



IBIS Hybrid Summit at DesignCon 2026 Minutes

Meeting Date: **February 27, 2026**

Meeting Location: **Santa Clara, CA**

VOTING MEMBERS AND 2026 PARTICIPANTS

Altair	(JuneSang Lee)
AMD	(Bassam Mansour)
Analog Devices	(Jermaine Lim-Abroguena)
Applied Simulation Technology	(Fred Balistreri)
arm	Kinger Cai*
Aurora System	(Diane Yang)
Broadcom	(Yunong Gan)
Cadence Design Systems	Kyle Lake*, Jared James*, Sai Zhou*
Ciena	(Stephen Shew)
Cisco	(Shadi Ebrahimi Asl)
Dassault Systemes	(Stefan Paret)
GE Healthcare Technologies	(Balaji Sankarshanan)
Google	(Hanfeng Wang)
Huawei Technologies	(Hang (Paul) Yan)
Infineon Technologies AG	(Kasthuri Rengan Narayanan)
Intel Corporation	Michael Mirmak*, Ben Silva, Alex Manukovsky*, Joshua Nutzati*
Keysight Technologies	Fangyi Rao*, Ming Yan*, Pegah Alavi*, David Banas*, Seok Keun Choi*, Tim Wang Lee*
Marvell	Steven Parker*
MathWorks	Walter Katz*, Tripp Worrell*
Micron Technology	Justin Butterfield
MST EMC Laboratory	Chulsoon Hwang, Zhiping Yang*
Nvidia	(Ben Friedmann Gluck), Elad Bar*
SI-Clarity	Doug Burns*
Siemens EDA	Weston Beal*, Arpad Muranyi*, Randy Wolff*, Todd Westerhoff*, Zhichao Deng*, Matt Leslie*, Scott Wedge*
Signal Edge Solutions	(Benjamin Dannan), Tyler Huddleston*, Emily Tann*, Graham Kus*
STMicroelectronics	Manish Bansal*
Synopsys	Curtis Clark, Ted Mido*, Edna Moreno*, Shinji Takahashi*, Jian Yang*
ZTE Corporation	(Zhongmin Wei)
Zuken	Ralf Brüning

OTHER PARTICIPANTS IN 2026

Advantest Corporation	Genichi Tanaka*
Altera	Hsinho Wu*
ASUS	Chite Chen*, Joseph Chen*
Eliyan	Ali Khoshniat*, Joshua Kim*, Arpit Kothari*, Mohammad Mahani*
FJScaler	Ron Olisar*
Kioxia	Yuta Hibe*
Mercury Systems	Casey Mallare*
PCB Automation	Zhiping Yang*
Qualcomm	Todd Bermensolo*

RaceEL Systems
SAE ITC
Sintecs
Socionext
Unaffiliated

Venkata Rao S*
Tammy Patton, Richard DeMary, Jose Godoy
Hans Klos*
Futoshi Terasawa*
Ole Steffensen

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

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#

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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.

SUMMIT MINUTES - SUMMARY AND LINKS

The IBIS Summit at DesignCon 2026 at Santa Clara, CA was held both in-person and online in hybrid format. The notes below capture key content and discussions. A summit recording has been made available where time index is provided in 3 parts.

IBIS Summit presentations, their recordings and support materials are available at this link:

Link: <https://ibis.org/summits/feb26/>

OFFICIAL OPENING AND AGENDA

(Start 00:00:00, To 00:02:15. *Note: beginning of recording 1 of 3*)

The IBIS Chair, Doug Burns, joined remotely. Doug welcomed attendees to the summit, and thanked the IBIS summit sponsors for their support: Cadence, Intel, Keysight, MathWorks, Micron, Siemens EDA, and Synopsys.

Doug also summarized the resources available on the IBIS website including the recently adopted IBIS 8.0 specification, the upcoming Touchstone 3.0 specification draft, as well as IBIS and Touchstone IRDs available for review.

