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| ELEC 402 – December 5, 2021 |
| Project 5 Report |
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1. Cell Library Layout; Synthesize proj1/2 verilog with 45nm, layout using Cadence Innovus. Assume 10fF load capacitance for all output simulations.

**FSM Function** (taken from Proj 1)

The Finite State Machine (FSM) is of a generic bank ATM for withdrawing and depositing money. The FSM is intended to be instantiated with parameter settings for CORRECT\_PIN, SAVINGS\_FUNDS\_AMOUNT, and CHEQUING\_FUNDS\_AMOUNT, which are then stored locally in the instantiation following a cycle with reset high. If left default, the pin will be 1234, savings will contain 1000, and chequing will contain 25. States consist of 4 major sections with a total of 13 states:

- Initial phase (Initial startup, pin validation, and selecting deposit/withdrawals)

- Deposit phase (Account selection, depositing cash vs check, open atm deposit slot)

- Withdrawal phase (Account selection, withdraw amount, checking for insufficient funds, open atm withdrawal slot)

- End phase (Withdrawal of card)

The states are controlled based on inputs to the module and outputs allow for ATM to signal ready, open atm out (deposit), or open atm in (withdrawal). For more information on the states, see below sections.

Disclaimer: as this is a basic bank ATM FSM to demonstrate FSM rather than bank ATM functionality, there may be some differences in the bank ATM FSM function compared to ones in real life. I.e. this bank ATM FSM is not realistic.

Diagram

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Figure 1: State Diagram

**Inputs and outputs** (Taken from Proj 1)

**IO + FSM Modules + Testbench**

Input/outputs definitions and the purpose/description of each state are below. Unless otherwise specified, inputs/outputs are one bit width in size.

Testbench is commented within the code as specified within the project documentation.

FSM Inputs

- clk o Basic clock to drive entire FSM module

- rst o Basic reset to initialize entire FSM module, and to reset it if anything happens, which resets local chequing and savings values to the instantiated parameters of the module.

- bank\_card\_insert o Signal to indicate that a bank card has been inserted, thus starting the various FSM states

- deposit\_withdrawal\_selection o Signal to select a deposit or withdrawal, indicated by 0 – Withdrawal, 1 – Deposit

- account\_selection o Signal to select account, either 0 – Chequing, 1 – Savings

- amount[13:0] o Bus to indicate amount for withdrawing or depositing.

- pin[13:0] o Bus to indicate input pin, there is validation for correct pin vs input pin.

FSM outputs

- open\_atm\_out o Signal to open the ATM deposit out slot for dispensing cash

- open\_atm\_in o Signal to open the ATM withdrawal in slot for receiving cash or check

- ready o Signal to indicate that the ATM is ready to be used (and not used by another)

A picture containing electronics, display

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Figure 2: Innovus Place and Route for FSM

Text

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Figure 3: Verify Connectivity in Innovus (LVS equivalent)

Text

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Figure 4: Verify Geometry in Innovus (DRC Equivalent)

Diagram

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Figure 5: Generated Schematic in Virtuoso

Graphical user interface

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Figure 6: FSM Symbol for schematic

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Figure 7: Virtuoso layout w/ dimensions **48.4 by 42.2 um**

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Figure 8: FSM circuit + testbench schematic

Graphical user interface, application

Description automatically generatedGraphical user interface

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Figure 9: Object properties for (left) CLK and (right) RST

The entire testing procedure consists of:

- Assert ready for when bank card isn’t inserted

- Incorrect pin test using a pin that does not match the correct pin

- Correct pin test using the correct pin for state transition

- Withdrawal selection test for selecting withdrawal or deposit

- Deposit selection tests for correct resetting and deposit account selection

- Deposit funds amount test for the correct record of funds deposited

- Withdrawal amount test for correct record of funds withdrawn

- Insufficient funds test using an amount greater than what is present in the specified account

- Withdraw card test to make sure card is withdrawn

- Test that state loops back to idle after card is withdrawn

To minimize space, only the netlist for test 1 is attached in Appendix A. Simulation time takes a while. This is due to the complexity of the circuit, as seen in Figure 7. To minimize simulation time, only certain signals are traced for each test.

