IBIS Open Forum Minutes

Meeting Date: **March 20, 2015**
Meeting Location: **Teleconference**

VOTING MEMBERS AND 2015 PARTICIPANTS

Altera	[David Banas], Masashi Shimanouchi*, Hsinho Wu*
ANSYS	(Steve Pytel), Curtis Clark*
Applied Simulation Technology	Fred Balistreri, Norio Matsui
Avago Technologies	Minh Quach, Leif Zweidinger
Cadence Design Systems	Brad Brim, Joshua Luo, Ken Willis, Joy Li, Ambrish Varma*
Cisco Systems	David Siadat, Rockwell Hsu, Bidyut Sen
Ericsson	Anders Ekholm
Huawei Technologies	Xiaoqing Dong
IBM	Adge Hawes, Luis Armenta
Infineon Technologies AG	(Christian Sporrer)
Intel Corporation	Michael Mirmak*, Todd Bermensolo, Nhan Phan
IO Methodology	Lance Wang*
Keysight Technologies	Radek Biernacki*, Pegah Alavi, Colin Warwick Jian Yang, Nicholas Tzou, Heidi Barnes, Dave Larson Kyla Thomas
Maxim Integrated Products	Mahbubul Bari, Don Greer*, Joe Engert
Mentor Graphics	Arpad Muranyi*, Ed Bartlett, Vladimir Dmitriev-Zdorov
Micron Technology	Randy Wolff
Qualcomm	Senthil Nagarathinam, Kevin Roselle
Signal Integrity Software	Mike LaBonte*, Walter Katz*, Todd Westerhoff Mike Steinberger
Synopsys	Ted Mido*, Rita Horner, William Lau, Scott Wedge Michael Zieglmeier
Teraspeed Labs	Bob Ross*, Tom Dagostino
Toshiba	(Yasumasa Kondo)
Xilinx	(Raymond Anderson)
ZTE Corporation	(Min Huang)
Zuken	Michael Schaeder, Markus Buecker, Griff Derryberry

OTHER PARTICIPANTS IN 2015

Bayside Design	Elliot Nahas
Continental Automotive	Felix Goelden, Markus Bebendorf
CST	Stefan Paret
Freescale	Jon Burnett
Galbi Research	Dave Galbi
Independent	Tim Wang Lee
KEI Systems	Shinichi Maeda
Lattice Semiconductor	Xu Jiang

Raytheon	Joseph Aday
SAE International	Chris Denham
Simberian	Yuriy Shlepnev
Vitesse	Siris Tsang
ZI Consulting	Iliya Zamek

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
April 10, 2015	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. Mike LaBonte took minutes.

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
Mike LaBonte called for comments regarding the February 27, 2015 IBIS Open Forum

teleconference. The minutes were approved without changes.

Michael Mirmak noted that Mike LaBonte had an AR to send out to the mailing list details of the potential move to freelists from eda.org. Also, Arpad Muranyi had an AR to test the Editorial task group mailing list. Michael Mirmak noted that these ARs are closed out.

ANNOUNCEMENTS
None.

CALL FOR ADDITIONAL AGENDA ITEMS
None.

MEMBERSHIP STATUS AND TREASURER'S REPORT
Bob Ross reported that we hold steady at 24 voting members, 15 are currently paid for 2015. The treasury is at $52,239. Income from one new parser sale is pending.

WEB PAGE AND MAILING LIST ADMINISTRATION
Mike LaBonte reported that the IBIS Events page has been updated and the SPI summit event details are now complete.

Mike gave an overview of the plan to migrate our ibis@eda.org and ibis-users@eda.org email lists to ibis@freelists.org and ibis-users@freelists.org. The initial plan required each subscriber to take action to subscribe themselves to the new lists, but a revised proposal sent Monday indicated that Mike could both initiate and complete each subscription himself. Each subscriber would receive a request confirmation and acceptance confirmation for each list subscribed, but no response action is required to be subscribed. The eda.org lists will be closed and the web pages will be updated to make their archives permanent, as well as to feature instructions for new subscribers on the home page.

Mike said two feedback emails were received, both positive. Since the last proposal was emailed the past Monday (March 16), the closing of the comment period was set for two weeks away, Friday April 3. Since the agenda for the next open forum teleconference would be emailed on that date, Mike suggested completing the migration after the next teleconference to fall in a low traffic period. Mike will create the new lists soon and add a few volunteers for testing (AR).

Bob Ross asked if incoming eda.org mail could be forwarded to the new lists. Mike said any responses from/to such emails going through freelists.org might not be received by the sender, and advised against it. Most of that mail would be spam anyway, and Mike questioned whether any eda.org auto-responses should even contain the new addresses. He will seek advice from eda.org support personnel on that (AR).

LIBRARY UPDATE
No update.

INTERNATIONAL/EXTERNAL ACTIVITIES

- Conferences

The 19th IEEE Workshop on Signal and Power Integrity (SPI 2015) will be held in Berlin, Germany, from May 10-13, 2015. An IBIS Summit meeting will be held in conjunction with this Workshop. More information is available at:

http://www.spi2015.org/

- Press Update
None.

