



## IBIS Open Forum Minutes

Meeting Date: **September 18, 2020**

Meeting Location: **Teleconference**

### VOTING MEMBERS AND 2020 PARTICIPANTS

ANSYS	Curtis Clark*, Wei-hsing Huang, Marko Marin Shai Sayfan-Altman, Zilwan Mahmod, Baolong Li Usman Saeed
Applied Simulation Technology	(Fred Balistreri)
Broadcom	James Church, Jim Antonellis
Cadence Design Systems	Zhen Mu*, Ambrish Varma, Jared James Kumar Keshavan, Ken Willis, Suomin Cui
Cisco Systems	Stephen Scearce, Hong Wu, Han Gao
Dassault Systemes (CST)	Stefan Paret
Ericsson	Anders Ekholm, Sungjoo Yu, Thomas Ahlstrom
Google	Zhiping Yang*, Shuai Jin, Zhenxue Xu, Hanfeng Wang Songping Wu, Yimajian Yan
Huawei Technologies	(Hang (Paul) Yan)
IBM	[Michael Cohen], Greg Edlund
Infineon Technologies AG	(Christian Sporrer)
Instituto de Telecomunicações	(Abdelgader Abdalla)
Intel Corporation	Hsinho Wu*, Michael Mirmak, Adrien Auge Fernando Mendoza, Taeyoung Kim, Wendem Beyene Oleg Mikulchenko, Nhan Phan, Ifiok Umoh Subas Bastola, Kinger Cai
Keysight Technologies	Radek Biernacki*, Hee-Soo Lee, Todd Bermensolo Graham Riley, Pegah Alavi, Fangyi Rao Stephen Slater
Marvell	Steve Parker*, Johann Nittmann, Shaowu Huang
Maxim Integrated	Joe Engert, Charles Ganal, Dzung Tran, Yan Liang
Mentor, A Siemens Business	Arpad Muranyi*, Raj Raghuram, Todd Westerhoff Weston Beal
Micron Technology	Randy Wolff*, Justin Butterfield, Larry Smith Vijay Kanagachalam
MST EMC Lab	Chulsoon Hwang, Anfeng Huang, Bo Pu, Jiayi He Yin Sun
NXP	John Burnett
SerDesDesign.com	John Baprawski
SiSoft (MathWorks)	Mike LaBonte*, Walter Katz*, Graham Kus
Synopsys	Ted Mido*, Andy Tai
Teraspeed Labs	Bob Ross*

Xilinx  
ZTE Corporation  
Zuken  
Zuken USA

Ravindra Gali  
(Shunlin Zhu)  
Michael Schäder, Kazunari Koga  
Lance Wang\*

#### **OTHER PARTICIPANTS IN 2020**

Accton	Tariq Abou-Jeyab
Achronix Semiconductor	Hansel Dsilva*
Amazon Lab126	John Yan
Apollo Giken Co.	Satoshi Endo
Apple	Jin Shi, Jun Xu
Aurora Innovation	Jianming Li
ARRL (IEEE EMC)	Ed Hare
Christie Digital Systems	Mingchang Wang
Ciena	Kaisheng Hu
De Montfort University (IEEE EMC)	Alistair Duffy
Exponential Failure Analysis Associates (IEEE EMC)	Vignesh Rajamani
ETS-Lindgren	Janet O'Neil
Facebook	Xin Chang
Kandou Bus	Sherman Chen
KEI Systems	Shinichi Maeda
Kioxia Corporation	Yasuo Otsuka
Lemonade Social Media	Rachel Norrod
OmniVision	Sirius Tsang
Qualcomm	Kevin Roselle, Sunil Gupta, Yi Cao
Renesas	Genichi Tanaka
RITA Electronics	Takahide Nozaki
Rockwell Automation	Meilin Wu
SAE ITC	Jose Godoy
Samsung	Wonsuk Choi
San Jose State University	Vincent Tam
Seagate	Preetesh Rathod, Alex Tain, Karthik Chandrasekar Emmanuel Atta
Signal Metrics	Ron Olisar
Silvaco Japan Co.	Yoshiharu Furui
SK Hynix Memory Solutions	Jongchul Shin, Alex Lee, James Yu
Socionext	Matsumura Motoaki, Shinichiro Ikeda Takafumi Shimada
SPISim	[Wei-hsing Huang]
Teradyne	Dongmei Han, Edward Pulscher, Sheri Zhuang Tomoo Tashiro, Paul Carlin, Tao Wang
University of Florida	Shuo Wang
Unaffiliated	Colin Brench

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
October 9, 2020	627 261 744	Friday1

For teleconference dial-in information, use the password at the following website:

<https://tinyurl.com/IBISfriday-new>

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.

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## **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 August 7, 2020 IBIS Open Forum teleconference. Mike LaBonte moved to approve the minutes. Randy seconded the motion. There were no objections.

Randy Wolff called for comments on the minutes of the August 28, 2020 virtual IBIS Summit at 2020 IEEE EMC+SIPI. Mike LaBonte moved to approve the minutes. Ted Mido seconded the motion. There were no objections.

Randy reviewed ARs from the previous meeting.

1. Randy Wolff to add a new BIRD Issues section to the known issues document for IBIS 7.0 and add an entry for the BIRD197.7 issue [AR].  
Randy reported that this had been done.

2. Randy Wolff to create BIRD198.3 with two changes needed after the BIRD vote [AR]. Randy reported that this had been done.
3. Steve Parker to update the status of BIRD198.3 on the IBIS BIRDS page [AR]. Steve reported that this had been done.
4. Randy Wolff to send an email to the Open Forum announcing the BIRD206 vote [AR]. Randy reported that this had been done.

## **ANNOUNCEMENTS, CALL FOR ADDITIONAL AGENDA ITEMS**

None.

## **MEMBERSHIP STATUS AND TREASURER'S REPORT**

Bob Ross reported that we have 27 members. The quorum for meetings is 7. We have \$28,785 cash flow for 2020 and a \$29,135 adjusted balance for 2020. These figures include the membership payments from Intel and MST EMC Lab that were reported at the last meeting but not included in the figures at that time. These figures also reflect the payment of \$800 to the parser developer for ibischk7.0.2.

Bob noted that we expect to make payments for web hosting in the near future. Mike LaBonte reported that he recently paid bluehost for this. The cost was \$350, and he would be submitting it for reimbursement.

Bob said the additional possible half-year membership now appears unlikely, as he has received no response.

## **WEBSITE ADMINISTRATION**

Steve Parker reported that the website was up to date with respect to ATM and Quality task group minutes and documents. BIRD198.3 was updated. He is troubleshooting an issue with the Interconnect task group minutes page. He has several updates to make to the IBIS Summit at EMC+SIPI page.

Steve noted that the bluehost account is still in Mike LaBonte's name. This had been a workable arrangement as Mike was mentoring him his first year as webmaster, but since two-factor authentication still goes to Mike it is an issue whenever Steve has to request something from bluehost. Mike agreed that it makes sense to transfer the account into Steve's name. Steve said he would also work with Let's Encrypt to update our SSL certificate.

Steve reported that a malware scan bluehost runs on our website's data had found an exploit in an old mail archive dated 2006. He and Mike had simply removed the offending item because bluehost threatened to suspend our account if it hadn't been resolved. Mike noted that the file itself was from the eda.org days, so it was actually even older than 2006, which was likely the file transfer date. Mike said the virus protection software on his own computer had always complained about that same file every time he backed up the website's data.

Steve mentioned the prototype page he had created for hosting videos and other content from a

virtual summit. He said they had tested it and posted an .mp4 file. Lance Wang had reported that his contact in China was able to view it. Randy said this was good news and noted that we will have several recorded presentation videos for the virtual summit in Japan. Steve said that he was using standard html5.

Bob Ross reported that there is an issue with the 2020 DesignCon Summit page. The link directly to the meeting minutes is currently broken. Steve said he would investigate.

### **MAILING LIST ADMINISTRATION**

Mike LaBonte reported that mailing lists were generally operating smoothly. Email is bouncing from one subscriber, but it's a gmail account that is over quota. Mike said he would wait a bit longer to see if the issue resolves itself and unsubscribe the user if it doesn't.

### **LIBRARY UPDATE**

No update.

### **INTERNATIONAL/EXTERNAL ACTIVITIES**

- Conferences

None.

- Press Update

None.

- Related standards

None.

### **SUMMIT PLANNING AND STATUS**

- IEEE EMC + SIPI Symposium (August 3-28, online)

Randy Wolff reported that the virtual IBIS Summit had taken place on August 28<sup>th</sup>, and it had gone very well. We had 45 attendees representing 27 organizations. We had a good live discussion and interaction with the EMC society members, and the presentations had been well received. The Webex platform had worked well, and we gained good experience for future virtual summits. Randy said he would send thank you messages to the presenters [AR].

- Asia Summits

Japan (November 13, 2020):

Randy noted that the first call for presentations had been sent out. The summit is held in conjunction with JEITA and will occur on Friday morning local time to allow for overlap with evening hours in the US. Randy reported that the board is still looking into the online platform to use. JEITA is looking into Nexpro, but it's more tailored toward a webinar style where they share a video of a live presentation. It only offers real time chat, so it has some limitations relative to our usual Webex platform.

Randy and Bob Ross said that some presentation will be in English, and JEITA will add Japanese subtitles. Similarly, some presentations will be in Japanese with English subtitles. Bob wanted us to confirm that we can stream the pre-recorded presentations and handle live audio question and answer sessions. Mike LaBonte said Webex should allow us to share multimedia presentations. Randy said if that is the case then Webex may be a better solution for us than Nexpro.

Bob reported that two presentations had been received for review. He said the entire meeting is scheduled for 9AM to noon local time. With only three hours available, we will have to monitor the number of presentations.

China and Taiwan:

Randy reported that we are looking into options for virtual summits. There are still too many unknowns to plan any non-virtual event. The goal will be to schedule at a time that allows overlapping time zone participation.

DesignCon 2021:

Randy noted that DesignCon 2021 had been moved to April 13-15, 2021, with the hope that it can be a non-virtual event. For 2021, it will be held in the San Jose Convention Center instead of the Santa Clara Convention Center. For 2022, it is expected to move back to its traditional time and location.

Randy reported that he had met with Suzanne Deffree of Informa Markets to begin coordinating the DesignCon IBIS Summit. Suzanne will get back to us regarding contract coverage for meeting space availability at the conference center.

### **QUALITY TASK GROUP**

Mike LaBonte reported that the group is meeting on Tuesdays at 8:00 a.m. PT. The group had recently completed and officially released ibischk7.0.2. They are now discussing how to check .iss files. (further discussion in the ibischk section below)

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

[http://www.ibis.org/quality\\_wip/](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 is currently reviewing a proposal from Michael Mirmak to introduce a [Clock Pins] keyword to add clock pin to data pin relationship information to the IBIS [Component]. The group is also discussing Kinger Cai's SPIM (Standard Power Integrity Model) presentation from the recent EMC+SIPI IBIS Summit.

Task group material can be found at:

[http://www.ibis.org/macromodel\\_wip/](http://www.ibis.org/macromodel_wip/)

### **INTERCONNECT TASK GROUP**

Randy Wolff reported that the group meets at 8:00 a.m. PT on Wednesdays. He noted that the focus is still on the EMD proposal (BIRD202), and they are now working on draft 25 of BIRD202.1. Most of the bin list has been addressed, and they are focusing on reworking some examples.

Task group material can be found at:

[http://www.ibis.org/interconnect\\_wip/](http://www.ibis.org/interconnect_wip/)

### **EDITORIAL TASK GROUP**

Randy Wolff reported the task group remains suspended.

Task group material can be found at:

[http://www.ibis.org/editorial\\_wip/](http://www.ibis.org/editorial_wip/)

### **CHINA REGIONAL FORUM**

Lance Wang reported that there had been no activity since the last Open Forum meeting. Randy Wolff said he and Lance were in communication with various people about potential summits.

China Regional Forum material can be found at:

[http://www.ibis.org/china\\_forum/](http://www.ibis.org/china_forum/)

### **NEW ADMINISTRATIVE ISSUES**

- None.

### **BIRD206: CLARIFICATION OF TEXT “TRANSITION TIME”**

Randy Wolff noted that this had been thoroughly reviewed in the ATM task group, introduced in the Open Forum several meetings ago, and scheduled for a vote at this meeting. Arpad Muranyi 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

Google – yes

Intel – yes

Keysight – yes  
Marvell – yes  
Mentor – yes  
Micron – yes  
SiSoft – yes  
Synopsys – yes  
Teraspeed Labs – yes  
Zuken - yes

The roll call vote concluded with a vote tally of Yes – 12, No – 0, Abstain – 0. The vote passed.

Randy took an AR to update the Date Revised field of the BIRD [AR]. Randy gave Steve Parker an AR to update the status of BIRD206 on the website [AR].

### **BIRD207: NEW AMI RESERVED PARAMETERS COMPONENT\_NAME AND SIGNAL\_NAME**

Randy Wolff briefly reviewed the BIRD. He noted that it adds new Reserved parameters for the component name and signal name. These provide a way for the executable model to identify a unique buffer on a chip, which could be useful if the model wants to have a lookup table for buffer specific information. For example, buffer specific on-die DQ-DQS delay values could be stored by the model. There are cases in which you'd need both the component name and signal name to uniquely identify the right value.

Bob Ross asked if there were any concerns about interaction with Michael Mirmak's new [Clock Pins] proposal. Randy said Michael's proposal introduces a [Component] level informational keyword that identifies clock pins and data pins to help the EDA tool set up system simulations. BIRD207 is just passing [Component] name and signal\_name to the executable model. It enables the EDA tool to pass simulation set up information to the executable model. Randy said Bob posed a fair question, but he didn't see any issues with unwanted interaction.

Randy moved to schedule a vote on the BIRD at the October 9, 2020 IBIS Open Forum teleconference. Bob seconded. There were no objections. Randy Wolff to send an email to the Open Forum announcing the vote [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.



## **BIRD202: ELECTRICAL DESCRIPTIONS OF MODULES**

Discussion was tabled.

### **IBISCHK PARSER AND BUG STATUS**

Bob Ross noted that an email vote had formally approved the \$800 payment to the parser developer for ibischk7.0.2. Curtis Clark and Randy Wolff reported that 11 email votes had been received, and all of them were yes votes. Bob said there were no new parser BUGs to report.

Bob noted that the user guide and error message documents had been updated for ibischk7.0.2, and the links on the ibischk page had been updated as well. Mike LaBonte pointed out that they are still listed as “work in progress” on the page. He said this is because many of the older error message have no descriptive comments in the document. Work for 7.0.2 changes is complete.

Randy said that IBIS-ISS parser discussions had begun in the Interconnect task group, and we could get feedback here too. Mike summarized the development of the topic. He said there had been a number of discussions about an IBIS-ISS parser over the past year. The original concern was that a model maker could develop a subcircuit that works in their particular SPICE tool but mistakenly uses a superset of the IBIS-ISS syntax.

Discussion first began with the thought of developing a full stand-alone IBIS-ISS parser. They had contacted the ibischk parser developer for a quote. He had proposed using an open source code base as a starting point and trimming it down. However, they decided there was an uncertain market for this. The open source code base might affect some customer’s ability to use the code, and most companies already have their own SPICE parsers.

The idea came up again, this time with the thought of ibischk itself adding some IBIS-ISS capabilities. If an .iss file appears in a .ibis file, it’s associated with a list of terminals. A stand-alone IBIS-ISS checker couldn’t do any crosschecking to make sure the .iss file at least matches the terminal list, but ibischk could. Randy had proposed a simple level of checking that could be handled as a BUG/enhancement request. Every time ibischk sees an interconnect model keyword using an .iss file, simply open the .iss file and make sure it has the correct number of terminals. They had also discussed additional levels of checking. One of them was to go through the .iss file and make sure that all the elements and directives it contains are part of the IBIS-ISS subset of SPICE. Additionally, it might be able to do some topology checking and follow any includes to make sure that every subcircuit that is referenced is properly defined, etc. The group is open to feedback on any of these three possible levels of checking.

Randy said the proposed minimal check for the correct number of terminals was similar in concept to what ibischk had added for AMI models. For AMI models, ibischk merely loads the executable model and confirms that the function signatures exist. Bob noted that ibischk7.0.2 will now correctly detect whether the referenced .iss file at least exists, and that we didn’t have that capability before. He said the same linkage checks could be made for Touchstone files. Mike pointed out that this was another example of crosschecking that the stand-alone tschk2 parser couldn’t do itself

## NEW TECHNICAL ISSUES

- None.

## NEXT MEETING

The next IBIS Open Forum teleconference meeting will be held on October 9, 2020. The following teleconference meeting is tentatively scheduled for October 30, 2020.

Mike LaBonte moved to adjourn. Curtis Clark 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](mailto: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](mailto:ibis@freelists.org) and/or [ibis-users@freelists.org](mailto:ibis-users@freelists.org) email lists (formerly [ibis@eda.org](mailto:ibis@eda.org) and [ibis-users@eda.org](mailto:ibis-users@eda.org)).
- To subscribe to one of the task group email lists: [ibis-macro@freelists.org](mailto:ibis-macro@freelists.org), [ibis-interconn@freelists.org](mailto:ibis-interconn@freelists.org), or [ibis-quality@freelists.org](mailto: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](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 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	Standards Ballot Voting Status			
			July 17, 2020	August 07, 2020	August 28, 2020	September 18, 2020
ANSYS	User	Active	X	X	X	X
Applied Simulation Technology	User	Inactive	-	-	-	-
Broadcom Ltd.	Producer	Inactive	-	-	-	-
Cadence Design Systems	User	Active	X	X	X	X
Cisco Systems	User	Inactive	-	-	X	-
Dassault Systemes	User	Inactive	-	-	-	-
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	X
Keysight Technologies	User	Active	X	X	-	X
Marvell	Producer	Active	X	X	X	X
Maxim Integrated	Producer	Inactive	-	-	-	-
Mentor, A Siemens Business	User	Active	X	X	X	X
Micron Technology	Producer	Active	X	X	X	X
MST EMC Lab	User	Inactive	-	-	X	-
NXP	Producer	Inactive	-	-	X	-
SerDesDesign.com	User	Inactive	-	-	-	-
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	-	-	-	-
Zuken	User	Active	X	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.