

Report- 11

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Show Deference Between Without Trojan and with Trojan Circuit

1. Job statistics summary

No	Without Trojan	With Trojan
01	tnom= 25.000	tnom= 25.000
02	temp= 25.000	temp= 25.000

2. HSPICE Threads Information

No	Without Trojan	With Trojan
01	Command Line Threads Count :1	Command Line Threads Count :1
02	Available CPU Count :8	Available CPU Count :8
03	Actual Threads Count :1	Actual Threads Count :1

3. Circuit Statistics

No	Without Trojan	With Trojan
01	nodes = 31	nodes = 43
02	elements = 8	elements = 10
03	mosfets = 6	mosfets = 8
04	volt_srcs = 2	volt_srcs = 2

4. Without Trojan:

***** Runtime Statistics (seconds) *****

analysis	time	# points	tot. iter	conv.iter
op point	0.00	1	23	
transient	0.01	201	655	125 rev= 13
readin	0.03			
errchk	0.01			
setup	0.00			
output	0.00			
peak memory used			48.61 megabytes	
total cpu time			0.02 seconds	
total elapsed time			0.21 seconds	

With Trojan:

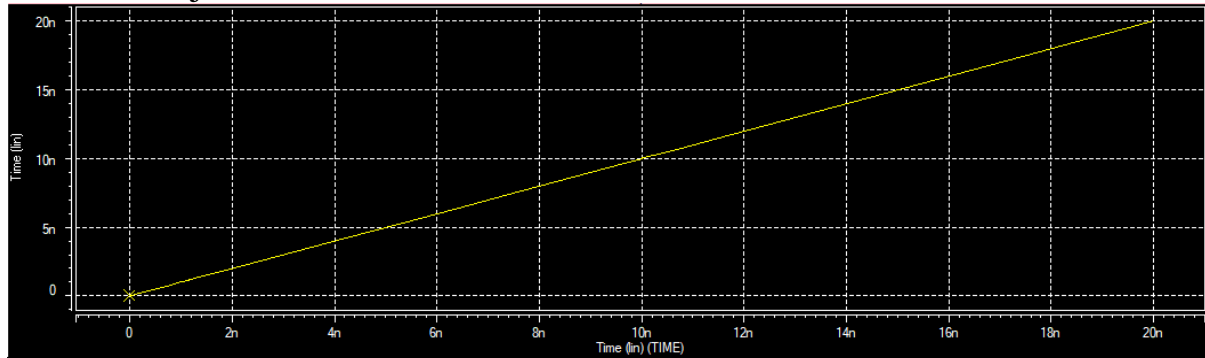
***** Runtime Statistics (seconds) *****

analysis	time	# points	tot. iter	conv.iter
op point	0.00	1	23	
transient	0.02	201	2104	313 rev= 103
readin	0.01			
errchk	0.00			
setup	0.00			
output	0.00			
peak memory used			48.61 megabytes	
total cpu time			0.03 seconds	
total elapsed time			0.18 seconds	

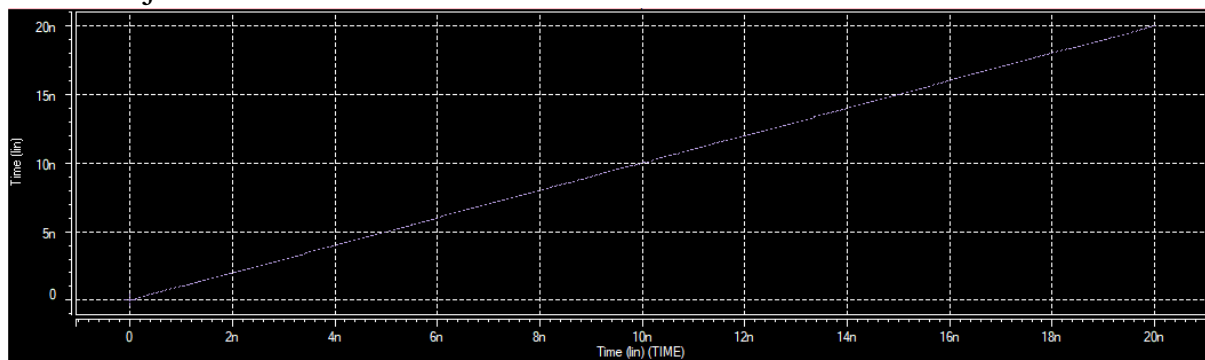
Graph Difference

1. Time

Without Trojan:



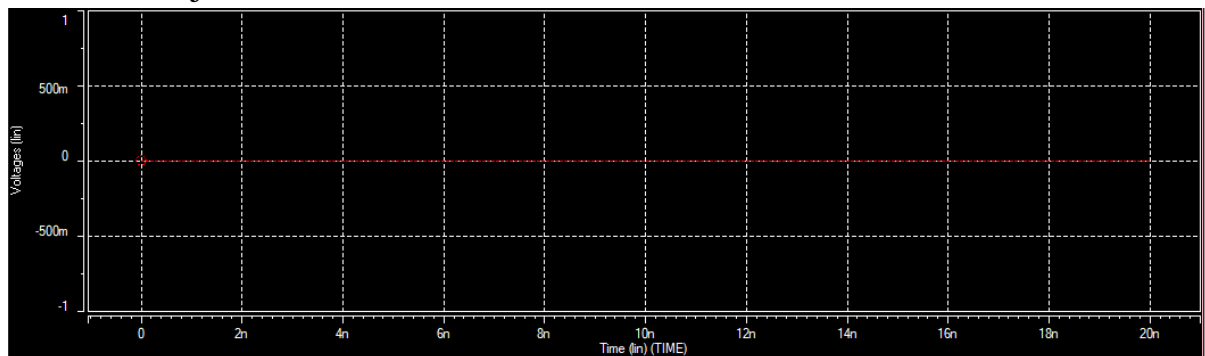
With Trojan:



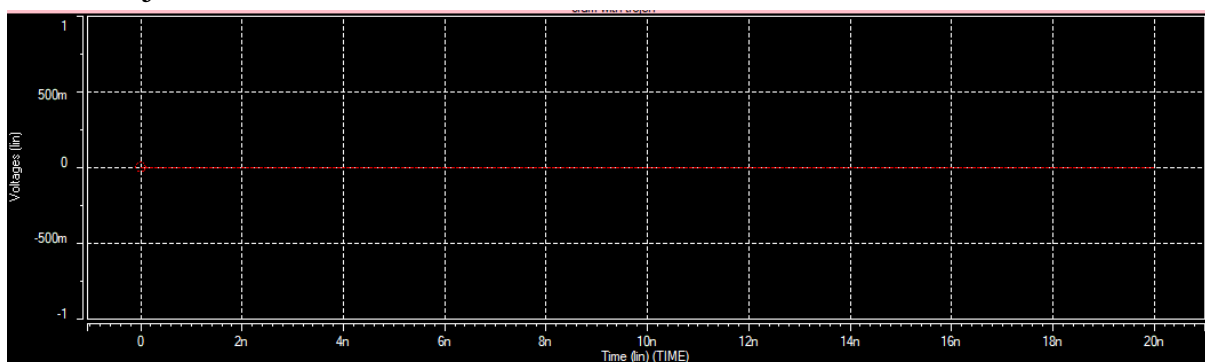
Remarks: Same

2. Voltage [v(0)]

Without Trojan:



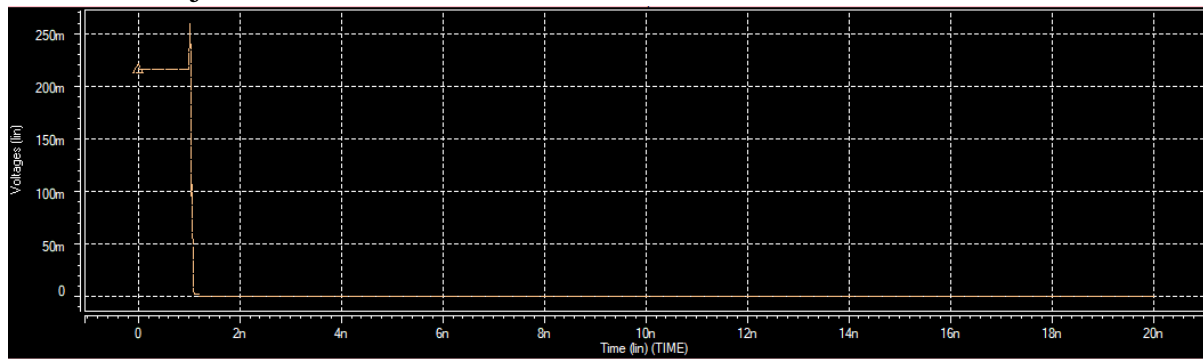
With Trojan:



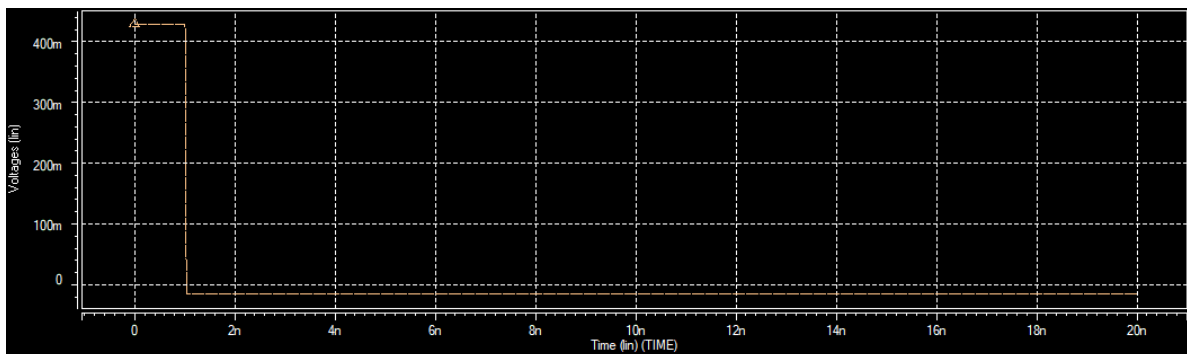
Remarks: Same

3. Voltage [v(bl)]

Without Trojan:



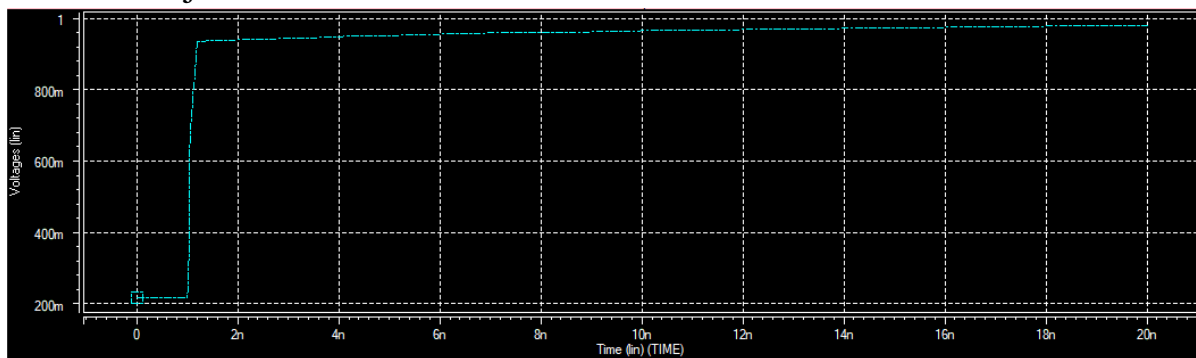
With Trojan:



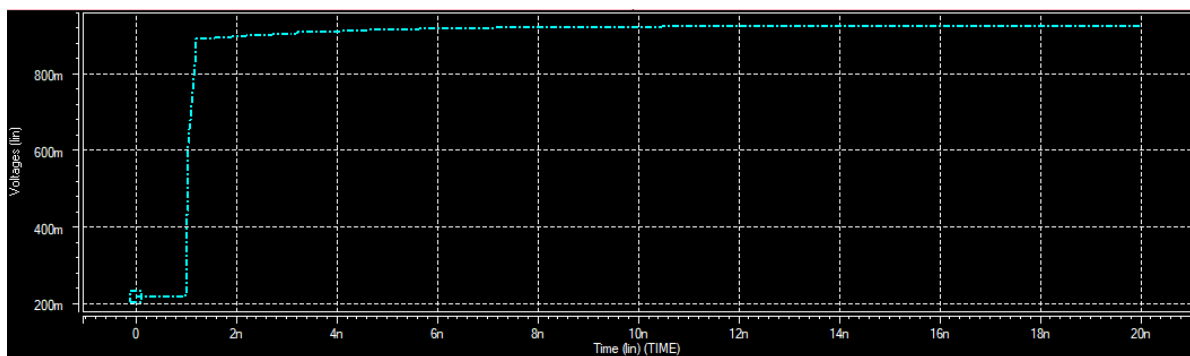
Remarks: Not Same

4. Voltage [v(bl)]

Without Trojan:



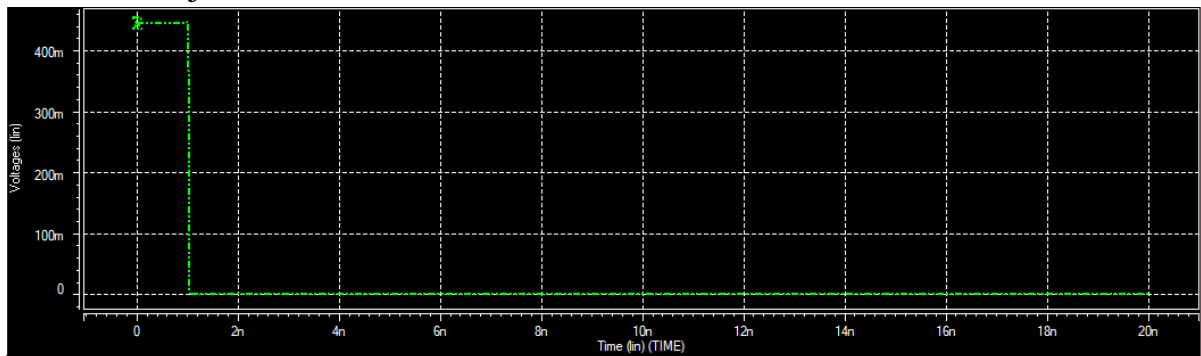
With Trojan:



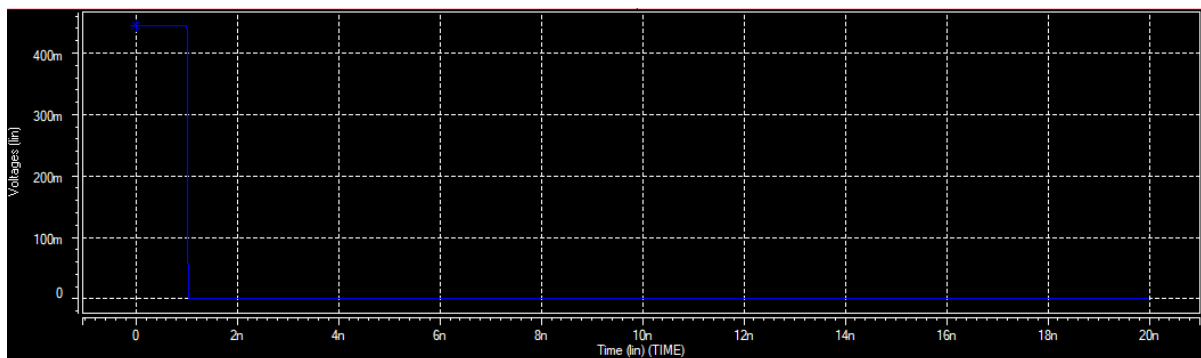
Remarks: Same

5. Voltage $[v(q)]$

Without Trojan:



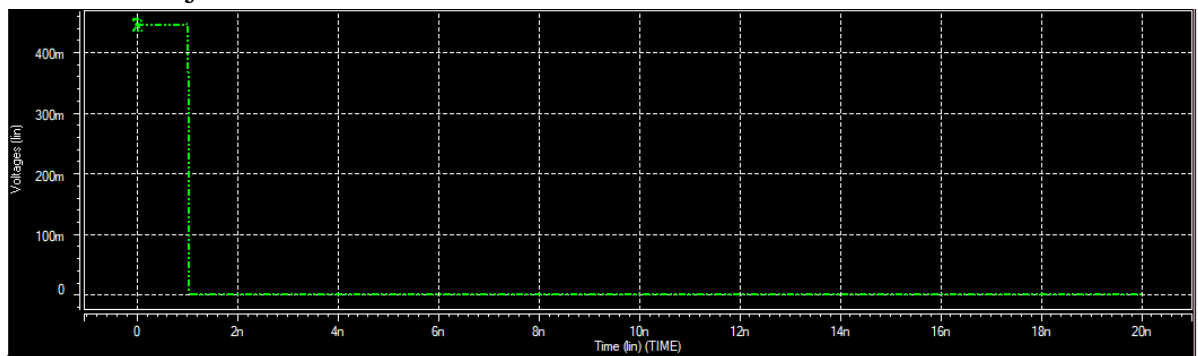
With Trojan:



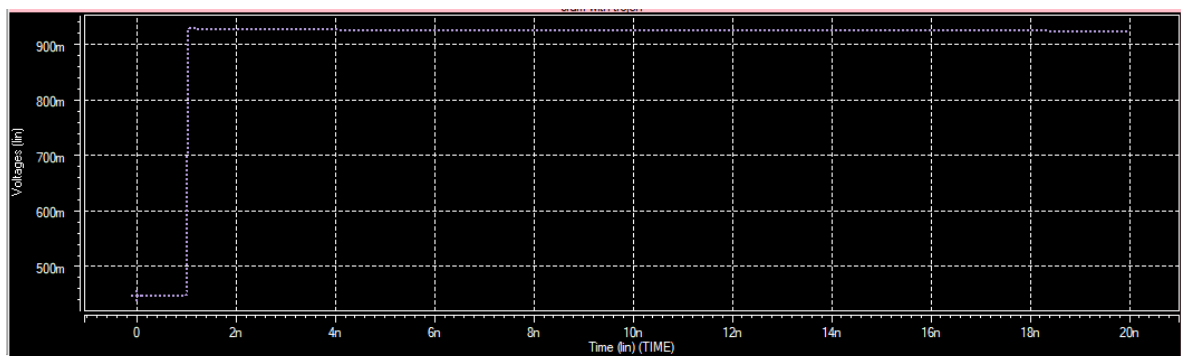
Remarks: Same

6. Voltage $[v(qr)]$

Without Trojan:



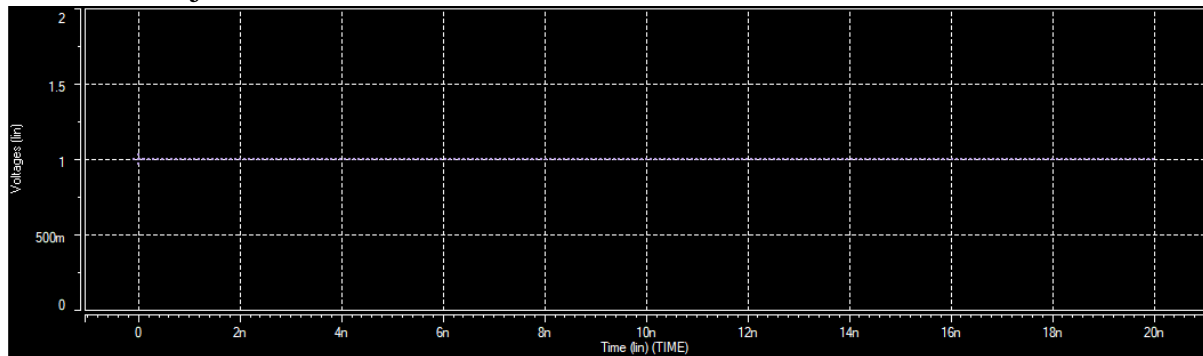
With Trojan:



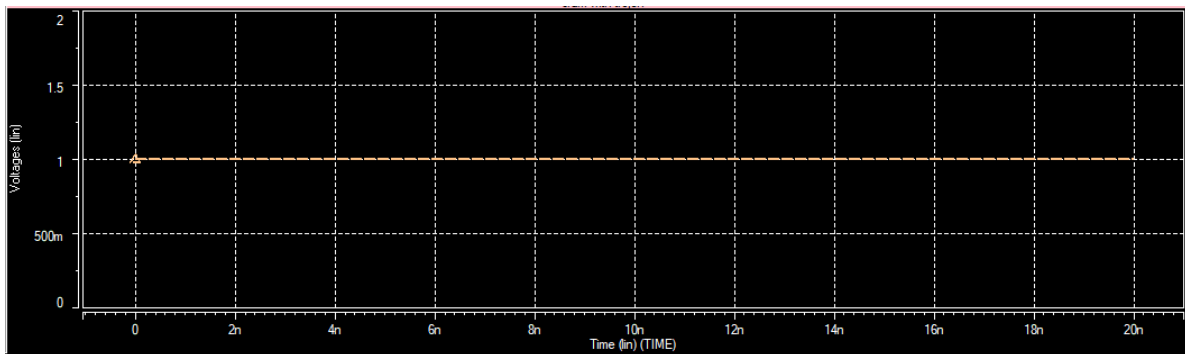
Remarks: Not Same

7. Voltage [v(vdd)]

Without Trojan:



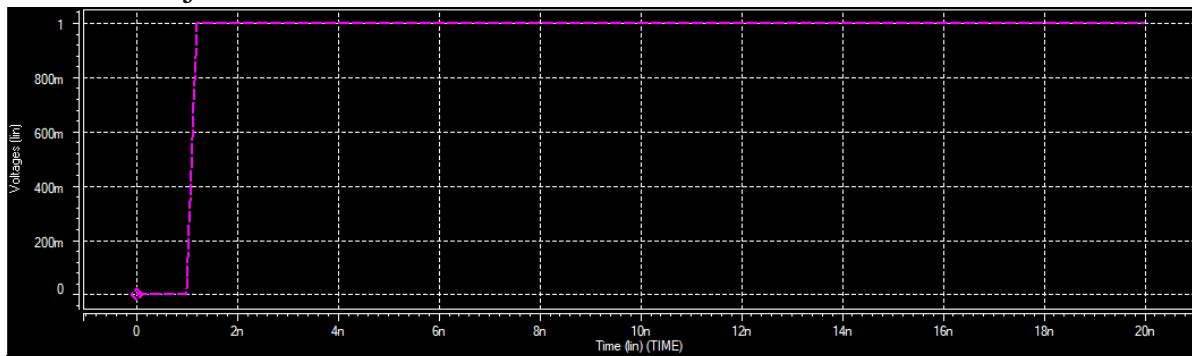
With Trojan:



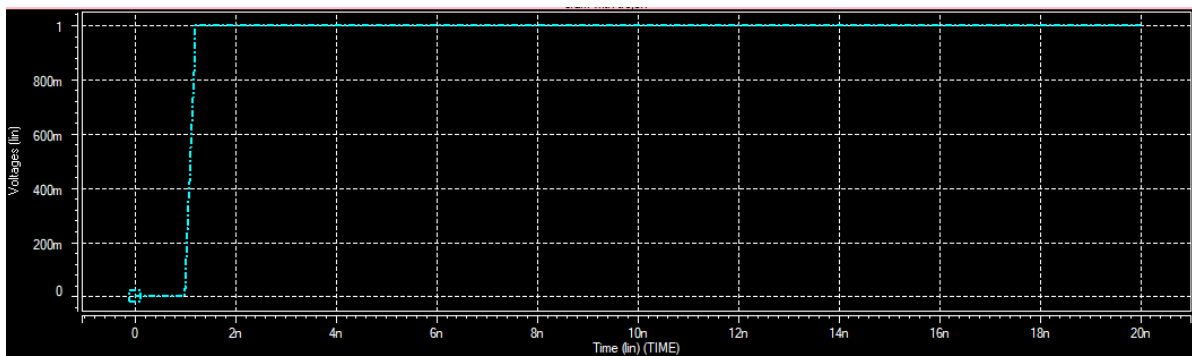
Remarks: Same

8. Voltage [v(wl)]

Without Trojan:



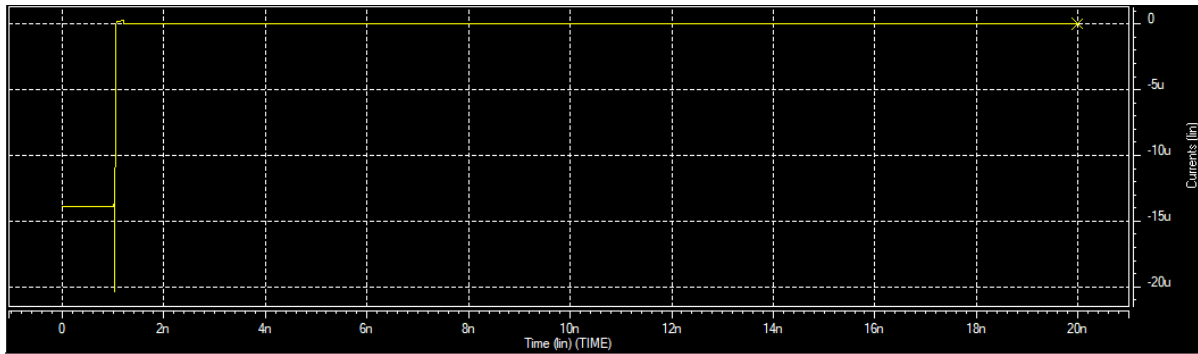
With Trojan:



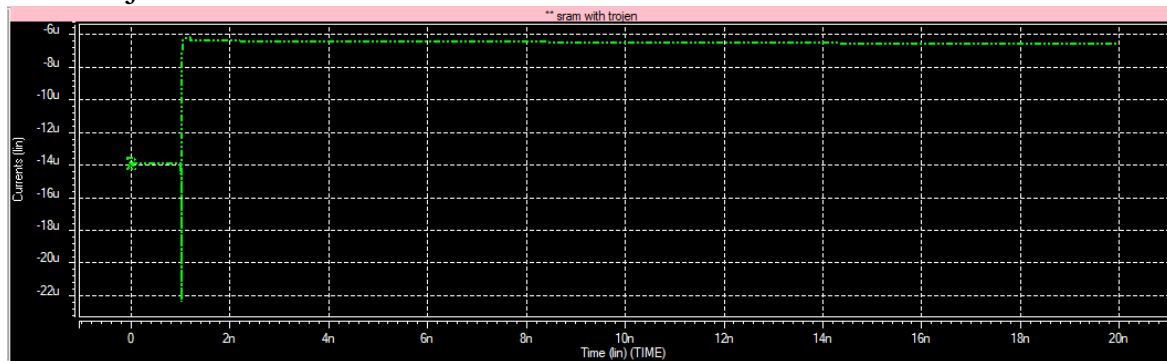
Remarks: Same

9. Current [i(vvdd)]

Without Trojan:



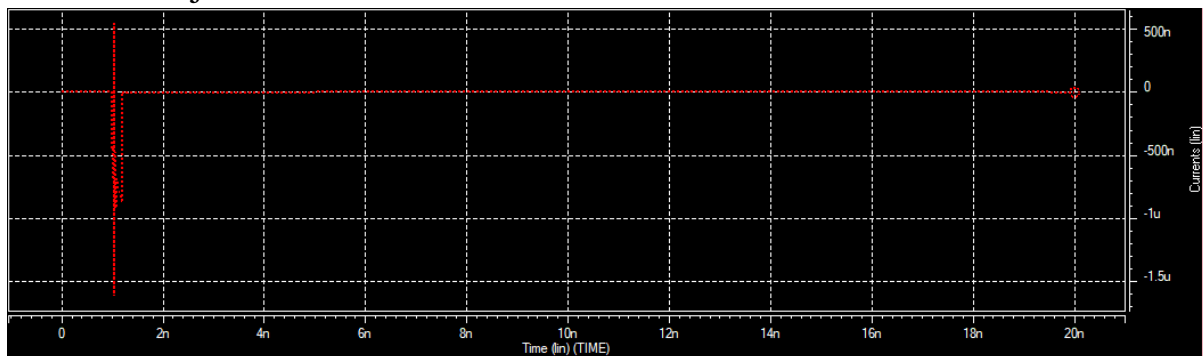
With Trojan:



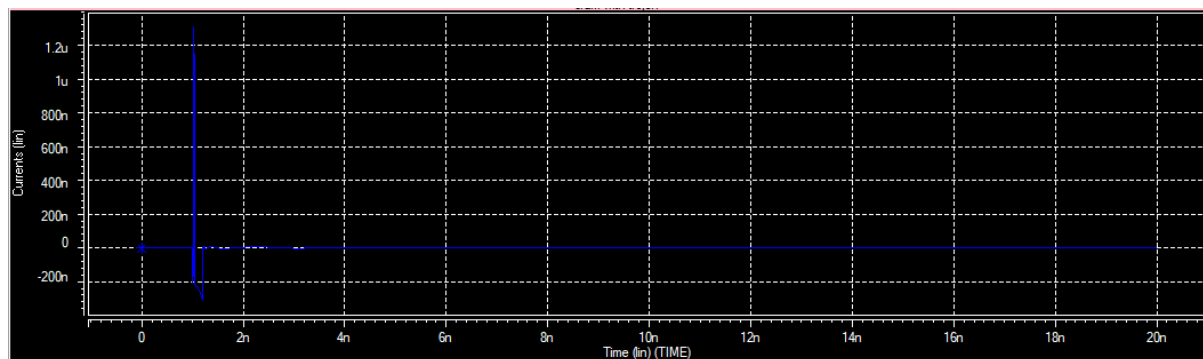
Remarks: Not Same

10. Current [i(vwl)]

Without Trojan:



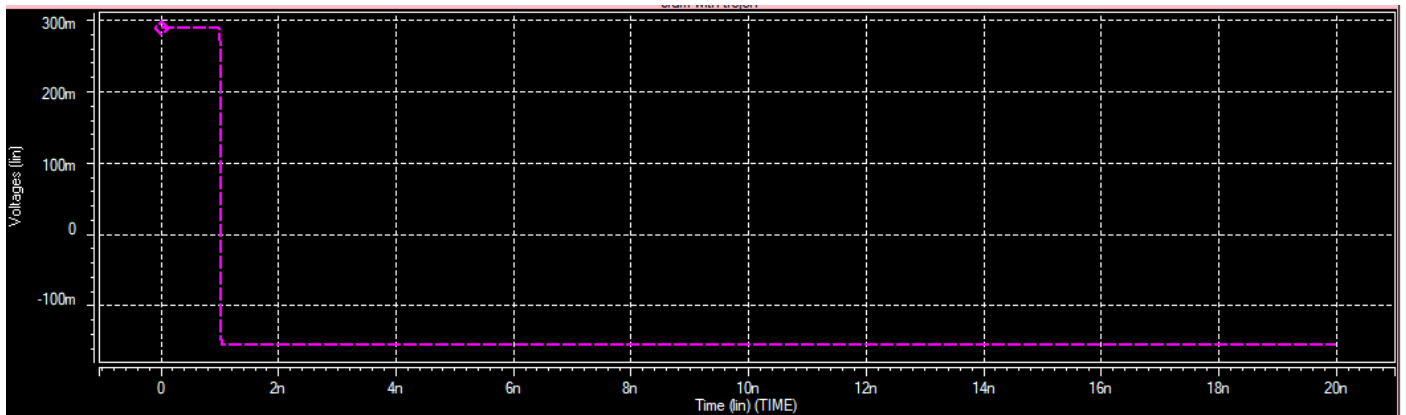
With Trojan:



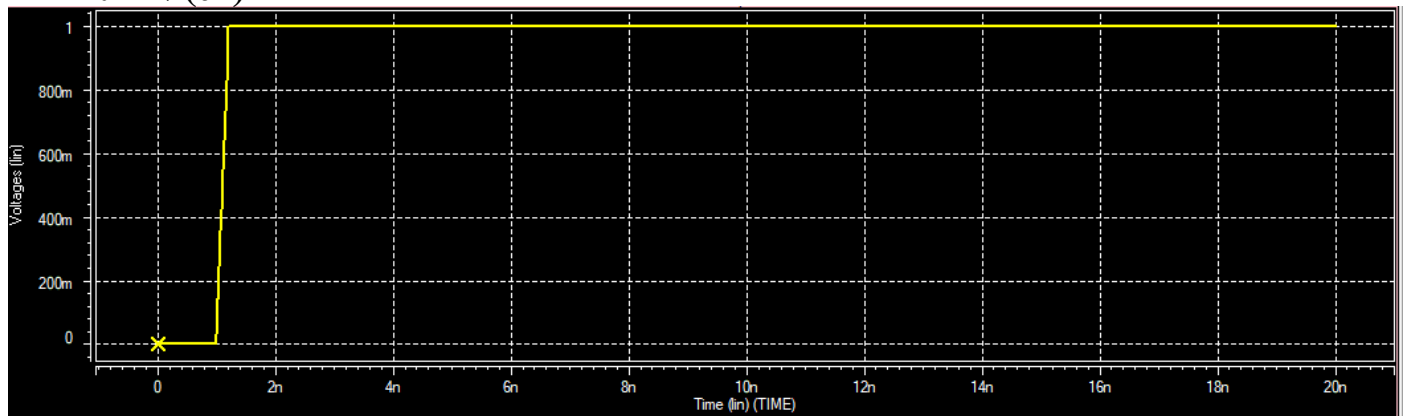
Remarks: Not Same

Some voltage which show only with Trojan SRAM

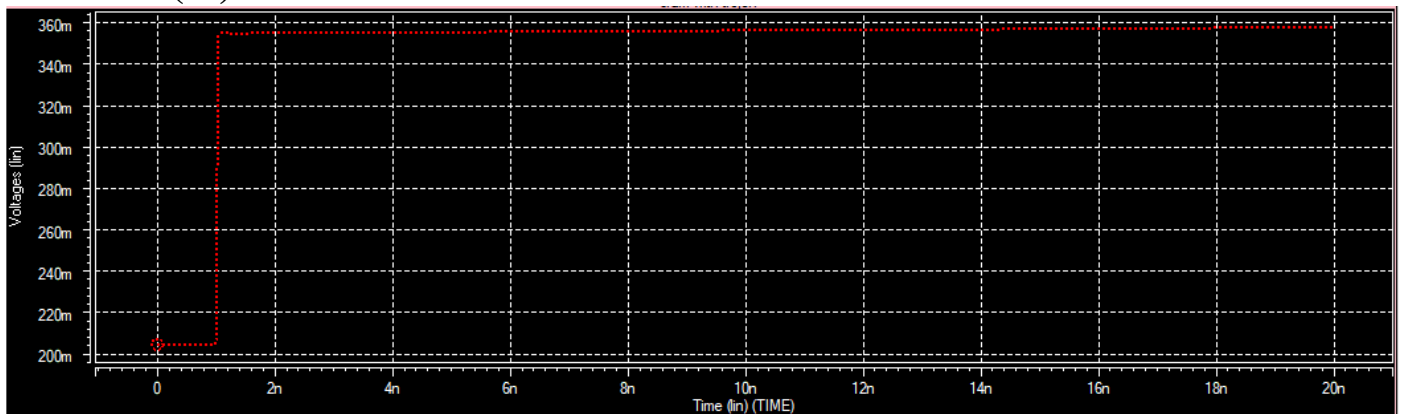
11. $V(t)$



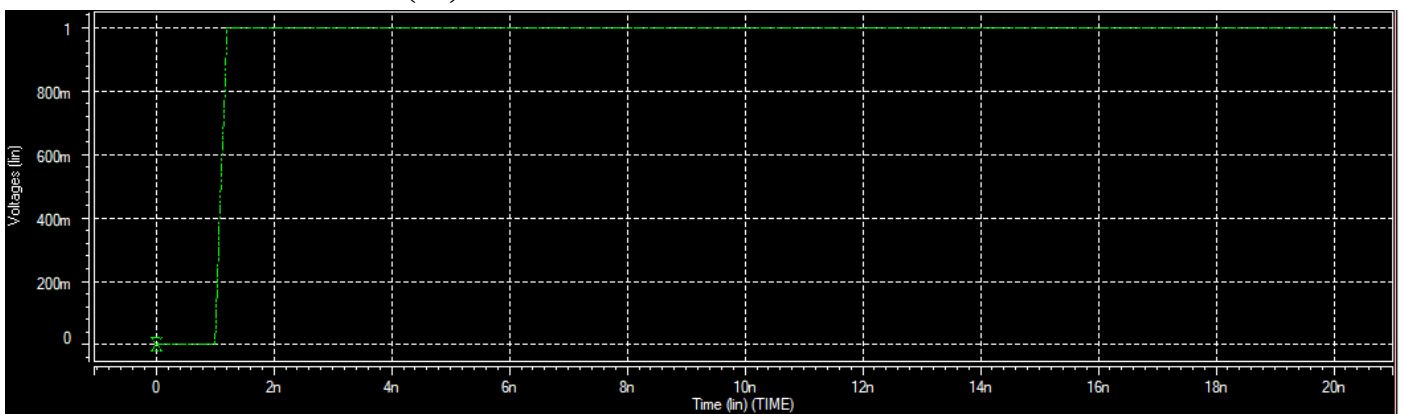
12. $V(t1)$



13. $V(t2)$



14. $V(i5)$



Netlist Without Trojan

** SRAM without trojen

M1 Q QR 0 0 nmos w=90n l=45n

M2 Q QR vdd vdd pmos w=90n l=45n

M3 QR Q 0 0 nmos w=90n l=45n

M4 QR Q vdd vdd pmos w=90n l=45n

Mi5 Q wl bl bl nmos w=90n l=45n

M6 blb wl QR blb nmos w=90n l=45n

** Voltage source

Vvdd vdd 0 1

**Access Control

Vwl wl 0 pwl(0 0 1n 0 1.2n 1 5n 1)

.tran 0.1n 20n

.model nmos nmos level = 54

+version = 4.0 binunit = 1 paramchk= 1 mobmod = 0

+capmod = 2 igcmod = 1 igbmod = 1 geomod = 1

+diomod = 1 rdsmod = 0 rbodymod= 1 rgatemod= 1

+permod = 1 acnqsmode= 0 trnqsmode= 0

* parameters related to the technology node

+tnom = 27 epsrox = 3.9

+eta0 = 0.0049 nfactor = 2.1 wint = 5e-09

+cgso = 1.1e-10 cgdo = 1.1e-10 xl = -2e-08

* parameters customized by the user

+toxe = 1.75e-09 toxp = 1.1e-09 toxm = 1.75e-09 toxref = 1.75e-09

+dtox = 6.5e-10 lint = 3.75e-09

+vth0 = 0.469 k1 = 0.528 u0 = 0.04372 vsat = 147390

+rdsw = 155 ndep = 3.28e+18 xj = 1.4e-08

* secondary parameters

+ll = 0 wl = 0 lln = 1 wln = 1

+lw = 0 ww = 0 lwn = 1 wwn = 1

+lwl = 0 ww1 = 0 xpart = 0

+k2 = 0.01 k3 = 0

+k3b = 0 w0 = 2.5e-006 dvt0 = 1 dvt1 = 2

+dvt2 = -0.032 dvt0w = 0 dvt1w = 0 dvt2w = 0

+dsub = 0.1 minv = 0.05 voffl = 0 dvtp0 = 1.0e-009
 +dvtp1 = 0.1 lpe0 = 0 lpeb = 0
 +ngate = 2e+020 nsd = 2e+020 phin = 0
 +cdsc = 0.000 cdsb = 0 cdsd = 0 cit = 0
 +voff = -0.13 etab = 0
 +vfb = -0.55 ua = 6e-010 ub = 1.2e-018
 +uc = 0 a0 = 1.0 ags = 1e-020
 +a1 = 0 a2 = 1.0 b0 = 0 b1 = 0
 +keta = 0.04 dwg = 0 dwb = 0 pclm = 0.04
 +pdiblc1 = 0.001 pdiblc2 = 0.001 pdiblc3 = -0.005 drout = 0.5
 +pvag = 1e-020 delta = 0.01 pscbe1 = 8.14e+008 pscbe2 = 1e-007
 +fprout = 0.2 pdits = 0.08 pditsd = 0.23 pditsl = 2.3e+006
 +rsh = 5 rsw = 85 rdw = 85
 +rdswmin = 0 rdwmin = 0 rswmin = 0 prwg = 0
 +prwb = 6.8e-011 wr = 1 alpha0 = 0.074 alpha1 = 0.005
 +beta0 = 30 agidl = 0.0002 bgidl = 2.1e+009 cgidl = 0.0002
 +egidl = 0.8
 +aigbacc = 0.012 bigbacc = 0.0028 cigbacc = 0.002
 +nigbacc = 1 aigbinv = 0.014 bigbinv = 0.004 cigbinv = 0.004
 +eigbinv = 1.1 nigbinv = 3 aigc = 0.012 bigc = 0.0028
 +cigc = 0.002 aigsd = 0.012 bigsd = 0.0028 cigsd = 0.002
 +nigc = 1 poxedge = 1 pigcd = 1 ntox = 1
 +xrcrg1 = 12 xrcrg2 = 5
 +cgbo = 2.56e-011 cgdl = 2.653e-10
 +cgsl = 2.653e-10 ckappas = 0.03 ckappad = 0.03 acde = 1
 +moin = 15 noff = 0.9 voffcv = 0.02
 +kt1 = -0.11 kt1l = 0 kt2 = 0.022 ute = -1.5
 +ua1 = 4.31e-009 ub1 = 7.61e-018 uc1 = -5.6e-011 prt = 0
 +at = 33000
 +fnoimod = 1 tnoimod = 0
 +jss = 0.0001 jsws = 1e-011 jswgs = 1e-010 njs = 1
 +ijthsfwd = 0.01 ijthsrev = 0.001 bvs = 10 xjbvs = 1
 +jsd = 0.0001 jswd = 1e-011 jswgd = 1e-010 njd = 1
 +ijthdfwd = 0.01 ijthdrev = 0.001 bvd = 10 xjbvd = 1
 +pbs = 1 cjs = 0.0005 mjs = 0.5 pbsws = 1

```

+cjsws = 5e-010    mjsws = 0.33    pbswgs = 1    cjswgs = 3e-010
+mjswgs = 0.33    pbd = 1    cjd = 0.0005    mjd = 0.5
+pbswd = 1    cjswd = 5e-010    mjswd = 0.33    pbswgd = 1
+cjswgd = 5e-010    mjswgd = 0.33    tpb = 0.005    tcj = 0.001
+tpbsw = 0.005    tcjsw = 0.001    tpbswg = 0.005    tcjswg = 0.001
+xtis = 3    xtid = 3
+dmcg = 0e-006    dmci = 0e-006    dmdg = 0e-006    dmcgt = 0e-007
+dwj = 0.0e-008    xgw = 0e-007    xgl = 0e-008
+rshg = 0.4    gbmin = 1e-010    rbpb = 5    rbpd = 15
+rbps = 15    rbdb = 15    rbsb = 15    ngcon = 1
.model pmos pmos level = 54
+version = 4.0    binunit = 1    paramchk = 1    mobmod = 0
+capmod = 2    igcmod = 1    igbmod = 1    geomod = 1
+diomod = 1    rdsmod = 0    rbodymod = 1    rgatemod = 1
+permod = 1    acnqsmode = 0    trnqsmode = 0
* parameters related to the technology node
+tnom = 27    epsrox = 3.9
+eta0 = 0.0049    nfactor = 2.1    wint = 5e-09
+cgso = 1.1e-10    cgdo = 1.1e-10    xl = -2e-08
* parameters customized by the user
+toxe = 1.85e-09    toxp = 1.1e-09    toxm = 1.85e-09    toxref = 1.85e-09
+dtox = 7.5e-10    lint = 3.75e-09
+vth0 = -0.418    k1 = 0.488    u0 = 0.00439    vsat = 70000
+rdsw = 155    ndep = 2.5e+18    xj = 1.4e-08
*secondary parameters
+ll = 0    wl = 0    lln = 1    wln = 1
+lw = 0    ww = 0    lwn = 1    wwn = 1
+lw1 = 0    ww1 = 0    xpart = 0
+k2 = -0.01    k3 = 0
+k3b = 0    w0 = 2.5e-006    dvt0 = 1    dvt1 = 2
+dvt2 = -0.032    dvt0w = 0    dvt1w = 0    dvt2w = 0
+dsb = 0.1    minv = 0.05    voffl = 0    dvtp0 = 1e-009
+dvtp1 = 0.05    lpe0 = 0    lpeb = 0
+ngate = 2e+020    nsd = 2e+020    phin = 0
+cdsc = 0.000    cdsb = 0    cdsd = 0    cit = 0

