

# EIA IBIS Open Forum Minutes

Meeting Date: **February 1, 2008**

## **GEIA STANDARDS BALLOT VOTING STATUS**

See last page of the minutes for the voting status of all member companies.

## **VOTING MEMBERS AND 2008 PARTICIPANTS**

Agilent	(Sanjeev Gupta)
AMD	Nam Nguyen*
Ansoft Corporation	(Michael Brenneman)
Apple Computer	(Bill Cornelius)
Applied Simulation Technology	(Fred Balistreri)
ARM	(Nirav Patel)
Cadence Design Systems	Terry Jernberg*, Hemant Shah, Ambrish Varma
Cisco Systems	Syed Huq*, Mike LaBonte*
Ericsson	Anders Ekholm*
Freescale	(Jon Burnett)
Green Streak Programs	(Lynne Green)
Hitachi ULSI Systems	(Kazuyoshi Shoji)
Huawei Technologies	Tao Guan*
IBM	Adge Hawes*
Intel Corporation	Michael Mirmak*
IO Methodology	Lance Wang*
LSI	[Frank Gasparik], Brian Burdick*
Mentor Graphics	Arpad Muranyi*
Micron Technology	Randy Wolff
Nokia Siemens Networks GmbH	Eckhard Lenski
Panasonic	(Atsuji Ito)
Samtec	(Corey Kimble)
Signal Integrity Software	Mike Steinberger, Walter Katz, Todd Westerhoff*
Sigrity	(Raymond Chen)
STMicroelectronics	(Anil Kalra)
Synopsys	(Andy Tai)
Teraspeed Consulting Group	Bob Ross*
Texas Instruments	(Stephen Spencer)
Toshiba	(Yasumasa Kondo)
Xilinx	David Banas*
ZTE	(Ying Xiong)
Zuken	(Michael Schaefer)

## **OTHER PARTICIPANTS IN 2008**

GEIA	(Chris Denham)
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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	Telephone Number	Meeting ID
February 7, 2008	-- IBIS Summit at DesignCon; no teleconference --	
February 22, 2008	1-866-432-9903	1-2192-6609

All meetings are 8:00 AM to 9:55 AM 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. When calling into the meeting, press 1 to attend the meeting, then follow the prompts to enter the meeting ID. For new, local international dial-in numbers, please reference the bridge numbers provided by Cisco Systems at the following link:

[http://www.cisco.com/web/about/doing\\_business/conferencing/index.html](http://www.cisco.com/web/about/doing_business/conferencing/index.html)

NOTE: "AR" = Action Required.

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## **INTRODUCTIONS AND MEETING QUORUM**

No new participants.

## **CALL FOR PATENTS**

Michael Mirmak called for any patents or pending patents related to the IBIS Version 3.2, 4.0, 4.1, 4.2, or ICM 1.1 specifications. No patents were declared.

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

Bob Ross stated that the IBIS organization shows a profit for 2007 of approximately \$1400, which will be applied to DesignCon expenses. An additional \$500 could potentially be added to the official income statements.

Michael Mirmak noted that the organization finished the year with 32 members.

## **REVIEW OF MINUTES AND ARS**

Michael Mirmak called for comment regarding the minutes of the January 11, 2008 IBIS Open Forum teleconference. The minutes were approved without changes.

## **WEB PAGE UPDATES**

Syed Huq reported that the "Upcoming Events" page on the eigroup.org site will be changed, with updated files having already been submitted to the GEIA. Corrections include changing the DATE date to Friday, March 14.

## **MAILING LIST ADMINISTRATION**

Bob Ross reported that everything is running normally and that Lance Wang's address issues had been corrected with eda.org system administrators.

## **MODEL LIBRARY UPDATE**

No update.

## **PRESS UPDATE**

Bob Ross reported that an EE Times article by Rick Merritt on DesignCon mentioned IBIS-AMI efforts. The article can be viewed through the following link (IBIS is discussed on the second page):

<http://www.eetimes.com/showArticle.jhtml?articleID=206100020>

## **MISCELLANY/ANNOUNCEMENTS**

None.

## **OPENS FOR NEW ISSUES**

Bob Ross requested that the status of S2IBIS3 be discussed, in light of Paul Franzon's recent e-mail messages. Bob also requested a report on the status of the GEIA/ITAA merger.

Michael Mirmak reported on GEIA's status. At present, GEIA is scheduled to merge with the ITAA (Information Technology Association of America) before early April of this year. This may have an impact on the rules under which IBIS operates. Updates will be provided to the IBIS Open Forum on a regular basis. A press release on the merger can be found at the link below.

