

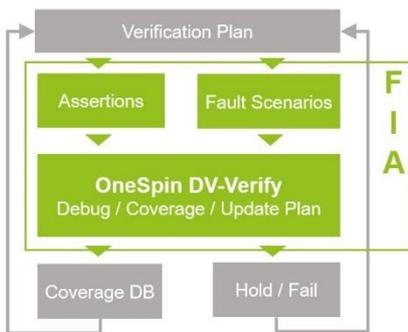
DATASHEET

OneSpin® 360 Fault Injection App™

Functional Safety App included in OneSpin 360 DV-Verify™

SMART VERIFICATION OF HARDWARE SAFETY MECHANISMS

OneSpin's Fault Injection App (FIA) automates the definition and handling of fault injection scenarios, removing the need for ad hoc verification flows or environments, thereby cutting on engineering effort and promoting reusability across projects and teams. The App provides a simple and flexible interface to define any fault scenario, starting with the signals that shall be considered as candidates for fault injection, with no need to change the design or go through code-instrumentation steps. Engineers can



pick from a library of predefined fault patterns or define custom ones. Typically, a scenario defines a large set of combinations of bit-level fault locations within the candidate signals, fault injection timing and fault types. Assertions are then associated with specific fault scenarios, and powerful proof engines are automatically setup to handle the simultaneous exhaustive verification of all combinations within a scenario. Dedicated debug features speed up the daunting task of examining assertion failures on fault-injected designs. OneSpin Quantify can measure the coverage of the overall set of both normal (no faults injected) and safety-related assertions at the push of a button and expose gaps in the verification. Finally, results can be automatically



annotated on the verification plan.

OneSpin's FIA is essential in the rigorous verification of safety mechanisms, when only fault injection can activate functional bugs in logic that shall prevent rather than generate failures.

ONESPIN 360 DV-FIA FEATURES OVERVIEW

LANGUAGE

- Mixed Language Support, Verilog/SV/VHDL/SystemC
- RTL and Netlist Support
- Verilog, EDIF and Liberty Library Cell Support

FAULT SCENARIOS MANAGEMENT

- Simple Structured Fault Injection Interface
- Predefined and Custom Fault Patterns
- Multiple Simultaneous Faults
- Stuck at 0 / Stuck at 1 / Open / Bit-Flip Fault Support
- Mapping of Fault Scenarios with Assertions

FLOW INTEGRATION

- One Environment for Safety and Normal Assertions
- Overall Coverage Results
- Automatic Annotation of Results into Verification Plan

FORMAL INTERGRATION & PROOF ENGINES

- Fully Integrated into OneSpin 360 Verification Platform
- SystemVerilog Assertions (SVA), OneSpin TiDAL™ SVA, PSL, OVL
- Highly Automated Proof Strategies
- Parallel Proof Engines with Network and Cloud Distribution

INTEGRATED FAULT-AWARE DEBUGGER

- Visibility of both Original and Fault-Injected Signals
- Waveform Debugger, Source Code Debugger, Design Instance/Hierarchy Browser
- Fan-in/Fan-out/Driver Tracing through Source Code
- Active Value and Active Code Annotation

