IBIS Open Forum Minutes

Meeting Date: **October 29, 2021**
Meeting Location: **Teleconference**

VOTING MEMBERS AND 2021 PARTICIPANTS

ANSYS	Curtis Clark*, Wei-hsing Huang
Applied Simulation Technology	(Fred Balistreri)
Broadcom	(Yunong Gan)
Cadence Design Systems	Zhen Mu^
Celestica	(Sophia Feng)
Cisco Systems	(Stephen Scearce)
Dassault Systemes (CST)	Stefan Paret, David Duque, Longfei Bai
Ericsson	(Guohua Wang)
Google	Zhiping Yang*, Songping Wu
Huawei Technologies	(Hang (Paul) Yan)
Infineon Technologies AG	(Christian Sporrer)
Instituto de Telecomunicações	(Abdelgader Abdalla)
Intel Corporation	Hsinho Wu*, Michael Mirmak*
Keysight Technologies	Radek Biernacki, Fangyi Rao, Pegah Alavi, Todd Bermensolo, Majid Ahadi Dolatsara
Luminous Computing	David Banas
Marvell	Steve Parker*
MathWorks (SiSoft)	Mike LaBonte, Walter Katz*
Maxim Integrated	Tushar Pandey*, Pawan Sai, Yan Liang
Micron Technology	Randy Wolff*, Justin Butterfield, Aniello Viscardi, Akshay Shivaji Chaudhari, Dragos Dimitriu
MST EMC Lab	Chulsoon Hwang, Anfeng Huang, Yifan Ding
NXP	Jon Burnett
SerDesDesign.com	(John Baprawski)
Siemens EDA (Mentor)	Arpad Muranyi*, Weston Beal
Siemens AG	Franz Pfleger, Sebastien Kollinger
STMicroelectronics	(Gerard Mas)
Synopsys	Ted Mido*, Andy Tai
Teraspeed Labs	Bob Ross*
Xilinx	(Romi Mayder)
ZTE Corporation	Bowen Shen, Changgang Yin, Dongdong Ye Liqiang Meng, Xiaoxuan Liu
Zuken	Michael Schäder, Chithrupa Ramesh
Zuken USA	Lance Wang*

OTHER PARTICIPANTS IN 2021

Achronix Semiconductor	Hansel Dsilva
Analog Devices	Patrick DeRoy
ATE Service Corporation	Yutaka Honda
AVL Software and Functions	Wolfgang Röhrner

Ciena	Taha Kheyar, Kaisheng Hu
Continental Automotive	Julnar Musmar, Stefanie Schatt
De Montfort University (IEEE EMC)	Alistair Duffy
Elite Material Co.	Nick Huang
Extreme Networks	Robert Haller
Hamburg University of Technology	Cheng Yang
IT-Beratung-Maurer	Manfred Maurer
Kandou Bus	Sherman Chen
KEI Systems	Shinichi Maeda
Mercury Systems	Vincent Tam
Microchip Norway	Lars Snith
Politecnico di Torino	Stefano Grivet-Talocia, Paolo Manfredi
	Alessandro Zanco, Felipe Treviso
	Marco Destefano, Riccardo Trinchero
	Tomasso Bradde
RTC	Ken Whigham
Simberian	Yuriy Shlepnev
Teradyne	Tao Wang
University of Illinois, Urbana	Jose Shutt-Ainé, Xinying Wang

In the list above, attendees at the meeting are indicated by *. Those submitting an email ballot for their member organization for a scheduled vote 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 connection information for future IBIS teleconferences is as follows:

Microsoft Teams meeting
Join on your computer or mobile app
Click here to join the meeting

Join with a video conferencing device
106010980@teams.bjn.vc
Video Conference ID: 114 666 897 5
Alternate VTC dialing instructions

Or call in (audio only)
+1 267-768-8015,554664847#   United States, Philadelphia
Phone Conference ID: 554 664 847#
Find a local number | Reset PIN
Learn More | Meeting options

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.

NOTE: "AR" = Action Required.