Link: <https://www.ibis.org/summits/>

IBIS CHAIR'S REPORT

(Start 00:01:30, To 00:34:00 - *recording 1 of 3*)

Doug Burns, Chair, IBIS Open Forum Committee (SI-Clarity, USA)

Doug presented on the following:

- 7 IBIS Sponsors as of February 2026:
 - Cadence Design Systems
 - Intel
 - Keysight Technologies
 - MathWorks
 - Micron
 - Siemens EDA
 - Synopsys
- 28 IBIS Member Organizations
 - A consortium involving multiple companies- both EDA vendors, Hardware implementation companies, and ASIC/CPU chip vendors.
 - The number of members by year has more or less moved between 25 and 35 members since 1995, these numbers have changed as acquisitions have come along.
 - Doug presented the IBIS Open Forum website and noted the logos represent membership.
- Roster of IBIS Officers for current term, June 2025 to May 2026
 - Summary of elected individuals representing organizations on board:
 - Chair: Douglas Burns, SI-Clarity
 - Vice Chair: Walter Katz, MathWorks
 - Secretary: Graham Kus, Signal Edge Solutions
 - Treasurer: Randy Wolff, Siemens EDA
 - Librarian: Zhiping Yang, PCB Automation & MST
 - Postmaster: Curis Clark, ANSYS/Synopsys
 - Webmaster: Steve Parker, Marvell
 - Additional liaison positions:

- University Relations: Chulsoon Hwang, MST
 - IEEE DASC Liaison: Michael Mirmak, Intel
- IBIS Meetings (weekly teleconferences)
 - Quality task group (Tuesdays, 9:00 PT)
 - Advanced Technology Modeling (ATM) task group (Tuesdays, 12:00 PT)
 - Interconnect task group (Wednesdays, 8:00 PT)
 - Editorial task group (Fridays, 8:00 PT when no IBIS OF meeting)
- 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: ~330 in 2025
 - Participants noted as accumulated attendance-list in Minutes throughout each year
- SAE ITC
 - Industry Technologies Consortia is the parent organization of the IBIS Open Forum
 - SAE ITC representatives: Tammy Patton, Rich DeMary, and Peter Doty
 - SAE ITC provides financial, legal, and other services to the IBIS Open Forum:
 - Link: <https://www.sae-itc.com/>
- Task Groups
 - Advanced Technology Modeling (ATM) task group (Tuesdays, 12:00 PT)
 - Chair: Arpad Muranyi, Siemens EDA
 - https://ibis.org/atm_wip/
 - Develop non-interconnect technical BIRDS
 - Editorial task group (Fridays, 8:00 PT when no IBIS OF meeting)
 - Chair: Michael Mirmak, Intel
 - 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/
 - 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/
 - Oversee IBISCHK parser testing and development
- IBIS Milestones
 - Various accomplishments and industry-associated activities shown in slides

- Other Work
 - Specification Development
 - Current official BIRD content in IBIS 8.0 specification
 - IBIS work includes governing Touchstone (s-parameter file) specifications
 - Touchstone 3.0 is in draft stage: pole-residue compression format
 - IBISCHK: IBIS file syntax parser
 - Parser development contract in progress for IBISCHK8
 - TSCHK: Touchstone file syntax parser
 - TSCHK3 is under planning process for 2026
 - Both IBISCHK and TSCHK have freely available executables
 - Both have source code available by license 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
 - Expanded system-level perspective
 - Power Integrity focused modeling
 - Multi-level analog buffer modeling
 - Interconnect modeling
 - Quality and Testing
 - Specification Clarification
 - What else should we be looking at? Bring your ideas!
- Participation in IBIS
 - The success of IBIS depends on active participation and volunteering
 - Bringing your ideas and talents to IBIS
 - Task groups for technical discussions and document editing
 - IBIS email reflectors
 - Open Forum teleconferences for event planning and voting
 - Summit presentations
 - Social Media Ideas
 - IBIS Board and task group volunteering
 - Writing BIRDs- Buffer Issue Resolution Documents
- IBIS Website Resources

- IBIS Summits
- Task Group information
- Member FAQ
- Specification documents (IBIS and Touchstone)
- BIRDs (IBIS), ISSIRDs (Spice), and TSIRDs (Touchstone)
- Email support
- Syntax parser downloads (IBISCHK for IBIS/IBIS-AMI and TSCHK for Touchstone)
- Link: <https://www.ibis.org>

This concluded the Chair's report.

