Proficient Design	Kishor Patel
SAE International	Chris Denham
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
May 14, 2014	European IBIS Summit at SPI – no teleconference	
May 23, 2014	205 475 958	IBIS
June 5, 2014	IBIS Summit at DAC – no teleconference	
June 20, 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
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 April 4, 2014 IBIS Open Forum teleconference. The minutes were approved without changes.

ANNOUNCEMENTS

None.

CALL FOR ADDITIONAL AGENDA ITEMS

Bob Ross requested time for discussion of new items BUG153, BUG154, BIRD167.1 and BIRD168. Michael Mirmak noted these were on his updated agenda.

MEMBERSHIP STATUS AND TREASURER'S REPORT

Bob Ross reported that he sent out a couple reminders for renewals. Currently 14 members have renewed so far for 2014. The treasury sits at $26,880. There are ibischk6 and tschk2 license parser purchases in progress with payments expected in a couple weeks. There is also a potential new member being invoiced. Some members are holding off membership renewal until May or June.

WEB PAGE AND MAILING LIST ADMINISTRATION

Mike LaBonte reported there are 410 unique subscribers to the mailing lists. On the web page, the tools page was updated. Zuken has an IBIS information tool listed on the free tools page (IBISINF). The software download actually exists on our webpage now. The tools page was also updated to look more like the home page. Reminders were also added on the main page for the IBIS Summit meeting at DAC. Radek Biernacki noticed a slow down on the web page downloading documents. Ambrish Varma added that he saw the same thing. Mike took the AR to check with support to see if there were some known issues.

David Banas asked if there was a way to send out calendar invites for the Open Forum meetings. Michael Mirmak took the AR to look into this, since many people use Outlook, and an Outlook invitation could be attached to the emailed agenda.

MODEL LIBRARY UPDATE

No update.

INTERNATIONAL/EXTERNAL ACTIVITIES

- Conferences

The 18th IEEE Workshop on Signal and Power Integrity (SPI 2014) will be held May 11-14, 2014 in Ghent, Belgium. There will be a European IBIS Summit in conjunction with this conference. There are typically many papers on IBIS-related algorithms presented by student researchers. More information is available at:

http://spi2014.org

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
- European IBIS Summit Status
The Summit is scheduled after the SPI event on May 14, 2014 in Ghent, Belgium. Zuken is confirmed as one of the co-sponsors. Bob Ross noted that he did not have a room number yet but needs it for the final announcement and agenda. 4-6 presentations are tentatively scheduled. We may have a low turnout, but the SPI organizers are going to send our announcement to the SPI attendees to invite them. Bob will work with Randy Wolff and Anders Ekholm who will both be in attendance to deal with meeting logistics on site. Michael Mirmak noted that one more invitation will go out next week. Bob added that a call for papers is not needed since the paper submittal deadline is May 1. Michael noted that signage will need to be worked out for the meeting.

- DAC IBIS Summit
DAC is June 1-5, 2014 in San Francisco, CA. An IBIS Summit meeting is scheduled for June 5, 2014 all day. Michael Mirmak noted that the second call for papers will go out today. We now have a formal relationship with the DAC organizers as an official co-located event with DAC. The IBIS Summit meeting is listed in the events schedule. The room is reserved and food arrangements have been handled. To attend the Summit, there is a requirement to have a DAC attendance badge. A free badge (called "I Love DAC") is available until May 15, so Summit attendees will need to register with DAC by that time. The meeting will be in rooms 202-210. The event is co-sponsored by EDAC.

Bob Ross noted that our contact for the Japan Summit has changed.

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 progress is being made on the ibischk specification work. It is turning out to be a lot of work but is proceeding well. Bob Ross and Mike agreed to work in parallel on document formatting and presentations for upcoming Summits.

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 main discussion topic is BIRD147 on backchannel modeling. The group is trying to decide if they need a new BIRD or will tweak the existing BIRD to address some comments and

concerns raised by Walter Katz.

Task group material can be found at:

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

INTERCONNECT TASK GROUP

Michael Mirmak reported that the group is approaching a decision point, and a vote is scheduled for next week on a syntax direction to take for the package modeling proposals. There are two competing proposals to decide between. Next week they will decide the syntax direction and move ahead on details. The group is meeting Wednesdays at 8:00 a.m. PT.

