

# Z01X Functional Safety Demo



# Z01X Flow

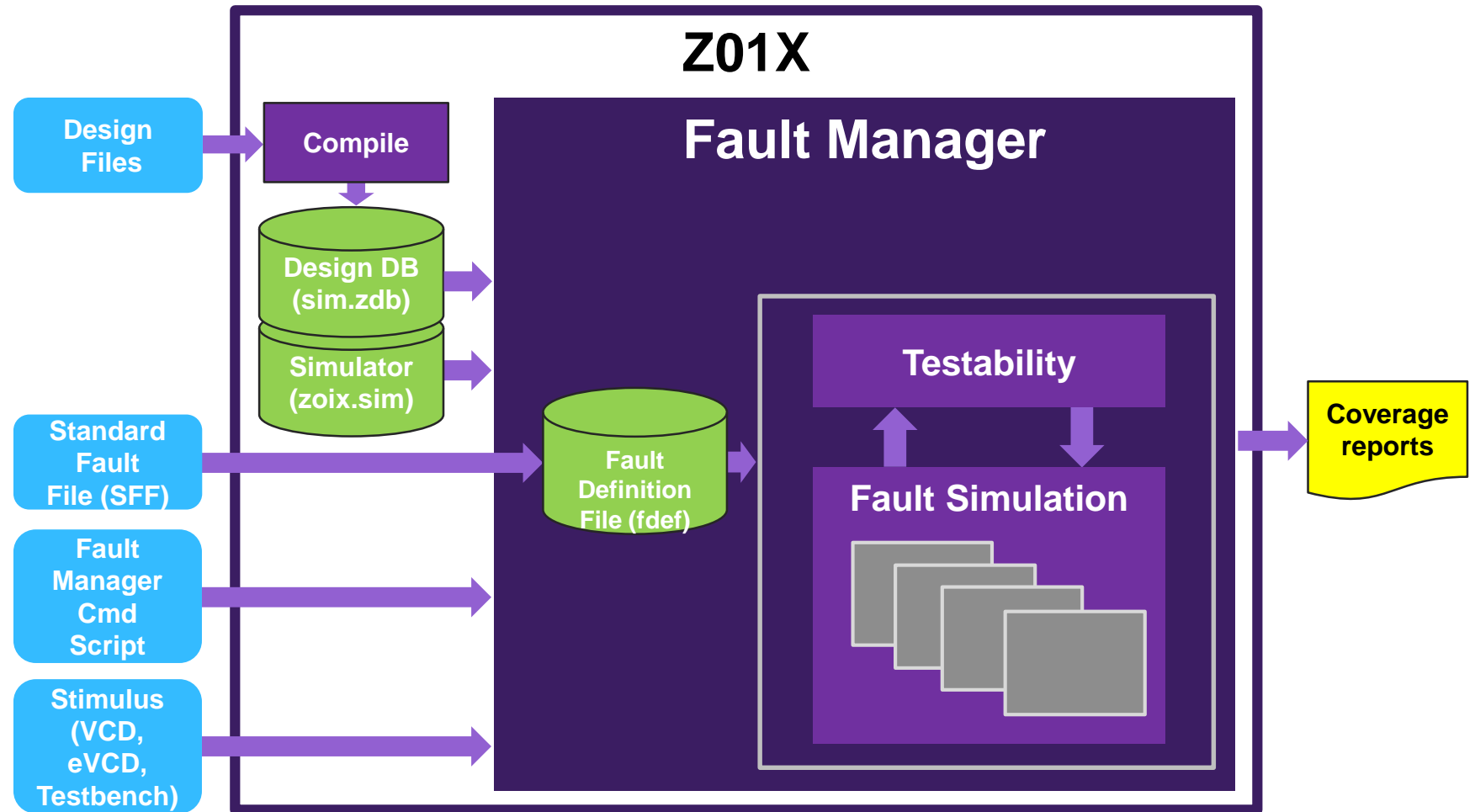
## Key:

User Created File:

Z01X Intermediate File:

Z01X Executable:

