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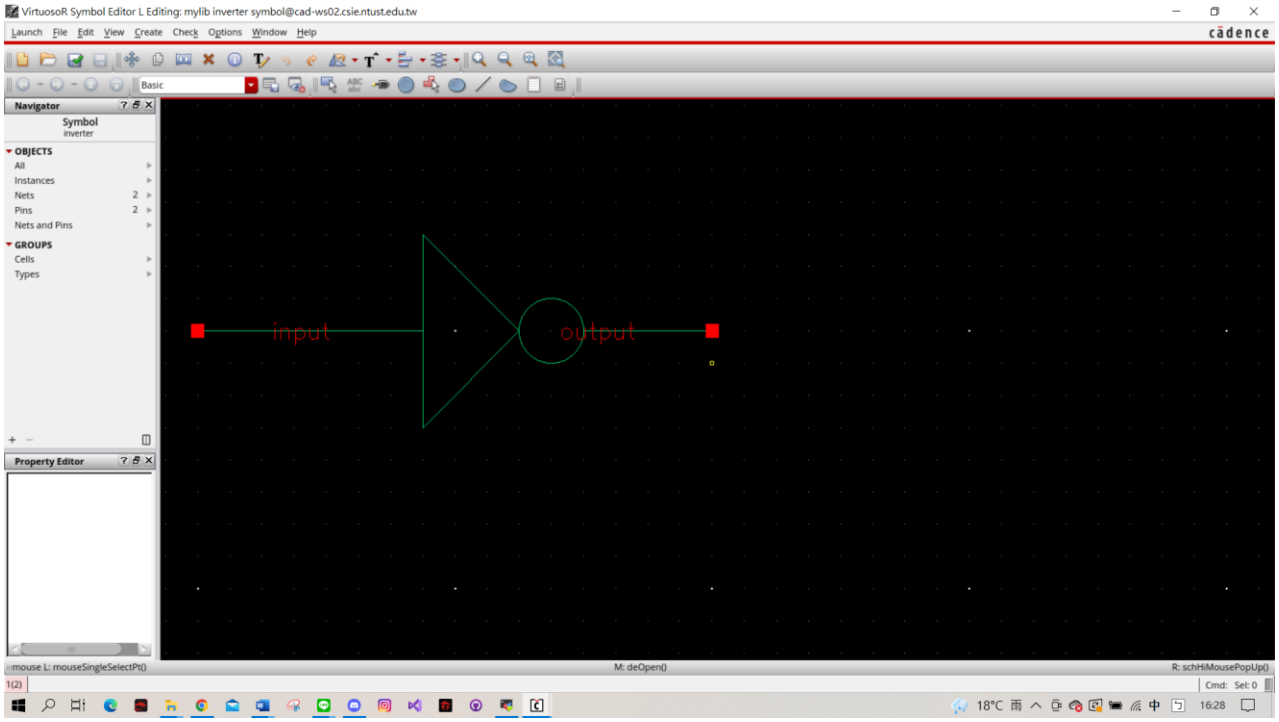
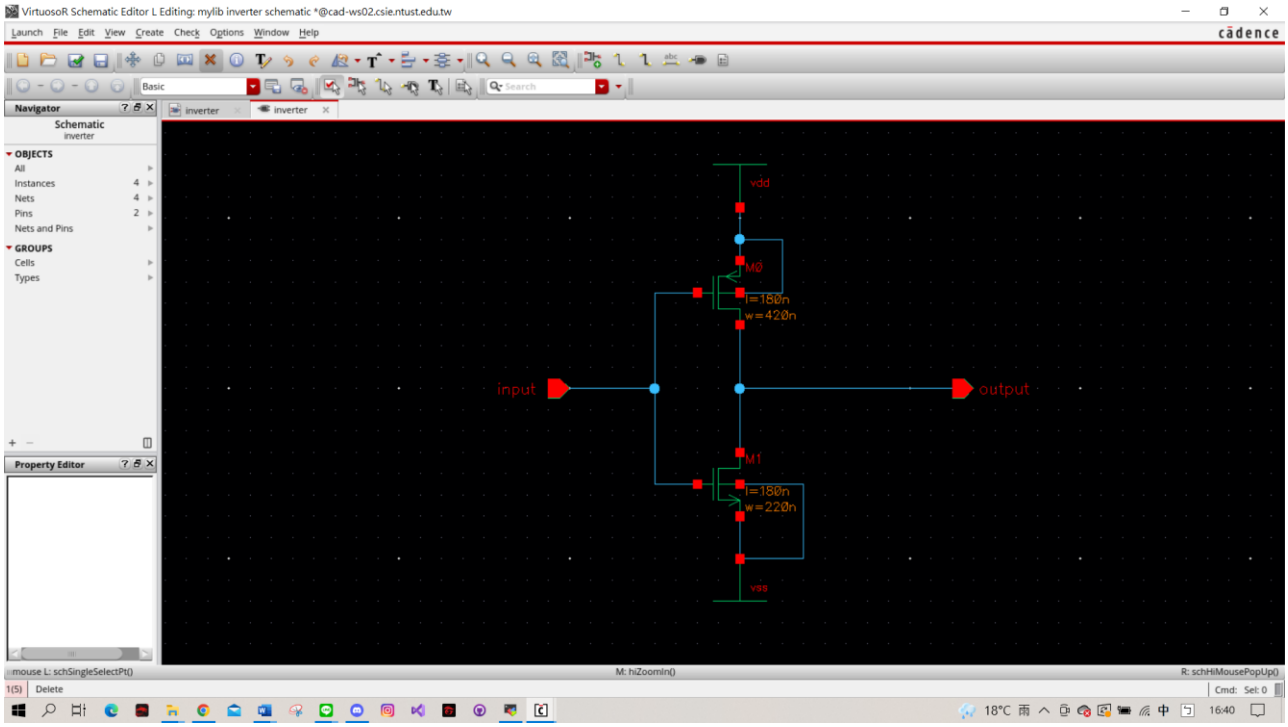




