**# Install Ngspice**

sudo apt-get install manpages-dev man-db manpages-posix-dev libreadline6-dev -y

sudo apt install ngspice

**# Install ngspice – 34 for pyspice**

sudo apt install libc6-dev g++ -y

wget https://sourceforge.net/projects/ngspice/files/ng-spice-rework/old-releases/34/ngspice-34.tar.gz

tar -zxvf ngspice-34.tar.gz

cd ngspice-34/

mkdir release && cd release

../configure --with-ngshared

make

sudo make install

**# Install pyspice**

export PATH=/home/exotic/.local/bin:$PATH

sudo apt install python3-pip -y

pip install PySpice

pyspice-post-installation --check-install

**Install xschem**

<https://youtu.be/jXmmxO8WG8s>

<https://xschem.sourceforge.io/stefan/xschem_man/install_xschem.html>

<https://anthonywall.ie/opentools/>

*sudo apt update -y && sudo apt full-upgrade -y && sudo apt autoremove -y && sudo apt clean -y && sudo apt autoclean -y*

*sudo apt-get install -y git build-essential libx11-dev libxaw7-dev libcairo2-dev tcl8.6-dev tk8.6-dev flex bison libxpm-dev gawk adms libreadline-dev*

*git clone https://github.com/StefanSchippers/xschem.git*

*cd xschem*

*./configure*

*make*

*sudo make install*

*rm -r xschem*

**#Set simulation directory**

cd ~/.xschem

mkdir simulations

sudo nano .spiceinit-----[ set ngbehavior=hs]

**install Magic**

*cd /home/..../Desktop*

*git clone git://opencircuitdesign.com/magic*

*cd magic*

*sudo apt-get install m4 tcsh csh libx11-dev tcl-dev tk-dev libcairo2-dev mesa-common-dev libglu1-mesa-dev libncurses-dev -y*

*./configure*

*make*

*sudo make install*

*make distclean*

**Install sky130**

Method 1-----

Method 2-----

<https://www.engineerwikis.com/wikis/installation-of-xschem>

cd …… Desktop

git clone https://github.com/google/skywater-pdk

cd skywater-pdk

git submodule init libraries/sky130\_fd\_io/latest

git submodule init libraries/sky130\_fd\_pr/latest

git submodule init libraries/sky130\_fd\_sc\_hd/latest

git submodule init libraries/sky130\_fd\_sc\_hdll/latest

# optional -----------

git submodule init libraries/sky130\_fd\_sc\_hs/latest

git submodule init libraries/sky130\_fd\_sc\_ms/latest

git submodule init libraries/sky130\_fd\_sc\_ls/latest

git submodule init libraries/sky130\_fd\_sc\_lp/latest

git submodule init libraries/sky130\_fd\_sc\_hvl/latest

# --------------------

# You can skip the above optional command. But the following two commands must be run.

git submodule update

make timing

**Install open\_pdks**

cd …./Desktop

git clone git://opencircuitdesign.com/open\_pdks

cd open\_pdks

./configure --enable-sky130-pdk=/home/……./Desktop/skywater-pdk

make

sudo make install

make distclean

**-----------------**

**Run iverilo/icarus**

iverilog file.v

vvp a.out

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**Install pyspice**

-as current pyspice supports upto ngspice 34 lets install it

-download ngspice from “<https://sourceforge.net/projects/ngspice/files/ng-spice-rework/old-releases/34/ngspice-34.tar.gz/download>” or

wget https://sourceforge.net/projects/ngspice/files/ng-spice-rework/old-releases/34/ngspice-34.tar.gz

tar -zxvf ngspice-34.tar.gz  
cd ngspice-34/  
mkdir release && cd release  
../configure --with-x --with-readline=yes --disable-debug --with-ngshared

**or**

../configure --with-ngshared

make

sudo make install

sudo apt install python3-pip -y  
pip install PySpice

pyspice-post-installation --check-install

(if there is a path related warning)

export PATH=/the/file/path:$PATH