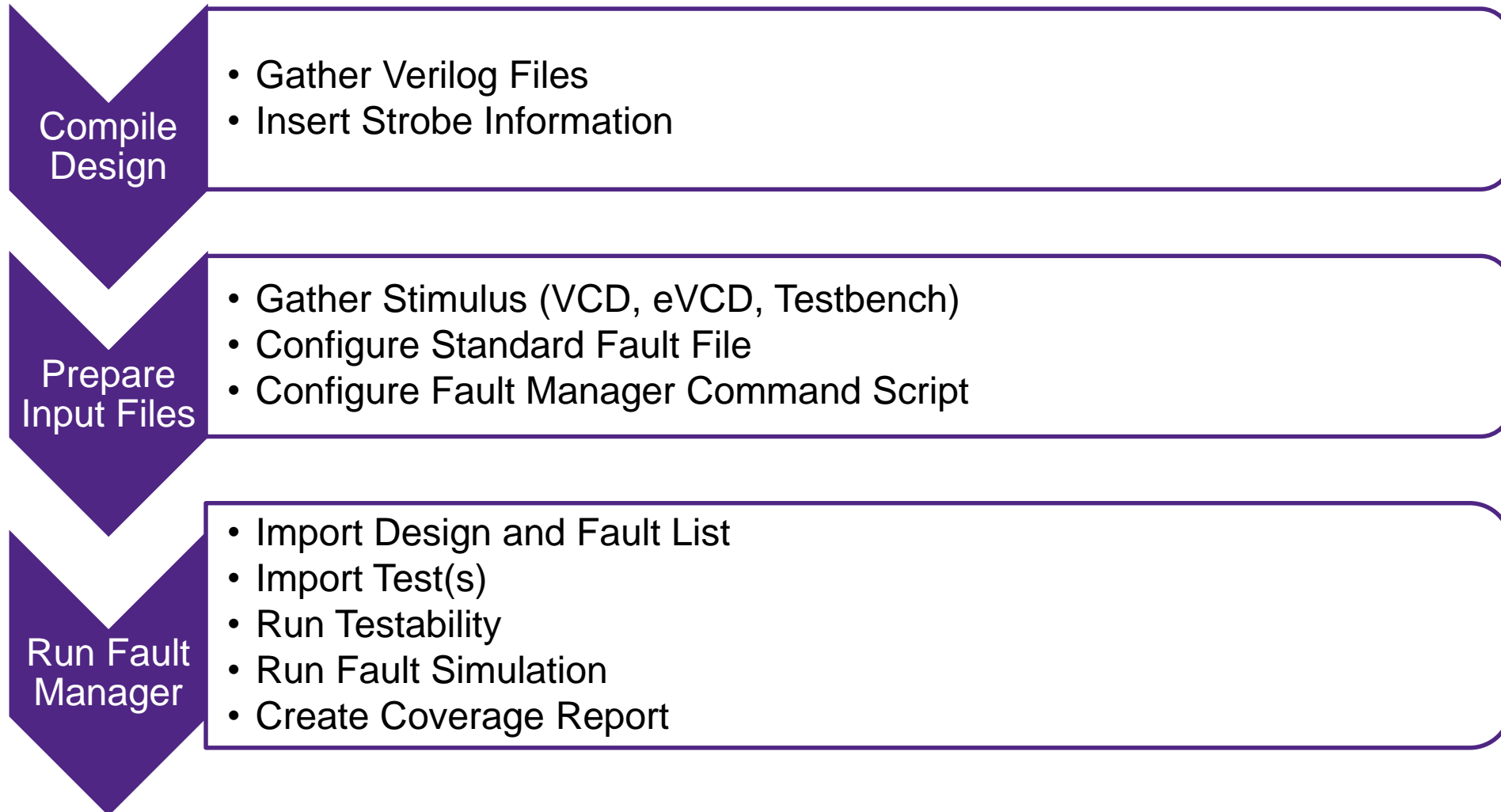
Z01X Output:



# Terms and Definitions

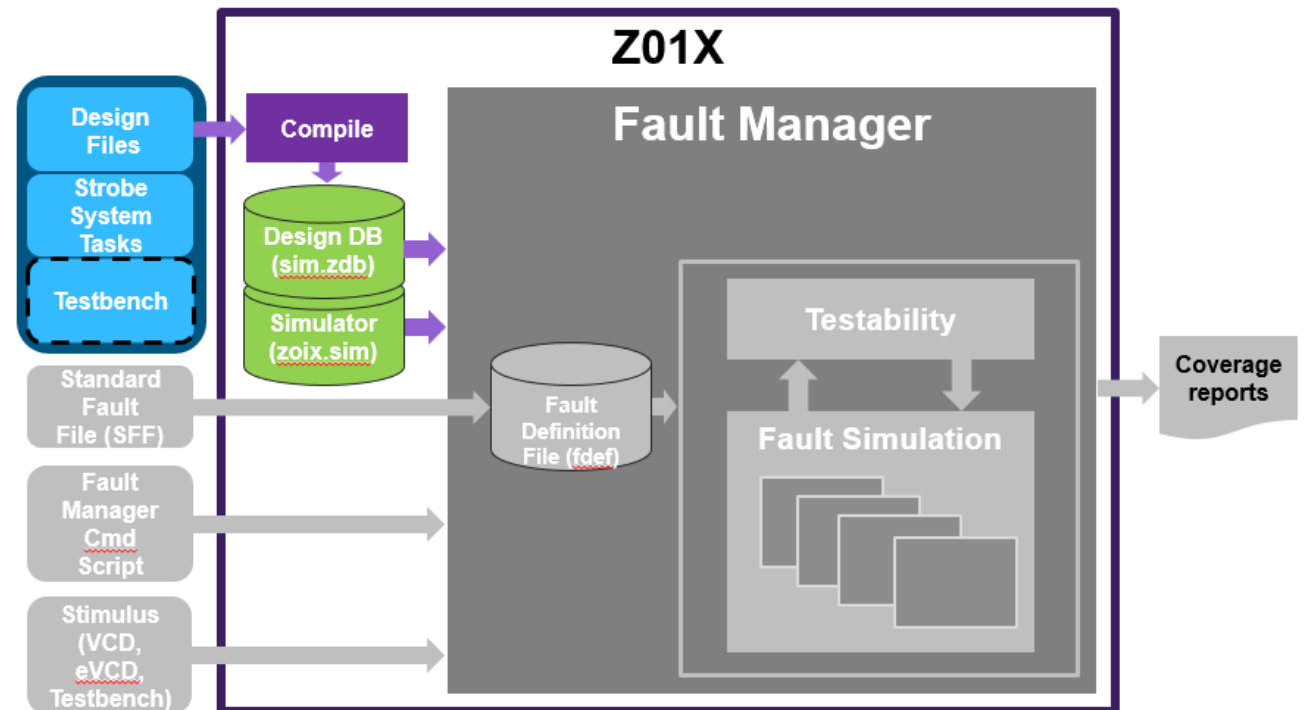
- zoix.sim – Z01X Executable
  - Simulator executable
- sim.zdb – Z01X Database.
  - Z01X created representation of the design
- SFF – Standard Fault File.
  - User configured fault universe description
- sim.fdef – Fault definition file.
  - Binary representation of user configured fault list from SFF
- fmsh – Fault Manager Shell.
  - User interface to Fault Manager