```

+voff = -0.126 etab = 0
 +vfb = 0.55 ua = 2.0e-009 ub = 0.5e-018
 +uc = 0 a0 = 1.0 ags = 1e-020
 +a1 = 0 a2 = 1 b0 = -1e-020 b1 = 0
 +keta = -0.047 dwg = 0 dwb = 0 pclm = 0.12
 +pdiblc1 = 0.001 pdiblc2 = 0.001 pdiblc3 = 3.4e-008 drout = 0.56
 +pvag = 1e-020 delta = 0.01 pscbe1 = 8.14e+008 pscbe2 = 9.58e-007
 +fprout = 0.2 pdits = 0.08 pditsd = 0.23 pditsl = 2.3e+006
 +rsh = 5 rsw = 85 rdw = 85
 +rdswmin = 0 rdwmin = 0 rswmin = 0 prwg = 3.22e-008
 +prwb = 6.8e-011 wr = 1 alpha0 = 0.074 alpha1 = 0.005
 +beta0 = 30 agidl = 0.0002 bgidl = 2.1e+009 cgidl = 0.0002
 +egidl = 0.8
 +aigbacc = 0.012 bigbacc = 0.0028 cigbacc = 0.002
 +nigbacc = 1 aigbinv = 0.014 bigbinv = 0.004 cigbinv = 0.004
 +eigbinv = 1.1 nigbinv = 3 aigc = 0.69 bigc = 0.0012
 +cigc = 0.0008 aigsd = 0.0087 bigsd = 0.0012 cigsd = 0.0008
 +nigc = 1 poxedg = 1 pigcd = 1 ntox = 1
 +xrcrg1 = 12 xrcrg2 = 5
 +cgbo = 2.56e-011 cgdl = 2.653e-10
 +cgsl = 2.653e-10 ckappas = 0.03 ckappad = 0.03 acde = 1
 +moin = 15 noff = 0.9 voffcv = 0.02
 +kt1 = -0.11 kt1l = 0 kt2 = 0.022 ute = -1.5
 +ua1 = 4.31e-009 ub1 = 7.61e-018 uc1 = -5.6e-011 prt = 0
 +at = 33000
 +fnoimod = 1 tnoimod = 0
 +jss = 0.0001 jsws = 1e-011 jswgs = 1e-010 njs = 1
 +ijthsfwd = 0.01 ijthsrev = 0.001 bvs = 10 xjbvs = 1
 +jsd = 0.0001 jswd = 1e-011 jswgd = 1e-010 njd = 1
 +ijthdfwd = 0.01 ijthdrev = 0.001 bvd = 10 xjbvd = 1
 +pbs = 1 cjs = 0.0005 mjs = 0.5 pbsws = 1
 +cjsws = 5e-010 mjsws = 0.33 pbswgs = 1 cjswgs = 3e-010
 +mjswgs = 0.33 pbd = 1 cjd = 0.0005 mjd = 0.5
 +pbswd = 1 cjswd = 5e-010 mjswd = 0.33 pbswgd = 1
 +cjswgd = 5e-010 mjswgd = 0.33 tpb = 0.005 tcj = 0.001

```

+tpbsw = 0.005    tcjsw = 0.001    tpbswg = 0.005    tcjswg = 0.001
+xtis  = 3        xtid  = 3
+dmcg  = 0e-006    dmci  = 0e-006    dmdg  = 0e-006    dmcgt  = 0e-007
+dwj   = 0.0e-008  xgw   = 0e-007    xgl   = 0e-008
+rshg  = 0.4       gbmin = 1e-010    rbpb  = 5        rbpd  = 15
+rbps  = 15        rbdb  = 15        rbsb  = 15        ngcon  = 1
.options POST=2
.options AUTOSTOP
.options INGOLD=2 DCON=1
.options GSHUNT=1e-12 RMIN=1e-15
.options ABSTOL=1e-5 ABSVDC=1e-4
.options RELTOL=1e-2 RELVDC=1e-2
.options NUMDGT=4 PIVOT=13
.options runlvl=6
.end

```

Netlist with Trojan

**** SRAM with trojan**

```

M1 Q QR 0 0 nmos w=90n l=45n
M2 Q QR vdd vdd pmos w=90n l=45n
M3 QR Q 0 0 nmos w=90n l=45n
M4 QR Q vdd vdd pmos w=90n l=45n
Mi5 Q T bl bl nmos w=90n l=45n
M6 blb wl QR blb nmos w=90n l=45n
MT i5 T1 wl wl pmos w=90n l=45n
MTr QR T2 0 0 nmos w=90n l=45n

```

**** Voltage source**

```
Vvdd vdd 0 1
```

****Access Control**

```
Vwl wl 0 pwl(0 0 1n 0 1.2n 1 5n 1)
```

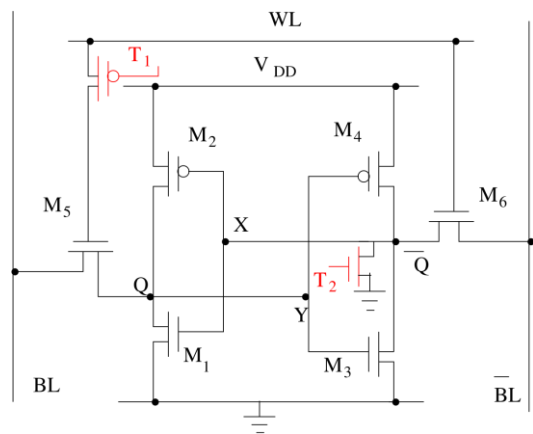
```
.tran 0.1n 20n
```

```
.model nmos nmos level = 54
```

```

+version = 4.0  binunit = 1  paramchk= 1  mobmod = 0
+capmod = 2     igcmod = 1   igbmod = 1   geomod = 1
+diomod = 1     rdsmod = 0   rbodmod= 1   rgatmod= 1
+permod = 1     acnqsmode= 0  trnqsmode= 0

```



* parameters related to the technology node

+tnom = 27 epsrox = 3.9

+eta0 = 0.0049 nfactor = 2.1 wint = 5e-09

+cgso = 1.1e-10 cgdo = 1.1e-10 xl = -2e-08

* parameters customized by the user

+toxe = 1.75e-09 toxp = 1.1e-09 toxm = 1.75e-09 toxref = 1.75e-09

+dtox = 6.5e-10 lint = 3.75e-09

+vth0 = 0.469 k1 = 0.528 u0 = 0.04372 vsat = 147390

+rdsw = 155 ndep = 3.28e+18 xj = 1.4e-08

* secondary parameters

+ll = 0 wl = 0 lln = 1 wln = 1

+lw = 0 ww = 0 lwn = 1 wwn = 1

+lwl = 0 ww1 = 0 xpart = 0

+k2 = 0.01 k3 = 0

+k3b = 0 w0 = 2.5e-006 dvt0 = 1 dvt1 = 2

+dvt2 = -0.032 dvt0w = 0 dvt1w = 0 dvt2w = 0

+dsub = 0.1 minv = 0.05 voffl = 0 dvtp0 = 1.0e-009

+dvtp1 = 0.1 lpe0 = 0 lpeb = 0

+ngate = 2e+020 nsd = 2e+020 phin = 0

+cdsc = 0.000 cdsch = 0 cdsd = 0 cit = 0

+voff = -0.13 etab = 0

+vfb = -0.55 ua = 6e-010 ub = 1.2e-018

+uc = 0 a0 = 1.0 ags = 1e-020

+a1 = 0 a2 = 1.0 b0 = 0 b1 = 0

+keta = 0.04 dwg = 0 dwb = 0 pclm = 0.04

+pdiblc1 = 0.001 pdiblc2 = 0.001 pdiblc3 = -0.005 drout = 0.5

+pvag = 1e-020 delta = 0.01 pscbe1 = 8.14e+008 pscbe2 = 1e-007

+fprout = 0.2 pdits = 0.08 pditsd = 0.23 pditsl = 2.3e+006

+rsh = 5 rsw = 85 rdw = 85

+rdswmin = 0 rdwmin = 0 rswmin = 0 prwg = 0

+prwb = 6.8e-011 wr = 1 alpha0 = 0.074 alpha1 = 0.005

+beta0 = 30 agidl = 0.0002 bgidl = 2.1e+009 cgidl = 0.0002

+egidl = 0.8

+aigbacc = 0.012 bigbacc = 0.0028 cigbacc = 0.002

+nigbacc = 1 aigbinv = 0.014 bigbinv = 0.004 cigbinv = 0.004

```

+eigbinv = 1.1      nigbinv = 3      aigc  = 0.012      bigc  = 0.0028
+cigc  = 0.002      aigsd  = 0.012      bigsd  = 0.0028      cigsd  = 0.002
+nigc  = 1          poxedg = 1          pigcd  = 1          ntox  = 1
+xrcrg1 = 12        xrcrg2 = 5
+cgbo  = 2.56e-011  cgdl  = 2.653e-10
+cgsl  = 2.653e-10  ckappas = 0.03      ckappad = 0.03      acde  = 1
+moin  = 15         noff  = 0.9        voffcv = 0.02
+kt1   = -0.11      kt1l  = 0          kt2   = 0.022      ute   = -1.5
+ua1   = 4.31e-009  ub1   = 7.61e-018  uc1   = -5.6e-011  prt   = 0
+at    = 33000
+fnoimod = 1        tnoimod = 0
+jss   = 0.0001     jsws  = 1e-011     jswgs  = 1e-010     njs   = 1
+ijthsfwd= 0.01     ijthsrev= 0.001     bvs    = 10         xjbvs  = 1
+jsd   = 0.0001     jswd  = 1e-011     jswgd  = 1e-010     njd    = 1
+ijthdfwd= 0.01     ijthdrev= 0.001     bvd    = 10         xjbvd  = 1
+pbs   = 1          cjs   = 0.0005     mjs   = 0.5         pbsws  = 1
+cjsws  = 5e-010     mjsws  = 0.33      pbswgs  = 1         cjswgs  = 3e-010
+mjswgs  = 0.33      pbd   = 1          cjd   = 0.0005     mjd   = 0.5
+pbswd  = 1          cjswd  = 5e-010     mjswd  = 0.33      pbswgd  = 1
+cjswgd  = 5e-010     mjswgd  = 0.33      tpb   = 0.005      tcj   = 0.001
+tpbsw  = 0.005      tcjsw  = 0.001     tpbswg  = 0.005     tcjswg  = 0.001
+xtis   = 3          xtid   = 3
+dmcg   = 0e-006     dmci   = 0e-006     dmdg   = 0e-006     dmcgt  = 0e-007
+dwj    = 0.0e-008   xgw    = 0e-007     xgl    = 0e-008
+rshg   = 0.4        gbmin  = 1e-010     rbpb   = 5          rbpd   = 15
+rbps   = 15         rbdb   = 15         rbsb   = 15         ngcon  = 1
.model  pmos  pmos  level = 54
+version = 4.0  binunit = 1  paramchk= 1  mobmod = 0
+capmod  = 2    igcmod  = 1    igbmod  = 1    geomod  = 1
+diomod  = 1    rdsmod  = 0    rbodmod  = 1    rgatemod= 1
+permod  = 1    acnqsmode= 0    trnqsmode= 0
* parameters related to the technology node
+tnom = 27  epsrox = 3.9
+eta0 = 0.0049  nfactor = 2.1  wint = 5e-09
+cgso = 1.1e-10  cgdo = 1.1e-10  xl = -2e-08

