EIA IBIS Open Forum Minutes

Meeting Date: **October 12, 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

Agilent	Ian Dodd, Radek Biernacki, Saliou Dieye, Riccardo Giacometti, Quanli Li, Mike Resso, Chengming Ren, Dong Wei, Tim Wu, Xindong Xue, Nianmin Zhang, Jianping Zhu, Takahiro Sato
AMD	Nam Nguyen*, Tadashi Arai
Ansoft Corporation	Haiqiang Ding, Baolong Li, Ying Liu
Applied Simulation Technology	(Fred Balistreri)
Apple Computer	(Bill Cornelius)
Cadence Design Systems	[Lance Wang], C. Kumar*, Hemant Shah*, Patrick dos Santos, Ambrish Varma*, Shangli Wu, Lanbing Chen, Jianwei Hu, Jacob Lai, Yubao Meng, Jian Peng, Ke (Coco) Xu, Liu Zheng, Norikazu Takada, Yukio Masuko, Terry Jernberg*
Cisco Systems	Syed Huq*, Tram Bui, AbdulRahman Rafiq, Huyen Pham, Darja Padilla, Mike LaBonte*, Paul Ruddy, Gurpreet Hundal, Luis Boluna, Ehsan Kabir, Jehyoung Lee, Susmita Mutsuddy, Eddie Wu, Bill (Qinghua) Chen
Ericsson	Anders Ekholm*, Ole Segtum, Peng Fu
Freescale	Jon Burnett
Green Streak Programs	Lynne Green
Hitachi ULSI Systems	Kazuyoshi Shoji, Shinmei Hirano
Intel Corporation	Michael Mirmak*, [Arpad Muranyi], Lili Deng, Haifeng (Bill) Gong, Tao Hu, Karen Kang, Fanghui Li, Maoxin Yin, James Zhou
IO Methodology	Lance Wang*, Esther Gao, Nancy Peng, Benny Yan, Xinjun Zhang, Wei Zhu
LSI	Frank Gasparik*, Kim Helliwell, Dinh Tran, Praveen Soora, Brian Burdick*
Mentor Graphics	John Angulo*, Arpad Muranyi*, [Ian Dodd], Eric Rongere, Stephane Rousseau, Bill Hargin, Patrick Carrier, Vivian Pan, Tao Wang, Lifu You, Kenji Kushima, Masahiro Nakajima
Micron Technology	Randy Wolff*, Pavani Jella
Nokia Siemens Networks GmbH[1]	Eckhard Lenski, Flavio Maggioni, Roberto Preatoni, Umberto Gatti, Massimo Ceppi

Panasonic	Atsuji Ito
Samtec	(Corey Kimble)
Signal Integrity Software	Barry Katz*, Douglas Burns, Mike Steinberger, Walter Katz*, Todd Westerhoff*
Sigrity	Sam Chitwood, Sandy Dung, Raymond Chen, Xianfeng Li, Tao (Helen) Xu
STMicroelectronics	Antonio Girardi, Giacomo Bernardi*, Roberto Izzi*, Akhilesh Chandra
Synopsys	Ted Mido, Xuefeng Chen, Changlei Zhang
Teraspeed Consulting Group	Bob Ross*, Tom Dagostino
Texas Instruments	Otis Gorley, Richard Ward, Bonnie Baker
Toshiba	Yoshihiro Hamaji, Yasumasa Kondo, Atshshi Osaki Nonyasu Yoshikawa, Toshihiro Tsajimura
Xilinx	Bruce Bandeli, David Banas*
ZTE	Songrui Chen, Xianhui Hu, Wei Jia, Dongfeng Sun Changjun Wang, Ying Xiong, Shenglong Yang Yanfeng Yu, Xiaojun Zhou, Shunlin Zhu
Zuken	Michael Schaeder, Ralf Bruening, John Berrie, Shigeru Hayashi, Hirohiko Matsuwawa

OTHER PARTICIPANTS IN 2007

74ze Engineering	Linc Jepson
AcconSys	David Lan, Suny Li, Jianfeng Tan, Jiangtao Wu, Frank Xiao
Agere	(Nirav Patel)
Alcatel Shanghai Bell	Wei Li, Lifan Sun
Altera	Hui Liu, Zhe Lin, Ravindra Gali, Salman Jiva
Apache Design Solutions	(Ji Zheng)
Applied Telisis, Inc. (ATI)	Vladimar Mandrusov
ATE Service Corporation	Yutaka Honda
Canon	Seiji Hayashi, Shoji Matsumoto, Tatsuo Nishino, Sakuragi Takamasa, Haruka Watanabe, Nobuaki Yamashita
Cavium Networks	Johann Nittmann*
CEC Huada Electronic Design	Weiwei Liu
China Integrated Circuit	Jingcheng Luo
ChipX	Jay Hidy, Oren Dvir
Cybernet Systems	[Kazuhiki Kusunoki], Masahito Kobayashi, Junko Kuriyama
Datang Mobile	Fanjie Meng, Hongying Li, Hongwei Wang
EDN China	Frank Yao
EE Times Japan	Norihiro Satsukawa
EFM	Ekkehard Miersch
EMC Technology	Michael Liu, Feng Lu, Changzheng Yang

Enterasys	Robert Haller
Extreme Networks	Kevin Ko
Fluent	(Chetan Desai)
Force10 Networks	Robert Badal
Free Electron Software	Al Davis
Fujitsu Limited	Kouichiro Asoh, Tetsuya Inoue, Toshiro Sato, Fujimori Shogo, Wasaki Tosaka
GEIA	(Chris Denham)
Gnovo Technologies	Harris Ma
Hangzhou H3C Technologies	Chunbao Yan
Hewlett Packard	Shafiq Rahman
Huawei 3Com	Junjun Cui, Zhenyu Liu, Jun Mao, Bao Wang, Kai Xie, Haitao Zhang
Huawei Technologies	ChunXing Huang, Bob He, Tao Guan, Peng Hu, Xiangzhong Jiang, Meidan Liu, Haiyan Yu
IBM	Michael Sorna, Adge Hawes, Kevin Kramer, Wei Wang
IMECAS	Yunfeng Wang
IVIS Co.	Hiroyuki Mashima
Infineon	Christian Sporrer
Integrated Circuit Systems (ICS)	(Dan Clementi)
Japan Aviation Electronics Industries	Hiroaki Ikeda
JEITA	Atsushi Ishikawa
Juniper Networks	Raul Lozano
Kawasaki Microlelectronics	Hiroyuki Sato, Takashi Kawahara
Leventhal Design	Roy Leventhal
LHWT Microelectronics	Jiahui Wang
Lynguent	Andrew Levy
Motorola	Hong Chen, Haiying Jiang, Daniel Tang
National Institute of Applied Science (INSA)	Etienne Sicard
National Instruments	Lee Maixman
Netlogic	Eric Hsu
NEC Electronics Corporation	Takeshi Watanabe, Hock Seow, Huy Tran, Itsuki Yamada
NESA	Edward Sayre
Northrop Grumman	Dusan Radosevic
Nortel Networks	Jingxin Bian, Feng Shi
Nuova Systems	Zhiping Yang, Lin Shen
NVIDA Corporation	Jing (Jane) Zhang
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
Sharp	Tetsuo Iwaki
Shizu Technology	Zuofu Qi
Siemens AG [1]	[Eckhard Lenski], Manfred Maurer
Silego	(Joe Froniewski)
Sony Corporation	Toshiro Honda, Keisuke Matsunami
Shu Zi Tai He	Chunyu Zhao
Sun Microelectronics	Leon Yang
Tiburon Design Automation	Patrick O'Halloran
Via Technologies	Jimmy Hsu
White Electronics Designs	John Perez
Xyratex	Paul Levin, Joseph Chan
Zuken Support and Service	Seikou Go, Tomotaka Unose

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
November 2, 2007	1-916-356-2663	4	786-6954

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.

INTRODUCTIONS AND MEETING QUORUM

None.

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 stand at 29 paid members. We have had good revenues, and nothing financially should change before the end of the year.

REVIEW OF MINUTES AND ARS

Michael Mirmak called for comment regarding the minutes of the September 11, 2007 IBIS Open Forum summit in China, the September 14, 2007 IBIS Open Forum summit in Japan, and the September 21, 2007 IBIS Open Forum teleconference. It was noted that there was a missing name in the Japan summit minutes. The full name of Shigeru Hayashi was not included under Zuken. This is now corrected in the current minutes. All three minute sets were approved with the noted change.

