

IBIS Open Forum Minutes

Meeting Date: **October 11, 2013**

Meeting Location: **Teleconference**

VOTING MEMBERS AND 2013 PARTICIPANTS

Agilent	Radek Biernacki*, Pegah Alavi, Heidi Barnes, Fangyi Rao*, Colin Warwick, Tarun Kalwani, Ming Yan
Altera	David Banas*, Hsinho Wu
ANSYS	[Luis Armenta], Ben Franklin, Dan Dvorscak, Steve Pytel
Applied Simulation Technology	Fred Balistreri, Norio Matsui
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)
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, Xingdong Dai
Maxim Integrated Products	Hassan Rafat, Mahbubul Bari, Ron Olisar
Mentor Graphics	Arpad Muranyi*, Ed Bartlett, Vladimir Dmitriev-Zdorov
Micron Technology	Randy Wolff*
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
Toshiba	(Yasumasa Kondo)
Xilinx	(Raymond Anderson)
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
Freescale	Jon Burnett
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
QLogic	James Zhou
SAE	(Chris Denham)
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
November 1, 2013	205 475 958	IBIS
November 15, 2013	Asian IBIS Summit (Shanghai) – no teleconference	
November 19, 2013	Asian IBIS Summit (Taipei) – no teleconference	
November 22, 2013	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 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

Randy Wolff 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 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 20, 2013 IBIS Open Forum teleconference. The minutes were approved without changes.

MISCELLANY/ANNOUNCEMENTS

None.

CALL FOR NEW ISSUES

None.

MEMBERSHIP STATUS AND TREASURER'S REPORT

Bob Ross reported no change in membership, with 21 members currently. We are awaiting payment of one company. All outstanding invoices relate to Asian Summit funding.

WEB PAGE AND MAILING LIST ADMINISTRATION

Mike LaBonte reported more activity on the mailing list with drops and adds. Adjustments to the web pages have been made for IBIS 6.0 approval. Relating to a project to switch to a more modern PHP platform, Mike has been looking at Mantis and wiki pages and is putting together a plan to switch us to use these tools. Changes will be incremental.

MODEL LIBRARY UPDATE

No update.

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 will be a paper presented on X-parameters, a topic covered in recent IBIS Summits. More information is available at:

<http://epeps.ece.illinois.edu/>

The IEEE Standards Association Symposium on EDA Interoperability will be held Thursday, October 24, 2013 at TechMart in Santa Clara, CA. Some topics may relate to IBIS. More information is available at:

http://standards.ieee.org/email/2013_09_ieeesa_eda_symposium_web.html

- Press Update
None.

Michael Mirmak reported that IEEE DASC has a few things ongoing. Their next meeting is Thursday, October 17, 2013. Items to be discussed including packaging and board standards that come from JEITA, and a P2401 committee was recently approved to work on this. This group's work may have a direct relationship to work ongoing in the Interconnect task group. In DASC, there is also a standardization effort to pull SystemC-AMS into a formal working group.

SUMMIT PLANNING AND STATUS

- Asia Events

Bob Ross reported that sponsors for the events are closing out payments. Presentations are being reviewed, but more presentations are desired. The Yokohama Summit will have a full program. We also need to encourage attendance. Michael Mirmak noted dates of the Summits are November 15 in Shanghai, November 19 in Taipei and November 22 in Yokohama.

Sponsors of the Shanghai event include Huawei as the major sponsor and cosponsors including Agilent, ANSYS, Cadence, Intel, IO Methodology and Synopsys. For the Taipei event, ANSYS is the major sponsor and cosponsors include Cadence, Intel, IO Methodology and Synopsys. For the Yokohama event, JEITA and the IBIS Open Forum are major sponsors and cosponsors include ANSYS, Cadence, Mentor Graphics and Zuken. Lance Wang encouraged IBIS member companies to submit presentations for the Summits.

- DesignCon 2014

Michael reported he has been in contact with UBM and contracts are being negotiated. The Summit is currently scheduled on Thursday, January 30, 2014. Brad Brim pointed out that the Summit is scheduled over the top of the second expo day, as the DesignCon schedule has shifted by one day this year. Bob proposed shifting the Summit to Friday, January 31, 2014. There were no objections to this.

