IBIS Open Forum Minutes

Meeting Date: **August 27, 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
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
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

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Or call in (audio only)
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Phone Conference ID: 554 664 847#

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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.

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 6, 2021 IBIS Open Forum teleconference. Radek Biernacki moved to approve the minutes. Curtis Clark seconded the motion. There were no objections. Randy said the recent summit minutes had been posted, but they would be reviewed in the next meeting to give more time for review.

Randy reviewed ARs from the previous meeting.

1. Mike LaBonte to supply MathWorks logo for IBIS home page [AR]
   Mike said he was in the process of getting legal approval. No changes should be made to the web pages for now.
2. Bob Ross to post finalized classification for BUG217 [AR]
   This was done.
3. Bob Ross to post finalized classification for BUG218 [AR
   This was done.
4. Mike LaBonte to finalize tschk2.0.1 and post [AR]
   Mike reported this had been done, and Randy Wolff had sent an announcement.

ANNOUNCEMENTS, CALL FOR ADDITIONAL AGENDA ITEMS

None.

MEMBERSHIP STATUS AND TREASURER'S REPORT

Bob Ross reported that there had been no change from the previous report. Cash flow for 2021 was $26,725 and the total adjusted balance for 2021 was $30,075. Membership stood at 28, with a voting quorum of 7. We had 26 members paid this year and 2 paid in the prior year. The member whose payment was previously incorrectly acknowledged had paid for 2021. Two

new one-half year memberships were possible, waiting for approval. No new Summit expenses were anticipated. A full payment of $17,500.00 for ibischk7 version 7.1.0 is expected in 2021. A web hosting payment was due, but the invoice amount needed to be resolved with the vendor.

WEBSITE ADMINISTRATION
Steve Parker reported the minutes page was up to date. Summit page changes had also been made. The new TSCHK page was up to date. He said the web vendor was invoicing an additional $6 per month for our dedicated IP address, but we never had to pay that before. He would resolve that.

Bob Ross said he was unable to see the most recent summit video. Steve suggested right clicking in the frame to reload the frame. Randy Wolff said holding control while clicking the refresh button should also work.

Randy showed the home page banner announcement advertising the new TSCHK2.0.1 release.

MAILING LIST ADMINISTRATION
Curtis Clark reported all was well. Mike LaBonte had made several subscription changes. Two subscribers had not yet responded to a query and were not yet approved.

Steve Parker had added Randy Wolff to the forwarding list for info@ibis.org emails, so Randy will receive those.

LIBRARY UPDATE
Zhiping Yang reported no change in status.

INTERNATIONAL/EXTERNAL ACTIVITIES
- Conferences
Randy Wolff noted that we had been tracking IEEE EMC+SIPI and DesignCon here, but those were past.

- Press Update

- Related standards

SUMMIT PLANNING AND REVIEW
- Review of IEEE EMC+SIPI and DesignCon summits
Randy Wolff said the IEEE EMC+SIPI summit had been held on August 12, and the DesignCon summit had been held on August 19. He felt both summits had gone well. We had 19 attendees for EMC+SIPI, and 33 for DesignCon. Randy would be sending thank you emails to the presenters. Mike LaBonte said he enjoyed the summits and found some of the presentations to be thought provoking.

Zhiping Yang asked if anyone had attended the DesignCon conference in person. Randy said Michael Mirmak might have attended. Zhiping said the next EMC+SIPI conference would be held in person, but travel restrictions might still pose a problem. Bob Ross asked where it would be. Zhiping said it would be in August, held in Spokane, Washington. Randy said we might need to continue holding virtual summits, and he felt that 4 hours was about right for virtual events. Mike said in-person summits were not usually much longer, with lunch and breaks subtracted. Randy agreed, saying there were only 1 or 2 more presentations at in-person summits. Bob suggested penciling in a time for the next EMC+SIPI summit. Availability of a board member to travel would be a key factor. Zhiping said the conference would be August 1-5.

