

How to write Functional test bench Funcmi_tb.vhd

1. I have constructed The project Funcmi.vhd and my_package.vhd for each pair of students. Continue to work in folder FuncSim.
2. Save my_package.vhd at the level of Miki_Piki of your project (at the same level as folders Initial, Spec etc.
3. Using program GenFuncSim, generate trivial Funcmi_tb.vhd in folder FuncSim.
4. Return my_package.vhd from folder Miki_Piki into folder FuncSim. It will replace my_package.vhd generated in point 3.
5. Make trivial simulation with ModelSim. If you find mistakes fix your ASMs and apply to Prof. to redesign your functional project. Repeat points 2 – 5 until all mistakes be fixed.
6. Copy Funcmi_tb.vhd, received in point 3, to Funcmi_tb0.vhd. Continue to work with Funcmi_tb.vhd.
7. From Funcmi_tb.vhd delete
 - a) Machine code of test program – between *--PC. Instruction AddressingMode, Operands* and *);* Don't delete *--PC. Instruction AddressingMode, Operands* and bracket *);*
 - b) Constant test results whole;
 - c) Execute test program from *for j* till *wait* (don't delete *wait*).
8. Return to program GenFuncSim. Mark there *Custom test* instead of *Default test*.
9. Click to *Edit custom test*. The window *RISC assembler* will open.
10. Copy *assembly_2instr.txt* into the left subwindow of *RISC assembler* window.
11. Click *Assemble* button. Program GenFuncSim compiles assembly code from the left sub window into machine code of the right sub window.
12. *Select All* in the right sub window and *Copy* it.
13. *Paste* the *machine code* from point 12 into Funcmi_tb.vhd between
--PC. Instruction AddressingMode, Operands and *);* before component *FUNCMI*.
14. *Copy* content of file *bottom2instr.txt* and *Paste* it at the bottom of Funcmi_tb.vhd between *-- Execute test program* and operator *wait*.

15. Make simulation in *ModelSim*. If you find mistakes fix your ASMs and apply to Prof. to redesign your functional project. Repeat simulation in *ModelSim*.
16. Add the check of one more instruction into assembly code, apply to *GenFuncSim* and repeat points 10 – 13.
17. Add one more execute at the bottom of your test bench and return to point 15.