IBIS Open Forum Minutes

Meeting Date: May 14, 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*
Huawei Technologies	(Hang (Paul) Yan)
IBM	(Juan Martinez)
Infineon Technologies AG	(Christian Sporrer)
Instituto de Telecomunicações	(Abdelgader Abdalla)
Intel Corporation	Hsinho Wu*, Michael Mirmak
Keysight Technologies	Radek Biernacki*, Fangyi Rao
Luminous Computing	David Banas*
Marvell	Steve Parker*
Maxim Integrated	Tushar Pandey*
Micron Technology	Randy Wolff*, Justin Butterfield, Aniello Viscardi
MST EMC Lab	(Chulsoon Hwang)
NXP	(John Burnett)
SerDesDesign.com	(John Baprawski)
Siemens EDA (Mentor)	Arpad Muranyi*, Weston Beal
Siemens AG	Franz Pfleger, Sebastien Kollinger
SiSoft (MathWorks)	Mike LaBonte*, Walter Katz*
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
Zuken USA	Lance Wang

OTHER PARTICIPANTS IN 2021

Achronix Semiconductor	Hansel Dsilva

AVL Software and Functions	Wolfgang Röhrner
Continental Automotive	Julnar Musmar, Stefanie Schatt
De Montfort University (IEEE EMC)	Alistair Duffy
IT-Beratung-Maurer	Manfred Maurer
Kandou Bus	Sherman Chen
KEI Systems	Shinichi Maeda
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
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 was 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 April 23, 2021 IBIS Open Forum teleconference. Mike LaBonte moved to approve the minutes. Randy seconded the motion. There were no objections.

Randy reviewed ARs from the previous meeting.

1. Randy Wolff to check with Informa Markets on costs to hold a summit meeting at DesignCon on Monday [AR].
   Randy reported that he had spoken with Suzanne Deffree of Informa Markets. Further discussion is in the Summit Planning section.

2. Randy Wolff to send vote solicitation email for BIRD211.1 [AR].
   Randy reported that the vote had been cancelled because the BIRD was not yet ready for a vote.

3. Randy Wolff to send vote solicitation email for BIRD212 [AR].
   Randy reported that this had been done.

4. Bob Ross to update status of BUG216 on website [AR].
   Bob reported that this had been done.

ANNOUNCEMENTS, **CALL FOR ADDITIONAL AGENDA ITEMS**
None.

MEMBERSHIP STATUS AND TREASURER'S REPORT
Bob Ross reported that Luminous Computing and Celestica are new members, and we have 29 members. The quorum for meetings is 8. Cash flow for 2021 is $23,925 and total adjusted balance for 2021 is $27,275. These figures are up $4,500 from the previous meeting and reflect five additional membership payments.

Current 2020 memberships will expire at the end of May of 2021 if payment is not received by then. Bob reported that 26 members have paid for 2021, and he is still waiting for 3 renewals. Bob said possible capital expenditures for 2021 include ibischk7.1 parser development and the costs of any in-person meeting at DesignCon in August.

WEBSITE ADMINISTRATION

Steve Parker reported that the website was generally up to date with respect to minutes. He noted that he had placed the two new member organizations' logos on the IBIS roster on the home page. The page for the recent European Virtual IBIS Summit with SPI 2021 had been updated, and the recording of the meeting had been posted.

MAILING LIST ADMINISTRATION

Mike LaBonte reported that mailing lists were generally operating smoothly. There were some early signs of possible trouble, perhaps reputation based, as we were getting email bounce backs from one member organization's servers. Mike said he had contacted a member of the organization to help him investigate. He said sometimes cryptic bounce back emails are returned by servers, but the intended recipients are still receiving the emails.

LIBRARY UPDATE

Zhiping Yang reported no new updates to the model library. He said offline discussions of an open library were continuing, and people were supportive of the idea. Randy Wolff asked if there is a cost associated with a GitHub account. Zhiping said he thought there was, but he believed there was a significant discount for non-profits. Zhiping said he would find out more.

INTERNATIONAL/EXTERNAL ACTIVITIES

- Conferences

IEEE EMC + SIPI Symposium 2021 (virtual from July 27-August 13, 2021):

https://www.emc2021.emcss.org

DesignCon 2021 (August 16-18, 2021, San Jose, CA):

https://www.designcon.com/

- Press Update

None.

- Related standards

None.

SUMMIT PLANNING AND STATUS

- SPI 2021 (IBIS Summit held on Wednesday May 12, 2021)

Randy Wolff noted that the summit had been held on Wednesday, May 12th, from 4 p.m. to 8 p.m. local time. We had 36 attendees representing 18 organizations. We had a full program for four hours and good participation from around the world. Bob Ross reported that interesting work was presented, and we learned about a new IEEE transactions for SI and PI that is being planned for launch in 2022.

