Magma Integrates MSIM Circuit Simulator with SiliconSmart Characterization and Modeling Technology

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Integration combines the sophistication of SiliconSmart technology with the speed and accuracy of MSIM

Magma® Design Automation today announced that its SiliconSmart™ characterization and modeling products now support Legend Design Technology's MSIM circuit simulator. The combination of SiliconSmart technology's sophisticated stimulus definition and advanced measurement acquisition with the speed and accuracy of MSIM delivers accurate nanometer libraries in record time.

Successful design teams understand that the quality and accuracy of the IP used in their design flow is critical to their ability to meet overall power and performance objectives. Specifically, the models must correlate well with the silicon being produced in the foundry. Ensuring that level of correlation requires the timely delivery of libraries characterized for the specific operating condition of the design and it must be performed using up-to-date process models. Furthermore, the measurement acquisition process requires intelligent stimulus definition to produce models containing critical state-dependent timing and power data.

The integration of SiliconSmart characterization technology with the MSIM circuit simulator accomplishes these goals. The SiliconSmart technology supports the sophisticated stimulus definition, measurement

acquisition and job management features required for even the most complex standard cell, IO or embedded memory. Its model-publishing capabilities include support for industry-standard model formats, such as ECSM (Effective Current Source Models) and Liberty NLDM, as well as equation-based models, such as Liberty SPDM.

"The accuracy of analysis performed in contemporary design flows is directly correlated to the quality of its fundamental components — the models," said Premal Buch, PhD., general manager of the analysis and signoff business unit of Magma. "To ensure on-time delivery of these models, the characterization and model generation must be rapid and precise. The speed and accuracy of MSIM complements the strengths of the SiliconSmart technology."

The acquisition of the data needed to populate these model formats, especially equation-based models, requires an accurate and efficient circuit simulator. MSIM's modern architecture and efficient simulation algorithms allow users to handle netlists from simple cells consisting of a few elements through today's large complex I/Os containing thousands of transistors. In head-to-head benchmarks Legend's customers report that the MSIM circuit simulator runs multiple times faster than traditional SPICE simulators without loss of accuracy.

"Accurate library models characterized by precise circuit simulation are key to the silicon success of system-on-chip (SoC) designs," said Dr. You-Pang Wei, president and CEO of Legend Design Technology. "The integrated flow, combining tool sets from Magma and Legend, provides excellent quality of results (QoR) for the deep-submicron and nanometer semiconductor designs."

The original press release can be found here.