System-On-Chip Enviroment (SCE) Setup

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1. Access and Setup

Below are the instructions for accessing and setting up your environment for running SCE on the Linux Machines in the department:

(a) The SpecC tool set is installed only on the Linux machines in the ECE LRC. All the Linux machines in LRC available for access are listed at http://www.ece.utexas.edu/it/linux/#bit-linux-machines.
You can work on any one of the 32-bit machines. The machines themselves are physically located in ENS507. Please make sure you are working on the *linux* machines and not the *sun* machines. For running SCE, you will need an X-server running locally.

Some help on the Linux cluster and logging in (remotely):
http://www.ece.utexas.edu/it/linux
Link for basic linux commands:
http://www.ece.utexas.edu/it/unix-tutorial/

(b) Access from a remote linux machine (with X server installed and running):
% ssh –X <username>@<machine_name>.ece.utexas.edu
The '-X' indicates that gui items should be allowed over ssh.

(c) Access from a windows machine needs X-win, Xmanager or X-cygwin installed:
- X-Cygwin:
  http://x.cygwin.com/docs/ug/cygwin-x-ug.html
- X-Win (evaluation version):
  http://www.starnet.com/products/xwin32/download.php
- X-manager (trial version):
  http://www.netsarang.com/products/xmg_detail.html

X-win is installed in the LRC Windows machines.

Setting up the environment of X-win which is installed in the LRC Windows machines:
  i. Start X-Win
  ii. Go to the X-win configuration window
  iii. In the sessions tab, click on the "add" button and a session creation window will appear.
  iv. Enter some session name
  v. Give the host name as one of the linux machines, e.g. *goro.ece.utexas.edu*
  vi. Enter your login name and password
  vii. Enter the command as: *xterm*
  viii. Let the remaining settings be the default
  ix. Finally click on "save"

x. Go back to the sessions tab where your newly created session name will appear, select this and click on the launch button, which will launch an xterm shell in which you can open GUI items

(d) Once you have logged into one of the ECE LRC linux machines, you need to source "setup.csh" or "setup.sh" located at
/home/projects/gerstl/sce-20080601/bin/
depending on whether your shell is a [t]csh or bash. The default shell at the LRC is the tcsh. You can identify the shell type by using the 'SHELL' environment variable:
% echo $SHELL
/bin/tcsh
Then we can source the setup file as follows:
% source /home/projects/gerstl/sce-20080601/bin/setup.csh

(e) Now to launch SCE, type 'sce' at the command line
(~) % sce
This will pop up the SCE window. You can get online help at any time through Help buttons or by selecting Help→Manual.

Documentation for SCE is installed under *$SPECC/doc*:
- Copies of the SCE Manual: *$SPECC/doc/SCE_Manual*
- SCE Tutorial: *$SPECC/doc/SCE_Tutorial*, and the latest errata for the tutorial: *$SPECC/doc/SCE_Tutorial_Errata.pdf*
- SCE Specification Reference Manual: *$SPECC/doc/SpecRM.pdf*
- SCE Database Reference Manual: *$SPECC/doc/DBRM.pdf*
- SpecC Language Reference Manual: *$SPECC/doc/SpecC_LRM.pdf*

2. SCE Tutorial

SCE includes a tutorial that demonstrates the environment as applied to the example of designing a GSM voice encoding (Vocoder) application for mobile phone applications. Below are instructions for getting started with and going through the tutorial:

(a) Do the setup of your SCE environment as described above with the required setup file sourced.

(b) To work through the tutorial you need about 200MB of hard disk space, i.e. you might run out of your quota in your regular ECE home directory. So you can create your own directory in the public */scratch* space, which is accessible from all linux machines. Note, however, that */scratch* is not backed up and will be wiped out at the end of the semester so do not store any important files there!

First, create a directory with your username in the */scratch* directory:
% mkdir /scratch/<username>
% cd /scratch/<username>

Next, create a working directory for the tutorial in your scratch space:

(/scratch/<username>)% mkdir tutorial
(/scratch/<username>)% cd tutorial

In this tutorial directory run the command *setup_demo*:

(/scratch/<username>/ tutorial)% setup_demo

This will create the required files for your demo:

(/scratch/<username>/ tutorial)% ls -F
DEMO_FINAL.tar.gz@ IP Makefile SCE_Tutorial@ src/ testbench.sc@
vocoder.sce

(c) Now you can start following the tutorial:
http://www.cecs.uci.edu/~cad/publications/tech-reports/2003/TR-03-41.tutorial.pdf
However since this tutorial is old and is not updated for the version of SCE that is currently being used, you are required to refer to the errata document at:
http://www.ece.utexas.edu/~gerstl/ee382v_f09/docs/SCE_Tutorial_Errata.pdf

(d) If you quit the tutorial at some intermediate step, the next time you login to continue from the earlier point you need to go into the work directory which was used earlier and run *setup_demo* again:

(/scratch/<username>/ tutorial)% setup_demo
ln: creating symbolic link `/scratch/<username>/ tutorial/testbench.sc' to
`src/testbench.sc': File exists
ln: creating symbolic link `./src' to `../src': File exists
ln: creating symbolic link `./DEMO_FINAL.tar.gz' to
`/home/projects/gerstl/sce-20080601/examples/vocoder/DEMO_FINAL.tar.gz':
File exists
ln: creating symbolic link `./SCE_Tutorial' to `/home/projects/gerstl/sce-
20080601/doc/SCE_Tutorial': File exists

Ignore the warnings as none of your files will be deleted. You can continue the tutorial by launching SCE, opening the *vocoder.sce* project and then loading the last generated sir file by double-clicking on it in the project window.