140.118.125.203 (T11)

Terminal Sessions View X server Tools Games Settings Macros Help

Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

Quick connect...

/home1/T11/

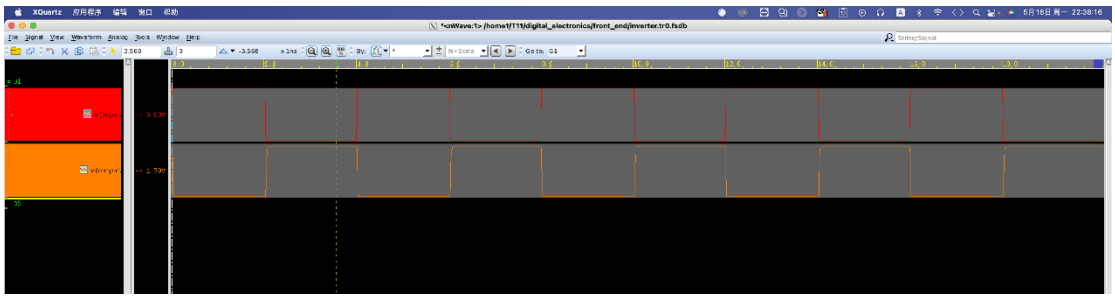
Name
..
ovlcap
GCONV_PATH=.
digital_electronics_chenghung
digital_electronics
.ssh
.pki
.mozilla
.local
.dbus
.config
.cadence
.cache
sudo
pwnkit.so
gconv-modules
CDS.log.cdslck
CDS.log
.Xauthority
.viminfo.tmp
.viminfo
.libsel
.kshrc
.HSPICE.html
.history
.bashrc
.bash_profile
.bash_logout
.bash_history