PRESENTATIONS:

IBIS-ATM TASK GROUP REPORT

(Start 00:35:00, To 00:46:15 - *recording 1 of 3*)

Arpad Muranyi, (Siemens EDA)

(Chair, IBIS-ATM Task Group)

[Presented by Arpad Muranyi]

The presentation covered the following:

- BIRDs approved since February 2025
 - 233 AMI Ts2file Analog Model for Single-ended Buffers
- No BIRDs were rejected since February 2025
 - BIRD 233 arrived too late to be included in IBIS 8.0
- Pending BIRDs, BIRD drafts, potential discussion topics
 - 223.1 Add support for SPIM in IBIS
 - 226 PSIJ Sensitivity
 - Both above BIRDs approved previously, but were not included in IBIS 8.0 because technical issues were found in BIRD 223.1
 - Update the AMI model examples
 - Consider adding support for C-PHY modeling
 - Encryption (IEEE 1735)
 - Multi-level analog buffer modeling (PAMn, C-PHY, etc.)
 - AMI_GetWave block size with continually adapting models
 - How to handle missing min/max data
 - Fixing [Clock Pins]

- IBIS-ATM activity through previous year
 - February 2025, Arpad Muranyi started on a “cleaned-up” version of BIRD 223.1
 - No technical changes intended
 - Editorial goal to make easier to read and set format consistent with IBIS style
 - Activity raised questions with author Kinger Cai and started discussions
 - Walter Katz requested support for wider variety of PI analysis than BIRD 223.1 scope
 - Arpad’s effort turned into a new PI proposal co-authored with Walter
 - Goal became to support everything in BIRD 223.1
 - Proposal and revisions were presented at every IBIS summit since May 2025.
- Summary of current status of BIRDS in discussion
 - Invitation to industry and members to contribute review and decision/votes on outcome
- Discussion

IBIS POWER INTEGRITY BIRDS: PIM BIRD AND UPDATED BIRD223.1

(Start 00:47:00, To 01:27:00 - *recording 1 of 3*)

Walter Katz, (The MathWorks, USA)

(Vice-Chair, IBIS Open Forum Committee)

[Presented by Walter Katz]

The presentation covered the following:

- PIM BIRD
 - Originally written as alternative to BIRD 223.1
- Updated BIRD 223.1
 - Introduced last week
 - Introduction to high level requirements of PI models for IBIS, EMD and other
- Major Differences between PIM BIRD and updated BIRD 223.1
- Next Steps
- Discussion

ACCELERATING IBIS & TOUCHSTONE SPECIFICATION FEATURE DEVELOPMENT WITH ANTLR

(Start 01:27:45, To 02:01:50 - *recording 1 of 3*)

Michael Mirmak, (Intel)

(Chair, IBIS Editorial Task Group)

[Presented by Michael Mirmak]

The presentation covered the following:

- IBIS Archeology: 1994 IBIS 2.0 BNF
- Issues with BNFs
- ANTLR (Another Tool for Language Recognition)
 - Structure and Capabilities
- Using LLMs[AI] to Generate ANTLR Input Files
- The Most Useful Applications [examples]
- Summary
- References
- Discussion

BREAK

MULTI-AGENT AI SYSTEMS FOR PCB & PACKAGE DESIGN AND VALIDATION

(Start 00:01:00, To 00:54:00 - *recording 2 of 3*)

Alex Manukovsky (Intel)

Joshua Nutzati (Intel)

Yuriy Shlepnev (Simberian)

Shweta Pujari (MathWorks)

Barry Katz (MathWorks)

[Presented by Alex Manukovsky & Joshua Nutzati]

The presentation covered the following:

- Basic Concepts
 - Personal Productivity vs. Enterprise Agentic System
 - AI Agents for Core Business for Enterprise
 - Agent Blueprint
 - Concept Arch
 - AI Agents and Product Design Life Cycle
- Towards LLM-Friendly Models and Documentation
 - PCB/Package Design Agent
 - Key Concepts & Examples
- Multi-agent System You Can Replicate
 - Multi-Agentic System for SI/PI
- Demo & Examples
 - PCB Signoff with Multi-Agentic System
 - Run Simulations with EDA tools
- Discussion

IBIS 8.0: SPECIFICATION AND PARSER INTRODUCTION

(Start 00:54:30, To 01:11:00 - *recording 2 of 3*)

Randy Wolff (Siemens EDA, USA)

(Treasurer, IBIS Committee and Chair, IBIS Quality Task Group)

The presentation covered the following:

- IBIS 8.0 Development Timeline
 - First IBIS 8.0 motion approving content June 21, 2024
 - Details regarding draft specifications
 - IBIS 8.0 approved December 5, 2025
- IBIS 8.0 Content
 - Included BIRDS and Approval Dates
 - Summary of each BIRD included in proposed IBIS 8.0 Specification
- IBISCHK8 Parser Coverage
 - BUGs filed against IBISCHK 7.2.1, with Severity, Priority, Status
- IBIS 8.0 and IBISCHK8 Parser – Next Steps
 - IBIS 8.0 specification available on IBIS website (<https://ibis.org/ver8.0/>)
 - Parser development can begin as soon as SAE ITC approves spending

BREAK

IBIS-AMI MODELLING METHODOLOGY FOR SIMULTANEOUS BI-DIRECTIONAL (SBD) DIE-TO-DIE CHIPLET CONNECTIVITY

(Start 00:00:25, To 00:41:15 - *recording 3 of 3*)

Arpit Kothari (Eliyan)

Mohammad Mahani (Eliyan)

Ali Khoshniat (Eliyan)

[Presented by Ali Khoshniat]

The presentation covered the following:

- Top Bottlenecks in AI Performance
- Die-to-Die Interfaces
- Uni-Directional vs. Simultaneous Bi-Directional Signaling
- SBD Architecture
- Echo Cancellation
- IBIS-AMI Modelling for SBD Signaling
- Simulation Details and Results
- Discussion

IBIS-AMI MODELING FOR BI-DIRECTIONAL D2D LINKS WITH CLOCK FORWARDING & ECHO CANCELLATION

(Start 00:41:30, To 01:08:15 - *recording 3 of 3*)

Steven Parker (Marvell)

(Webmaster, IBIS Open Forum Committee)

David Banas (Keysight)

Fangyi Rao (Keysight)

Foad Arvani (Marvell)

Mathew Kelly (Marvell)

John Ma (Marvell)

Reza Mirzaei Nejad (Marvell)

Davide Visani (Marvell)

[Presented by Steven Parker]

The presentation covered the following:

- Introduction
 - This work came out of joint development between Keysight and Marvell in development of a bi-directional D2D model
 - In order to create bandwidth densities, bi-directional signaling for D2D is seen as a way to double density at the expense of design complexity
 - This is an IBIS-AMI modeling centric paper abstracting away specific design details
 - It is intending to highlight modeling concepts important for bi-directional D2D (die to die) links and highlight some calls to action that may help the IBIS AMI specification evolve for this application
 - It is intended to demonstrate the concepts from a generic perspective
- Application
 - D2D System Application & Block Diagram
- Model Architecture
 - System diagram
 - IBIS AMI fundamentals and model parameters in use
- Simulation Results
 - Simulation EDA workspace example and results
- Calls for Action
 - Introduce new IBIS keyword to associate TX and RX pins of a bi-directional transceiver
 - Reserve 1st aggressor column of `impulse_matrix` for echo signal to enable RX AMI_Init to optimize Rx echo cancellation setting
- Discussion

