VLSI2-Readme

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(1) How to setup Cadence before the first use

Set up your working directory:

To setup the cadence environment for your VLSI2 account run the cadence_setup script from a command prompt:

```
vlsi2%   mkdir cadence2
vlsi2%   cd cadence2
vlsi2%   cp /usr/local/cadence2/NCSU_1.4/NCSU.cshrc_cadence2_IC5141
         NCSU.cshrc_cadence2_IC5141
```

(**To run Cadence from a PC see section (4) of this document**)

(Open a terminal window on the VLSI lab workstation by right clicking the mouse on the blue desktop background, then click on the toolsmenu, then click on terminal to open a new terminal window.)

To use **NCSU design kit** you need to source ncsu.cshrc in the current terminal window:

```
vlsi2%   cd cadence2
vlsi2%   source NCSU.cshrc_cadence2_IC5141
```

start *icfb* by typing the following in your working cadence directory:

```
vlsi2%    icfb&
```

In order to quit CADENCE select *File* and *Exit* from the *Cadence Log window(CIW)*.
A message window appears to confirm your command.

Select *OK* to exit.

**For Further information on creating a library, a schematic, and running
a simulation in Cadence see the following link:**

NOTE: The information in this link is not specific to the vlsi2 server.

http://www.fulton.asu.edu/ets/services/services/server/unix/Cadence.php

> Cadence **documentation** is available online. To open it type:
>
> ```
> vlsi2% cdsdoc &
> ```

> Always **save your work and exit** Cadence before you log out.

> GNU Software- Many **GNU utilities** are available on VLSI2
> in the /opt/sfw/bin directory

(2) How to start Cadence (ICFB - IC Front to Back)

NOTE: ***If you have not previously set up Cadence please follow the
procedure in section (1) "How to set up Cadence before the first use"***

To start Cadence from the VLSI computer lab:

Login to a workstation in the VLSI computer lab and type at the command prompt:

```
vlsi38%      cd cadence2
vlsi38%      source NCSU.cshrc_cadence2_IC5141
vlsi38%      icfb &
```

To Start Cadence from the VLSI2 server:

Login to vlsi2.eas.asu.edu using the SSH client from a computer on or off campus:
Also see section (4) of this document for information on using Cadence from a PC.

```
vlsi2%      cd cadence2
vlsi2%      source NCSU.cshrc_cadence2_IC5141
vlsi2%      icfb &
```

Cadence **documentation** is available online. Just type:

```
vlsi2% cdsdoc &
```

How to change your **password** on VLSI2

login with current password

then type chkey –p (to change your key)

```
vlsi2% chkey -p
```

When asked for your Secure-RPC password type **nisplus**.
When asked for your **login** password type your **current** password.

Then change your password with the following command:

```
vlsi2% passwd -r nisplus e525abcd
Enter login(NIS+) password: (type your old password)
New password:
Re-enter new password:
```

(3) CADENCE Printing

To print schematics you have to use the camera menu in the ICFB window.

(1) From the ICFB window click on the Tools menu, then Camera, then PostScript.

(2) Then in the Camera window enter a output filename, or leave the default filename
CameraOutput.ps, and click OK.

(3) Then the cursor will become a circle. Click the circle cursor on the schematic
and it will make a postscript snapshot of the schematic.

> ### To print a file on the VLSI2 server:
>
> Use sftp (Secure Shell FTP) or web based email to copy the CameraOutput.ps to another
> computer and print it from there with a postscript capable program to a postscript printer
>
> See sections (19) and (20) for more information about using Sercure Shell File Transfer.

(4) Using Cadence from a PC with Exceed and SSH

SSH and Exceed are installed in the Computing Commons PC labs.

If you need to Download SSH or Exceed its available from ASU IT here:

SSH Client - http://www.asu.edu/it/security/software/html/ssh/index.htm

Note—Exceed version 9 is recommended for some older versions of Cadence

Exceed - http://www.asu.edu/it/security/software/html/xwindows/index.htm

From the PC's start button click on:

**Start—>programs—>Hummingbird Exceed—>Exceed—>Exceed**

From the exceed menu click on the Exceed icon. Exceed will start and run in the background.
Now use ssh to open a command prompt to VLSI2. From the PC's start button click on:

Start—>SSH Secure Shell—> Secure Shell Client

Click on the Secure Shell Client icon. This will open an SSH window on your PC.
Now press enter or space to get a login window. Enter the following information:

Hostname: vlsi2.eas.asu.edu
Username: e525abcd   (enter your vlsi2 username)
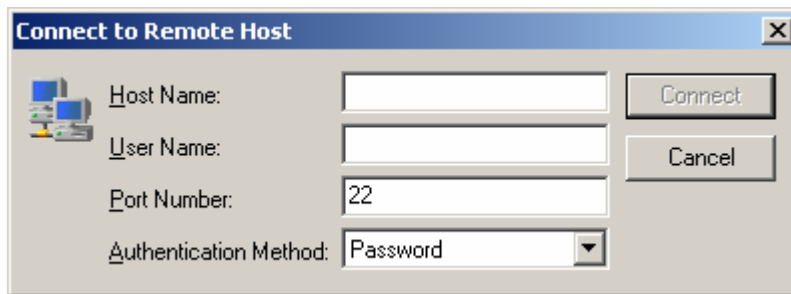
Now type the following at the vlsi2% prompt.

```
vlsi2% cd cadence2    (change to your cadence working directory)
vlsi2% source NCSU.cshrc_cadence2_IC5141(source environment file)
vlsi2% setenv DISPLAY 129.219.111.222:0.0
```

(replace 129.219.111.222:0.0 with the ip# number of the pc your are using)
(Don't forget to add the :0.0 after the ip number)

```
vlsi2% icfb &      (start cadence)
```

To find the ip number for most windows machine try this:
From the PC's start button click on:

Start—>accessories—>command prompt

Click on the command prompt icon.
At the dos prompt type

(5) Troubleshooting Exceed connections on a PC

*If you are working **from off campus** and receive the following error:*

ERROR X Window Display Initialization failure
WARNING X Window Display Initialization failure

*You may need **to skip the setenv step above in section** (**4**).*
Then change the setting for the SSH client as follows:

(a) From the ssh client window click on the EDIT menu and then SETTINGS, you will get the window in the picture below.

(b) Then click on TUNNELING. Then check the boxes for "Tunnel X11 connections" and "Enable for SSH2 connections"
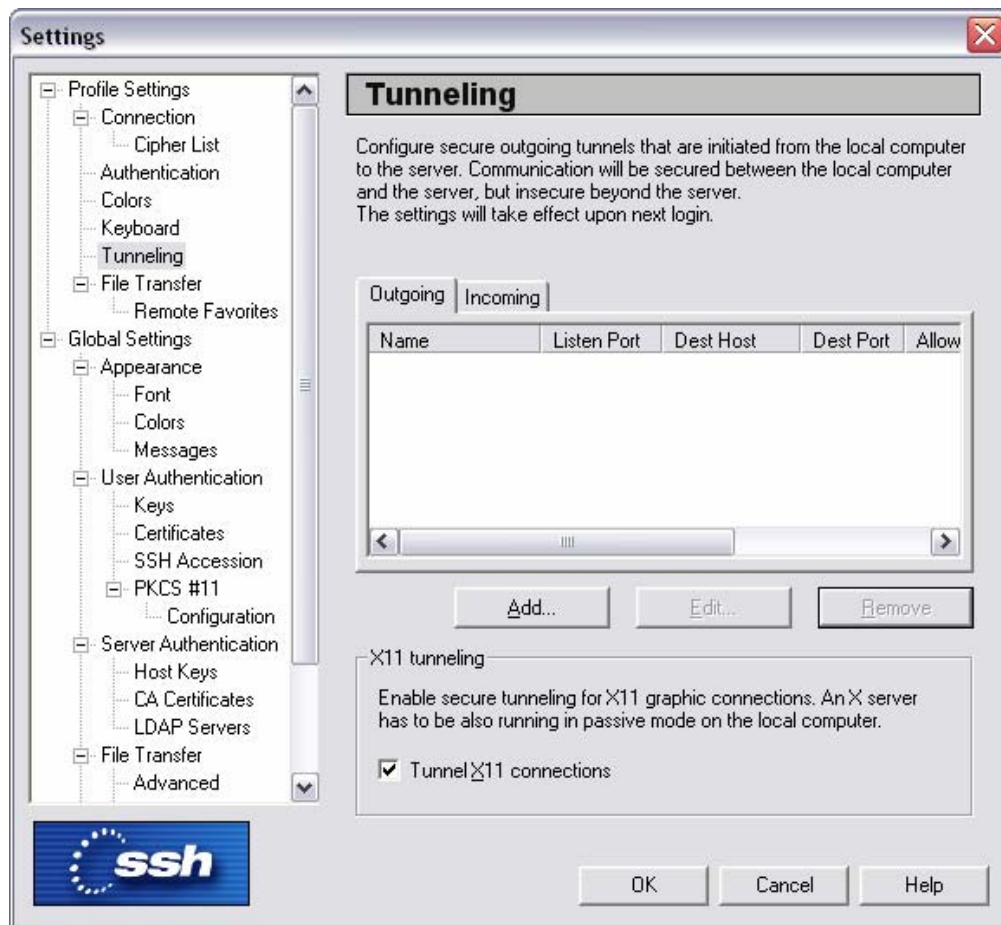
(6) How to fix screen redraw problems from a PC with Exceed

