

Minutes of Compact Model Council Meeting

May 8, 2006 Face-to-Face Meeting in Boston, MA (USA)

1. Membership Review (Joe Watts - IBM)

Total membership is now 36, with the recent addition of Maxim.

Joe reviewed voting rights requirements.

2. Treasurers Report (Robert Lomenick - Intersil)

Members are reminded to pay dues by end of June.

It is possible there will be upwards of \$50K budget surplus.

The suggestion was made to fund Professor Gennady Gildenblat to support the forthcoming standard MOS varactor model since it will be PSP based.

Action Item:

Joe will call a telecon in July to discuss budget surplus and the suggestion that it be spent on standard MOS varactor model support. Members are asked to send suggestions to Joe prior to the telecon.

Consensus decision was made to require dues be paid by end of March starting in 2007 to better enable budget surplus planning. It was agreed that the treasurer could grant hardship extensions.

3. 2007 Asia Meeting Discussion

Consensus decision was made to have the 1Q07 meeting in conjunction with ICMTS in Tokyo, Japan. ICMTS will be held March 19-22. The CMC meeting will be on Friday March 23, 2007.

4. Implementation of Standard Models (Vendor Member Companies)

See website for details.

5. PSP Update

Professor Gildenblat presented an overview of changes made to PSP100 to create PSP101. PSP101 evaluation results indicated need for minor code changes. The PSP team will complete these by May 17 and the new model version will be PSP102. Dick

Klaassen (Philips) presented an overview of 1/f noise modeling issues. See website for details.

Action Item:

PSP Team will make PSP102.0 beta available by May 17 for testing by CMC members.

Action Item

Joe Watts will call a telecon for May 31 at which CMC members will make a final decision on PSP102.0 as a standard. Vendor members are requested to provide inputs on when they would have PSP102 in their tools.

PSP101.0 Evaluation Discussion:

See evaluation presentations from Infineon, Freescale, Mentor, RF Micro, and Agilent, on CMC website.

Member evaluations indicated a need to improve PSP simulation speed. Some members expected that model code and code implementations could be optimized to make improvements. An in-meeting secret ballot was taken to decide how to move forward. Members were asked to choose between two options:

Option A:

Continue as planned to decide whether to make PSP102 a standard at the May 31 telecon and follow up with a plan to improve simulation speed.

or

Option B:

Delay the decision on whether to make PSP102 a standard to after simulation speed improvements are completed.

Ballot Results:

20 members chose Option A.

7 members chose Option B.

Therefore the CMC's decision is option A.

Action Item:

Officers will compose a press release on PSP to be reviewed at the May 31 telecon. Press release will include a statement to set expectations of model simulation speed relative to BSIM4.

Jazz Semiconductor made a presentation on PSP parameter extraction. See website for presentation. At their request the inclusion of Rbody was added to the PSP list of future projects to consider.

Maxim requested a SimKit with both PSP100 and PSP101. Because Maxim was the only member interested in this and because there are other higher priority items for the PSP team it was agreed to take no action on this.

The PSP team reported that a C-coded version of the NQS model will be included in the SimKit to be released in Fall 2006.

Self heating was added to the PSP list of future projects to consider.

6. Website Discussion

Action Item:

Keith Green will inquire with the GEIA if there is a way to allow members to load documents to the website like a TWiki page.

Action Item:

Keith Green will post member contact information on the website with passworded access to members only.

7. BSIM3/4/SOI Topics

See presentation for details.

Action Item:

UC-Berkeley BSIM team will target release of BSIM4.6.0 in June with the mobility model bug fix and the asymmetric leakage models. TI will provide UC-Berkeley the model code with the leakage models. Prior to its release BSIM4.6.0 will be tested by ADI (mobility fix) and TI (asymmetric leakage models). UC-Berkeley will deliver with BSIM4.6.0 the new model QA tests. Colin McAndrew will help set this up.

At TI's request, investigation of an improved impact ionization model was re-added to the BSIM team's list of projects to consider. Some details on this can be seen at http://www.eigroup.org/cmc/minutes/121604_presentations/cmc_q4_04_xi.ppt

Joe Watts presented a proposal for improved well proximity model in BSIM4. See website for details.

Action Item:

UC-Berkeley will consider IBM's well proximity model change proposal for a future BSIM4 model update, but there is no requirement to hold up the release of BSIM4.6.0.

8. Mextram Update

See presentation from TU-Delft for details.

Ansoft and Cadence presented results of convergence tests. See website.

Action Item:

Paul Humphries will continue to coordinate monthly phone meetings to focus on the convergence problems.

9. Use of Standard Name Policy

This item was discussed, but did not reach closure. Discussion will continue at a later date.

Action Item:

Officers will draft a revised standard name policy for review by members.

10. Verilog-A Test Suite Status

See website for presentation from Tiburon.

Action Item:

Tiburon will release a beta version of the Verilog-a test suite in approximately two weeks.

Action Item:

Colin McAndrew will coordinate a teleconference in late July to discuss feedback on the Verilog-a test suite beta release.

11. Subcommittee Issues

Mentor proposed a new subcommittee on parasitic extraction. The objective is to better define what device features are included in the models and what needs to be extracted from layout.