# Z01X Procedural Flow



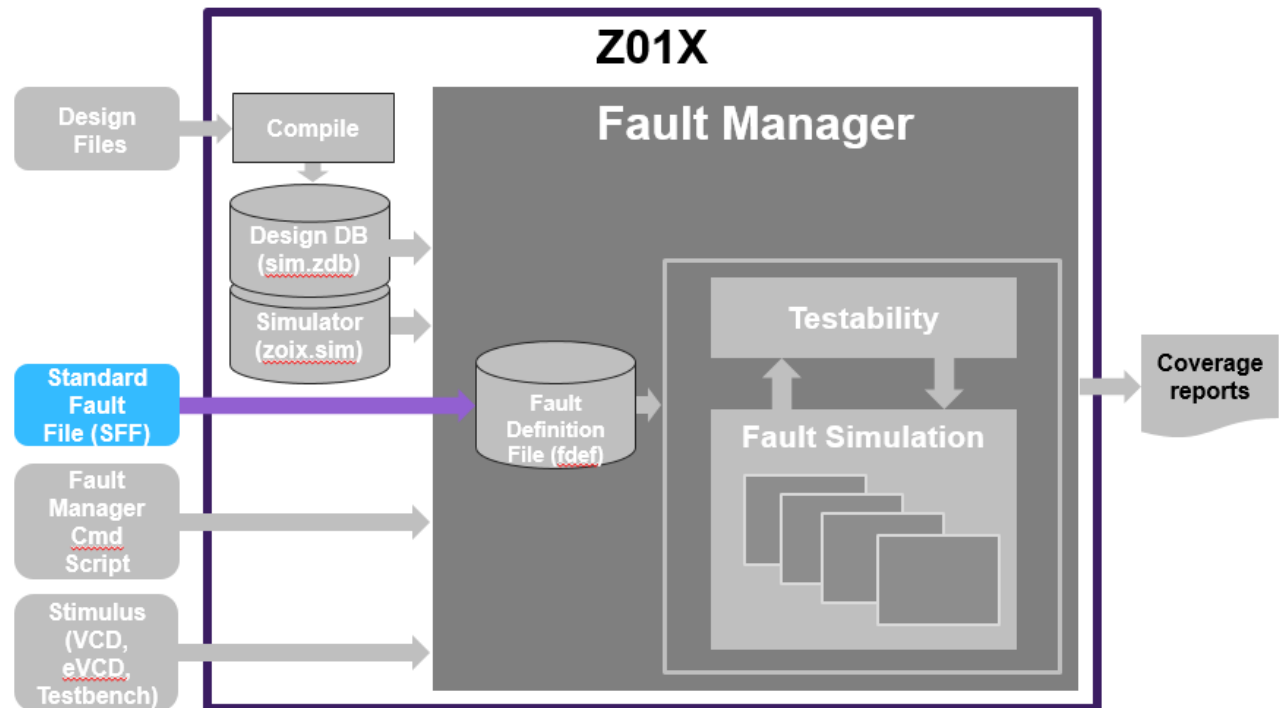
# Compile

- Input:
  - (User Created) Gate Level Netlist or RTL design description
  - (User Created) Strobe system tasks
  - (User Created) Testbench (Optional)
- Z01X Executable:  
`$ZOIXHOME/bin/zoix`
- Output:
  - (Z01X Created) Simulator executable
  - (Z01X Created) Design database
  - (Z01X Created) Logfile