(1) If you are using vlsi2 from a PC with Exceed and the **mouse is not moving properly**
   (You might be seeing many mouse pointers at the same time)

Open the Xconfig program:

Start—> Programs —> Hummingbird Connectivity 10 —> Exceed —> XConfig

(2) Then click on **other server settings.**

(3) In the **Performance** section change the following settings:

● maximum backing store (change to - **always**)

● default backing store (change to - **when mapped**)

● minimum backing store (change to - **when mapped**)

(4) Then in the upper left corner choose **validate and apply changes.**

(5) Now click on the **display and video** icon and change the following setting:
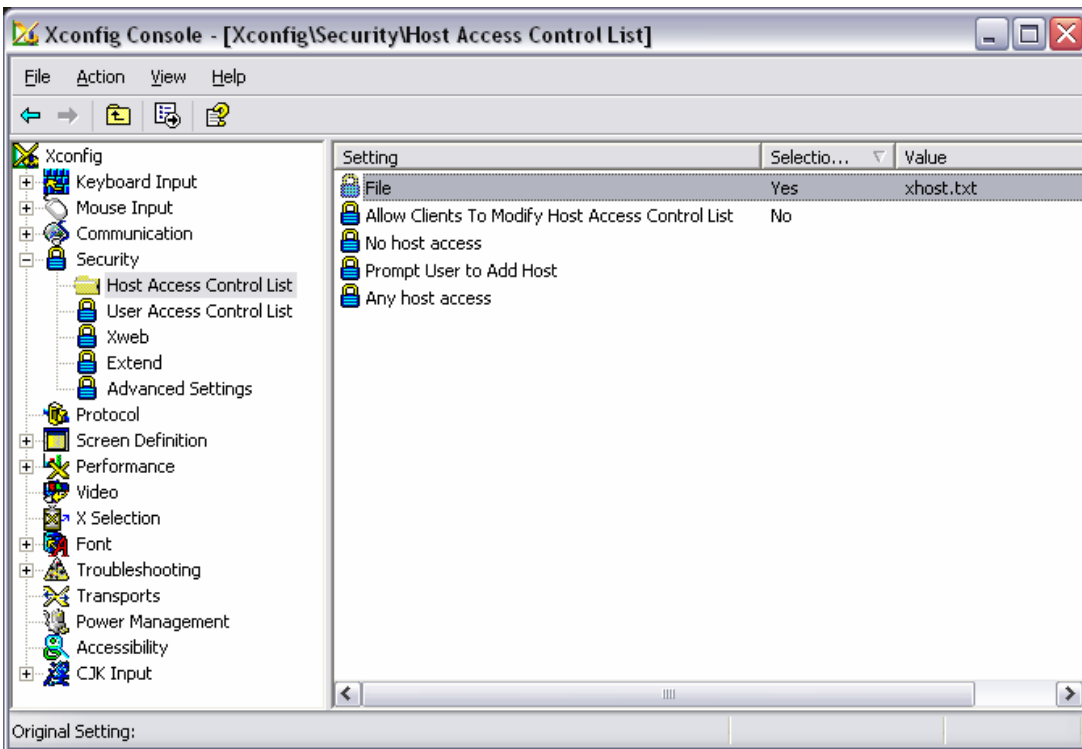
● server visual (change to – pseudo color)

(6) Then in the upper left corner choose **validate and apply changes** and perform a **server reset** if prompted**.**

(7) Configuring Exceed Security

For Exceed 10.0 perform the following configuration.

