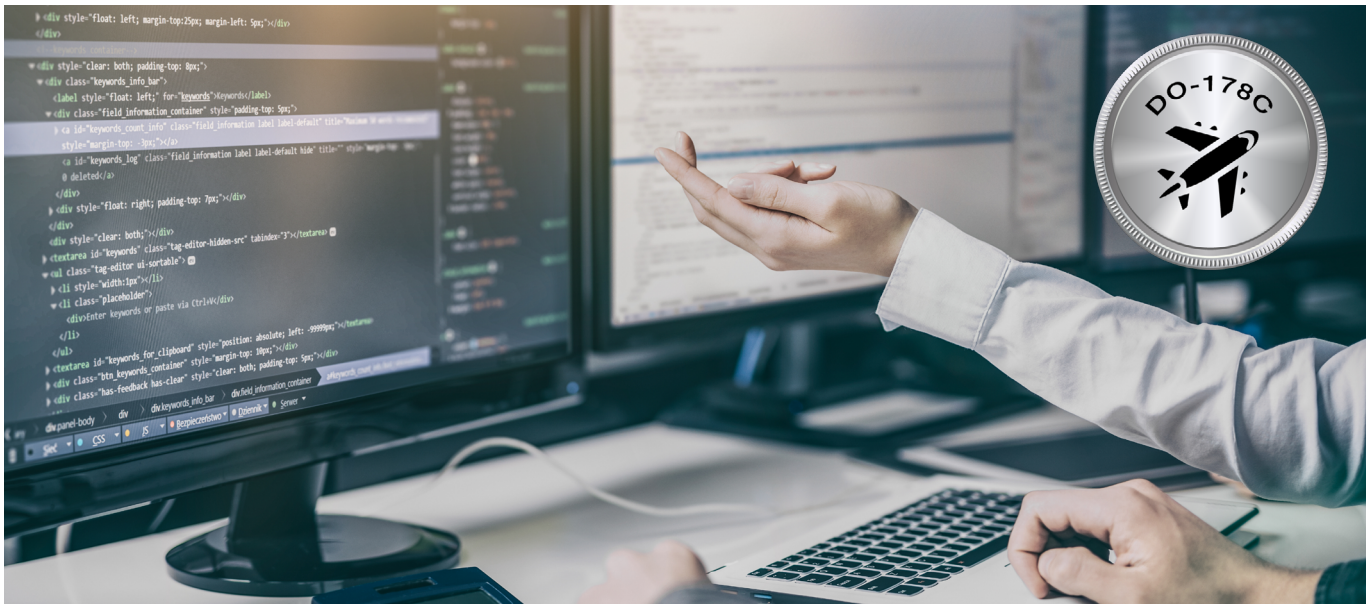
LAUTERBACH
DEVELOPMENT TOOLS

TRACE32®

TOOL QUALIFICATION SUPPORT-KIT

Minimize Your Debug- and Trace-Tool Qualification Efforts and Costs in Safety-Related Avionics Projects

DO-178C



TOOL QUALIFICATION SUPPORT-KIT FOR AVIONICS

The Lauterbach TRACE32® Tool Qualification Support-Kit (TQSK) provides everything you need to qualify your TRACE32® tools for use in safety-related avionics projects with the least possible effort. It is designed for the qualification of TRACE32® as a TQL-5 tool.

BENEFITS – MORE TRUST, LESS EFFORT

- Our fully-features and field-proven TQSK minimizes your tool qualification effort and costs. It includes artifacts, templates, and test cases that you can adopt for different projects and architectures easily.
- Our Test Suite – Debug provides test cases for all common debug tasks such as target configuration, programming flashes, loading programs, setting breakpoints, and reading/writing of memory and variables as well as configuring your devices for trace. It supports symmetric/asymmetric multiprocessing (SMP/AMP).
- Our Test Suite – Coverage includes statement and branch coverage as well as MC/DC. It supports source code and assembly level coverage, and incremental as well as SPY Code Coverage modes.
- All test suites run in the target environment as well as in the TRACE32® Instruction Set Simulator. We provide test suites for our TriCore™ (including TC4x), Arm® and M68060 Instruction Set Simulators, as well as full support and service around your tool qualification.

WHAT ARE THE REQUIREMENTS FOR A TOOL QUALIFICATION?

The final tool qualification can only be done in the very specific project environment at customer site, because it is usually different from the vendor's test environment. Our easy to use TQSK ist the best solution for minimizing the qualification effort, as the supplied test cases and documents do not have to be created from scratch, but only adapted to the customer environment.

