



## IBIS Open Forum Minutes

Meeting Date: **January 29, 2021**

Meeting Location: **Teleconference**

### VOTING MEMBERS AND 2021 PARTICIPANTS

ANSYS	Curtis Clark*
Applied Simulation Technology	(Fred Balistreri)
Broadcom	(Yunong Gan)
Cadence Design Systems	Zhen Mu*
Cisco Systems	(Stephen Searce)
Dassault Systemes (CST)	(Stefan Paret)
Ericsson	(Guohau Wang)
Google	Zhiping Yang*
Huawei Technologies	(Hang (Paul) Yan)
IBM	(Greg Edlund)
Infineon Technologies AG	(Christian Sporrer)
Instituto de Telecomunicações	(Abdelgader Abdalla)
Intel Corporation	Hsinho Wu*, Michael Mirmak
Keysight Technologies	Radek Biernacki*
Marvell	Steve Parker*
Maxim Integrated	Tushar Pandey*
Mentor, A Siemens Business	Arpad Muranyi*
Micron Technology	Randy Wolff*, Justin Butterfield*
MST EMC Lab	(Chulsoon Hwang)
NXP	(John Burnett)
SerDesDesign.com	(John Baprawski)
SiSoft (MathWorks)	Mike LaBonte*
Synopsys	Ted Mido*
Teraspeed Labs	Bob Ross*
Xilinx	(Romi Mayder)
ZTE Corporation	(Shunlin Zhu)
Zuken	(Michael Schäder)
Zuken USA	Lance Wang*

### OTHER PARTICIPANTS IN 2021

Achronix Semiconductor                      Hansel Dsilva

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 connection information for future IBIS teleconferences is as follows:

<https://tinyurl.com/IBISOFridayTeams>

### Join Microsoft Teams Meeting

Conference ID: 803 509 041#

[Local numbers](#) | [Learn more about Teams](#) | [Meeting options](#)

Join with a video conferencing device

[106010980@teams.bjn.vc](mailto:106010980@teams.bjn.vc) VTC Conference ID: 1143484747

[Alternate VTC dialing instructions](#)

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 January 8, 2021 IBIS Open Forum teleconference. Bob Ross noted that the copyright date in the footers should be updated to 2021. Curtis Clark said he would update the footers in the next set of minutes. Bob moved to approve the minutes. Mike LaBonte seconded the motion. There were no objections.

Randy reviewed ARs from the previous meeting.

1. Randy Wolff to update the date accepted field of BIRD208 [AR].  
Randy reported that this had been done.
2. Steve Parker to update BIRD208 on the website [AR].  
Steve reported that this had been done.
3. Bob Ross to update the classification status of BUG214 on the website [AR].  
Bob reported that this had been done.

## ANNOUNCEMENTS, CALL FOR ADDITIONAL AGENDA ITEMS

Randy Wolff noted that two new BIRDs, BIRD202.2 and BIRD209, had been submitted and would be discussed.

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

Bob Ross reported that we have 27 members. The quorum for meetings is 7. We had \$28,435 cash flow for 2020 and a \$26,335 adjusted balance for 2020. Cash flow for 2021 is \$0 and total adjusted balance for 2021 is \$3,350. These figures are all unchanged from the previous meeting.

Bob noted that we are still waiting for a deduction for SAE ITC 2020 Extra Charges. Last year this charge was over \$10,000. He said we also expect a new membership payment in 2021, and we expect a new Touchstone parser source code license payment in 2021 as well. All current member organizations should now have received an invoice for 2021 membership. Current 2020 memberships will expire in May of 2021 if payment is not received by then.

Bob noted that he had prepared a first cut at a 2021 expense budget, but there are some large expenditures that are uncertain because of possible virtual summits and various ibischk parser development proposals.

## **WEBSITE ADMINISTRATION**

Steve Parker reported that the website was up to date with respect to task groups' minutes and documents. BIRD202.2 and BIRD209 had been uploaded. The Mentor logo on the home page had been replaced with the Siemens logo. Randy Wolff noted that the "Last Updated" entry at the bottom of the IBIS 7.0 Known Issues document had been updated to reflect the most recent revision to the document.