[https://www.geia.org/GEIA/files/ccLibraryFiles/Filename/000000003696/1-21-08\\_ITAA-GEIA\\_Final.pdf?ecf34Msi=444&emi8s9Kj=24196](https://www.geia.org/GEIA/files/ccLibraryFiles/Filename/000000003696/1-21-08_ITAA-GEIA_Final.pdf?ecf34Msi=444&emi8s9Kj=24196)

## **INTERNATIONAL/EXTERNAL PROGRESS**

- DASC

No update. The DASC website may be found at:

<http://www.dasc.org/>

- P1735 Encryption

No update. The IEEE DASC Study Group on Encryption web site is found at:

<http://www.eda-stds.org/ip-encrypt/hm/>

Bob Ross noted that the call for participation went out for the IEEE Workshop on Signal Propagation on Interconnects (SPI). The conference is in Avignon, France, May 12-15, 2008. IBIS material is sometimes discussed at this conference. More information can be found at:

<http://spi.univ-brest.fr>

## **IEC APPROVAL ACTIVITIES**

No updates.

## **SUMMIT STATUS**

### **- Design Con Planning**

DesignCon 2008 will be held February 4-7, 2008 at the Santa Clara convention center. The IBIS Summit is scheduled for Thursday, February 7, 2008. The summit is being held in the Great America ballroom of the convention center. The IBIS booth is #857. Bob Ross and Michael Mirmak noted that the conference agenda is full, and that registrations stand at 65, with more expected. Cisco is officially sponsoring this summit.

### **- DATE Planning**

The DATE conference will be in Munich, Germany March 10-14, 2008. The Summit is scheduled for Friday, March 14 (this is a change from previous announcements). An initial call for participation has been issued by Eckhard Lenski of Nokia-Siemens Networks. Co-sponsors of the event include Agilent, Infineon, Sigrity, Zuken and Nokia Siemens Networks.

### **- Asian Summits Planning**

Bob Ross noted that planning is in progress for events in China and Japan. Five companies are interested so far for a conference in Taipei, Taiwan.

Sponsorship opportunities for the DATE IBIS summit are still available, with sponsors receiving free mentions in the minutes, agenda, and other announcements. Contact the IBIS Board for further details.

## **IBIS QUALITY TASK GROUP**

David Banas reported that the group discussed proper interpretations of the Vinh and Vinl subparameters, particularly in light of their usage under [Model Spec]. He stated that a BIRD may be filed by the Quality Task Group to clarify the meaning of these subparameters, and requested further discussion during the technical portion of the Open Forum teleconference.

The Quality Task Group checklist and other documentation can be found at:

[http://www.eda-stds.org/ibis/quality\\_wip/](http://www.eda-stds.org/ibis/quality_wip/)

## **IBIS MODEL REVIEW TASK GROUP**

Lynne Green provided a report via e-mail. Eight models have been distributed for review, with some additional models having been received but not yet distributed.

## **ADVANCED TECHNOLOGY MODELING TASK GROUP**

Arpad Muranyi reported that the group continues its discussions of differential keyword improvements. An overview of proposals for linking to ICM was held during the last meeting. Cadence has released an updated version of their AMI toolkit, announced on the ATM reflector.

Task group material can be found at:

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

## **AD HOC TASK GROUPS (INTERCONNECT)**

Michael Mirmak reported that the most recent meeting was held on January 30. The group reviewed additional changes to the Touchstone 2.0 specification (discussed below) and continued revising the draft BIRD for linking ICM to IBIS for package modeling. Task group material can be found at:

<http://www.eda.org/ibis/adhoc/interconnect/>

## **NEW ISSUES**

Bob Ross noted that Paul Franzon of North Carolina State had issued a request for letters in support of a US National Science Foundation grant proposal. This proposal was explicitly linked to the SPICE-to-IBIS (S2IBIS3) tool. Syed Huq inquired whether this would include post-release support, the area where most questions regarding S2IBIS3 seem to be generated. Lance Wang observed that the NSF proposal was intended for development of a "next generation" version of the tool, while IO Methodology would continue providing free support for the existing S2IBIS3, plus adding new features within the current IBIS standard. Michael will arrange for Paul or a representative to attend the next IBIS Open Forum teleconference, to discuss the issue in detail.

## **TOUCHSTONE 2.0**

Michael Mirmak announced the third call for comments on the proposed specification. He summarized the addition of [Two-Port Data Ordering], per text submitted by Bob Ross, to address the unusual ordering of S12 and S21 in 2-port network data under the original Touchstone specification. The new keyword explicitly defines the data ordering in cases where [Number of Ports] is 2, so that either the original ordering (S11, S21, S12, S22) or the more "natural" ordering (S11, S12, S21, S22) could be used.

