

# EIA IBIS Open Forum Minutes

Meeting Date: **April 20, 2007**

## GEIA STANDARDS BALLOT VOTING STATUS

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

## VOTING MEMBERS AND 2007 PARTICIPANTS

|                                  |   |
|----------------------------------|---|
| Actel                            | (Prabhu Mohan)  |
| Agere                            | (Nirav Patel)   |
| Agilent                          | Radek Biernacki, Saliou Dieye, Riccardo Giacometti  |
| AMD                              | Nam Nguyen*, Tadashi Arai   |
| Ansoft Corporation               | (Michael Brenneman)   |
| Apache Design Solutions          | (Ji Zheng)  |
| Applied Simulation Technology    | (Fred Balistreri)   |
| Apple Computer                   | (Bill Cornelius)  |
| Cadence Design Systems           | Lance Wang, C. Kumar, Hemant Shah,<br>Patrick dos Santos  |
| Cisco Systems                    | Syed Huq*, Tram Bui, AbdulRahman Rafiq,<br>Huyen Pham, Darja Padilla, Mike LaBonte*,<br>Paul Ruddy, Gurpreet Hundal, Luis Boluna,<br>Ehsan Kabir, Jehyoung Lee, Susmita Mutsuddy,<br>Eddie Wu |
| Ericsson                         | Anders Ekholm*, Ole Segtum  |
| Fluent                           | (Chetan Desai)  |
| Freescale                        | Jon Burnett   |
| Green Streak Programs            | Lynne Green   |
| Hitachi ULSI Systems             | Kazuyoshi Shoji   |
| Huawei Technologies              | ChunXing Huang, Bob He  |
| Integrated Circuit Systems (ICS) | (Dan Clementi)  |
| Intel Corporation                | Michael Mirmak*, Arpad Muranyi*   |
| LSI Logic                        | Frank Gasparik, Kim Helliwell, Dinh Tran,<br>Praveen Soora  |
| Mentor Graphics                  | John Angulo*, Ian Dodd, Eric Rongere,<br>Stephane Rousseau  |
| Micron Technology                | Randy Wolff*, Pavani Jella  |
| NEC Electronics Corporation      | Hock Seow, Huy Tran   |
| Nokia Siemens Networks GmbH[1]   | Eckhard Lenski*, Flavio Maggioni, Roberto Preatoni,<br>Umberto Gatti, Massimo Ceppi   |
| Panasonic                        | (Atsuji Ito)  |
| Samtec                           | (Corey Kimble)  |
| Siemens AG [1]                   | [Eckhard Lenski], Manfred Maurer  |
| Signal Integrity Software        | Barry Katz, Douglas Burns, Mike Steinberger,<br>Walter Katz, Todd Westerhoff  |

|                            |   |
|----------------------------|---|
| Sigrity                    | Sam Chitwood, Sandy Dung                              |
| Silego                     | (Joe Froniewski)                                      |
| STMicroelectronics         | Antonio Girardi*, Giacomo Bernardi*,<br>Roberto Izzi* |
| Synopsys                   | Ted Mido  |
| Teraspeed Consulting Group | Bob Ross*, Tom Dagostino                              |
| Texas Instruments          | Otis Gorley, Richard Ward, Bonnie Baker               |
| Toshiba                    | (Yasumasa Kondo)                                      |
| Xilinx                     | Bruce Bandeli, David Banas                            |
| ZTE                        | (Shunlin Zhu)   |
| Zuken                      | Michael Schaefer, Ralf Bruening                       |

[1] Nokia Siemens Networks is a new company formed by the merger with a former group at Siemens active with the IBIS Committee. Both companies are temporarily carried as voting members until the official membership and voting status is resolved.

