



SACRAMENTO STATE

EEE 234
Digital IC Design

Project 2 – Assignment 2

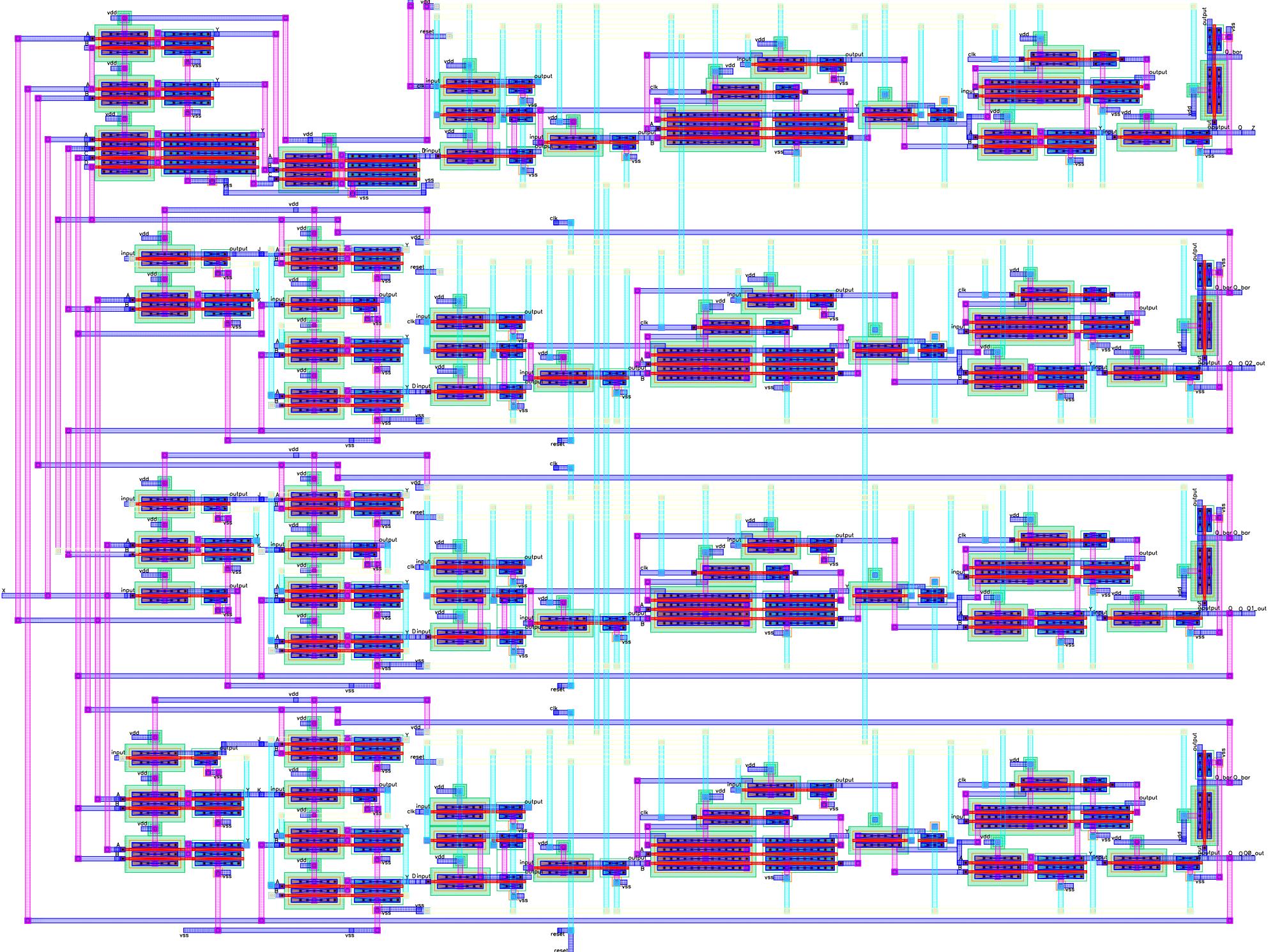
Student Name: Raj Patel & Hemiha Vasanthakumaran
Email ID: rajkirtibhaipatel@csus.edu & hvasanthakumaran@csus.edu
Date of Submission: May 08, 2019

Contents

| | | |
|-----|----------------------------|----|
| 1 | Sequence Detector..... | 1 |
| 1.1 | Layout..... | 1 |
| 1.2 | LVS Output | 2 |
| 1.3 | Test Bench..... | 4 |
| 1.4 | Simulation (X = 0101)..... | 5 |
| 1.5 | Simulation (X = 0110)..... | 6 |
| 2 | Shift Register | 7 |
| 2.1 | Layout..... | 7 |
| 2.2 | LVS Output | 8 |
| 2.3 | Test Bench..... | 10 |
| 2.4 | Simulation (sel = 00)..... | 11 |
| 2.5 | Simulation (sel = 01)..... | 12 |
| 2.6 | Simulation (sel = 10)..... | 13 |
| 2.7 | Simulation (sel = 11)..... | 14 |
| 3 | JK Flip-Flop | 1 |
| 3.1 | Layout..... | 15 |
| 3.2 | LVS Output | 15 |
| 3.3 | Test Bench..... | 18 |
| 3.4 | Simulation | 19 |
| 4 | D Flip-Flop | 20 |
| 4.1 | Layout..... | 20 |
| 4.2 | LVS Output | 21 |
| 4.3 | Test Bench..... | 23 |
| 4.4 | Simulation | 24 |
| 5 | 4:1 Mux | 25 |
| 5.1 | Layout..... | 25 |
| 5.2 | LVS Output | 26 |
| 5.3 | Test Bench..... | 28 |
| 5.4 | Simulation | 29 |
| 6 | 4-bit Multiplier..... | 30 |
| 6.1 | Schematic..... | 30 |
| 6.2 | Layout..... | 31 |

| | | |
|-----|--------------------------------|----|
| 6.3 | LVS..... | 32 |
| 6.4 | Test Bench..... | 34 |
| 6.5 | Post Layout Simulation 1 | 35 |
| 6.6 | Post Layout Simulation 2 | 36 |
| 6.7 | Post Layout Simulation 3 | 37 |
| 7 | Carry Save Adder (CSA) | 38 |
| 7.1 | Schematic..... | 38 |
| 7.2 | Layout..... | 39 |
| 7.3 | LVS..... | 40 |
| 8 | Mirror Adder | 42 |
| 8.1 | Schematic..... | 42 |
| 8.2 | Layout..... | 43 |
| 8.3 | LVS..... | 44 |

1 Sequence Detector 1.1 Layout



1.2 Sequence Detector - LVS Output

@(#) \$CDS: LVS version 6.1.7-64b 09/27/2016 19:41 (sjfhw305) \$

Command line: /software/cadence/install/IC617/tools.lnx86/dfII/bin/64bit/LVS -dir
/gaia/class/student/patelra/raj_cadence/LVS -l -s -t /gaia/class/student/patelra/raj_cadence/LVS/layout
/gaia/class/student/patelra/raj_cadence/LVS/schematic

Like matching is enabled.

Net swapping is enabled.

Using terminal names as correspondence points.

Compiling Diva LVS rules...

Net-list summary for /gaia/class/student/patelra/raj_cadence/LVS/layout/netlist

| count | |
|-------|-----------|
| 117 | nets |
| 9 | terminals |
| 112 | pmos |
| 112 | nmos |

Net-list summary for /gaia/class/student/patelra/raj_cadence/LVS/schematic/netlist

| count | |
|-------|-----------|
| 117 | nets |
| 9 | terminals |
| 112 | pmos |
| 112 | nmos |

Terminal correspondence points

| | | |
|------|-----|--------|
| N112 | N22 | Q0_out |
| N113 | N23 | Q1_out |
| N115 | N21 | Q2_out |
| N110 | N9 | X |
| N109 | N15 | Z |
| N114 | N13 | clk |
| N116 | N20 | reset |
| N108 | N14 | vdd |
| N111 | N16 | vss |

Devices in the netlist but not in the rules:

pcapacitor

Devices in the rules but not in the netlist:

cap nfet pfet nmos4 pmos4

The net-lists match.

| | layout | schematic |
|-------------|-----------|-----------|
| | instances | |
| un-matched | 0 | 0 |
| rewired | 0 | 0 |
| size errors | 0 | 0 |
| pruned | 0 | 0 |
| active | 224 | 224 |
| total | 224 | 224 |

nets

| | | |
|------------|-----|-----|
| un-matched | 0 | 0 |
| merged | 0 | 0 |
| pruned | 0 | 0 |
| active | 117 | 117 |
| total | 117 | 117 |

| | | |
|-------------------------------|-----------|---|
| | terminals | |
| un-matched | 0 | 0 |
| matched but different type | 0 | 0 |
| total | 9 | 9 |

Probe files from /gaia/class/student/patelra/raj_cadence/LVS/schematic

devbad.out:

netbad.out:

mergenet.out:

termbad.out:

prunenet.out:

prunedev.out:

audit.out:

Probe files from /gaia/class/student/patelra/raj_cadence/LVS/layout

devbad.out:

netbad.out:

mergenet.out:

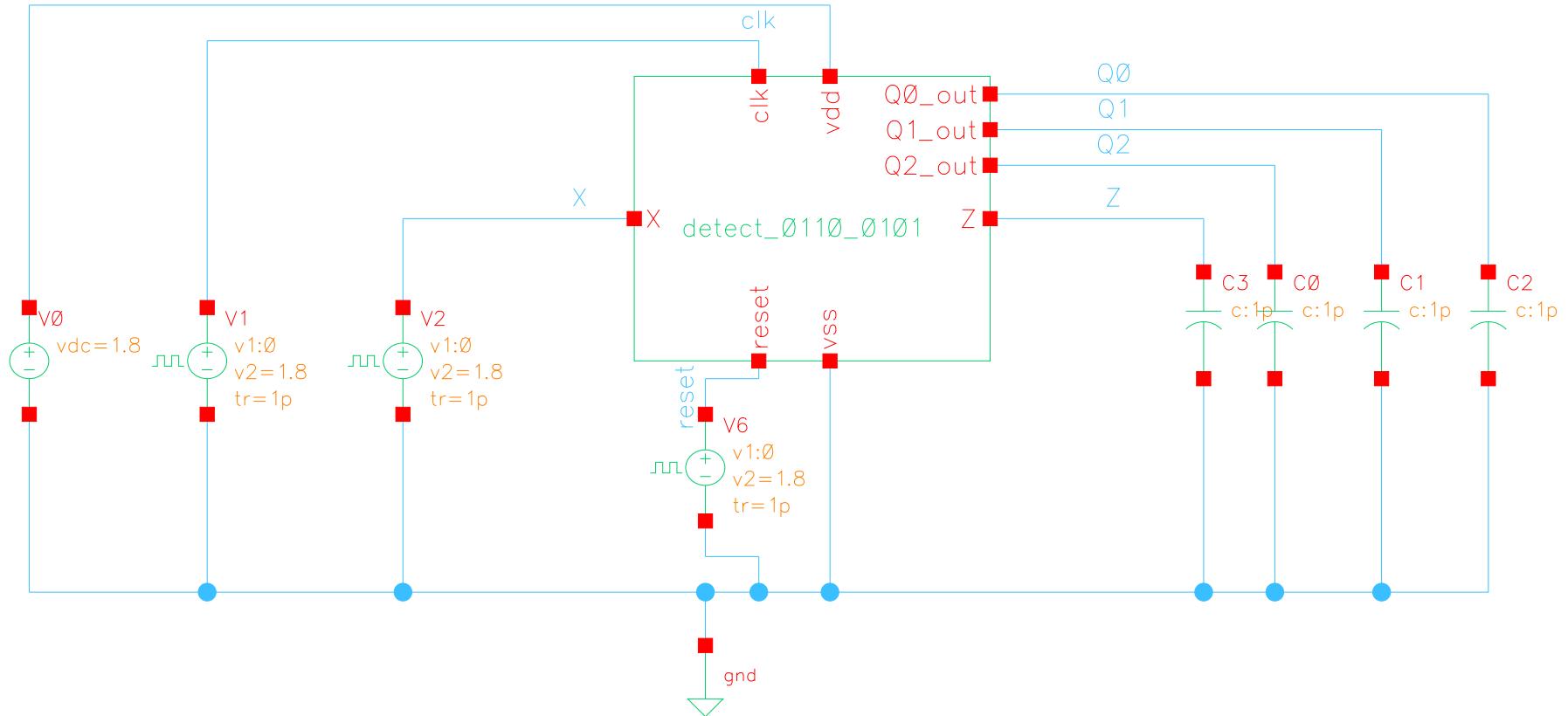
termbad.out:

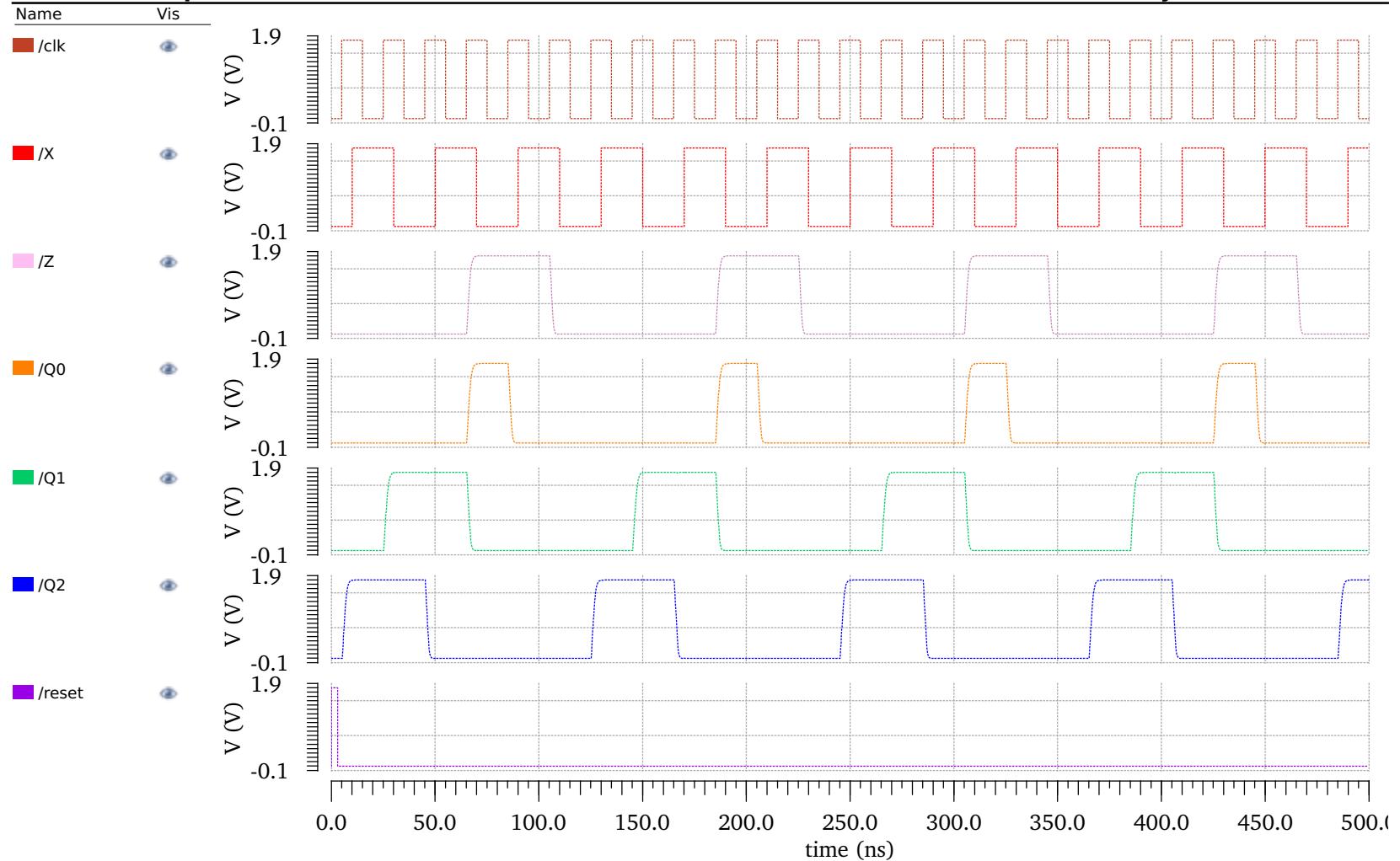
prunenet.out:

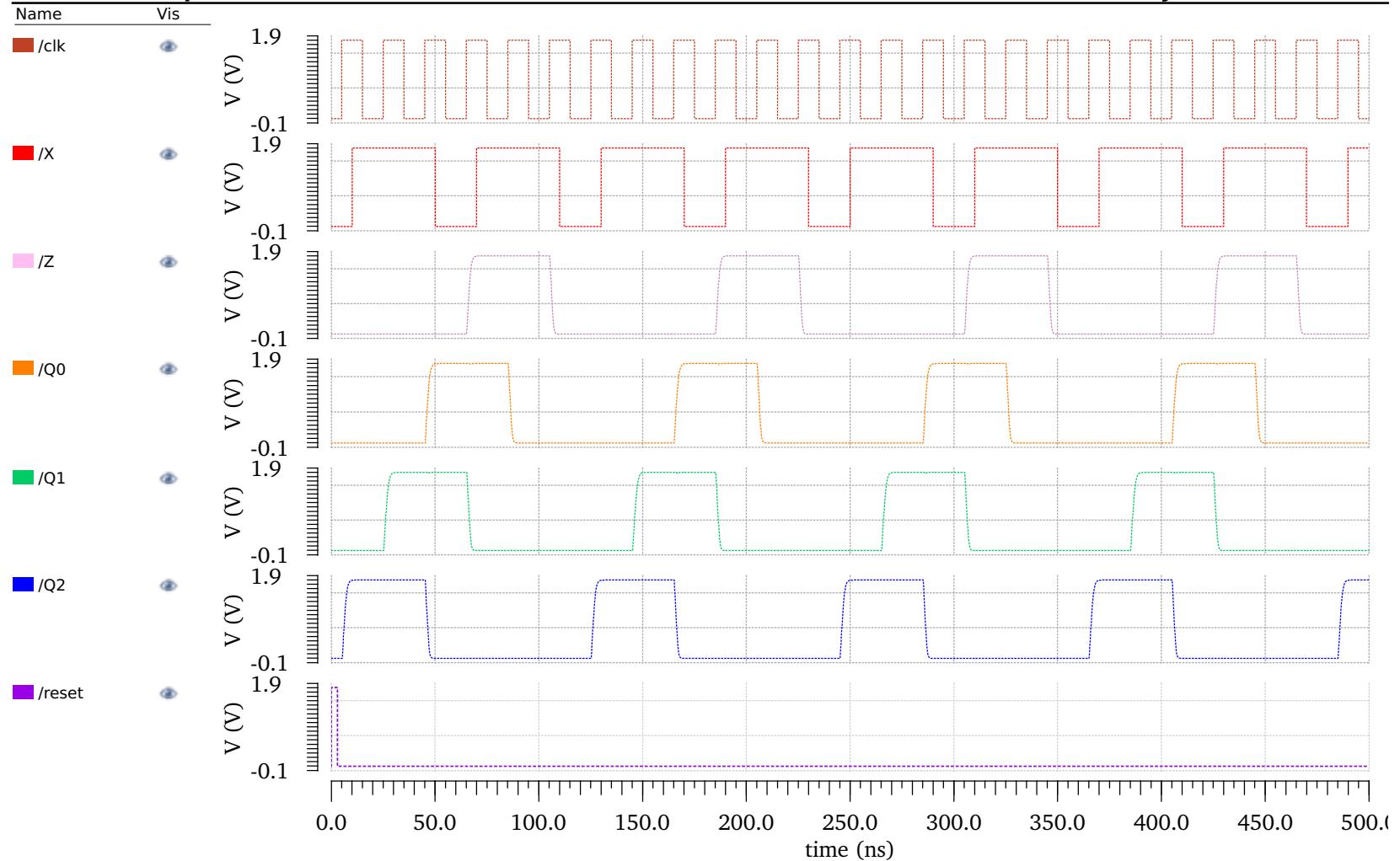
prunedev.out:

audit.out:

1.3 Sequence Detector Test Bench

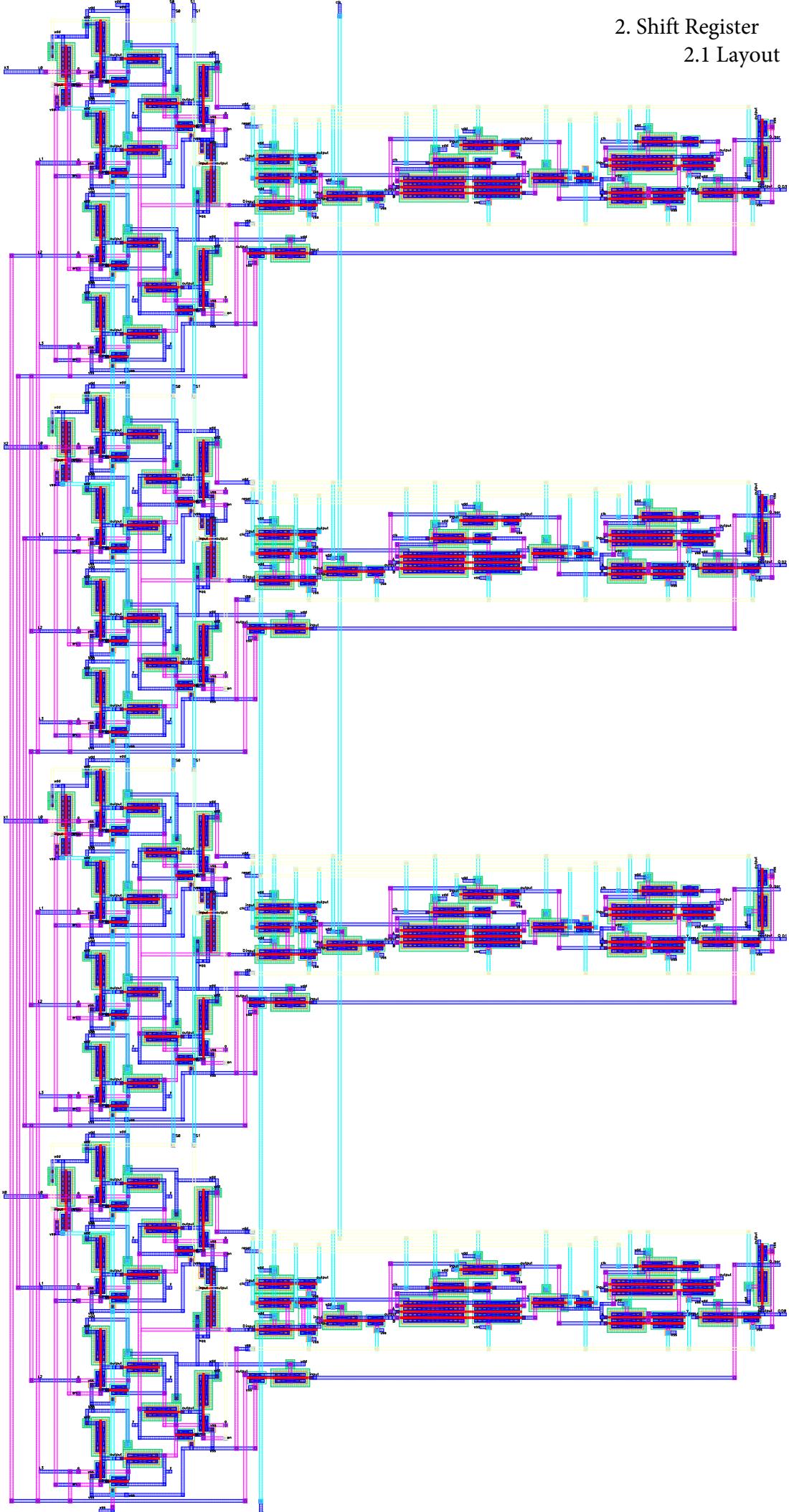


Transient Response**Sat May 4 19:03:43 2019**

Transient Response**Sat May 4 19:07:56 2019**

2. Shift Register

2.1 Layout



2.2 Shift Register - LVS Output

@(#) \$CDS: LVS version 6.1.7-64b 09/27/2016 19:41 (sjfhw305) \$

Command line: /software/cadence/install/IC617/tools.lnx86/dfII/bin/64bit/LVS -dir
/gaia/class/student/patelra/raj_cadence/LVS -l -s -t /gaia/class/student/patelra/raj_cadence/LVS/layout
/gaia/class/student/patelra/raj_cadence/LVS/schematic

Like matching is enabled.

Net swapping is enabled.

Using terminal names as correspondence points.

Compiling Diva LVS rules...

Net-list summary for /gaia/class/student/patelra/raj_cadence/LVS/layout/netlist

| count | |
|-------|-----------|
| 126 | nets |
| 14 | terminals |
| 128 | pmos |
| 128 | nmos |

Net-list summary for /gaia/class/student/patelra/raj_cadence/LVS/schematic/netlist

| count | |
|-------|-----------|
| 126 | nets |
| 14 | terminals |
| 128 | pmos |
| 128 | nmos |

Terminal correspondence points

| | | |
|------|-----|-------|
| N124 | N10 | D0 |
| N123 | N23 | D1 |
| N122 | N20 | D2 |
| N121 | N24 | D3 |
| N113 | N22 | S0 |
| N112 | N25 | S1 |
| N119 | N0 | X0 |
| N118 | N18 | X1 |
| N117 | N8 | X2 |
| N116 | N19 | X3 |
| N120 | N11 | clk |
| N125 | N7 | reset |
| N114 | N21 | vdd |
| N115 | N17 | vss |

Devices in the netlist but not in the rules:

pcapacitor

Devices in the rules but not in the netlist:

cap nfet pfet nmos4 pmos4

The net-lists match.

| | layout | schematic |
|-------------|-----------|-----------|
| | instances | |
| un-matched | 0 | 0 |
| rewired | 0 | 0 |
| size errors | 0 | 0 |

| | | |
|--------|-----|-----|
| pruned | 0 | 0 |
| active | 256 | 256 |
| total | 256 | 256 |

nets

| | | |
|------------|-----|-----|
| un-matched | 0 | 0 |
| merged | 0 | 0 |
| pruned | 0 | 0 |
| active | 126 | 126 |
| total | 126 | 126 |

terminals

| | | |
|-------------------------------|----|----|
| un-matched | 0 | 0 |
| matched but different type | 0 | 0 |
| total | 14 | 14 |

Probe files from /gaia/class/student/patelra/raj_cadence/LVS/schematic

devbad.out:

netbad.out:

mergenet.out:

termbad.out:

prunenet.out:

prunedev.out:

audit.out:

Probe files from /gaia/class/student/patelra/raj_cadence/LVS/layout

devbad.out:

netbad.out:

mergenet.out:

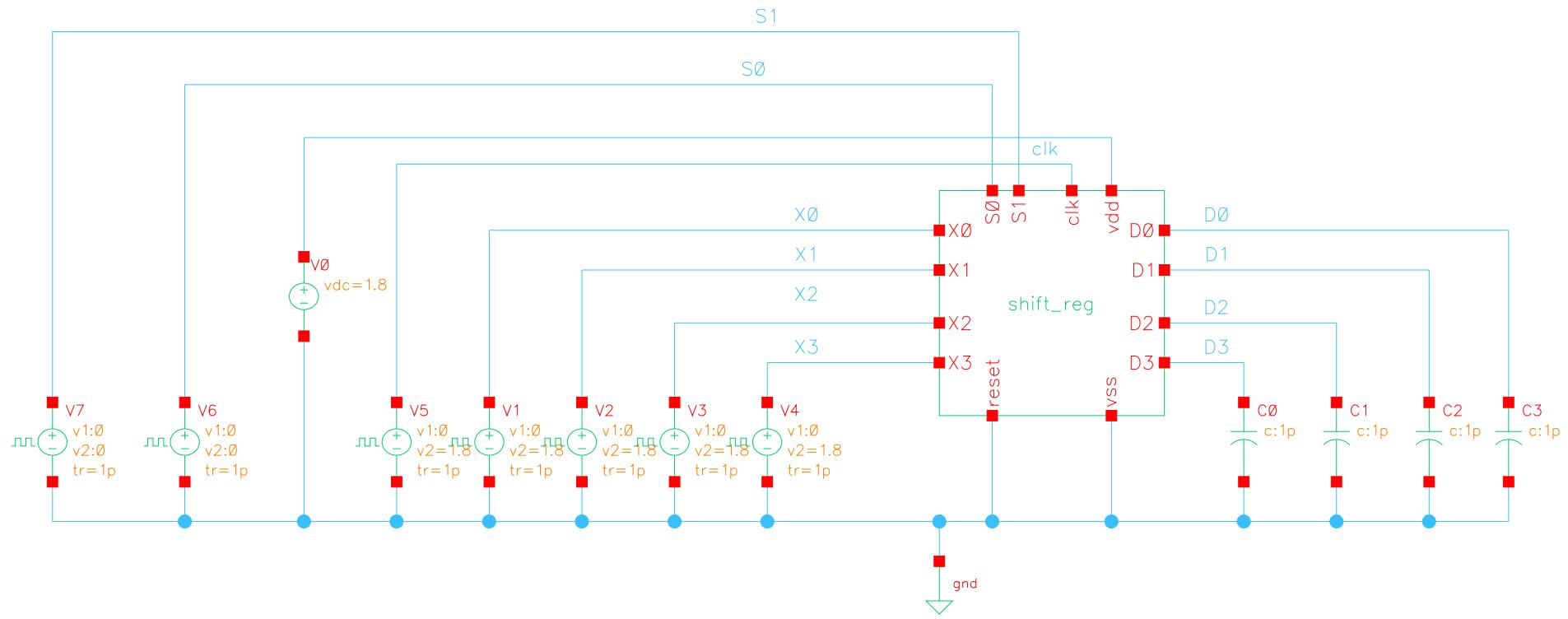
termbad.out:

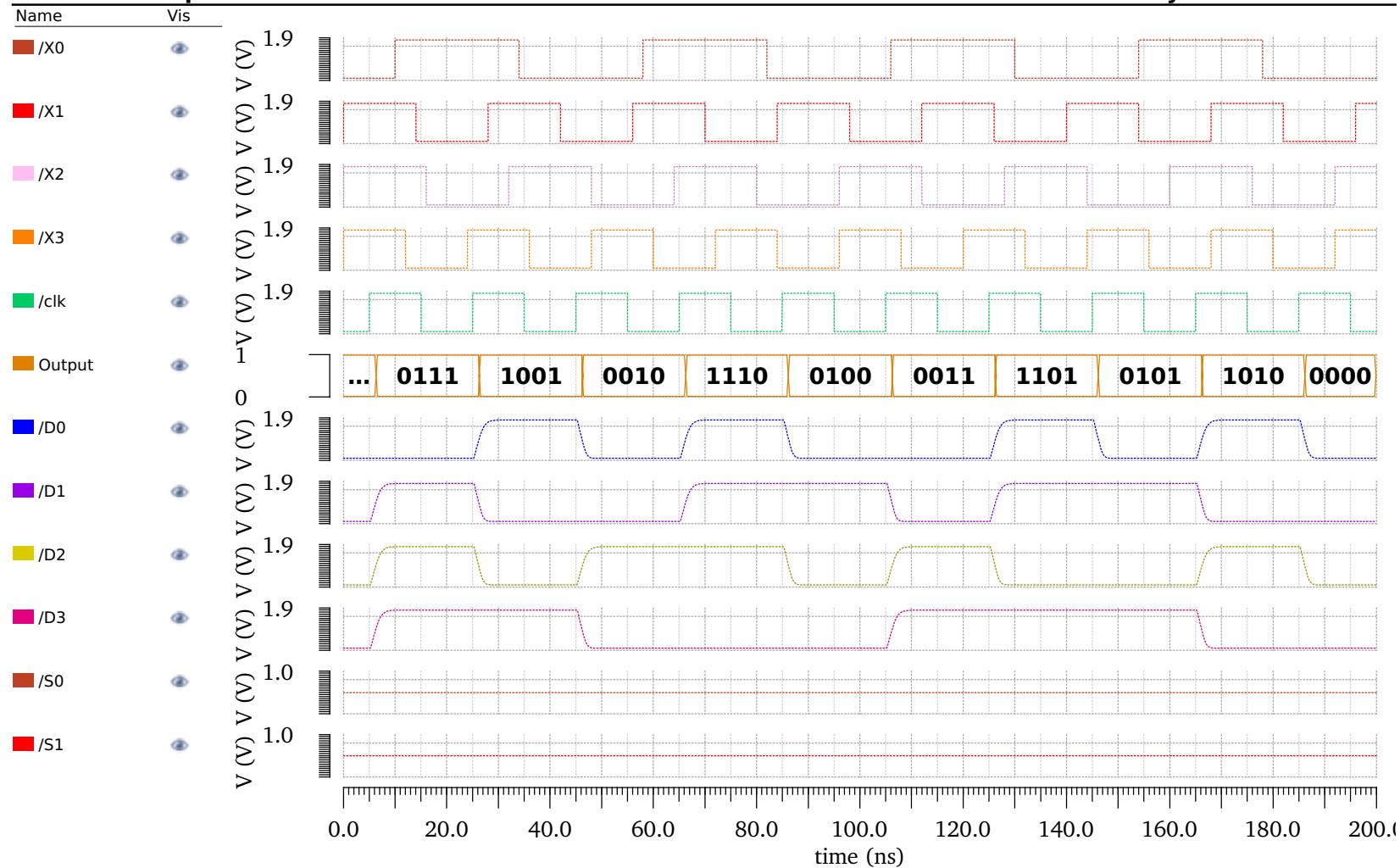
prunenet.out:

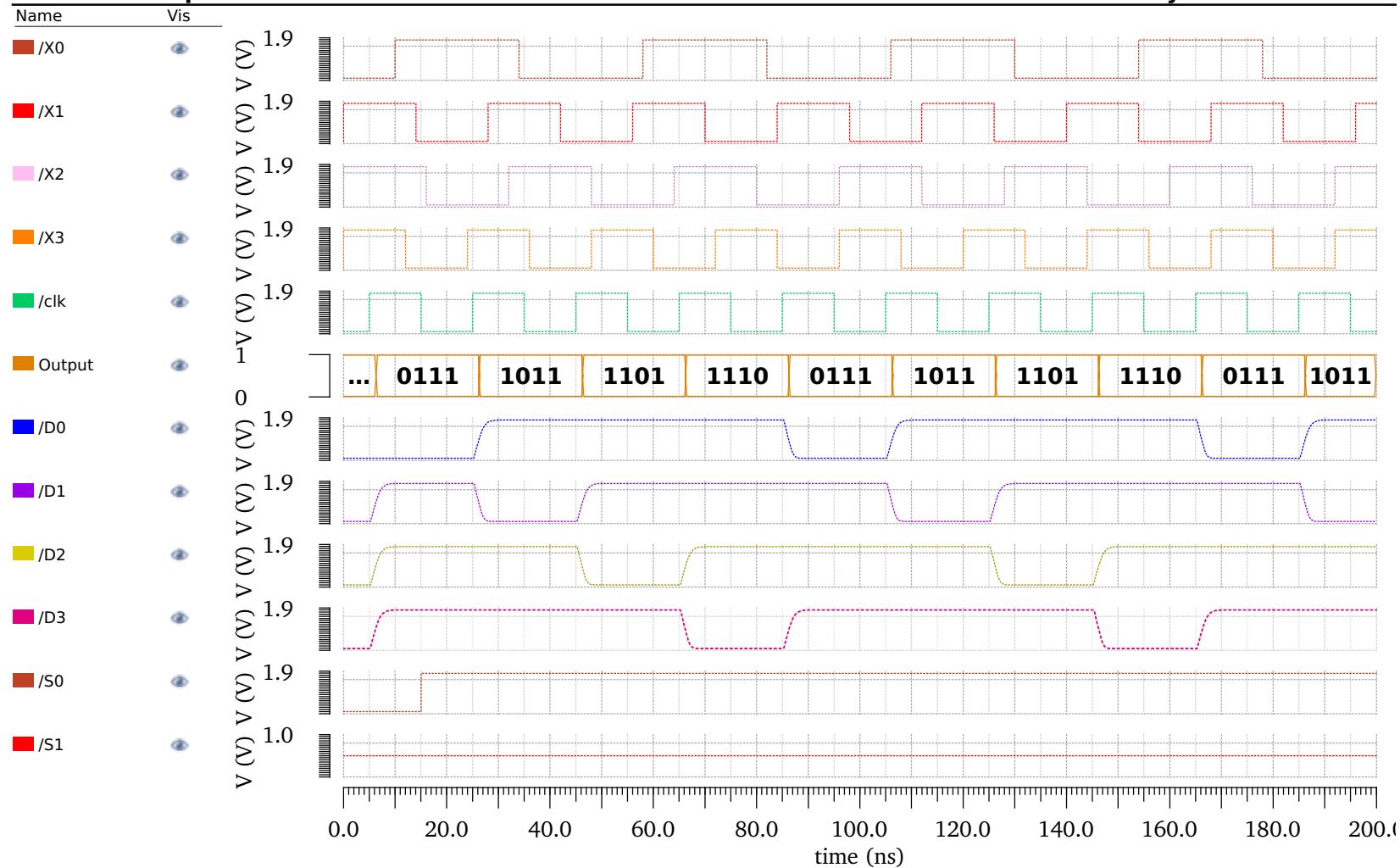
prunedev.out:

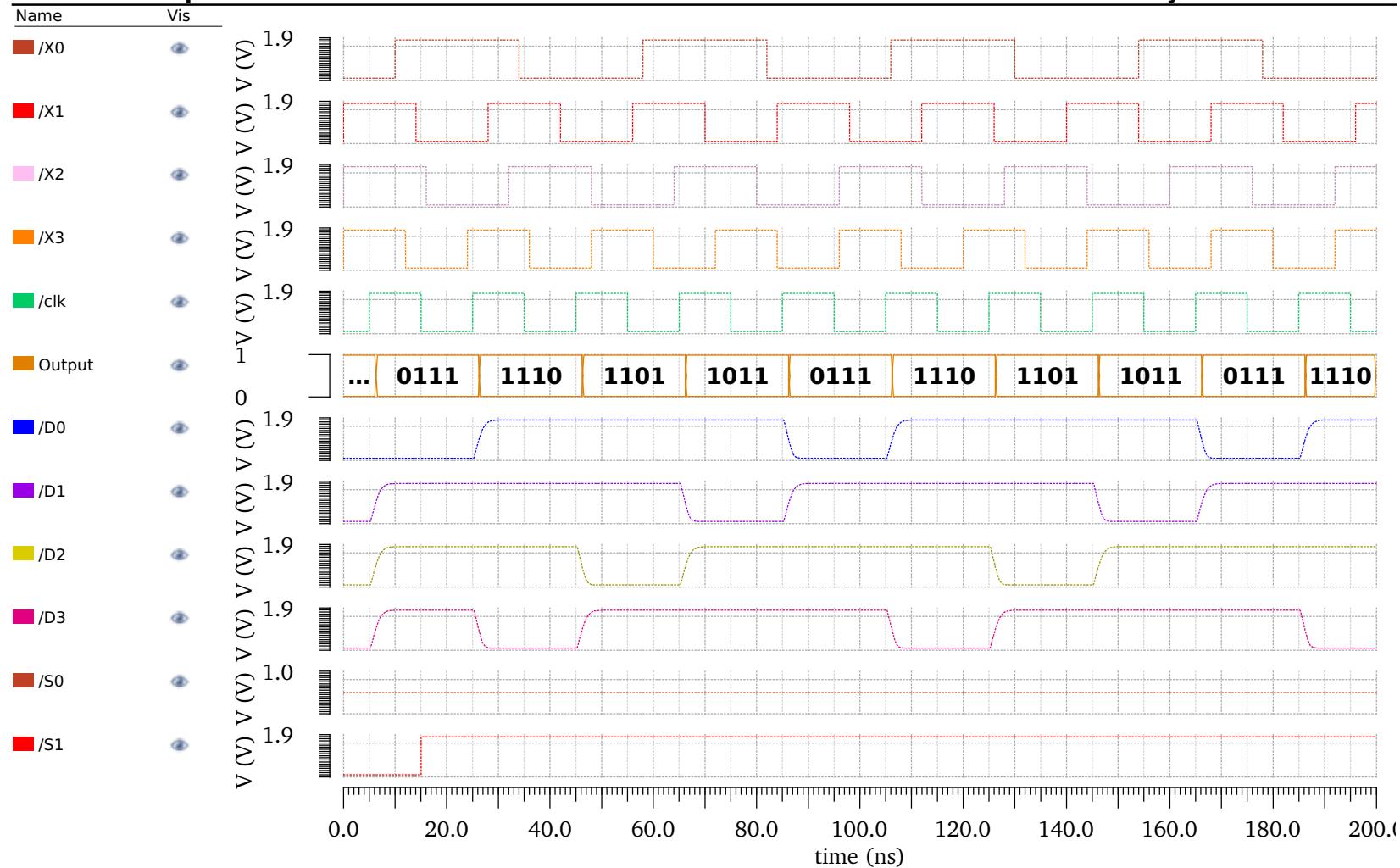
audit.out:

2.3 Shift Register Test Bench



Transient Response**Sat May 4 18:49:32 2019**

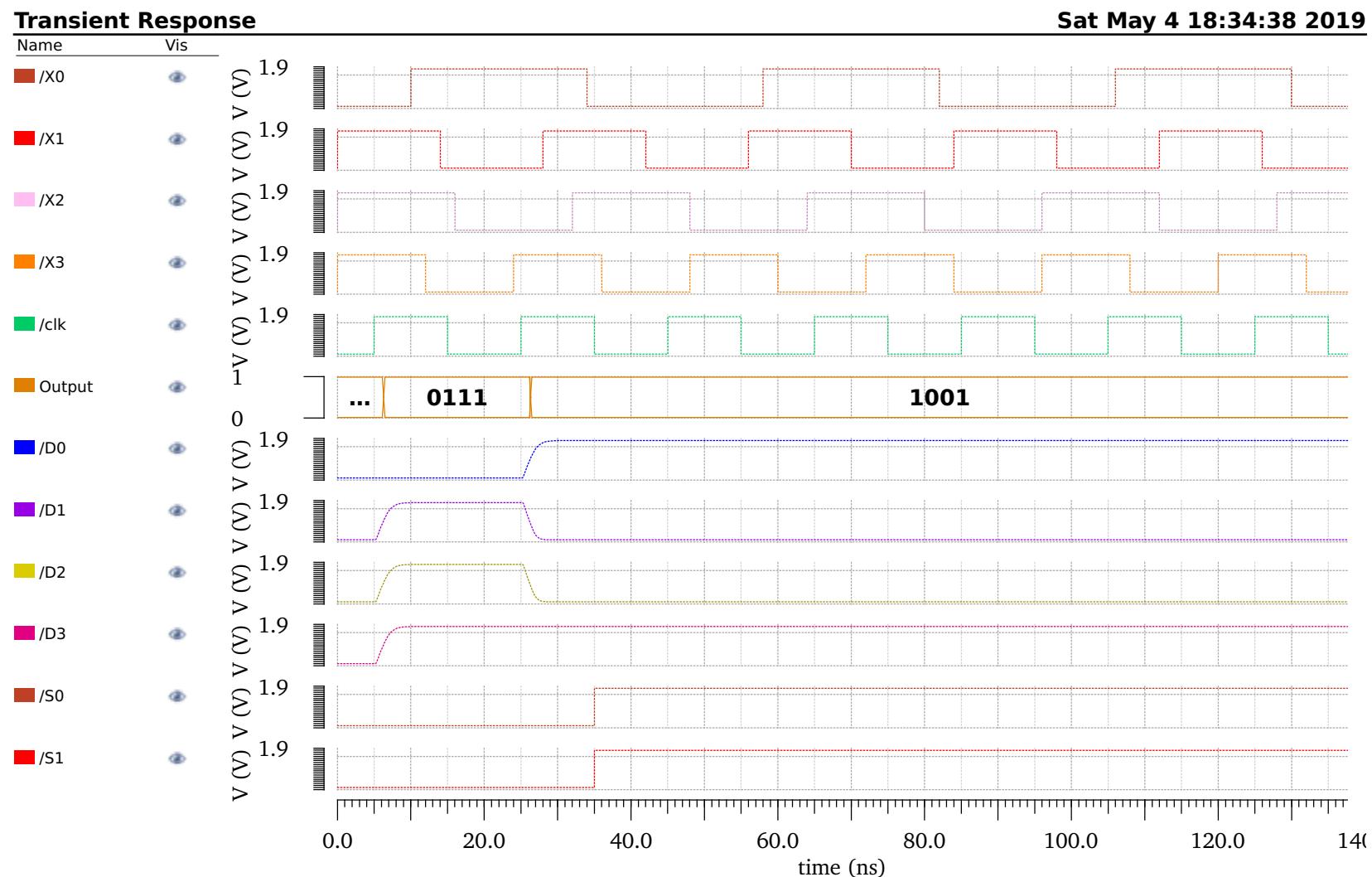
Transient Response**Sat May 4 18:46:37 2019**

Transient Response**Sat May 4 18:43:46 2019**

2.7 Shift Register Post-Layout Simulation (sel=11)

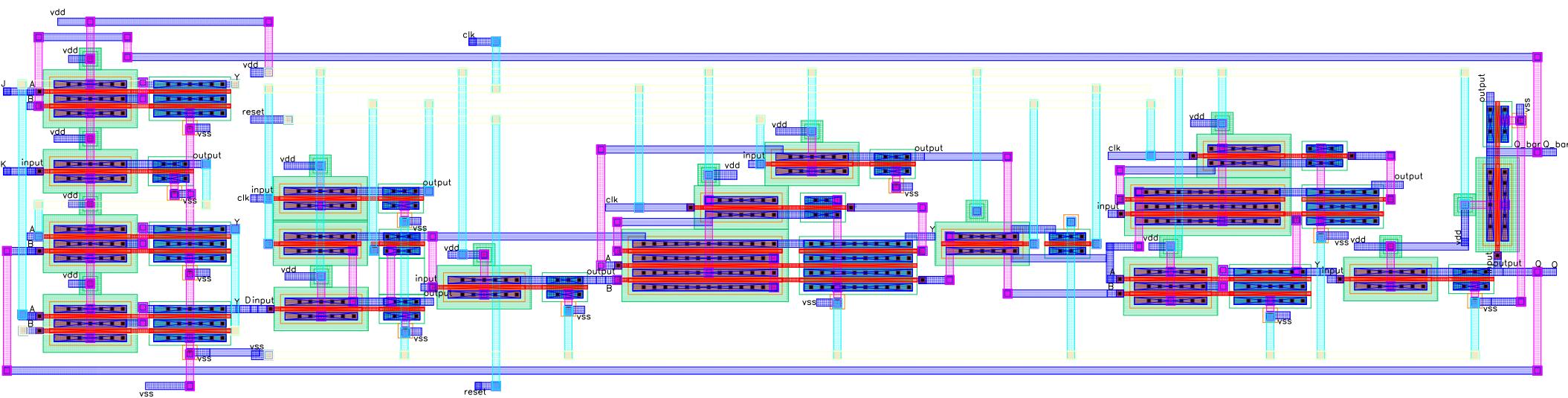
project2:shift_register_4bit_test:1 : project2 shift_register_4bit_test schematic

18:40:26 Sat May 4 2019



3 JK Flip Flip

3.1 Layout



3.2 JK Flip-Flop - LVS Output

@(#) \$CDS: LVS version 6.1.7-64b 09/27/2016 19:41 (sjfhw305) \$

Command line: /software/cadence/install/IC617/tools.lnx86/dfII/bin/64bit/LVS -dir
/gaia/class/student/patelra/raj_cadence/LVS -l -s -t /gaia/class/student/patelra/raj_cadence/LVS/layout
/gaia/class/student/patelra/raj_cadence/LVS/schematic

Like matching is enabled.

