SIEMENS
Ingenuity for life

Simcenter Amesim

Driving innovation by optimizing the performance of mechatronic systems

Benefits

- Drive innovation without compromising time-to-market and quality
- Ramp up system simulation productivity

Features

- A mechatronic system simulation platform that covers the entire development process, from the early design stages until final performance validation and controls calibration
- Fifty ready-to-use libraries with 6,500 components: electrics, mechanics, hydraulics, pneumatics, controls and thermodynamics
- Application- and industry-oriented solutions: automotive, aerospace, industrial machinery, heavy equipment, energy and utilities, consumer products and marine
- Statechart environment, Reduced Order Model Builder, performance analyzer, plot, dashboard, linear analysis, animation, design of experiments, app designer
- CAD import and embedded CFD
- Link and connection with Simulink, FMI, Modelica, real-time target support, other Simcenter solutions and Teamcenter

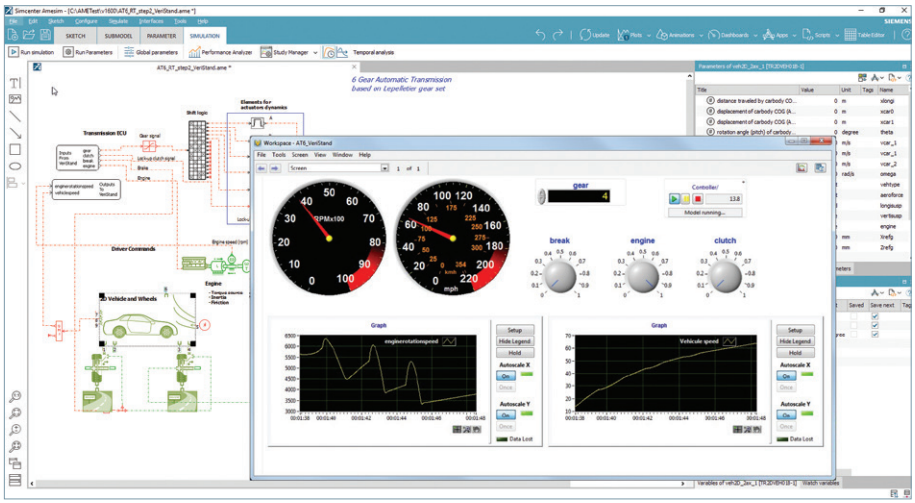
Summary

In today's world of smart, automated and electrified products that bring together mechanics, electrics, electronics and controls, the development and performance validation processes are more complex than ever. In the context of an increased number of requirements, use cases and architectural variants, it has become critical to optimize design from the early development stages, when the system is still conceptual. Any defect that is identified early in the process will be easier to solve, with little impact on the project timeline and cost. That cost will be especially negligible compared to customer warranties, product recalls and the impact on brand image if the issue is discovered later in the design cycle.

System simulation enables design engineers to virtually evaluate systems' performance upfront, make better design choices, reduce costs and development time as well as improve overall product quality.

Boosting system simulation productivity

Simcenter™ Amesim™ software from Siemens Digital Industries Software is a leading integrated, scalable mechatronic system simulation platform that allows design engineers to virtually assess and optimize the systems' performance. It boosts overall system engineering productivity from the early



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development stages until the final performance validation and controls calibration.

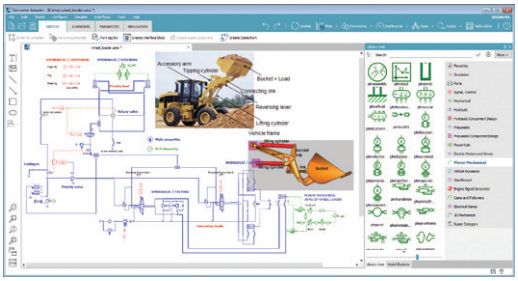
To enable you to save time when creating models, Simcenter Amesim, which is part of Xcelerator™ portfolio, the comprehensive and integrated portfolio of software and services from Siemens Digital Industries Software, offers 50 ready-to-use multi-physics libraries with more than 6,500 components that have been developed and validated in cooperation with industrial partners. Moreover, you can take advantage of application- and industry-oriented solutions that have been tailored to support automotive, aerospace, industrial machinery, heavy equipment, energy and marine applications.

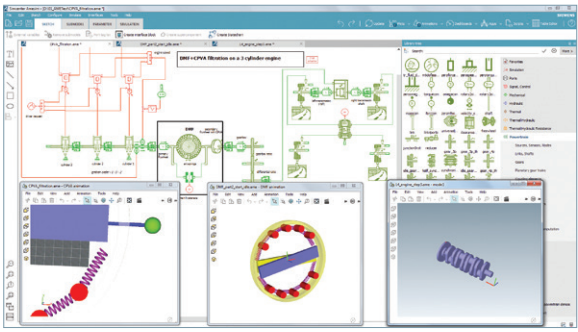
The powerful platform capabilities of Simcenter Amesim allow system simulation engineers to rapidly and accurately perform analysis. A large set of plots in the temporal and frequency domains and 2D and 3D animations help you better visualize the dynamic behavior of your system, whereas integrated design exploration tools enable you to perform optimization and design of experiments (DOE) in order to identify the best options. Thanks to linear analysis capabilities, with limited central processing unit (CPU) time, you can obtain meaningful conclusions on the dynamic behavior of systems that can be exploited to perform model reduction or study potential mechanical couplings.

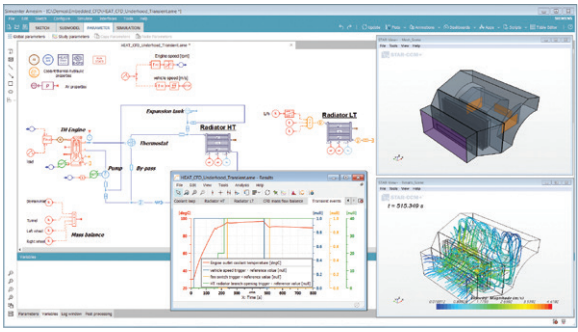
Simcenter Amesim also allows you to generate customized apps to import model parameters from Excel spreadsheet software or data files, automatically run simulations as well as launch postprocessing scripts in order to analyze simulation results and generate plots and reports. In addition, the latest version provides the Simcenter Amesim ROM Builder option for creating reduced order models (ROMs). This tool helps easily create reduced order models that can later speed up simulation or generate models for real-time and control synthesis.

Simcenter Amesim is an open environment that can be integrated into enterprise processes. Users can easily couple it with major computer-aided engineering (CAE), computer-aided design (CAD) and controls software packages, interoperate it with the Functional Mockup Interfaces (FMIs), and connect it with other Simcenter solutions as well as Teamcenter® software.

Moreover, Simcenter Amesim users can take advantage of efficient solutions for workflow customization, variant generation and configuration as well as model and data management.







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