DANLAW®

☑ Mx Suite

Benefits

All the existing capabilities of MxSuite are available, such as graphic interface, comprehensive pass/fail, scheduling, easy to read reports, and more

Requires no programming knowledge to create tests

Allows simple equivalency testing when migrating to an AUTOSAR architecture or when using MBD

Easily measure code coverage while testing using Danlaw's Code Coverage tool – RapiCover

Features

Provides a PC based test environment for testing C/C++ implementations of SWC's

Includes an automatically configured Window-based AUTOSAR OS

Generates a fully configured RTE ready to link to your SWC software

Supports testing of individual software components and compositions

Allows the tester to manipulate all the inputs to the SWCs including function call return values

Supports AUTOSAR Releases 3.2, 4.0.x, 4.1.x, 4.2.x, 4.3.0, and 4.4.0

MxSuite™ AUTOSAR Connector

From Code to the Test Environment

AUTOSAR software components (SWCs) can be quickly and efficiently tested with little or no programming experience. MxSuite automatically creates a test harness in just a few steps by importing I/O information from an AUTOSAR Architecture tool (ARXML files). The test harness includes a Visual Studio project, an RTE simulation, and an AUTOSAR OS implementation that runs under Windows. After adding the source code, a fully configurable PC platform is ready to build and perform functional testing of the SWCs.
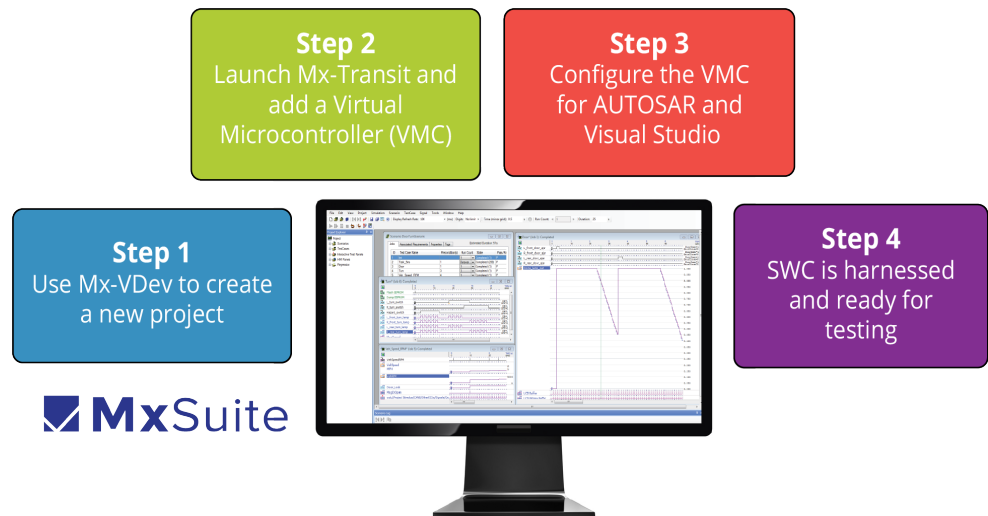