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 group is continuing to meet and discuss ibischk and the parser source code that goes with it. They talked about considering different parser funding models and new checks that might be appropriate now that IBIS 6.0 is approved. For Tuesdays' agenda, they plan to talk about requirements for use of uppercase and lowercase file names. The group has decided to go back to holding meetings weekly on Tuesdays at 8:00 a.m. PT.

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. They are trying to make a decision between BIRD125/145 proposals and EMD-like syntax proposals for package modeling. He is hoping to reach a conclusion soon so the group can begin to focus on developing further the best proposal. Arpad encouraged involvement from IC vendors. Michael Mirmak asked what version of the specification the new package modeling is targeted for. Arpad responded that this has not been discussed.

Task group material can be found at:

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

INTERCONNECT TASK GROUP

Arpad Muranyi reported that the task group meetings have been suspended temporarily until further notice. He asked Michael Mirmak to take back leadership of the task group. Michael asked if we want to keep the interconnect topic in the ATM meeting or shift it back to the Interconnect task group. Arpad noted that we were not getting as good attendance in the Interconnect meeting as we are in the ATM meeting. Radek Biernacki noted that it is probably best to keep the discussions in the ATM meeting due to the better attendance. Michael added there are other topics that could be discussed in the Interconnect task group, so he noted to watch for announcements about upcoming meetings. One topic is the LSI PCB standard being discussed in DASC.

The task group documents can be found at:

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

EDITORIAL TASK GROUP

Arpad Muranyi reported that the task group has not met recently, and he suggested this item be removed from the agenda.

NEW ADMINISTRATIVE ISSUES

None.

BIRD150: IBIS-AMI NEW RESERVED PARAMETERS FOR DEPENDENCY TABLES

Walter Katz reported that, in general, for BIRD150 and BIRD155, in both cases AMI parameters are functions of other AMI parameters. This is one class of dependencies. In the other case the knobs that the user can control determine characteristics of the driver. Both BIRDs allow for defining independent and dependent parameters.

BIRD150 defines tables of values. BIRD155 identifies two limitations of BIRD150. One is the mapping of parameters is limited. In BIRD155 it becomes an input to the DLL. Secondly, by putting control in the DLL the dependencies can have some IP protection. Implementation of

BIRD155 has one deficiency – it uses AMI parameter Usage and adds a new Usage Dep. The problem he sees is there are models written using the BIRD150 mechanism. BIRD155 will take away some existing functionality from what is available in BIRD150. If dependency is done in a resolved DLL, he would like to see a new leaf outside of Usage instead of adding Dep to the Usage leaf.

Arpad Muranyi noted he was surprised that the issue came up since he thought it was resolved. Radek Biernacki added that he thought Walter just wanted his position on record, but he was not objecting to the current language in BIRD155. Walter responded that he had recorded his objection in the ATM meeting and he just wanted his objection on record in the Open Forum meeting. He added that he has not heard much input from IC vendors, so he wanted to give another opportunity to IC vendors to respond. Radek noted that he felt the time for further feedback has passed.

Bob Ross added he thought the BIRD155 proposal was clean and non-complicated. Adding a new leaf would make the syntax more complicated. Radek noted he did not have any material prepared to show at this time. He had looked into Walter's suggestion before, but he saw Usage combinations that became quite complicated to define and manage. Walter added that if one used a new leaf independent of Usage then dependent parameters could be inputs to the AMI_Init function. If the DLL wanted to know the values of the dependent parameters, it could re-run the resolve code to determine the values. It does make writing of AMI_Init a little more complicated. Also, for example with a tap coefficient, a table could determine initial values and maybe the user would specify it and the AMI_GetWave function could output this parameter evaluated from the dependency table and make it visible to the user.

David Banas asked if the headache is for dealing with dynamic parameters. Walter responded that yes, adaptive parameters may be difficult to deal with, and a model writer may have to duplicate some resolve dependency code in the AMI_Init function. There are workarounds to the problems, but IC vendors may find difficulties with BIRD155.