#### **OTHER PARTICIPANTS IN 2007**

|   |  |
|---|--|
| 74ze Engineering                                | Linc Jepson                                  |
| Altera  | Hui Liu, Zhe Lin, Ravindra Gali, Salman Jiva |
| Applied Telisis, Inc. (ATI)                     | Vladimar Mandrusov                           |
| Cavium Networks                                 | Johann Nittmann*                             |
| ChipX   | Jay Hidy, Oren Dvir                          |
| Cybernet Systems                                | Kazuhiki Kusunoki                            |
| EFM   | Ekkehard Miersch                             |
| Enterasys                                       | Robert Haller                                |
| Extreme Networks                                | Kevin Ko                                     |
| Force10 Networks                                | Robert Badal                                 |
| GEIA  | (Chris Denham)                               |
| Hewlett Packard                                 | Shafiq Rahman                                |
| IBM   | Michael Sorna, Adge Hawes                    |
| Infineon  | Christian Sporrer                            |
| Leventhal Design                                | Roy Leventhal                                |
| Lynguent  | Andrew Levy                                  |
| National Institute of Applied<br>Science (INSA) | Etienne Sicard                               |
| National Instruments                            | Lee Maixman                                  |
| Netlogic  | Eric Hsu                                     |
| NESA  | Edward Sayre                                 |
| Nuova Systems                                   | Zhiping Yang, Lin Shen                       |
| NXP   | H N Sudarshan                                |
| Optimal Corporation                             | Marc Kowalski                                |
| Politecnico di Torino                           | Igor Stievano, Michelangelo Bandinu          |
| Renesas Technology                              | Takuji Komeda                                |
| Samsung   | Sang-Soo Park                                |
| Sedona International                            | Joe Socha                                    |
| Sun Microelectronics                            | Leon Yang                                    |

Tiburon Design Automation  
White Electronics Designs  
Xyratex

Patirick Challacn  
John Perez  
Paul Levin, Joseph Chan

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 | Bridge # | Passcode |
|--------------|------------------|----------|----------|
| May 11, 2007 | 1-916-356-2663   | 3        | 349-0512 |

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, provide the bridge number and passcode at the automated prompts. If asked by an operator, please request to join the IBIS Open Forum hosted by Michael Mirmak. For international dial-in numbers, please contact Michael Mirmak.

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**

Michael Mirmak reported that we have a new list of companies who have completed their renewals. We have 14 paid members so far. We received a new parser payment this year. Financials look good.

## **REVIEW OF MINUTES AND ARS**

Michael Mirmak reviewed the minutes of the March 30, 2007 IBIS Open Forum teleconference. The minutes were approved with no changes.

## **WEB PAGE UPDATES**

Michael Mirmak reported for Syed Huq that the events page was updated and some small

changes were made to the FAQ page.

### **MAILING LIST ADMINISTRATION**

Bob Ross reported that the list is running normally. Mike LaBonte asked why some emails have the IBIS trailer on how to subscribe, and some do not. It looks like HTML format in emails is not handled correctly by the mail formatter. Bob recommends that people send messages to the mailing list in plain text format. Bob also suggested we write up a set of IBIS guidelines for things such as the mailing list to post on the website.

### **NEW MODELS AVAILABLE, LIBRARY UPDATE**

No update.

### **PRESS UPDATE**

Bob Ross reported that there was some discussion on the SI reflector about timing and jitter. It related to an e-book from Cypress Semiconductor in which chapter 10 includes a lot of IBIS information. The e-book is entitled "Perfect Timing II: A Design Guide for Clock Generation and Distribution" and can be found at the following link:

[http://download.cypress.com.edgesuite.net/design\\_resources/application\\_notes/contents/perfect\\_timing\\_ii\\_12.pdf](http://download.cypress.com.edgesuite.net/design_resources/application_notes/contents/perfect_timing_ii_12.pdf)

### **MISCELLANY/ANNOUNCEMENTS**

Michael Mirmak announced that our board member Lance Wang had a change in company association. He is now with IO Methodology, Inc. His contact information has been updated on the website.

It was also noted that there was a change to the Siemens communications division. It is now called Nokia Siemens Networks. Bob Ross said that we need to decide who the main company is for the IBIS contact. Eckhard Lenski and Manfred Maurer will have to decide on this.

### **OPENS FOR NEW ISSUES**

Roy Leventhal would like to make a presentation about IBIS Quality. Bob Ross asked if Roy should present this at an IBIS Open Forum teleconference or at a Quality committee meeting. Michael Mirmak plans to schedule this for an upcoming IBIS Open Forum meeting.

Bob Ross reminded the officers that they need to resolve the BIRD proposal from Sudarshan Honnudike at NXP. It needs to be processed formally as a BIRD or brought into a committee. Michael Mirmak said we should ask for a revised version before discussing it in the Open Forum.

