

IBIS Open Forum Minutes

Meeting Date: **October 28, 2011**

Meeting Location: **Teleconference**

VOTING MEMBERS AND 2011 PARTICIPANTS

Agilent	Radek Biernacki*, Fangyi Rao, Amolak Badesha
Altera	Hui Fu, Zhuyuan Liu, Julia Nekrylova, David Banas
AMD	Nam Nguyen*
ANSYS (Ansoft)	Samuel Mertens
Apple Computer	(Matt Herndon)
Applied Simulation Technology	Norio Matsui
Cadence Design Systems	Terry Jernberg*, Ambrish Varma, Dennis Nagle, Martin Biehl, Yukio Masuko
Cisco Systems	[Syed Huq], [Mike LaBonte], Luis Boluna, Ashwin Vasudevan, Zhiping Yang
Ericsson	Anders Ekholm*
Freescale	(Jon Burnett)
Green Streak Programs	Lynne Green
Huawei Technologies	Xiaoqing Dong
IBM	Adge Hawes*, Greg Edlund
Infineon Technologies AG	(Christian Sporrer)
Intel Corporation	Michael Mirmak, Udy Shrivastava, Heather Monigan
IO Methodology	Lance Wang
LSI	Brian Burdick*
Mentor Graphics	Arpad Muranyi*, Ed Bartlett, Vladimir Dmitriev-Zdorov, Steve Kaufer, Chuck Ferry
Micron Technology	Randy Wolff*, Andrea Spiezia, Roberto Izzi, Aniello Viscardi, Giovanni Guerra, Francesco Madonna, Giuseppe Fusillo
Nokia Siemens Networks GmbH	Eckhard Lenski*
QLogic	David Choe, James Zhou
Signal Integrity Software	Walter Katz, Todd Westerhoff, Mike Steinberger, Barry Katz, Mike LaBonte*
Sigrity	Raymond Chen, Kumar Keshavan, Yingxin Sun
Synopsys	Andy Tai, Ted Mido, Scott Wedge
Teraspeed Consulting Group	Bob Ross*, Kellee Crisafulli, Tom Dagostino, Scott McMorrow
Texas Instruments	Casey Morrison, Alfred Chong
(National Semiconductor - merged with TI)	[Hsinho Wu], Pegah Alavi, John Goldie
Toshiba	(Tetsuya Endo)
Xilinx	(Raymond Anderson)
ZTE	Bi Yi
Zuken	(Michael Schaefer)

OTHER PARTICIPANTS IN 2011

AET	Mikio Kiyono
Arrow Electronics	Ian Dodd
Avago	Weiping He, Minh Quach, Sari Tocco
Bayside Design	Elliot Nahas
Broadcom	Mohammad Ali
CST	Martin Schauer
Exar Corporation	Helen Nguyen
Granite River Labs	Johnson Tan, Mike Engbretson, Quintin Anderson
High Speed Design Center	Ben Chia
ICT-Lanto	Steven Wong
JEITA	Atsushi Ishikawa
KEI Systems	Shinichi Maeda
Maxim Integrated Products	Hassan Rafat
Mindspeed	Jeff Li, Lyn Wang
NetLogic	Ryan Coutts, Antonis Orphanou
Oracle	Gustav Blando
Politecnico di Torino	Igor Stievano, Stefano Grivet-Talocia
Pristine Signals	AbdulRahman (Abbey) Rafiq
Renesas Electronics	Takuji Komeda
Samsung Electronics	Il Seong
Siemens	Manfred Maurer
Simberian	Yuriy Shlepnev
ST Microelectronics	Fabio Brina, Alan Smith
TechAmerica	(Chris Denham)
Thales Communication	Alexandre Amedeo, Cyrip Chastang
University of Illinois	Jose Schutt-Aine
University of L'Aquila	Danilo di Febo
Vitesse Semiconductor	Siris Tsang
Independent	Yoichi Niioka, [Mike LaBonte]

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 15, 2011	Asian IBIS Summit – Shanghai – no teleconference	
November 18, 2011	Asian IBIS Summit – Yokohama – no teleconference	
November 21, 2011	Asian IBIS Summit – Taipei – no teleconference	
December 2, 2011	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 was unable to attend the meeting, so Mike LaBonte conducted the meeting.

CALL FOR PATENTS

Mike LaBonte called for any patents or pending patents related to the IBIS 3.2, IBIS 4.2, IBIS 5.0, 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 October 7, 2011 IBIS Open Forum teleconference. The minutes were approved without changes.

MEMBERSHIP STATUS AND TREASURER'S REPORT

Bob Ross reported that our official membership is 30 due to the merger of National Semiconductor with TI. He did not have an update on financials.