DO-178C

How our TQSK Simplifies Your Tool Qualification Process

Qualification of safety-critical projects according to DO-178C also includes qualification of the development tools used. We can support you in ensuring that you can perform the final qualification with the least possible effort: In step 1 we prepared the documentation required for the qualification process, developed appropriate test suites for each use case, performed the prequalification of our tools, before we provide the resulting data to you in the form of our Tool Qualification Support Kit. *(Figure 1/ top)*

In the second step you run the tests in your environment and get a test report that includes the test results for your specific target.

The documents (artifacts) we deliver you can adopt to your operational environment easily as well. At the end of the process you have all deliverables for your tool certification together. *(Figure 1/ bottom)*

In conclusion our fully-featured and field-proven TQSK minimizes your tool qualification effort and costs. If you would have needed several months for your tool qualification without TQSK, this time is shortened by a multiple. Finally, you can adopt the TQSK for different projects and architectures easily.

WHAT IS DO-178C?

DO-178C is a formal process standard that covers the entire software lifecycle – planning, development, and integral processes to ensure the correctness and robustness of software systems for civil aviation applications.

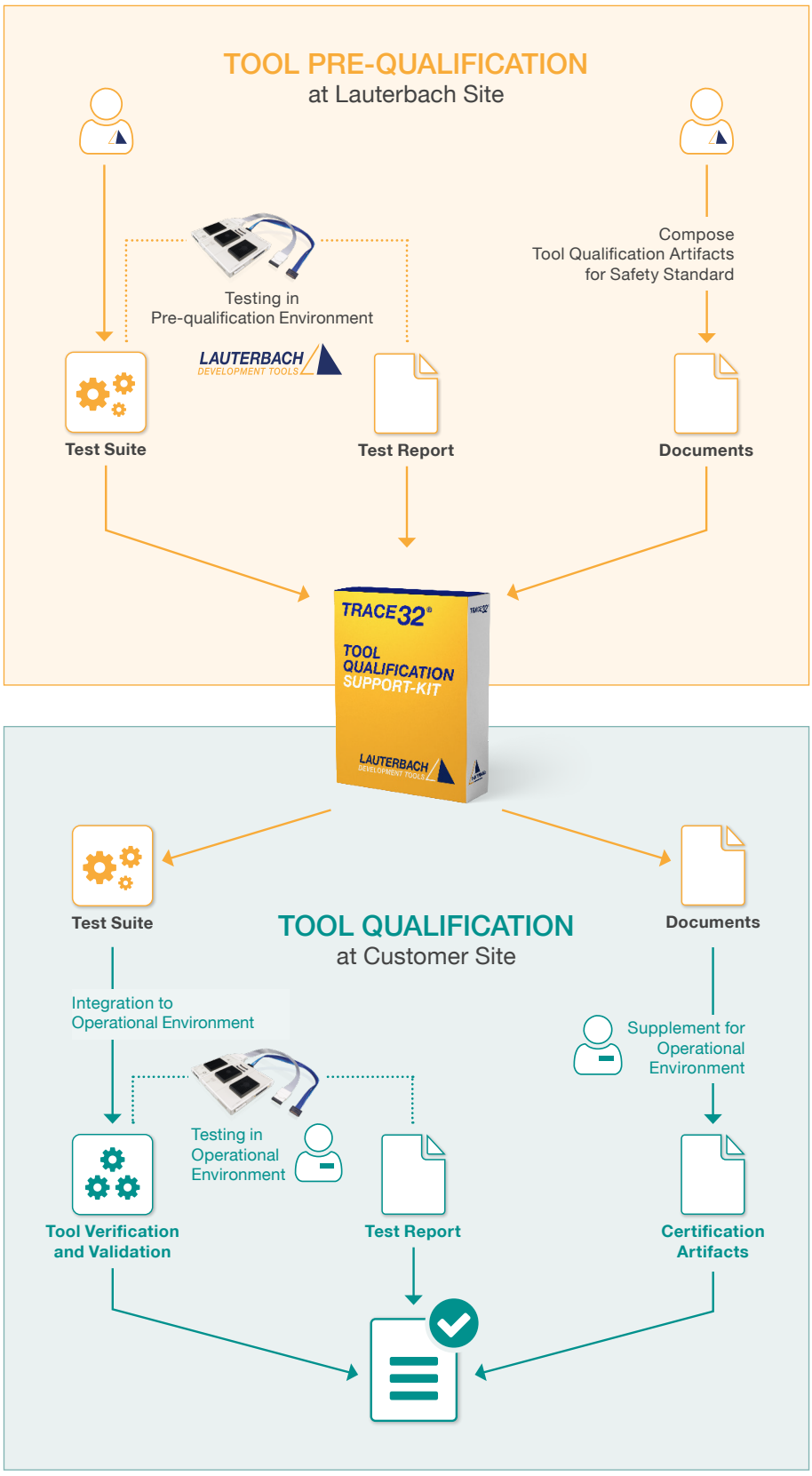


Figure 1: The 2-stage qualification process

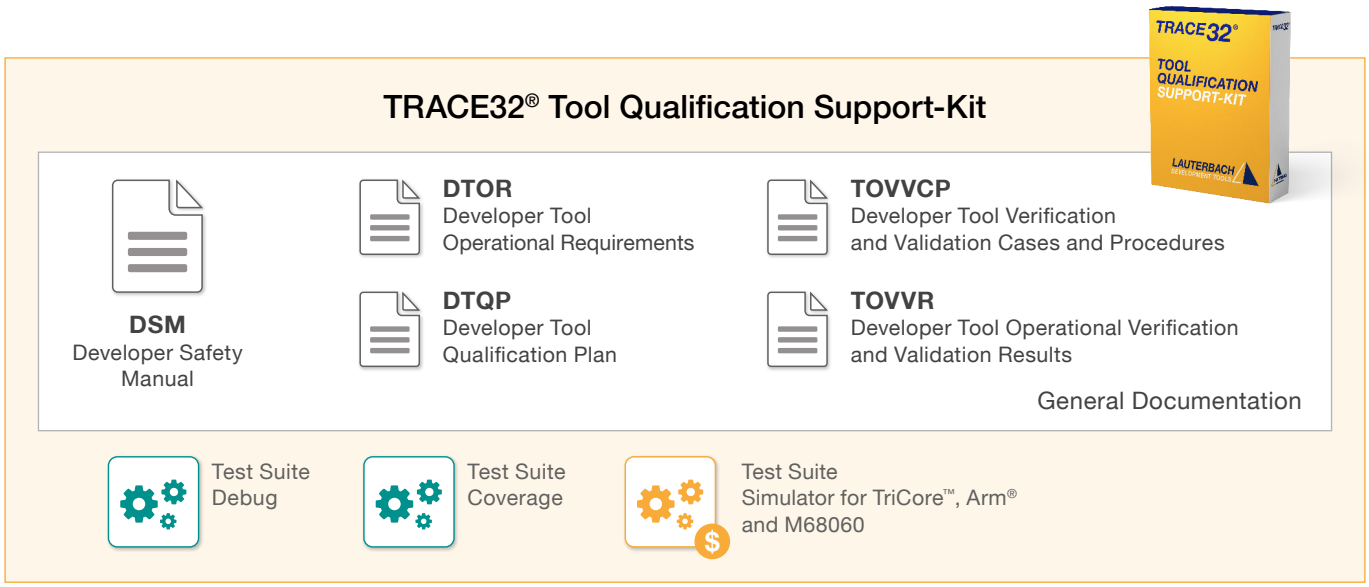


Figure 2: TQSK structure

Test Suite Debug

