

IBIS Open Forum Minutes

Meeting Date: **February 22, 2013**

Meeting Location: **Teleconference**

VOTING MEMBERS AND 2013 PARTICIPANTS

Agilent	Radek Biernacki*, Pegah Alavi, Heidi Barnes, Fangyi Rao, Colin Warwick
Altera	David Banas*, Hsinho Wu
ANSYS	Luis Armenta
Applied Simulation Technology	Fred Balistreri, Norio Matsui
ARM	(Vipul Patel)
Cadence Design Systems	Terry Jernberg, Joy Li, Yingxin Sun, Ambrish Varma, Kevin Yao
Ericsson	Anders Ekholm, Martina Fiammengo
Foxconn Technology Group	(Sogo Hsu)
Freescale	Jon Burnett
Huawei Technologies	(Jinjun Li)
IBM	Greg Edlund*, Adge Hawes*
Infineon Technologies AG	(Christian Sporrer)
Intel Corporation	Michael Mirmak, Mohammad Bapi, Stewart Gilbert, Ravindra Rudraraju
IO Methodology	Lance Wang
LSI	(Brian Burdick)
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
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

OTHER PARTICIPANTS IN 2013

Bayside Design	Elliot Nahas
ECL Advantage	Thomas Iddings
Granite River Labs	Vamshi Kandalla, Miki Takahashi
Hewlett-Packard	Yongjin Choi, Ting Zhu

KEI Systems	Shinichi Maeda
National Instruments	Lee Mohrmann
Nvidia	Eric Hsu
Qualcomm	Scott Powers
TechAmerica	(Chris Denham)
University of Illinois	Tom Comberiate, José Schutt-Ainé
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
March 15, 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

No new participants. Bob Ross led, as Michael Mirmak was not able to call in.

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

Randy Wolff called for comments regarding the minutes of the January 11, 2013 IBIS Open Forum teleconference and the January 31, 2013 IBIS Summit at DesignCon. Both sets of minutes were approved without changes.

MEMBERSHIP STATUS AND TREASURER'S REPORT

Bob Ross reported that 2013 invoices have been sent. He has not received a report from TechAmerica on 2012 finances.

WEB PAGE UPDATES

Mike LaBonte reported that when he posted files from the DesignCon IBIS Summit, the directory is mostly the same as in previous minutes postings, but during the course of the Summit meeting, he had created a web page version of the agenda for people to click on links of papers. This page is still available.

MAILING LIST ADMINISTRATION

Mike LaBonte reported that everything is going fine. He has an AR to send an administrative email to the lists to remind everyone of policy, but he is still trying to figure out the policy for attachments. Bob Ross commented that attachments may be legal but are discouraged. Mike noted that this is the case for freelists.org lists used for the task groups. Attachments are permitted on eda.org, but it is using an old program called Hypermail that is unsupported that helps create email archives. Attachments can mess up this program's operation.

MODEL LIBRARY UPDATE

No update.

MISCELLANY/ANNOUNCEMENTS

None.

CALL FOR NEW ISSUES

Bob Ross noted that BIRD158 is a new addition to the agenda, to be discussed after BIRD157.

INTERNATIONAL/EXTERNAL ACTIVITIES

- Conferences

The 17th IEEE Workshop on Signal and Power Integrity (SPI 2013) will be held May 12-15, 2013 in Paris, France. There will probably be a European IBIS Summit in conjunction with this conference. More information is available at:

<http://spi2013.org>

- Press Update

Bob Ross mentioned an article in the February 2013 issue of Printed Circuit Design & Fab by Ken Willis and Brad Brim. The article mentions IBIS 5.0+ "power aware" models. It can be found at:

<http://pcdandf.com/cms/component/content/article/171-current-issue/9722-signal-integrity>

IEC APPROVAL ACTIVITIES

Randy Wolff reported that Mike LaBonte and Michael Mirmak attended the IEC National Committee TC91 WG13 teleconference meeting February 8. Mike LaBonte added that we would like to find out what we have to do to standardize IBIS 4.2 through their process. He found that the group has used the dual logo process with IEEE so often that they have forgotten their own process. The working group members are supposed to look into their process further and get back to us. Mike had dinner with Dennis Brophy and Victor Berman the night before, so he did get some face to face meeting time.

SUMMIT STATUS

-DesignCon 2013 Summit Review

The Summit meeting was held Thursday, January 31 in the Mission City M1 room from 8:30am - 4:45pm. 56 people representing 28 organizations attended. Bob Ross thanked Agilent for sponsoring the event.

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 there has not been much regular meeting activity, since attendance has been small and it has been difficult to reach a quorum. The next meeting is March 5 at 8:00am PT. The topic of discussion will be a document creating a specification for the golden parser.