Task group material can be found at:

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

NEW ADMINISTRATIVE ISSUES

Michael Mirmak noted that an announcement was made about the first meeting of the IEEE P2401 Working Group for Standard Format for LSI-Package-Board Interoperable Design. The first meeting was hosted in Japan by JEITA yesterday. He had no details on progress of the meeting yet. Brad Brim attended the meeting, and he reported that there were a limited number of attendees with three entities represented, Fujitsu JETIA and Cadence. The next meeting is scheduled for July 23, 2014. JEITA will contribute their specification, and it is being reformatted to the IEEE standard format. There will be an announcement 30 days before the next meeting.

Michael asked Brad if someone is interested in attending, how do they. Brad responded that if you want to be a WG member, it is an entity based membership, so you must be an 'advanced' member of the IEEE Standards Association. You can listen in as a guest once, but not more than once as an individual. If you intend to become a member, you become a member on the third consecutive meeting you attend. Once the document is contributed from JEITA, there will be more frequent meetings.

BIRD166: RESOLVING PROBLEMS WITH REDRIVER INIT FLOW

Walter Katz introduced the BIRD. He noted that Redrivers are complex entities in terms of IBIS AMI flows. For the Init flow, the simulation flow is not complete, so the BIRD corrects the Redriver statistical simulation flow.

Walter moved to table the BIRD and move the discussion to the ATM task group. Bob Ross seconded the motion. There were no objections.

BIRD167.1: TABLE CORRECTIONS FOR TX JITTER PARAMETERS AND IGNORE_BITS

Michael Mirmak introduced the BIRD. Tables 25 and 31 in the IBIS 6.0 specification document incorrectly omit support for Type Float for the Reserved Parameters Tx_Jitter, Tx_Dj, Tx_Rj and Tx_Sj. The BIRD revises the tables to fix the omissions.

Walter Katz moved to schedule the BIRD for a vote at the next IBIS Open Forum teleconference. Radek Biernacki seconded the motion. There were no objections.

BIRD168: HANDLING OF OVERCLOCKING CAUSED BY DELAY IN WAVEFORM TABLES
Radek Biernacki introduced the BIRD. He noted that there have been presentations at recent Summits about overclocking issues with IBIS power-aware models. This BIRD does not address overclocking when a buffer is switching at rates exceeding actual capabilities.

Radek noted that some automated ways exist in EDA software, but they are proprietary. This BIRD removes ambiguity about how to remove delay from the waveform tables.

Bob Ross commented that guidelines exist that I-T and V-T tables must be time correlated. He wondered if this BIRD destroys that relationship. Radek noted that the timing is preserved because two triggering events are established for the I-T and V-T waveforms, and the timing between them is preserved.

Randy Wolff commented that trimming of initial delays from I-T and V-T waveforms is best specified by the model maker. V-T waveforms will always have long initial delays in IBIS models containing [Composite Current] data. V-T and I-T waveforms must be time aligned, and pre-driver currents can occur well ahead of the time that the final driver starts switching.

Arpad Muranyi asked if the BIRD was in response to Cadence's presentation at the last Summit. Radek responded that that presentation was an inspiration. Brad Brim and Arpad both commented that they would like further time to review the BIRD and provide comments.

Walter moved to table the BIRD for this meeting but keep it on the agenda for next meeting. Brad seconded the motion. There were no objections.

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.

IBISCHK5 PARSER AND BUG STATUS
Bob Ross introduced BUG152 titled "Null Root Name for AMI file Should Generate Error Message". A null root name for a .ami file should generate an Error message, but the parser doesn't check for it. Radek Biernacki was not sure if this should apply to IBIS version 5.0 or 5.1. Ambrish Varma confirmed that this is a requirement mentioned in IBIS 5.1.

Walter Katz moved to approve the BUG as annoying severity, low priority and open status. Arpad Muranyi seconded the motion. There were no objections.

Mike LaBonte introduced BUG153 titled "Add AMI_Version to Checking Message for AMI Files". The bug adds the word "Implicit" to the parser output message when checking IBIS AMI 5.0 files. Walter noted there are some minor checking differences between AMI 5.0 and AMI 5.1 files. Bob clarified that the parser does maintain unique checking rules for .ami files of different versions. Ambrish clarified that the parser will now specify when a true AMI 5.0 model is being checked by a 5.1 parser using 5.0 rules.