Randy briefly shared the agenda. He thanked the presenters and SPI 2021. He said that

Sherman Chen had been encouraged to attend an ATM task group meeting and discuss the topic of his presentation. Randy noted that ezAMI, which is linked to on our free tools page, was discussed by its author Vincent Wang during his presentation.

- IEEE EMC+SIPI (July 27-August 13, 2021 virtual)
Randy and Bob said we had settled on Thursday, August 12th, morning in the US, 4 p.m. to 8 p.m. in Europe. Randy noted that it was not yet officially scheduled, but there will be no real costs since it will be virtual. We will still want to hold a vote on the schedule and to officially agree to participate with EMC+SIPI. The summit will be a 4 hour event similar in format to the SPI summit. Zhiping Yang said the summit will be held in parallel with some EMC+SIPI paper presentations, and we can set our own schedule. Randy said the first announcement will be sent out in about a month.

- DesignCon 2021 (August 16-18, 2021 planned for in-person)
Randy said he had spoken to Suzanne Deffree of Informa Markets. Holding a meeting on Monday would be significantly cheaper than holding it on Thursday after DesignCon has ended. If we hold the meeting on Monday, we don't have to pay for the labor for room setup. The estimated equipment costs would be about $1,800. These could likely be reduced if we supply our own projector. If we just add food costs to that, then the total is more like what we paid in the past in Santa Clara. Randy said he was leaning toward holding the summit on Monday because of the reduced costs. He reported that we are still working on finalizing a barter agreement with Informa Markets.

Bob said that DesignCon is currently planned as an on-site in-person conference. He said some of our cost estimates are based on 100 attendees with room for wide separation between individuals. He said we don't yet know how many people will physically attend. David Banas asked if the summit registration from will ask whether people are attending in person or virtually. Randy agreed that we will have to ask registrants that question.

QUALITY TASK GROUP
Mike LaBonte reported that the group meets on Tuesdays at 9:00 a.m. PT. Note that this new time is one hour later than before. The group continues to plan for the next ibischk release. He said work on tschk2 parser fixes has resumed as a low-level effort. He asked that anyone with ideas for improvements to tschk2 submit a BUG (enhancement) on the tschk2 BUGs page.

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. The group continues to discuss improvements to the AMI flow for redrivers. He said the discussions were ongoing, and a version of BIRD211.x had not been ready in time to vote on it today. Arpad said he expected final editorial wordsmithing of BIRD211.x in upcoming ATM meetings, and then the group can move on to the PAMn proposal (BIRD213) being introduced today.

Task group material can be found at:

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

INTERCONNECT TASK GROUP

Randy Wolff reported that the Interconnect task group remains suspended. Its former timeslot is 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 now meets at 8:00 a.m. PT on Wednesdays. They had not held a meeting this week because of the IBIS Summit with SPI 2021. They have integrated all of the approved BIRDs in the latest IBIS 7.1 draft. They are waiting for any other approved BIRDs (e.g., BIRD211.x) to come though, and in the meantime they are trying to make minor clarifications and language tweaks. They had recently discussed clarification of language surrounding the usage of AMI Type Float and Type Integer with Format UI, as described in ibischk BUG216.

Task group material can be found at:

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

NEW ADMINISTRATIVE ISSUES

- Annual Election of Officers

Randy Wolff noted that the nomination period will begin on May 17th. Radek Biernacki will again serve as the returning officer again. Radek said that this year's process follows the exact dates described in the policies and procedures. The nomination period extends for two weeks, from Monday, May 17th until Monday, May 31st. The voting period runs from Tuesday, June 1st through Monday, June 14th, and the results will be announced on June 15th.

Radek said the nomination email would be sent out right after the meeting. Randy noted that all officer positions are open. He said most officers had accepted nominations to return to their current positions, but Curtis Clark had not accepted the nomination to return as Secretary this year. Randy said the Secretary's primary responsibility is taking the minutes of the Open Forum meetings. He noted that Curtis usually takes the ATM task group minutes in addition to the Secretary role, and he wanted to focus on that.

BIRD213: EXTENDING IBIS-AMI FOR PAMn ANALYSIS

Walter Katz introduced and briefly reviewed the new BIRD. He said the goal is to extend AMI to support PAMn. He noted that AMI already supports NRZ and PAM4. He said there was a request to draft a PAM3 BIRD, and they had decided to write one for a general PAMn. Instead

of introducing specific named parameters for PAM3 (e.g., analogous to the PAM4 threshold parameters), the BIRD uses new Reserved Parameters of Format Tables to describe PAMn thresholds, timing offsets for the sampling related to each threshold, etc., where the length of the tables is tied to the number of modulation levels. Similarly, it provides a Table parameter to define the mapping from binary data to PAMn symbols.

Walter said there is a migration path to move from the PAM4 thresholds to these new parameters, though it is not required. Walter said this is a working document, and he noted that Duobinary is a three-level signaling, but there's no mapping of binary data to symbols because it's a different type of scheme for generating 3 level signaling. He has added some language to address that. Bob Ross said this BIRD will be discussed further in ATM, and he suggested we might need a rule to prevent usage of the existing PAM4 parameters and these new parameters at the same time.

