



Functional Coverage

July 2023

1. Create a list of tests
2. Write tests
3. Run tests
4. Do all tests pass?
 - A. No: Fix tests, Goto 2
 - B. Yes: Done!
5. Oh, by the way, how are we doing on code coverage?
 - A. Not OK: Goto 2
 - B. OK: Really Done!

1. Define and implement a coverage model
2. Define scenarios
3. Build randomized tests based on scenarios
4. Run tests
5. Do all tests pass?
 - A. No: Fix tests, Goto 4
6. Are we at 100% functional coverage?
 - A. No: Modify constraints, Goto 4 (or 2)
7. Have we gained deeper insights into the device's function and use models?
 - A. Yes: Goto 1
8. Oh, by the way, how are we doing on code coverage?
 - A. Not OK: Goto 3
 - B. OK: Really Done!

- Coverage Model Definition:
 - List of behaviors to be covered by the regression suite
- Coverage Model Implementation:
 - Set of covergroups, coverpoints, assertions, directed tests, or other mechanisms that observe behaviors

- Most companies use code coverage as the main driver of their verification processes.
- Functional coverage is an afterthought or a nice-to-have.
- Defining and implementing a coverage model can be time-consuming and expensive.
 - So are bug escapes.
 - So is writing and running tests that don't increase coverage.

Thank You!