Open the X Config program for Exceed:

Start -> All Programs -> Hummingbird connectivity 10 -> Exceed Tools -> X Config Console

(1) Click on the Security icon.
(2) Click on the "Host Access Control List" folder.
(3) Right Click "File" on the right half of the window and select "Edit" form the pop-up menu.
(4) This opens a notepad editor where you can enter the hostname or IP number for servers that you will be accessing with Exceed.

Sample server entries for the xhost.txt file

> enlnxs2.eas.asu.edu
> vlsi2.eas.asu.edu

(5) Save and Exit the xhosts.txt file in the notepad editor.

(6) click on File -> Exit and close the X Config Console, save changes when prompted.

(8) Advanced Cadence Troubleshooting, lockfiles etc.

If Icfb doesn't start when logged into a VLSI lab workstation: (3 steps)

You have logged into one of the VLSI computer lab workstations, sourced your
cadence startup (source ncsu.cshrc) file, and then type icfb& and nothing is happening.

(1) What to do: Let's assume you are logged into VLSI07 workstation and **not** VLSI2 directly.
At a command prompt type:

> **vlsi07% pgrep –f cadence –U e525cade**
> (Note: replace e525cade with your VLSI2 username)

(If you need to open a command prompt: right click the mouse on the blue desktop background, click on the
 tools menu, then click on terminal to open a command prompt)

You will see output like this: (the numbers will be different every time)

> **vlsi07% pgrep –f cadence –U e525cade**
> **14076**
> **11699**
> **13456**

Stop these processes by typing at the vlsi07 prompt:

> **vlsi07% pkill –f cadence –U e525cade**
> (Note: replace e525cade with your VLSI2 username)

(2) Now remove lock files: Type the following at the command prompt

> **vlsi07% clsAdminTool**

then you will get a ">" prompt, type the following at the prompt:

> **>are . ..**
(don't forget to type the . and .. on that line with a space in between)
> **>quit**

Then, you should go back to the local prompt vlsi07%
Now type:

> **vlsi2% cd**
> **vlsi2% rm –i CDS*** (Then answer yes to delete each log and lock file)
> rm: remove CDS.log (yes/no)? **yes**
> rm: remove CDS.log.cdslck (yes/no)? **Yes**

Continue to answer **yes** until you get back to the vlsi2% command prompt.

(3) start cadence again

> **vlsi99% source NCSU.cshrc_cadence2_IC5141**
> (or source the file used for your class if different)
> **vlsi99% icfb &**   (start Cadence)

# (9)	WWW Links to more information on Cadence, SSH, Exceed

VLSI2 server information
http://www.eas.asu.edu/ets/services/services/server/unix/VLSI.php

NCSU Cadence web site
http://www.cadence.ncsu.edu/

Setup for ASU VPN client
http://www.asu.edu/it/fyi/comm/documents/vpn.pdf

FREE - Virus-Scan software download from IT
http://www.asu.edu/it/security/software/html/antivirus/index.htm

FREE - SSH Client download from IT
http://www.asu.edu/it/security/software/html/ssh/index.htm

FREE - Exceed, X-window server download from IT
http://www.asu.edu/it/security/software/html/xwindows/index.htm

CSE517 - VHDL
http://www.eas.asu.edu/~cse517a/

ETS – UNIX helpdesk FAQ
http://intraweb.eas.asu.edu/faq/faqcat.cfm?cat_id=10

(10) Fix Netscape cookie warning messages

On the netscape menus go to Edit —> Preferences. Then go to the advanced category and remove the check from the "Warn me before accepting a cookie" checkbox in the Cookies section.

(11) Text Note editor – error writing to /user/…

When using text note editor (dtpad) on a Solaris box in the VLSI lab please be sure to open files from the path /home/c517abcd/filename not the path /user/cse517/c517abcd/filename. You do not have write permission to the /user directory and won't be able to save changes there.

(12) How to start Adobe Acrobat Reader in the VLSI lab

To start adobe acrobat reader type:

vlsi30% /opt/Acrobat5/bin/acroread &

(13) How do I check my disk space quota on VLSI2

Each class account is assigned 50Mb of disk space. If you exceed this amount you will be unable to create new files or save changes to existing files. Please remove any unneeded files, including postscript files and Cadence simulation files ending with a ".tran"

To check your current usage type:

vlsi2% quota –v

Disk quotas for e524abcd (uid 9999):

Filesystem	*usage*	*quota*	*limit*	*timeleft*	*files*	*quota*	*limit*	*timeleft*
/user	*22486*	*100000*	*120000*		*233*	*0*	*0*	