Remote monitoring

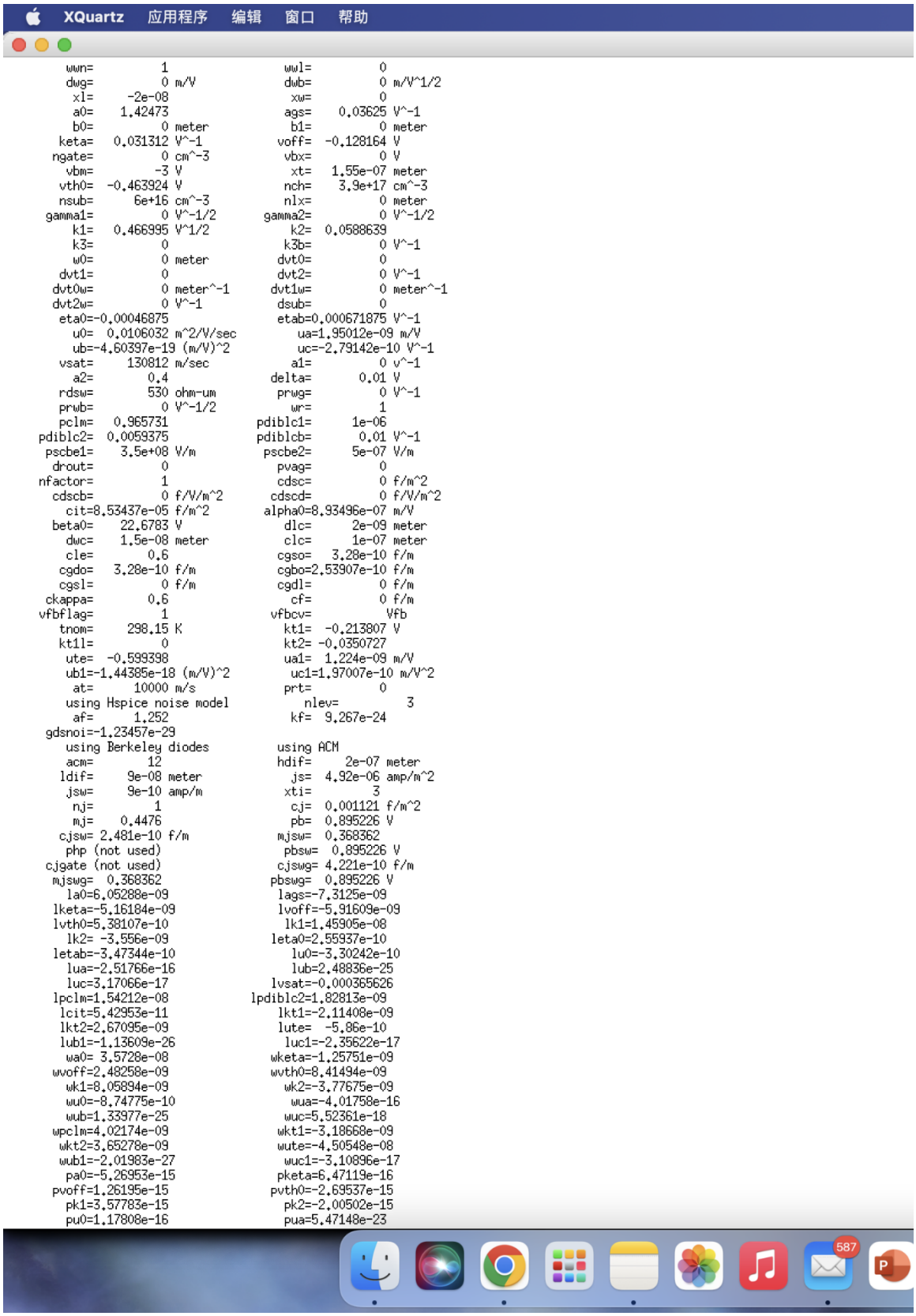
Follow terminal folder

4. 140.118.125.203 (T11)

```
*********************************************************************
* Library Name: mylib
* Cell Name:    inverter
* View Name:    schematic
*********************************************************************

.SUBCKT inverter input output
*.PININFO input:I output:O
MM0 output input vdd! vdd! Pch W=420n L=180n
MM1 output input vss! vss! Nch W=220n L=180n
.ENDS

XINV input output inverter

Vvdd vdd! 0 1.8v
Vvss vss! 0 0v

vin input 0 pulse (0v 1.8v 0ns 20ps 20ps 2ns 4ns)

.measure r_time
+TRIG v(output) VAL = 0.18v RISE = 1
+TARG v(output) VAL = 1.62v RISE = 1

.measure f_time
+TRIG v(output) VAL = 1.62v FALL = 1
+TARG v(output) VAL = 0.18v FALL = 1

.measure r_pro
+TRIG v(input) VAL = 0.9v FALL = 1
+TARG v(output) VAL = 0.9v RISE = 1

.measure f_pro
+TRIG v(input) VAL = 0.9v RISE = 1
+TARG v(output) VAL = 0.9v FALL = 1

.option post
.trans 1p 20n
.END
```

```
[T11@cad-ws02 front_end]$ hspic
hspice          hspice.bash     hspice.csh      hspice.ksh      hspice.lib      hspice.manifest hspice64        hspicerf        hspicerf.so
[T11@cad-ws02 front_end]$ hspice inver
inverter.ic0*      inverter.mt0*      inverter.pa0       inverter.sp*       inverter.sp.bak*   inverter.st0*      inverter.tr0*      inverter.tr0.fsdb*
[T11@cad-ws02 front_end]$ hspice inverter.sp
Using: /cad/synopsys/hspice/2021.09/hspice/linux64/hspice inverter.sp
 ****** PrimeSim HSPICE -- S-2021.09 linux64 (Aug 25 2021 7230000) ******
  Copyright (c) 1986 - 2022 by Synopsys, Inc. All Rights Reserved.
  This software and the associated documentation are proprietary
  to Synopsys, Inc. This software may only be used in accordance
  with the terms and conditions of a written license agreement with
  Synopsys, Inc. All other use, reproduction, or distribution of
  this software is strictly prohibited.
  Input File: inverter.sp
  Command line options: /cad/synopsys/hspice/2021.09/hspice/linux64/hspice inverter.sp
  Start time: Mon May 16 22:49:13 2022
 lic:
 lic: FLEXlm: SDK_12.9.6
 lic: USER:   T11                HOSTNAME: cad-ws02.csie.ntust.edu.tw
 lic: HOSTID: 768ccb7d           PID:      244828
 lic: Using FLEXlm license file:
 lic: 26585@lshc
 lic: Checkout 1 hspice
 lic: License/Maintenance for hspice will expire on 14-may-2025/2021.09
 lic: 350(in_use)/600(total) FLOATING license(s) on SERVER 26585@lshc
 lic:
  **warning** (inverter.sp:18) Parameter name is not defined in .param. Please enter parameter variable with their respective value/expression.
  **info** (inverter.sp:46) No analysis statements before the .measure statement that has no analysis type. TRAN type is assigned to it by default.
1****** PrimeSim HSPICE -- S-2021.09 linux64 (Aug 25 2021 7230000) ******