```

* parameters customized by the user

+toxe = 1.85e-09 toxp = 1.1e-09 toxm = 1.85e-09 toxref = 1.85e-09

+dtox = 7.5e-10 lint = 3.75e-09

+vth0 = -0.418 k1 = 0.488 u0 = 0.00439 vsat = 70000

+rdsw = 155 ndep = 2.5e+18 xj = 1.4e-08

*secondary parameters

+ll = 0 wl = 0 lln = 1 wln = 1

+lw = 0 ww = 0 lwn = 1 wwn = 1

+lwl = 0 ww1 = 0 xpart = 0

+k2 = -0.01 k3 = 0

+k3b = 0 w0 = 2.5e-006 dvt0 = 1 dvt1 = 2

+dvt2 = -0.032 dvt0w = 0 dvt1w = 0 dvt2w = 0

+dsub = 0.1 minv = 0.05 voffl = 0 dvtp0 = 1e-009

+dvtp1 = 0.05 lpe0 = 0 lpeb = 0

+ngate = 2e+020 nsd = 2e+020 phin = 0

+cdsc = 0.000 cdsb = 0 cdsd = 0 cit = 0

+voff = -0.126 etab = 0

+vfb = 0.55 ua = 2.0e-009 ub = 0.5e-018

+uc = 0 a0 = 1.0 ags = 1e-020

+a1 = 0 a2 = 1 b0 = -1e-020 b1 = 0

+keta = -0.047 dwg = 0 dwb = 0 pclm = 0.12

+pdiblc1 = 0.001 pdiblc2 = 0.001 pdiblc3 = 3.4e-008 drout = 0.56

+pvag = 1e-020 delta = 0.01 pscbe1 = 8.14e+008 pscbe2 = 9.58e-007

+fprout = 0.2 pdits = 0.08 pditsd = 0.23 pditsl = 2.3e+006

+rsh = 5 rsw = 85 rdw = 85

+rdswmin = 0 rdwmin = 0 rswmin = 0 prwg = 3.22e-008

+prwb = 6.8e-011 wr = 1 alpha0 = 0.074 alpha1 = 0.005

+beta0 = 30 agidl = 0.0002 bgidl = 2.1e+009 cgidl = 0.0002

+egidl = 0.8

+aigbacc = 0.012 bigbacc = 0.0028 cigbacc = 0.002

+nigbacc = 1 aigbinv = 0.014 bigbinv = 0.004 cigbinv = 0.004

+eigbinv = 1.1 nigbinv = 3 aigc = 0.69 bigc = 0.0012

+cigc = 0.0008 aigsd = 0.0087 bigsd = 0.0012 cigsd = 0.0008

+nigc = 1 poxedg = 1 pigcd = 1 ntox = 1

+xrcrg1 = 12 xrcrg2 = 5

```

+cgbo  = 2.56e-011  cgdl  = 2.653e-10
+cgsl  = 2.653e-10  ckappas = 0.03      ckappad = 0.03      acde  = 1
+moin  = 15        noff  = 0.9        voffcv = 0.02
+kt1   = -0.11     kt1l  = 0         kt2   = 0.022     ute   = -1.5
+ua1   = 4.31e-009  ub1   = 7.61e-018  uc1   = -5.6e-011  prt   = 0
+at    = 33000
+fnoimod = 1      tnoimod = 0
+jss   = 0.0001    jsws  = 1e-011    jswgs  = 1e-010    njs   = 1
+ijthsfwd= 0.01    ijthsrev= 0.001    bvs    = 10       xjbvs  = 1
+jsd   = 0.0001    jswd  = 1e-011    jswgd  = 1e-010    njd   = 1
+ijthdfwd= 0.01    ijthdrev= 0.001    bvd    = 10       xjbvd  = 1
+pbs   = 1         cjs   = 0.0005    mjs    = 0.5       pbsws  = 1
+cjsws  = 5e-010    mjsws  = 0.33     pbswgs  = 1        cjswgs  = 3e-010
+mjswgs  = 0.33     pbd    = 1        cjd    = 0.0005    mjd    = 0.5
+pbswd  = 1         cjswd  = 5e-010    mjswd  = 0.33     pbswgd  = 1
+cjswgd  = 5e-010    mjswgd  = 0.33     tpb    = 0.005     tcj    = 0.001
+tpbsw  = 0.005     tcjsw  = 0.001    tpbswg  = 0.005     tcjswg  = 0.001
+xtis   = 3        xtld   = 3
+dmcg   = 0e-006    dmci   = 0e-006    dmdg   = 0e-006    dmcgt  = 0e-007
+dwj    = 0.0e-008  xgw    = 0e-007    xgl    = 0e-008
+rshg   = 0.4       gbmin  = 1e-010    rbpb   = 5         rbpd   = 15
+rbps   = 15        rbdb   = 15        rbsb   = 15        ngcon  = 1
.options POST=2
.options AUTOSTOP
.options INGOLD=2 DCON=1
.options GSHUNT=1e-12 RMIN=1e-15
.options ABSTOL=1e-5 ABSVDC=1e-4
.options RELTOL=1e-2 RELVDC=1e-2
.options NUMDGT=4 PIVOT=13
.options runlvl=6
.end

```


Netlist for read operation

Netlist Without Trojan

*initial conditions stored for read operation

.ic v(Q)=1

.ic v(QR)=0

*data control

.ic v(bl)=1

.ic v(blb)=1

** SRAM without trojen

M1 Q QR 0 0 nmos w=90n l=45n

M2 Q QR vdd vdd pmos w=90n l=45n

M3 QR Q 0 0 nmos w=90n l=45n

M4 QR Q vdd vdd pmos w=90n l=45n

Mi5 Q wl bl bl nmos w=90n l=45n

M6 blb wl QR blb nmos w=90n l=45n

** Voltage source

Vvdd vdd 0 1

**Access Control

Vwl wl 0 pwl(0 0 1n 0 1.2n 1 5n 1)

.tran 0.1n 20n

.model nmos nmos level = 54

+version = 4.0 binunit = 1 paramchk= 1 mobmod = 0

+capmod = 2 igcmod = 1 igbmod = 1 geomod = 1

+diomod = 1 rdsmod = 0 rbodymod= 1 rgatemod= 1

+permod = 1 acnqsmode= 0 trnqsmode= 0

* parameters related to the technology node

+tnom = 27 epsrox = 3.9

+eta0 = 0.0049 nfactor = 2.1 wint = 5e-09

+cgso = 1.1e-10 cgdo = 1.1e-10 xl = -2e-08

* parameters customized by the user

+toxe = 1.75e-09 toxp = 1.1e-09 toxm = 1.75e-09 toxref = 1.75e-09

+dtox = 6.5e-10 lint = 3.75e-09

+vth0 = 0.469 k1 = 0.528 u0 = 0.04372 vsat = 147390

+rdsw = 155 ndep = 3.28e+18 xj = 1.4e-08

* secondary parameters

+ll = 0 wl = 0 lln = 1 wln = 1
+lw = 0 ww = 0 lwn = 1 wwn = 1
+lwl = 0 ww1 = 0 xpart = 0
+k2 = 0.01 k3 = 0
+k3b = 0 w0 = 2.5e-006 dvt0 = 1 dvt1 = 2
+dvt2 = -0.032 dvt0w = 0 dvt1w = 0 dvt2w = 0
+dsub = 0.1 minv = 0.05 voffl = 0 dvtp0 = 1.0e-009
+dvtp1 = 0.1 lpe0 = 0 lpeb = 0
+ngate = 2e+020 nsd = 2e+020 phin = 0
+cdsc = 0.000 cdsb = 0 cdsd = 0 cit = 0
+voff = -0.13 etab = 0
+vfb = -0.55 ua = 6e-010 ub = 1.2e-018
+uc = 0 a0 = 1.0 ags = 1e-020
+a1 = 0 a2 = 1.0 b0 = 0 b1 = 0
+keta = 0.04 dwg = 0 dwb = 0 pclm = 0.04
+pdiblcl = 0.001 pdiblcl2 = 0.001 pdiblcbl = -0.005 drout = 0.5
+pvag = 1e-020 delta = 0.01 pscbe1 = 8.14e+008 pscbe2 = 1e-007
+fprout = 0.2 pdits = 0.08 pditsd = 0.23 pditsl = 2.3e+006
+rsh = 5 rsw = 85 rdw = 85
+rdswmin = 0 rdwmin = 0 rswmin = 0 prwg = 0
+prwb = 6.8e-011 wr = 1 alpha0 = 0.074 alpha1 = 0.005
+beta0 = 30 agidl = 0.0002 bgidl = 2.1e+009 cgidl = 0.0002
+egidl = 0.8
+aigbacc = 0.012 bigbacc = 0.0028 cigbacc = 0.002
+nigbacc = 1 aigbinv = 0.014 bigbinv = 0.004 cigbinv = 0.004
+eigbinv = 1.1 nigbinv = 3 aigc = 0.012 bigc = 0.0028
+cigc = 0.002 aigsd = 0.012 bigsd = 0.0028 cigsd = 0.002
+nigc = 1 poxedge = 1 pigcd = 1 ntox = 1
+xrerg1 = 12 xrerg2 = 5
+cgbo = 2.56e-011 cgdl = 2.653e-10
+cgsl = 2.653e-10 ckappas = 0.03 ckappad = 0.03 acde = 1
+moin = 15 noff = 0.9 voffcv = 0.02
+kt1 = -0.11 kt1l = 0 kt2 = 0.022 ute = -1.5

```

+ua1 = 4.31e-009  ub1 = 7.61e-018  uc1 = -5.6e-011  prt = 0
+at = 33000
+fnoimod = 1      tnoimod = 0
+jss = 0.0001     jsws = 1e-011     jswgs = 1e-010     njs = 1
+ijthsfwd= 0.01    ijthsrrev= 0.001     bvs = 10          xjbvs = 1
+jsd = 0.0001     jswd = 1e-011     jswgd = 1e-010     njd = 1
+ijthdfwd= 0.01    ijthdrev= 0.001     bvd = 10          xjbvd = 1
+pbs = 1          cjs = 0.0005     mjs = 0.5         pbsws = 1
+cjsws = 5e-010    mjsws = 0.33       pbswgs = 1        cjswgs = 3e-010
+mjswgs = 0.33     pbd = 1           cjd = 0.0005     mjd = 0.5
+pbswd = 1         cjswd = 5e-010     mjswd = 0.33      pbswgd = 1
+cjswgd = 5e-010   mjswgd = 0.33      tpb = 0.005       tcj = 0.001
+tpbsw = 0.005     tcjsw = 0.001      tpbswg = 0.005    tcjswg = 0.001
+xtis = 3          xtid = 3
+dmcg = 0e-006     dmci = 0e-006     dmdg = 0e-006     dmcgt = 0e-007
+dwj = 0.0e-008    xgw = 0e-007      xgl = 0e-008
+rshg = 0.4        gbmin = 1e-010     rbpb = 5          rbpd = 15
+rbps = 15         rbdb = 15          rbsb = 15         ngcon = 1
.model pmos pmos level = 54
+version = 4.0     binunit = 1       paramchk= 1       mobmod = 0
+capmod = 2        igcmod = 1       igbmod = 1       geomod = 1
+diomod = 1        rdsmod = 0       rbodymod= 1       rgatemod= 1
+permod = 1        acnqsmode= 0     trnqsmode= 0
* parameters related to the technology node
+tnom = 27        epsrox = 3.9
+eta0 = 0.0049     nfactor = 2.1     wint = 5e-09
+cgso = 1.1e-10    cgdo = 1.1e-10    xl = -2e-08
* parameters customized by the user
+toxe = 1.85e-09   toxp = 1.1e-09     toxm = 1.85e-09   toxref = 1.85e-09
+dtox = 7.5e-10    lint = 3.75e-09
+vth0 = -0.418     k1 = 0.488        u0 = 0.00439     vsat = 70000
+rdsw = 155        ndep = 2.5e+18    xj = 1.4e-08
*secondary parameters
+ll = 0           wl = 0           lln = 1           wln = 1
+lw = 0           ww = 0           lwn = 1           wwn = 1

