

## Supports all required ISO 26262 ASIL Code Coverage metrics:

- > Supports all levels of code coverage required by ISO 26262:
  - Statement
  - Branch
  - MC/DC
- > Automatic generation and compilation of complete test stubs and driver programs for unit and integration testing
- > Automatic regression testing
- > Requirement to test case mapping
- > Robustness Testing
- > Out of bounds values
- > Boundary condition testing
- > Test execution on host, simulator, and embedded target systems

## Sample of companies using VectorCAST developing to the ISO 26262 standard:

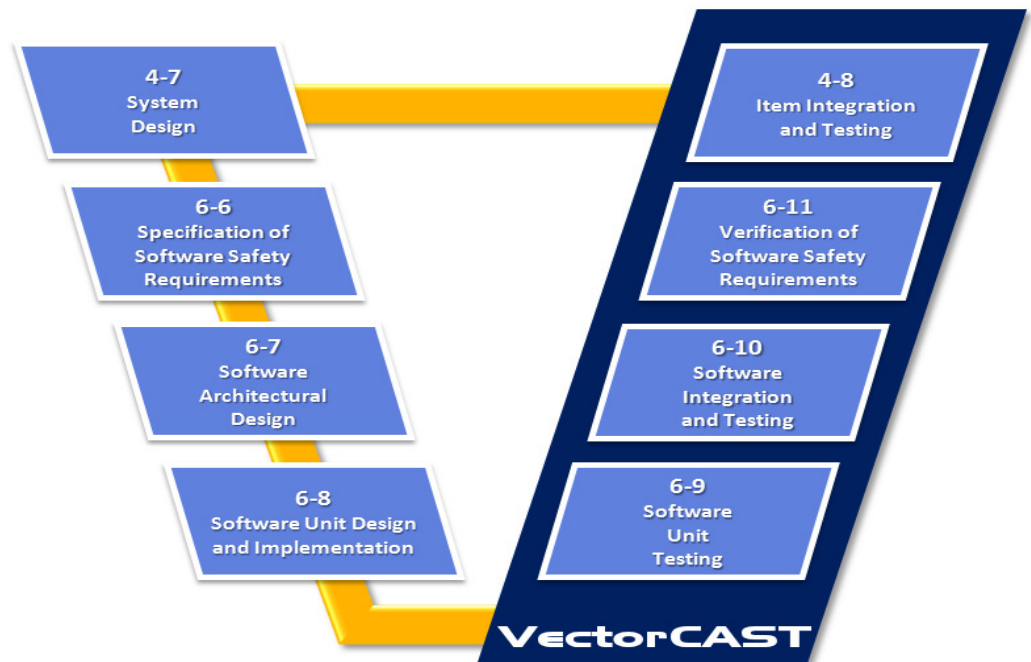
- > Autoeversystems
- > Autoliv
- > Beko
- > Caterpillar
- > Chang'an Automotive
- > Delphi
- > Dongfeng Automotive
- > ENSO
- > Fujitsu Semiconductors
- > Hyundai
- > IAV
- > Magna Powertrain
- > Magneti Marelli
- > MOTONIC
- > Robert Bosch
- > Siemens

## VectorCAST for ISO 26262

### <What is ISO 26262>

The International Organization for Standardization document 26262 (ISO 26262) provides a process framework and a procedural model for the development and test of safety-critical electronic systems in motor vehicles. It is a derivative of the International Electronic Commission document 61508 (IEC 61508) adapted for the challenges met in Automotive. The first draft available to the general public was published in July 2009 with the final release scheduled for 2011. However, the standard is already partially adopted by a number of OEMs.

VectorCAST for ISO 26262 satisfies the recommendations for software testing and verification specified in Part 6 of the standard for software development. Recommended activities include both unit level and system level testing activities, such as functional tests (requirement-based tests and partition tests) and structural coverage tests.



*VectorCAST products are used during these phases to automate ISO 26262 required testing*

### <What is VectorCAST for ISO 26262>

The VectorCAST family of tools supports the creation and management of test cases to prove that the low level software requirements have been tested and is also useful for a variety of robustness testing activities such as range and out of bounds testing. Additionally, the VectorCAST tools support the capture and reporting of structural code coverage at all levels required by ISO 26262.

# VectorCAST for ISO 26262 Capabilities

## <How VectorCAST Supports ISO 26262>

- > Complete support for all levels of structural coverage
- > Automatic generation and compilation of test stubs and driver programs for functional and robustness testing
- > Requirements can be tagged to test cases
- > Automatic generation of type value range test cases (min-mid-max)
- > Test cases based on plausible range of values

VectorCAST accelerates testing efforts related to ISO 26262 compliance by empowering users with the following benefits:

- > Interactive point-and-click and script generated test case construction
- > Test case modification and re-execution without re-compilation
- > Automatic regression testing
- > Standards compliant test report generation
- > Basis path analysis and cyclomatic complexity
- > Test execution on both host and embedded target development systems

## <Tool Qualification>

ISO 26262 Part 8, Chapter 11 recommends that software tools such as testing tools be qualified in order to provide evidence of software tool suitability for use when developing a safety-related item or element such that confidence can be achieved in the correct execution of activities and tasks required by ISO 26262. Such qualification must indicate that an erroneous result from the tool could lead to the violation of any safety requirement and that efforts were made to prevent or detect such errors.

Vector Software provides an off-the-shelf tool qualification package that demonstrates that the VectorCAST tool output is accurate within embedded development environments.

## <TÜV SÜD Certified Tool for ISO 26262 Safety Related Development>

The VectorCAST product family is a TÜV SÜD certified software tool for safety related development. The TÜV SÜD assessment and resulting tool certification of the Vector Software products offer development organizations the required evidence to demonstrate compliance with IEC 61508 and ISO 26262 standards. The Vector Software **IEC Certification Kit for VectorCAST** provides documentation, certificates, and templates that help you use VectorCAST on projects based on the IEC 61508 and ISO 26262 standards.



Certificate



Reports



Workflow



VectorCAST Tool Qualification Data

*The IEC Certification Kit for ISO 26262 includes certification artifacts and workflow guidance for projects using VectorCAST products.*

## VectorCAST Qualification Documents Include:

### Tool Operational Requirements (TOR):

- > The VectorCAST functionality in verifiable requirements
- > Project operational environment (compiler, platform, target, etc.)
- > Configuration management process
- > Method for attaining verification that VectorCAST has been satisfactorily tested against specified requirements

### Tool Qualification Data (TQD):

- > Tool qualification test data and results
- > Test scripts for re-execution



VectorCAST is a  
TÜV SÜD Certified  
Software Tool for  
Safety Related  
Development