ORGANIZATIONAL ACTIVITIES

- Policies and Procedures Call for Comment

Michael Mirmak said we are seeking comments on the new Policies and Procedures document that will succeed our current charter. If there are no comments they will be voted by the board. Radek Biernacki asked about the use of the word "invested" in the document. He also asked why we had shortened the period for posting items subject to voting, and wondered if this had created any timing conflicts. Michael Mirmak said there was no intention to change the various wait periods for BIRDs and such. He also noted that the original charter had many such terms. Bob Ross said no charter terms have been superseded.

The draft Policies and Procedures document is available for review at:

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

SUMMIT PLANNING AND STATUS

- SPI Summit Planning

Michael Mirmak said the next IBIS Summit meeting will be co-located with the SPI conference in Berlin, Germany on May 13, 2015. The second call for papers and attendees will go out April 1. Bob Ross noted that the sponsors are ANSYS, CST, Mentor Graphics Corporation, and Zuken, and that they will pay the hotel directly. Michael Mirmak expressed our appreciation for the sponsors.

- EPEPS Summit Planning

EPEPS is taking place October 25-28, 2015 in San Jose, CA. October 28 would be the date for the Summit if it takes place. Bob said we have been invited but have not yet decided to attend. Michael noted it would be close in time to the Asian summits. Bob said that some presentations might then be leveraged across the summits. He estimated we would have to respond to EPEPS by June to register our intent to attend. Lance Wang said he might not attend an EPEPS summit due to the close timing of the Asia summits.

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 work continues at a slow pace on the IBISCHK6 User Guide. The group considered taking up enhancements to [Test Data] and [Test Load] once again, but after some discussion decided to avoid delaying the current work. Discussion of IBISCHK bug and development has been ongoing. The group is meeting on Tuesdays at 8:00 a.m. PT.

Michael Mirmak asked when the user guide might be finished. Mike LaBonte estimated it will be finished this year, but closer to the end of the year.

The ibischk6 user guide work in progress can be reviewed at:

> http://www.eda.org/ibis/ibischk6/ibischk_6.0.0_UserGuide_wip1.pdf

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 have been discussing advanced C_comp modeling and PAM4, as well as other topics such as back-channel modeling.

Task group material can be found at:

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

INTERCONNECT TASK GROUP

Michael Mirmak reported that the group is meeting on Wednesdays at 8:00 a.m. PT. They are discussing the use of subparameters and the possibility of having parameters for statistical analysis, which might apply to all of IBIS.

Task group material can be found at:

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

EDITORIAL TASK GROUP

Arpad Muranyi reported that the group is meeting on Fridays at 8:00 a.m. PT, with the exception of the weeks when Open Forum meetings are held in the same time slot. So far 9 BIRDs have been approved. They hope to move quickly, finishing in the summer. A new IBIS version might be voted by the end of the year. Volunteers can find the ibis-editorial list at freelists.org, or email Arpad or Mike LaBonte to join. The WebEx meeting details for the Open Forum calls will be used. Arpad asked if the chairmanship had been settled and who would be the keeper of the

documents. Michael Mirmak asked Arpad to chair the meetings and asked for others to volunteer their help. Bob Ross suggested Michael should be the editor.

Michael Mirmak also noted that there is an ibis-backchannel list at Freelists. Mike LaBonte said that he had created it a few years ago at the request of Ken Willis. He proposed closing it as it has not been used. Walter Katz said it had quite a few subscribers and it should be kept. Mike LaBonte will add Michael Mirmak as an alternate ibis-backchannel list administrator (AR).

NEXT VERSION OF IBIS

Michael Mirmak said there were concerns about how much a new parser would cost. Bob Ross said the quote from the developer was $2,500. That might increase if we add more requirements. The quote was for 5 BIRDs and 1 bug. The development effort would take about 2 weeks but the project overall would take a few months.

NEW ADMINISTRATIVE ISSUES
None.

BIRD125.1: MAKE IBIS-ISS AVAILABLE FOR IBIS PACKAGE MODELING
Discussion was tabled.

BIRD128.2: 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 reported that we are ready to ask the developer to fix known bugs at any time. Michael Mirmak said two new bugs had been filed. He showed the bug list.

Michael Mirmak showed BUG159. Mike LaBonte described the bug. It was found that the parser accepts String inputs that do not comply with the requirements that Strings must begin and end with double quotes, and have no other double quotes. We categorized it as severity MODERATE and priority HIGH. Michael Mirmak will make the bug 159 changes (AR).

Michael Mirmak showed BUG160. Curtis Clark said this was similar to BUG143. The IBIS_PRINT function is helpful for debugging, but a block of code was added that makes linking fail when IBISCHK is compiled with debugging enabled. Curtis has provided the fix for the code. Michael Mirmak asked if this was related to a proposal from DAC last year. Curtis said it was unrelated; he simply uses the debug function regularly. He said the ParamFile structure was a new addition for this version of the code. This is helpful to see what the parser got after parsing an AMI file.