```

+lwl = 0 wwl = 0 xpart = 0
 +k2 = -0.01 k3 = 0
 +k3b = 0 w0 = 2.5e-006 dvt0 = 1 dvt1 = 2
 +dvt2 = -0.032 dvt0w = 0 dvt1w = 0 dvt2w = 0
 +dsub = 0.1 minv = 0.05 voffl = 0 dvtp0 = 1e-009
 +dvtp1 = 0.05 lpe0 = 0 lpeb = 0
 +ngate = 2e+020 nsd = 2e+020 phin = 0
 +cdsc = 0.000 cdsb = 0 cdsd = 0 cit = 0
 +voff = -0.126 etab = 0
 +vfb = 0.55 ua = 2.0e-009 ub = 0.5e-018
 +uc = 0 a0 = 1.0 ags = 1e-020
 +a1 = 0 a2 = 1 b0 = -1e-020 b1 = 0
 +keta = -0.047 dwg = 0 dwb = 0 pclm = 0.12
 +pdiblc1 = 0.001 pdiblc2 = 0.001 pdiblc3 = 3.4e-008 droul = 0.56
 +pvag = 1e-020 delta = 0.01 pscbe1 = 8.14e+008 pscbe2 = 9.58e-007
 +fprout = 0.2 pdits = 0.08 pditsd = 0.23 pditsl = 2.3e+006
 +rsh = 5 rsw = 85 rdw = 85
 +rdswmin = 0 rdwmin = 0 rswmin = 0 prwg = 3.22e-008
 +prwb = 6.8e-011 wr = 1 alpha0 = 0.074 alpha1 = 0.005
 +beta0 = 30 agidl = 0.0002 bgidl = 2.1e+009 cgidl = 0.0002
 +egidl = 0.8
 +aigbacc = 0.012 bigbacc = 0.0028 cigbacc = 0.002
 +nigbacc = 1 aigbinv = 0.014 bigbinv = 0.004 cigbinv = 0.004
 +eigbinv = 1.1 nigbinv = 3 aigc = 0.69 bigc = 0.0012
 +cigc = 0.0008 aigsd = 0.0087 bigsd = 0.0012 cigsd = 0.0008
 +nigc = 1 poxedge = 1 pigcd = 1 ntox = 1
 +xrcrg1 = 12 xrcrg2 = 5
 +cgbo = 2.56e-011 cgdl = 2.653e-10
 +cgsl = 2.653e-10 ckappas = 0.03 ckappad = 0.03 acde = 1
 +moin = 15 noff = 0.9 voffcv = 0.02
 +kt1 = -0.11 kt1l = 0 kt2 = 0.022 ute = -1.5
 +ua1 = 4.31e-009 ub1 = 7.61e-018 uc1 = -5.6e-011 prt = 0
 +at = 33000
 +fnoimod = 1 tnoimod = 0
 +jss = 0.0001 jsws = 1e-011 jswgs = 1e-010 njs = 1

```

+ijthsfwd= 0.01      ijthsrev= 0.001      bvs   = 10      xjbvs  = 1
+jjsd   = 0.0001      jsd    = 1e-011      jsugd   = 1e-010      njd    = 1
+ijthdfwd= 0.01      ijthdrev= 0.001      bvd    = 10      xjbvd  = 1
+pbs    = 1          cjs    = 0.0005      mjs    = 0.5      pbsws  = 1
+cjsws  = 5e-010      mjsws  = 0.33      pbswgs = 1        cjswgs = 3e-010
+mjswgs = 0.33      pbd    = 1          cjd    = 0.0005      mjd    = 0.5
+pbswd  = 1          cjswd  = 5e-010      mjswd  = 0.33      pbswgd = 1
+cjswgd = 5e-010      mjswgd = 0.33      tpb    = 0.005      tcj    = 0.001
+tpbsw  = 0.005      tcjsw  = 0.001      tpbswg = 0.005      tcjswg = 0.001
+xtis   = 3          xtid   = 3
+dmcg   = 0e-006      dmci   = 0e-006      dmdg   = 0e-006      dmcgt  = 0e-007
+dwj    = 0.0e-008      xgw   = 0e-007      xgl    = 0e-008
+rshg   = 0.4          gbmin  = 1e-010      rbpb   = 5          rbpd   = 15
+rbps   = 15          rbdb   = 15          rbsb   = 15          ngcon  = 1
.options POST=2
.options AUTOSTOP
.options INGOLD=2 DCON=1
.options GSHUNT=1e-12 RMIN=1e-15
.options ABSTOL=1e-5 ABSVDC=1e-4
.options RELTOL=1e-2 RELVDC=1e-2
.options NUMDGT=4 PIVOT=13
.options runlvl=6
.end

```

Netlist with Trojan

*initial conditions stored for read operation

```
.ic v(Q)=1
```

```
.ic v(QR)=0
```

*data control

```
.ic v(bl)=1
```

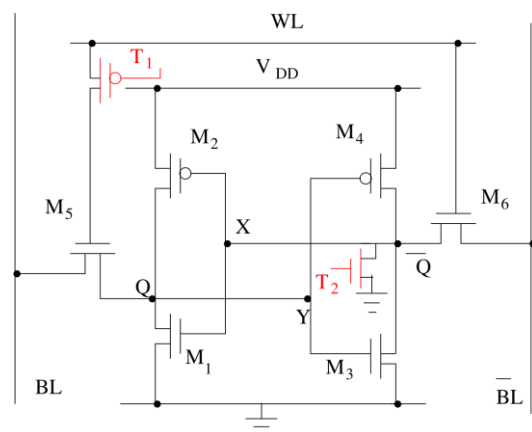
```
.ic v(blb)=1
```

** SRAM with trojan

```
M1 Q QR 0 0 nmos w=90n l=45n
```

```
M2 Q QR vdd vdd pmos w=90n l=45n
```

```
M3 QR Q 0 0 nmos w=90n l=45n
```



M4 QR Q vdd vdd pmos w=90n l=45n

Mi5 Q T bl bl nmos w=90n l=45n

M6 blb wl QR blb nmos w=90n l=45n

MT i5 T1 wl wl pmos w=90n l=45n

MTr QR T2 0 0 nmos w=90n l=45n

** Voltage source

Vvdd vdd 0 1

**Access Control

Vwl wl 0 pwl(0 0 1n 0 1.2n 1 5n 1)

