



IBIS Open Forum Minutes

Meeting Date: **September 17, 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 Searce)
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
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 Pflieger, 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 Trincherro
	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

Randy Wolff declared that a quorum was reached. With one new member, the quorum threshold was now eight.

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 August 12, 2021 - IBIS Summit at 2021 IEEE Virtual Symposium on EMC+SIPI. Curtis Clark moved to approve the minutes. Lance Wang seconded the motion. There were no objections.

Randy Wolff called for comments on the minutes of the August 19, 2021 - IBIS Virtual Summit with DesignCon 2021. Lance Wang moved to approve the minutes. Curtis Clark seconded the motion. There were no objections.

Randy Wolff called for comments on the minutes of the August 27, 2021, IBIS Open Forum teleconference. Randy said the title of BIRD202 had changed and was incorrect in the emailed minutes, but it had been corrected in the online posting. Curtis Clark moved to approve the minutes. Lance Wang seconded the motion. There were no objections.

Randy reviewed ARs from the previous meeting.

1. Mike LaBonte to supply MathWorks logo for IBIS home page [AR]
Mike said this was done, and the logo appeared on the IBIS home page, with a refresh.
2. Arpad Muranyi to draft BIRD with “symbol_time” and other Editorial Task Group changes [AR]
Arpad said this was done, it was BIRD214.
3. Bob Ross to update classifications for IBISCHK BUG219, BUG220, BUG221 and BUG222 [AR]
Bob said this was done.
4. Bob Ross to fix typos in BUG221 [AR]
Bob said this was done.

ANNOUNCEMENTS, CALL FOR ADDITIONAL AGENDA ITEMS

None.

MEMBERSHIP STATUS AND TREASURER'S REPORT

Bob Ross reported that STMicroelectronics had paid a half year membership. Their logo was on the IBIS home page. Cash flow for 2021 was \$27,155 and the total adjusted balance for 2021 was \$30,505. One new half-year membership was possible, although not very likely. An early 2022 membership was in process. Bob said there should be a motion to continue dues at \$900. No new Summit expenses were anticipated. A full payment of \$17,500.00 for ibischk7 version 7.1.0 is expected in 2021. A \$311 web hosting payment was made by Steve Parker, and reimbursement was in progress. With the addition of STMicroelectronics, membership had

increased to 29, with the voting quorum increased from 7 to 8. Quorum was 25% of membership, rounded up. We had 27 members paid this year and 2 paid in the prior year.

Bob Ross moved to keep annual membership dues at \$900 for 2022, with academic membership half of that. Curtis Clark seconded the motion. Randy Wolff said he would send an email ballot for the vote.

Bob said he would ask Gerard Mas of STMicroelectronics to subscribe to the IBIS reflector.

WEBSITE ADMINISTRATION

Steve Parker reported that logo image updates had been made, and minutes were up to date. Several summit updates had been made. He said the BlueHost web hosting charge was unchanged from prior years. Bob Ross asked Steve to let him know when reimbursement had been received. Bob said some web pages still had 2020 copyright years. Steve said he had not yet applied his automation to some pages.

MAILING LIST ADMINISTRATION

Curtis Clark reported all was well for the email lists, except that a couple of recipient addresses had been bouncing. Arpad Muranyi had had an issue with one email list reply failing, but it seemed to have been a transient problem.

LIBRARY UPDATE

Zhiping Yang reported no change in status. He was working on an open-source library project. Zhiping was asking Chulsoon Hwang to prepare slides to present to us. This would be a place where models could be uploaded, with some control over visibility.

INTERNATIONAL/EXTERNAL ACTIVITIES

- Conferences

- Press Updates

- Related standards

SUMMIT PLANNING AND REVIEW

- Virtual Asian IBIS Summit (Japan), Friday, November 12, 2021, 09:00 to 12:00 JST
Randy Wolff showed the event page. The times had been set. WebEx would be used for the virtual conference. Presentations would be pre-recorded. Recordings were required to be submitted. Bob Ross said the slides would be in English, and some presentation recordings would have subtitles. We did not know how many time slots would be available for those outside of Japan, as submissions from Japan would be preferred. We did not yet have the list of presentations.

