SYNOPSYS®

DATASHEET

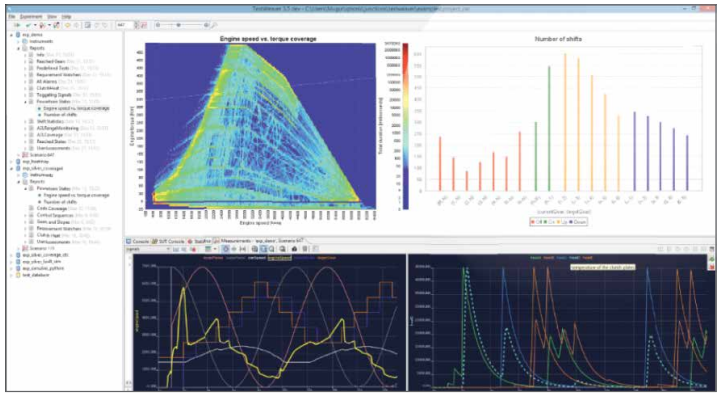
TestWeaver

Large Coverage Testing of Automotive Systems

Reach new levels of test coverage

Overview

TestWeaver, an intelligent test automation solution, creates and runs system tests to detect errors, achieving maximum test coverage with minimum specification effort.

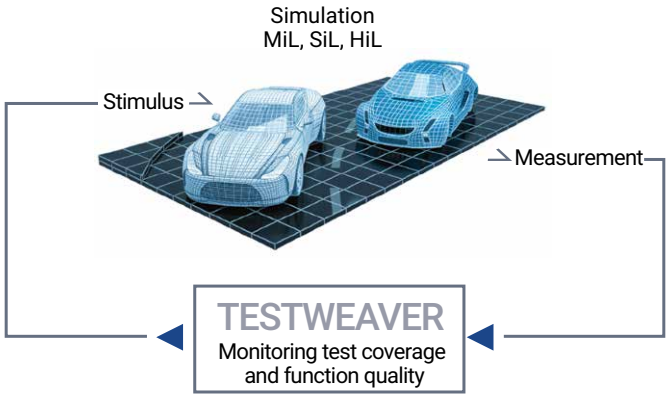


Systematic Validation

Classical test automation is complemented by thousands of computer-generated scenario variations. Self-learning algorithms are used to maximize the coverage of:

- Hardware states
- Software states
- Environment conditions
- Driver maneuvers
- Parameter tolerances
- Component faults

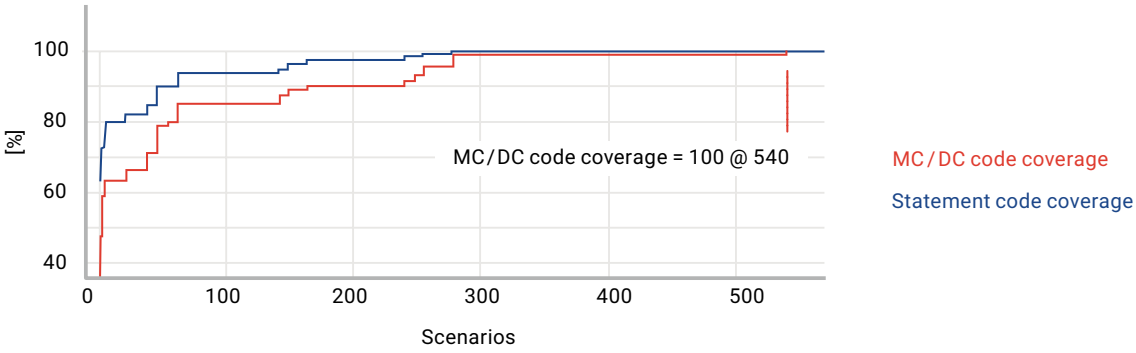
Functional requirements are modeled as system invariants. Modeled requirements are monitored in every scenario at all times. The increased density of the monitored conditions combined with the large coverage of the applied test stimuli give you the best means you can get for testing and validating complex systems.



Applications

Software Controllers

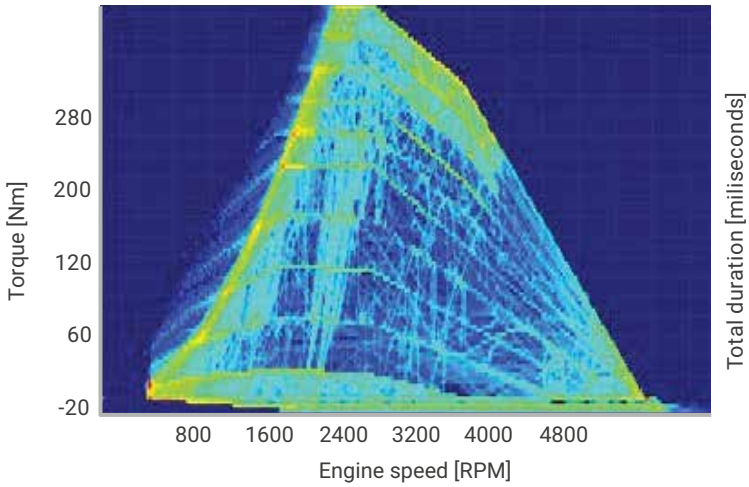
Established coverage measures used by TestWeaver for software controllers are: statement, decision and MC/DC code coverage. They can be measured for all software integration levels: from modules to entire virtual ECUs—for instance, with the help of Silver's virtual ECUs.



TER %	-	covered / all	Calls	Line	Function
80 %	-	8/10	6538036	96	boundCheck ()
100 %		1/1	51	149	transmissionControlInit ()
100 %		8/8	78040	188	downShiftSpeed ()
100 %		5/5	48966	195	transmissionControlInit ()
86 %	-	25/29	138282	204	chooseGear ()
100 %		1/1	138367	234	outputSteady ()
91 %	-	10/11	32443	249	outputShift ()
91 %	-	21/23	170810	284	transmissionControlCycle ()
91 %		91/100			egs.c

Powertrain

The code coverage alone is not enough to characterize test coverage at system level. Hardware-software interaction plays a crucial role. TestWeaver complements the code coverage of the controllers with the coverage of hardware states. For example, to test all possible types of gear shifts of an automatic transmission, in combi- nation with all reachable torque and speed operating regions of the combustion engine.



ADAS and Automated Driving

Huge numbers of driving situations must be considered and safe-guarded before releasing automated driving functions. Car, driver, traffic, street and environment conditions interact combinatorially. Simulation with automated large coverage testing, as provided by TestWeaver, seems to be the only conceivable approach able to reach the test coverage level required by these applications.

Information on New Features

This data sheet provides a summary of supported features and may not reflect all the features added in recent releases. Please contact your local Synopsys sales office for complete information about new features and enhancements.