Offline Vehicle Calibrator Tool

Vehicle Calibrator Using

MATLAB Simulink
Offline Vehicle Calibrator Tool

Current Scenario

Includes iterative process of gathering and modifying ECU data.
Drawbacks

Difficult to see the impact of one Function on other Functions

Expensive

Time consuming

Process
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What is Offline Calibrator?

- A vehicle is conventionally calibrated by running the vehicle on test bench or running the vehicle on road. **This consumes more time & efforts.**

- In order to reduce the efforts & time, the test data are gathered at test benches (or road measurement) and analyzed in offline mode at desk using different application software.

- This requires a simulation environment which provides output as if a Vehicle (ECU-Electronic Controller Unit) would have provided for any given input.

- ECU contains the code which is generated from SIMULINK(R) models and “Offline Calibrator” utilizes the same SIMULINK(R) model to generate the signals which would have come from an ECU in a vehicle.

- Calibration Engineers can use this tool to play around with different sets of data and go back to test bench or vehicle to verify the real impact.
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Offline Calibrator Architecture
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Offline Calibrator Work Flow
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Offline Calibrator Tool Overview

Step 1: Load the SIMULINK\textsuperscript{(R)} Model to be run.
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Validator

Step 2: Validate all required Signals to be used in the Model.
Algorithm

Step 3: Define a set of algorithms through which calculated signal will be influenced.
Simulation

Step 4: Run the model in automatic mode using PCT.
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Multiple tasks running in PCT

• The same model has to be run with different set of data.

• Each set of data is provided to the model simultaneously and they run in parallel using PCT.

• This optimizes the time and resource utilizations.

• Impact of changes in one particular module on other modules are analyzed quickly.
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Analysis

Step 5: The simulated and measured signals are compared & analyzed statistically.
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Report

Step 6: All the simulated signals are recorded in a Report file & shared with OEMs.
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RESULTS

Fast Simulation of Behavior of Vehicle Functions

Huge Data is Optimized quickly

Lesser Measurements required at Car

Reduced Cost

Reduced Time

Reduced Effort
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Q & A

Thank You