INTRODUCTIONS AND MEETING QUORUM
Curtis Clark declared that a quorum had been reached.

CALL FOR PATENTS
Randy Wolff called for declaration of any patents or pending patents related to the IBIS, IBIS-ISS, ICM, or Touchstone 2.0 specifications. No patents were declared.

REVIEW OF MINUTES AND ARS
Randy Wolff called for comments on the minutes of the October 8, 2021, IBIS Open Forum teleconference. Michael Mirmak moved to approve the minutes. Curtis Clark seconded the motion. There were no objections.

Randy reviewed ARs from the previous meeting.
1. Randy Wolff to send email ballot for BIRD215 vote [AR]
   Randy said this was done.
2. Randy Wolff to update BIRD214 status on the website [AR]
   Randy reported that this was done.

ANNOUNCEMENTS, **CALL FOR ADDITIONAL AGENDA ITEMS**
Randy Wolff noted that a draft version of IBIS 7.1 would be introduced and discussed.

MEMBERSHIP STATUS AND TREASURER'S REPORT
Bob Ross reported that cash flow for 2021 was $26,843 and the total adjusted balance for 2021 was $30,193. We had 29 members, with a voting quorum of 8. One new half-year membership was possible, although not very likely. An early 2022 $900 membership was in process, but it would have to be confirmed whether the payment was for 2022. No new Summit expenses were anticipated. A full payment of $17,500.00 for ibischk7 version 7.1.0 was expected soon.

WEBSITE ADMINISTRATION
Steven Parker reported that the website was up to date with respect to meeting minutes and documents, and BIRD214 had been updated. He and Curtis Clark said that Mike LaBonte had run into an issue sending out an IBIS Quality task group agenda email from his ibis.org account. They had investigated, and freelists reported that their server had blocked the message based on a reputation score they got from Barracuda for the websitewelcome.com smtp server that bluehost uses. The problem had not recurred. So, for the time being, Mike, Steve and Curtis decided that no further action was necessary.

MAILING LIST ADMINISTRATION
Curtis Clark reported that everything was operating normally, aside from the issue mentioned in the Website Administration report.

LIBRARY UPDATE
Zhiping Yang reported that Chulsoon Hwang had presented the GitHub Model Library demo, which was presented at the last Open Forum meeting, to the ATM task group at their most recent meeting. One suggestion there had been to poll model providers to see if they'd be willing to upload models to an open-source repository. Zhiping said any interested organization could create an account on that GitHub site so they could upload models. Contact Zhiping or Chulsoon if you are interested in trying it.

INTERNATIONAL/EXTERNAL ACTIVITIES
- Conferences
None.

- Press Updates
None.

- Related standards
IEC 63055/IEEE 2401, JEITA "LPB"
Michael Mirmak reported that IEEE DASC meets the first week of every month. He said there had been no recent updates on standards of interest to us. He said that once IBIS 7.1 is approved, we should let LPB know about the new version so they can take it into account in their revisions. He said they expected no new revisions on their side in 2021. Michael said he would let them know that IBIS 7.1 is coming [AR]. He said the upcoming IBIS summits might be of interest to DASC if JEITA was planning any LPB related updates. Randy Wolff said we weren't expecting any LPB related updates from JEITA.

SUMMIT PLANNING AND REVIEW
- Virtual Asian IBIS Summit (Japan), Friday, November 12, 2021, 08:30 to 12:00 JST
Randy Wolff said the agenda is full and the summit is ready to go. JEITA is adding subtitles to the prerecorded videos. Most presentations will be prerecorded, but one will be live. Bob Ross said the agenda runs from 8:30 a.m. to 12:30 p.m. Japan time. Randy said the final agenda would be sent out on November 5th, and meeting links would follow the next week. The meeting will be a Zoom meeting hosted by Micron. Bob and Randy thanked Ted Mido for volunteering to help with translation of any live questions.

- Virtual Asian IBIS Summit (China), Friday, November 19, 2021, 09:00 to 13:00 CST
Randy said the agenda was not quite finalized, and presentations were still being reviewed. Bob said we had seven presentations and the possibility of two more. All presentations for this summit would be live.

