



## IBIS Hybrid US Summit at IEEE EMC+SIPI 2024 Minutes

Meeting Date: **August 9, 2024**

Meeting Location: **Phoenix, Arizona, USA**

### VOTING MEMBERS AND 2024 PARTICIPANTS

Altair	(JuneSang Lee)
AMD (Xilinx)	(Bassam Mansour)
Analog Devices	Jermaine Lim-Abroguena*, Toni Rose Racelis*, Christine Bernal*, Prachi Shukla*, Aprille Hernandez-Loyola*, Francis Ian Calubag*, Marvin Sinues*, Vincent Paul Sabillo*, Esther Grace Falate*, Keshav Mehrotra*
Ansys	Curtis Clark*, Marco Occhiali*
Ansys Japan	Satoshi Endo
Applied Simulation Technology	(Fred Balistreri)
Aurora System	(Dian Yang), Raj Raghuram
Broadcom	(Yunong Gan)
Cadence Design Systems	Kyle Lake*, Amrish Varma, Jared James, John Phillips, Kristoffer Skytte, Baolong Li*
Celestica	(Sophia Feng)
Cisco Systems	(Stephen Searce), Hong-Man Wu
Dassault Systemes	Stefan Paret*, David Duque*
GE Healthcare Technologies	(Balaji Sankarshanan)
Google	(Hanfeng Wang)
Huawei Technologies	(Hang (Paul) Yan)
Infineon Technologies AG	(Christian Sporrer)
Instituto de Telecomunicações	(Abdelgader Abdalla)
Intel Corporation	Michael Mirmak*, Hsinho Wu, Kinger Cai*, Chi-te Chen, Sleiman Bou-sleiman*
Keysight Technologies	Pegah Alavi, Ming Yan, David Banas, Fangyi Rao, HeeSoo Lee, Heidi Barnes
Marvell	Steven Parker, Shaowu Huang*, Wei Zhang*
MathWorks	Graham Kus*, Walter Katz
Micron Technology	Justin Butterfield
MST EMC Lab	Chulsoon Hwang*, Zhiping Yang*, Jiahuan Huang*, Yifan Ding*, Zhekun Peng*, Xiangrui Su*, DongHyan "Bill" Kim*
SI-Clarity	Doug Burns*
Siemens EDA	Weston Beal*, Arpad Muranyi*, Randy Wolff*, Matt Leslie, Scott Wedge, Todd Westerhoff, Zhichao Deng
STMicroelectronics	Anil-Kumar Dwivedi, Bhupendra Singh, Harsh Saini, Hemant Kumar Gangwar, Manda Padma Sindhuja, Manish Bansal, Nitin Kumar, Olivier Bayet*, Pawan Verma, Pranav Singh, Rahul Kumar, Raushan Kumar, Shivam Soni, Gaurav Goel, Manisha Bisht*, Charul Sharma*, Manish Bansal*, Mihir Pratap*
Synopsys	Ted Mido*, (Andy Tai), Luis Simoes*, Pedro Monteiro*, Luis Neves*, António Eustáquio*, Diogo Coelho*, Nuno Lima*, Alexandre Brito*
Teraspeed Labs	(Tom Dagastino), [Bob Ross]
Waymo	(Feng Wang), [Ji Zhang]
ZTE Corporation	(Zhongmin Wei), (Shunlin Zhu)
Zuken	(Ralf Brüning), Markus Bucker*
Zuken USA	Lance Wang*

## OTHER PARTICIPANTS IN 2024

Alphawave Semi	Adrien Auge, Todd Bermensolo
Anacom	Filipe Saraiva*
Apple Inc.	Ying Cao*
Applied Logix	Dan Chirpich
Ciena	Hugues Tournier, Kaisheng Hu*
Hirel Logic	Jason Riddley*
HRL Laboratories	John Carlson*
Hitachi Ltd.	Yutaka Uematsu*
IBM	Matteo Cocchini*
Kandou	Sherman Chen*
KEI Systems	Shinichi Maeda
KT Smart Future-Creations	Keita Miyasato
Meta	Ashkan Hashemi, Himanshu Modi*
Northrop Grumman Corp.	Will McCaffrey
Qualcomm	Scott Powers*
Rivos	Yanshen Wang*
Samsung Electronics	Jun-Bae Kim*, Changsoo Yoon*
SAE ITC	Tammy Patton, Rich Demary
Signal Edge Solutions	Benjamin Dannan
Si-Guys	Donald Telian
Socionext America	Futoshi Terasawa
Teraspeed Labs	[Bob Ross]
Toyobo Co.	Saki Kawano
University of Illinois Urbana-Champaign	Jose Schutt-Aine
UNIST	Jingook Kim*
Zhejiang University	Ling Zhang*

In the list above, attendees present 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](mailto: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#](tel:+12677688015554664847) 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.