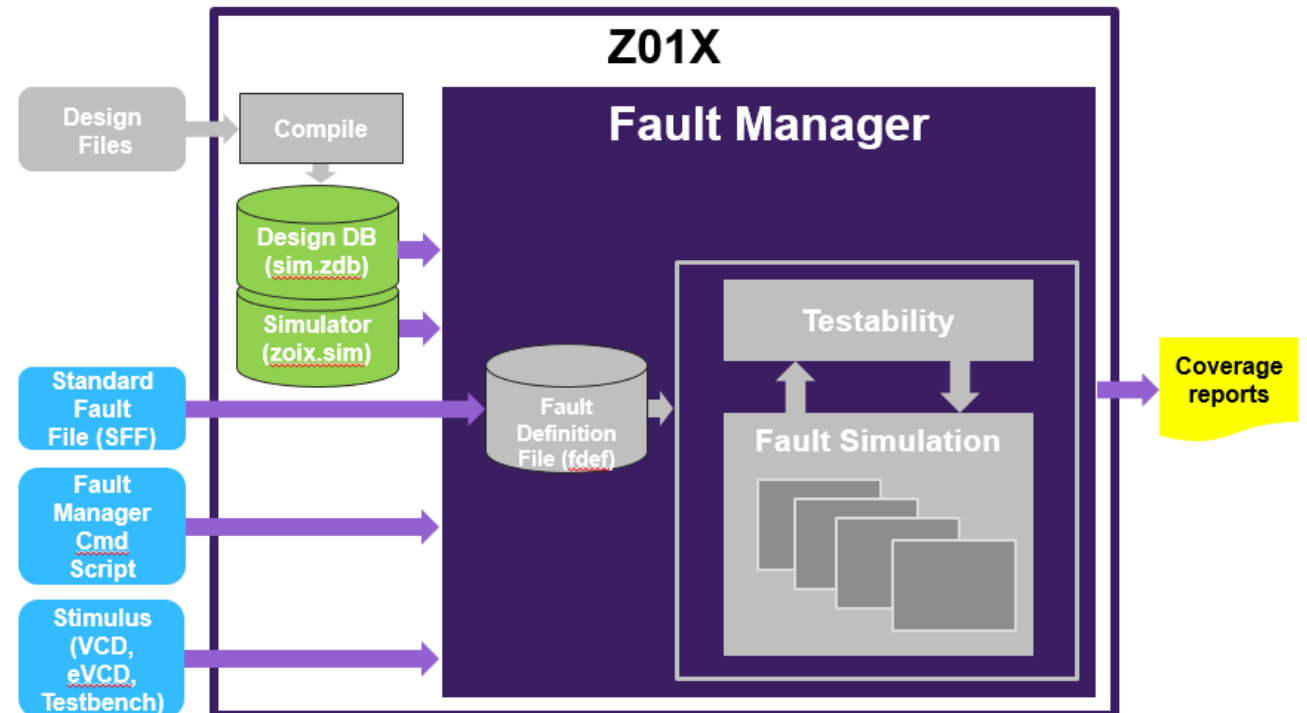
# Standard Fault File

- Input:
  - (User Created) Standard Fault File
- Z01X Executable:
  - None – Input to Fault Manager
- Output:
  - None



# Fault Manager

- Input:
  - (Z01X Created) Design Database
  - (Z01X Created) Simulator Executable
  - (User Created) Fmsh Script
  - (User Created) Stimulus