.tran 0.1n 20n

.model nmos nmos level = 54

+version = 4.0 binunit = 1 paramchk= 1 mobmod = 0

+capmod = 2 igcmod = 1 igbmod = 1 geomod = 1

+diomod = 1 rdsmod = 0 rbodymod= 1 rgatemod= 1

+permod = 1 acnqsmode= 0 trnqsmode= 0

* parameters related to the technology node

+tnom = 27 epsrox = 3.9

+eta0 = 0.0049 nfactor = 2.1 wint = 5e-09

+cgso = 1.1e-10 cgdo = 1.1e-10 xl = -2e-08

* parameters customized by the user

+toxe = 1.75e-09 toxp = 1.1e-09 toxm = 1.75e-09 toxref = 1.75e-09

+dtox = 6.5e-10 lint = 3.75e-09

+vth0 = 0.469 k1 = 0.528 u0 = 0.04372 vsat = 147390

+rdsw = 155 ndep = 3.28e+18 xj = 1.4e-08

* secondary parameters

+ll = 0 wl = 0 lln = 1 wln = 1

+lw = 0 ww = 0 lwn = 1 wwn = 1

+lwl = 0 ww1 = 0 xpart = 0

+k2 = 0.01 k3 = 0

+k3b = 0 w0 = 2.5e-006 dvt0 = 1 dvt1 = 2

+dvt2 = -0.032 dvt0w = 0 dvt1w = 0 dvt2w = 0

+dsub = 0.1 minv = 0.05 voffl = 0 dvtp0 = 1.0e-009

+dvtp1 = 0.1 lpe0 = 0 lpeb = 0

+ngate = 2e+020 nsd = 2e+020 phin = 0

+cdsc = 0.000 cdscb = 0 cdsd = 0 cit = 0

+voff = -0.13 etab = 0
 +vfb = -0.55 ua = 6e-010 ub = 1.2e-018
 +uc = 0 a0 = 1.0 ags = 1e-020
 +a1 = 0 a2 = 1.0 b0 = 0 b1 = 0
 +keta = 0.04 dwg = 0 dwb = 0 pclm = 0.04
 +pdiblc1 = 0.001 pdiblc2 = 0.001 pdiblc3 = -0.005 drout = 0.5
 +pvag = 1e-020 delta = 0.01 pscbe1 = 8.14e+008 pscbe2 = 1e-007
 +fprout = 0.2 pdits = 0.08 pditsd = 0.23 pditsl = 2.3e+006
 +rsh = 5 rsw = 85 rdw = 85
 +rdswmin = 0 rdwmin = 0 rswmin = 0 prwg = 0
 +prwb = 6.8e-011 wr = 1 alpha0 = 0.074 alpha1 = 0.005
 +beta0 = 30 agidl = 0.0002 bgidl = 2.1e+009 cgidl = 0.0002
 +egidl = 0.8
 +aigbacc = 0.012 bigbacc = 0.0028 cigbacc = 0.002
 +nigbacc = 1 aigbinv = 0.014 bigbinv = 0.004 cigbinv = 0.004
 +eigbinv = 1.1 nigbinv = 3 aigc = 0.012 bigc = 0.0028
 +cigc = 0.002 aigsd = 0.012 bigsd = 0.0028 cigsd = 0.002
 +nigc = 1 poxedg = 1 pigcd = 1 ntox = 1
 +xrcrg1 = 12 xrcrg2 = 5
 +cgbo = 2.56e-011 cgdl = 2.653e-10
 +cgsl = 2.653e-10 ckappas = 0.03 ckappad = 0.03 acde = 1
 +moin = 15 noff = 0.9 voffcv = 0.02
 +kt1 = -0.11 kt1l = 0 kt2 = 0.022 ute = -1.5
 +ua1 = 4.31e-009 ub1 = 7.61e-018 uc1 = -5.6e-011 prt = 0
 +at = 33000
 +fnoimod = 1 tnoimod = 0
 +jss = 0.0001 jsws = 1e-011 jswgs = 1e-010 njs = 1
 +ijthsfwd = 0.01 ijthsrev = 0.001 bvs = 10 xjbvs = 1
 +jsd = 0.0001 jswd = 1e-011 jswgd = 1e-010 njd = 1
 +ijthdfwd = 0.01 ijthdrev = 0.001 bvd = 10 xjbvd = 1
 +pbs = 1 cjs = 0.0005 mjs = 0.5 pbsws = 1
 +cjsws = 5e-010 mjsws = 0.33 pbswgs = 1 cjswgs = 3e-010
 +mjswgs = 0.33 pbd = 1 cjd = 0.0005 mjd = 0.5
 +pbswd = 1 cjswd = 5e-010 mjswd = 0.33 pbswgd = 1
 +cjswgd = 5e-010 mjswgd = 0.33 tpb = 0.005 tcj = 0.001

```

+tpbsw = 0.005    tcjsw = 0.001    tpbswg = 0.005    tcjswg = 0.001
+xtis  = 3        xtid  = 3
+dmcg  = 0e-006    dmci   = 0e-006    dmdg  = 0e-006    dmcgt  = 0e-007
+dwj   = 0.0e-008  xgw    = 0e-007    xgl    = 0e-008
+rshg  = 0.4       gbmin  = 1e-010    rbpb   = 5        rbpd   = 15
+rbps  = 15        rbdb   = 15        rbsb   = 15        ngcon  = 1
.model pmos pmos level = 54
+version = 4.0    binunit = 1    paramchk = 1    mobmod = 0
+capmod = 2       igcmod = 1     igbmod = 1     geomod = 1
+diomod = 1       rdsmod = 0     rbodymod = 1   rgatemod = 1
+permod = 1       acnqsmode = 0   trnqsmode = 0
* parameters related to the technology node
+tnom = 27       epsrox = 3.9
+eta0 = 0.0049    nfactor = 2.1    wint = 5e-09
+cgso = 1.1e-10   cgdo = 1.1e-10    xl = -2e-08
* parameters customized by the user
+toxe = 1.85e-09  toxp = 1.1e-09     toxm = 1.85e-09  toxref = 1.85e-09
+dtox = 7.5e-10   lint = 3.75e-09
+vth0 = -0.418    k1 = 0.488        u0 = 0.00439     vsat = 70000
+rdsw = 155       ndep = 2.5e+18    xj = 1.4e-08
*secondary parameters
+ll    = 0        wl    = 0        lln    = 1        wln    = 1
+lw    = 0        ww    = 0        lwn    = 1        wwn    = 1
+lw1   = 0        ww1   = 0        xpart  = 0
+k2    = -0.01     k3    = 0
+k3b   = 0        w0    = 2.5e-006    dvt0   = 1        dvt1   = 2
+dvt2  = -0.032    dvt0w  = 0        dvt1w  = 0        dvt2w  = 0
+dsub  = 0.1       minv   = 0.05     voffl   = 0        dvtp0   = 1e-009
+dvtp1 = 0.05      lpe0   = 0        lpeb   = 0
+ngate  = 2e+020    nsd    = 2e+020    phin    = 0
+cdsc  = 0.000     cdsb   = 0        cdsd   = 0        cit    = 0
+voff  = -0.126    etab   = 0
+vfb   = 0.55      ua    = 2.0e-009    ub    = 0.5e-018
+uc    = 0         a0    = 1.0        ags    = 1e-020
+a1    = 0         a2    = 1         b0    = -1e-020    b1    = 0

```


+keta = -0.047 dwg = 0 dwb = 0 pclm = 0.12
 +pdiblc1 = 0.001 pdiblc2 = 0.001 pdiblc3 = 3.4e-008 drout = 0.56
 +pvag = 1e-020 delta = 0.01 pscbe1 = 8.14e+008 pscbe2 = 9.58e-007
 +fprout = 0.2 pdits = 0.08 pditsd = 0.23 pditsl = 2.3e+006
 +rsh = 5 rsw = 85 rdw = 85
 +rdswmin = 0 rdwmin = 0 rswmin = 0 prwg = 3.22e-008
 +prwb = 6.8e-011 wr = 1 alpha0 = 0.074 alpha1 = 0.005
 +beta0 = 30 agidl = 0.0002 bgidl = 2.1e+009 cgidl = 0.0002
 +egidl = 0.8
 +aigbacc = 0.012 bigbacc = 0.0028 cigbacc = 0.002
 +nigbacc = 1 aigbinv = 0.014 bigbinv = 0.004 cigbinv = 0.004
 +eigbinv = 1.1 nigbinv = 3 aigc = 0.69 bigc = 0.0012
 +cigc = 0.0008 aigsd = 0.0087 bigsd = 0.0012 cigsd = 0.0008
 +nigc = 1 poxedg = 1 pigcd = 1 ntox = 1
 +xrcrg1 = 12 xrcrg2 = 5
 +cgbo = 2.56e-011 cgdl = 2.653e-10
 +cgsl = 2.653e-10 ckappas = 0.03 ckappad = 0.03 acde = 1
 +moin = 15 noff = 0.9 voffcv = 0.02
 +kt1 = -0.11 kt1l = 0 kt2 = 0.022 ute = -1.5
 +ua1 = 4.31e-009 ub1 = 7.61e-018 uc1 = -5.6e-011 prt = 0
 +at = 33000
 +fnoimod = 1 tnoimod = 0
 +jss = 0.0001 jsws = 1e-011 jswgs = 1e-010 njs = 1
 +ijthsfwd = 0.01 ijthsrev = 0.001 bvs = 10 xjbvs = 1
 +jsd = 0.0001 jswd = 1e-011 jswgd = 1e-010 njd = 1
 +ijthdfwd = 0.01 ijthdrev = 0.001 bvd = 10 xjbvd = 1
 +pbs = 1 cjs = 0.0005 mjs = 0.5 pbsws = 1
 +cjsws = 5e-010 mjsws = 0.33 pbswgs = 1 cjswgs = 3e-010
 +mjswgs = 0.33 pbd = 1 cjd = 0.0005 mjd = 0.5
 +pbswd = 1 cjswd = 5e-010 mjswd = 0.33 pbswgd = 1
 +cjswgd = 5e-010 mjswgd = 0.33 tpb = 0.005 tcj = 0.001
 +tpbsw = 0.005 tcjsw = 0.001 tpbswg = 0.005 tcjswg = 0.001
 +xtis = 3 xtld = 3
 +dmcg = 0e-006 dmci = 0e-006 dmdg = 0e-006 dmcgt = 0e-007
 +dwj = 0.0e-008 xgw = 0e-007 xgl = 0e-008

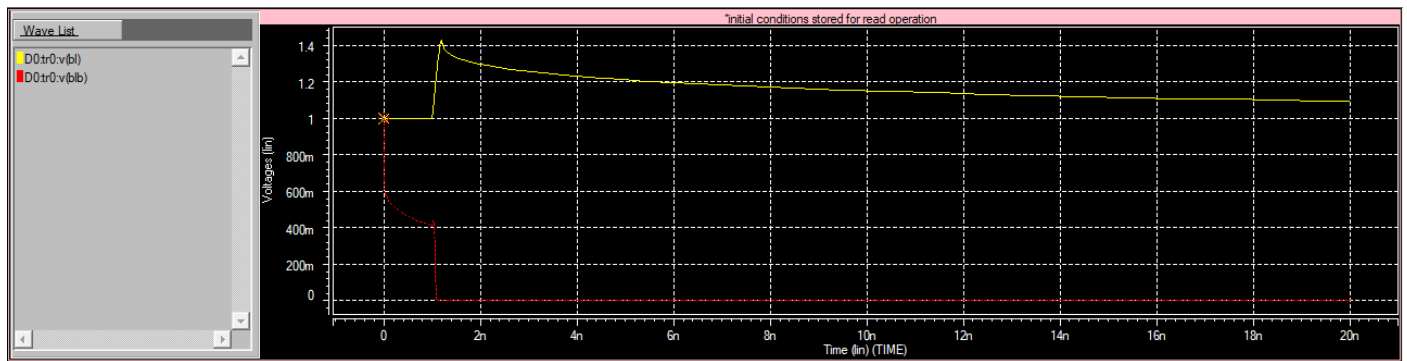
```

+rshg  = 0.4      gbmin  = 1e-010   rbpb  = 5      rbpd  = 15
+rbps  = 15      rbdb  = 15      rbsb  = 15      ngcon  = 1
.options POST=2
.options AUTOSTOP
.options INGOLD=2 DCON=1
.options GSHUNT=1e-12 RMIN=1e-15
.options ABSTOL=1e-5 ABSVDC=1e-4
.options RELTOL=1e-2 RELVDC=1e-2
.options NUMDGT=4 PIVOT=13
.options runlvl=6
.end

```

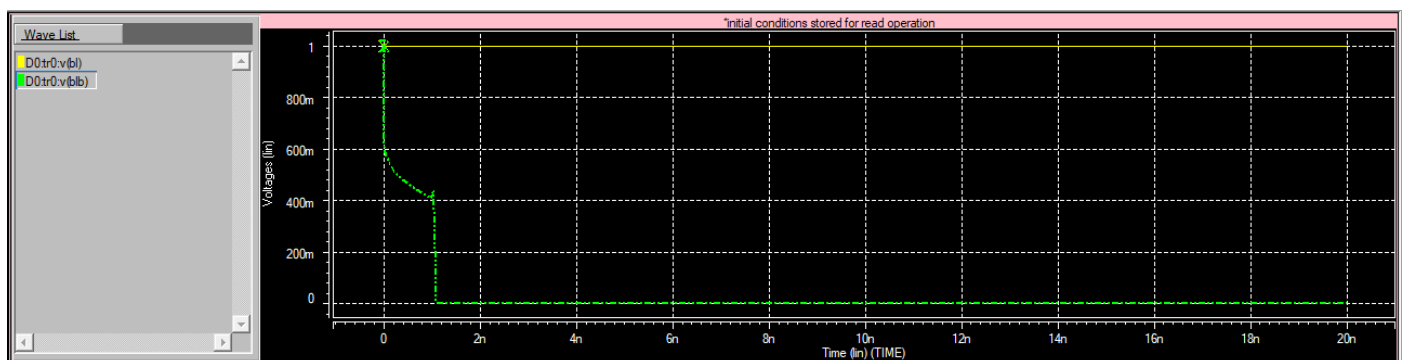
Result for read

Without Trojan:



Remark: Successfully read 1.

With Trojan:



Remark: Successfully read 1.

THE END