

Introduction of ASAM MCD-2D (ODX) in production

“Audi’s manufacturing branch chose ASAM and ASAM based solutions, because ASAM MCD-2D (ODX) allows high transparency of automotive functions, automated validating of data and faultless guided development of test strategies by using an authoring and viewing tool.”

Dipl. Math. Klaus Karpf
Department Manager
Siemens IA AS AP TD EOL D

I Summary

Challenge: With the launch of the new Audi A4 model in the car plant at Neckarsulm, Germany (near Stuttgart), Audi is introducing ASAM MCD-2D (ODX) based vehicle diagnostics. The importance to optimize test cycle time during final assembly implies the need to support ECU diagnostics and ECU flashing- by means of using ASAM MCD-2D (ODX) data in parallel to legacy methods in the currently used ECOS test system of Siemens.

Solution: Siemens has integrated a set of ASAM tools from the SIDIS product family into the ECOS test system, which has been well proven in the assembly lines at Audi for the purpose of ASAM MCD-2D (ODX) data processing. The ECOS authoring system provides a view to ASAM MCD-2D (ODX) data in order to configure test strategies which perform ECU diagnostics, supported by the SIDIS MCD server, in parallel to legacy methods of accessing ECUs by the Legacy-Diagnostic-Kernel of ECOS.

avoids ASAM MCD-2D (ODX) data conversion into proprietary diagnostic data formats -which will usually not match completely the released ASAM MCD-2D (ODX) standards. This project introduces ASAM MCD-2D (ODX) based ECU diagnostics by the SIDIS MCD server at Audi AG during final assembly.

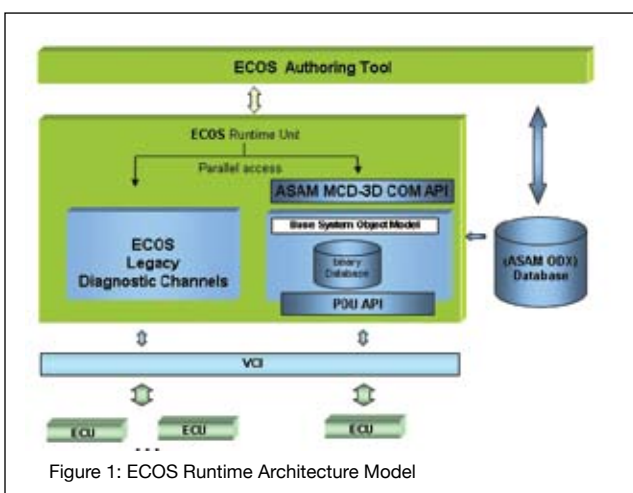
II Situation

During 2007, Audi built the new Test Centre A14 in Neckarsulm, where the car model Audi A6, as well as the model Audi A4, is manufactured. With the start of production, the use of ASAM MCD-2D (ODX) data for ECU diagnostic and ECU flashing has been introduced together with the new UDS diagnostic protocol. In the Test Centre A14, all testing tasks are performed like ECU calibration, ECU diagnostic, wheel alignment and dynamic tests, as well as final testing. The different models are tested in a mixed order so that the test system ECOS has to decide, based on the vehicle build data, which model has to be tested and whether ASAM MCD-2D (ODX) data have to be taken into consideration during the test.

III Success strategy

Audi has implemented a specific workflow to validate ASAM MCD-2D (ODX) data container, against ASAM guidelines prior to the data transmission to the test system, in order to guarantee trouble free data processing during final assembly.

The SIDIS Data Manager, integrated into ECOS, imports ASAM MCD-2D (ODX) data into its internal database and performs additional conformity checks. The imported data can be viewed by the authoring system of ECOS so that test programs supporting ASAM MCD-2D (ODX) based diagnostics can be performed, with the required parallelisms to legacy ECU diagnostic.



Key Benefits: The described approach supports the usage of generic ASAM MCD-2D (ODX) formats by the SIDIS MCD server and

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The test programs and the ASAM MCD-2D (ODX) data are transferred to the testers, where the test programs are executed by the SIDIS MCD server or by the Legacy-Diagnostic-Kernel of ECOS respectively. The used SIDIS MCD server of Siemens supports the ASAM MCD-2D (ODX) Data Version V2.01 and the ASAM MCD-3D API Version V2.0.

authoring system by using ASAM MCD-2D (ODX) are still to be realized in the next stages of development.

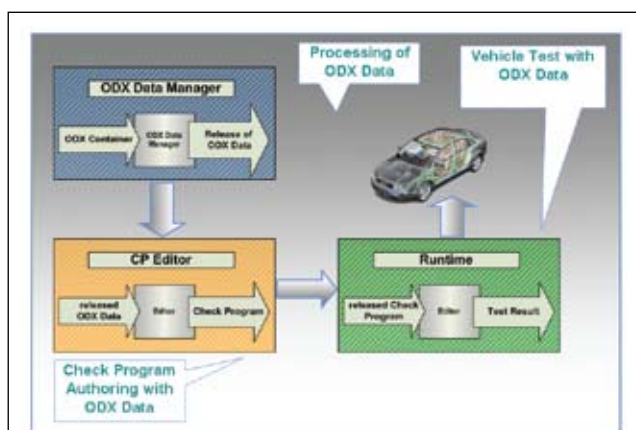


Figure 2: ASAM MCD-2D (ODX) Data Workflow

IV Business benefits

The introduction of ASAM MCD-2D (ODX) in Audi's manufacturing branch produces the following advantages:

- Transparent planning of automotive functions and products
- Highly validated diagnostic data, to avoid troubles during the final assembly
- Users of the authoring tool are able to configure test programs by using ASAM MCD-2D (ODX) data and structures (using and learning the new ASAM MCD-2D (ODX) standard becomes more efficient)

V Future Developments

Further important features like the parallel diagnostic of two or more ASAM MCD-2D (ODX) control units, the usage of the PDU API interface in combination with ISO communication parameters or the improvements in the volume of data on test clients, and the faultless guided