Leverage simulation-driven innovation to design and engineer products for concept studies, control design, system performance optimization, controller implementation and testing.

solidThinking® Model Based Development Suite
Simulation-driven Innovation of Smart Systems

solidThinking Compose, Activate and Embed help leverage Model Based Development technology by uniquely combining math, signal-based, physical component and 3D modeling technologies. The tools unify various user communities enabling collaboration.

Improve System Level Performance
Improve the dynamic performance of any multi-disciplinary system by simulating the combination of sensors, actuators and controllers.

Design for Robustness
Perform what-if analyses at the system level to quickly test several designs and investigate the interactions of all components in a system.

Gain Functional Insight Early
Identify system level problems early in the design process while ensuring that all the design requirements are met.
A numerical computing environment for science and engineering

- One environment for all types of math
- Faster than spreadsheets
- Compatible with Octave™

Matrix-based Interpreted Language

Programming Environment

Extensive Math Libraries

Rich 2D/3D Plotting

\[
[T,X] = \text{ode45}(\text{FuncT}, X, \text{options});
y = \text{readvector}('file1,1,3');
p = \text{polyfit}(X,Y,6);
x1 = \text{polyval}(p,X);
t1 = \text{linspace}(0,t1,1000);
y1 = \text{fft}(h);
y2 = \sin(2\pi p t1);
\text{plot} (\text{abs} (ft));
\]
A block diagram environment for simulation and optimization of hybrid, multi-disciplinary systems

- Modern user experience
- Mixing of signal-based and physical component modeling (Modelica®)
- Functional Mock-up Interface support

Block Diagram Environment  Physical Component and Signal-based Modeling  Functional Mock-up Interface

solidThinking.com/Activate
A visual environment for model based embedded development

- Complete toolchain for embedded control systems development
- Easily try out algorithms on target hardware without hand-coding

Block Library for Embedded Systems

State Charts

Interactive Hardware-In-the-Loop Simulation

solidThinking.com/Embed
“One of the advantages of solidThinking Embed is that you’re not directly coding in C. You’re employing a diagram and using the automatic code generator to create the code.”

Kevin Godfrey, Principal Engineer, AMETEK Lab

Compose Features

ONE ENVIRONMENT FOR ALL TYPES OF MATH
• High-level matrix-based language
• Integrated Development Environment (IDE) for authoring & debugging including multi-language support
• Extensive math libraries including statistical data analysis, matrix analysis, number theory, signal processing, interactive 2D and 3D plotting, differential equations and optimization
• Built-in connectivity to pre/post process computer-aided engineering data

Activate Features

SIMULATION AND MODEL BASED DEVELOPMENT
• Block diagram environment for multi-disciplinary, hybrid system simulation
• Signal-based and physical (Modelica®) components in the same diagram
• Comprehensive built-in block libraries including library management
• Native support of Functional Mock-up Interface for model exchange and co-simulation
• Co-simulation of Multi-body Dynamics
• Compilation of models into executable code

Embed Features

MODEL BASED EMBEDDED DEVELOPMENT
• Extensive block library for embedded systems
• Diagram-to-code to auto generate efficient and compact ANSI C-code for discrete, continuous and hybrid systems
• State Charts for graphical editing, simulation & code generation
• Interactive Software-In-the-Loop, Processor-In-the-Loop and Hardware-In-the-Loop simulation
• Scaled and fixed-point algorithms