Steve said there was an ongoing email discussion about dealing with GDPR requirements, which included discussion of different approaches for our email lists. Steve said he had experimented with creating an Amazon SNS (simple mail system) account, which provides a simple way to send large numbers of email messages from a reputable server. He said the rates were reasonable (1000 emails for \$0.10). Bob Ross asked if this would require a change in the lists' addresses. Mike LaBonte said it might be a way to replace [ibis@freelists.org](mailto:ibis@freelists.org), which is primarily used as a one way distribution of announcements, agendas, minutes, etc. Other lists that are posted to by everyone would stay at [freelists.org](http://freelists.org). Steve noted that this was all in the experimental stage.

Bob asked if copyright date updates had been pushed to all of the site's pages. Steve said they had not, but he's trying to automate that process.

## **MAILING LIST ADMINISTRATION**

Mike LaBonte reported that mailing lists were operating smoothly. He noted that he had recently sent out a list policy reminder to the ibis-users list, as one discussion there had veered toward vendor specific. Vendor specific discussions of IBIS topics are discouraged on the IBIS lists, and the policy is posted on the [freelists.org](http://freelists.org) pages.

## **LIBRARY UPDATE**

Zhiping Yang reported no new updates to the model library. He said there had been some discussion about creating a new email list, but that could be complicated because of GDPR. So, he is waiting for the discussions to converge on the right way to communicate with model vendors.

## **INTERNATIONAL/EXTERNAL ACTIVITIES**

### **- Conferences**

SPI2021 – the 25<sup>th</sup> IEEE Workshop on Signal and Power Integrity will be held as a virtual online conference on May 10-12, 2021. An IBIS Summit will be held after the event (tentative). More information is available at:

<https://spi2021.uni-siegen.de>

IEEE EMC + SIPI Symposium 2021 (was planned for May 13-15, Raleigh, NC – now virtual from July 27-August 13, 2021):

<https://www.emc2021.emcss.org>

### **- Press Update**

Bob Ross noted an article mentioning the use of AMI:

IEEE Transactions on Components, Packaging and Manufacturing Technology, Volume 10, Issue 12, December 2020, pages 2061-2071, “Laguerre-Volterra Feed-Forward Neural Network for Modeling PAM-4 High-Speed Links”, Xinying Wang, Thong Nguyen, José E. Schutt-Ainé.

<https://ieeexplore.ieee.org/document/9265412>

Bob noted that the article mentions that the authors created their own IBIS-AMI model generation utility, ezAMI. Bob said we could add the link to this tool to our “Contributed IBIS-AMI Tools” section of the Free Tools page. Steve Parker to add the link to the Free Tools page [AR].

<https://gitlab.engr.illinois.edu/xinying/ezami>

### **- Related standards**

None.

## **SUMMIT PLANNING AND STATUS**

### **- SPI 2021 (May 10-12, 2021 entirely virtual)**

Bob Ross said we would normally have planned an in-person summit on the afternoon of Wednesday the 12<sup>th</sup>. However, with the summit being virtual, the time-zone differences could be problematic. He said that Thursday, May 13, is a holiday in some countries in Europe. Therefore, he had suggested three possible summit schedules, Wednesday afternoon local

time, Friday afternoon local time, or the following Monday. He had not heard back yet, and he suggested we pencil in Wednesday, May 12, tentatively. He said that since the summit will be virtual, changing the date is not difficult. He also noted that there will be no cost to hold the summit, so it doesn't require a vote. However, we will probably vote to schedule the summit at some point. Randy Wolff suggested that he and Bob continue communicating with Michael Schäder and Ralf Bruening.

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

Zhiping Yang said the EMC Society is still actively discussing the schedule of this conference. He said they have a paper submission deadline of Monday, February 1, 2021. The three week event will combine what were to be separate US and European events. He said the plan is to schedule sessions so there is a 4 hour overlap during which both US and European participants can attend. He said Technical Committee 10 is tracking IBIS paper submission, and thus far he had seen three IBIS related papers submitted. He noted that we hadn't yet planned a date for the IBIS summit, but we have some flexibility because it's virtual. Bob Ross noted one possible scheduling issue if we hold the summit at the end of the conference on Friday, August 13. DesignCon starts the following Monday, so we might have an issue with back-to-back summits. Randy Wolff said we might consider a half-day in person summit at DesignCon, so we could do two half-day events. Another option would be to combine the two summits into one. Bob said we should update the formal dates of EMC+SIPI and DesignCon on the Upcoming Events page. Steve Parker to update the EMC+SIPI and DesignCon dates [AR].