Real-time AUTOSAR Environment → MxSuite Test Environment
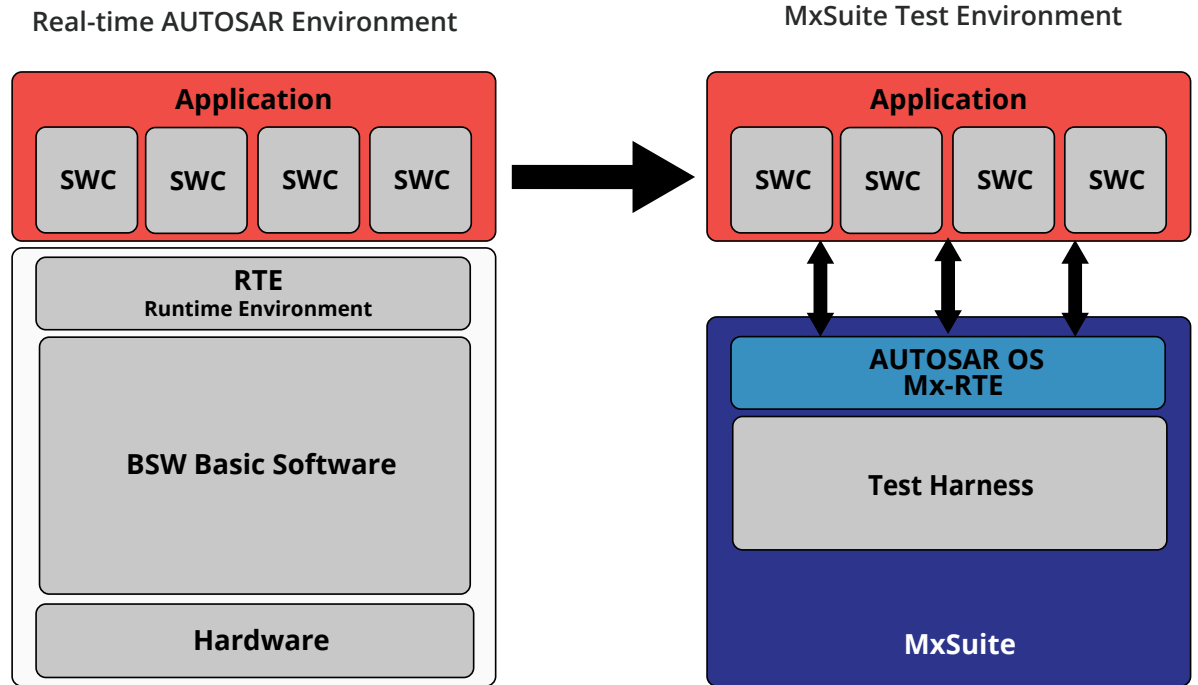
Value Added Features

- ✔ Easy of integration with ALM tools
- ✔ Portability of test cases between MIL, SIL, PIL and HIL
- ✔ Standard licensing model for all phases of the testing life cycle
- ✔ Ability to use SWCs in a closed loop test environment, co-simulating with Simulink and other virtual or real ECUs
- ✔ ISO 26262 Tool Qualification Kits available

Partnered with:

AUT●SAR

DANLAW®

MxSuite AUTOSAR Connector

Auto Harnessing Process

Step 2
Launch Mx-Transit and add a Virtual Microcontroller (VMC)

Step 3
Configure the VMC for AUTOSAR and Visual Studio

Step 1
Use Mx-VDev to create a new project

Step 4
SWC is harnessed and ready for testing

MxSuite

Supported Feature Details

Single Component Test

- Sender-Receiver Interfaces
    - Unqueued (Rte_Read, Rte_Dread, Rte_IsUpdated and Rte_Write API)
    - Queued (Rte_Send, Rte_Receive API)

- Client Server Interfaces
    - Synchronous (Rte_Call API)

- Mode Switch Interfaces
    - Mode Manager (Rte_Switch API)
    - Mode User (Rte_Mode API)

- Calibration Parameters (Rte_CData, Rte_CalPrm APIs)

- Per Instance Memories (Rte_Pim API)

- RTE Events
    - Timing Event
    - Data Received Event
    - Operation Invoked Event
    - Mode Switch Event

Composition Test

- Assembly Connectors
- Delegate Connectors

RTE Full Behavior

- RTE Error codes (RTE_E_OK, RTE_INVALID, etc.) simulation
- RTE Error code validation

RTE Generation

- Application header files (Rte_<SW-C>.h)
- RTE source file (Rte.c)
- RTE header file (Rte.h)
- RTE Life Cycle file (Rte_Main.h)
- Memory Mapping header file (MemMap.h)
- Compiler abstraction file (Compiler.h)
- Compiler abstraction configuration file (Compiler_Cfg.h)
- Standard types header file (Std_Types.h)
- Platform types header file (Platform_Types.h)
- Application Types header (Rte_<SWC>_Type.h)
- Data Handle Type header (Rte_DataHandleType.h)

Automatic Harness Generation

- AppIF.c
  AUTOSAR ports exported to MxVDev Signal dictionary, readily available for Test Case development
- MxVAutosarHarness.c
- MxVAutosarHarness.h

OSEK OS Support (Scheduling Runnables)

- MxVOSKEOS.c
  PC based emulated TASK, ALARM Configurations
- MxVOSEKOS.h

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