

عنوان مقاله:

A Comparative Study on the Efficiency of Compiled Languages and MATLAB/Simulink for Simulation of Highly Nonlinear Automotive Systems

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خلاصه مقاله:

In the present paper, a comparison between the simulation performance of a highly nonlinear model in MATLAB/Simulink and a compiled language has been drawn. A complete powertrain layout was formed in Simulink and the same model was developed from scratch in Fortran ۲۰۰۳ which led to creating a complete simulation software program named Powertrain Simulator. The results show that for a system with not many details and phase changes, both of the simulation environments offer acceptable performance. However, when the modeling layout is overly complicated, developing the model in a compiled language is a smarter choice.

کلمات کلیدی:

Performance comparison, nonlinear systems, vehicle dynamics simulation, Fortran ۲۰۰۳, Simulink

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