

unitarily. The same definitions apply to the so called initialization variables. These determine the start values of state variables, e.g., an initial pressure or position. In the second step, the submodels have to be connected with each other according to their in- and outputs. Items from the Simulink library, such as visualization or storage options, can be added as well.

In the third step, the user has to enter a filename. The data which is generated during the build-up of the complete model is saved under that filename. Here, the user is also able to load a data set which was saved earlier.

In the fourth step, the user is able to manage the parameters, which are visible for him, by identifying and setting the joint parameters — or joint initialization variables, respectively. In the fifth step, the possibility is given to change the value of all accessible data.

The sixth step allows setting the communication interval for the co-simulation. This interval defines the temporal step size when submodels exchange data among each other.

After completing the above-mentioned steps, the simulation can be executed using the start button on the Simulink platform. The complete system model of the front-axle suspension was validated afterwards with experiments on a test-bench.

CONCLUSION

The application of virtual prototypes offers great potential for time and cost reduction in product development processes. Especially in the industry of small and medium-sized

“...all created sub-models could be integrated on the platform proving its functionality.”

enterprises, such as the mobile machine industry, the approach of using a coupled simulation for the

representation and validation of complete systems in cross-company collaboration is very promising. In order to make the co-simulation available as a modeling variant between different business partners, the joint project GUSMA was initiated. A simulation platform was developed which integrates a standard for co-simulation and ensures intuitive handling. In this way, the platform can facilitate the application of a co-simulation and support the engineering process between different business partners.

A hydro-pneumatic front axle suspension of a tractor was used for validating the platform. This was executed not only with the virtual model upon the developed platform but also with practical tests on a test bench.

The software partners who participated in the project here already integrated the requirements for the co-simulation standard in their modeling tools. The GUSMA-Standard will be published as a guideline of the German Engineering Federation (VDMA). Interested parties are welcome to contact the Chair of Mobile Machines (Mobima) or visit the homepage (www.gusma.de).

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SIMPACK Conference: Wind Turbine and Drivetrain

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Guest Speaker Presentations by SIMPACK Users, including REpower, SkyWind, Vestas and ZF

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The conference will be free of charge. Limited space available. Prior registration is necessary.



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30–31 October 2012, Hotel Seitner Hof, Pullach/Munich, Germany

Speaker: Prof. Dr. Oskar Wallrapp

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