BIRD212: CLARIFICATION OF PAM4_UPPERTHRESHOLD, PAM4_CENTERTHRESHOLD, PAM4_LOWERTHRESHOLD

Randy Wolff briefly summarized the BIRD. He noted that it was an editorial change clarifying how we define the application of the PAM4 threshold level parameters. Arpad Muranyi said the intent is unchanged, but this BIRD makes sure the relationship with the new DC_Offset parameter is understood.

Radek Biernacki moved to vote on the BIRD. Curtis Clark seconded the motion. There were no objections.

The roll call vote tally was:

ANSYS – yes
Cadence – yes (email vote)
Google – yes
Intel – yes
Keysight – yes
Luminous Computing – yes
Marvel – yes
Maxim Integrated – yes
Micron – yes
Siemens EDA – yes
SiSoft – yes
Synopsys – yes (email vote)
Teraspeed Labs – yes

The roll call vote concluded with a vote tally of Yes – 13, No – 0, Abstain – 0. The vote passed.

Randy took an AR to update the Date Accepted field of the BIRD [AR]. Randy gave Steve Parker an AR to update the status of BIRD212 on the website [AR].

BIRD211.1: NEW REDRIVER FLOW

Walter Katz summarized the status of the BIRD. He said that the ATM task group was still refining final details in the text and rules, and they didn't quite have it ready in time to submit for a vote at this meeting. He said there were no significant technical issues, and the editorial work is converging quickly.

As was done at the previous meeting, Arpad Muranyi and Walter suggested we could attempt to fast track the vote. Walter moved to schedule a vote on the BIRD at the June 4, 2021 IBIS Open Forum teleconference. Arpad seconded. There were no objections. Randy to send an email to the Open Forum announcing the vote [AR].

Bob Ross and Arpad noted that the BIRD would have to be submitted by May 21st to qualify for a vote at the next meeting.

BIRD210: NEW REDRIVER AMI FLOW

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.

IBISCHK AND TSCHK PARSER AND BUG STATUS

Bob Ross shared the first several pages of the draft contract for ibischk7.1, which has approximately 47 pages of technical content. He noted that BIRD211.x, which is pending, would have a minor effect since it only introduces one new Reserved Parameter. Bob said the intent is to try and get the parser development started before IBIS 7.1 is ratified. The proposal includes the new BIRDs approved for 7.1, the pending BIRD211.x, and the BUG214 and BUG215 linkage checking enhancements. Bob estimated that the new parser development work is split approximately 50-50 between new BIRDs and the linkage checking enhancements. Bob said the quote from the parser developer was for $17,500.

Bob noted that we have sold 12 ibischk7 parser source code licenses to date. So, we have collected $36,000 of parser payments to SAE ITC. Thus far, we've only spent $8,800 on ibischk7 development ($8,000 for Interconnect Modeling, and $800 for a bug fix release). This surplus is the primary reason we are bunching these new features into a 7.x release. There is no need to go through a new major revision of the parser with new source code license contracts and payments.

Bob moved to approve payment of $17,500 for the next version of ibischk (ibischk7.1.0). Walter Katz seconded. Randy Wolff said we would handle this with an email vote solicitation, so we don't need to wait until the next Open Forum meeting. Randy to send out an email announcing the vote and a one-week email open voting period [AR].

NEW TECHNICAL ISSUES
- None.

NEXT MEETING
The next IBIS Open Forum teleconference meeting will be held on June 4, 2021. The following teleconference meeting is tentatively scheduled for June 25, 2021.

Mike LaBonte moved to adjourn. David Banas 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/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	April 02, 2021	April 23, 2021	May 12, 2021	May 14, 2021
ANSYS	User	Active	X	X	X	X
Applied Simulation Technology	User	Inactive	-	-	-	-
Broadcom Ltd.	Producer	Inactive	-	-	-	-
Cadence Design Systems	User	Active	-	X	-	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	-	-	-	-
IBM	Producer	Inactive	-	-	-	-
Intel Corp.	Producer	Active	X	X	-	X
Keysight Technologies	User	Active	X	X	-	X
Luminous Computing	General Interest	Inactive	-	X	-	X
Marvell	Producer	Inactive	-	-	-	X
Maxim Integrated	Producer	Active	X	X	-	X
Micron Technology	Producer	Active	X	X	X	X
MST EMC Lab	User	Inactive	-	-	-	-
NXP	Producer	Inactive	-	-	-	-
SerDesDesign.com	User	Inactive	-	-	-	-
Siemens EDA (Mentor)	User	Active	X	X	X	X
SiSoft	User	Active	X	X	X	X
Synopsys	User	Active	X	X	-	X
Teraspeed Labs	General Interest	Active	X	X	X	X
Xilinx	Producer	Inactive	-	-	-	-
ZTE Corp.	User	Inactive	-	-	X	-
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

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.