---

## **SUMMIT MINUTES - SUMMARY AND LINKS**

The 2024 IBIS Summit at IEEE EMC+SIPI was held both online and in-person in Phoenix, AZ.

The notes below capture some of the content and discussions. A summit recording has been made available with time index. Meeting presentations and documents are available at this link:

Link: <https://ibis.org/summits/aug24/IBIS-summit-20240809.mp4>

There were approximately 62 attendees from 28 companies.

## **OFFICIAL OPENING AND AGENDA**

(Start 00:00:00, To 00:01:10). *Note: beginning of recording*)

Lance welcomed attendees and outlined the IBIS Summit Agenda. A copy of the agenda is available at this link:

Link: <https://ibis.org/summits/aug24/IBIS-summit-20240809.mp4>

## **IBIS CHAIR'S REPORT**

Lance Wang (Zuken, USA)

(Chair, IBIS Open Forum)

(Start 00:01:30, To 00:18:05)

Lance Wang introduced himself as the Chair of the IBIS Open Forum. He outlined that IBIS has 28 members currently and presented a chart of annual membership since 1995. The expression of membership moving up and down actually had to do with acquisitions of companies by other companies. There is some consideration to change to membership to include a special rate for smaller companies.

Lance presented on the following:

- 28 IBIS Members
  - Fairly stable around approximately 30 members over many years.
- Roster of IBIS Officers June 2024 - May2025
  - Summary of elected individuals representing organizations on board
  - Lance took a few moments to remember Bob Ross, as he had passed away due to illness during this past year. Bob had served over many years as Chair and other IBIS Officer positions and worked to support the Golden Parser over many years. There would be consideration of a Bob Ross scholarship for students to be proposed in the future.
- IBIS Meetings (weekly teleconferences)
- IBIS Open Forum teleconference every 3 weeks (Fridays, 08:00 PT)

- IBIS Summit meetings (USA and international)
  - DesignCon, IEEE SPI, IEEE EMC+SIPI, Shanghai, Tokyo (JEITA-organized)
- Participants: ~290 in 2023 (~280 in 2022)
  - Participants listing
- SAE Industry Technologies Consortia is the parent organization of the IBIS Open Forum
  - SAE ITC provides financial, legal, and other services to the IBIS Open Forum:
  - Link: <https://www.sae-itc.com/>
  - SAE ITC representatives: Tammy Patton, Phyllis Gross, and Rich Demary
- Task Groups
  - Advanced Technology Modeling (ATM) task group (Tuesdays, 12:00 PT)
    - Chair: Arpad Muranyi, Siemens EDA
    - [https://ibis.org/atm\\_wip/](https://ibis.org/atm_wip/)
    - Develop non-interconnect technical BIRDs
  - Editorial task group (Suspended)
    - Chair: Michael Mirmak, Intel
    - [https://ibis.org/editorial\\_wip/](https://ibis.org/editorial_wip/)
    - Produce IBIS specification documents
  - Interconnect task group (Wednesdays, 08:00 PT)
    - Chair: Michael Mirmak, Intel
    - [https://ibis.org/interconn\\_wip/](https://ibis.org/interconn_wip/)
    - Develop on-die/package/module/connector interconnect modeling BIRDs
  - Quality task group (Tuesdays, 09:00 PT)
    - Acting Chair: Randy Wolff, Siemens EDA
    - [https://ibis.org/quality\\_wip/](https://ibis.org/quality_wip/)
    - Oversee IBISCHK parser testing and development
- IBIS Milestones
  - Various accomplishments and industry-associated activities
- Other Work
  - IBIS work includes governing Touchstone 1.0 and Touchstone 2.1 specifications
  - IBISCHK: IBIS file syntax parser
  - TSCHK2: Touchstone file syntax parser
  - Both have freely available executables
  - Both source code by subscription if embedding in EDA tool
- BIRD description (Buffer Issue Resolution Document)
  - Summary of present BIRDs considered for adoption
- TSIRD description (Touchstone Issue Resolution Document)
  - Summary of present TSIRDs considered for adoption
- BUGs
  - How to submit bug reports for IBISCHK and TSCHK/TSCHK2

- Summary of present BUGs considered for resolution
- Recent and Future Developments in IBIS
- IBIS Website Resources
  - Link: <https://www.ibis.org>

(conclusion of IBIS Chair's Report)

### **ADD SUPPORT OF TRANSIENT ANALYSIS IN SPIM, WITH [SPIM ICCT FILE]**

(Start 00:18:45, To 00:38:30)

Kinger Cai (Intel, USA)