Walter moved to classify BUG153 as enhancement severity, low priority and open status. Radek Biernacki seconded the motion. There were no objections.

Mike LaBonte introduced BUG154 titled "Suppress Repeated AMI File Checking". The parser currently checks and rechecks .ami files for every instance the file name is encountered in the .ibs file. This BUG when fixed will change the parser behavior so that the parser will flag that it has checked a file already and won't check files repeatedly and issue messages. This will improve the performance of the parser and reduce the number of messages printed to the output.

Bob Ross moved to classify BUG154 as enhancement severity, low priority and open status. Radek Biernacki seconded the motion. There were no objections.

IBISCHK6 PARSER STATUS
Bob Ross reported that work is proceeding on the last remaining portions of the parser for BIRD160.1 related to multilingual extensions. He is hesitant to slip in any new bug fixes unless they are very simple in order to keep the parser release on schedule. Mike LaBonte commented that the parser beta is checking .ami files for specific release versions but always saying that it is checking to version 6.0. This behavior is being fixed.

TSCHK2 PARSER STATUS
Michael Mirmak introduced BUG3 titled "Canonical Mode Adds Spaces, Significantly Increases File Size". One operation of the parser in canonical mode attempts to convert a Touchstone 1.x file to a 2.0 compatible file. This conversion uses spaces to align columns, adding significantly to the file size. The BUG suggests using tabs instead of spaces to reduce the file size. Radek Biernacki suggested an option to choose the delimiter in case a user wants to have spaces for specific data column alignment.

Radek moved to classify the BUG as enhancement severity, low priority and open status with the suggestion of the delimiter option. Bob Ross seconded the motion. There were no objections.

IBIS ANNUAL UPDATE SCHEDULE DISCUSSION
Michael Mirmak shared a presentation titled "Revisiting the IBIS Version Release Schedule". Previous discussions on IBIS version release schedules proposed releasing IBIS updates twice per year. EDA software vendors expressed a desire for this schedule to change to an annual cycle. Michael proposed an annual cycle with three parts. A technical period would be from February to July with August 1 as the closing date for technical changes. An editorial period would run from August to September with November 1 as the date for closing and voting on a final document. A quiet period covering events and holidays would run from November to January. He proposed numbering IBIS releases based on a date code. The major/minor release distinction goes away. Parser versions would also track the specification release number. If implemented this year the next version would be 2014.11 and BIRDs would need to be approved on/before August 1, 2014.

Brad Brim suggested sending this proposal directly to member contacts from all the EDA software companies to solicit further comments.

NEW TECHNICAL ISSUES
None.

NEXT MEETING
Radek Biernacki moved to hold the next teleconference on May 23 and the following teleconference on June 20, resuming the three week schedule thereafter. Arpad Muranyi seconded the motion. There were no objections.

The next IBIS Open Forum Summit meeting will be held May 14, 2014 at SPI. There will be no teleconference. The next IBIS Open Forum teleconference will be held May 23, 2014 from 8:00 a.m. to 10:00 a.m. US Pacific Time. A vote is scheduled on BIRD167.1. The following IBIS Open Forum Summit meeting will be held June 5, 2014 at DAC. There will be no teleconference. The following teleconference meeting will be held June 20, 2014.

Brad Brim 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 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

I/O Buffer Information Specification Committee (IBIS)

Organization	Interest Category	Standards Ballot Voting Status	February 21, 2014	March 14, 2014	April 4, 2014	April 25, 2014
Agilent Technologies	User	Active	X	X	X	X
Altera	Producer	Active	X	-	X	X
ANSYS	User	Inactive	-	-	-	-
Applied Simulation Technology	User	Inactive	-	-	-	-
Cadence Design Systems	User	Active	X	-	X	X
Ericsson	Producer	Inactive	-	-	X	-
Foxconn Technology Group	Producer	Inactive	-	-	-	-
Huawei Technologies	Producer	Inactive	-	-	-	-
IBM	Producer	Active	X	-	X	-
Infineon Technologies AG	Producer	Inactive	-	-	-	-
Intel Corp.	Producer	Active	X	X	X	X
IO Methodology	User	Inactive	X	-	-	-
LSI	Producer	Inactive	X	X	-	-
Maxim Integrated Products	Producer	Inactive	-	-	-	-
Mentor Graphics	User	Active	X	X	X	X
Micron Technology	Producer	Active	X	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:

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- 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.