IBIS Chair’s Report

Randy Wolff
Micron Technology
Chair, IBIS Open Forum

Virtual IBIS Summit at IEEE SPI 2022
May 26, 2022
29 IBIS Members (Organization-based)
IBIS Officers June 2021- May 2022

Chair: Randy Wolff, Micron Technology
Vice-Chair: Lance Wang, Zuken USA
Secretary: Mike LaBonte, MathWorks
Treasurer: Bob Ross, Teraspeed Labs
Librarian: Zhiping Yang, Waymo
Postmaster: Curtis Clark, ANSYS
Webmaster: Steve Parker, Marvell

• Currently in the election process for new officers for 2022
  • Nominations accepted through May 31
  • Actively seeking nomination for Secretary role
IBIS Meetings

• Weekly teleconferences
  • Quality task group (Tuesdays, 09:00 PT)
  • Advanced Technology Modeling (ATM) task group (Tuesdays, 12:00 PT)
  • Interconnect task group (Wednesdays, 08:00 PT)
  • Editorial task group (suspended)

• IBIS Open Forum teleconference every 3 weeks (Fridays, 08:00 PT)

• IBIS Summit meetings (USA and international)
  • DesignCon, IEEE SPI, IEEE EMC+SIPI, Shanghai, Taipei, Tokyo (JEITA-organized)

• Participants: ~275 in 2021
SAE ITC

• SAE Industry Technologies Consortia is the parent organization of the IBIS Open Forum
• IBIS is assisted by SAE employees José Godoy, Phyllis Gross, and Laurie Strom
• SAE ITC provides financial, legal, and other services
• https://www.sae-itc.com/
Task Groups

• Advanced Technology Modeling Task Group
  • Chair: Arpad Muranyi, Siemens EDA
  • https://ibis.org/atm_wip/
  • Develop non-interconnect technical BIRDs

• Editorial Task Group
  • Chair: Michael Mirmak, Intel
  • https://ibis.org/editorial_wip/
  • Produce IBIS specification documents

• Interconnect Task Group
  • Chair: Michael Mirmak, Intel
  • https://ibis.org/interconn_wip/
  • Develop on-die/package/module/connector interconnect modeling BIRDs

• Quality Task Group
  • Chair: Mike LaBonte, MathWorks
  • https://ibis.org/quality_wip/
  • Oversee IBISCHK parser testing and development

BIRD = Buffer Issue Resolution Document
IBIS Milestones

I/O Buffer Information Specification

• 1993-1994 **IBIS 1.0-2.1:**
  • Behavioral buffer model (fast simulation)
  • Component pin map (easy EDA import)

• 1997-1999 **IBIS 3.0-3.2:**
  • Package models
  • Electrical Board Description (EBD)

• 2002-2006 **IBIS 4.0-4.2:**
  • Receiver models
  • AMS languages

• 2007-2012 **IBIS 5.0-5.1:**
  • IBIS-AMI SerDes models
  • Power-aware model

• 2013-2015 **IBIS 6.0-6.1:**
  • PAM4 multi-level signaling
  • Power delivery package models

• 2019 **IBIS 7.0:**
  • Back-channel time-domain support
  • Interconnect modeling using IBIS-ISS and Touchstone

• 2021 **IBIS 7.1:**
  • DDRx IBIS-AMI support
  • Electrical Module Description (EMD)
  • IBIS-AMI back-channel statistical optimization

Other Work

• 1995: **ANSI/EIA-656 (IBIS 2.1 International standard)**
• 1999: **ANSI/EIA-656-A (IBIS 3.2 International standard)**
• 2001: **IEC 62014-1 (IBIS 3.2 International standard)**
• 2003: **Interconnect Model Specification (ICM 1.0)**
• 2006: **ANSI/EIA-656-B (IBIS 4.2 International standard)**
• 2009: **Touchstone 2.0**
  • Official Touchstone donated from Agilent/Keysight
• 2011: **IBIS-ISS 1.0 (Interconnect SPICE Subcircuit)**
  • Subset of HSPICE

**IBISCHK:** IBIS file syntax parser
  • Current version 7.1.0
  • Source code available for purchase
  • Compiled executables available free of charge

**TSCHK2:** Touchstone 2.0 file syntax parser
  • Current version 2.0.1
  • Source code available for purchase
  • Compiled executables available free of charge
Planning for IBIS Version 7.2

Current unofficial BIRD content for IBIS 7.2

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<th>BIRD ID</th>
<th>BIRD Title</th>
<th>Approval Date</th>
<th>Notes</th>
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<td>IBIS AMI Reference Flow Improvements</td>
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• Major technical changes are IBIS-AMI focused:
  • PAMn
  • Redriver simulation flow fixes

• Will fix many editorial issues in IBIS 7.1
What’s Next for IBIS?

• IBIS Open Forum’s highly collaborative task groups are up for the challenge of addressing the SI and PI demands of new signaling technologies:
  • Expanded system-level perspective
    • Clock/data relationships, timing information, equalization training
  • Power Integrity focused modeling
    • Improved Power Supply Induced Jitter modeling
    • Diode and inductor models
    • Voltage regulator models
    • Chip-level Standard Power Integrity Model (SPIM)
  • 112Gbps SerDes and beyond
  • Interconnect Modeling
    • Touchstone 3.0
    • Pole/Residue support
    • Port naming
    • IBIS-ISS expansions
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
  • IBIS Board and task group volunteering
• Writing BIRDs – Buffer Issue Resolution Documents
  • Official method for submitting a proposed change to the IBIS specification
  • Many developed collaboratively in task groups
  • Discussed and voted on in Open Forum meetings
IBIS Website Resources

- IBIS Summits
- Task Group Info
- Spec documents
- BIRDs List
- Email support
- Syntax Parser
- Downloads
[Thank You]

IBIS Open Forum:
Web: https://ibis.org
Email: info@ibis.org

We welcome participation
by all IBIS model makers,
EDA tool vendors, IBIS model
users, and interested parties.