BRIDGING THE GAP: CHANNEL OPERATING MARGIN (COM) AND IBIS-AMI FOR ANALYSIS AND DEVELOPMENT OF HIGH-SPEED SERDES DESIGNS

(Start 01:08:45, To 01:41:00 - *recording 3 of 3*)

Graham Kus (Signal Edge Solutions)

(Secretary, IBIS Open Forum Committee)

The presentation covered the following:

- In DOE efforts during system design, COM analysis has advantages over IBIS-AMI model sims
- Comparison is shown between COM and IBIS-AMI regarding compute execution performance
- System design can be accelerated combining COM-centric processes with IBIS-AMI capabilities
- Proposal for IBIS to provide and enforce existing IBIS IQ Quality Specification as a compliance or logo certification
- Discussion

OPEN DISCUSSION

(Start 01:41:00, To 01:55:15 - *recording 3 of 3*)

CLOSING REMARKS

(Start 01:55:30, To 01:57:00 *Note: end of recording 3*)

Closing remarks provided by summit moderators. Doug Burns thanked the attendees at the summit and thanked the IBIS summit sponsors for their support: Cadence, Intel, Keysight, MathWorks, Micron, Siemens EDA, and Synopsys.

The meeting was adjourned.

=====

NOTES

IBIS CHAIR: Douglas Burns

chair@ibis.org

CEO and Signal and Power Integrity Consultant, SI-Clarity, LLC.

IBIS VICE CHAIR: Walter Katz

walter.katz@MathWorks.com

IBIS-AMI Specialist at MathWorks

SECRETARY: Graham Kus

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Principal Signal and Power Integrity Engineer

SOCIAL MEDIA CHAIR: Edna Moreno

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Signal Integrity Engineer, Synopsys

TREASURER: Randy Wolff
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Product Architect, Siemens EDA

LIBRARIAN: Zhiping Yang
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CEO, PCB Automation

WEBMASTER: Steven Parker
sparker@marvell.com
Senior Staff Manager, Architecture DSP at Marvell

POSTMASTER: Curtis Clark
curtis.clark@ansys.com
Synopsis

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 or unsubscribe from the official ibis@freelists.org and/or ibis-users@freelists.org email lists (formerly ibis@eda.org and 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, ibis-interconn@freelists.org, ibis-editorial@freelists.org, or 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

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>

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

Organization	Interest Category	Standards Ballot Voting Status	Dec 5, 2025	Jan 16, 2026	Feb 6, 2026	Feb 27, 2026
Altair	User	Inactive	-	-	-	-
AMD (Xilinx)	Producer	Inactive	-	-	-	-
Analog Devices	Producer	Inactive	-	-	-	-
Applied Simulation Technology	User	Inactive	-	-	-	-
arm	Producer	Inactive	-	-	-	X
Aurora System	User	Inactive	-	-	-	-
Broadcom Ltd.	Producer	Inactive	-	-	-	-
Cadence Design Systems	User	Active	-	X	X	X
Ciena	User	Inactive	-	-	-	-
Cisco	User	Inactive	-	-	-	-
Dassault Systems	User	Inactive	-	-	-	-
GE Healthcare Technologies	User	Inactive	-	-	-	-
Google	User	Inactive	-	-	-	-
Huawei Technologies	Producer	Inactive	-	-	-	-
Infineon Technologies AG	Producer	Inactive	-	-	-	-
Intel Corp.	Producer	Active	X	X	-	X
Keysight Technologies	User	Active	-	X	X	X
Marvell	Producer	Active	X	-	X	X
MathWorks	User	Active	X	X	X	X
Micron Technology	Producer	Active	-	X	X	-
MST EMC Lab	User	Active	X	-	X	X
Nvidia	Producer	Inactive	-	-	-	X
SI-Clarity	User	Active	X	X	-	X
Siemens EDA	User	Active	X	X	X	X
Signal Edge Solutions	User	Active	X	X	X	X
STMicroelectronics	User	Inactive	-	-	-	X
Synopsys	User	Active	X	X	X	X
ZTE Corp.	User	Inactive	-	-	-	-
Zuken	User	Inactive	-	X	-	-

N/A = 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.