David Banas moved to vote on BIRD150. Radek Biernacki seconded the motion. Bob motioned to use the language "accept", "reject", or "abstain" for the vote. The BIRD was rejected with the following vote tally:

Agilent – reject
Altera – reject
Cadence – reject
Intel – reject
IO Methodology – reject
LSI – accept
Mentor – reject
Micron – reject
SiSoft – accept
Teraspeed – reject

BIRD155.2: NEW AMI API TO RESOLVE DEPENDENT MODEL PARAMETER

David Banas moved to vote on acceptance of BIRD155.2 for inclusion in the next version of the

IBIS specification. Bob Ross seconded the motion. The vote passed with the following vote tally:

Agilent – yes
Altera – yes
Cadence – yes
Intel – yes
IO Methodology – yes
LSI – abstain
Mentor – yes
Micron – yes
SiSoft – yes
Teraspeed – yes

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.

IBISCHK5 PARSER AND BUG STATUS

Bob Ross reported a new BUG147 was discovered. Mike LaBonte described the bug. A specific number of lines of comments in the AMI file cause the parser to crash. The test case is very unique, so probability of failure is low. There was some confusion on the meaning of fatal, so Mike LaBonte took the AR to discuss and define the meanings of the classifications in the Quality task group. The bug was classified as Severe severity, Medium priority and Open status.

Michael Mirmak noted that BUG137 was filed on ibischk 5.1.0, but one warning from BUG137 has shown back up in the 5.1.4 source code compilation. Bob suggested filing a new bug to document the issue.

Fangyi Rao noted that when using the new 5.1 parser on 5.0 models, it will fail the 5.0 AMI model if Value and Default both exist. Michael noted that an existing policy decision says that major specification releases determine the parsing rules, so sub-versions of a major release are not uniquely checked. For example, 4.0 models are checked against 4.2 rules. This was not a problem until deprecation of functionality was added in 5.1 for AMI 5.0 models. Walter Katz felt that the problem is that 5.1 should have been a major release (6.0) since it changed so much about 5.0 AMI model rules. Bob noted that 5.0 was an ambiguous specification that was tightened up with limiting rules that made sense. The parser is written against the documented changes in the 5.1 specification. We have the option of retaining older features if we document them. David Banas asked about having the parser check against unique IBIS subversions. Mike LaBonte noted that this would require multiple executables to be released with a single parser release.

Walter brought up another issue. The specification is not clear about rules of use of uppercase and lowercase letters on file names. The parser makes use of uppercase letters in AMI and DLL file names an error, and he did not agree with this behavior. Michael suggested Walter file a bug to force further discussion.

IBISCHK6 PARSER PLANNING

Michael Mirmak noted that discussion should be deferred pending further information from SAE.

NEW TECHNICAL ISSUES

Michael Mirmak reported that he received an email from UBM stating that the January 31, 2014 date for the DesignCon IBIS Summit was ok. He also noted that a PAR has been passed for SystemC-AMS to be called P1666.1, and work will commence in a DASC working group.

NEXT MEETING

The next IBIS Open Forum teleconference will be held November 1, 2013 from 8:00 a.m. to 10:00 a.m. US Pacific Time. The Asian IBIS Summit in Shanghai will be held November 15, 2013. The Asian IBIS Summit in Taipei will be held November 19, 2013. The Asian IBIS Summit in Yokohama will be held November 22, 2013. No teleconferences will be available for the Summit meetings. The following IBIS Open Forum meeting is tentatively scheduled for December 6, 2013.

David Banas moved to adjourn. Radek Biernacki 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/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>

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IBIS – SAE STANDARDS BALLOT VOTING STATUS

I/O Buffer Information Specification Committee (IBIS)

Organization	Interest Category	Standards Ballot Voting Status	August 9, 2013	August 30, 2013	September 20, 2013	October 11, 2013
Agilent Technologies	User	Active	X	X	X	X
Altera	Producer	Inactive	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	-	-	-	-
IBM	Producer	Inactive	X	X	-	-
Infineon Technologies AG	Producer	Inactive	-	-	-	-
Intel Corp.	Producer	Active	X	X	X	X
IO Methodology	User	Active	-	-	X	X
LSI	Producer	Active	X	X	X	X
Maxim Integrated Products	Producer	Inactive	-	-	-	-
Mentor Graphics	User	Active	X	X	X	X
Micron Technology	Producer	Active	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

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