Our Test Suite – Debug provides test cases for all common debug tasks such as target configuration, flash programming, loading programs, setting breakpoints, and reading/writing of memory and variables as well as configuring your devices for trace. It supports symmetric/asymmetric multiprocessing (SMP/AMP).

Test Suite Coverage

Structural coverage is among the tool use cases that need to be qualified. Our Test Suite – Coverage includes statement and branch coverage as well as MC/DC. It supports source code coverage for C, assembly level coverage for executable object code, and Incremental as well as SPY Code Coverage modes.

Pre-qualified Chips/Architectures

We have pre-qualified our Test Suite – Coverage with the following chips/architectures:

- TI Hercules™ RM57Lx – Arm® Cortex®-R5
- NXP MPC5777M – PowerPC™ MPC55xx
- Infineon Aurix™ TC297TF – TriCore™ TC27x
- ST Microelectronics Stellar SR6P7G7 – Arm® Cortex®-R52
- NXP MPC565 – PowerPC™ MPC500
- NXP M68060 – 68060

We have pre-qualified our Test Suite – Debug with the following chip/architecture:

- Infineon Aurix™ TC297TF – TriCore™ TC27x

You can adopt both Test Suites to your chips/architectures easily.

Test Suite Simulator

We also provide test suites for our TriCore™ (including TC4x), Arm® and M68060 Instruction Set Simulators (ISS). A qualified ISS is an accepted test environment in the software module testing phase of the project. In this way you can start your product software qualification before hardware is available.

TQSK Services

We provide you a complete service for your tool qualification. This includes:

- Download of personalized versions of TQSK Test Suites
- Access to all notable TQSK-related changes to the TRACE32® software
- Access to all known TQSK-related issues and their status

MORE INFOS ABOUT TQSK

www.lauterbach.com/use-cases/tool-qualification