QUALITY TASK GROUP
Randy Wolff said the group meets on Tuesdays at 9:00 a.m. PT. The group continues to oversee the next ibischk release, ibischk7.1.0. Two new bugs had been reported, and source code had been delivered. Details would be discussed later in the meeting.

The Quality task group checklist and other documentation can be found at:

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

ADVANCED TECHNOLOGY MODELING TASK GROUP
Arpad Muranyi reported that the group meets on Tuesdays at 12:00 a.m. PT. The group had recently reviewed a presentation from Randy Wolff on a Tx buffer PSIJ simulation study he had done. The goal of the study and presentation was to provide input to Chulsoon Hwang and his students to help with development of a PSIJ BIRD.

Task group material can be found at:

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

INTERCONNECT TASK GROUP
Randy Wolff reported that the Interconnect task group remained suspended. Its former time slot was being used by the Editorial task group.

Task group material can be found at:

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

EDITORIAL TASK GROUP
Randy Wolff reported that the group was meeting on Wednesdays at 8:00 a.m. PT. After a unanimous vote at the most recent meeting, the group had submitted an IBIS 7.1 draft to the Open Forum for review. Randy said it would be introduced and discussed later in this meeting.

Task group material can be found at:

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

NEW ADMINISTRATIVE ISSUES
None

BIRD215: BACK-CHANNEL STATISTICAL OPTIMIZATION EDITORIAL UPDATE
Randy Wolff showed the BIRD. He said a vote had been scheduled for this meeting. Arpad Muranyi noted that the BIRD contains no technical changes. It captures clarifications from the editorial process. Randy said the training flow descriptions had been clarified. Bob Ross noted that the IBIS 7.1 draft already incorporates what is in BIRD215.

Arpad moved to vote for acceptance of BIRD215 and for incorporating it into IBIS 7.1. Michael Mirmak seconded. Without objection, Randy conducted a roll call vote. The motion passed with 12 Yes votes, 0 No votes, and 0 abstentions. Randy and Steve Parker to update the status of BIRD215 on the website [AR].

ANSYS	Yes
Cadence Design Systems	Yes (email)
Google	Yes

Intel Corporation	Yes
Marvell	Yes
MathWorks	Yes
Maxim Integrated	Yes
Micron Technology	Yes
Siemens EDA	Yes
Synopsys	Yes
Teraspeed Labs	Yes
Zuken USA	Yes

BIRD211.3: IBIS AMI REFERENCE FLOW IMPROVEMENTS
Discussion was tabled.

BIRD213: EXTENDING IBIS-AMI FOR PAMn ANALYSIS
Discussion was tabled.

BIRD166.4: RESOLVING PROBLEMS WITH REDRIVER INIT FLOW
Discussion was tabled.

BIRD181.1: I-V TABLE CLARIFICATIONS
Discussion was tabled.

BIRD190: CLARIFICATION FOR REDRIVER FLOW
Discussion was tabled.

BIRD210: NEW REDRIVER AMI FLOW
Discussion was tabled.

INTRODUCTION OF IBIS 7.1 DRAFT
Randy Wolff shared the draft and noted that it is draft 19. Michael Mirmak and Randy started by reviewing the section listing the newly included BIRDs. Michael said there are just over 400 pages in this draft. He said the posted version is "clean" (free of editorial markup), and he referred people to the version7.1 WIP directory available on the site map of the website if they want to see marked up working copies. (http://www.ibis.org/ver7.1_wip/)

Michael suggested readers pay particular attention to the lengthier additions, e.g., BIRD202.3 EMD and some overall updates to the interconnect modeling sections to maintain consistency throughout the document. He also noted that the back-channel optimization statistical and time-domain AMI analysis flows with and without repeaters had been rewritten per BIRD215. He said there were many new changes, and we want to make sure they're all consistent.

