

# FMI Add-on for NI VeriStand for HiL Simulation

Cosimo Palma      Marco Romanoni  
Dofware S.r.l.

10099 San Mauro Torinese (Torino, Italy)

[cosimo.palma@dofware.com](mailto:cosimo.palma@dofware.com) [marco.romanoni@dofware.com](mailto:marco.romanoni@dofware.com)

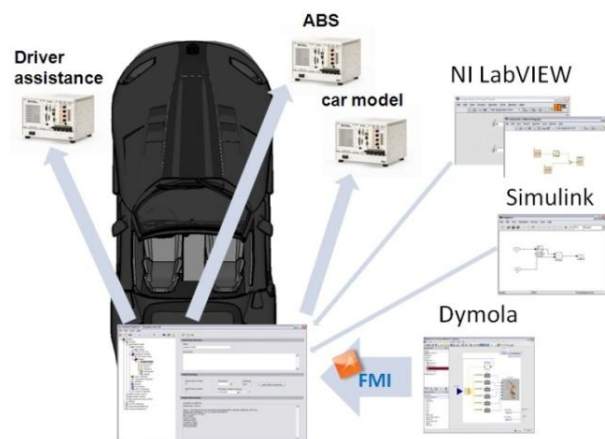
This paper describes the implementation of the Modelisar Functional Mock-up Interface (FMI) support in NI VeriStand, a commercial software environment suitable for real-time testing applications.

This paper presents the work conducted to implement the FMI Add-on for NI-VeriStand, which is available as a commercial product, and the process to make hardware in the loop simulation starting from a Model Based Development environment compliant with the FMI for Co-Simulation standard for model export and using it in NI VeriStand environment with National Instruments real-time hardware.

The aim of this work is to enable NI VeriStand to support the FMI standard for Co-Simulation. This in order to perform rapid-prototyping and hardware in the loop simulations using National Instruments hardware directly from Modelica models exported using the FMU standard. With the FMI Add-on it is possible to use FMU models in Windows and /or in National Instruments RT Targets like NI PXI and NI CompactRIO.

In this paper, we will present:

- A description of the activity carried out for the implementation of the FMI Add-on for NI-VeriStand.
- A detailed description of the steps that are to be performed in order to use FMUs in National Instruments PXI RT Targets.
- A validation test for the FMI Add-on performed with Dymola and National Instruments PXI RT Target based on the detailed model of a 6 dof manipulator.



## References

- [1] Functional Mock-up Interface: <http://www.functional-mockup-interface.org/index.html>
- [2] H. Hadj-Amor, C Faure, M. Ben Gaïd, N. Pernet, "Towards a Modelica Real-time co-simulation with FMI", Multiphysics Simulation - Advanced Methods for Industrial Engineering Conference, Fraunhofer, 22-23 June 2010