The summit was co-sponsored by the JEITA EC Center, IBIS Open Forum, ANSYS, Apollo, Keysight Technologies, Ricoh, Toshiba, and Zuken.

- Virtual Asian IBIS Summit (China), Friday, November 19, 2021, 09:00 to 13:00 CST
Randy Wolff said an announcement would be sent the same day. Microsoft Teams web meeting service could be provided by SAE ITC, but most likely Zoom would be provided by Micron. Bob Ross said he anticipated presentations from several companies that were regular presenters, as well as universities. He expected a robust program. The summit would be live, not prerecorded.

QUALITY TASK GROUP

Mike LaBonte reported that 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 by the developer, which would be classified today.

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 p.m. PT. Chulsoon Hwang had given an update presentation on Power Supply Induced Jitter (PSIJ). They were also discussing BIRD213, about PAMn.

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 they were meeting on Wednesdays at 8:00 a.m. PT. The group had discussed the new BIRD214. They were working on another editorial BIRD, with extensive changes. That would be submitted soon. They were close to having a final draft for broad review. Bob Ross asked if a vote for BIRD214 should be moved. Randy said that would come up shortly in the agenda.

Task group material can be found at:

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

NEW ADMINISTRATIVE ISSUES

- None

BIRD214: CHANGE "BIT_TIME" TO "SYMBOL_TIME"

Randy Wolff showed the BIRD. Arpad Muranyi gave an overview of the BIRD. The term "bit_time" was correct for NRZ signaling, but with the addition of multi-level signaling, "symbol_time" was more appropriate. The proposal was to replace all "bit_time" with "symbol_time". Mike LaBonte asked if "bit rate" was found in the specification. Randy Wolff did the search and said it was not found. Arpad said they had also searched for related phrases with "frequency" and changed "data rate frequency" to "symbol rate". They had also found a typographical error along the way. Randy said it would be important to make the change quickly, if it is accepted. Arpad said it was editorial only, there were no technical changes. Radek Biernacki moved to schedule a vote. Curtis Clark seconded the motion. There were no objections.

Randy Wolff to schedule vote for BIRD214 [AR]

BIRD211.3: IBIS AMI REFERENCE FLOW IMPROVEMENTS

Randy Wolff said the BIRD was eligible for a vote. Walter Katz moved to schedule a vote in the next Open Forum meeting. Bob Ross said the page numbers referred to IBIS 7.0 content. He confirmed Arpad Muranyi's clarification that this BIRD would be applied against IBIS 7.1, and therefore would have to be written such that it referenced IBIS 7.1. Walter withdrew his motion. Bob said voting could take place as soon as IBIS 7.1 was released.

Arpad moved to table the BIRD. Bob Ross seconded the motion. There were no objections.

BIRD213: EXTENDING IBIS-AMI FOR PAM_n ANALYSIS

Walter Katz moved to table the BIRD. Arpad Muranyi seconded. There were no objections.

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.

IBISCHK AND TSCHK PARSER AND BUG STATUS

- BUG223

Randy Wolff showed the bug report. Bob Ross said duplicate instances of [End Interconnect Model Set] were not allowed, but the parser did not catch that. Arpad Muranyi asked if other

“End” keywords would be caught. Bob said we only knew of this one. Arpad said the same should apply for duplicate “Begin” keywords. Mike LaBonte asked if the developer could add QA tests for all duplicates. Bob felt that would be an overload on the contract. Bob said the QA tests for IBISCHK702 currently had a lot of failures due to a syntactically incorrect file that was reused in many places.

Bob moved to classify the bug with SEVERE severity and MEDIUM priority. Mike LaBonte seconded the motion. There were no objections.