The usage field should show 100000 or less (listed in 512k blocks)

(14) Where are the GNU executables

GNU Software – many GNU utilities are available on VLSI2 in the

/opt/sfw/bin directory

For example top is located in **/opt/sfw/bin/top**

(15) How do I use Agilent ADS on VLSI2

ADS – New version 2003C located in /Tools2/ads/ads2003c

Source the file /Tools2/ads/ads2003c/ASU_readme

vlsi2% source /Tools2/ads/ads2003c/ASU_readme

and then run ads from /Tools2/ads/ads2003c/bin/ads.

vlsi2% /Tools2/ads/ads2003c/bin/ads &

Or just

Vlsi2% ads &

To view the online documentation click on the help menu:

Help —> Topics and Index

Try the Quick Start guide to begin with.

(16) How to use ISE-TCAD on VLSI2

From your PC start Ssh and login to vlsi.eas.asu.edu

Then start Exceed HWM, click on the following from the PC's START button

Start—>Programs—>Hummingbird Connectivity—>Exceed—>Exceed

vlsi% /bin/csh (make sure you are running the csh [c-shell])

vlsi% mkdir DBtest (only do this once)

vlsi% setenv DISPLAY 123.123.123.123:0.0

(replace 123.123.123.123 with your pc's IP number and a :0.0 on the end)

For TCAD v7:
vlsi% source /Tools/tcad/TCAD_readme_7
vlsi% GENESISe

For TCAD v8.5:
vlsi% source /Tools/tcad/TCAD_readme_8
vlsi% GENESISe -rel 8.5   (NOTE: you must add "-rel 8.5")

For TCAD v9.0
vlsi% source /Tools/tcad/TCAD_readme_9
vlsi% GENESISe &

(17) How to use HSPICE on VLSI2

To use HSPICE on the VLSI2 server do the following

```
vlsi2% source  /usr/local/synopsys2/hspice/hspice.cshrc
vlsi2% awaves &
```

If necessary set your display

```
vlsi2% setenv DISPLAY 123.123.123.123:0.0
```
     (Replace 123.123.123.123 with your computers ip number)
     (Don't forget to add the :0.0 after the ip number)

Others commands available are

hspicegui - to run Hspice GUI without avanwaves.

hspice - to run command-line only Hspice.

The HSPICE and Avan-Waves PDF documentation is available in the /usr/local/synopsys2/hspice directory on the VLSI2 server.

(18) How to use the Synopsys MC-Module Compiler

1. Make a directory called mcproj in your home directory:

```
vlsi2% cd
vlsi2% mkdir mcproj
vlsi2% cd mcproj
```

2. Source the setup file each time you run MC

```
vlsi2% /bin/csh (to make sure you are runing C-shell)
vlsi2% source /Tools/synopsys/syn/mc/localadm/setup.csh
```

3. Make sure your DISPLAY setting is correct:

```
vlsi2% setenv DISPLAY 123.123.123.123:0.0 (replace with your PC's IP address)
```

4. Run MC

```
vlsi2% mc -tech lsi_10k    (this will use the lsi10k technology)
```

5. To test MC, push the "Do All" button and MC will build an 8-bit adder as a test.

(19) Secure file transfer to/from UNIX computers

To copy files to the VLSI2 server from another computer usethe sftp command.

At the command prompt type:

vlsi2% sftp dilbert@general.asu.edu
(replace dilbert with your username)

Answer **yes** to the following question if you see it on the screen:

Host key not found from database.
Are you sure you want to continue connecting (yes/no)? Yes
Then enter your password for the other server

dilbert@general.asu.edu's password: *****

now you will see an sftp prompt.

sftp>
Type ls to see the files on the other server

sftp> ls

And get or put to send or receive files from the other
server.

Sftp> get test.sp (move a file from general to VLSI2)

Sftp> put test.sp (move a file from VLSI2 to general)

(20) Secure Shell File Transfer from Windows PC's

You can copy files to VLSI2 from a PC with the "SSH Secure File Transfer".
All pc's on campus should have this program