Randy also noted significant changes to the parameter tables in the AMI section. Michael said that summary tables had been added to various sections in previous versions of the specification to provide quick-glance information on rules, allowable usages, etc. He said those tables had been redesigned for consistency and clarity, including:

1. "Required" is now defined to mean required by the specification (e.g., Parameter X is required if AMI_Version is 5.0 or greater).
2. Other AMI parameters may not be "required" by the specification, but they may be required if other parameters appear. These dependencies are explained.
3. Tables try to clearly state whether any parameters' values are assumed by default if the parameter is not present. Some parameters have no meaningful default (e.g., path parameters).
4. An additional "Placeholder" column identifies parameters for which the value provided in the .ami file is just a placeholder to be replaced by the EDA tool at simulation time.
5. Footnotes are now numerically ordered for ease of use.

Michael noted that the tables are intended to provide easy access to summary information, but they are not meant to provide an exhaustive list of all rules.

Randy encouraged all BIRD authors to review the full draft to ensure their BIRDs were incorporated properly.

IBISCHK AND TSCHK PARSER AND BUG STATUS
Bob Ross said there were two new BUGs to discuss.

BUG225: No Error for IBIS_AMI List_Tip Different Entries for Duplicate List Entries
Bob and Randy Wolff said that this issue was discovered and reported by Mike LaBonte. The specification allows for entries in a List parameter to be duplicated. However, it states that if entries are duplicated then the List_Tip entries for all duplicates must be identical. The parser currently fails to catch this error if it occurs. Randy described a possible scenario in which a parameter applies to several different standards, but the value of the parameter is the same for more than one standard. Instead of having separate List entries with the same value and different List_Tip entries, the associated List_Tip entries would have to be combined or concatenated into one common string.

Bob noted that this issue had existed since ibischk6.0.0. Randy said the fix is something we plan to pay for in a future release. We are not asking the parser developer to address this old issue in the 7.1 release. It is not related to the 7.1 changes.

Bob moved to classify the defect as moderate (because it is missing a spec violation), low priority (it has existed for a long time), to be fixed in a future release. Curtis Clark seconded. There were no objections. Bob to update the status of BUG225 [AR].

BUG226: No Error for Param Entry in [Interconnect Model] with File_TS.
Bob reported that this error had been found by the parser developer. The IBIS specification states that the [Interconnect Model] Sub-Param named Param is only legal with IBIS-ISS files. It is illegal with File_TS. The parser was not catching this error. Bob said he believed the issue had already been corrected in ibischk7.1.0.

Bob moved to classify the defect as severe, medium priority, to be fixed in the next release. Arpad Muranyi seconded. There were no objections. Bob to update the status of BUG226 [AR].

Bob said the Quality task group had received a full release of ibischk7.1.0 to review. He said there were some minor formatting issues they intended to fix. These included a number of error messages for which they wanted "mdl" to be replaced with "model" to improve clarity. He said there would be at least one more code drop from the developer. Randy asked when we would consider this an official release. Bob said the QA testing would take several weeks after they had the expected final code drop. Randy noted that we intended to make the payment to the parser developer this year, and we would vote to authorize the payment at a future meeting.

NEW TECHNICAL ISSUES
None

NEXT MEETING
The next IBIS Open Forum teleconference meeting would be held on November 19, 2021. The following teleconference meeting was tentatively scheduled for December 10, 2021. The Asian IBIS Summit (Tokyo) would be held on November 12, 2021. The Asian IBIS Summit (China) would be held on November 19, 2021. Note that Summit dates are in their local time zones, and the Summits will occur on the evenings of the preceding days in US time zones.

Bob Ross moved to adjourn. Arpad Muranyi seconded the motion. The meeting adjourned.

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NOTES

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This meeting was conducted in accordance with SAE ITC guidelines.

