

INDEPENDENT VERIFICATION & VALIDATION SERVICES

Meeting your specifications while surpassing your expectations

Before DO-178, there was General Digital. In 1992, we were contracted by Hamilton Standard (now Collins Aerospace) to perform unit testing for a new avionics application. We soon learned that doing the process “by hand” (and later using only COTS testing software with many manual steps) was impractical and time consuming.

Prior to the implementation of FAA IV&V standards, we understood the need for improved traceability and process optimization to ensure that code can be tested in a way that is fast, safe, and reportable. Our engineers developed proprietary unit testing software that has been iterated and augmented since its inception in 1998 to be the most robust, comprehensive, and efficient unit testing tool ever created.



AUTOMATION

Our unit test tool predetermines many of the necessary conditions to meet the requirements of certain constructs and automates tracking, reducing manual steps and letting our testers do what they do best—build and execute test cases.

This process saves time and money, standardizes quality by reducing user error, and provides submission-ready reporting. It interfaces with COTS tools including VectorCAST, LDRA, and TRACE32, along with a number of proprietary customer tools.

We asked one of our senior testers to replicate a sample test case by hand (aka, how everyone else does it), and compared it with his performance using our software. The COTS by hand version took him 19 minutes, compared to just 7 minutes using our tool. That’s a 63% increase in efficiency—something that increases exponentially with the complexity of the module.

Additionally, our tool retains historical data, allowing for streamlined re-testing (even years later) as the tester does not need to reconfigure test setups—the original test scripts can be reused to provide extraordinary time savings and reduced lead times.

QUALITY

Just because a product passes submission, doesn’t mean it’s safe. Recalls of safety-critical software applications regularly occur because of poorly formatted test reports that misrepresent coverage and hide potential errors until they occur in the field, causing harm to consumers and opening up companies and regulators alike to potential litigation.

Our trained team of experienced, on-shore engineers, combined with the power of our proprietary tool, account for every possibility ensuring 100% product reliability, above and beyond the standards of certifying bodies.

We have an ISO 9001:2015 defined quality standard to maintain below a 0.5% escape rate. Everybody makes mistakes, but we’ve consistently blown that objective out of the water by maintaining a 0.1% escape rate over the last decade and beyond. Nobody else advertises their escape rate because it’s many orders of magnitude greater.

REPORTING

Our tool provides clear, submission-ready reports after the execution of a test. It removes redundancies and clearly identifies test cases for the auditor, giving them a clear picture of what is being tested and providing 100% independence coverage to the requirements—every time.

With certification agencies lacking reporting standards, the FAA and FDA have provided positive feedback regarding our reporting format, traceability, and consistency.

OUR PROCESS

- » Requirements Development and Analysis
- » Tool Validation/Qualification
- » Test Planning and Execution
 - › System Testing
 - › Regression Testing
 - › Integration Testing (HSIT, SSIT)
 - › Unit/Module Testing for Safety-Critical Embedded Systems
 - › Code Review
- » Project Coordination
- » Discrepancy Reporting & Resolution
- » Results Reporting

Our standardized processes make it exceptionally easy to do business with us. We've built our own Unit Test Quotation Tool that allows us to read your code and automatically determine how many hours it will take us to test, allowing us to issue quotations with industry-leading speed and accuracy.



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OUR TEAM

General Digital's IV&V team is internationally recognized as the best in the business.

For over 30 years, we've independently verified and validated software for aviation, defense, medical, drones, autonomous vehicles, and other safety-critical applications—and never once failed to facilitate our customer's product certification.

All of our electrical, mechanical, software, and optical engineers operate under one corporate roof in East Hartford, CT, USA, encouraging collaboration and providing unparalleled tester training and resources.

In addition to our robust unit testing capabilities, we have two dedicated testing labs for integration & systems testing. Our strategic location between Boston and New York City, just miles from a major international airport, allow us to travel to you if your testing requirements dictate.

CODES & ID NUMBERS

CAGE 1JA77

DDTC Registered

DUNS 06-551-9563

SAM/CCR Registered

PSC 7010, 7021, 7025

NAICS 541511, 541512, 541519

ISO 9001:2015 Quality Management System

Corporate Structure: SBA Small Business Concern

Avionics Compliance RTCA DO-178

Medical Compliance IEC 62304 ISO 13485 CE/MDR
FDA 510(k) Premarket Notifications

Industrial Compliance IEC 61508 IEC 61131

Transportation Compliance IEC 62279 IEC 61508

Cybersecurity DO-326

Systems Testing DO-254

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