Net swapping is enabled.

Using terminal names as correspondence points.

Compiling Diva LVS rules...

Net-list summary for /gaia/class/student/patelra/raj_cadence/LVS/layout/netlist

| count | |
|-------|-----------|
| 30 | nets |
| 8 | terminals |
| 24 | pmos |
| 24 | nmos |

Net-list summary for /gaia/class/student/patelra/raj_cadence/LVS/schematic/netlist

| count | |
|-------|-----------|
| 30 | nets |
| 8 | terminals |
| 24 | pmos |
| 24 | nmos |

Terminal correspondence points

| | | |
|-----|-----|-------|
| N27 | N4 | J |
| N26 | N6 | K |
| N24 | N3 | Q |
| N25 | N2 | Q_bar |
| N28 | N7 | clk |
| N29 | N9 | reset |
| N22 | N8 | vdd |
| N23 | N10 | vss |

Devices in the netlist but not in the rules:

pcapacitor

Devices in the rules but not in the netlist:

cap nfet pfet nmos4 pmos4

The net-lists match.

| | layout | schematic |
|-------------|-----------|-----------|
| | instances | |
| un-matched | 0 | 0 |
| rewired | 0 | 0 |
| size errors | 0 | 0 |
| pruned | 0 | 0 |
| active | 48 | 48 |
| total | 48 | 48 |

| | nets | |
|------------|------|---|
| un-matched | 0 | 0 |

| | | |
|--------|----|----|
| merged | 0 | 0 |
| pruned | 0 | 0 |
| active | 30 | 30 |
| total | 30 | 30 |

| | | |
|-------------------------------|---|---|
| terminals | | |
| un-matched | 0 | 0 |
| matched but different type | 0 | 0 |
| total | 8 | 8 |

Probe files from /gaia/class/student/patelra/raj_cadence/LVS/schematic

devbad.out:

netbad.out:

mergenet.out:

termbad.out:

prunenet.out:

prunedev.out:

audit.out:

Probe files from /gaia/class/student/patelra/raj_cadence/LVS/layout

devbad.out:

netbad.out:

mergenet.out:

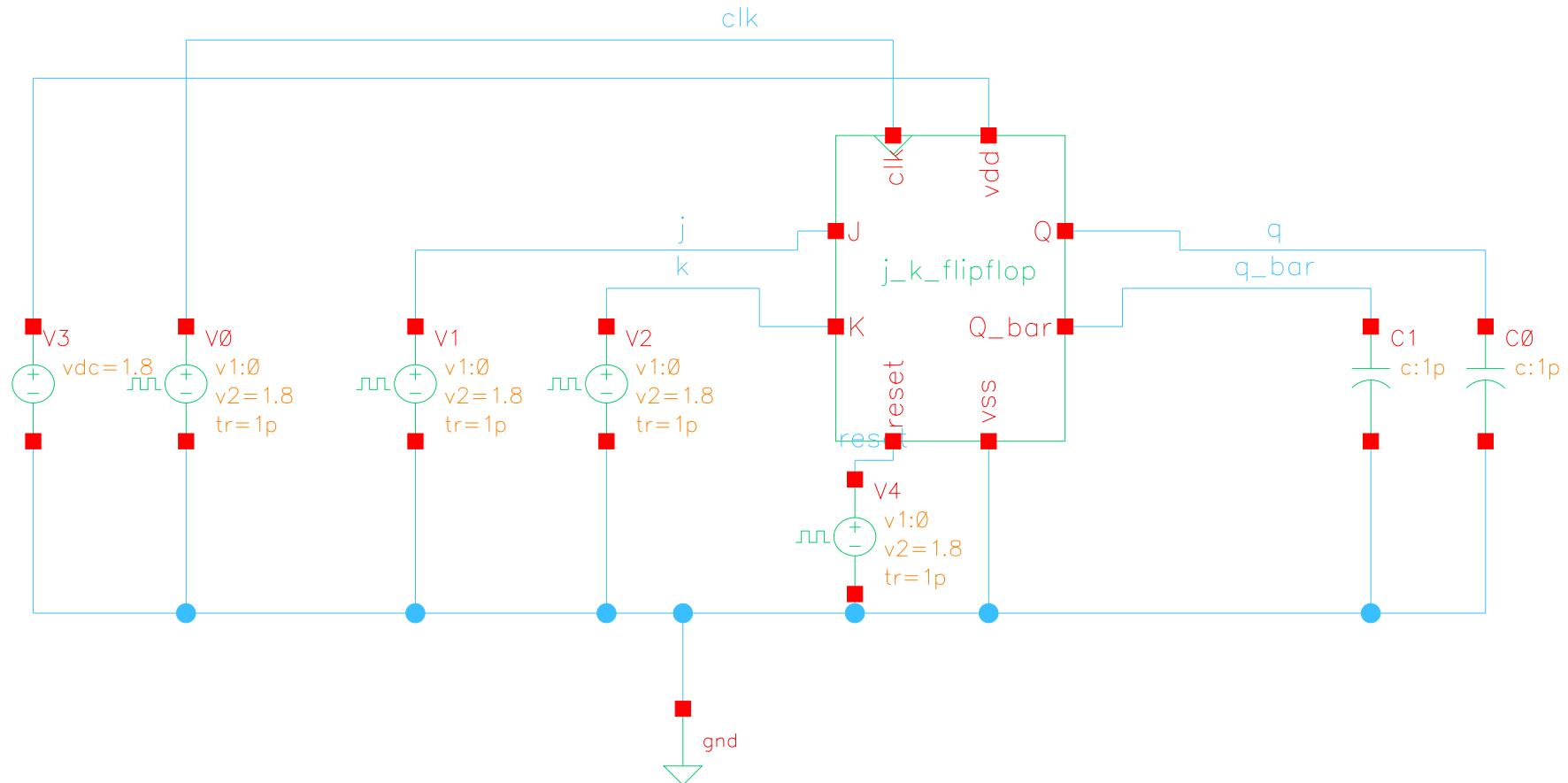
termbad.out:

prunenet.out:

prunedev.out:

audit.out:

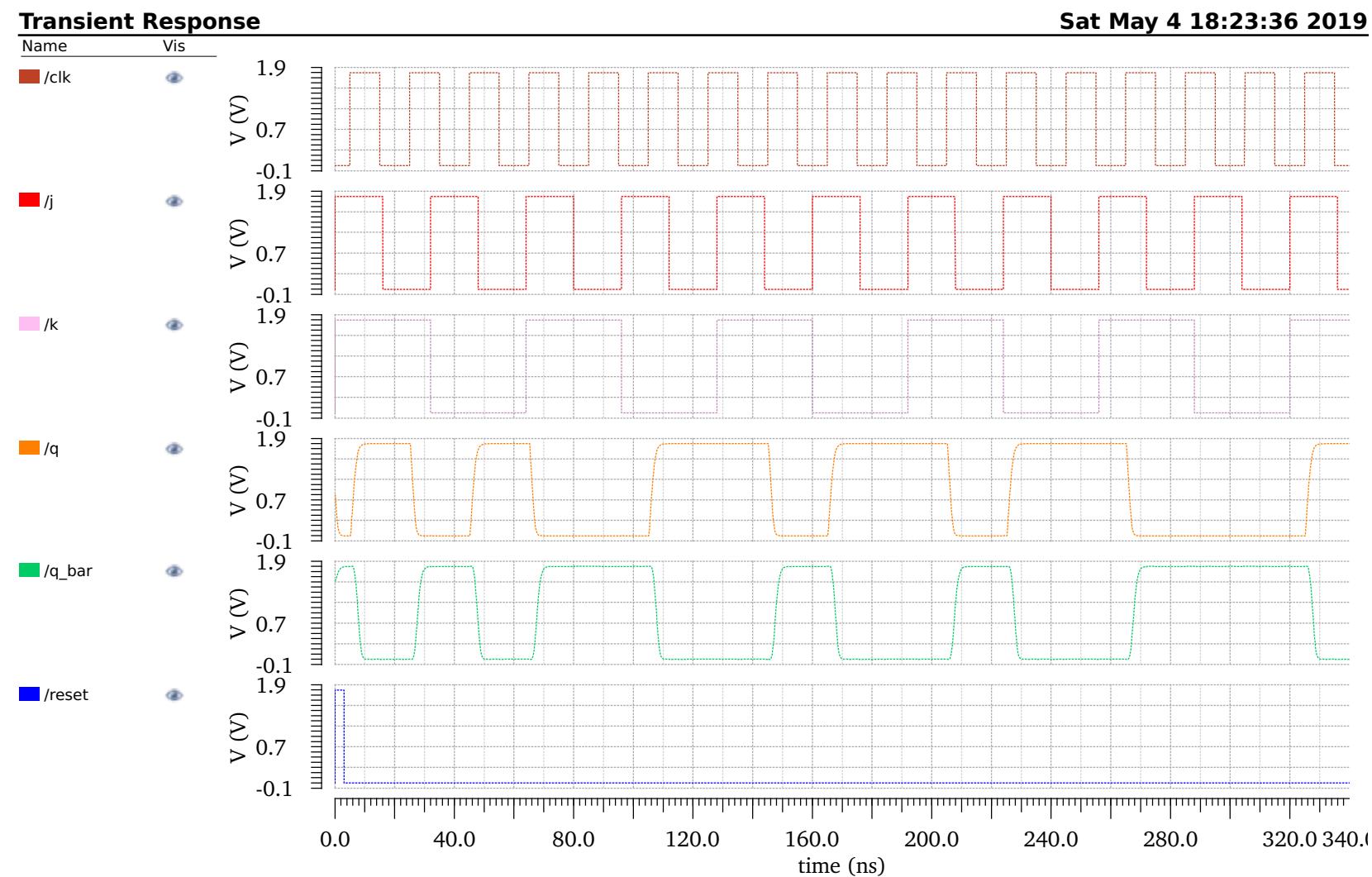
3.3 JK Flip Flop Test Bench



3.4 JK Flip Flop Post Layout Simulation

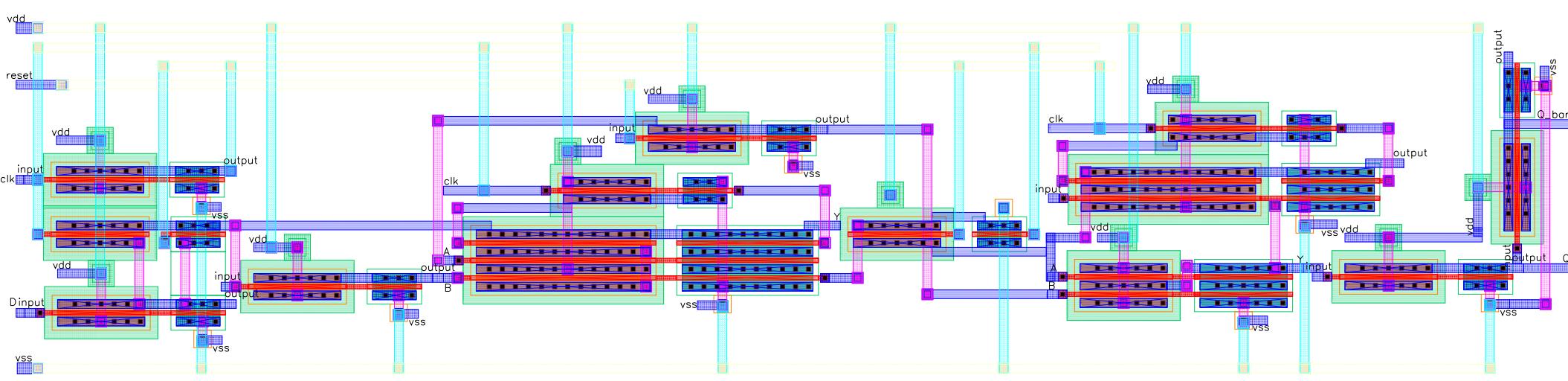
project2:jk_flipflop_test:1 : project2 jk_flipflop_test schematic

18:26:17 Sat May 4 2019



4 D Flip Flop

4.1 Layout



4.2 D Flip-Flop - LVS Output

@(#) \$CDS: LVS version 6.1.7-64b 09/27/2016 19:41 (sjfhw305) \$

Command line: /software/cadence/install/IC617/tools.lnx86/dfII/bin/64bit/LVS -dir /gaia/class/student/patelra/raj_cadence/LVS -l -s -t /gaia/class/student/patelra/raj_cadence/LVS/layout /gaia/class/student/patelra/raj_cadence/LVS/schematic

Like matching is enabled.

Net swapping is enabled.

Using terminal names as correspondence points.

Compiling Diva LVS rules...