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 group is meeting every Tuesday. During the last meeting, Walter Katz introduced a new BIRD, BIRD158 that was also posted yesterday. The group has been discussing analog modeling, and Arpad wants to spend more time on the AMI BIRDS that are close to completion.

Task group material can be found at:

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

INTERCONNECT TASK GROUP

Bob Ross reported that the group discussed the analog modeling approach, but again moved the discussion to the ATM task group. Walter Katz brought up the EMD document and proposed that the group vote next time on taking it up as a separate specification from IBIS and start on its development. The group is also waiting for closure on the Si2 specification to see how it may affect its work. The group also discussed some issues with BIRD158.

The task group documents can be found at:

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

NEW ADMINISTRATIVE ISSUES

None.

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

Bob Ross noted the changes to the BIRD. A text drawing was replaced with a real figure and some new text was added for clarification. Bob thought that there should be a flag indicating that the model is of a redriver, to tell the software that the model is different.

Radek Biernacki moved to table the discussion and send the BIRD to the ATM task group for further analysis. Mike LaBonte seconded. There were no objections.

BIRD157: PARAMETERIZE [DRIVER SCHEDULE]

Arpad Muranyi summarized the BIRD. He noted that a one bit delay for a boost driver is difficult to implement, since the number is hard coded. Parameterizing the delay numbers allows the [Model] to be used for multiple bit delays. Mike LaBonte asked if there was ever discussion to allow the definition of UI to scale the delay values. Arpad liked this idea, but he said this would require a change to define UI.

Walter Katz commented that we should be discussing whether we should be changing legacy IBIS for a driver that could be defined with AMI. Radek Biernacki felt that we should let users choose between multiple options so that we don't force them into one modeling approach. Radek also liked Mike's comment about defining UI for legacy IBIS. Mike commented that he would like to see a definition of what the EDA software should do with a BIRD like this, so defining a UI would make it clearer. Walter noted that we need to think about what happens to a B-element implementation. Arpad felt this was a GUI issue, as the GUI would allow selection of UI and then setup all the B-elements appropriately. Bob Ross asked what the parameter tree definition would look like, such as having lists or ranges. Arpad noted that the B-element already allows for [Model Selector] selection, so a UI could be added. If a GUI is present, then it is easier to choose. Walter commented that the tool only knows when there are transitions from one to zero, so more capabilities would need to be added to the B-element. Walter asked for clarification that the only purpose of the BIRD is to allow a single model to run at multiple frequencies. Arpad replied that this is correct.

Walter moved that the discussion be tabled and moved to the ATM committee. There was no second. Arpad pointed out that the BIRD is dependent on acceptance of BIRD153, so discussion of it simply needs to be tabled. He didn't think the ATM group had time to discuss this BIRD currently.

Radek moved to table discussion of the BIRD. Arpad seconded. There were no objections.

BIRD158: AMI TOUCHSTONE ANALOG BUFFER MODELS

Walter Katz stated that in IBIS 6.0, this BIRD may become part of the methodology of BIRD116, or it may remain separate. This BIRD is to show everyone how this type of analog model is currently being supported in some software tools. Bob Ross noted that this BIRD has already been discussed in the ATM and Interconnect task group meetings. Arpad Muranyi added that discussions in the ATM group this week summarized this BIRD as a shortcut to BIRD116. He will look to see if this concept can be included in BIRD116.

Walter moved to table discussion of the BIRD. Arpad seconded the motion. There were no objections.

BIRD116.1: ADD IBIS-ISS TO [EXTERNAL MODEL] AND [EXTERNAL CIRCUIT] AS A SUPPORTED LANGUAGE

Discussion was tabled.

BIRD117.4: PARAMETERIZE A_TO_D AND D_TO_A CONVERTERS

Discussion was tabled.

BIRD118.3: ANALOG PARAMETER ASSIGNMENTS

Discussion was tabled.

BIRD122: IBIS-AMI NEW RESERVED PARAMETERS FOR ANALOG MODELING

Discussion was tabled.

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.

BIRD129: ADD “POLARITY” ARGUMENT TO D_TO_A CONVERTERS

Discussion was tabled.

BIRD 131: IBIS-AMI REPEATERS

Discussion was tabled.

BIRD144.3: ADD TOUCHSTONE TO [EXTERNAL MODEL] AND [EXTERNAL CIRCUIT] AS A SUPPORTED LANGUAGE

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: 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.

IBIS SPECIFICATION CHANGE STATUS

Bob Ross noted that the document link is broken. Randy Wolff added that the document was updated after our last teleconference during which we voted on two BIRDS.