Arpad Muranyi suggested that this keyword be made a subparameter, perhaps part of [Number of Ports] or another keyword. Bob Ross responded that this would have meant defining

subparameter relationships and a hierarchy for Touchstone 2.0, which would have added complexity to the specification.

Bob suggested a number of alterations to the existing document:

- add [Two Port Data Ordering] to the new keywords list in the introduction
- replace “should” with “must” under the [Version] keyword description
- noise parameters should be explained as only applying to two port networks on page 16

Bob also noted some confusion regarding whether noise parameters were permitted in files containing network data for more than two ports. This is implied on page 17 of the current draft, but is not explicitly stated. If more than two ports are described in the network data sets earlier in the file, the association of noise parameters with particular ports becomes ambiguous. The Ad Hoc Interconnect team will resolve the issue and provide an updated document.

Arpad also mentioned that the page numbering text appears to leave additional margin space unused at the bottom of each page. This will vanish once markup viewing is turned off.

#### **IBISCHK4 BUG STATUS**

Two new BUG reports have been filed: BUG99, Misleading Text in [Node Declarations] Error Message; and BUG100, Incorrect Ordering of [Circuit Call].

Arpad Muranyi summarized BUG99. If an unconnected node is defined in an IBIS file using [Circuit Call] and associated keywords, the resulting error message misidentifies the issue as being a mismatch between analog and digital nodes. Michael Mirmak mentioned that the test case is ambiguous on several levels, because a clear connection between the [Pin] list pins and the [Circuit Call] definitions is not made (i.e., Signal\_pin is never used). Bob Ross noted that this is not necessarily an issue, as IBIS 4.1 permits ambiguous connections due to the lack of an updated package specification at the time the document was approved. Bob also asked for the name of the test case IBIS file to be changed, for addition to the parser quality assurance test suite. Arpad will revise the test case for these issues. The team classified the BUG as “annoying” and “low” in priority, but to be fixed in the next parser release.

Michael Mirmak summarized BUG100. The parser reports errors depending on the ordering of the [Circuit Call], [External Circuit] and [Node Declarations] keywords. Michael explained that the text of the IBIS specification did not explicitly define the ordering for the keywords relative to one another. Bob Ross responded that the tree hierarchy diagram did make the ordering explicit, and the parser’s behavior was consistent with the diagram. The team agreed to classify the issue as “not a bug” and close it. However, a BIRD may be required to clarify the relationships in the specification text.

The BUG report list is available at the link below:

<http://www.eda.org/ibis/bugs/ibischk/>

#### **ICMCHK1 BUG STATUS**

Michael Mirmak reported that there is one BUG, but it will not be fixed until the next version of

the parser. The next release of the parser will come out once IIRD9 is closed.

## **NEW TECHNICAL ISSUES**

David Banas summarized the current questions regarding Vinh and Vinl parameters. At present, Vinh and Vinl are interpreted to be the absolute worst-case switching thresholds over process, voltage and temperature variations for the device. Yet, at least one example model provided to the Quality Task Group shows [Model Spec] values that are lower than Vinl and higher than Vinh. Currently, David is assuming that the [Model] Vinh and Vinl subparameters are the worst-case for any combination of conditions, while [Model Spec] enables reduction of model conservatism when power supply information is available. David requested confirmation of these assumptions and clarification on the appropriate usage of Vinh and Vinl.

Arpad Muranyi stated that, as one of the original authors of the input thresholds portion of the specification, that the assumptions of the document were not as sophisticated as David assumed. The document was simply mimicking existing databook component specifications at that time. Michael Mirmak added that the [Model] Vinh and Vinl subparameters should be completely ignored – and are rendered meaningless – when [Model Spec] is present with the Vinh and Vinl subparameters, as the specification now states. Bob Ross observed that [Model Spec] was created to implicitly link input thresholds to power supply variations, when formula-based thresholds were not possible in IBIS. Michael suggested that the specification does not state this link in the text, suggesting that the thresholds could still vary across typ, min and max IBIS corners when the IBIS [Model] voltage and temperature parameters were identical across all three. This would imply a process-only dependency is possible using the current syntax. Mike LaBonte noted that the specification text is unclear on whether Vinh and Vinl under [Model] are “required” or “optional” as both terms are used in separate areas, and specific values are given as “assumed” in yet another area of the document.

The Quality Task Group will take up the issue with these clarifications in mind, and may develop a BIRD to correct the IBIS specification text, for consideration by the Open Forum.

## **NEXT MEETING**

The next IBIS Summit will take place at DesignCon on February 7, 2008. No teleconference has been arranged for the meeting. The next IBIS Open Forum teleconference will be held February 22, 2008 from 8:00 AM to 10:00 AM US Pacific Time.

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## **NOTES**

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This meeting was conducted in accordance with the GEIA Legal Guides and GEIA Manual of Organization and Procedure.

The following e-mail addresses are used:

[majordomo@eda-stds.org](mailto:majordomo@eda-stds.org)

In the body, for the IBIS Open Forum Reflector:  
subscribe ibis <your e-mail address>

In the body, for the IBIS Users' Group Reflector:  
subscribe ibis-users <your e-mail address>

Help and other commands:  
help



[ibis-request@eda-stds.org](mailto:ibis-request@eda-stds.org)

To join, change, or drop from either or both:  
IBIS Open Forum Reflector ([ibis@eda-stds.org](mailto:ibis@eda-stds.org))  
IBIS Users' Group Reflector ([ibis-users@eda-stds.org](mailto:ibis-users@eda-stds.org))  
State your request.

[ibis-info@eda-stds.org](mailto:ibis-info@eda-stds.org)

To obtain general information about IBIS, to ask specific questions for individual response, and to inquire about joining the EIA-IBIS Open Forum as a full Member.

[ibis@eda-stds.org](mailto:ibis@eda-stds.org)

To send a message to the general IBIS Open Forum Reflector. This is used mostly for IBIS Standardization business and future IBIS technical enhancements. Job posting information is not permitted.

[ibis-users@eda-stds.org](mailto:ibis-users@eda-stds.org)

To send a message to the IBIS Users' Group Reflector. This is used mostly for IBIS clarification, current modeling issues, and general user concerns. Job posting information is not permitted.

[ibis-bug@eda-stds.org](mailto:ibis-bug@eda-stds.org)

To report ibischk parser BUGs. The BUG Report Form resides along with reported BUGs at:

<http://www.eda-stds.org/ibis/bugs/ibischk/>  
<http://www.eda-stds.org/ibis/bugs/ibischk/bugform.txt>

[icm-bug@eda-stds.org](mailto:icm-bug@eda-stds.org)

To report icmchk1 parser BUGs. The BUG Report Form resides along with reported BUGs at:

[http://www.eda-stds.org/ibis/icm\\_bugs/](http://www.eda-stds.org/ibis/icm_bugs/)  
[http://www.eda-stds.org/ibis/icm\\_bugs/icm\\_bugform.txt](http://www.eda-stds.org/ibis/icm_bugs/icm_bugform.txt)

To report s2ibis, s2ibis2 and s2iplt bugs, use the Bug Report Forms which reside at:

<http://www.eda-stds.org/ibis/bugs/s2ibis/bugs2i.txt>  
<http://www.eda-stds.org/ibis/bugs/s2ibis2/bugs2i2.txt>  
<http://www.eda-stds.org/ibis/bugs/s2iplt/bugspl.txt>

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

<http://www.eigroup.org/ibis/ibis.htm>

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

results:

<http://www.eda-stds.org/ibis/directory.html>

\* Other names and brands may be claimed as the property of others.

## GEIA STANDARDS BALLOT VOTING STATUS

### I/O Buffer Information Specification Committee (IBIS)

Organization	Interest Category	Standards Ballot Voting Status	November 30, 2007	December 21, 2007	January 11, 2008	February 1, 2008
Advanced Micro Devices	Producer	Active	√	√		√
Agilent Technologies	User	Inactive	√			
Ansoft	User	Inactive				
Apple Computer	User	Inactive				
Applied Simulation Technology	User	Inactive				
ARM	Producer	Inactive				
Cadence Design Systems	User	Active	√		√	√
Cisco Systems	User	Active	√	√	√	√
Ericsson	Producer	Active	√	√	√	√
Freescale	Producer	Inactive				
Green Streak Programs	General Interest	Inactive				
Hitachi ULSI Systems	Producer	Inactive				
Huawei	User	Inactive		√		√
IBM	Producer	Active	√		√	√
Intel Corp.	Producer	Active	√	√	√	√
IO Methodology	User	Active	√	√	√	√
LSI	Producer	Active	√	√	√	√
Mentor Graphics	User	Active	√	√	√	√
Micron Technology	Producer	Active		√	√	
Nokia Siemens Networks	Producer	Inactive	√	√		
Panasonic	Producer	Inactive				
Samtec	Producer	Inactive				
Signal Integrity Software	User	Active	√	√	√	√
Sigrity	User	Inactive	√			
STMicroelectronics	Producer	Inactive	√			
Synopsys	User	Inactive				
Teraspeed Consulting	General Interest	Active	√	√	√	√
Texas Instruments	Producer	Inactive				
Toshiba	Producer	Inactive				
Xilinx	Producer	Inactive	√			√
ZTE	User	Inactive				
Zuken GmbH	User	Inactive				

#### CRITERIA FOR 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 GEIA 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.