- Asia Summit planning
Randy said a summit was being planned for Japan, Friday, Nov. 12. Per our usual schedule there would ordinarily be an Open Forum teleconference on November 19, but that would be cancelled to hold a China summit that day. Bob Ross suggested having those two summits as line items in the minutes going forward. Randy will check with JEITA on the web sharing service. They had used WebEx Events previously. Bob said they might pre-record some presentations. JEITA might provide three presentations and we might provide four or five, depending on time. Randy said the announcement about Japan would be sent in three weeks. Bob said he was contacting people in China who might present.

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. New bugs had been reported by the developer, which would be classified today. He said tschk2.0.1 had been released. Information about the changes in it could be seen in the TSCHK2 presentation given in the IEEE EMC+SIPI and DesignCon summits.

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. They were done with redriver flows and were discussing the PAMn proposal. Zhiping Yang asked about the status of the PSIJ proposal from the summits. Arpad said he would put it on the task group agenda when the authors were ready to discuss it. Zhiping said the BIRD for PSIJ was in draft form. Arpad suggested writing an updated draft with a new draft number for discussion in a future ATM meeting.

Task group material can be found at:

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

INTERCONNECT TASK GROUP

Michael Mirmak 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

Michael Mirmak reported they were meeting on Wednesday at 8:00 a.m. PT. The changes to IBIS section 10.9 were deemed complete. Work on the main 7.1 draft would resume in the next week. Randy Wolff said the IBIS 7.1 draft could conceivably be ready for announcement in the next Open Forum meeting.

Task group material can be found at:

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

NEW ADMINISTRATIVE ISSUES

- None

BIRD211.3: IBIS AMI REFERENCE FLOW IMPROVEMENTS

Randy Wolff showed the recently submitted BIRD211.3. He said it had been changed extensively. The ATM group had voted to send it back to the Open Forum. Randy showed the summary of changes made. Walter Katz said he wanted the Tx to inform the EDA tool if it would optimize itself, but others had objected, so that had been excluded. He said no hardware Tx currently would optimize itself. It was decided that deconvolution was not required, and that was clarified in IBIS sections 11.2 and 11.3.

Arpad Muranyi said the primary goal was to fix the broken flow, and he felt that had been accomplished. He noted that this was not slated for IBIS 7.1. He said the IBIS Open Forum decided that this BIRD211.3 and the PAMn BIRD213 would go into IBIS 7.2. Bob Ross said we might discover something in 7.1 that might impact the BIRD. Arpad asked if voting on BIRD211.3 should wait until after 7.1 is finalized.

Randy showed a Figure 41 from BIRD211.3, which had labeling improvements that the Editorial Group planned to use in IBIS 7.1 for Figure 43. Bob said there had been some editing for IBIS 7.1 that might result in a new superseding BIRD from the Editorial Task Group to capture changes made for 7.1. Mike LaBonte asked if the proposed new editorial BIRD would be approved and added to the list of BIRDs slated for 7.1. Bob said yes, it would supersede BIRD201.1.

BIRD213: EXTENDING IBIS-AMI FOR PAMn ANALYSIS

Walter Katz said the ATM Task Group had agreed to remove symbol mapping from the BIRD, leaving that up to EDA tools. They were resolving how to handle PAMn with 4 levels, which overlapped the existing PAM4 capability. Arpad Muranyi said it would be more appropriate to use "symbol_time" instead of "bit_time" because it is correct for NRZ as well as for PAMn signaling. He suggested making that change in the PAMn BIRD, and possibly also in the in the current IBIS specification for consistency, properness and to eliminate possibilities for confusion. Walter said that was only a function argument name, it was not a functional change. Randy Wolff said the change would not break any existing IBIS-AMI model. Radek Biernacki felt that change could be made independently of the PAMn BIRD. Arpad noted we had already established the list of BIRDs for 7.1. Michael Mirmak noted that there was already an expectation to have another IBIS 7.1 BIRD from the Editorial Task Group. Randy asked if someone could write the new BIRD. Arpad said he would do that. Bob said it would be necessary to search for many places where replacements should be made.

Arpad Muranyi to draft BIRD with "symbol_time" and other Editorial Task Group changes [AR]

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

Bob Ross said there had been many email exchanges with the IBISCHK developer. He also said TSCHK2.0.1 source code had been distributed to licensees.

BUG219

Bob said a typographical error in the source code could cause a failure to compile. Curtis Clark said he had encountered the problem only because he sets a #define IBIS_PRINT, which enables compiling the faulty code. It was easily fixed. Bob moved to classify the bug with MODERATE severity and HIGH priority. Curtis seconded the motion. There were no objections.

BUG220

Bob said this was discovered by the developer. Duplicate [Interconnect Model Set]s would not be detected. Bob moved to classify the bug as SEVERE severity and HIGH priority. Radek

Biernacki felt a severe effect was unlikely. Randy Wolff said it could impact EDA tools differently, depending on implementation. Radek seconded the motion. There were no objections.

BUG221
Bob said no error report was generated when a .ims or .ebd file had no [Interconnect Model Set] or [Electrical Board Description] keywords, respectively. The IBISCHK developer planned to fix this. Bob moved to classify the bug as MODERATE severity and HIGH priority. Curtis Clark seconded the motion. There were no objections. Randy noted two typos in the bug report. Bob said he would fix them.

BUG222
Bob said [Interconnect Model Set] names with spaces were illegal, but not flagged as an error. Curtis asked if the parser recorded a single word or the whole string. No one knew. Bob said it just needed to be fixed. Bob thought he had quoted the requirement for having no spaces, but only the page reference was in the bug. Radek asked if a name could be quoted. Bob moved to classify as SEVERE and HIGH. Mike LaBonte seconded the motion. There were no objections.

Bob Ross to update classifications for IBISCHK BUG219, BUG220, BUG221 and BUG222 [AR]
Bob Ross to fix typos in BUG221 [AR]

Bob said the IBISCHK developer had noted other issues, such as using the term "alphanumeric" without defining it. Bob said the feedback was helpful.

INTERNATIONAL/EXTERNAL ACTIVITIES (Continued)
Michael Mirmak asked people to contact him if any issues needed to be raised in the upcoming IEEE DASC meeting. There would be discussion about whether to have a 3rd revision of IEEE 2401, the LPB standard. Bob noted that the LPB standard referenced IBIS. Michael said the passage of IBIS 7.1 would be relevant to them.

Michael said DesignCon had been held at a different venue, so it was difficult to say if the crowd size was different from before, but it seemed very much reduced. He said there was confusion about badges, which were not automatically printed. Mobile devices were used to admit people into sessions. That made it harder to identify people.

NEW TECHNICAL ISSUES
None

NEXT MEETING
The next IBIS Open Forum teleconference meeting would be held on September 17, 2021. The following teleconference meeting was tentatively scheduled for October 8, 2021.

Curtis Clark moved to adjourn. Radek Biernacki 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	August 6, 2021	August 12, 2021	August 19, 2021	August 27, 2021
ANSYS	User	Active	-	X	X	X
Applied Simulation Technology	User	Inactive	-	-	-	-
Broadcom Ltd.	Producer	Inactive	-	-	-	-
Cadence Design Systems	User	Inactive	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	-	-	-	-
Intel Corp.	Producer	Active	X	X	X	X
Keysight Technologies	User	Active	X	-	X	X
Luminous Computing	General Interest	Inactive	-	-	-	-
Marvell	Producer	Inactive	X	-	-	X
MathWorks (SiSoft)	User	Active	X	X	X	X
Maxim Integrated	Producer	Inactive	-	-	X	-
Micron Technology	Producer	Active	X	X	X	X
MST EMC Lab	User	Active	-	X	X	-
NXP	Producer	Inactive	-	-	X	-
SerDesDesign.com	User	Inactive	-	-	-	-
Siemens EDA (Mentor)	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	-	-	-	-
Zuken	User	Active	-	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.