- BUG224

Randy Wolff showed the bug. Bob said no error message would be produced for an [Interconnect Model] in which all pins were Aggressor_Only. It was required that there be at least one victim pin. Bob said the message should be a warning. Arpad Muranyi said the testcase seemed to warrant a warning, because if multiple interconnect models were cascaded, an Aggressor_Only line would make everything connected Aggressor_Only. Randy asked if it should be illegal for a conflict there. Bob said it should be a warning, not an error. Mike LaBonte felt that situation could not be evaluated by looking at the IBIS files. Bob said it could if they were in an [Interconnect Model Set]. Randy said the warning message should be carefully worded, to be explicit about the situation. Randy asked if the bug testcase was valid. Arpad asked if the warning could be conditional upon finding that models are cascaded. Bob said we might have unstated default conditions. Radek Biernacki said IBIS did not disallow this. He felt a warning was OK. Arpad said too many warnings could be a problem. Mike asked how IBISCHK would determine that two [Interconnect Model]s would be cascaded. Arpad and Randy said the pin names would indicate that. Arpad said [Interconnect Model Group] acted like a model selector. Mike agreed, saying it gave the EDA tool or user a choice of [Interconnect Model Set]s. Arpad added that the sets would not be used simultaneously. Bob disagreed, saying the establishment of connections within a set depended only on the Aggressor_Only tag.

Bob moved to classify the bug as SEVERE severity and MEDIUM priority, noting that it had already been fixed in the new code under development. Radek Biernacki seconded the motion. There were no objections.

Randy suggested continuing discussion of the details brought up here, in IBIS Quality Task Group meetings. Bob said we had received pre-released source code for IBISCHK710. Mike LaBonte said he had been able to compile that on Linux, but he had not yet reviewed test run results. Bob said the code could be examined by source code licensees if they desired. Randy said not all new checks had yet been implemented. Bob described the file linkage checks that were not yet implemented. It would not check that IBIS-ISS files were valid, but HSPICE was commonly available for that. Bob asked Curtis Clark if he could check the new source code. Curtis said he could do some spot checks and check on the bug he had filed.

NEW TECHNICAL ISSUES

None

NEXT MEETING

The next IBIS Open Forum teleconference meeting would be held on October 8, 2021. The following teleconference meeting was tentatively scheduled for October 29, 2021.

Curtis Clark 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 the official ibis@freelists.org and/or ibis-users@freelists.org email lists (formerly ibis@eda.org and ibis-users@eda.org).
- To subscribe to one of the task group email lists: ibis-macro@freelists.org, ibis-interconn@freelists.org, or ibis-quality@freelists.org.
- 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/bugspl.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](http://www.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 12,	August 19,	August 27,	September
			2021	2021	2021	17, 2021
ANSYS	User	Active	X	X	X	X
Applied Simulation Technology	User	Inactive	-	-	-	-
Broadcom Ltd.	Producer	Inactive	-	-	-	-
Cadence Design Systems	User	Inactive	-	-	X	-
Celestica	User	Inactive	-	-	-	-
Cisco Systems	User	Inactive	-	-	-	-
Dassault Systemes	User	Inactive	-	X	-	-
Ericsson	Producer	Inactive	-	-	-	-
Google	User	Active	X	-	X	X
Huawei Technologies	Producer	Inactive	-	-	-	-
Infineon Technologies AG	Producer	Inactive	-	-	-	-
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
MathWorks (SiSoft)	User	Active	X	X	X	X
Maxim Integrated	Producer	Inactive	-	X	-	X
Micron Technology	Producer	Active	X	X	X	X
MST EMC Lab	User	Inactive	X	X	-	-
NXP	Producer	Inactive	-	X	-	-
SerDesDesign.com	User	Inactive	-	-	-	-
Siemens EDA (Mentor)	User	Active	X	X	X	X
STMicroelectronics	Producer	Inactive	-	-	-	-
Synopsys	User	Active	-	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.