### **INTERNATIONAL/EXTERNAL PROGRESS**

Several upcoming conferences of interest to IBIS members include:

SSP, the IEEE Statistical Signal Processing Workshop held August 26-29, 2007 in Madison, WI. The deadline for paper submissions has passed. More information can be found at:

<http://ssp07.org/>

SPI, the IEEE Workshop on Signal Propagation on Interconnects held May 13-16, 2007 in Genoa, Italy. The deadline for paper submissions has passed. More information can be found at:

<http://www.spi.uni-hannover.de/>

IMS 2007, the IEEE MTT-S International Microwave Symposium held June 3-7, 2007 in Honolulu, Hawaii. The paper deadline has passed. More information can be found at:

<http://www.ims2007.org/>

## **EIA/ANSI APPROVAL ACTIVITIES**

Randy Wolff mentioned that he needs to contact GEIA to find out when they will have the new IBIS 4.2 specification available that includes the ANSI logo. The specification is now officially labeled as ANSI/EIA-656-B.

Michael Mirmak said that the US representative to the IEC is Alex Zamfirescu. Michael will contact him about the IEC approval process.

## **SUMMITS**

### **- DATE REVIEW**

The Date summit was held Thursday, April 19. Agilent, Cadence, Mentor, and Zuken were co-sponsors. Anders Eckholm said that there were 22 participants, more than expected, including several new participants. The meeting was short, but there were long and productive discussions. Bob Ross mentioned that there were seven presentations. All are uploaded on the IBIS Summit website. Bob asked Eckhard Lenski to help obtain the attendance list from Ralf Bruening. Michael Mirmak suggested we send a note to the reflector with a link to the presentations.

### **- DAC**

DAC is being held June 4-8, 2007 in San Diego, California. Tuesday, June 5 is scheduled for the summit. There will be an all-day summit. John Angulo has a confirmed room, Gallery A/B. This is across the street from the Omni hotel. He is making A/V and refreshment arrangements. The first call for papers has been sent out. The second announcement will go out next week. Bob Ross mentioned that we need to find out if the existing officers are willing to continue next year, as this meeting will include the officer elections.

### **- Asia Events**

Two events are planned for Tokyo and Beijing in September. Tuesday, September 11 will be the China meeting in Beijing. The Park Plaza Science Park hotel is reserved. Friday, September 14 will be the Tokyo meeting at JEITA headquarters. A call for papers will be sent out in about a month. Official sponsors so far of the China summit are Huawei Technologies, Ansoft, Cadence, Intel, Mentor Graphics, Sigrity, SiSoft, Synopsys and ZTE Corporation. The official sponsor of the Japan summit is JEITA with others to be determined.

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

### **IBIS QUALITY TASK GROUP**

Mike LaBonte reported that the group has continued to meet weekly. They have been putting a new draft of the Quality document on the website each week. They are up to check 3.2.5 in the document and making progress. Michael Mirmak asked if the group could present a detailed summary of some of their work in an upcoming teleconference. Mike LaBonte will talk offline with Michael Mirmak about scheduling this.

The link to the quality task group checklist is at:

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

### **IBIS MODEL REVIEW TASK GROUP**

No report.

### **ADVANCED TECHNOLOGY MODELING TASK GROUP**

Arpad Muranyi reported that the last meeting was two weeks ago and the group is making progress. They reviewed concepts in great detail, and a draft revision of a BIRD will be discussed at next week's meeting on Tuesday, April 24.

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 group met this past Wednesday. Most of the discussion was on the Touchstone-2 specification. Draft 6 is being edited currently. Most of the discussion was about IBIS style keywords being added to the document. The next meeting is Wednesday, May 7.

Task group material can be found at:

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

## **NEW ISSUES**

None.

## **IBISCHK4 BUG STATUS**

Bob Ross gave an update on the IBISCHK4 parser progress. The parser is complete and looks good. Official code can be released now to paid parser recipients. We should make an announcement as soon as possible and upload executables. We have the DOS and Linux executables. Syed Huq will compile a Red Hat Linux version. John Angulo will look into supplying a version for Sun. Michael Mirmak will look into supplying a UNIX version.

## **ICMCHK1 BUG STATUS**

Michael Mirmak summarized a new BUG, BUG4. He found that the parser incorrectly checks the extension of Touchstone file names. If you have more than 9 ports, you would have an extension such as ".s99p," and the parser will not check the file. Michael Mirmak recommends moderate severity, low priority, and to fix it in the next release. Bob asked for a severe, high priority classification. The BUG was classified as severe, high, and to be fixed at the next release.

