MEMS+IC Design Extended to System Level Through Integration with Simulink® From MathWorks

Coventor, Inc. announced the release of the latest version of its MEMS+ design suite. The new release, MEMS + 2.0, includes tight integration and simulation within the widely-used Simulink environment from MathWorks. This support builds on the company's existing integration with the Virtuoso® IC design system from Cadence Design Systems (also enhanced in this release) to provide designers with an efficient, integrated environment for incorporating MEMS into traditional IC and system-on-chip (SoC) design methodologies.

In addition to the more unified and complete MEMS+IC design flow enabled by MEMS+, the latest release improves simulation performance within the Cadence environment and expands the library of 3D MEMS building blocks available to enable a wider variety of MEMS-based applications. Additional features in the tool's user interface improve the ease of design creation and re-use within the solution as well. The result is the most robust and intuitive platform for developing products that combine traditional IC with MEMS.

"This an elegant way to connect and manage the very specific 3D design information required for MEMS design within Simulink, which can address behavioral modeling and functional correctness. Both MEMS designers and IC designers can benefit from this integration, with IC designers being shielded from the complexity of the physics of MEMS but still able to simulate them in the context of the system," said Jim Tung , MathWorks Fellow. "The integration of MEMS+ with Simulink provides a more efficient approach to MEMS-based design."

The MEMS+ product suite anchors Coventor's strategy for "bringing MEMS to the mainstream," which addresses the expanding opportunity for MEMS in a wide variety of applications and new markets. The strategy focuses on removing the traditional barriers to developing and integrating MEMS – time, cost, complexity – particularly for traditional IC designers not familiar with the nuances of MEMS. In addition to the MEMS+ platform itself, Coventor is working to enable a complete ecosystem for MEMS development through collaboration with foundries, complementary tool suppliers, IP and library developers, as well as fabless IC companies looking to leverage the MEMS opportunity.

With the newest version of MEMS+, designers can use the same parameterized behavioral model created in the MEMS+ environment for simulations in both the Simulink and Cadence Virtuoso environments. MEMS engineers can now simulate their MEMS design in the familiar Simulink environment, optimize parameters, and hand off automatically-generated behavioral models to their counterparts in the system architecture and IC design domains.

System architects can then easily incorporate MEMS in algorithmic-level simulations that span software, firmware, digital logic and analog circuits, while IC designers can incorporate MEMS in implementation-level simulations as well as physical design. Through the integration, all groups work from a single MEMS design representation in MEMS+. As with the Virtuoso integration there is no programming, just the creation of the MEMS design in the intuitive 3D user interface provided by MEMS+.

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