



Testing the Quality with right platform

**Srinivas**

## Agenda

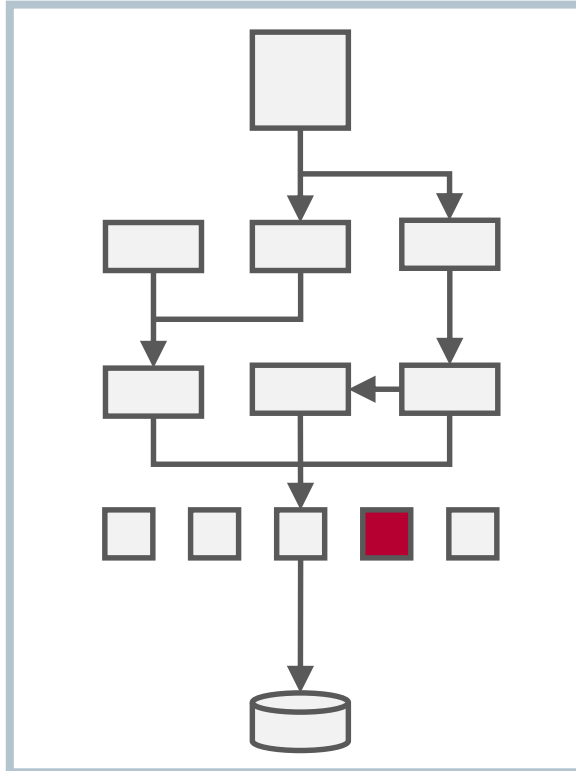
- ▶ Prologue
  
- ▶ Pitfalls of testing in Native platform
  - ▶ Cross-Compiler Vs Host-Compiler
  - ▶ Challenges with Linking
  - ▶ Inaccuracy in Testing
  - ▶ I do structural testing, I don't need a cross-compiler
  
- ▶ Possible Solutions
  - ▶ Advantages of Instruction set simulator
  - ▶ Advantages of using target Board

## Prologue

- ▶ What is Software Testing ?
- ▶ Is host testing cross-compiled code efficient?
- ▶ The common challenges /solutions