  - (User Created) Standard Fault File
- Z01X Executable:  
`$ZOIXHOME/bin/fmsh`
- Output:
  - (Z01X Created) Coverage Reports



# Import Design and Fault List

- Input:

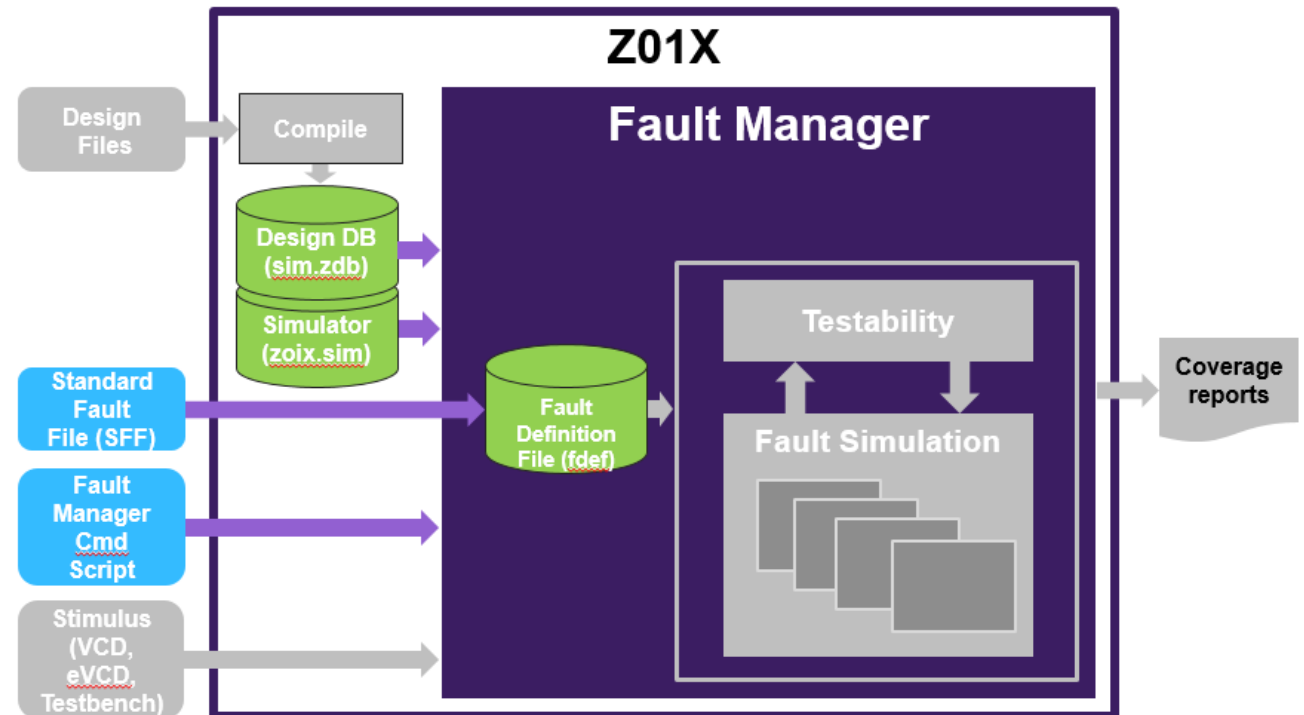
- (User Created) Standard Fault File
- (User Created) Fmsh Script
- (Z01X Created) Design Database
- (Z01X Created) Simulator Executable

