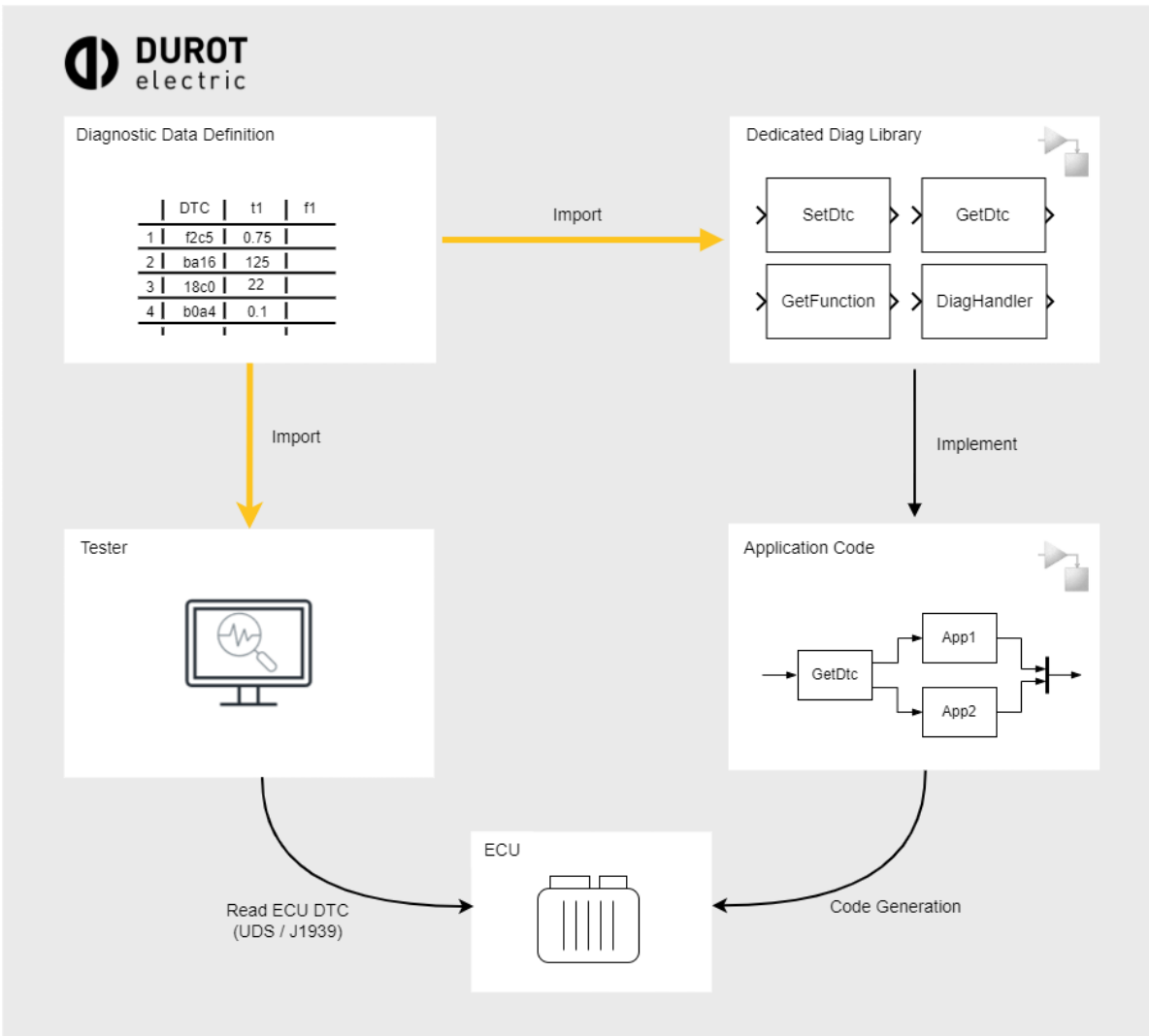
DeLib – DiagToolSet

Our diagnostics control stack library executes reception and transmission of **J1939** and **UDS** CAN bus frames. Both single and multi frame messages are supported and help analyze the status of your vehicle. The source code uses a modular design and has a simple API in Simulink. Through our holistic tool chain approach an implementation in Simulink or C is possible.

Features & Benefits

- Significantly reduced development time
- Target: Embedded On- and Offhighway ECU's
- Target independent Solution
- Automatic code generation for fault memory matrix
- Automatic code generation for Tester configuration
- Full Consistency between application and tester
- Diagnostic Data Definition form XML, XLSX or ODX
- Communication through J1939 DM and UDS
- Parameterization through UDS
- Ease of use through Simulink masks and parameters
- Cyber Security functionality included
- MISRA C / ANSI C compliant



Description

Our Library checks the signal according to your configuration. If the signal is out of boundaries, it sets a default value and an error flag for the fault handler. According to your configuration, the fault handler saves the error in memory or/and sends directly a DTC onto CAN bus.

Each fault can be classified and according to its class it will trigger a direct reaction (e.g. limp home). This way the DiagToolSet will protect the vehicle from further damage and dangerous situations but also give you insight into the vehicle for troubleshooting.

Implemented CAN Interfaces

Name	Description
J1939 DM1	Repeated communication of active DTCs
J1939 DM2	Repeated communication of previously active DTCs
J1939 DM3	Clear diagnostic data
UDS $14	Clear Diagnostic Information
UDS $19	Read Diagnostic Information
UDS $10	Session Control
UDS $11	ECU Reset
UDS $27	Security Access
UDS $3E	Tester Present
UDS $22	Read Data By Identifier
UDS $2E	Write Data By Identifier
UDS $7F	Negative Response

SAE J1939

SAE J1939 is a set of standards defining a higher-layer protocol over CAN, widely used in commercial vehicles such as trucks, buses, and agricultural machinery. It provides a comprehensive vehicle network protocol for in-vehicle communication and diagnostics.

UDS ISO 14229

UDS is a diagnostic communication protocol used in the automotive industry, defined by the ISO 14229 standard. It provides a standardized way for external test equipment to communicate with the vehicle's ECUs, facilitating functions like fault diagnosis, control of ECU functions, and reprogramming.

DTC Severity / Fault Class

Similar to UDS, J1939 uses DTCs to report faults. A J1939 DTC is composed of an SPN and an FMI, sometimes with additional information. Unlike UDS, J1939 combines SPNs and FMIs for fault identification. J1939 includes mechanisms to trigger warning lamps on the dashboard based on the severity of a fault. Lamps like the "Malfunction Indicator Lamp" (MIL), "Stop Lamp," "Warning Lamp," and "Protection Lamp" can be activated to indicate different levels of severity.