Success Factors of Formal Verification

To success with formal verification, users need to wrestle with multiple success factors:
- The complexity of the design [3][8]
- The quality of the sub-goals and target assertions [6]
- The completeness of the interface constraints [5]
- The control and orchestration of the formal engines [8]
- The quality of the initial states for formal exploration [7]
- The formal expertise of the users [2]

The radar chart guides the deployment of formal verification to find deep silicon bugs.

**Phase 1: “Initial”**
- gather all the information, and set up the formal verification environment.

**Phase 2: “Improved”**
- improve each of the success factors to define the scenarios close to the bug.

**Phase 3: “Final”**
- optimize the critical success factors to find the bug(s).

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**Conclusions**

Finding silicon bugs with Formal Verification is a potential challenging process. The “Deep Sea Fishing” radar identifies the success factors and guides users of the process successive refinement of the critical factors to “zero-in” on the critical bugs. The process is not just technical. It includes human factors and organization considerations as well.