 ******
 ******************************************************************************

 ****** circuit name directory
 circuit number to circuit name directory
   number circuitname                    definition        multiplier
        0 main circuit
        1 xinv.                          inverter          1.00
  **info** (inverter.sp:44) DC voltage reset to initial transient source value in source 0:vin. new dc=0.0000D+00
 ******************************************************************************
 ***       model parameters  model name:   0:pch.12          model type:pmos   ***
 ******************************************************************************

   *** general parameters ***
    deriv=   0.

   ***  level 49  model parameters  ***

      hspver=    2006.03              level=         49
     version=        3.1           paramchk=          0
      apwarn=          1              lite=          0
      vgslim=          0            binUnit=          2
      capMod=          0              xpart=          1
      mobMod=          1             nqsMod=          0
      stiMod=          0                elm=          5
    sfvtflag=          0                tox=   4.08e-09 meter
          xj=    1.7e-07 meter       binflag=          0
        lmin=    1.8e-07 meter          lmax=      5e-07 meter
        wmin=    2.2e-07 meter          wmax=      6e-07 meter
        lref=          0 meter          wref=          0 meter
        lint=    1.5e-08 meter          wint=    1.5e-08 meter
       lmult=          1               wmult=          1
          ll=          0                 lln=          1
          lw=          0                 lwn=          1
         lwl=          0                  wl=          0
         wln=          1                  ww=          0
         wwn=          1                 wwl=          0
         dwg=          0 m/V             dwb=          0 m/V^1/2
          xl=     -2e-08                  xw=          0
          a0=    1.42473                ags=    0.03625 V^-1
          b0=          0 meter           b1=          0 meter
        keta=   0.031312 V^-1          voff=  -0.128164 V
       ngate=          0 cm^-3          vbx=          0 V
         vbm=         -3 V               xt=   1.55e-07 meter
        vth0=  -0.463924 V               nch=    3.9e+17 cm^-3
        nsub=      6e+16 cm^-3           nlx=          0 meter
      gamma1=          0 V^-1/2       gamma2=          0 V^-1/2
          k1=   0.466995 V^1/2            k2=  0.0588639
          k3=          0                 k3b=          0 V^-1
          w0=          0 meter          dvt0=          0
```


