— Installation instructions

# Oracle virtual machine link https://[www.virtualbox.org/wiki/Downloads](http://www.virtualbox.org/wiki/Downloads)

**System Check**

6GB RAM, 50 GB HDD

Ubuntu 20.04+ 4vCPU

# Tool check

Yosys

$ sudo apt-get update

$ git clone https://github.com/YosysHQ/yosys.git

$ cd yosys

$ sudo apt install make (If make is not installed please install it)

$ sudo apt-get install build-essential clang bison flex \ libreadline-dev gawk tcl-dev libffi-dev git \

graphviz xdot pkg-config python3 libboost-system-dev \ libboost-python-dev libboost-filesystem-dev zlib1g-dev

$ make config-gcc

$ make

$ sudo make install

# Yosys build depends on a Git submodule called abc, which hasn't been initialized yet. You need to run the following command before running make

$ git submodule update --init --recursive

$ make

$ sudo make install

Iverilog

Steps to install iverilog sudo apt-get update

sudo apt-get install iverilog gtkwave

Steps to install gtkwave sudo apt-get update sudo apt install gtkwave

OpenSTA (not needed for SFAL participants)

https://github.com/The-OpenROAD-Project/OpenSTA

— — End

ngspice

After downloading the tarball from https://sourceforge.net/projects/ngspice/files/ to a local directory, unpack it using:

$ tar -zxvf ngspice-37.tar.gz

$ cd ngspice-37

$ mkdir release

$ cd release

$ ../configure --with-x --with-readline=yes --disable-debug

$ make

$ sudo make install

magic

$ sudo apt-get install m4

$ sudo apt-get install tcsh

$ sudo apt-get install csh

$ sudo apt-get install libx11-dev

$ sudo apt-get install tcl-dev tk-dev

$ sudo apt-get install libcairo2-dev

$ sudo apt-get install mesa-common-dev libglu1-mesa-dev

$ sudo apt-get install libncurses-dev

**git clone https://github.com/RTimothyEdwards/magic cd magic**

**./configure make**

**make install OpenLANE-**

sudo apt-get update sudo apt-get upgrade

sudo apt install -y build-essential python3 python3-venv python3-pip make git

sudo apt install apt-transport-https ca-certificates curl software-properties-common curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o

/usr/share/keyrings/docker-archive-keyring.gpg

echo "deb [arch=amd64 signed-by=/usr/share/keyrings/docker-archive-keyring.gpg] https://download.docker.com/linux/ubuntu $(lsb\_release -cs) stable" | sudo tee

/etc/apt/sources.list.d/docker.list > /dev/null sudo apt update

sudo apt install docker-ce docker-ce-cli containerd.io sudo docker run hello-world

sudo groupadd docker

sudo usermod -aG docker $USER sudo reboot

# After reboot

docker run hello-world

**Check dependencies**

git --version docker --version python3 --version

python3 -m pip --version make --version

python3 -m venv -h

**Below steps installs PDKs and Tools**

cd $HOME

git clone https://github.com/The-OpenROAD-Project/OpenLane cd OpenLane

make make test