Becoming Familiar with the RASP Tools Suite for FPAAs

Class Website:

http://users.ece.gatech.edu/phasler/ECE6435/

Virtual Machine Download Website:

http://users.ece.gatech.edu/phasler/start/tools/v1/FPAA_VM_download.html

Setup: [Use links on Virtual Machine (VM) Download Website]

- Download/Install Virtual Box Platform Packages 4.3.20 (latest version)
- Download/Install Virtual Box Extension Pack 4.3.20 (latest version)
- Download Virtual Machine: OVA file for Virtual

1. Launch and Import Virtual Machine



2. Select classvm in left-hand windowpane of Virtual Box and click Settings ->You can change the name of the VM

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3. Create a Shared Folder [Allows transferring of files from host machine to VM] → First select and delete previous Shared Folder



Auto-mount should be selected

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- 4. Select the VM and press the green Start Button next to Settings
 - → Password is "reverse"
 - → Click blue CADSP button in Unity Bar Wait for the tools to load



5. Update RASP Tools to the latest version (You must be connected to the Internet)
 → Read the pop-up messages carefully

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Wait for the Update Complete message! ... Press ok, and then launch the Tools again.

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Note:

- 1. Notice that the default directory is RASP_Workspace
- * We encourage you to make a folder for each of your designs to stay organized
- 2. You can make Folders different ways (Create a Folder for your assignment)
 - Folder Icon è Navigate to RASP_Workspace and right click for menu

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→ Terminal



Assignment

Take measurements using our remote system.

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Note:

- Palette Browser contains Scilab standard blocks
- Palette Brower contains RASP Tools library of blocks

 Scroll down to view Palette "FPAA"
- Palette Browser can always be opened from View Tab èPalette browser

2. Drag and drop blocks to Xcos window

- → Arbitrary Waveform Generator block (Input & Output Blocks)
- → Voltage Measurement (Complex Blocks)
- \rightarrow Click arrow then drag line connector to other arrow

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3. Navigate to the Scilab Console

Either

- → Alt+Tab (keep pressing tab until you highlight "Scilab 5.4.1 Console")
 → Use Unity Bar, click on Scilab button and select Console



4. Create a variable containing a vector of voltage values (Min: 0.2 V, Max: 2.5V)

- \rightarrow Using a ";" after a command will not display the result in the console
- → After pressing Enter, your variable will appear in the Variable Browser
- → By double clicking on the variable, the Variable Editor will appear

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*Help on linspace:

[v]=linspace(x1,x2 [,n])

Linearly spaced vector. linspace(x1, x2) generates a row vector of n (default value=100) linearly equally spaced points between x1 and x2.

- 5. Navigate to the Xcos window and change Arbitrary Generator block's parameters
 - → Choose One:
 - Double click the block Right click on the block and select "Block Parameters" Press Ctrl+B
 - → Change all three parameters and press OK
 - Type in the variable you created
 - \circ Use a Sample Rate < 200
 - Change Loopback to "N"

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6. Change Measure Voltage block's Sample Rate parameter to the value you chose for Arbitrary Waveform Generator and press OK

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- 7. Save your Design
 - Use File è Save as... OR Save icon in the toolbar
 - Navigate to the folder you created and under Filter choose "Xcos file (*.xcos)"

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8. Go to the main blue GUI (Rasp Design)

- Type your GT email address (Press Enter)
- Type "13" for chip number (Press Enter)
- Choose your design
- Compile your design
- Send email

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*You will receive an email with your results from the remote system

- 9. Load your results into Scilab
 - Rasp Design GUI
 - Choose your design name
 - Type chip number (Press Enter)
 - Load Remote Data
 - Download and Save results.zip attachment to your Shared Folder on host machine
 - Move zip file to your design folder (Use File icon or Terminal)
 - Press Load Remote Data on GUI

😣 🗐 🗊 ubuntu@ubuntu-VirtualBox: ~

ubuntu@ubuntu-VirtualBox:~\$ mv /media/sf_<Shared Folder Name>/results.zip /home/ubunt u/RASP_Workspace/<design folder location>

For Example,



If using File icon to relocate zip file...

• File System → media folder → sf_<Your Shared Folder Name>





10. Look at your results via the Console

Either Type

- → rm_results (results appear in Console)
- → editvar rm_results (results appear in Variable Editor)