- DesignCon 2021 (August 16-18, 2021)

Randy Wolff noted that this had been moved out to August but is planned as an in-person event at the San Jose McEnergy Convention Center. DesignCon has the entire center reserved, so there should be lots of space and planning for social-distancing. They are planning on working on a 9 month cycle until they get back to the normal January-February time frame in 2023. They plan to stay at McEnergy for the foreseeable future. Randy had met with Suzanne Deffree of Informa Markets, and she reported that they do not have the center booked beyond Wednesday the 18<sup>th</sup>. Therefore, we have no option to hold the summit the day after the conference. We would have to consider having the summit during DesignCon itself. It may be appropriate to limit the summit to a half-day event this year, possibly on Monday afternoon. This would likely conflict with one of DesignCon's half-day tutorial sessions.

Randy reported that DesignCon and the IBIS summit will have to deal with special requirements for food handling, seating, etc. Bob asked if DesignCon was requiring masks throughout the event, and he stated that they should be mandatory at any IBIS summit. Bob suggested we tentatively list the summit as an in-person event, but we could later change it to virtual. Randy said we could take a straw poll later on who would attend in-person.

## **QUALITY TASK GROUP**

Mike LaBonte reported that the group is meeting on Tuesdays at 8:00 a.m. PT. He said the group continues planning and investigation of several ibischk development projects. Mike noted that they have a new tschk BUG to review. (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 had been reviewing the current AMI flow for redrivers and had finally agreed on a proposal to fix it. Arpad said that Fangyi Rao had begun drafting a BIRD based on his recent presentations. The group had also decided that a correction to BIRD204 was beneficial, so a new BIRD209 had been submitted to the Open Forum to supersede BIRD204.

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 group had just submitted a new BIRD202.2. There is continuing discussion on one possible change to support multiple EMD Parts lists.

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 that the task group remains suspended, but he and Michael Mirmak had discussed restarting it. He said it will probably start up before there are any votes on which new BIRDS will be included in IBIS 7.1. There is plenty of editorial work to do based on the current IBIS 7.0 Known Issues document and BIRDS we assume will be approved for inclusion in IBIS 7.1. Randy asked anyone interested in working with the task group to sign up for the ibis-editorial list on freelists or contact Randy or Michael Mirmak.

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 were no new updates. Bob Ross asked if we should remove this topic from the agenda. Randy Wolff agreed that it had been difficult to get participation and get the forum going. He said we could continue to try to come up with ideas. Mike LaBonte asked if it should remain on the IBIS webpage. Bob said he thought we should preserve its archives but call it inactive. Randy said he would remove it from future agenda emails.

China Regional Forum material can be found at:

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

## **NEW ADMINISTRATIVE ISSUES**

- SAE ITC meeting

Randy Wolff reported that the IBIS Board was meeting that afternoon with representatives from our parent group SAE ITC to discuss various issues. Randy to report on that meeting at the next teleconference [AR].

## **BIRD202.2: ELECTRICAL DESCRIPTIONS OF MODULES**

Randy Wolff reported that BIRD202.2 was largely the result of editorial work undertaken since BIRD202.1 was introduced in October. He noted that it was submitted with the unanimous recommendation of the Interconnect task group. He said the editorial work and clarifications make the BIRD easier to understand, and it is intended for inclusion in the next release. He noted that yellow highlighting throughout the text was left in place to make it easier for the Editorial task group to integrate the various cross references. Randy said it is a complex BIRD and a full update that extends EBD (electrical board descriptions) to EMD (electrical module description) and supports IBIS-ISS and Touchstone modeling for any type of module.

Bob Ross pointed out that one possible change is still being discussed. Do we want to add a syntax change to allow multiple [EMD Parts] lists? Randy said, for example, the idea would be to make it easier to support a multi-chip module or stacked die in a single package with options for different temperature ranges or voltage ranges. Multiple [EMD Parts] lists could be provided to list the different variants of particular parts as opposed to needing entire separate EMD models for each of the variants. Bob said this possible syntax change was the only issue we know of that might require a BIRD202.3 to be submitted. Randy said the BIRD is intended for IBIS 7.1, and if we need a BIRD202.3 it might affect the schedule. Arpad said the multiple parts list discussion is not a gating factor, and BIRD202.2 is fine as it is. It would be a convenience feature that could make things easier or more efficient, but it's not a show stopper. Bob said that if we ever intend to provide this feature, he would prefer we do it now because it will require a syntax change. Randy agreed and said it can be discussed in the Interconnect task group.