Net-list summary for /gaia/class/student/patelra/raj_cadence/LVS/layout/netlist

| count | |
|-------|-----------|
| 22 | nets |
| 7 | terminals |
| 17 | pmos |
| 17 | nmos |

Net-list summary for /gaia/class/student/patelra/raj_cadence/LVS/schematic/netlist

| count | |
|-------|-----------|
| 22 | nets |
| 7 | terminals |
| 17 | pmos |
| 17 | nmos |

Terminal correspondence points

| | | |
|-----|-----|-------|
| N19 | N9 | D |
| N17 | N11 | Q |
| N18 | N5 | Q_bar |
| N20 | N0 | clk |
| N21 | N12 | reset |
| N15 | N7 | vdd |
| N16 | N10 | vss |

Devices in the netlist but not in the rules:

pcapacitor

Devices in the rules but not in the netlist:

cap nfet pfet nmos4 pmos4

The net-lists match.

| | layout | schematic |
|-------------|-----------|-----------|
| | instances | |
| un-matched | 0 | 0 |
| rewired | 0 | 0 |
| size errors | 0 | 0 |
| pruned | 0 | 0 |
| active | 34 | 34 |
| total | 34 | 34 |

| | nets |
|------------|------|
| un-matched | 0 |
| merged | 0 |

| | | |
|--------|----|----|
| pruned | 0 | 0 |
| active | 22 | 22 |
| total | 22 | 22 |

| | | |
|-------------------------------|-----------|---|
| | terminals | |
| un-matched | 0 | 0 |
| matched but different type | 0 | 0 |
| total | 7 | 7 |

Probe files from /gaia/class/student/patelra/raj_cadence/LVS/schematic

devbad.out:

netbad.out:

mergenet.out:

termbad.out:

prunenet.out:

prunedev.out:

audit.out:

Probe files from /gaia/class/student/patelra/raj_cadence/LVS/layout

devbad.out:

netbad.out:

mergenet.out:

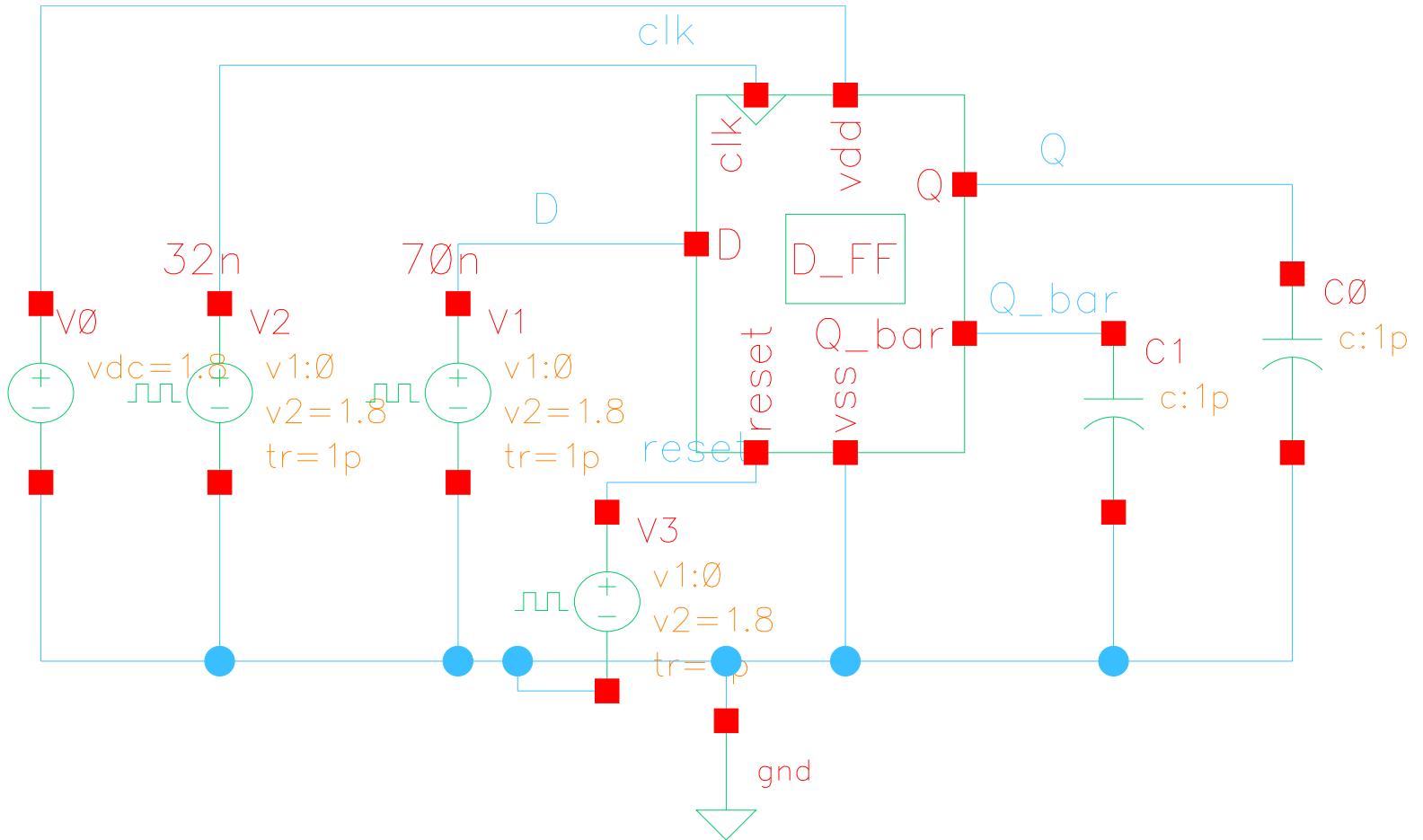
termbad.out:

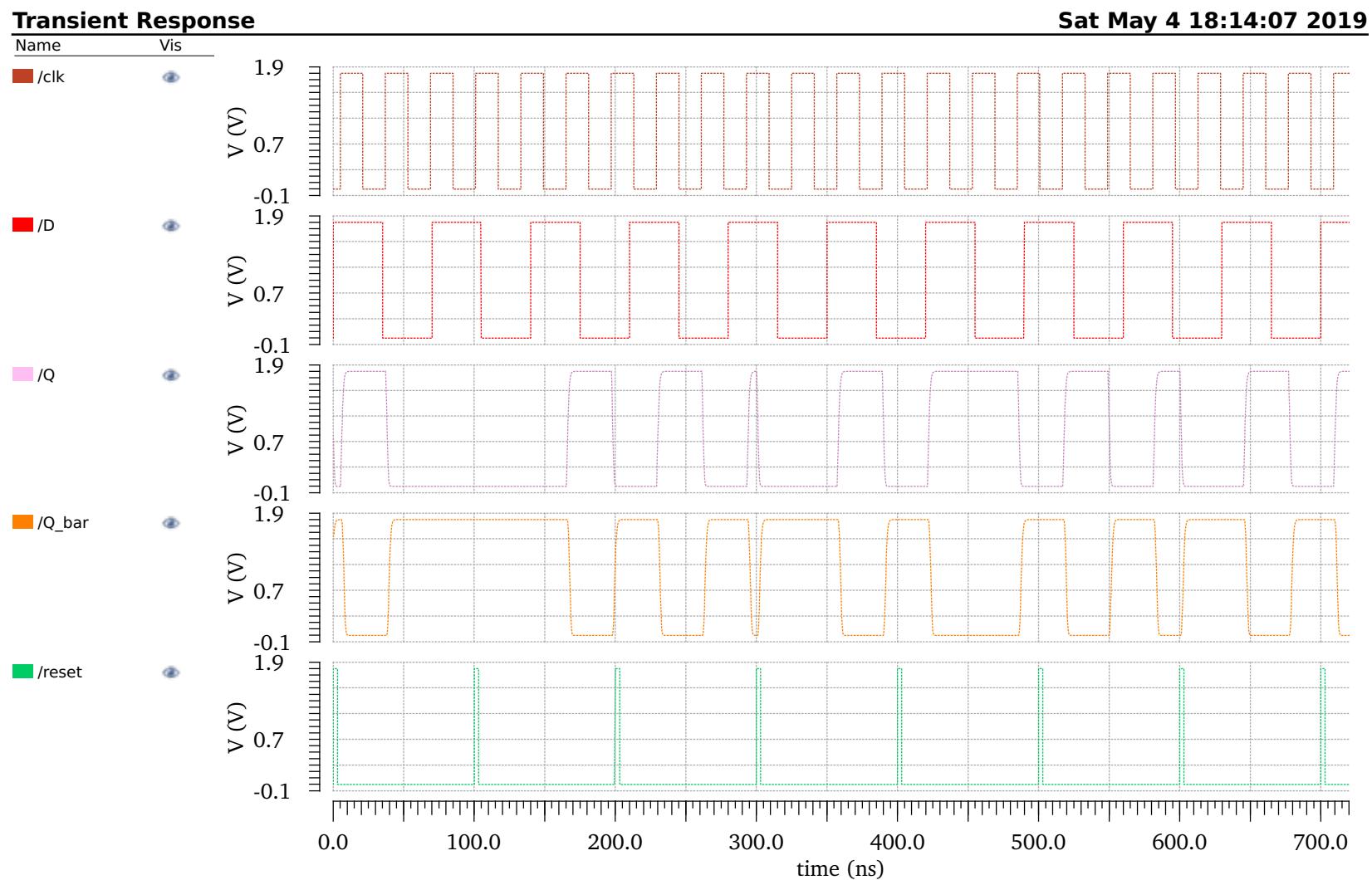
prunenet.out:

prunedev.out:

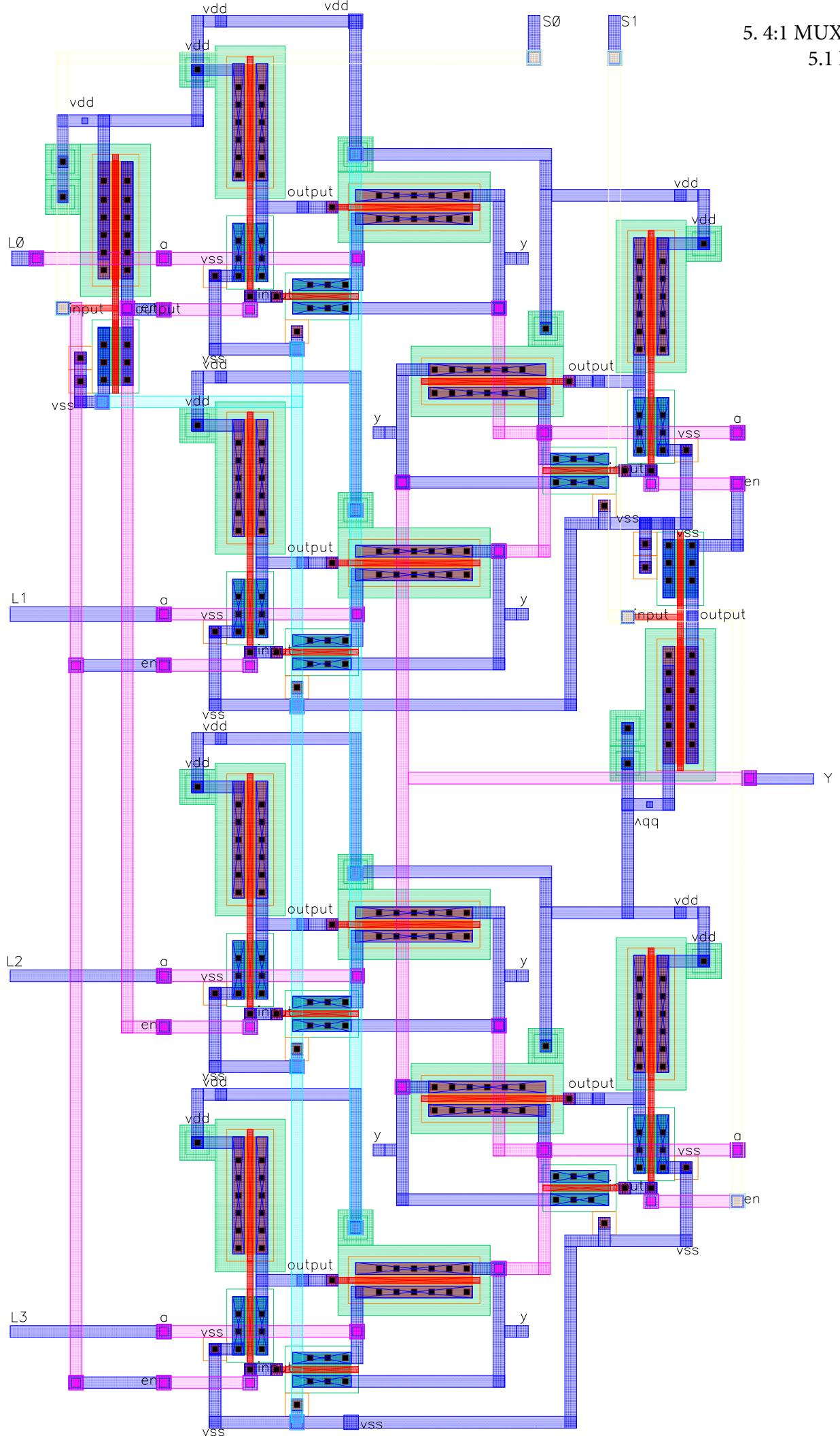
audit.out:

4.3 D Flip Flop Test Bench





5. 4:1 MUX
5.1 Layout



5.2 4:1 Mux - LVS Output

@(#) \$CDS: LVS version 6.1.7-64b 09/27/2016 19:41 (sjfhw305) \$

Command line: /software/cadence/install/IC617/tools.lnx86/dfII/bin/64bit/LVS -dir
/gaia/class/student/patelra/raj_cadence/LVS -l -s -t /gaia/class/student/patelra/raj_cadence/LVS/layout
/gaia/class/student/patelra/raj_cadence/LVS/schematic

Like matching is enabled.

Net swapping is enabled.

Using terminal names as correspondence points.

Compiling Diva LVS rules...

Net-list summary for /gaia/class/student/patelra/raj_cadence/LVS/layout/netlist

| count | |
|-------|-----------|
| 19 | nets |
| 9 | terminals |
| 14 | pmos |
| 14 | nmos |

Net-list summary for /gaia/class/student/patelra/raj_cadence/LVS/schematic/netlist

| count | |
|-------|-----------|
| 19 | nets |
| 9 | terminals |
| 14 | pmos |
| 14 | nmos |

Terminal correspondence points

| | | |
|-----|-----|-----|
| N18 | N7 | L0 |
| N17 | N10 | L1 |
| N16 | N5 | L2 |
| N15 | N12 | L3 |
| N11 | N6 | S0 |
| N10 | N11 | S1 |
| N13 | N9 | Y |
| N12 | N1 | vdd |
| N14 | N2 | vss |

Devices in the netlist but not in the rules:

pcapacitor

Devices in the rules but not in the netlist:

cap nfet pfet nmos4 pmos4

The net-lists match.

| | layout | schematic |
|-------------|-----------|-----------|
| | instances | |
| un-matched | 0 | 0 |
| rewired | 0 | 0 |
| size errors | 0 | 0 |
| pruned | 0 | 0 |
| active | 28 | 28 |
| total | 28 | 28 |

nets

| | | |
|------------|----|----|
| un-matched | 0 | 0 |
| merged | 0 | 0 |
| pruned | 0 | 0 |
| active | 19 | 19 |
| total | 19 | 19 |

| | | |
|-------------------------------|-----------|---|
| | terminals | |
| un-matched | 0 | 0 |
| matched but different type | 0 | 0 |
| total | 9 | 9 |

Probe files from /gaia/class/student/patelra/raj_cadence/LVS/schematic

devbad.out:

netbad.out:

mergenet.out:

termbad.out:

prunenet.out:

prunedev.out:

audit.out:

Probe files from /gaia/class/student/patelra/raj_cadence/LVS/layout

devbad.out:

netbad.out:

mergenet.out:

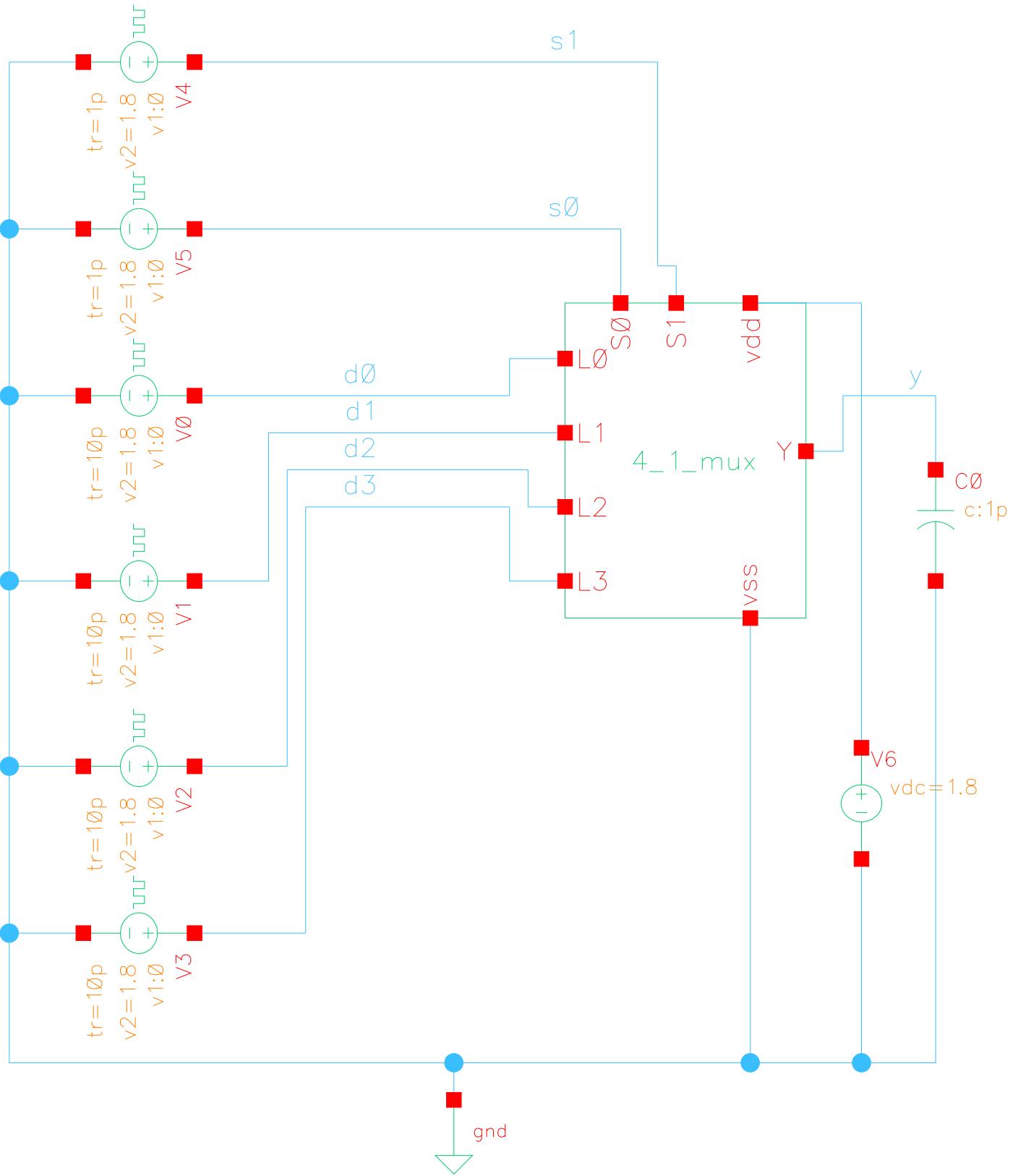
termbad.out:

prunenet.out:

prunedev.out:

audit.out:

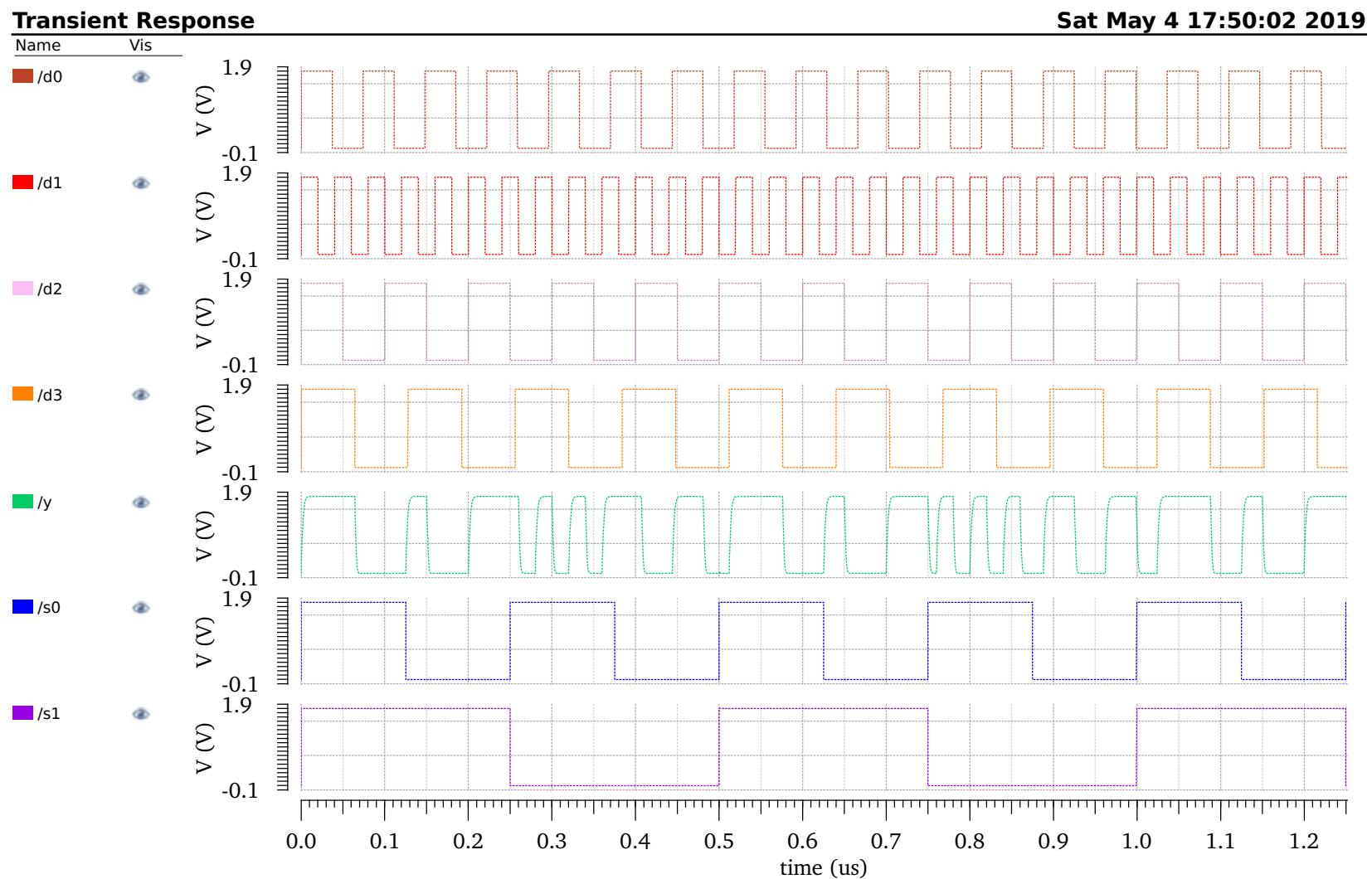
5.3 MUX Test Bench



5.4 MUX Post Layout Simulation

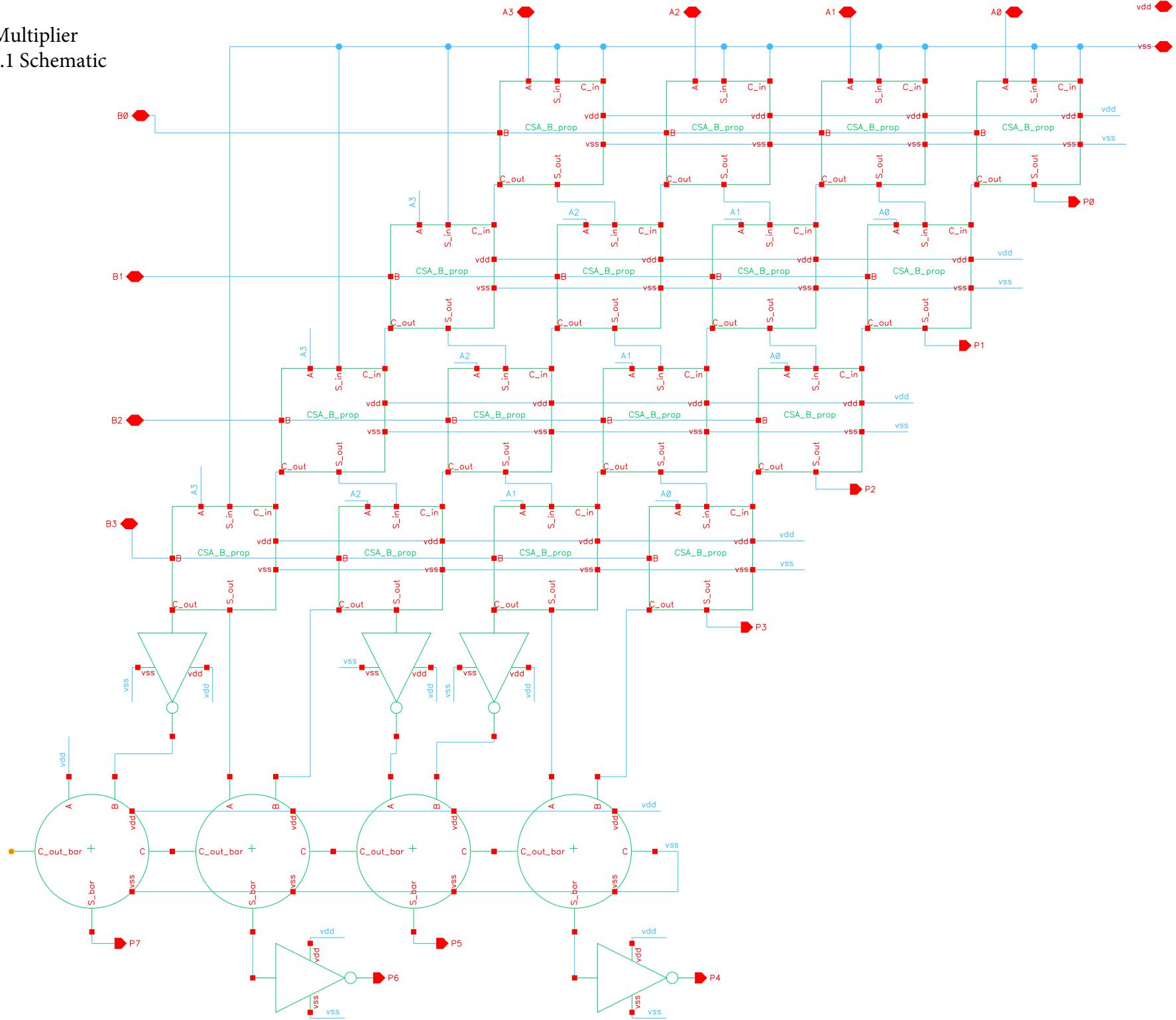
project1:mux_4_1_test:1 : logic_gates_test 4_1_mux_test schematic

17:53:51 Sat May 4 2019

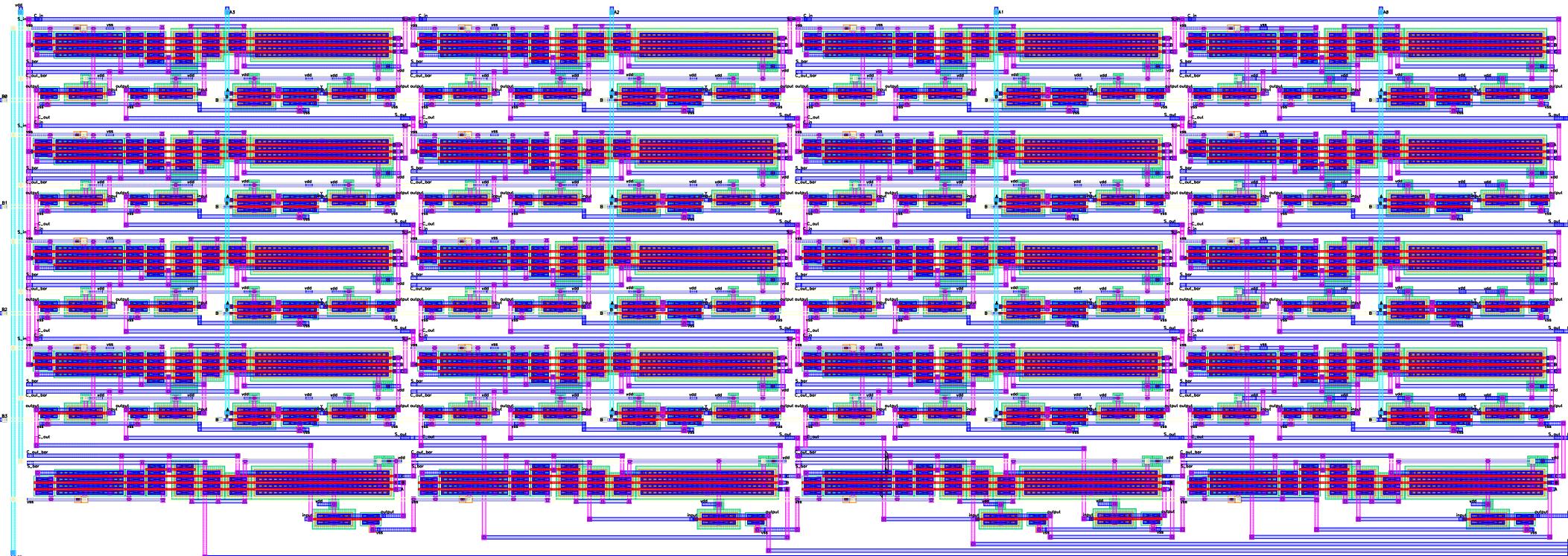


6. 4-bit Multiplier

6.1 Schematic



6.2 4-bit Multiplier Layout



6.3 Multiplier LVS

@(#) \$CDS: LVS version 6.1.7-64b 09/27/2016 19:41 (sjfhw305) \$

Command line: /software/cadence/install/IC617/tools.lnx86/dfII/bin/64bit/LVS -dir
/gaia/class/student/patelra/raj_cadence/LVS -l -s -t /gaia/class/student/patelra/raj_cadence/LVS/layout
/gaia/class/student/patelra/raj_cadence/LVS/schematic

Like matching is enabled.

Net swapping is enabled.

Using terminal names as correspondence points.

Net-list summary for /gaia/class/student/patelra/raj_cadence/LVS/layout/netlist

| count | |
|-------|-----------|
| 335 | nets |
| 18 | terminals |
| 325 | pmos |
| 325 | nmos |

Net-list summary for /gaia/class/student/patelra/raj_cadence/LVS/schematic/netlist

| count | |
|-------|-----------|
| 335 | nets |
| 18 | terminals |
| 325 | pmos |
| 325 | nmos |

Terminal correspondence points

| | | |
|------|-----|-----|
| N320 | N50 | A0 |
| N319 | N42 | A1 |
| N318 | N41 | A2 |
| N317 | N37 | A3 |
| N334 | N26 | B0 |
| N333 | N28 | B1 |
| N332 | N39 | B2 |
| N331 | N35 | B3 |
| N330 | N5 | P0 |
| N329 | N47 | P1 |
| N328 | N36 | P2 |
| N327 | N48 | P3 |
| N326 | N31 | P4 |
| N325 | N43 | P5 |
| N324 | N46 | P6 |
| N323 | N45 | P7 |
| N321 | N51 | vdd |
| N322 | N52 | vss |

Devices in the netlist but not in the rules:

pcapacitor pmos nmos

16 net-list ambiguities were resolved by random selection.

