Cadence Layout Tool

EE247B Spring 2014

Set up Cadence Layout Environment

- Set up X window environment
  - e.g., Xmanager, X11, Exceeds ….etc
  - get Xmanager from www.netsarang.com and follow the instruction in "Cadence Tutorial"
  - log in c119, quasar, or pulsar@eecs.berkeley.edu using your instructional account and password
- Create a working directory under your home directory [~/*dir*]
  - in terminal, type "mkdir [*dir*]" and then "cd [*dir*]"
- Copy technology and display files to [~/*dir*]
  - use sftp software, e.g., Xmanager, WinSCP or X11
  - copy "ee245tech.tf" & "display.drf" to [~/*dir*]
- In terminal, type "/share/b/bin/cadence-setup.csh" under [~/*dir*]
  - direct the path to [~/*dir*] when being asked
  - "ls": check files in current directory
  - "pwd": to check current directory path
  - "cd": go to home directory
  - "cd ..": go up one directory
- Type "icfb2 &" and the CIW should pop up

Xstart

Session: cory

New...   Delete

Run

Host: quasar.eecs.berkeley.edu

Protocol: SSH   Setup...

User Name: wcli

Authentication: Password   Setup...

Command:
/usr/openwin/bin/xterm -ls -display $DISPLAY

Save

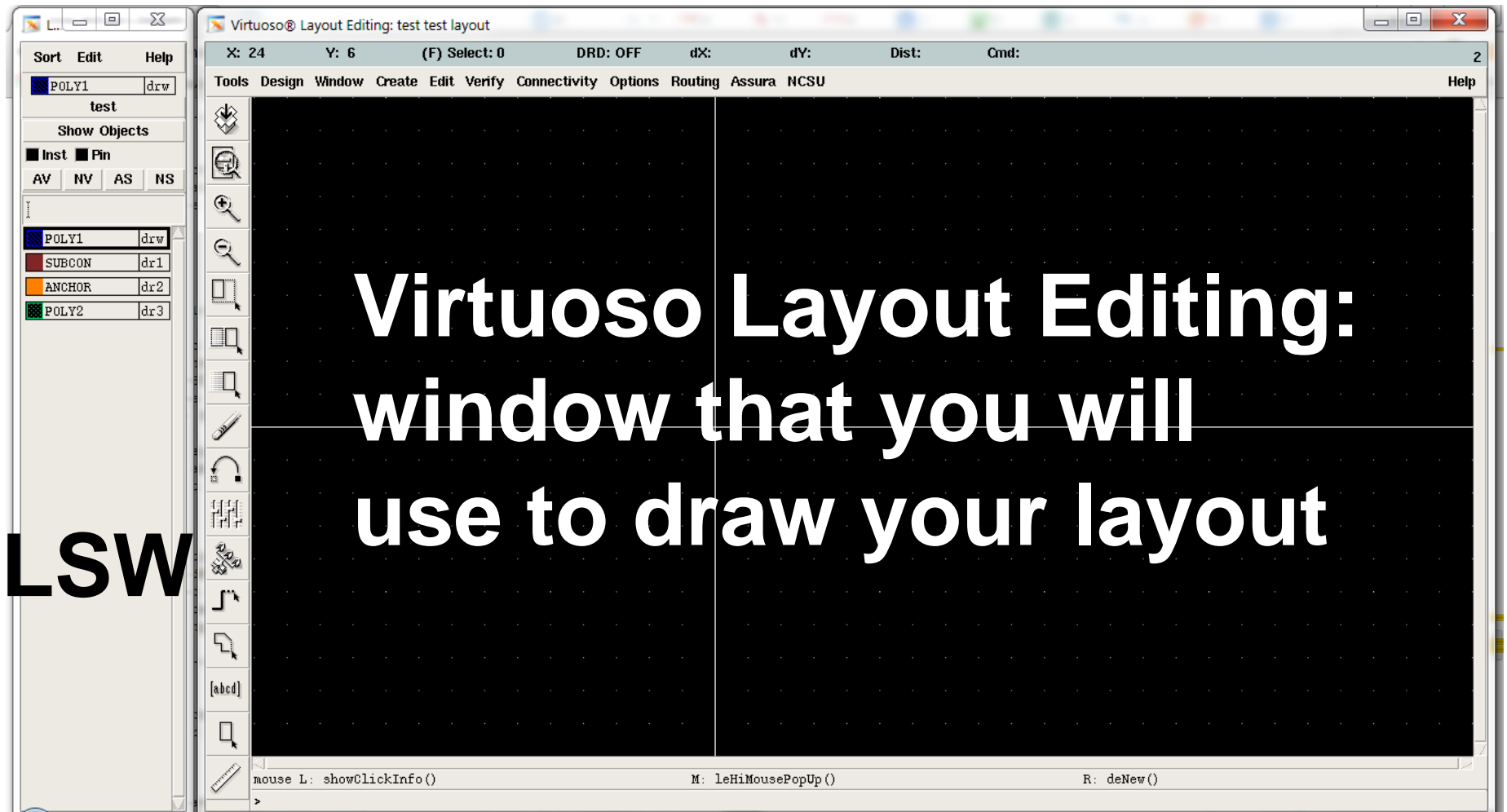☑ Show connection status window

Advanced...   Help

Create New Working Library

- CIW → File → New → Library
- Name your working library [*lib*]
- Choose "compile a new techfile" and click "OK"
- Browse for "ee245tech.tf" when asked to load the technology file (it should be under your working directory [*~/dir*]) and click "OK"
- You should then see a pop-up window saying "…….successfully."