Start the SSH Secure File Transfer from a PC's start menu

Start —> All Programs —> SSH Secure Shell —> Secure File Transfer

From here press the "quick connect" button and enter vlsi2.eas.asu.edu
for the hostname and enter your vlsi2 account for the username.
Then press the connect button.
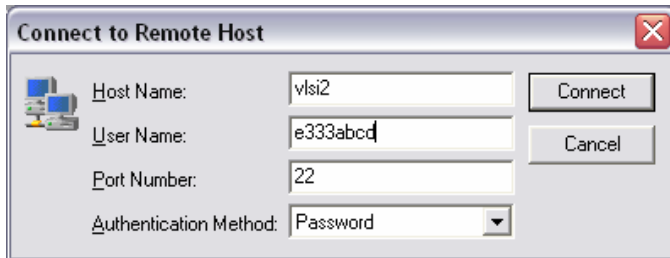
Then you can copy files directly from folders on the PC to
your vlsi2 home directory in the right side on the window
under "remote name"
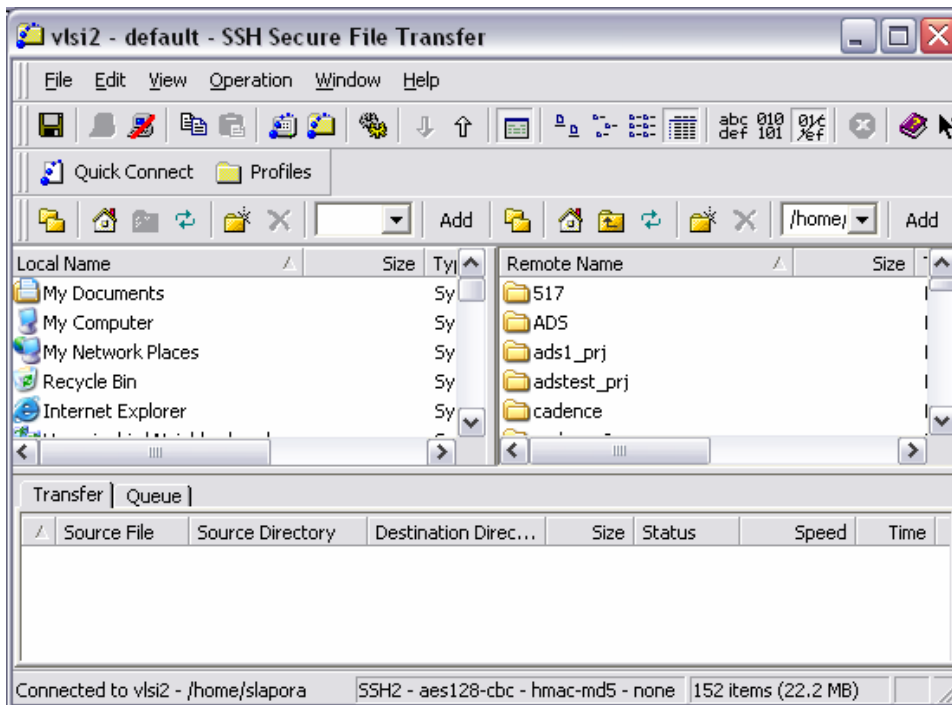
Most PC's on campus will have SSH client and Exceed already installed. If you need to install them they are
available from the ASU IT web site.

SSH Client download from ASU IT
http://www.asu.edu/it/fyi/comm/sw/serveraccess/ssh.html

Exceed, X-window server download from ASU IT
http://www.asu.edu/it/fyi/comm/sw/serveraccess/exceed.html

(21) Synopsys Design Compiler and DC-FPGA Compiler

First source the file from a vlsi2 command line window:

source /usr/local/synopsys2/dc_fpga_2004.12/DC_FPGA.cshrc

to start Synopsys documentation, called SOLD (make sure exceed is running and ssh has tunneling enabled. See the attached pdf)

type sold at the prompt

vlsi2% sold &

start the various design compiler shells:

dc_shell &

fpga_shell & (there is some license error with this. I'll have to email synopsys)

_____

Synopsys On-Line Documentation (SOLD) is available on VLSI2.

(1) To start SOLD users will have to start exceed on a PC as well as have acrobat reader installed (acrobat is available on UNIX and Exceed is not needed for Solaris and LINUX)
(2) ssh to vlsi2.eas.asu.edu.
(3) Source the file /user2/cse518/ncsu.cshrc

Then at the vlsi2 prompt type sold:

Vlsi2% sold &

This is version 2004.06 of SOLD

If any users want to add the path to SOLD manually it is:

/usr/local/synopsys2/SOLD_V-2004.06

_____

You can register at the synopsys web page with the ASU site id which is "12904" at this link to acces more
 documentation.

https://solvnet.synopsys.com/amserver/UI/Login