



## **SuperTest extended by 3000 new tests and support for C++20**

- *C++20 supported with new tests and line-number accurate diagnostic reporting*
- *Enhanced floating-point checks confirm arithmetic accuracy*

**Amsterdam, The Netherlands – 12 January 2022** – Solid Sands, the world leader in testing and validation for C and C++ compilers and libraries, today announced Update #3 to its SuperTest Vermeer Release. This update supports widespread adoption of the C++ programming language in safety-critical applications with comprehensive C++20 language coverage. SuperTest Vermeer Release Update #3 includes over 800 tests designed to verify the correct implementation of C++ language constructs. It also includes 1700 new tests for C++ library functions to make sure they work as intended in all use cases.

### **C++20 support**

The ability of C++ to meet the security, functional safety, and behavioral requirements of ISO 26262 has increased adoption of C++ in the automotive industry. Many of the latest image processing, signal processing, and machine learning algorithms used in Advanced driver-assistance systems (ADAS) are now written in C++. With SuperTest now comprehensively supporting the test and validation of C++20 compilers, developers can keep abreast of the latest developments in C++ programming.

“Vehicle manufacturers are moving from single-core embedded processors to high-performance multi-core processor solutions, for which C++ has a distinct advantage over C in terms of structuring large software projects. As a result, the AUTOSAR Adaptive Platform now includes programming guidelines for C++,” said Marcel Beemster, Chief Technology Officer at Solid Sands. “By upgrading to SuperTest Vermeer Release Update #3, developers who want to make use of the latest features in C++, can now verify that their compiler implements them correctly.”

For diagnostic tests that are specifically designed to generate a compiler error, SuperTest’s C++ support includes line-number accurate error reporting so that developers can identify the precise language construct that generates the error.

### **Arithmetic accuracy checking**

Applicable across SuperTest’s full gamut of C language support, SuperTest Vermeer Release Update #3 features improved floating-point accuracy checking, with the default accuracy limit on arithmetic operations now universally set at four ULP (Units in the Last Place – the smallest interval between two subsequent floating-point numbers). If needed, SuperTest users can change this default limit to a ULP value of their choice. For non-library arithmetic it even can be set to zero to check rounding accuracy. SuperTest Vermeer Release Update #3 also incorporates other enhancements to SuperTest’s arithmetic function testing, including improvements to its



powerful arithmetic depth suite that now supports target platforms that do not support floating-point arithmetic.

### **Improved calling convention testing**

SuperTest's calling convention test suite has been improved in terms of its ability to randomly select local and global variables. Ensuring that arguments and return values are correctly passed between a calling function and a called function is an important aspect of compiler testing that is sometimes overlooked by developers. SuperTest Vermeer Release Update #3's improved calling convention tester can be used to verify calling conventions within a compiler, verify that no compiler changes break ABI (Application Binary Interface) integrity between different versions of a compiler, and even test for calling convention consistency between completely different compilers.

### **Extended traceability**

SuperTest's section traceability – the report that details how each individual test matches the language standard – has been extended to cover all versions of C, including C18, and C++ up to C++17.

### **Enhanced host environment flexibility**

This update makes it easier to manage multiple installs of different versions in the same Windows operating system environment, allowing users to run SuperTest and SuperGuard (Solid Sands' C Library Safety Qualification Suite), or multiple SuperTest versions, on the same machine.

SuperTest Vermeer Release Update #3 is available now.

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### **About Solid Sands**

Founded in 2014, Solid Sands is the one-stop shop for C and C++ compiler and library testing, validation and safety services. Solid Sands offers extensive test and validation suites with a unique level of compiler and library test coverage, enabling customers to achieve the software tool quality level demanded by ISO standards. The company's name combines sand – the world's most abundant source of silicon – with the solidity and security expected of sector-leading testing and validation technologies. More information on the company's products and services is available at [www.solidsands.nl](http://www.solidsands.nl). You can follow Solid Sands on [LinkedIn](#), [Twitter](#) and [YouTube](#).

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