Chi-te Chen (Intel, USA)

[Presented by Kinger Cai]

Reference recording for playback at link: <https://ibis.org/summits/aug24/>

### **UPDATES ON BIRD220 (IMPROVED POWER SUPPLY INDUCED JITTER MODEL FOR IBIS SIMULATION)**

(Start 00:39:15, To 01:06:45)

Yifan Ding, MST EMC Lab; Randy Wolff, Siemens EDA; Zhiping Yang, PCB Automation and MST EMC Lab; Chulsoon Hwang, MST EMC Lab

[Presented by Yifan Ding]

Reference recording for playback at link: <https://ibis.org/summits/aug24/>

### **ADD SUPPORT OF POWER DELIVERY (PD) ANALYSIS IN IBIS**

(Start 01:07:10, To 01:26:00)

Kinger Cai, Intel; Chi-te Chen, Intel; Zhiping Yang, MST EMC Lab; Chulsoon Hwang, MST EMC Lab; Aaron Xu, Google; Hanfeng Wang, Google; Shuai Jin, Google; Songping Wu, Rivos; Yansheng Wang, Rivos; Yimajian Yan, ARM

[Presented by Kinger, Cai]

Reference recording for playback at link: <https://ibis.org/summits/aug24/>

### **BREAK**

### **POLE-RESIDUE DATA FORMAT FOR TOUCHSTONE**

(Start 01:44:30, To 02:11:30)

Arpad Muranyi (Siemens EDA, USA)

[Presented by Arpad Muranyi]

Reference recording for playback at link: <https://ibis.org/summits/aug24/>

### **PRIORITIES AND ALTERNATIVES FOR TOUCHSTONE 3.0 PORT MAPPING**

(Start 02:15:45, To 02:44:15)

Michael Mirmak (Intel USA)

[Presented by Michael Mirmak]

Reference recording for playback at link: <https://ibis.org/summits/aug24/>

- Problem Statement
  - Given a set of S-parameters that describe a component, there is data
  - Current Touchstone 1.0 and 2.0 does not describe the component
  - What is the relationship between ports (input vs. output)
  - What is the context of this device and how to use it?
  -
- Multiple Proposals for Port Mapping
  - IBIS Interconnect Task Group is considering multiple options
  - Examples of both proposals thus far are included in these slides
  - Detailed information: [https://ibis.org/interconnect\\_wip](https://ibis.org/interconnect_wip)
- Proposed Requirements
  - Define unambiguous connections for simulation
  - Identify Port locations (e.g. xyLayer of PCB)
  - Support automated creation of schematic symbols and test probe locations
  - Support generation and verification
  - Support IEEE 370 data quality features
  - Identify data status (Measured vs. Simulated)
  - Support swathing
  - Support addition of user-defined parameters
- “HL” Proposal Syntax Examples (Proposal 1 of 2 shown)
- “Y” Proposal Syntax Examples (Proposal 2 of 2 shown)
- Your Input is Needed!
  - Michael invited attendees and any interested members to contribute to this ongoing discussion in the IBIS Interconnect Task Group.
- Q+A session
  - Note: See recording for detailed slides and Q+A discussion.

## **OPENSIPI: AN OPEN SOURCE PLATFORM TO AUTOMATE S-PARA EXTRACTION AND POST-PROCESSING**

(Start 02:45:15, To 03:11:45)

Yansheng Wang, Rivos

Reference recording for playback at link: <https://ibis.org/summits/aug24/>

## **AMI DLL HOOK: A NOVEL IBIS-AMI SIMULATION DEBUGGING METHOD FOR MODEL USERS**

(Start 03:12:30, To 03:43:30)

Chuanyu Li, Intel; Alaeddin Aydiner, Intel; Sleiman Bou-sleiman, Intel; Xinjun Zhang, Intel  
[Presented by Sleiman Bou-sleiman]

Reference recording for playback at link: <https://ibis.org/summits/aug24/>

## CLOSING REMARKS

(Start 03:43:45, To 03:47:00)

Lance Wang thanked everyone for attending. Lance announced the meeting was officially adjourned. The meeting adjourned.

## NEXT MEETING

The next IBIS Open Forum teleconference meeting will be held on August 23, 2024. The following IBIS Open Forum teleconference meeting is scheduled for September 13, 2024.