## **BIRD209: MAKE CLOCK TIMES OUTPUT REQUIRED FOR CLOCK EXECUTABLE MODELS**

Arpad Muranyi introduced the new BIRD. He said it is intended to eliminate a possible problematic scenario in BIRD204. He recalled that BIRD204 introduced the idea of a data executable model using the output of a clock executable model. The data executable model may specify that it uses "Wave" or "Times" as its clock input. In the case of "Wave", if no clock executable model is provided, it is easy enough for the EDA tool to just pass the clock waveform directly to the data executable model. However, in the case of "Times", if there is no clock executable model, or it does not return clock ticks, then the EDA tool would have to generate the clock ticks. This is a problem because the EDA tool would not even know if a clock executable model returned clock ticks until it ran the simulation. If the model did not return clock ticks, then the EDA tool would have to generate them itself, but it would not necessarily generate them the same way the hardware would.

The ATM task group decided it would be better to eliminate the possibility altogether. Since BIRD204 had already been approved, they decided it was best to create a new BIRD. BIRD209 supersedes BIRD204, and it is the same except that it adds language stating that if the data

executable model specifies “Times”, the clock executable model must have AMI\_GetWave and it must return clock ticks.

#### **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**

-ibischk

Bob Ross said there were no new parser BUGs to report. He said they are still considering a source code security update, but an enhancement BUG has yet to be created and they are not sure how to proceed. Mike LaBonte said that if they were to report it as a BUG, they aren't sure about the process to fix and test it. He said Intel had provided a spreadsheet listing specific files and line numbers in the source code that contained functions that might have buffer overflow security issues (e.g., scanf). The suggestion is to replace them with secure versions. This is not difficult to fix in general, but the spreadsheet has 403 instances of the problem. In order to commission development to solve this issue, we would need a static code analyzer similar to the one used to generate the list. Mike had experimented with some free ware code analyzers, but he was unable to configure them in a way that they generated results similar to the list Intel submitted.

Bob said the Interconnect task group would be sending out a survey privately to EDA vendors to see if their organizations did similar buffer overflow security checks.

-tschk

Bob introduced tschk BUG4 submitted by Randy Wolff. Randy had attempted to use tschk2 to convert a Touchstone 2 file to a Touchstone 1 file. The Touchstone 2 file used the [Reference] keyword, so the conversion had failed. However, all of the per port impedances specified in the [Reference] keyword were the same, so this example has a single reference impedance and could be converted to Touchstone 1. Radek Biernacki suggested that if the [Reference] keyword is optional in Touchstone 2 it could be commented out in the example so the conversion would proceed. Randy agreed that this was the workaround he had used, and the workaround is noted in the BUG4 report. Bob Ross moved to classify it as enhancement, low priority, open. Randy seconded. There were no objections. Bob to update the status of tschk BUG4 [AR].

Bob said the question is how we would handle a bug fix release of tschk2. There are now 4 BUGs, and we haven't done a release in years. We could do nothing at all, selectively pick the easy BUGs to fix, or tend to all of them. Bob said he would prefer to fix all 4 bugs on the list if



we do a new release, but would that release be handled by volunteers? Bob said a new release would require full regression testing, and volunteers or even the ibischk parser developer might not have the bandwidth. Mike LaBonte noted that ibischk would still be higher priority, and if it goes through the same developer it would be scheduled after any ibischk projects.

**NEW TECHNICAL ISSUES**

- None.

**NEXT MEETING**

The next IBIS Open Forum teleconference meeting will be held on February 19, 2021. The following teleconference meeting is tentatively scheduled for March 12, 2021.

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/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](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	November	December	January	January 29,
			20, 2020	04, 2020	08, 2021	2021
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
Keysight Technologies	User	Active	X	X	X	X
Marvell	Producer	Active	-	X	X	X
Maxim Integrated	Producer	Active	-	X	X	X
Mentor, A Siemens Business	User	Active	-	X	X	X
Micron Technology	Producer	Active	X	X	X	X
MST EMC Lab	User	Inactive	X	-	-	-
NXP	Producer	Inactive	-	-	-	-
SerDesDesign.com	User	Inactive	-	-	-	-
SiSoft	User	Active	X	X	X	X
Synopsys	User	Active	X	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	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.