WEB PAGE UPDATES

Mike LaBonte reported that he made a few small changes covering Summit events and roster page updates. Randy Wolff noted that the IBIS main web page was updated with a new look. Mike showed the new site page and described the new features.

MAILING LIST ADMINISTRATION

Mike LaBonte reported that there have been a few additions but nothing major to report.

MODEL LIBRARY UPDATE

No update.

MISCELLANY/ANNOUNCEMENTS

None.

OPENS FOR NEW ISSUES

Bob Ross noted there is a new issue related to release of the ibischk 5.0.7 parser. Radek Biernacki requested more information on the tschk2 parser issue discussed during the last teleconference.

INTERNATIONAL/EXTERNAL ACTIVITIES

- P1735 Encryption

No update. The IEEE Study Group on Encryption web reflector archives are found at:

<http://www.eda-stds.org/ip-encrypt/hm/>

- VHDL-AMS Table-Driven Models

Arpad Muranyi noted that the last meeting was cancelled. More information can be found at:

http://www.eda.org/twiki/bin/view.cgi/P10761/ProjectsArea#Table_driven_Modeling_Champion_J

- Conferences

EMCCompo2011, the 8th International Workshop on Electromagnetic Compatibility of Integrated Circuits, will be held in Dubrovnik, Croatia, November 6-9, 2011. More information can be found at:

<http://www.emccompo2011.org>

EDAPS (Electrical Design of Advanced Packaging & Systems) will be held December 12-14 in Hangzhou, PRC. More information can be found at:

<http://www.edaps2011.org>

SPI2012 (18th IEEE Workshop on Signal and Power Integrity) will be held May 13-16, 2012 in Sorrento, Italy. We are offered a free room on Wednesday afternoon for hosting an IBIS Summit meeting. More information can be found at:

<http://www.spi2012.org>

Official IBIS participation is not planned for all of the events above, though individual papers and discussion on IBIS are encouraged. These are events with refereed submissions, with deadlines either pending or already passed.

- Press Update

Bob Ross noted an online, open-access book mentioning IBIS, although the emphasis is on a different behavioral modeling technology. IBIS is referenced specifically in chapter 5. The book

is Flash Memories (edited by Igor Stievano), published by InTech, ISBN: 978-953-307-272-2, September 2011. Chapter 5 is titled "Behavioral Modeling of Flash Memories" by Igor S. Stievano, Ivan A. Maio and Flavio G. Canavero. The book is linked at:

<http://www.intechopen.com/books/show/title/flash-memories>

Chapter 5 is available at:

<http://www.emc.polito.it/publications/file/bok-2011-Intech-Flash-chapter-final.pdf>

IEC APPROVAL ACTIVITIES

Randy Wolff reported that he is waiting for news from DASC on their vote on accepting the PAR and forming a working group to begin the IEEE approval process for IBIS.

Mike LaBonte asked about membership requirements for IBIS members in DASC. Randy noted that Michael Mirmak is currently a member and that others can join if necessary, but he didn't think this was needed at this time. Bob Ross added that the DASC votes are individual, not entity based and that you just have to add the Standards Association membership to your regular IEEE membership for \$49 to be a member with voting rights on standards.

SUMMIT STATUS

- Asian IBIS Summit – Shanghai

The Shanghai IBIS Summit is scheduled for Tuesday, November 15 at the Parkyard Hotel. Bob Ross noted that the program is closed with 13 presentations scheduled. The fourth announcement went out. There are more than 50 attendees signed up so far. Sponsors include Huawei Technologies, Agilent Technologies, ANSYS, Cadence Design Systems, Intel Corp., IO Methodology, Sigrity, Synopsys, ZTE Corporation and others to be determined.

- Asian IBIS Summit –Yokohama

The meeting is November 18 in Yokohama and corresponds with a JEITA conference. The meeting will run from 1:30pm to 6:00pm. Bob Ross noted that 8 presentations are scheduled. The third announcement has gone out. There are more than 120 attendees signed up so far. There are six sponsors for the event including JEITA, ANSYS, ATE Services Corporation (Sigrity), Cadence Design Systems, Mentor Graphics and Zuken.

- Asian IBIS Summit – Taipei

The meeting is scheduled for November 21. Bob Ross noted that there is room for more presentations, with 6 scheduled so far. There are 55 attendees signed up so far. The fourth announcement has gone out. There are 6 sponsors including Avant Technology (IO Methodology), Cadence Design Systems, Foxconn Technology Group, Intel Corporation, Sigrity and Synopsys.

Sponsorship opportunities for all upcoming IBIS summits are available, with sponsors receiving free mentions in the minutes, agenda, and other announcements. This includes upcoming events in Asia. Contact the IBIS Board for further details.