## **BIRD98.1: GATE MODULATION EFFECT (TABLE MODEL)**

Antonio Girardi introduced BIRD98.1. The BIRD extends IBIS to facilitate modeling of driver gate voltage modulation of the driver output current. Arpad Muranyi said that he needs to review the recent presentation from Antonio to see if his concerns related to using a single Vds value have been addressed. Bob Ross had some editorial comments. He would like to see usage rules immediately following the description. He also asked Antonio to remove the paragraph describing typ/min/max column ordering, as this is redundant with the rest of the spec. Bob will submit a suggested revision to the BIRD authors.

Bob also had a technical comment; for IBIS consistency, he would like to see the Pullup table in the BIRD documented as VDD relative with the correct +/- current reference. Antonio said that the table was listed to comply with their current algorithm implementation in VHDL, but this can be changed.

## **NEW TECHNICAL ISSUES**

None.

## **OPEN ISSUES**

None.

## **NEXT MEETING**

The next IBIS Open Forum teleconference will be held May 11, 2007 from 8:00am to 10:00am US Pacific Time. A presentation from Roy Leventhal may be scheduled.

The date of June 1 for the next normally scheduled meeting after May 11 was discussed. This meeting may be moved if necessary for scheduling related to the DAC conference.

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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/bugsplt.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>

All eda.org documents can be accessed using a mirror:

<http://www.ibis-information.org>

Note that the "/ibis" text should be removed from directory names when this URL mirror is used.

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

## GEIA STANDARDS BALLOT VOTING STATUS

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

| Organization                  | Interest Category | Standards Ballot Voting Status | March 9, 2007 | March 30, 2007 | April 19, 2007 | April 20, 2007 |
|-------------------------------|-------------------|--------------------------------|---------------|----------------|----------------|----------------|
| Advanced Micro Devices        | Producer          | Active                         | √             | √              |                | √              |
| Agere Systems                 | User              | Inactive                       |               |                |                |                |
| Agilent Technologies          | User              | Inactive                       |               |                | √              |                |
| Ansoft                        | User              | Inactive                       |               |                |                |                |
| Apache Design Solutions       | User              | Inactive                       |               |                |                |                |
| Apple Computer                | User              | Inactive                       |               |                |                |                |
| Applied Simulation Technology | User              | Inactive                       |               |                |                |                |
| Cadence Design Systems        | User              | Active                         |               | √              | √              |                |
| Cisco Systems                 | User              | Active                         | √             | √              |                | √              |
| Ericsson                      | Producer          | Active                         | √             | √              | √              | √              |
| Fluent                        | Producer          | Inactive                       |               |                |                |                |
| Freescale Semiconductor       | Producer          | Inactive                       |               |                |                |                |
| Green Streak Programs         | General Interest  | Inactive                       |               |                |                |                |
| Hitachi ULSI Systems          | Producer          | Inactive                       |               |                | √              |                |
| Huawei Technologies           | User              | Inactive                       |               |                |                |                |
| Integrated Circuit Systems    | Producer          | Inactive                       |               |                |                |                |
| Intel Corp.                   | Producer          | Active                         | √             | √              |                | √              |
| LSI Logic                     | Producer          | Inactive                       |               |                |                |                |
| Mentor Graphics               | User              | Active                         | √             | √              | √              | √              |
| Micron Technology             | Producer          | Active                         | √             | √              |                | √              |
| NEC Electronics Corp.         | Producer          | Inactive                       |               |                |                |                |
| Nokia Siemens Networks        | Producer          | Active                         |               |                | √              | √              |
| Panasonic                     | Producer          | Inactive                       |               |                |                |                |
| Samtec                        | Producer          | Inactive                       |               |                |                |                |
| Siemens AG                    | Producer          | Active                         | √             | √              | √              |                |
| Signal Integrity Software     | User              | Inactive                       |               |                |                |                |
| Sigrity                       | User              | Inactive                       |               |                |                |                |
| Silego                        | Producer          | Inactive                       |               |                |                |                |
| STMicroelectronics            | Producer          | Active                         | √             | √              | √              | √              |
| 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.