INTRODUCTION

Model-based Development is one of the industry’s hottest topics in the target to master the increasing complexity of vehicle technology, the growing number of vehicle variants and the almost unrealistic development time constraints.

- Early evaluation and validation of the entire system is the key to master the challenges in developing high-tech vehicles efficiently.
- Complex mechatronic systems require the interoperability of a large number of components and functions from various domains
- A high number of models developed with specific simulation tools from different tool vendors have been established in the organization
- Simulation models need to be connected in various development environments (office and test)
- Simulation and testing will become highly integrated via a model based development approach

AVL SOLUTION

CONNECT VIRTUAL AND REAL COMPONENTS

- Model.CONNECT™ is AVL’s integration platform to set up and execute system simulation models which are composed of subsystem and component models from multiple model authoring environments.
- Models can be integrated based on standardized interfaces (Functional Mockup Interface, FMI) as well as based on specific interfaces to a wide range of well-known simulation tools.
- Model.CONNECT™ model execution supports various integration technologies, which can also be combined:
  - Industry-leading co-simulation algorithms and the possibility to connect real-time systems to the co-simulation.
  - Local and distributed co-simulation with a wide variety of supported simulation tools
  - Model integration based on models that are provided as executable libraries (FMI for Co-Simulation or Model Exchange, as well as compiled MATLAB/Simulink models).
MODEL.CONNECT™

BENEFITS

ENRICH YOUR REALITY

- Model integration & consistency throughout the process (office, test systems)
- Reuse of existing simulation models
- Effective frontloading of development tasks
- Independency from tool vendors: Supported tools (Adams, AMESim, AVL CRUISE, CarMaker4Simulink, CarSim Product Family, Custom (DLL Wrapper), Dymola, Flowmaster, FMU, GT-Suite, Java, KULI, LabVIEW, MATLAB, Microsoft Excel, OpenModelica, RealTime, SIMPACK, AVL VSM)
- Application orientation (same working experience in all environments)

INSIGHTS

- USPs of Model.CONNECT™
  - IODP (Integrated & Open Development Platform): Independent, Open, Tool/Model-Free
  - NEPCE (Nearly Energy Preserving Coupling Element): Coupling Error Compensation
  - ACORTA (Advanced Co-simulation for Realtime Applications): Connecting Models with Hardware
  - EXECUTION: Local and Distributed Co-Simulation on PC and on RT Systems