QUALITY TASK GROUP

Mike LaBonte reported that the group is refining quality checks for AMI models. They will begin drafting this as a new section to the Quality Specification.

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

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

MODEL REVIEW TASK GROUP

No update.

ADVANCED TECHNOLOGY MODELING TASK GROUP

Arpad Muranyi reported that the group is discussing corner alignments between AMI and IBIS models. They will continue on analog modeling issues after the corner discussion ends.

Task group material can be found at:

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

EDITORIAL TASK GROUP

Bob Ross reported that the group has not been active in the last two weeks. There are several unresolved issues such as formatting of the AMI section. There are several new BIRDS to include once the formatting issues are resolved.

The current IBIS 5.0 reformatting documentation can be reviewed at the following new location:

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

The old link is being maintained, to avoid breaking existing references:

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

NEW ADMINISTRATIVE ISSUES

None.

BIRD127.3: IBIS-AMI TYPOGRAPHICAL CORRECTIONS

Arpad Muranyi noted that the modifications were based on Radek Biernacki's comments from the last meeting. Arpad described the changes from BIRD127.2. The Table examples are now consistent with the new rules defined in BIRD 132. References to specific rules regarding Usage InOut and Out were removed since they will be addressed in a different BIRD. A paragraph was added to describe the content of AMI_parameters_out string more clearly. Also, rule #9 was added.

Radek Biernacki made a comment on the parameter string rules. He asked for a small correction to the sentence "The AMI Parameter branches Usage Out are returned as leaf/value pairs in the AMI_parameters_out string" to add "or In Out". This will require an update to the BIRD.

Bob Ross moved to issue a BIRD127.4 before the next meeting with the noted change (BIRD127.4 will be eligible for a vote if issued/uploaded two weeks before the meeting). Arpad seconded. There were no objections.

Bob added that there is inconsistency with the use of "leaf/value" in the BIRD, and this can be addressed by the editorial committee.

BIRD133: MODEL CORNER C_COMP

Bob Ross noted that there has been discussion at the ATM meetings on this topic. There is no resolution so far as to what the ATM committee prefers. Arpad Muranyi noted that he is starting to think it is almost impossible to fully define the min/max meanings in IBIS. Arpad is thinking about establishing different mechanisms for establishing corner definitions in AMI models.

Radek Biernacki commented on lifting the restriction of C_comp being ordered by numerically large and small values. Randy Wolff commented that re-ordering C_comp values would break current methods of handling C_comp such as slow/fast definitions in the B-element. Bob added that the only way to allow this would be enforcing versioning in the C_comp keyword.

Commenting on future extensions, Bob noted that he doesn't want a solution that adds just two new columns of data, but would also add a new typical column.

BIRD140: FORMAT CORNER AND RANGE CLARIFICATION FOR IBIS-AMI

Arpad Muranyi noted that he made a presentation in the last ATM meeting. Discussion is ongoing. Bob Ross noted that this is a critical BIRD that we don't want to hold up too long. Arpad added that the current version of the BIRD does not contain any of the new ideas that the ATM committee has been discussing.

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

Arpad Muranyi reported that he made many comments to the BIRD authors, and they have provided him an updated BIRD to review. Radek Biernacki commented that he does not think this BIRD proposal is necessary since the functionality is already covered by a BIRD adding Touchstone support through IBIS-ISS. Arpad clarified that he only commented on technical inconsistencies in the BIRD and not on its usefulness.

BIRD145: INSTANTIATION OF IBIS I/O BUFFERS IN AN [EXTERNAL CIRCUIT] USING THE [MODEL CALL] KEYWORD

Arpad Muranyi reported that he made comments to the BIRD authors and they have sent back

a revised version to review. Bob Ross noted that there are presentations related to this BIRD and BIRD144 planned for the Asian IBIS Summits. Bob asked if the BIRD adds models that connect to the pins or pads. Arpad clarified that the BIRD adds a way to connect an external circuit in between models and pads.

BIRD146: CLARIFY SAMPLE_INTERVAL FOR IBIS-AMI

Arpad Muranyi introduced the BIRD. The motivation was in seeing models only work at certain sampling rates. In some cases, simulations were incorrect or crashed the tools. This BIRD clarifies that the models should work at all sampling rates, and if the model only supports specific sampling rates, it should issue an error when non-supported sampling rates are used. Mike LaBonte asked if there is a lower limit on wave_size, i.e. is 0 supported. Arpad noted that the BIRD does not describe these limits.

