



# TRIDENT SYSTEMS, INC.

## SAFE TEST BOUNDARIES

Testing and certification system used on AEGIS Surface Combat Systems

### About the Technology

Testing and certification, of multiple computer systems for software upgrade compatibility and integration with legacy systems can be time consuming and costly. The inefficiency of current recertification methods is even more apparent when new source code discrepancies impact only one type of platform or system while not impacting other legacy systems. The Navy needs an automated test capability for its AEGIS Surface Combat System that provides automated re-certification of downward compatible computer programs, maintains functionality, interfaces with legacy computer programs, and insures that older systems are not adversely impacted by upgrades.

Trident Systems has developed “Safe Test Boundaries (STB)”- a diagnostic application that compares and analyzes dependencies in large, complex software source codes. The application compares the changes found between two baselines of a software project and determines, based on dependency analysis, the elements that need to be retested because an element has changed or is dependent on an element that has changed. Once testing and procedures are linked to code elements, the diagnostic application recommends which test procedures need to be re-run based on the STB analysis.

### Military and Commercial Significance

DoD is the primary user and tester of software systems provided by contractors. The STB increases testing efficiency, effectiveness, and reduces maintenance and testing costs by an estimated 30-50%. The application increases software reliability by allowing evaluators to focus on source codes and functionality changes, along with eliminating dependency on functionality changes without having to involve the whole system at all stages of testing. The STB identifies those parts of the software system that are at highest risk, software elements that may be safely recertified without further intervention and those parts of the system with no changes.

Topic Number: N00-062  
(NAVSEA, PEO-IWS)

SBIR Investment: \$849K  
Project Revenue: \$1.69M

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### APPLICATIONS

- NAVSEA: Aegis Ship Self Defense System - Reduce testing cost
- NAVSEA: Chief Engineer - Evaluate changes to model data
- NAVAIR: E2C Aircraft - Evaluate changes between the Platform Independent Model and a Platform Specific Model

### About the Company

Trident Systems Incorporated is a veteran owned small business providing hardware and software systems to military and commercial clients since 1985. The SBIR/STTR program continues to be the primary source of startup revenue for Trident Systems. Hardware and software products developed from SBIR/STTR contracts include the XTouch touch screen solutions, Digital Intelligence Situation Mapboard handheld situational awareness device, and InterchangeSE systems engineering integration framework. Last year Trident Systems’ revenue grew by almost 50%, and is expected to exceed \$40M this year.