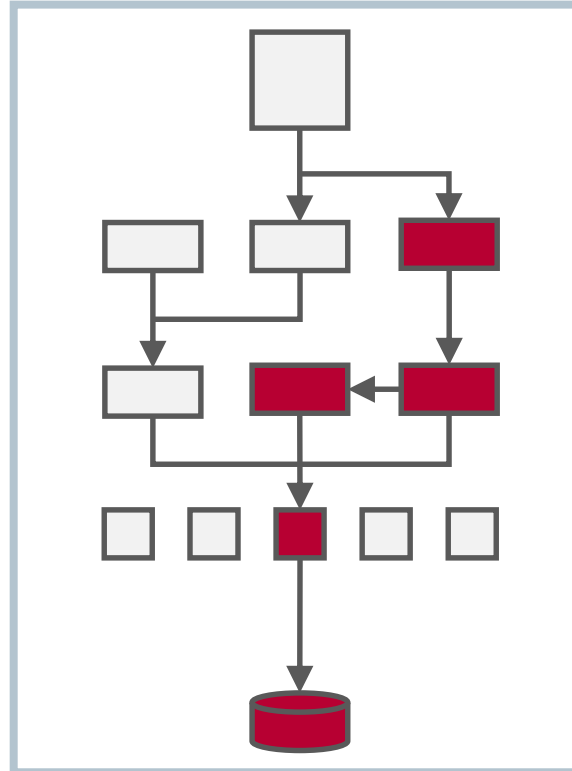
## What is Software Testing

### Unit Testing



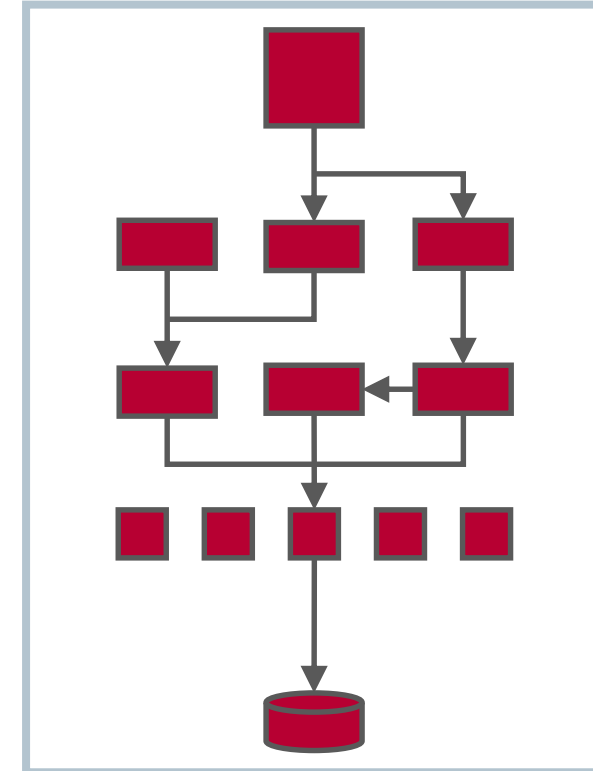
Individual units or modules are tested. It involves testing of source code by developers.

### Integration Testing



Individual modules are grouped together and tested. The purpose is to determine that modules are working as expected once they are integrated.

### System Testing

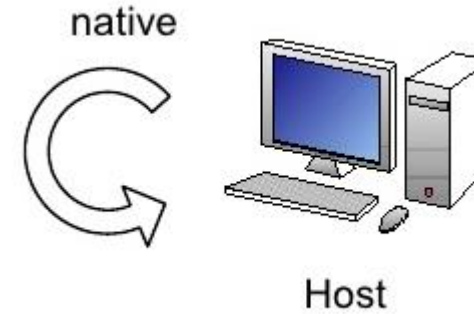


Testing is performed on the whole system by checking whether the system or application meets the requirement specification document.

## Cross-Compiler Vs Host-Compiler (1/2)

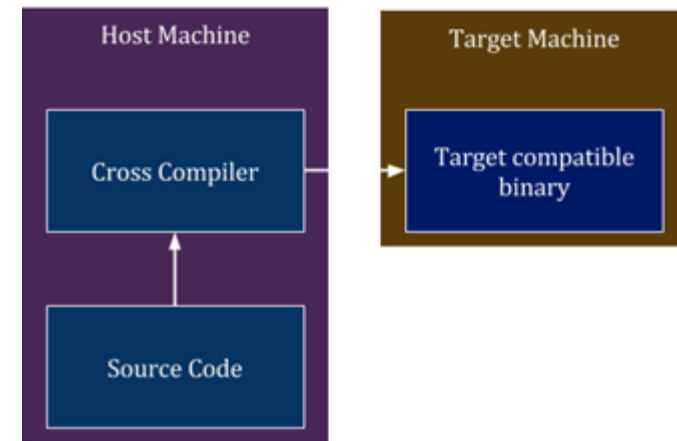
What is a native compiler:

A native compiler is a compiler that works on a compilation for the same technology on which it runs.



What is a cross compiler :

A compiler which can convert instructions into machine code or low-level code for a computer other than that on which it is run.

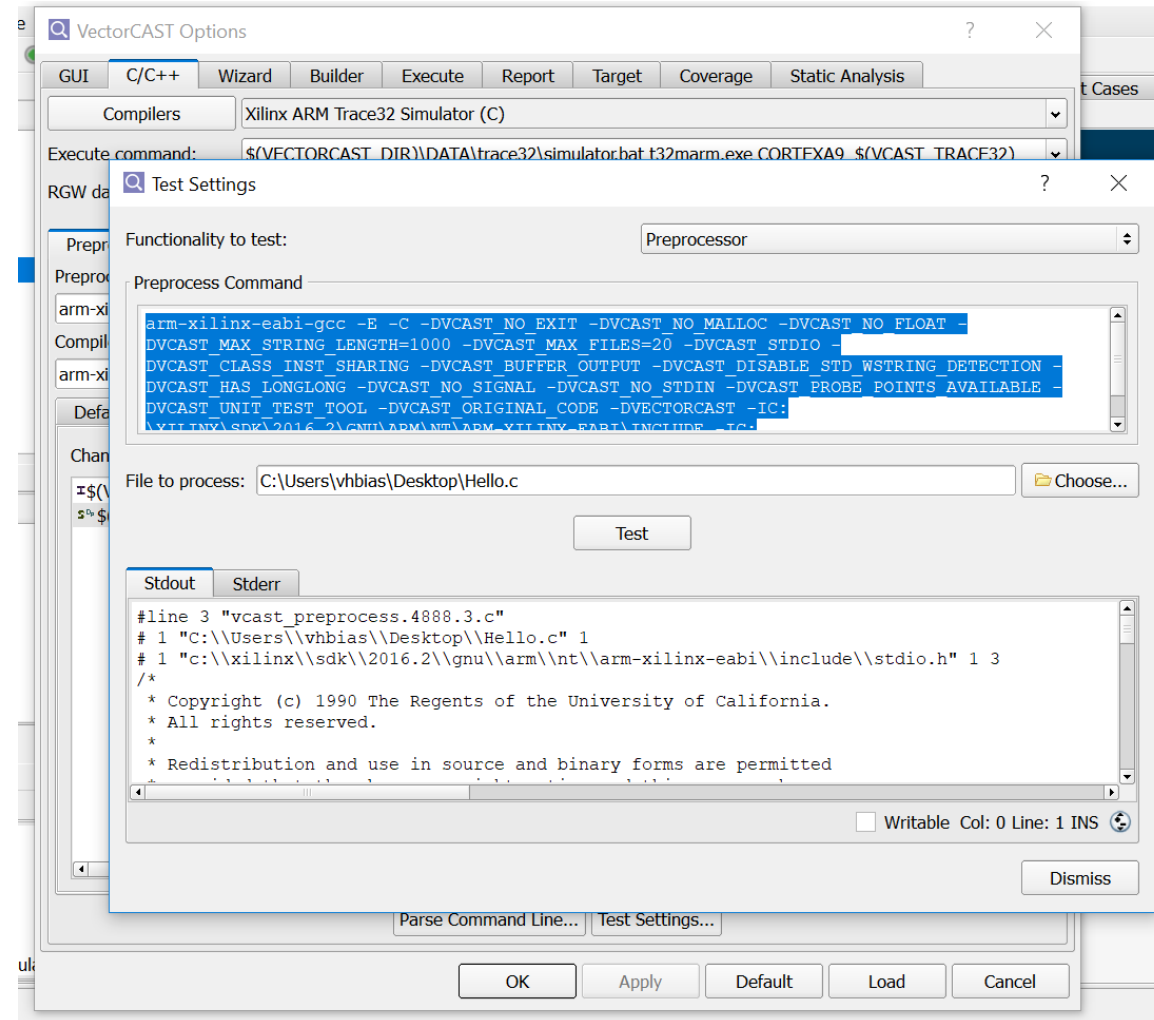


## Cross-Compiler Vs Host-Compiler (2/2)

- ▶ Modifying Source code
- ▶ Man Hours Spent
- ▶ Test Reuse

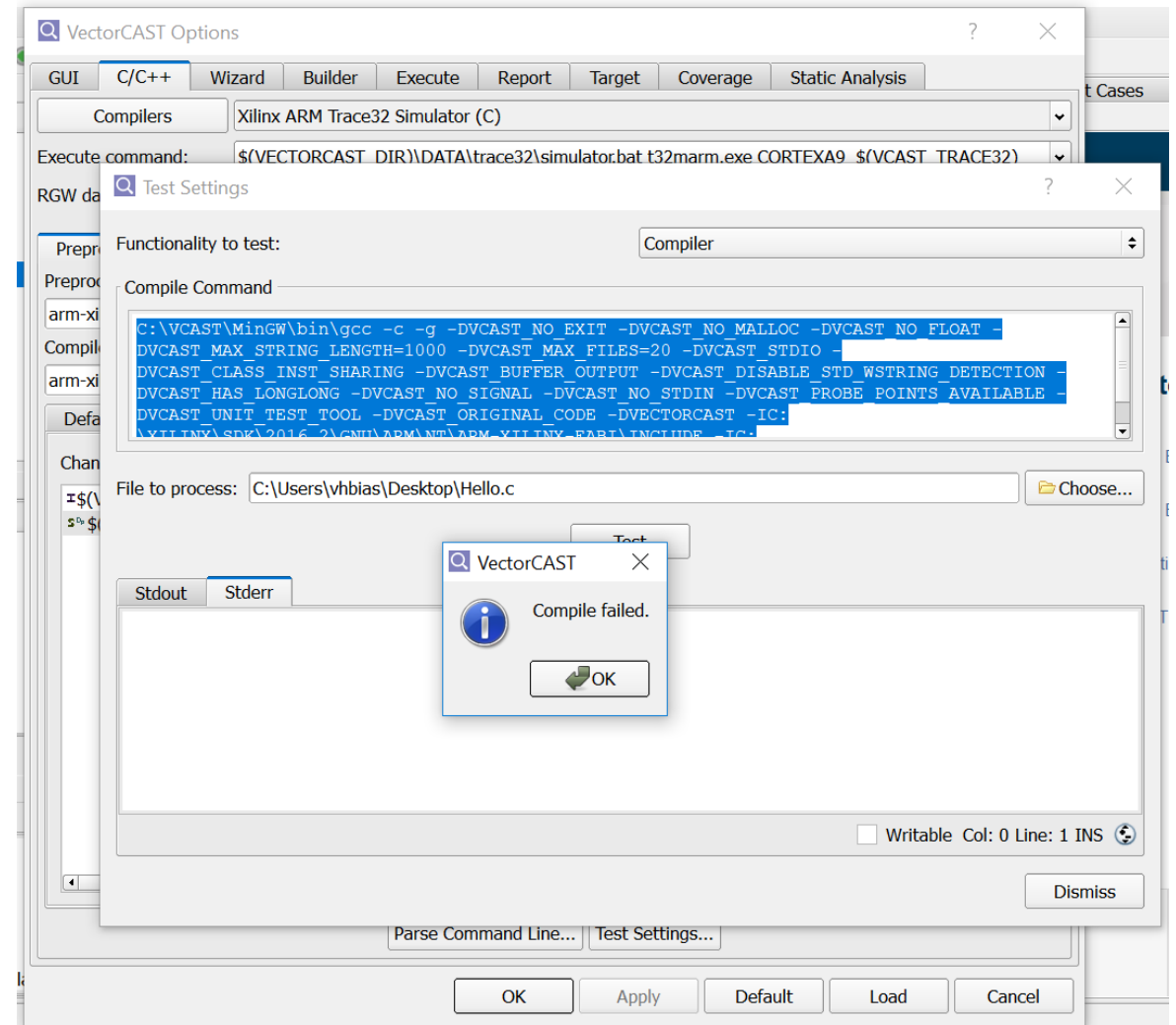
## Challenges with Linking (1\2)

► Issues with Standard Headers



## Challenges with Linking (1\2)

### ► Issues with Standard Headers





## Challenges with Linking (2\2)

### ▶ Harness Crash Scenario

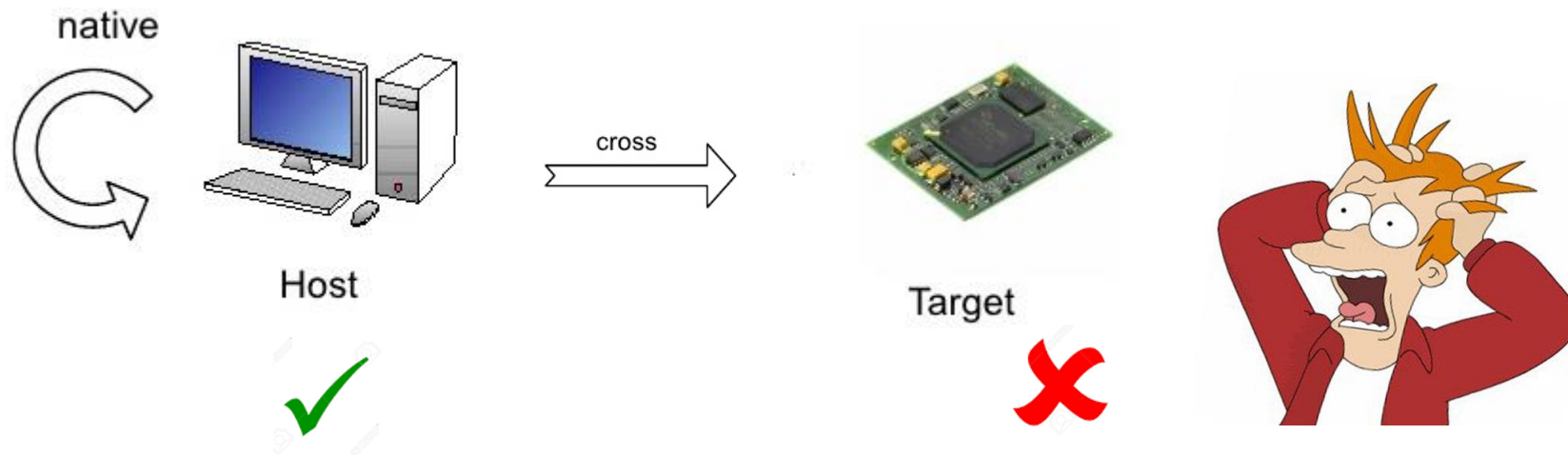
```
Breakpoint 1, 0x00401463 in main ()
(gdb) s
Single stepping until exit from function main,
which has no line number information.
[Inferior 1 (process 10580) exited with code 03]
(gdb) s
The program is not being run.
(gdb)
```

## Inaccuracy in Testing

- ▶ Change in Data Types Sizes from compiler to compiler.
- ▶ A Typical Scenario
- ▶ Challenges in Robustness Testing

