hitex

EMBEDDED TOOLS & SOLUTIONS
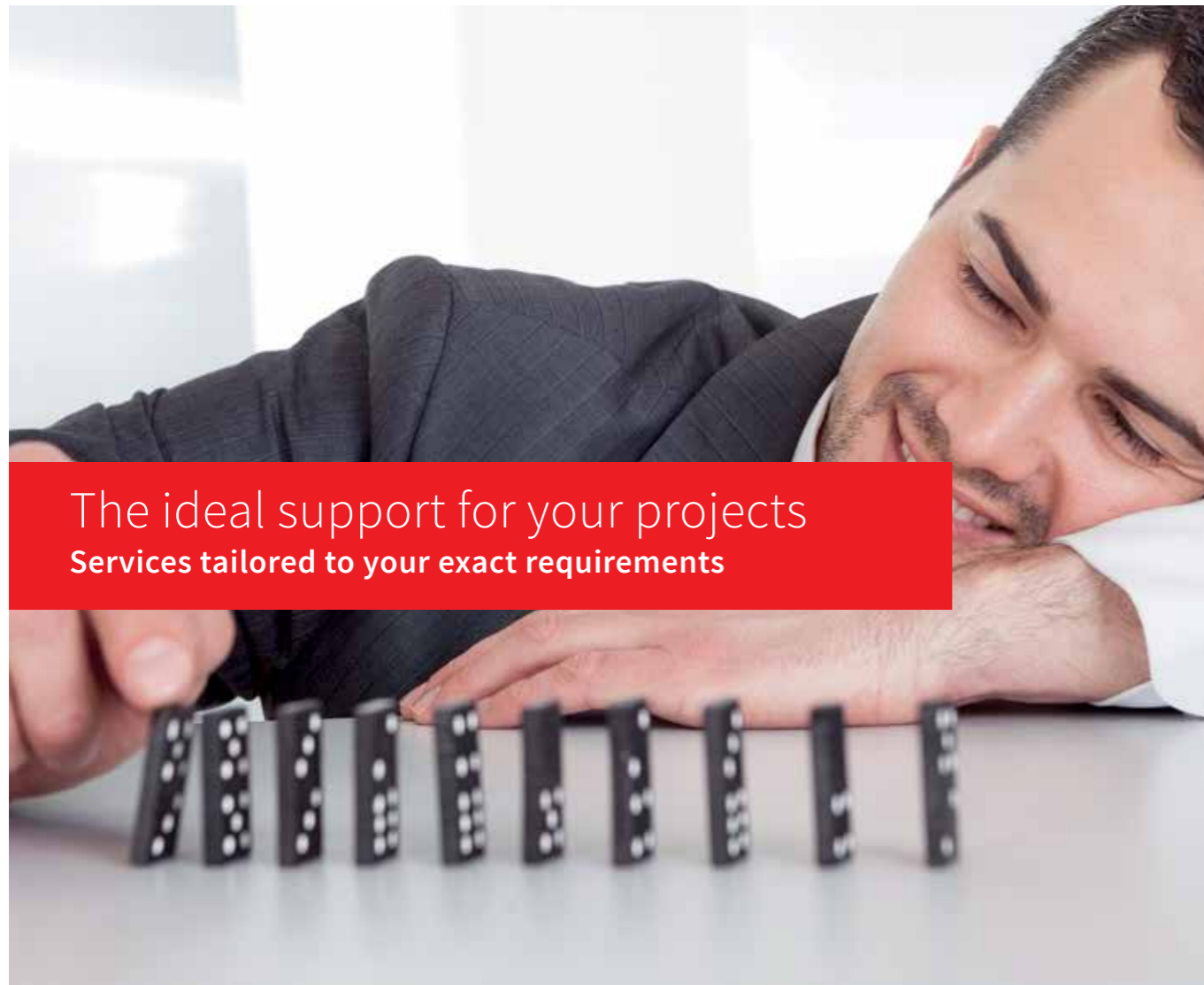
Building a safe and secure embedded world

Does your unit live up to expectations?
Secure your development with fast, qualified service

> Brochure
Unit testing services

The ideal support for your projects
Services tailored to your exact requirements

Unit testing services
Secure your development with qualified service

Unit tests are not just urgently recommended, or even required, by many security standards – they are also "de rigueur" when it comes to demonstrating the proper development of your embedded software, either for yourself or for your clients. If you already have testers, or only want to outsource part of the testing procedure, please see pages 6-7 for the test module packages we can offer to complement your existing resources.

The tests can be conducted in three ways:

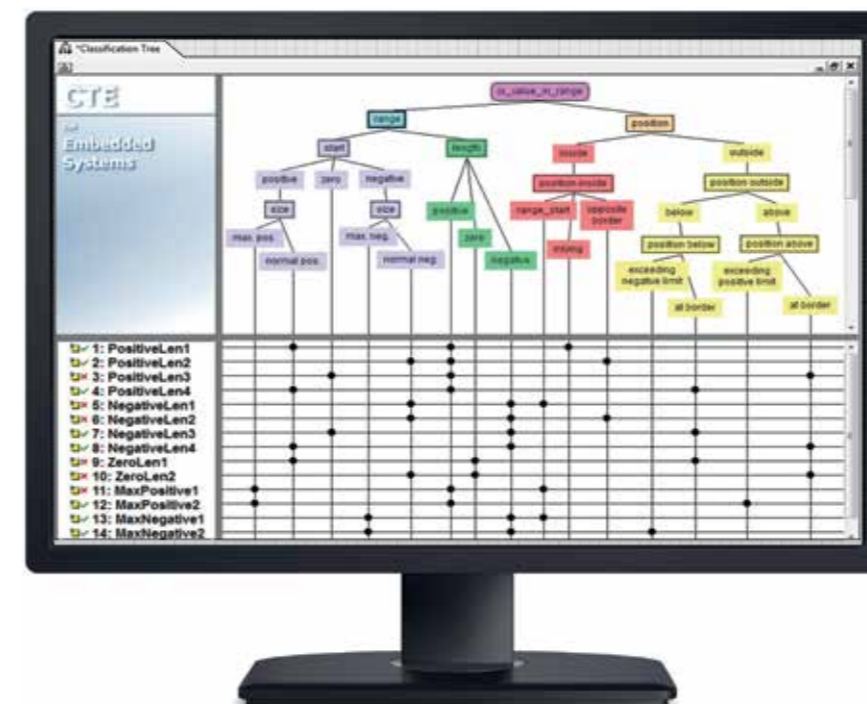| During the development process	After software development	Made-to measure testing
Integrated development testing – the "elegant" method. Our experts receive the specifications of your software units. The units are then reviewed and assessed in terms of testability. Testing time can be significantly reduced through the design. The results are used in the development process and tested by us.	You have already developed the software and provide us with the code. We analyze the code and can also offer you a flat fee for the test. You know the precise costs and price in advance. We have a long track record of experience with customer projects.	You decide what you want to do yourself or with existing external providers, and we take care of the rest. To ensure successful teamwork, we can provide a secure infrastructure for tracking systems (JIRA), repositories (SVN) and data exchange. More information is provided on pages 6 and 7.

Benefits

✔ Flexible and scalable test scope giving you complete control

✔ Tests are conducted quickly and professionally with all the required documentation provided for certification purposes

✔ Full support provided by our experts to field any questions in the event of a test audit

✔ Gain valuable testing skills and know-how

✔ Complete test databases provided for any subsequent regression tests

◄ We work professionally according to the classification tree method with a CTE (classification tree editor) for embedded systems. That brings clarity and organization to the testing process.

What test we perform you

Every project has different requirements, and that's what determines the costs involved. For example, simple C0 coverage can be achieved with fewer test cases than MC-DC coverage. These requirements are discussed at the beginning of the project. You choose the package that fits your needs. Or we can design a custom package for you. Talk to us.

1.	UNIT-TEST-STD

The inexpensive test without review
> Unit tests performed by unit testing experts.
> Unit test specifications and unit tests are conducted without reviews.
> The usual specifications and reports that are generated by CTE (classification tree editor) and Tessy are handed over.
> Errors in the test specification or test execution that are found during reviews by the client will be corrected by us.

2.	UNIT-TEST-QM

The test service under the QM standard without the additional costs under SIL or ASIL requirements
> All activities of the UNIT-TEST-STD are included.
> The tests and reviews are performed by experienced test experts.

3.	UNIT-TEST-SAFE

The complete service for development under SIL or ASIL
> All activities of the UNIT-TEST-QM are included.
> Trained testers conduct tests according to IEC 61508 and ISO 26262.
> The tests and reviews are performed after the Hitex development process. You will receive all documents required by the standard.
> If desired, the testing can be integrated into the client's development process.

4.	Scope of delivery

You receive
> The test specification
> The test reports
> The test databases
> The specification review documents (not with UNIT-TEST-STD)
> The test review documents (not with UNIT-TEST-STD)
> Everything is handed over so that you can continue working.

5.	If desired, we can assist you in an audit by your client or certifying authority

Successful projects – satisfied customers!

„The project collaboration with Hitex was extremely important to us in complying with standards and staying on schedule. Both objectives were fully achieved."

▶ Kai Schneider, Director of R&D
   Friedrich Lütze GmbH, Weinstadt

Crane Remote Control Software (SIL 3)
– Over 1,200 hours of testing, client attained TÜV certification without reservations

Software for an active explosion barrier system for gassy underground mines (SIL 2)
– Over 500 hours of testing: Significant SIL2 violations found and reported. Certification promptly achieved without problems.

Hybrid Drive Software Test
– Over 800 hours of testing: Client integrated unit tests in its product development process. Software accepted without reservations.

Keyless Steering Wheel Lock
– Over 800 hours of testing: Very first internal audit a success!

Testing of safety-critical storage-programmable logic controller
– Execution of 2 test projects, both with certification according to (IEC 61508:2010 (SIL 3), IEC 62061 (SIL CL 3) and EN ISO 13849-1 (PL e)

Our highly experienced team conducts the tests with professionalism and speed:

From estimating the cost ▶ to transferring the code ▶ handling questions about the code ▶

performing the test ▶ handing over the test ▶ through to transferring know-how to the client

Any questions?
Get in touch with us to discuss your project and how Hitex can help you succeed:
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Made-to-measure testing modules
You only pay for what you really need

We also offer all test components individually. You decide what you have and what we can add to your existing resources.

Test management	Static Test	Assistance with module design specification	Review of module design specification	Test environment
▪ Monitoring of the testing process ▪ Creation of test plans ▪ Resource distribution ▪ Management of documents and results	▪ Code review ▪ MISRA check ▪ Review documents ▪ Checklist	▪ Creation ▪ Modification ▪ Enhancement	▪ Formal testing ▪ Verification ▪ Log	▪ Setup ▪ Modification on simulator or hardware

Preparation of dynamic tests	Review of test specification	Test execution and analysis of results	Review of test execution	Document creation for certification
▪ Creation of test specification ▪ Definition of test data and expected results	▪ Check ▪ Review log	▪ Implementation of test cases ▪ Result analysis ▪ Error log ▪ Requirements management	▪ Testing and implementation of test execution ▪ Test reports	▪ Completion ▪ Modification of documents

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Consulting Engineering Testing Training Tools Software Components Systems Manufacturing