- Fault Manager Commands:

```
set(var=[defines], format=[standard])  
set(var=[fdef], method=[fr],  
    fr.fr=[user_file.sff])  
design()
```

- Output:

- (Z01X Created) Fault Definition File
- (Z01X Created) Logfiles





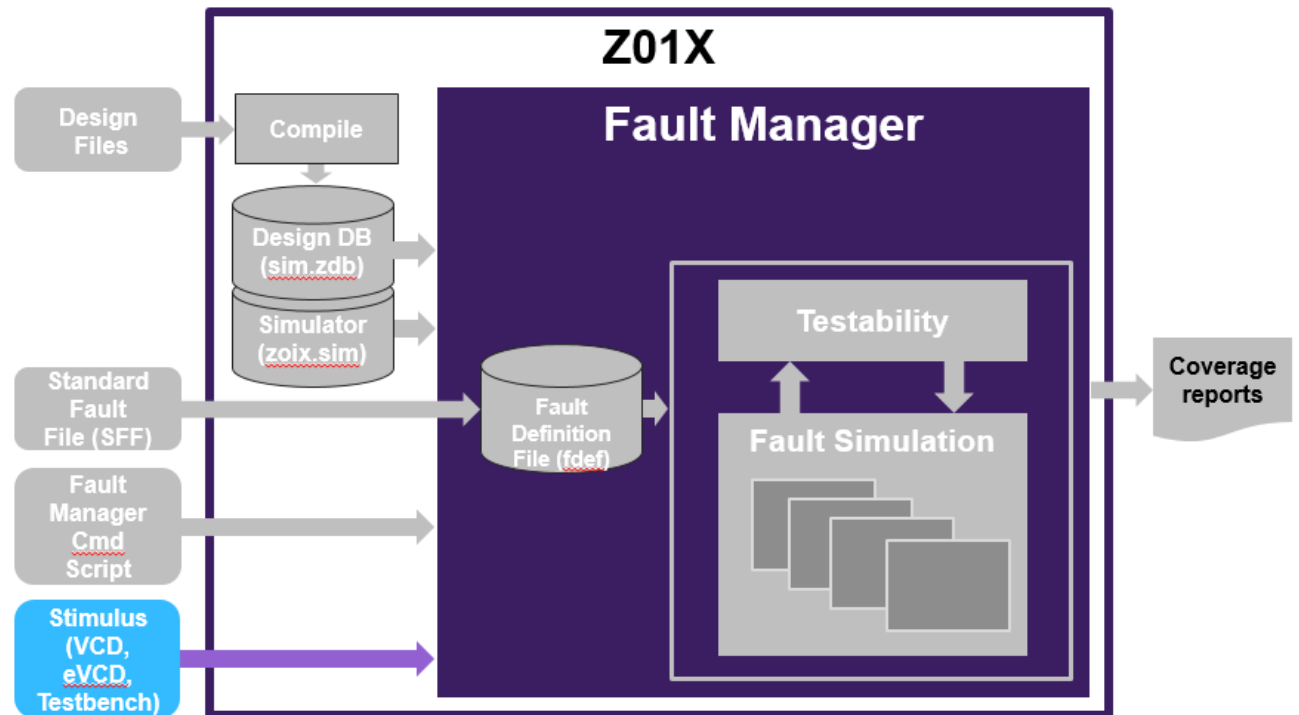
# Import Tests

- Input:
  - (User Created) Stimulus Files
- Fault Manager Commands:

```
addtest(test=[<user_test1>],  
        stimtype=[tb])
```

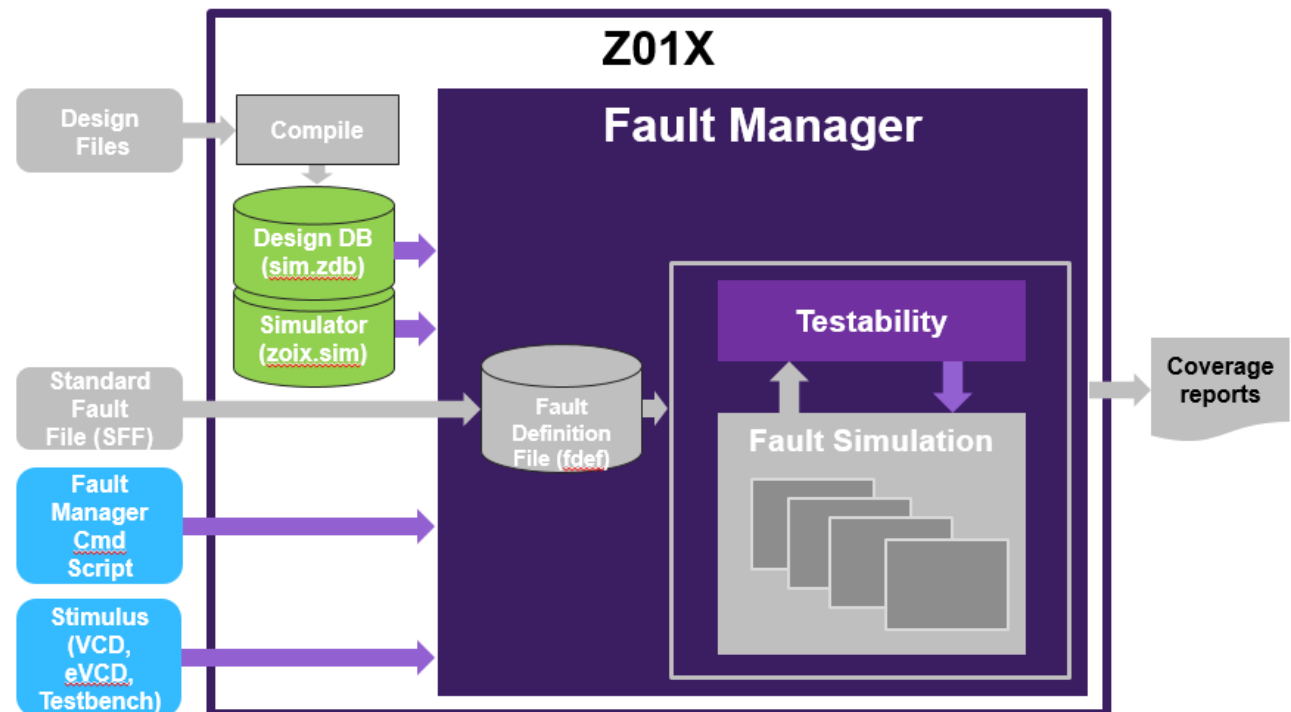
or

```
addtest(test=[<user_test1>],  
        stimtype=[vcd], stim=[user.vcd])
```
- Output:
  - (Z01X Created) Logfile