---

## NOTES

IBIS CHAIR: Lance Wang (978) 633-3388

[lance.wang@ibis.org](mailto:lance.wang@ibis.org)  
Solutions Architect, Zuken USA  
238 Littleton Road, Suite 100  
Westford, MA 01886

VICE CHAIR: Douglas Burns

[vice-chair@ibis.org](mailto:vice-chair@ibis.org)  
CEO, Si-Clarity, LLC

SECRETARY: Graham Kus

[graham.kus@ibis.org](mailto:graham.kus@ibis.org)  
Senior Engineer, The MathWorks, Inc.  
3 Apple Hill Drive  
Natick, MA 01760

TREASURER (Acting): Randy Wolff

[vice-chair@ibis.org](mailto:vice-chair@ibis.org)  
Product Architect, Siemens EDA

LIBRARIAN: Zhiping Yang

[YangZhip@mst.edu](mailto:YangZhip@mst.edu)

WEBMASTER: Steven Parker (845) 372-3294

[sparker@marvell.com](mailto:sparker@marvell.com)  
Senior Staff Engineer, DSP, Marvell  
2070 Route 52  
Hopewell Junction, NY 12533-3507

POSTMASTER: Curtis Clark

[curtis.clark@ansys.com](mailto:curtis.clark@ansys.com)  
Ansys, Inc.  
400 Fifth Avenue  
Suite 500  
Waltham, MA 02451

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 or unsubscribe from 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)):
  - <https://www.freelists.org/list/ibis>
  - <https://www.freelists.org/list/ibis-users>
- To subscribe to or unsubscribe from 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), [ibis-editorial@freelists.org](mailto:ibis-editorial@freelists.org), or [ibis-quality@freelists.org](mailto:ibis-quality@freelists.org):
  - <https://www.freelists.org/list/ibis-macro>
  - <https://www.freelists.org/list/ibis-interconn>
  - <https://www.freelists.org/list/ibis-editorial>
  - <https://www.freelists.org/list/ibis-quality>
- 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: `ibischk7`, `tschk2`, `icmchk1`, `s2IBIS`, `s2IBIS2` and `s2iplt`.

The BUG Report Form for `ibischk` resides along with reported BUGs at:

<https://ibis.org/bugs/ibischk/>  
<https://ibis.org/bugs/ibischk/bugform.txt>

The BUG Report Form for `tschk2` resides along with reported BUGs at:

<https://ibis.org/bugs/tschk/>  
<https://ibis.org/bugs/tschk/bugform.txt>

The BUG Report Form for `icmchk` resides along with reported BUGs at:

<https://ibis.org/bugs/icmchk/>  
[https://ibis.org/bugs/icmchk/icm\\_bugform.txt](https://ibis.org/bugs/icmchk/icm_bugform.txt)

To report `s2IBIS`, `s2IBIS2` and `s2iplt` bugs, use the Bug Report Forms which reside at:

<https://ibis.org/bugs/s2IBIS/bugs2i.txt>  
<https://ibis.org/bugs/s2IBIS2/bugs2i2.txt>  
<https://ibis.org/bugs/s2iplt/bugspl.txt>

Information on IBIS technical contents, IBIS participants and actual IBIS models are available on the IBIS Home page:

<https://ibis.org/>

Check the IBIS file directory on IBIS.org for more information on previous discussions and results:

<https://ibis.org/directory.html>

Other trademarks, brands and names are the property of their respective owners.



## SAE STANDARDS BALLOT VOTING STATUS (attendee X; absent -)

Organization	Interest Category	Standards Ballot Voting Status	Apr 19, 2024	May 10, 2024	May 15, 2024	Aug 9, 2024
Altair	User	Inactive	-	-	-	-
AMD (Xilinx)	Producer	Inactive	-	-	-	-
Analog Devices	Producer	Inactive	-	-	-	X
Ansys	User	Active	-	X	X	X
Applied Simulation Technology	User	Inactive	-	-	-	-
Aurora System	User	Inactive	-	-	-	-
Broadcom Ltd.	Producer	Inactive	-	-	-	-
Cadence Design Systems	User	Inactive	X	-	-	X
Celestica	User	Inactive	-	-	-	-
Cisco Systems	User	Inactive	-	-	-	-
Dassault Systems	User	Inactive	-	-	X	-
GE Healthcare Technologies	User	Inactive	-	-	-	-
Google	User	Inactive	-	-	-	-
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	Inactive	-	-	-	-
Marvell	Producer	Active	X	X	-	X
MathWorks	User	Active	X	X	X	X
Micron Technology	Producer	Inactive	-	-	-	-
MST EMC Lab	User	Active	-	X	X	X
Siemens EDA	User	Active	X	X	-	X
STMicroelectronics	Producer	Active	-	-	X	X
Synopsys	User	Active	X	X	-	X
Teraspeed Labs	General Interest	Inactive	-	-	-	-
Waymo	User	Inactive	-	-	-	-
ZTE Corp.	User	Inactive	-	-	-	-
Zuken	User	Active	-	X	X	X

= Temporarily not a voting member

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.