PARASOFT
Automated Software Testing

Parasoft C/C++test

UNIFIED C AND C++ DEVELOPMENT TESTING

GET A FREE TRIAL

https://www.parasoft.com/ctest

ANALYZE HOST-BASED AND TARGET-BASED C AND C++ CODE

Increase the Quality of Complex Embedded C/C++ Software

Reduce the risk of complex embedded software, leveraging comprehensive C and C++ coding best practices (e.g. MISRA C/C++, AUTOSAR C++, JSF) and a powerful unit testing framework for both your host and target platforms.

Mitigate the Security Risk from Connected IoT Devices

Ensure the consistent application of security best practices (CERT, CWE, OWASP) and integrate with API-level attacks to uncover security issues deep within the application. Create a robust software development process, with comprehensive reporting and qualification kits, using TÜV-certified C/C++test.

Automate the Testing Process

Reduce the time and effort required for testing by seamlessly integrating Parasoft C/C++test into your CI/CD pipeline.

Deliver C and C++ software that's robust, predictable, and secure.

Manage risk and costs by building better software. Static analysis and unit testing are critical for application quality, security, and safety, and the cornerstone of any connected-application development initiative today.

Parasoft C/C++test is a unified testing solution that helps you identify defects earlier and reduce the overall burden of achieving compliance with standards such as AUTOSAR, MISRA, ISO 26262, DO-178B/C, IEC 61508, and IEC 62304.

C/C++test helps organizations reduce risk, cut costs, increase productivity, and achieve industry compliance goals by automating a critical set of software testing needs. C/C++test can be used in both host-based and target-based code analysis and test flows, critical for embedded and cross-platform development.

FUNCTIONAL SAFETY AND COMPLIANCE

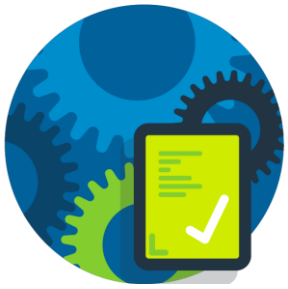
Parasoft C/C++test provides everything you need to comply with industry standards:

CERTIFIED SOFTWARE

Parasoft C/C++test is certified by TÜV SÜD for functional safety according to IEC 61508, IEC 62304, and ISO 26262 standards, helping development teams achieve the desired safety integrity level (SIL/ASIL).

QUALIFICATION KITS

To streamline the process of tool verification, C/C++test Qualification Kits are available for DO-178B/C, DO-330, ED-12B/C, ISO-26262, IEC-61508, and EN-50128, and other safety standards. These kits are customized for your specific environment and usage requirements, ensuring you have all the documentation required for verification.



"By deploying C/C++test as the coding standard analysis tool, Mobile solution project in the SW Center of Samsung Electronics has decreased the amount of coding violations by 80%; a significant improvement on their development/testing process."

SAMSUNG

STATIC ANALYSIS AND SECURITY TESTING

Static analysis in Parasoft C/C++test accurately exposes the industry's broadest range of defects and non-compliance issues.

- Helps you quickly find and fix code defects with complete path analysis for accurate violation detection.
- Supports both Preventative (Pattern) and Detection (Flow-Based) Static Analysis techniques, along with a comprehensive set of Metrics for code structure.
- Supports custom rule creation with a dedicated RuleWizard.
- Comprehensive visibility into compliance across teams and projects - AUTOSAR C++ 14, MISRA C 2012, MISRA C++ 2008, CERT C/C++, CWE, HIC++, and more.
- Centralized reporting and compliance auditing, including dedicated compliance reporting and process management for coding standards.
- Ease of deployment: easy to configure, easy to automate, non-intrusive and scalable across multiple teams.

UNIT AND INTEGRATION TESTING

Parasoft C/C++test minimizes the complex and time-consuming challenges associated with creating and maintaining unit and integration tests, by providing a unified test environment for test creation and management, isolation of the code under test, and advanced coverage reporting to ensure the application has been thoroughly tested. A TÜV-certified tool, Parasoft C/C++test allows you to test both on and off target, supporting today's embedded, connected devices.

- A rich, IDE-based graphical environment for creating and managing test cases, via both UI-driven editors and directly in source code.
- Automated stubbing framework for easily isolating code under test.
- Advanced code coverage reporting, supporting multiple metrics, including Function, Line, Statement, Block, Path, Decision, Simple Condition, MC/DC, Call.
- Ability to capture coverage and report results from open-source testing frameworks, such as CppUnit and CppUTest.
- Centralized reporting with Parasoft DTP for aggregation of coverage for both manual and automated testing, providing per-test coverage and reports of trending results across builds.
- Support for on-target testing with a broad set of development environments, such as ARM, IAR, Green Hills, Tasking, and Wind River.

RUNTIME ERROR DETECTION

C/C++test supports runtime error detection for embedded C applications, helping you identify security vulnerabilities and serious runtime defects.

COVERAGE ANALYSIS

In addition to unit and integration tests, C/C++test enables you to capture the same broad set of coverage metrics for tests that are executed outside the unit testing framework, such as in manual testing efforts.

REQUIREMENTS TRACEABILITY

With the ability to associate tests, source code, and code coverage with requirements, the reporting dashboard provides full detail of requirements implementation status and traceability required by functional safety standards.

SUPPORTED HOST PLATFORMS

Windows
Linux

SUPPORTED TOOL CHAINS / ENVIRONMENTS

ARM
Eclipse IDE for C/C++ Developers
GreenHills
IAR Keil
Microsoft
QNX
Renasas
Texas Instruments
WindRiver

BUILD MANAGEMENT

GNU make
Bazel
Sun make
Microsoft nmake
ElectricAccelerator

CONTINUOUS INTEGRATION

Bamboo
Jenkins
Docker containers
TeamCity

SOURCE CONTROL

AccuRev SCM
Borland StarTeam
CVS
Git
IBM Rational ClearCase
IBM Rational Synergy
Mercurial
Microsoft Team Foundation Server
Microsoft Visual SourceSafe
Perforce SCM
Serena Dimensions
Subversion (SVN)

COVERAGE METRIC GENERATION

Function
Call Line
Statement
Block
Path
Decision
Simple Condition
MCDC

PARASOFT®
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