The net-lists match.

layout schematic
instances

| | | |
|-------------|-----|-----|
| un-matched | 0 | 0 |
| rewired | 0 | 0 |
| size errors | 0 | 0 |
| pruned | 0 | 0 |
| active | 650 | 650 |
| total | 650 | 650 |

nets

| | | |
|------------|-----|-----|
| un-matched | 0 | 0 |
| merged | 0 | 0 |
| pruned | 0 | 0 |
| active | 335 | 335 |
| total | 335 | 335 |

terminals

| | | |
|-------------------------------|----|----|
| un-matched | 0 | 0 |
| matched but different type | 0 | 0 |
| total | 18 | 18 |

Probe files from /gaia/class/student/patelra/raj_cadence/LVS/schematic

devbad.out:

netbad.out:

mergenet.out:

termbad.out:

prunenet.out:

prunedev.out:

audit.out:

Probe files from /gaia/class/student/patelra/raj_cadence/LVS/layout

devbad.out:

netbad.out:

mergenet.out:

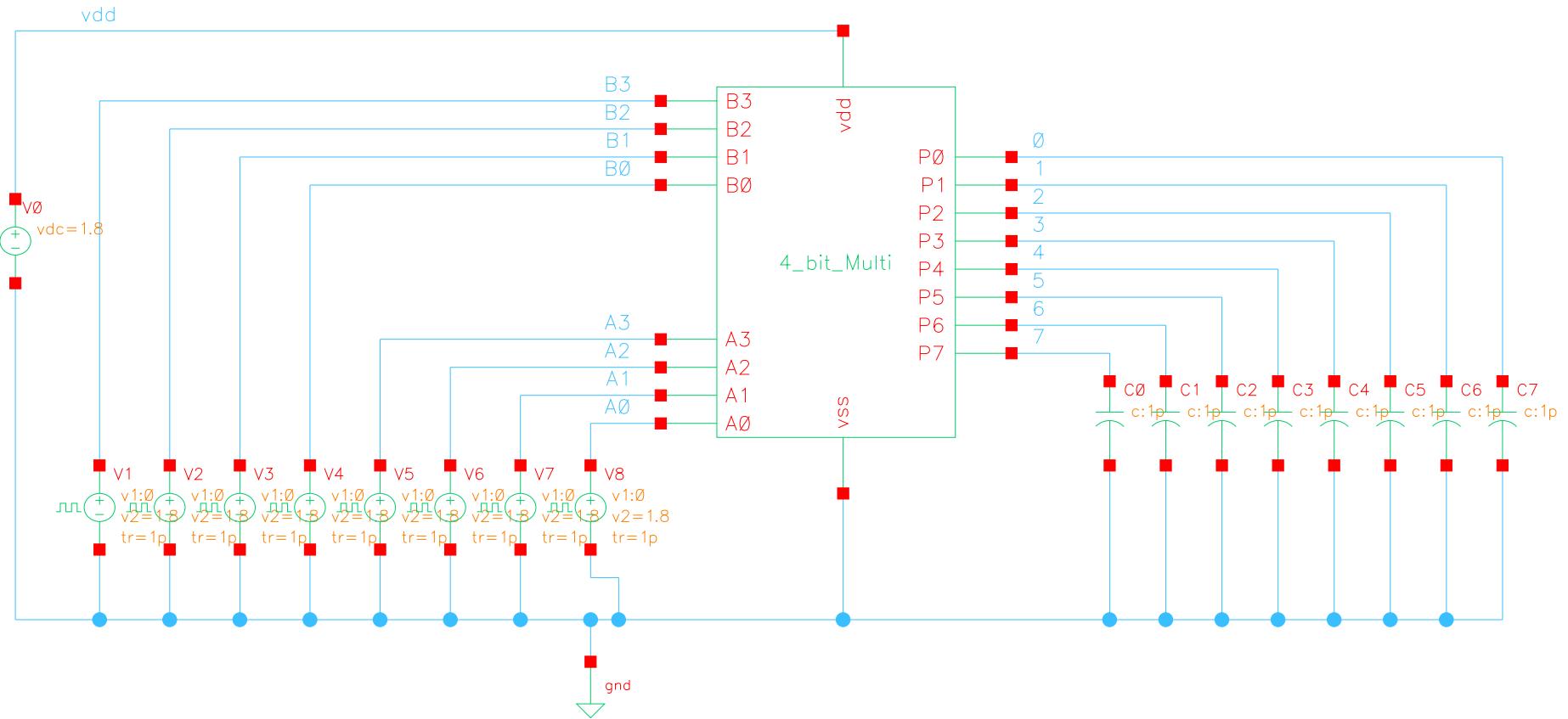
termbad.out:

prunenet.out:

prunedev.out:

audit.out:

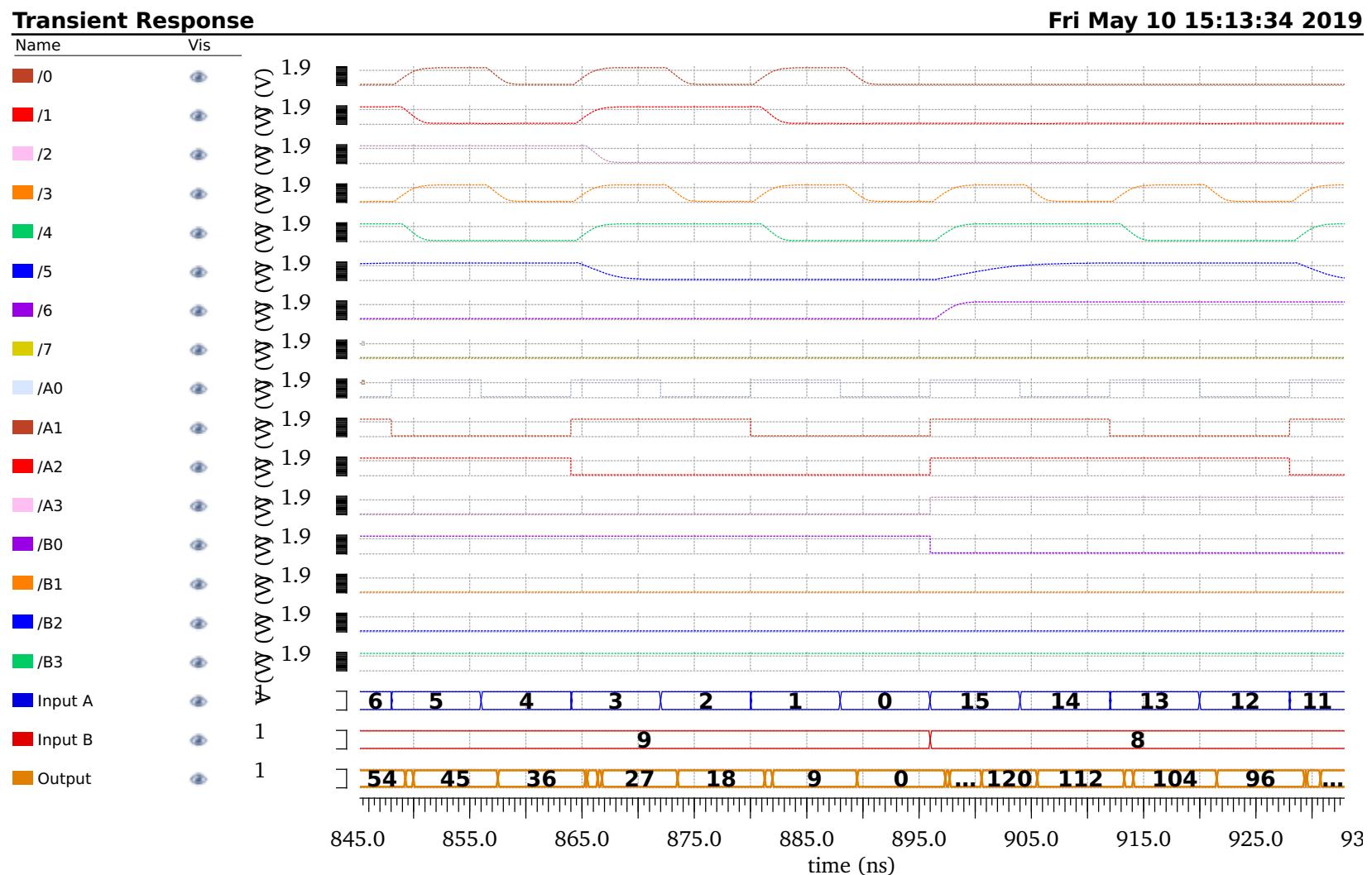
6.4 Multiplier Test Bench

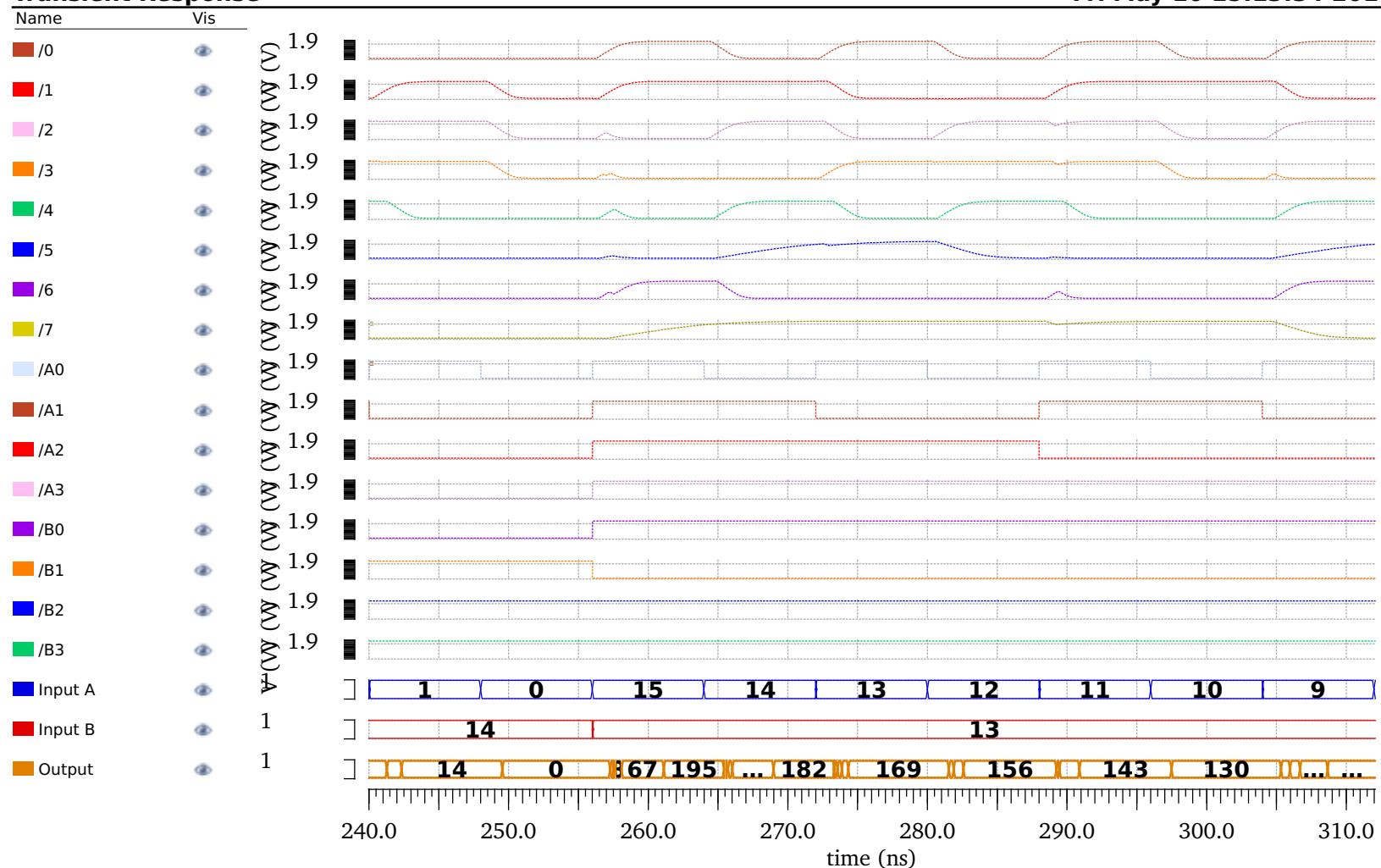


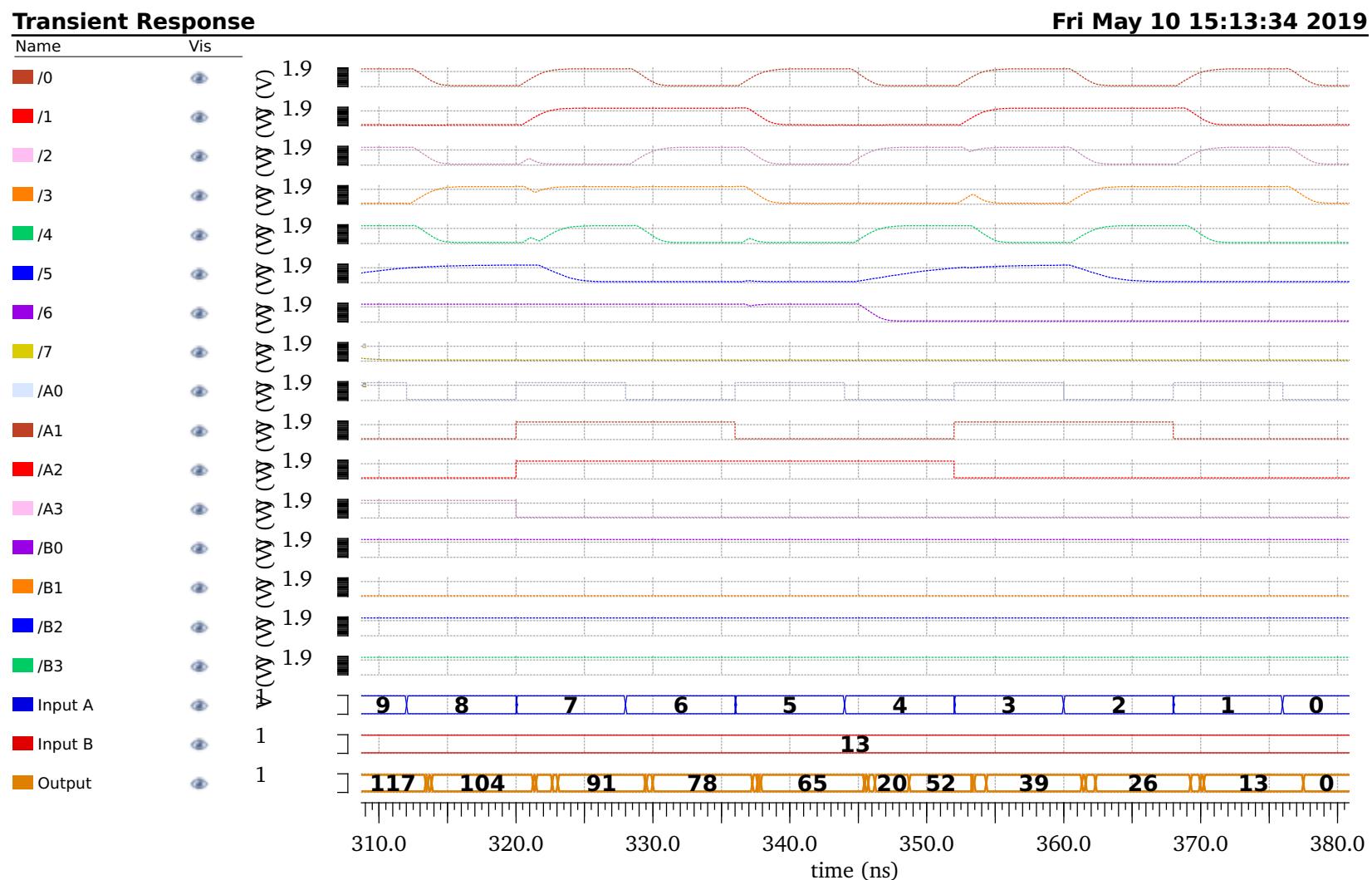
The Digital Bus is shown as Unsigned Decimal because binary was not visible in the pdf. MSB is the higher number prefix B3, A3 and 7.