WEB PAGE UPDATES

Syed Huq reported that he added I/O Methodology in the roster page. Arpad Muranyi noticed an IBIS parser link saying the latest version is 4.1.1, but it should be 4.2.2. This error is found on the page linked from "Open Forum" on the main page. Ambrish Varma requested a link be added on the web site for meeting minutes and other meeting information.

MAILING LIST ADMINISTRATION

Bob Ross reported that everything is running normally.

MODEL LIBRARY UPDATE

Lance Wang reported that he had a request to update a couple of links, and this will be updated next week.

PRESS UPDATE

Bob Ross mentioned that Greg Edlund of IBM is releasing a book titled "Timing Analysis and Simulation for Signal Integrity Engineers." IBIS is mentioned in the book. More information about the book can be found at the following link:

http://www.amazon.com/Analysis-Simulation-Integrity-Engineers-Semiconductor/dp/0132365049/

MISCELLANY/ANNOUNCEMENTS

None.

OPENS FOR NEW ISSUES

Bob Ross requested that we introduce BIRD104 later in the meeting.

INTERNATIONAL/EXTERNAL PROGRESS

Upcoming conferences of interest to IBIS members are listed below.

The 6th International Workshop on Electromagnetic Compatibility of Integrated Circuits (EMC Compo 2007) is to be held November 28-30, 2007, in Torino, Italy. There will be some sessions mentioning IBIS. More information can be found at:

http://www.emccompo07.polito.it/

Syed Huq attended the last IEEE DASC Study Group on Encryption meeting. He said the group has done an extensive search to see if other standards bodies were doing encryption. The group is projecting one year until completion of its standard. They are working on a PAR (Project Authorization Request) to submit to IEEE. The group is leveraging a lot of existing work. A PAR was submitted to IEEE for a quality standard for design IP. David Banas mentioned that the IBIS quality committee is planning to invite the author of this standard to work with them on the IBIS quality standard, specifically section 6.

The IEEE DASC Study Group on Encryption we site is found at:

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

IEC APPROVAL ACTIVITIES

No update.

SUMMITS

- Design Con Planning

DesignCon 2008 will be held February 4-7, 2008 at the Santa Clara convention center. The IBIS Summit is tentatively scheduled for Thursday, February 7, 2008. Syed Huq will be the main contact for the event. Michael Mirmak mentioned that he is in contact with IEC and will be making arrangements for a room. The contract is under discussion. We should have a booth this year and will know the new insurance requirements soon. Cisco is officially sponsoring this summit.

Sponsorship opportunities for the DesignCon IBIS summit 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

David Banas reported that at the last meeting, they discussed the DASC IP Quality standard and reviewed their materials. He noted someone at Xilinx was making enhancement requests, and he is trying to track this person down. The group also reviewed Takashi Watanabe's comments on the IBIS Quality Standard.

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

http://www.eda-stds.org/ibis/quality_wip/

IBIS MODEL REVIEW TASK GROUP
No update.

ADVANCED TECHNOLOGY MODELING TASK GROUP
Arpad Muranyi reported that the group reached a milestone in releasing BIRD104 to the IBIS Open Forum for discussion. The task group will continue meeting to discuss related discussion items and perhaps work on some additional BIRDs.

Task group material can be found at:

http://www.eda-stds.org/ibis/macromodel_wip/

AD HOC TASK GROUPS (INTERCONNECT)
Michael Mirmak reported that the meeting this week reviewed the Touchstone draft. The main draft is essentially done, but they are working on a separate document related to how the matrix format is handled. To reduce the file size, you can represent symmetrical matrices as either upper half or lower half representations. Arpad Muranyi asked if any work has progressed on IBIS and ICM linking. Michael responded that a discussion item later in the meeting would address this topic. David Banas mentioned that using S-parameter models in HSPICE and other time-domain tools is problematic, so he is switching to broadband spice models. He asked if the group is addressing any potential problems with ICM models that use S-parameters. Michael acknowledged that this could be a problem, but you can also use RLGC matrices. Michael clarified that you could not currently use a broadband spice style model in ICM, because the spec does not support the controlled sources needed. Kumar mentioned the possibility of using table models to represent the data.

Task group material can be found at:

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

NEW ISSUES
None.