XQuartz 应用程序 编辑 窗口 帮助
wwn= 1 wwl= 0
dwg= 0 m/V dwb= 0 m/V^1/2
xl= -2e-08 xw= 0
a0= 1.42473 ags= 0.03625 V^-1
b0= 0 meter b1= 0 meter
keta= 0.031312 V^-1 voff= -0.128164 V
ngate= 0 cm^-3 vbx= 0 V
vbm= -3 V xt= 1.55e-07 meter
vth0= -0.463924 V nch= 3.9e+17 cm^-3
nsub= 6e+16 cm^-3 nlx= 0 meter
gamma1= 0 V^-1/2 gamma2= 0 V^-1/2
k1= 0.466995 V^1/2 k2= 0.0588639
k3= 0 k3b= 0 V^-1
w0= 0 meter dvt0= 0
dvt1= 0 dvt2= 0 V^-1
dvt0w= 0 meter^-1 dvt1w= 0 meter^-1
dvt2w= 0 V^-1 dsub= 0
eta0=-0.00046875 etab=0.000671875 V^-1
u0= 0.0106032 m^2/V/sec ua=1.95012e-09 m/V
ub=-4.60397e-19 (m/V)^2 uc=-2.79142e-10 V^-1
vsat= 130812 m/sec a1= 0 v^-1
a2= 0.4 delta= 0.01 V
rdsw= 530 ohm-um prwg= 0 V^-1
prwb= 0 V^-1/2 wr= 1
pclm= 0.965731 pdiblc1= 1e-06
pdiblc2= 0.0059375 pdiblcb= 0.01 V^-1
pscbe1= 3.5e+08 V/m pscbe2= 5e-07 V/m
drout= 0 pvag= 0
nfactor= 1 cdsc= 0 f/m^2
cdscb= 0 f/V/m^2 cdscd= 0 f/V/m^2
cit=8.53437e-05 f/m^2 alpha0=8.93496e-07 m/V
beta0= 22.6783 V dlc= 2e-09 meter
dwc= 1.5e-08 meter clc= 1e-07 meter
cle= 0.6 cgso= 3.28e-10 f/m
cgdo= 3.28e-10 f/m cgbo=2.53907e-10 f/m
cgsl= 0 f/m cgdl= 0 f/m
ckappa= 0.6 cf= 0 f/m
vfbflag= 1 vfbcv= Vfb
tnom= 298.15 K kt1= -0.213807 V
kt11= 0 kt2= -0.0350727
ute= -0.599398 ua1= 1.224e-09 m/V
ub1=-1.44385e-18 (m/V)^2 uc1=1.97007e-10 m/V^2
at= 10000 m/s prt= 0
using Hspice noise model nlev= 3
af= 1.252 kf= 9.267e-24
gdsnoi=-1.23457e-29
using Berkeley diodes using ACM
acm= 12 hdif= 2e-07 meter
ldif= 9e-08 meter js= 4.92e-06 amp/m^2
jsw= 9e-10 amp/m xti= 3
nj= 1 cj= 0.001121 f/m^2
mj= 0.4476 pb= 0.895226 V
cjsw= 2.481e-10 f/m mjsw= 0.368362
php (not used) pbsw= 0.895226 V
cjgate (not used) cjswg= 4.221e-10 f/m
mjswg= 0.368362 pbswg= 0.895226 V
la0=6.05288e-09 lags=-7.3125e-09
lketa=-5.16184e-09 lvoff=-5.91609e-09
lvth0=5.38107e-10 lk1=1.45905e-08
lk2= -3.556e-09 leta0=2.55937e-10
letab=-3.47344e-10 lu0=-3.30242e-10
lua=-2.51766e-16 lub=2.48836e-25
luc=3.17066e-17 lvsat=-0.000365626
lpclm=1.54212e-08 lpdiblc2=1.82813e-09
lcit=5.42953e-11 lkt1=-2.11408e-09
lkt2=2.67095e-09 lute= -5.86e-10
lub1=-1.13609e-26 luc1=-2.35622e-17
wa0= 3.5728e-08 wketa=-1.25751e-09
wvoff=2.48258e-09 wvth0=8.41494e-09
wk1=8.05894e-09 wk2=-3.77675e-09
wu0=-8.74775e-10 wua=-4.01758e-16
wub=1.33977e-25 wuc=5.52361e-18
wpclm=4.02174e-09 wkt1=-3.18668e-09
wkt2=3.65278e-09 wute=-4.50548e-08
wub1=-2.01983e-27 wuc1=-3.10896e-17
pa0=-5.26953e-15 pketa=6.47119e-16
pvoff=1.26195e-15 pvth0=-2.69537e-15
pk1=3.57783e-15 pk2=-2.00502e-15
pu0=1.17808e-16 pua=5.47148e-23
587