

MC-Checker

MBD Model/Code Back-to-Back Test Tool

Performs model/code back-to-back test for ISO 26262

Processor code level (PIL) simulation using a microprocessor simulator

Import test data from other MBD tools or GAIO's CoverageMaster winAMS

Automotive ECU Software

Model/Code Back-to-Back Test Tool

MC-Checker is a model & code back-to-back test tool for automotive software model-based development. It compares the MATLAB/Simulink specification model blocks (subsystems) with the embedded target code as required by the automotive functional safety standard ISO 26262.

Processor code level (PIL) simulation

MC-Checker performs model/code back-to-back testing using a MIL simulation for MATLAB/Simulink specification models, and a PIL simulation for the embedded target code. During the PIL simulation the actual target code is executed in order to meet ISO 26262 test environment requirements.

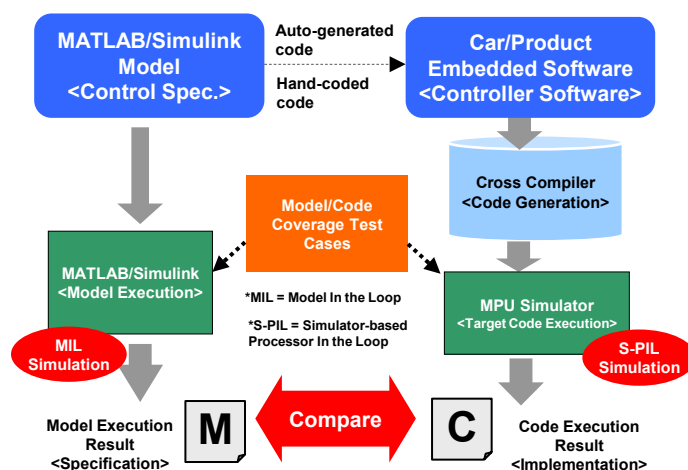
(MIL : Model In the Loop / PIL : Processor In the Loop)

Import test data from other tools or GAIO's CoverageMaster winAMS

MC-Checker uses general CSV format files for data input and output. In this way model or code coverage test cases may be imported from other model based development tools or GAIO's unit test tool CoverageMaster winAMS.

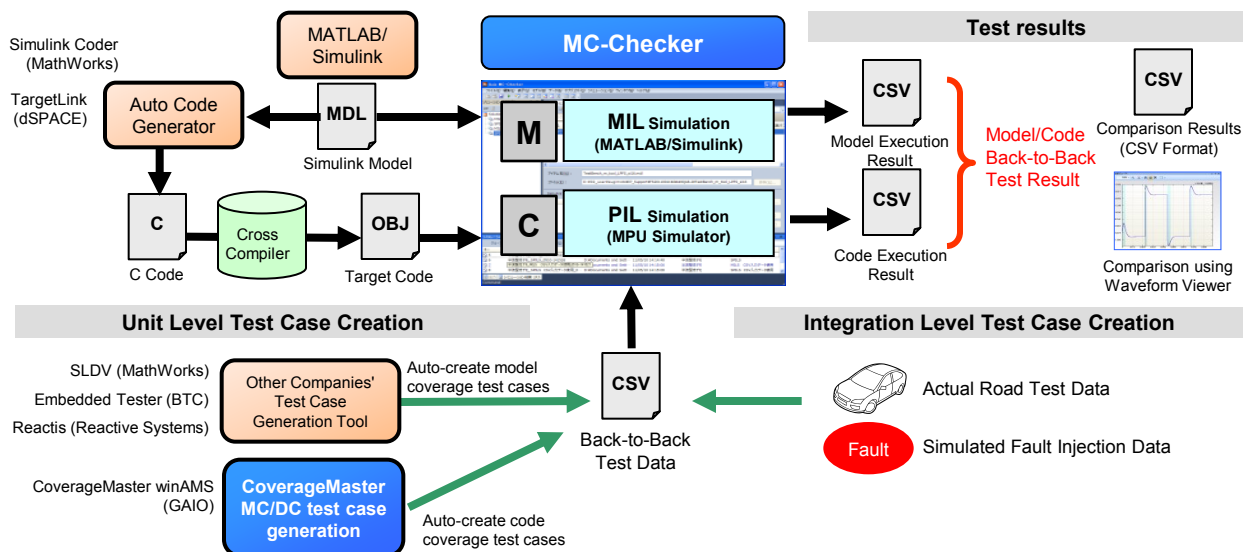
Supports both unit level and integration level model/code verification as required by ISO26262

MC-Checker is capable of performing verifications on both the unit level and integration level. Unit level verifications compare the minimum unit sub-system (model) to the corresponding C-functions using MBD tool generated coverage test cases. Integration level verifications compare function unit Simulink blocks (models) with the corresponding C-functions using actual road test data or simulated fault injection data.



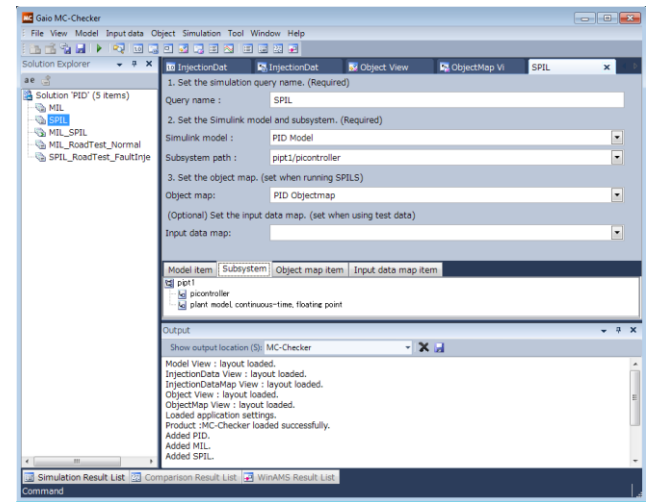
Verification Level	Code / Model	Test Cases
Unit Level	[Model]: Minimum unit sub-system [Code]: Corresponding C-function	Model/Code coverage test cases generated by MBD tools.
Integration Level	[Model]: Function unit Simulink block [Code]: Corresponding C-functions	Road test data from actual automobile or simulated fault injection test cases.

MC-Checker Back-to-Back Test Tool Chain



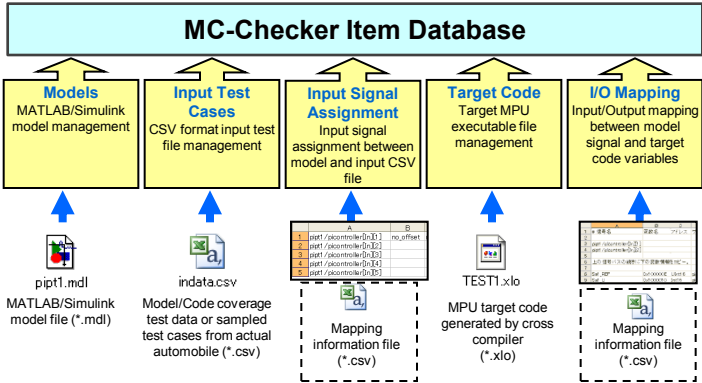
Integrated file management

Necessary files (resources) used during model/code verification such as model files, compiled target code, and test data files may be managed from within the MC-Checker interface.



Easily setup tests using test items added to the test environment

Test queries such as model execution (MIL simulation) and/or code execution (S-PIL simulation) can be easily configured using test items added to the test environment. This allows the user to setup a variety of tests by selecting different combinations of models, target code and test data.



Import test data file from other MBD tools
Uses CSV files for input/output test data



MC-Checker uses general CSV format files for data input and output. Model or code coverage test cases may be imported from other model base development tools such as:

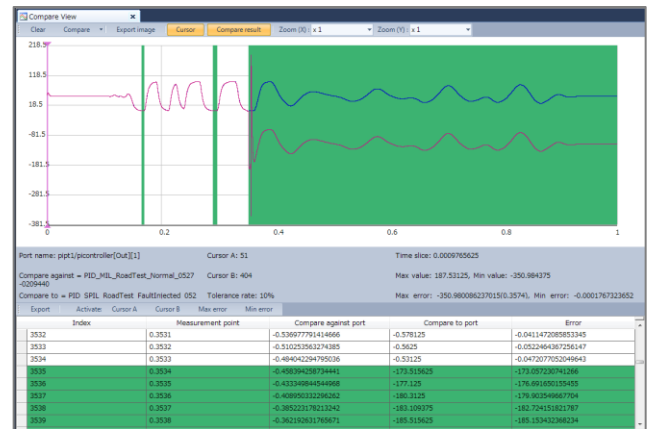
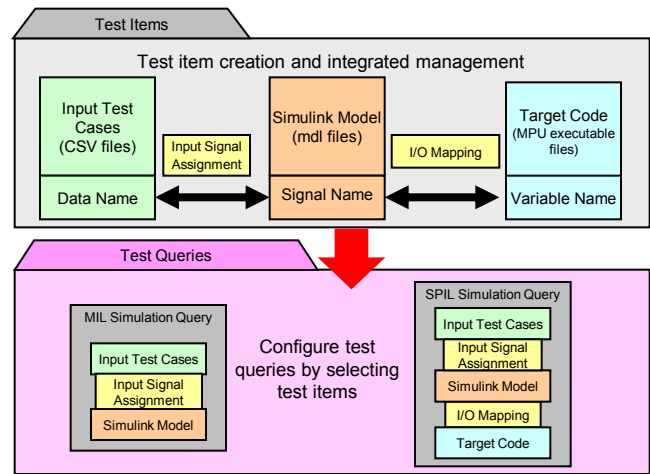
- EmbeddedTester (BTC): Generates MC/DC coverage test cases from auto-code generated by TargetLink (dSPACE)
- Reactis (Reactive Systems): Generates model coverage test cases from MATLAB/Simulink models
- SLDV (MathWorks): Generates model coverage test cases from MATLAB/Simulink models
- CoverageMaster winAMS (GAIO): Generates MC/DC coverage test cases from C source code

Automatically compares model and code execution results with user-defined error tolerance

Errors detected during the model and code comparison will be displayed on the dedicated graphical view. The error tolerance may be specified by the user to be used during the comparison. The model/code simulation results and comparison results will also be automatically output to a CSV file.

MPU Support (As of Nov. 2013)

[Freescale]	[Renesas]
e200z3	M32R
e200z6	R32C/100
e200z4	RH850
e200z420	RX200
S12X	RX600
	SH2A-FPU
[Infineon]	SH-2A
TriCore	SH-4A
	V850
[Spansion]	V850E2M
FR81S	



System Requirements

PC: PC/AT Compatible
OS: Windows XP SP3
Software: Microsoft Visual Studio 2005, 2008, 2010
C++ Runtime Component

MATLAB/Simulink Support

R14SP2 [7.0.4/6.2]
R2006b [7.3/6.5]
R2007b [7.5/7.0]
R2010b [7.11/7.6] SP1,SP2
R2011a [7.12/7.7]

Developer

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