The document is available at the following link:

<http://www.eda.org/ibis/docs/ibis-version-change-strategy-v2p5.pdf>

IBISCHK5 BUG STATUS

- BUG141: Wrong AMI_INTEGER_MIN Value in ami.h

Bob Ross reported that the bug describes a mistake in the code in defining a minimum value. A better solution is to explicitly define the value so that the math library is not needed. Mike LaBonte asked if this only affected people with the source code or also compiled code. Bob thought this only affected the source code, specifically when compiled on old 32-bit Linux platforms.

Bob proposed classifying the bug as moderate severity, low priority and open status.

Mike moved to classify the bug as stated. Radek Biernacki seconded the motion. There were no objections.

- BUG142: Mistake in TYPEDEF ENUM SMSPEC SUB in smspec.h

Bob stated that this bug describes a typedef redefinition, and a variable name needs to be changed. This is a compilation issue similar to BUG141.

Bob proposed classifying the bug as moderate severity, low priority and open status.

Mike moved to classify the bug as stated. Randy Wolff seconded the motion. There were no objections.

- BUG143: Missing and Misspelled Argument Names in ccomp.c

Bob reported that this bug defines a compilation error caused by a misspelled variable name and a missing parameter when using a print function.

Bob proposed classifying the bug as moderate severity, low priority and open status.

Mike moved to classify the bug as stated. Radek seconded the motion. There were no objections.

- BUG144: Wrong Keyword Position BUG B0122 Message Should be ERROR E0122 Message

Bob stated that there is an error message that is not clear, printed as "PROGRAM BUG" instead of an error message. Mike noted that he thinks there is a syntax error where a keyword under [Model] occurs before Vinh, Vinl and C_comp subparameters are defined. Bob thought we should work with the parser developer to see if the message can be changed into an error message. Radek asked if the specification spells out ordering rules for the subparameters. Mike looked, but he couldn't find any specific reference to this.

Bob proposed classifying the bug as annoying severity, low priority and open status.

Radek moved to classify the bug as stated. Randy seconded the motion. There were no objections.

Bob brought up the list of open bugs. He plans to approach the parser developer about fixing the open bugs based on the current development agreement.

NEW TECHNICAL ISSUES

Walter Katz commented about the Interconnect task group. So far the group has worked on defining the interconnect modeling needs of the industry. He noted that at the next meeting, the task group will begin looking into detail at the EMD proposal. One thing to look at is how this document could be used to describe a package containing a single die. The document also should allow for modeling on-die interconnect and multi-die packages.

David Banas asked about downgrading from Error to Warning the I-V and V-t mismatch check in ibischk. Arpad Muranyi described the reason for requiring the match between the two curves based on the test load as needed by software. David wondered what to do for AMI models. Walter commented that you could remove the V-t curves and rely on [Ramp] only. What is the purpose of using invalid V-t curves? David noted that the curves contain details that aren't in [Ramp], and he doesn't want to have V-t curves that require overclocking. Arpad noted that overclocking is still a problem, since every tool may have its own solution to overclocking, and this could lead to varying results between the simulators. Arpad also commented that IBIS 5.0 models with [Composite Current] tables cause more problems with overclocking due to the need for longer V-t curves that are time correlated to the I-t curves. Bob noted that any change to the parser will require a bug write-up proposing, for instance, new percentages of I-V and V-t mismatch for error and warning levels.

NEXT MEETING

The next IBIS Open Forum teleconference will be held March 15, 2013 from 8:00am to 10:00am US Pacific Time.

Mike LaBonte moved to adjourn. Radek Biernacki seconded. 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/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>

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	December 21, 2012	January 11, 2013	January 31, 2013	February 22, 2013
Agilent Technologies	User	Active	X	-	X	X
Altera	Producer	Active	X	-	X	X
ANSYS	User	Active	-	X	X	-
Applied Simulation Technology	User	Inactive	-	-	X	-
ARM	Producer	Inactive	-	-	-	-
Cadence Design Systems	User	Active	-	X	X	-
Ericsson	Producer	Active	-	X	X	-
Foxconn Technology Group	Producer	Inactive	-	-	-	-
Freescale	Producer	Inactive	-	-	X	-
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	Active	X	X	X	-
LSI	Producer	Inactive	X	-	-	-
Maxim Integrated Products	Producer	Inactive	-	-	X	-
Mentor Graphics	User	Active	X	X	X	X
Micron Technology	Producer	Active	X	X	X	X
Nokia Siemens Networks	Producer	Inactive	-	-	-	-
QLogic	Producer	Inactive	-	-	X	-
Signal Integrity Software	User	Active	X	X	X	X
Synopsys	User	Inactive	-	-	X	-
Teraspeed Consulting	General Interest	Active	X	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

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