IAF0610 Design for Test (Testimise projekteerimine)

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Lab work: Elmet Orasson

For lab materials, including this file, look at this location:
M/Elmet.Orasson/DT_2014/

Laboratory schedule

Laboratory works

Lab	Deadline
I Understanding BIST	**6. week**
II BIST Optimization	**9. week**
III Understanding Boundary Scan	**12. week**

Course work

Deadline: before or at examination day

Lab work assignment

Homepage: https://edu.pld.ttu.ee

Login with your TUT username and password.

On first login please fill out fields on „Minu andmed" tab (green fields are mandatory).

Then go on to „Uus aine" (New subject) tab and select:
1. „Testide projekteerimine".
2. „Elmet Orasson"
3. „Päevane..."
P. select your group code (or random group which has the same name as 2.

Check the data and press on „Registreerun ainele..." link

Now you should be able to see new entry under „Minu ained" column.

Clicking on the subject name opens up a menu where you can view tasks, events, messages bound to this subject.

Clicking on „Minu ülesanded" (my tasks) opens list of lab works. Clicking on the „Võta" button assigns a specific version of selected task to you (ie. activates your lab assignment).

Also you'll see your task status there. Keep in mind that it mandatory to complete all given lab assignments before examination session starts.

Specific preparations for the lab

Java applets are unsigned and won't run with newer Java.
Solution:
- open terminal
- type *java -version*
- Look into /opt/ directory, there should be symlinks to your specific JDK version (*ls /opt/*)
- type */opt/JDK[version]/bin/ControlPanel*
- select „Security"
- click „Edit site list" and add „*http://www.pld.ttu.ee*" there

Turbo Tester toolkit and Cadence activation
Solution:
- open terminal
- check your shell type (*echo $SHELL*)
- for tcsh – type *setenv TESTER*
- for bash – type *export TESTER=1*
- type *cad*
- for Cadence, type *cad* again and choose Cadence version (0)

Remote access
Solution (http://ati.ttu.ee/wiki/index.php/Arvutiklassis_t%C3%B6%C3%B6tamise_juhend):
- ensure you have good enough network connection
- install your X-server or run some version of Linux (live-CD)
- check whether you have *ssh*
- connect to TUT intranet proxy by doing
  ssh -X -l YourLoginNameHere@intra.ttu.ee proksi.intra.ttu.ee
- in ICT-502 we have computers from lx1 up to lx30, try one
  eg. *ssh -X lx9*

Be aware that you might be sharing the computer with someone! Check if your user is the only one logged in before rebooting (*w* and *who* commands).

Cadence setup

First, Cadence environment has to be initialized (see Cadence activation)

Cadence has to be started in home root, since mounted volumes (M, P, W) come from Windows server and don't support Unix-style file locks. Since home root is temporary all the files there need to moved to and from safe location (eg, your P or W directory).

On first startup you should create a subdirectory for keeping Cadence files. Then change to that directory and start Cadence with *ams_cds -mode ds -tech cxq* command. This command has to be repeated after fresh log in, otherwise, just issuing *ams_cds* (or *icms*) is enough.

Cadence manual (in estonian) can be found here:
http://www.pld.ttu.ee/magister/terje_diplom.pdf

Library manager should list HRDLIB.

Exporting schematics from Cadence

- Do „Check & Save", starting from lowest hierarchy level. There should not be any error messages.

- Select **File -> Export -> EDIF200** from main window
- Fill export dialog:
  Design {Library Name, Cell Name, View Name} – browse design
  Design Name [might be random name]
  External Libraries [HRDLIB]
  Stop Cell Expansion file [HRDLIB]
  Output file [output file name]
  Output Format [Netlist]
  Netlist Translation Mode [Flat]
- Check export log for errors or warnings. There should'nt be any.
- Convert to TT .agm file by
  ttimport -tool cadence <Cadence edif> ams.lib

BIST Java application

This GUI is based on Turbo Tester toolkit, so tools from that package must be visible to the program. Check whether „Config" is pointing to the right location. BISTA should be located at **M/Elmet.Orasson/DT_2014/BISTA** and TT tools should be there, in **ttUNIX** subdirectory