A consensus decision was made to initiate this subcommittee. Mark Basel from Mentor Graphics will chair. IBM, Philips, Cadence, Cypress, Jazz, Freescale, Intel, Synopsys, STM, and TI will be subcommittee members.

It was agreed to encourage subcommittees to do most of their work over telecons and email. The CMC now has a large number of subcommittees which has made it difficult for member companies to send all their appropriate experts to the face-to-face meetings. Subcommittee chairs are asked to simply give brief updates to the Council at the main face-to-face meetings.

12. Model QA and Release Procedures Subcommittee (Rob Jones – IBM)

See documents at http://www.eigroup.org/cmc/qa_and_release/default.htm

The Council adopted these documents by consensus decision.

Action Item:

Rob and Colin will provide minor updates to the Model QA and Release documents for the website.

13. Proximity Subcommittee Report (Mark Basel – Mentor Graphics)

Guidelines are posted on the CMC website.

Action Item:

The BSIM team will update the BSIM4 manual with the latest WPE model documentation.

14. MOS Varactor Subcommittee Report (Ted Anderson – IBM)

Action Item:

James Victory (Jazz Semiconductor) will send Ted Anderson (IBM) a version of the MOS varactor model based on PSP.

Action Item:

Ted Anderson will provide members a MOS varactor beta model towards the end of June for review.

15. Resistor Model Subcommittee (Colin McAndrew – Freescale)

Colin McAndrew plans to provide R3 by the next meeting to members for review and testing.

16. Model Interface Subcommittee (Geoffrey Coram – ADI)

Geoffrey Coram plans to soon send examples to members and have a telecon in June to follow up.

17. Next Meeting

Next meeting will be on October 12, 2006 in Maastricht, The Netherlands. This meeting will follow BCTM.

BJT models will be on the agenda in addition to usual business.

18. MOS Model 20 Presentation – Philips

See presentation slides for details.

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Professor A.C.T. Aarts at Eindhoven University of Technology helped develop this model while at Philips and is now willing to provide university support for if it is standardized.

19. EKVDMOS Model Presentation – Yogesh Chauhan (EPFL, Switzerland)

See presentation slides for details.

20. LDMOS Report from MOS-AK Workshop - Ehrenfried Seebacher
(austriamicrosystems)

See presentation slides for details.

21. LDMOS discussion and planning

Action Item:

Members will evaluate the two models using their own data with target completion by the 4Q06 meeting. Members are to provide feedback to the model developers. Progress will be reviewed at the 3Q06 meeting.

Members companies that will review/evaluate these models are Freescale, Intersil, National, ADI, IBM, Cadence, Cypress, TI, Jazz, and Toshiba.

Meeting Adjourned.

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

Members attending:

Bell	Averill
Poore	Rick
Humphries	Paul
Coram	Goeffrey
Yao	Carolyn
Power	Seamus
Mertens	Samuel
Tolikas	Mary
Lee	Mankoo
Ito	Akira
Ma	Yutao
Bhardwaj	Sunil
McAndrew	Colin
Gu	Ben
Watts	Josef
Jones	John
Anderson	Fred
Williams	Richard
Park	Jae-Eun
Assenmacher	Joachim
Shih	Wei-Kai
Mudanai	Sivakumar
Lomenick	Robert
Cherne	Richard
Victory	James
Chaudhry	Samir
Basel	Mark
Smith	Linda
Razouk	Reda
Francis	Pascale
Iizuka	Takahiro
Klaassen	Dirk
Onozawa	Kazunori
Kolev	Plamen
Pesic	Ivan
Johnson	JK
Navarro	Dondee
Ino	Yoshihisa
Furui	Yoshiharu
Juge	André
Bernicot	Christophe
Liu	Weidong
Green	Keith
Liu	Yong
Cirba	Claude
Naito	Takeshi
Wan	Daniel
Johnson	Pete
Mourant	Jean-Marc

Non-Members attending:

Gildenblat	Gennady
Mierzwinski	Marek
Troyanovski	Boris
Wu	H.-C.
Mijalkovic	Slobodan
Dunga	Mohan
Niknejad	Ali
Chauhan	Yogesh
Mansour	Nabil
Seebacher	Ehrenfried
Muira-	
Mattausch	Mitiko

Member Companies Absent:

Elpida
Samsung
SRC
Tower

Voting rights status:

Companies with **ACTIVE** voting status:

Agere Systems
Agilent Technologies
AMD
Analog Devices
Ansoft Corporation
Atmel
Broadcom
Cadence Design Systems
Cypress Semiconductor
Freescale Semiconductor
IBM
Infineon
Intel
Intersil
Jazz Semiconductor
Mentor Graphics
National Semiconductor
NEC Electronics
Philips Research
Renesas Technology Corporation
RF Micro Devices
Sandia National Laboratories

**Simucad
STARC
ST Microelectronics
Synopsys, Inc
Texas Instruments
Toshiba Corporation
TSMC
United Microelectronics Corporation
Xpedion Design Systems**

Companies with **INACTIVE** voting status:

**Elpida
Maxim
Samsung
SRC
Tower**