Create New Layout

- CIW → File → New → Cellview
  - Choose your working library created previously [*lib*] for the
  - Name a cell name [*device*]
  - Choose "Virtuoso" in the tool field and you should see the "View Name" changed to "layout" (Virtuoso is the layout tool used in Cadence)
- Click "OK" and you should then see two pop-up windows – "Virtuoso Layout Editing" and "LSW"

Virtuoso Layout Editing:
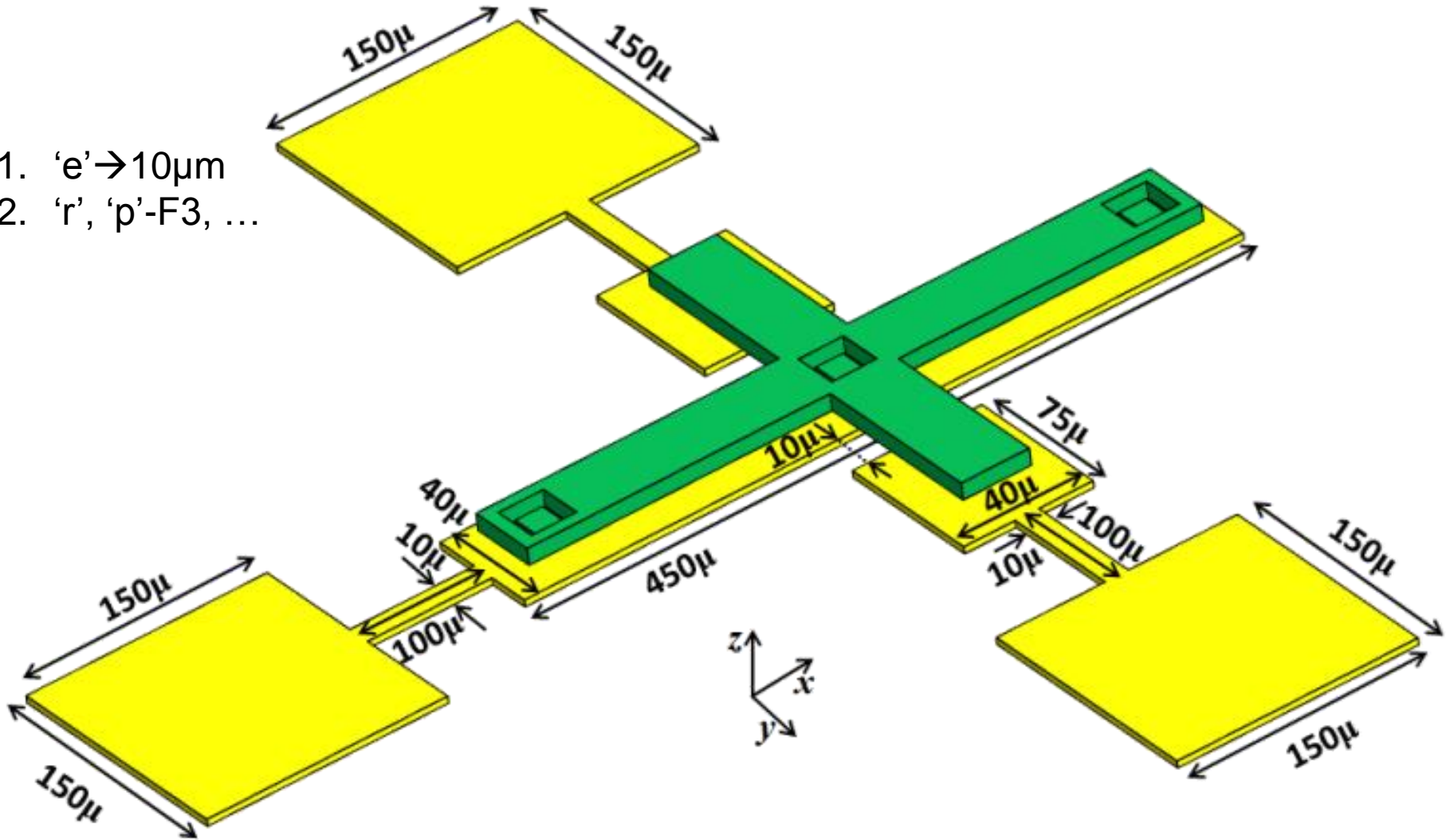window that you will
use to draw your layout

LSW

Perform Layout: Hot Keys!

- e: display option → to set up the resolutions
- r: add rectangles
- p: add path
- c: copy → mirror copy/rotate copy
- m: move

(select the object to be copied/moved and then c/m)

- Shift-m: merge objects

(select the objects to be merged and then ctrl-m)

- q: properties of objects

- s: stretch

(s first and then click on the edge to be stretched)

- shift-c: chop

(select the object to be chopped and then shift-c)

- F3: when command enabled, open options box
- ECS: end command mode
- k: use ruler
- Shift-k: remove rulers
- Shift-z: zoom out
- Ctrl-z, right button: zoom in
- f: fit zoom

❖ If you find the option box that automatically pops up when you press a hot key annoying, CIW → Options → User Preferences → to unselect "Options Displayed When Commands Start". Then use F3 whenever you need it.

Perform Layout

1. 'e'→10μm
2. 'r', 'p'-F3, …

Export Layout to GDS Files

- CIW → File → Export → Stream…
  - Library Browser → find the cell [*device*] that you just laid out
  - "Output File" should automatically change to [*device*].gds
  - Run Directory shows "." meaning the Output File will be put in the "current" directory which should be your working directory [*~/dir*]
  - Click "OK" and you should see a pop-up window that contains the word –"successfully"
- Use Xmanager to copy generated GDS files from the server to your local computers