BIRD98.3: GATE MODULATION EFFECT (TABLE MODEL)
Bob Ross reported that BIRD98.3 completes the Other Notes section using consistent terminology with the Usage Rules section. He inserted block diagrams on how to do the data extraction. Also, in the Other Notes section, a context model algorithm was suggested on how to process the data. Tables give extracted currents, and K coefficients are derived from the tables. Tables were fixed to be relative to rail voltages and not absolute. Also, table columns were aligned in the usual typ/min/max format. Michael Mirmak mentioned that this is the first time the K tables have been mentioned in the IBIS specification. Michael asked if there is enough information about these algorithms included in the BIRD so as not to be confusing to readers. Arpad Muranyi mentioned that the equations could be shown without showing K

references. Bob responded that the STMicroelectronics authors specifically wanted to include the full algorithms. Michael asked if voltages in the BIRD are related to a local ground or a global ground. Bob responded that voltages are referenced to [Pulldown Reference] and [Pullup Reference] voltages. These voltages are then defined to an absolute ground reference. This is consistent with the rest of the current IBIS specification. Bob requested that any comments related to the BIRD be submitted to him early next week so he can quickly update the BIRD if needed.

BIRD104: ALGORITHMIC MODELING API (AMI) SUPPORT IN IBIS

Arpad Muranyi introduced the BIRD. It is adding features to be able to describe and simulate high speed SerDes designs, determining bit error rates (BER) and eye openings. The BIRD describes using precompiled DLL executables, instantiated by the simulator and passing waveforms into the DLLs for processing. Information is returned from the DLLs such as BER. Much text is included to describe the technology and DLLs. Todd Westerhoff added that this adds a way for a piece of software to call up and run a piece of code. Mostly this involves standardizing how arguments and data are passed into the models. Syed Huq said that Arpad mentioned it relies on pre-compiled code. Is this necessary? Todd responded that you could circumvent this by providing encrypted source code along with a method of running it in the operating system, but at some point you still have to compile the code, either at run-time or ahead of time. Syed was concerned that you would have to compile code specific to each platform and each EDA tool. Kumar and Todd said that you should only have to compile code for specific platforms without regard to the EDA tool. Todd said that the group researched this in depth, and concluded that DLLs should not cause too many problems. Syed described a scenario involving SERDES with a digital piece and an analog piece. One compiled model calls out a digital simulator and then an analog simulator. Only the digital piece is supported in the simulator. A third party tool is used for the analog piece. The model is compiled to work with a specific digital simulator. How do you support a model that has to work in multiple tools? Todd said that this BIRD defines publicly available source code to provide an independent test platform to test the code with. Todd described different ways of compiling code, and that this BIRD defines a way to provide code that doesn't rely on run-time libraries of specific EDA tools. So, it should solve the issue described by Syed. Todd defined for Syed that interoperability means that two models developed by different companies can be used together in two different EDA platforms. This has been demonstrated by SiSoft and Cadence for two models developed for the Linux platform.

IMPROVING DIFFERENTIAL PINS AND MEASUREMENTS

Presentation was deferred until the next meeting.

IBISCHK4 BUG STATUS

There are no open BUGs at this time. The parser is currently at version 4.2.2. Michael mentioned seeing some warnings related to compilation of Windows source code. The source code will be updated to remove these compilation warnings. Michael also mentioned a presentation from Agilent on compilation of source code that will be presented at a future meeting.

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
None.

OPEN ISSUES
None.

NEXT MEETING
The next IBIS Open Forum teleconference will be held November 2, 2007 from 8:00 AM to 10:00 AM US Pacific Time. A vote is tentatively scheduled for BIRD98.3. The following meeting will be held either November 16 or November 30 to avoid a US holiday.

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NOTES

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Portland, OR 97219

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

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

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

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

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

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

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

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/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.

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GEIA STANDARDS BALLOT VOTING STATUS

I/O Buffer Information Specification Committee (IBIS)

Organization	Interest Category	Standards Ballot Voting Status	September 11, 2007	September 14, 2007	September 21, 2007	October 12, 2007
Advanced Micro Devices	Producer	Active		√	√	√
Agilent Technologies	User	Inactive	√	√		
Ansoft	User	Inactive	√			
Apple Computer	User	Inactive				
Applied Simulation Technology	User	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	√	√		
Intel Corp.	Producer	Active	√	√	√	√
IO Methodology	User	Active	√	√		√
LSI Logic	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	Active		√	√	√
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.