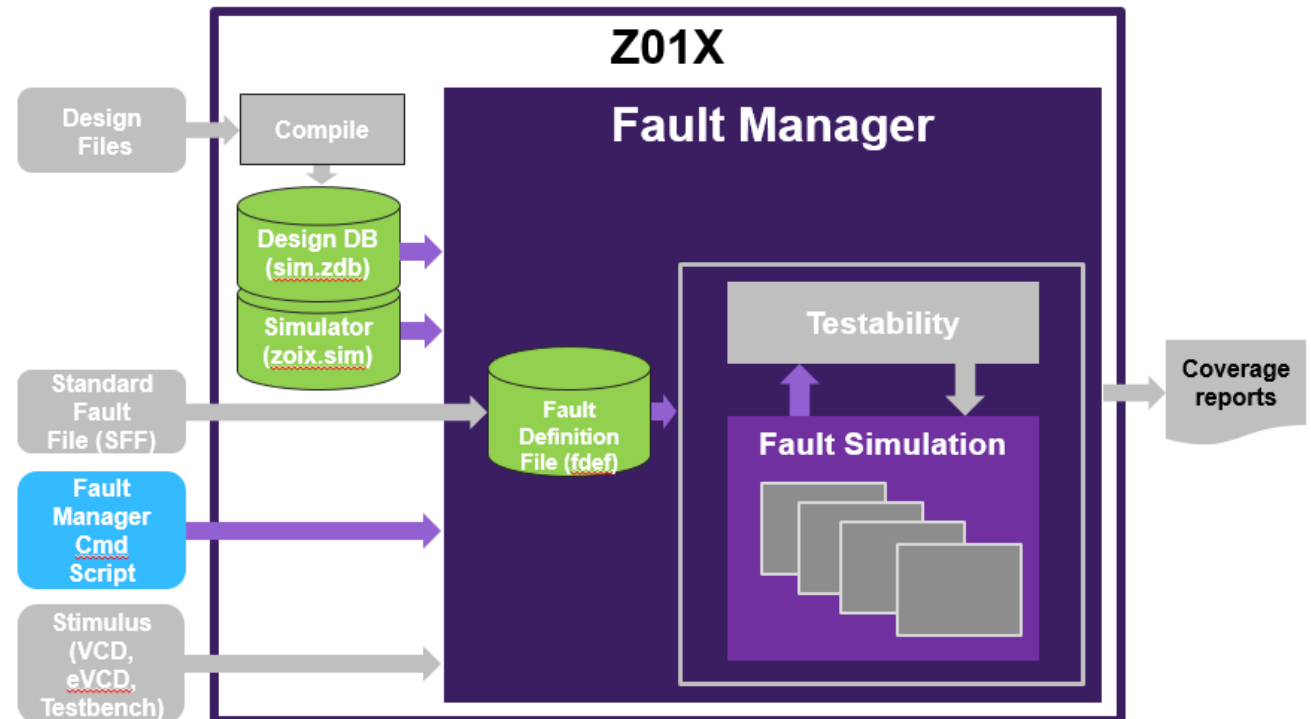
# Run Testability

- Input:
  - (Z01X Created) Design Database
  - (Z01X Created) Simulator Executable
  - (User Created) Stimulus Files
  - (User Created) Fmsh Script
- Fault Manager Commands:
  - `fsim()` – Auto-runs testability
- Output:
  - (Z01X Created) Testability Report
  - (Z01X Created) Logfile(s)



# Run Fault Simulation

- Input:
  - (Z01X Created) Design Database
  - (Z01X Created) Simulator Executable
  - (Z01X Created) Fault Definition File
  - (User Created) Stimulus Files
- Fault Manager Command:  
`fsim()`
- Output:
  - (Z01X Created) Fault Definition File
  - (Z01X Created) Logfile(s)



# Create Coverage Reports

- Input:
  - (Z01X Created) Design Database
  - (Z01X Created) Fault Definition File

- Fault Manager Command:

```
coverage (file=[user_coverage.txt])
```

- Output:
  - (Z01X Created) Text Coverage File
  - (Z01X Created) Logfile

