Middle East Technical University

Electrical-Electronics Engineering

EE 414 – Introduction to Analog Integrated Circuits

Tutorials

UMC 180 nm Technology Installation

1.1.   Introduction

There are 25 personal computers in the laboratory with Centos OS configuration. Cadence IC tools require the use of Linux environment. You will therefore have to get familiar with using Linux OS. There are many resources in the library and online. Remember to shut down Cadence when not in use.

1.2.   Running Cadence

Cadence offers one of the most commonly used IC Design CAD (Computer-Aided-Design) tools. Cadence IC Design suit contains many submodules, each of which is responsible for a different step in IC design flow. You will practice with low-level (transistor level) design flows in the Cadence exercises.

1.2.1. Initializing Cadence Environment

With the steps in the previous part, you are connected to the server and ready to run Cadence. In order to run Cadence for the first time, you need to initialize your working directory. For this purpose follow the next steps:

1. Turn on the computer if it is not, and log into Ubuntu by using your user name and password.

2. Open a terminal: Applications → System Tools → Terminal

3. mkdir Cadence180

This will make a directory named Cadence.

4. cd Cadence180

Enter newly created Cadence directory.

5. These commands below generate required files and folders to run Cadence.

cp /design_kits/umc180nm_A2/.simrc .

cp /design_kits/umc180nm_A2/display.drf .

ln -s /design_kits/umc180nm_A2/Models .

cp -f /design_kits/umc180nm_A2/assura_tech.lib .

cp -rf /design_kits/umc180nm_A2/RuleDecks .

echo INCLUDE /design_kits/umc180nm_A2/cds.lib > cds.lib

6. virtuoso &

Run cadence for the first time, which is UMC 180 nm technology with 6 metal and 1 poly layers.

So, you have a running cadence at the moment. Remember that, the previous steps are for initializing the cadence for the first time, and they should be done once only. Now close cadence by File>Exit.

1.2.2. Running Cadence

You have initialized cadence in the previous part. After the first run, you need to do the following things to run cadence:

1. Open a terminal

2. cd Cadence180

3. virtuoso &

That is all. Cadence should be running.

1.3.   How to Log Out?

When you log out, make sure that no programs are running.   If cadence is running for example, close it (including all windows). Then click on your name at upper right of the screen and click "Log out...".   After this, the login screen should come back.   So you logged out from Centos, and it waits for you to log-in again.   Now you can leave the lab.