All inquiries may be sent to info@ibis.org. Examples of inquiries are:

- To obtain general information about IBIS.
- To ask specific questions for individual response.
- To subscribe to or unsubscribe from the official ibis@freelists.org and/or ibis-users@freelists.org email lists (formerly ibis@eda.org and ibis-users@eda.org):
  - https://www.freelists.org/list/ibis
  - https://www.freelists.org/list/ibis-users
- To subscribe to or unsubscribe from one of the task group email lists: ibis-macro@freelists.org, ibis-interconn@freelists.org, ibis-editorial@freelists.org, or ibis-quality@freelists.org:
  - https://www.freelists.org/list/ibis-macro
  - https://www.freelists.org/list/ibis-interconn
  - https://www.freelists.org/list/ibis-editorial
  - https://www.freelists.org/list/ibis-quality
- To inquire about joining the IBIS Open Forum as a voting Member.
- To purchase a license for the IBIS parser source code.
- To report bugs or request enhancements to the free software tools: ibischk6, tschk2, icmchk1, s2ibis, s2ibis2 and s2iplt.

The BUG Report Form for ibischk resides along with reported BUGs at:

http://www.ibis.org/bugs/ibischk/
http://www.ibis.org/ bugs/ibischk/bugform.txt

The BUG Report Form for tschk2 resides along with reported BUGs at:

http://www.ibis.org/bugs/tschk/
http://www.ibis.org/bugs/tschk/bugform.txt

The BUG Report Form for icmchk resides along with reported BUGs at:

http://www.ibis.org/bugs/icmchk/
http://www.ibis.org/bugs/icmchk/icm_bugform.txt

To report s2ibis, s2ibis2 and s2iplt bugs, use the Bug Report Forms which reside at:

http://www.ibis.org/bugs/s2ibis/bugs2i.txt
http://www.ibis.org/bugs/s2ibis2/bugs2i2.txt
http://www.ibis.org/bugs/s2iplt/bugsplt.txt

Information on IBIS technical contents, IBIS participants and actual IBIS models are available on the IBIS Home page:

http://www.ibis.org/

Check the IBIS file directory on ibis.org for more information on previous discussions and results:

http://www.ibis.org/directory.html

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SAE STANDARDS BALLOT VOTING STATUS

Organization	Interest Category	Standards Ballot Voting Status	August 27, 2021	September 17, 2021	October 8, 2021	October 29, 2021
ANSYS	User	Active	X	X	X	X
Applied Simulation Technology	User	Inactive	-	-	-	-
Broadcom Ltd.	Producer	Inactive	-	-	-	-
Cadence Design Systems	User	Inactive	X	-	X	X
Celestica	User	Inactive	-	-	-	-
Cisco Systems	User	Inactive	-	-	-	-
Dassault Systemes	User	Inactive	-	-	-	-
Ericsson	Producer	Inactive	-	-	-	-
Google	User	Active	X	X	X	X
Huawei Technologies	Producer	Inactive	-	-	-	-
Infineon Technologies AG	Producer	Inactive	-	-	X	-
Instituto de Telecomunicações	User	Inactive	-	-	-	-
Intel Corp.	Producer	Active	X	X	X	X
Keysight Technologies	User	Active	X	X	X	-
Luminous Computing	General Interest	Inactive	-	-	-	-
Marvell	Producer	Active	X	X	-	X
MathWorks (SiSoft)	User	Active	X	X	X	X
Maxim Integrated	Producer	Inactive	-	X	X	X
Micron Technology	Producer	Active	X	X	X	X
MST EMC Lab	User	Inactive	-	-	X	-
NXP	Producer	Inactive	-	-	-	-
SerDesDesign.com	User	Inactive	-	-	-	-
Siemens EDA (Mentor)	User	Active	X	X	X	X
STMicroelectronics	Producer	Inactive	-	-	-	-
Synopsys	User	Active	X	X	X	X
Teraspeed Labs	General Interest	Active	X	X	X	X
Xilinx	Producer	Inactive	-	-	-	-
ZTE Corp.	User	Inactive	-	-	-	-
Zuken	User	Active	-	X	X	X

Criteria for SAE member in good standing:
- Must attend two consecutive meetings to establish voting membership
- Membership dues current
- Must not miss two consecutive meetings (voting by email counts as attendance)

Interest categories associated with SAE standards 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.