CMC Teleconference: January 19, 2005

Attendees:

Philips, TI, IBM, Silvaco, Freescale, Renesas, Agere, Hiroshima University, UC-Berkeley

The agenda for this meeting was to review the IBM 90nm CMOS s-parameter data for phase II of the evaluation of next generation standard MOSFET model.

It was agreed to ignore both DC and RF data where compliance is exceeded.

It was agreed to use the same layout parasitics (caps, Rgate, Rsub) in all model evaluations in order to eliminate possible differences in these from the comparisons. IBM will provide their best estimates for the parasitics along with the subcircuit network. It was agreed to re-address this if model developers find a need to change values to improve the fits.

It was agreed to use all transistors with W=0.56, 1, and 2 um. It was agreed to not use transistors with W=8, 32, and 16um.

It was agreed to continue to use Ft v. VG, not v. ID.

It was agreed to only use RF data up to 40GHz.

IBM reported DC I-V data of the RF DUTs were taken via RF probes and bias-Ts. They also reported that poly length may print differently for the RF structure.

Action Item:

IBM will provide the Lpoly offset for the RF DUTs.

Action Item:

IBM will check the correctness of the PMOS 0.12/1 DC I-V data at -55C.

IBM reported the stress parameters do not apply to the DC DUTs. The layouts of those result in minimal stress.

Action Item:

IBM will see if changes in key parameters (VT, mobility, etc.) due to stress can be provided for the RF DUTs.

HiSIM developers were concerned about the correctness of the y parameter transformations of in Wladek's plots (see CMC website). It was reported that these were done using ICCAP and are believed to be correct.

Action Item:

Colin McAndrew (Freescale) will send out a Perl script with y parameter transformations that can be used as a reference and help ensure consistent transformations are used by everyone. Keith Green (TI) will post this on the CMC website.

IBM reported no BSIM4 overlays are available for the RF data.

IBM confirmed 'stripes' and 'm' are number of gate fingers and number of these devices in parallel, respectively.

IBM cannot explain the Fmax slope issue (>20db/dec) with short-L DUTs. They do not think it is a de-embedding problem. It was agreed to leave the data the way it is and accept model overlays to Fmax that will not be accurate. It was agreed the long-L fits will be given more emphasis in model assessment of Fmax.

It was agreed to look only at Y parameter and not S parameter plots in the model evaluations.

Action Item:

Keith will eliminate items 19-24 of the phase II deliverables document

For the y parameter plots with multiple VG in the phase II deliverable document, it was agreed to include only three VG values to help make the plots readable. These will be a low, middle, and high voltage value: 0.2, 0.6, and 1.0V.

It was agreed to include Joachim Assenmacher's (Infineon) proposed analog gain factor as another deliverable for phase II.

Action Item:

Colin will send Joachim's email to Keith and he will post this on the CMC website.

It was agreed to have a telecon on 2/9 to follow up on RF data issues.

Meeting adjourned.

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