project2:array_multi_4bit_test:1 : project2 array_multi_4bit_test schematic

16:09:33 Fri May 10 2019

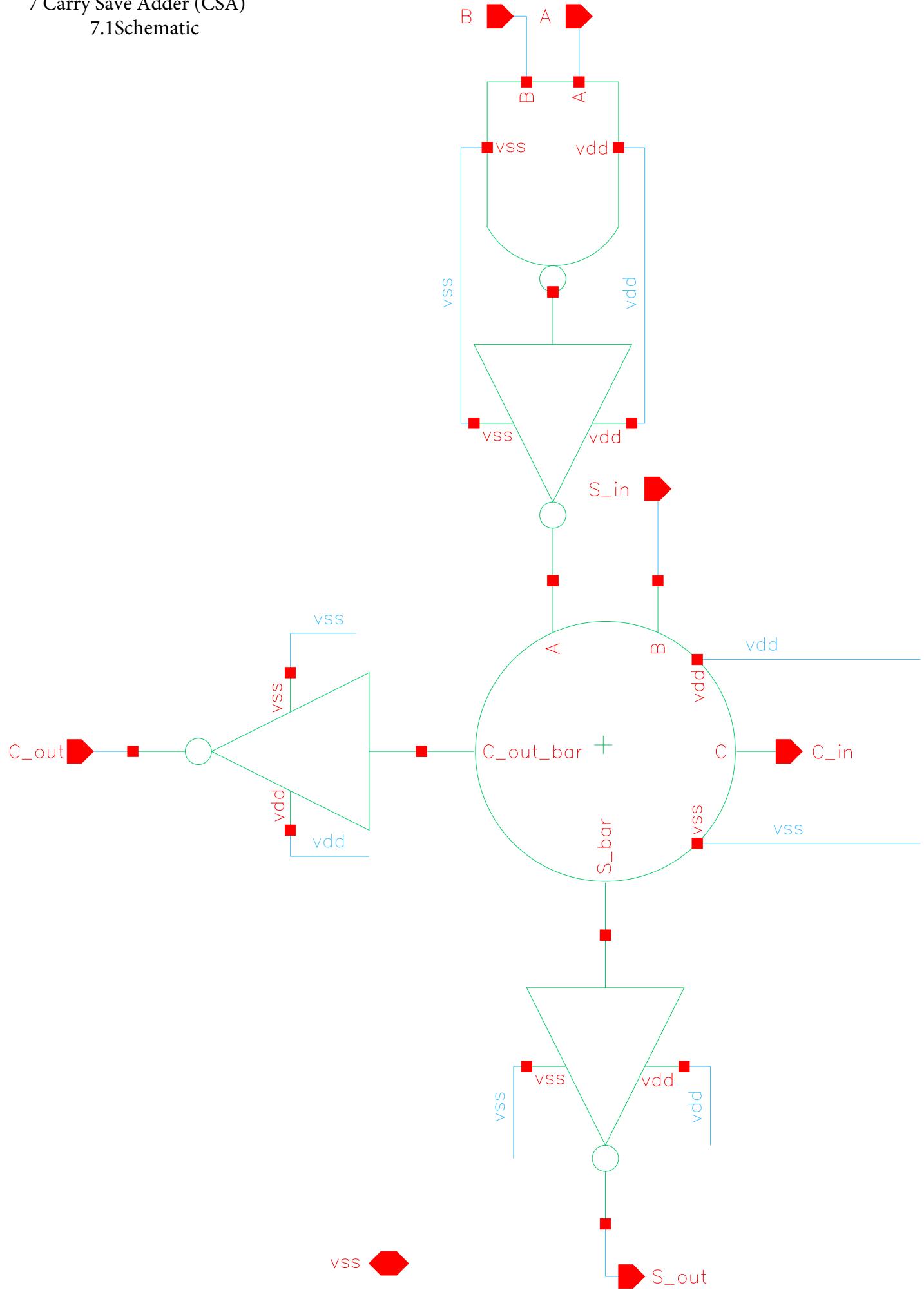


Transient Response**Fri May 10 15:13:34 2019**

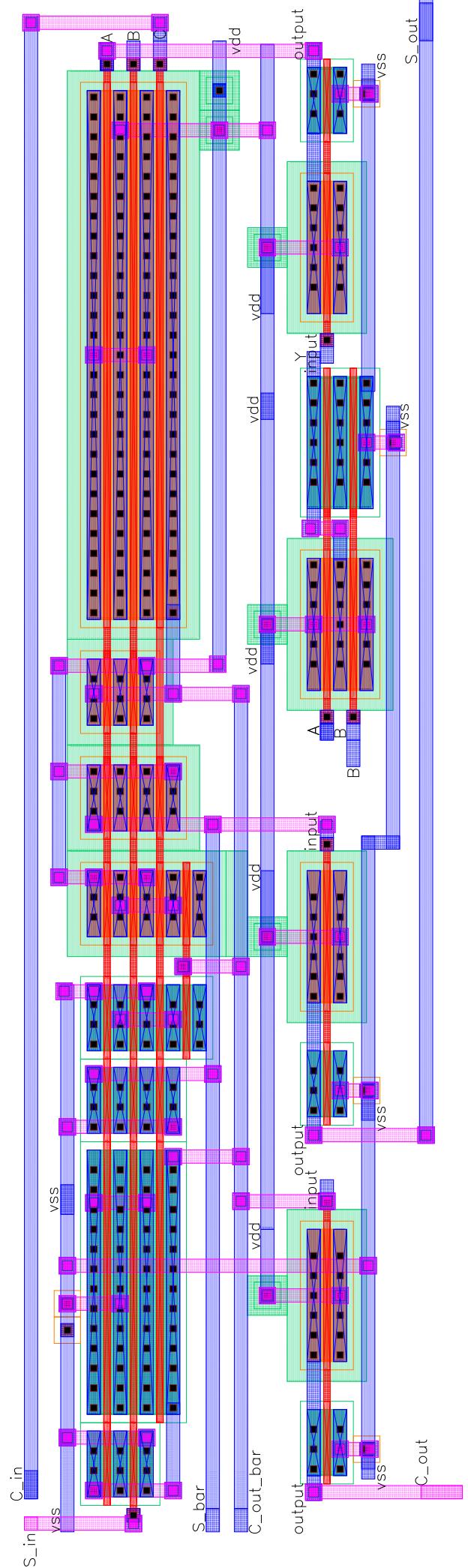


7 Carry Save Adder (CSA)

7.1 Schematic



CSA Layout



@(#) \$CDS: LVS version 6.1.7-64b 09/27/2016 19:41 (sjfhw305) \$

Command line: /software/cadence/install/IC617/tools.lnx86/dfII/bin/64bit/LVS -dir /gaia/class/student/patelra/raj_cadence/LVS -l -s -t /gaia/class/student/patelra/raj_cadence/LVS/layout /gaia/class/student/patelra/raj_cadence/LVS/schematic

Like matching is enabled.

Net swapping is enabled.

Using terminal names as correspondence points.

Compiling Diva LVS rules...

Net-list summary for /gaia/class/student/patelra/raj_cadence/LVS/layout/netlist

| | |
|-------|-----------|
| count | |
| 23 | nets |
| 8 | terminals |
| 17 | pmos |
| 17 | nmos |

Net-list summary for /gaia/class/student/patelra/raj_cadence/LVS/schematic/netlist

| | |
|-------|-----------|
| count | |
| 23 | nets |
| 8 | terminals |
| 17 | pmos |
| 17 | nmos |

Terminal correspondence points

| | | |
|-----|-----|-------|
| N22 | N5 | A |
| N21 | N7 | B |
| N19 | N11 | C_in |
| N16 | N9 | C_out |
| N18 | N2 | S_in |
| N15 | N4 | S_out |
| N17 | N8 | vdd |
| N20 | N10 | vss |

Devices in the netlist but not in the rules:

pcapacitor

Devices in the rules but not in the netlist:

cap nfet pfet nmos4 pmos4

The net-lists match.

| | layout | schematic |
|-------------|-----------|-----------|
| | instances | |
| un-matched | 0 | 0 |
| rewired | 0 | 0 |
| size errors | 0 | 0 |
| pruned | 0 | 0 |
| active | 34 | 34 |
| total | 34 | 34 |

| | nets | |
|------------|------|---|
| un-matched | 0 | 0 |

| | | |
|--------|----|----|
| merged | 0 | 0 |
| pruned | 0 | 0 |
| active | 23 | 23 |
| total | 23 | 23 |

| | | |
|-------------------------------|---|---|
| terminals | | |
| un-matched | 0 | 0 |
| matched but different type | 0 | 0 |
| total | 8 | 8 |

Probe files from /gaia/class/student/patelra/raj_cadence/LVS/schematic

devbad.out:

netbad.out:

mergenet.out:

termbad.out:

prunenet.out:

prunedev.out:

audit.out:

Probe files from /gaia/class/student/patelra/raj_cadence/LVS/layout

devbad.out:

netbad.out:

mergenet.out:

termbad.out:

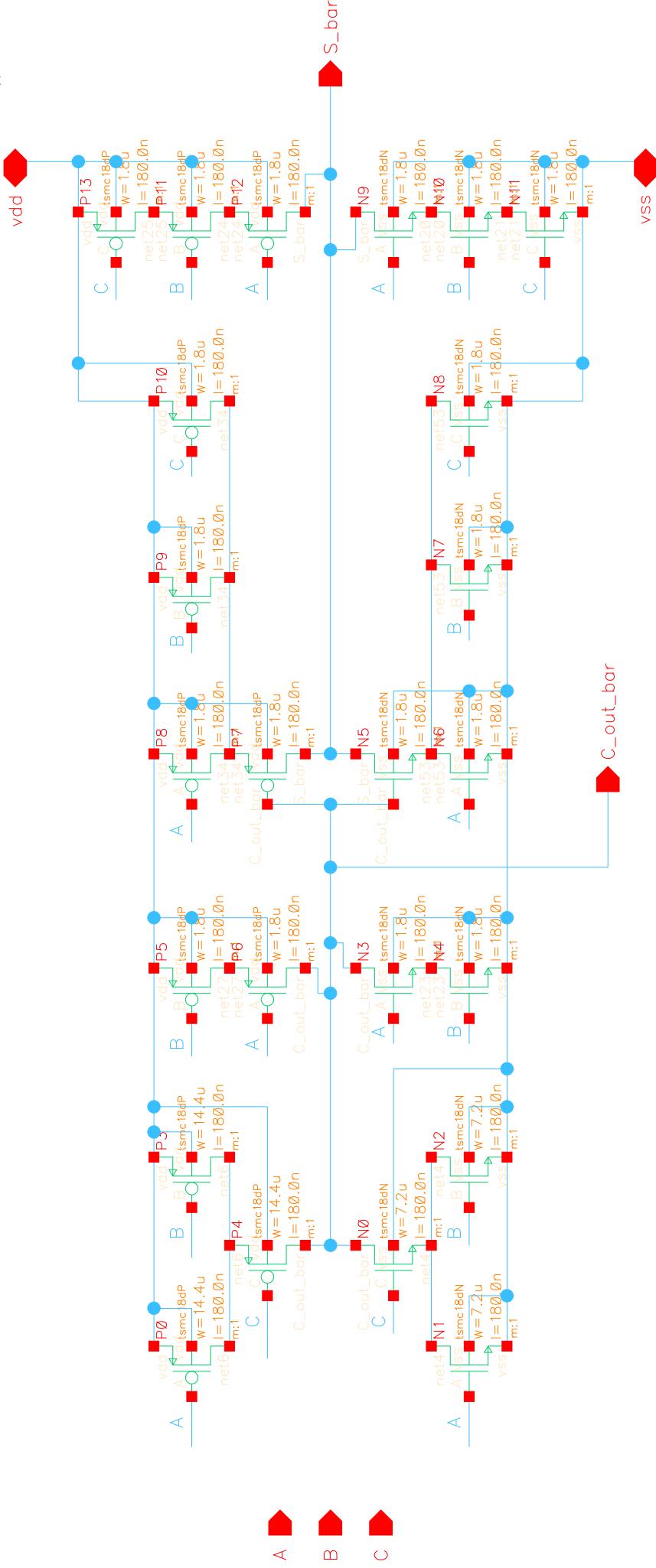
prunenet.out:

prunedev.out:

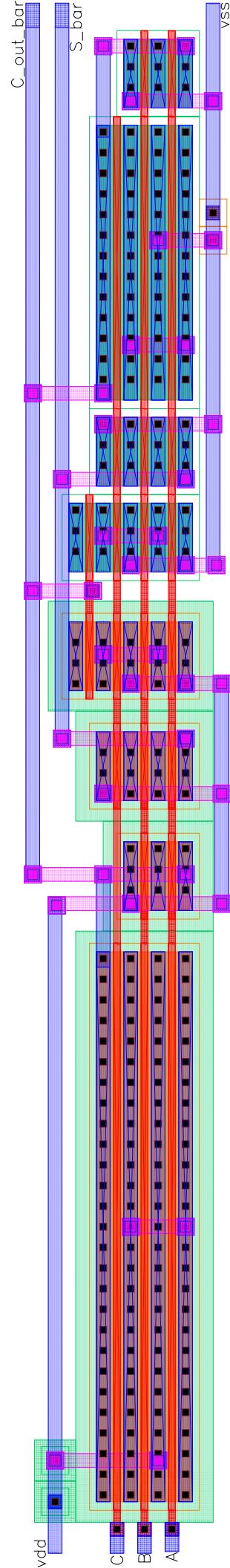
audit.out:

8 Mirror Adder

8.1 Schematic



Mirror Adder Layout



Mirror Adder LVS

@(#) \$CDS: LVS version 6.1.7-64b 09/27/2016 19:41 (sjfhw305) \$

Command line: /software/cadence/install/IC617/tools.lnx86/dfII/bin/64bit/LVS -dir /gaia/class/student/patelra/raj_cadence/LVS -l -s -t /gaia/class/student/patelra/raj_cadence/LVS/layout /gaia/class/student/patelra/raj_cadence/LVS/schematic

Like matching is enabled.

Net swapping is enabled.

Using terminal names as correspondence points.

Compiling Diva LVS rules...

Net-list summary for /gaia/class/student/patelra/raj_cadence/LVS/layout/netlist

count

| | |
|----|-----------|
| 17 | nets |
| 7 | terminals |
| 12 | pmos |
| 12 | nmos |

Net-list summary for /gaia/class/student/patelra/raj_cadence/LVS/schematic/netlist

count

| | |
|----|-----------|
| 17 | nets |
| 7 | terminals |
| 12 | pmos |
| 12 | nmos |

Terminal correspondence points

| | | |
|-----|-----|-----------|
| N15 | N12 | A |
| N14 | N6 | B |
| N13 | N13 | C |
| N11 | N7 | C_out_bar |
| N16 | N3 | S_bar |
| N10 | N9 | vdd |
| N12 | N5 | vss |

Devices in the netlist but not in the rules:

pcapacitor

Devices in the rules but not in the netlist:

cap nfet pfet nmos4 pmos4

The net-lists match.

| | layout | schematic |
|-------------|-----------|-----------|
| | instances | |
| un-matched | 0 | 0 |
| rewired | 0 | 0 |
| size errors | 0 | 0 |
| pruned | 0 | 0 |
| active | 24 | 24 |
| total | 24 | 24 |

| | nets |
|------------|------|
| un-matched | 0 |
| merged | 0 |

| | | |
|--------|----|----|
| pruned | 0 | 0 |
| active | 17 | 17 |
| total | 17 | 17 |

| | | |
|-------------------------------|-----------|---|
| | terminals | |
| un-matched | 0 | 0 |
| matched but different type | 0 | 0 |
| total | 7 | 7 |

Probe files from /gaia/class/student/patelra/raj_cadence/LVS/schematic

devbad.out:

netbad.out:

mergenet.out:

termbad.out:

prunenet.out:

prunedev.out:

audit.out:

Probe files from /gaia/class/student/patelra/raj_cadence/LVS/layout

devbad.out:

netbad.out:

mergenet.out:

termbad.out:

prunenet.out:

prunedev.out:

audit.out: