

BMW Group Relies on TargetLink

- BMW evaluates code generators
- TargetLink chosen
- Process integration activities

The BMW Group evaluated the production code generators currently available on the market. The objective: to find the best code generator for a seamless development process based on MATLAB®/Simulink®/Stateflow®. TargetLink from dSPACE emerged as the most suitable product. We spoke with Dr. Stefan-Alexander Schneider and Robert Meinschmidt about the evaluation process and the BMW Group's use of TargetLink. They placed particular importance on process integration and process automation.

The BMW Group recently evaluated production code generators. What were the reasons for carrying out this extensive evaluation project?

A particular focus was on process automation, to improve integration and reduce the error rate.

How did you set about performing the evaluation?

S.-A. Schneider: To start with, we agreed on a comprehensive scoring scheme. Divided into five areas,

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with 18 categories and 96 criteria, 21 of which were knockout criteria that were visible at the decision level.

What were the criteria?

S.-A. Schneider: In addition to general tool properties, we also evaluated the extent of support given to Simulink/Stateflow functions, suitability for use in safety-relevant applications, integration into the development process, and of course the properties of the generated code itself.

What was the next step after completing the evaluation?

R. Meinschmidt: We realized that we had to harmonize processes and tools for direct use in everyday project work. We did this by analyzing the existing processes and production projects that were already running with TargetLink. The insights gained from this were incorporated in a method manual for using MATLAB/Simulink/Stateflow and TargetLink. The resulting workflows were then automated in accordance with the process. TargetLink's application programming interface,

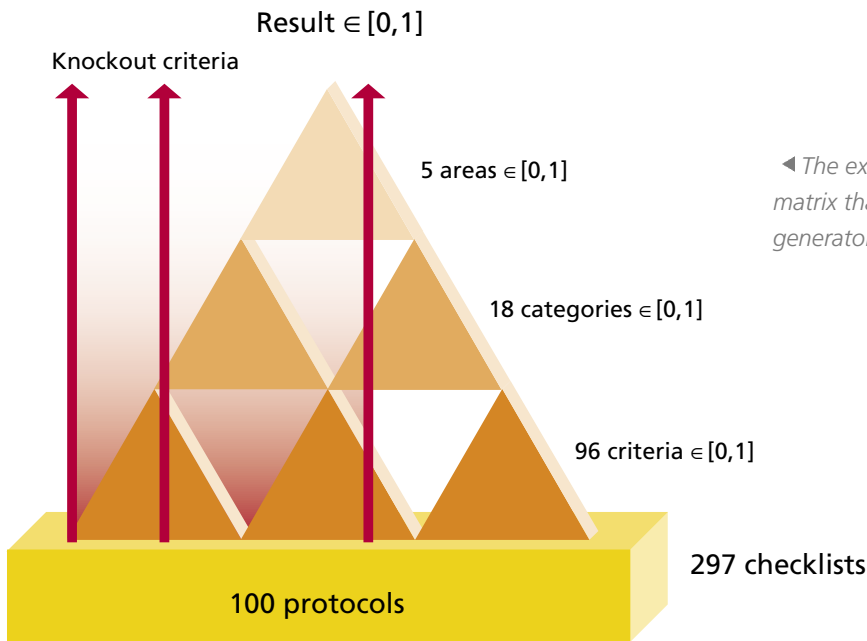
process was to introduce new modeling guidelines to give users optimum support in a distributed development environment, along with

"Our objective was a seamless, tool-supported process, from specification, through the analysis and optimization of control algorithms, to automatic code generation."

model creation and code generation procedures that would meet Safety Integrity Level 3.



▲ Dr. Stefan-Alexander Schneider, process development in the electronic development department.



◀ *The extensive evaluation matrix that the production code generators had to run through.*

the on-site service provided, and dSPACE's experience in this field all played a major role in this.

How important to you are future adaptations to your processes and tool chains?

S.-A. Schneider: Adapting the tools to our processes is very important to us, to ensure we derive maximum benefit from the tools. We also want to keep in close touch with the tool suppliers, so that we are informed in good time of their development strategies, and can make our own requirements clear to them. We're on the right road with TargetLink and cooperation with your company.

In concrete terms, what do you expect of TargetLink in upcoming production projects?

S.-A. Schneider: We want a seamless, optimized development process that will cut development times, simplify iterations, and guarantee reliable implementation of the modeled functions on the target hardware. We chose TargetLink to do this. So that we can

be flexible and integrate existing code into the autogenerated code if need be, the good readability of TargetLink code is very important to us.

R. Meinschmidt: Alongside expectations regarding the actual tool, we also want fast, competent support from the tool supplier.

To what extent will the BMW Group use automatic code generation?

S.-A. Schneider: Our goal is to use automatic code generation wherever we do model-based development. It's the way to go: Model-based development and MATLAB/Simulink/Stateflow will grow in importance, and therefore so will automatic production code generation.

Thank you for talking to us.



▲ *Robert Meinschmidt, process development in the electronic development department.*

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