Arpad noted that original versions of the BIRD wanted the model to specify the sampling_rates it worked for, but others requested to leave this requirement out. Radek Biernacki commented that he felt the BIRD was well written and did not require further review.

Arpad moved to schedule the BIRD for a vote at the next meeting. Bob Ross seconded. There were no objections.

BIRD147: BACK-CHANNEL SUPPORT

Bob Ross commented that this BIRD is being handled by the ATM committee. Bob noted that this BIRD defines text strings for Tables, and he thinks the text language needs to be defined officially and not just through examples in the BIRD.

Bob moved to table the BIRD until un-tabled by a future motion. Arpad Muranyi seconded. There were no objections.

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

Discussion was tabled.

BIRD117.3: PARAMETERIZE A_TO_D AND D_TO_A CONVERTERS

Discussion was tabled.

BIRD118.2: ANALOG PARAMETER ASSIGNMENTS

Discussion was tabled.

BIRD121.1: IBIS-AMI NEW RESERVED PARAMETERS FOR DATA MANAGEMENT

Discussion was tabled.

BIRD122: IBIS-AMI NEW RESERVED PARAMETERS FOR ANALOG MODELING

Discussion was tabled.

BIRD123.1: IBIS-AMI NEW RESERVED PARAMETERS FOR JITTER/NOISE

Discussion was tabled.

BIRD124: IBIS-AMI NEW RESERVED PARAMETERS FOR DEPENDENCY TABLES

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.

IBISCHK5 BUG STATUS

Bob Ross reported that the Open Forum approved release of the 5.0.7 parser at the last meeting. A couple of days later, BUG130 came in and he held off release until the parser could be updated. BUG130 has now been fixed in the parser.

BUG130 found that in fixing the Ramp subparameter test for dV/dt_r and dV/dt_f (BUG107), the parser crashes if the subparameters are entered illegally due to case-sensitive mistakes. BUG130 was classified as Severe severity, High priority, and Closed status.

Bob moved to release the 5.0.7 parser with the BUG130 fix included and release the source code. Radek Biernacki seconded. There were no objections.

Bob will upload the executables in the next couple of days. He also added that there is a spreadsheet being finalized that lists all the error and warning messages in the parser. This spreadsheet will be posted once completed.

NEW TECHNICAL ISSUES

Radek Biernacki asked for more information about the tschk2 parser BUG mentioned in the meeting minutes from the last teleconference. Bob Ross explained that the BUG report was never uploaded to the IBIS website. The BUG relates to the wording of the message for supported options on the command line. This requires a simple fix to the parser. Bob is looking for other messages that could be fixed at the same time.

NEXT MEETING

The Asian IBIS Summit – Shanghai will be held November 15, 2011. The Asian IBIS Summit – Yokohama will be held November 18, 2011. The Asian IBIS Summit – Taipei will be held November 21, 2011. The next IBIS Open Forum teleconference will be held December 2, 2011 from 8:00 to 10:00 AM US Pacific Time. Votes on BIRD127.4 and BIRD146 are scheduled. Bob Ross moved to adjourn. Randy Wolff seconded. There were no objections.

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 CURRENT MEMBER VOTING STATUS

I/O Buffer Information Specification Committee (IBIS)

Organization	Interest Category	Standards Ballot Voting Status	August 26, 2011	September 16, 2011	October 7, 2011	October 28, 2011
Advanced Micro Devices	Producer	Active	-	X	X	X
Agilent Technologies	User	Active	X	X	-	X
Altera	Producer	Active	-	X	X	-
ANSYS	User	Inactive	-	-	-	-
Apple Computer	User	Inactive	-	-	-	-
Applied Simulation Technology	User	Inactive	-	-	-	-
Cadence Design Systems	User	Inactive	-	-	-	X
Cisco Systems	User	Inactive	-	-	-	-
Ericsson	Producer	Inactive	-	X	-	X
Freescale	Producer	Inactive	-	-	-	-
Green Streak Programs	General Interest	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	Active	-	X	X	-
LSI	Producer	Active	X	-	X	X
Mentor Graphics	User	Active	X	X	X	X
Micron Technology	Producer	Active	X	X	X	X
Nokia Siemens Networks	Producer	Active	X	-	X	X
QLogic	Producer	Inactive	-	-	-	-
Signal Integrity Software	User	Active	X	X	X	X
Sigrity	User	Inactive	-	-	-	-
Synopsys	User	Inactive	-	-	-	-
Teraspeed Consulting	General Interest	Active	X	X	X	X
Texas Instruments	Producer	Inactive	-	-	-	-
Toshiba	Producer	Inactive	-	-	-	-
Xilinx	Producer	Inactive	-	-	-	-
ZTE	User	Inactive	X	-	-	-
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 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.