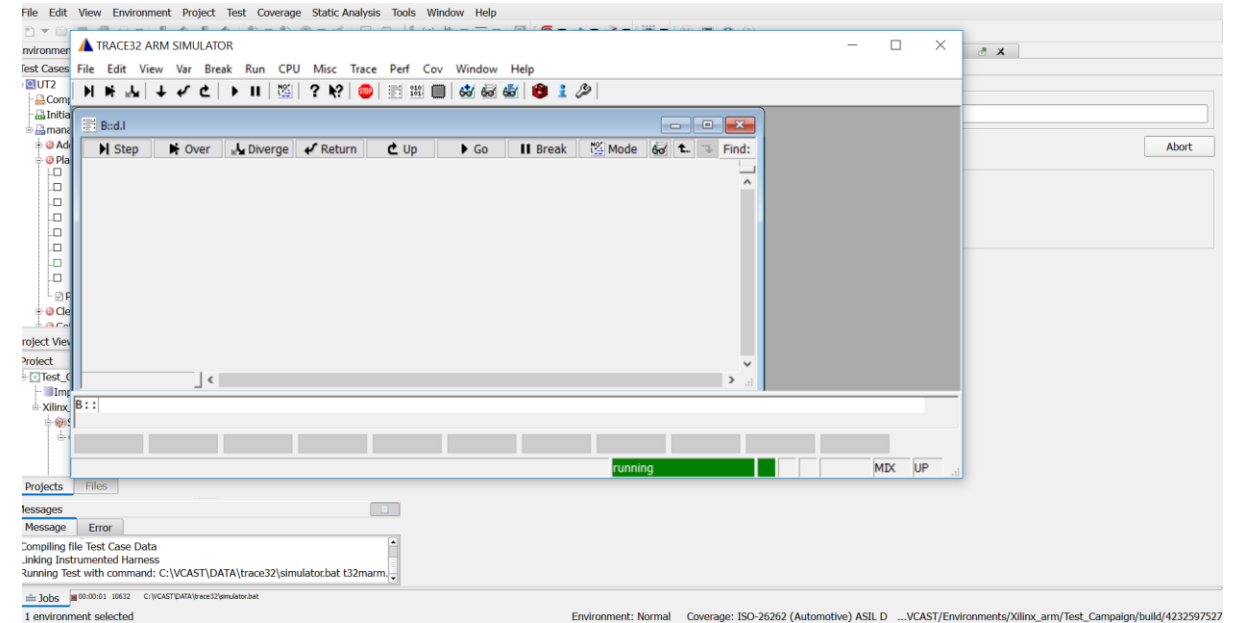
# I do structural testing, I don't need a cross-compiler

► What do we say



## Possible Solutions (Simulator)

- ▶ Using Cross-compiler for building test harness
- ▶ Using ISS (Instruction Set Simulator)

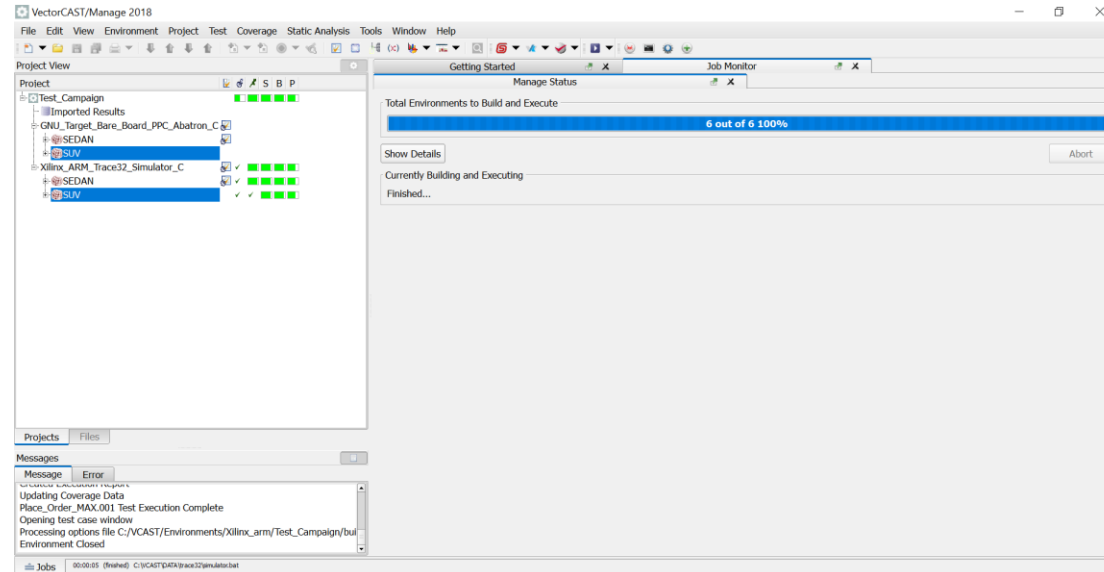


**ARM**



## Possible Solutions (Board)

- ▶ Using Board
- ▶ Countering Resource Bottle neck



Testing the Quality with right platform

DEMO

DEMO

Q/A

# Questions ?

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FAE