BUG160 was initially classified as severity ANNOYING and priority LOW. Curtis noted that BUG143 was severity MODERATE and priority LOW. Bob suggested changing this one to severity MODERATE, priority LOW, status OPEN, to be consistent. This was agreed. Michael Mirmak will make the BUG160 changes (AR).

Michael Mirmak asked if any tool would have helped to catch this problem. Curtis said the debug compile options must be turned on to test it. Mike LaBonte suggested adding a test target to the Makefile, to always compile a second executable with debugging enabled.

Bob said another possible code cleanup would be removal of RCS revision comments that are outdated and therefore deceptive.

Michael Mirmak said the bug reporting form has no space for the title of the bug, and it should be updated. This would allow those reporting bugs to specify the title, rather than IBIS officers guessing what it should be. Mike LaBonte offered to add this and offered to test the Perl scripts that parse this for web page generation. Michael Mirmak cautioned that there are multiple scripts related to this, and a separate index file is affected. Bob noted the title is currently extracted from bugdir.txt. If we add the new title field in the BUG form, we would still have to fall back on bugdir.txt for older BUG reports if the title field is missing. The "suggested" BUG title might be changed by the BUG list moderator if the real problem is different than what the title suggests.

NEW TECHNICAL ISSUES

Michael Mirmak said a presentation scheduled for the last meeting did not happen due to technical problems, and it might be given this time by Walter Katz. Walter showed "Normative and Informative".

Walter said standards organizations typically discuss the distinction between normative and informative constructs, but IBIS does not. An example using a redriver channel flow illustrates ambiguities caused by the informative nature of the flow diagrams and the lack of normative rules. Walter said the reference flows should be considered informative. Normative constructs give the correct way to do something. Informative language is helpful, adding details. The IEEE-SA operations manual defines the terms normative and informative. The informative constructs are not the official parts of specifications.

Walter said BIRD166 should be reworked to add a Reserved_Parameter denoting whether a Tx will change its equalization based on its input impulse response, to correct the ambiguity noted in the flow. Walter showed other IBIS concept examples that might be considered normative or informative.

Walter asked if BIRDs and the IBIS specification should be required to declare portions as normative or informative. Arpad Muranyi suggested caution, because model maker assumptions sometimes may not match EDA vendor assumptions. Ambrish Varma said that informative suggest items that are not required. Walter noted that IBISCHK flags errors for normative items and warnings for informative items. Arpad cautioned against anything that would leave flows subject to interpretation. He cited Use_Init_Output as an example. Walter asserted that no existing TX model changes its equalization, with only one known exception. Therefore a new BIRD166 rule would have minimal impact.

Arpad noted that discussion of the effects of the order of optimization steps has come up. Walter said vendors should not decide this, the specification should provide guidance. We should consider these concepts going forward with new BIRDs. He said typ/min/max guidance has been a common violator. Radek Biernacki said the specification has been treated as mostly normative, but he agreed to the idea of using the normative and informative classifications.

Walter's "Normative and Informative" presentation will be posted with the minutes (AR).

NEXT MEETING

The next IBIS Open Forum teleconference meeting will be held April 10, 2015. The following IBIS Open Forum teleconference meeting will be held May 1, 2015.

Radek Biernacki moved to adjourn. Arpad Muranyi seconded.

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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	January 30, 2015	February 6, 2015	February 27, 2015	March 20, 2015
Altera	Producer	Active	X	-	X	X
ANSYS	User	Inactive	-	-	-	X
Applied Simulation Technology	User	Inactive	X	-	-	-
Avago Technologies	Producer	Inactive	X	-	-	-
Cadence Design Systems	User	Active	X	-	X	X
Cisco Systems	User	Inactive	X	-	X	-
Ericsson	Producer	Inactive	X	-	-	-
Huawei Technologies	Producer	Inactive	X	-	-	-
IBM	Producer	Active	X	X	X	-
Infineon Technologies AG	Producer	Inactive	-	-	-	-
Intel Corp.	Producer	Active	X	X	X	X
IO Methodology	User	Active	X	X	X	X
Keysight Technologies	User	Active	X	X	X	X
Maxim Integrated Products	Producer	Active	X	-	X	X
Mentor Graphics	User	Active	X	X	X	X
Micron Technology	Producer	Active	X	X	X	-
Qualcomm	Producer	Inactive	X	-	-	-
Signal Integrity Software	User	Active	X	X	X	X
Synopsys	User	Active	X	X	-	X
Teraspeed Labs	General Interest	Active	X	X	X	X
Toshiba	Producer	Inactive	-	-	-	-
Xilinx	Producer	Inactive	-	-	-	-
ZTE	User	Inactive	-	-	-	-
Zuken	User	Inactive	X	-	-	-

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.