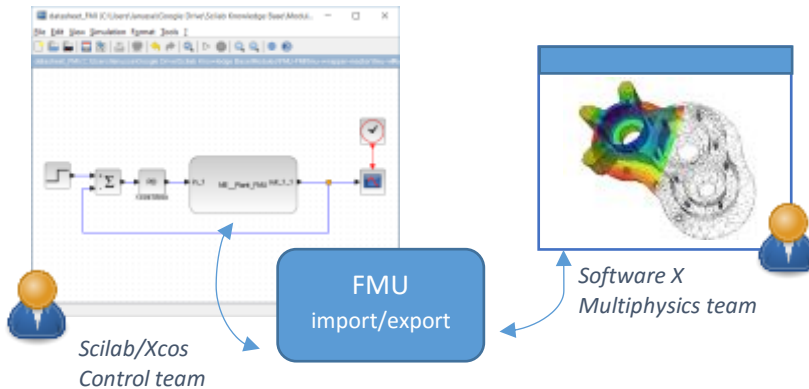


Scilab / Xcos FMI Module

The [functional mock-up interface](#) (or FMI) defines an open tool-independent standard to be used in computer simulations to develop complex cyberphysical systems.



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Module description

Import FMU:

- Allow the user to add FMU blocks inside Xcos. This module provides an easy way to use Functional Mock-up Interface for Model Exchange.
- In Xcos, the user is able to simulate the Functional Mock-up Units (dynamic system models) with the "Functional Mock-up Interfaces" palette.
- Possibility to use several instances of a model and to connect any models hierarchically.
- In the Scilab workspace, Import allows to run tests on the Functional Mock-up Unit (FMU)

Export FMU:

- Xcos model can be exported as an FMU for Model Exchange or for Co-Simulation.
- Currently, only generation of FMUs version 1.0 of FMI is supported in Xcos.
- Code generation works by translating any Xcos super-block in FMU. Generated model can be imported in Xcos or in another simulation tool.

Main features

- Support of FMI Version 1.0 for Model Exchange (import/export) and Co-Simulation.
- Simulation for compiled FMUs: a FMU must have minimum one binary corresponding to the working platform.
- Simulation in Xcos with using any type of explicit solvers.
- Simulation in Scilab with fixed step integration (Method of Euler).

KEY BENEFITS:

Free the model unit (FMU) from license restrictions

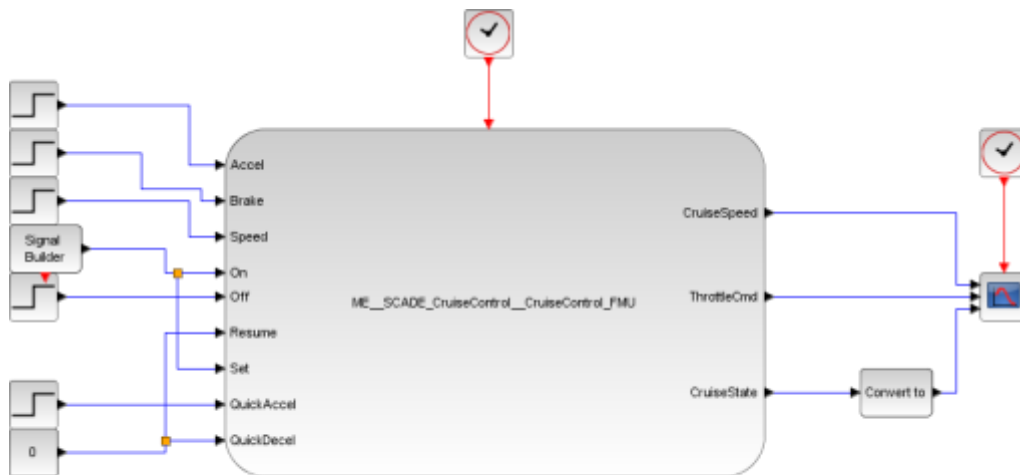
Separate the model authoring tool from model execution tools

Deploy from few simulation specialists to designers, domain specialists, control engineers

Application examples

Cruise Control

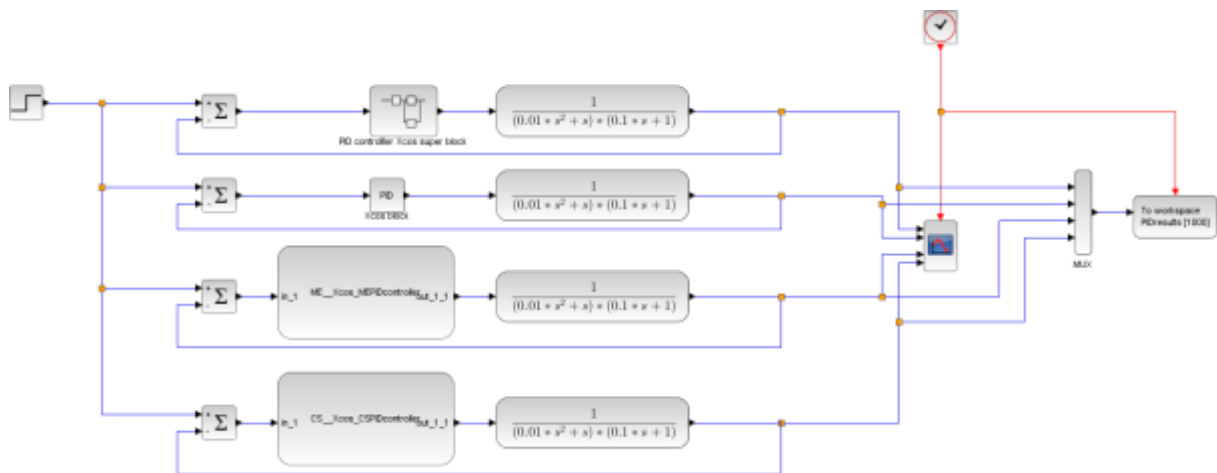
This example simulates in Xcos the model of a cruise control system exported from Esterel SCADE®.



Using of the cruise control at the speed of 80 km/h and quick acceleration to 120 km/h

Xcos PID Controller

In this example, a simple PID controller is modelled in 4 different ways in Xcos. The simulation displays the answer of the system (transfer function) for a step perturbation and sends the results to the Scilab Workspace. The blocks ME and CS showcase the capabilities in Model-Exchange and Co-Simulation.



For questions, email us at team@scilab.io