For reference, project 1 and 2 waveforms are located here: <https://github.com/mchuahua/ELEC402/blob/master/Proj1/ELEC%20402%20Report.pdf>

<https://github.com/mchuahua/ELEC402/blob/master/Proj2/ELEC%20402%20Report.pdf>

Tests that were run:

1. Test 1 is in IDLE. Ready is asserted. Card is not inserted. This is correct.

A screenshot of a computer

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Figure 10: Test 1 (Netlist in Appendix A)

1. Test 2 sees that ready is asserted and deasserted when card is inserted, as it transitions back and forth due to invalid PIN (0). This is correct.

Chart, histogram

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Figure 11: Test 2

1. Test 3 sees that after a valid PIN (14’d1234, 14’b010011010010) and card inserted, state should not be in IDLE. This is correct. If it wasn’t the ready signal should be asserted just as in test\_num 1.

Chart, histogram

Description automatically generated

Figure 12: Test 3

1. Test 4 checks to see if deposited correct. Deposit is selected so ATM IN should be on. Notice the open atm in is being correctly triggered. This is correct.

Chart, histogram

Description automatically generated

Figure 13: Test 4

1. Test 5 checks to see if deposit was correct. Withdrawal is selected and so ATM OUT should be triggered. This is correct.

A screenshot of a computer

Description automatically generated with medium confidence

Figure 14: Test 5

1. The next test can be understood by understanding the state functionality. When selecting withdrawal, and when the withdrawal amount is changed to a number higher than 14’d1000 (amount in bank), i.e. {1’b1, 13’b0}, this should trigger an indefinite loop, as there are insufficient funds. We can see this by going to over 15ns as each state will be one cycle so it’s doing nothing. This is correct.

Chart

Description automatically generated

Figure 15: Test 6

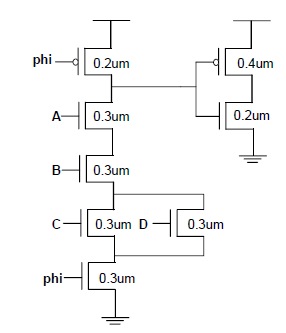
1. Now if we change the input amount back to 1 and restart, the states should continue along and if bank card is withdrawn, we should see ready being asserted, completing an entire loop. This is correct.

Graphical user interface

Description automatically generated Chart

Description automatically generated

Figure 16: Card insert properties (left) Test 7 (right)



**3**

**2**

**1**

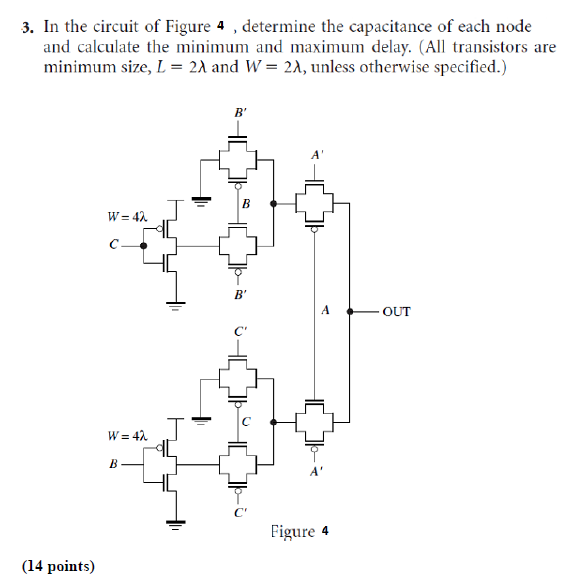
1. By domino logic we see PMOS and NMOS with phi as input clock. OUT can be defined as the output of the output inverter. We can see the pull down NMOS consisting of A+B+CD, as AB are series with CD parallel. Since this is the dual, the resulting logic is OUT = AB(C+D)
2. Voltage reduction. Worst case charge sharing requires the combination of ABCD = 1100. Then, to calculate capacitance we can do nodal calculations. For node 1, we have Ceff of phi PMOS, A NMOS, and Cgate of inverter input. This gives us C1 = CeffWphi + CeffWA + Cg(Wp+Wn) = 1.7 fF.

For node 2, we have C2 = CeffWB = 0.3 fF. For node 3 we have C3 = Ceff(Wc + Wd) = 0.6 fF.

Now that we have all three node capacitances, we can calculate V\*, the resulting voltage across all these nodes that share charge. BCD are charged when AB are 1. Therefore, the equation we use is V\* = Cout \* VDD / (Cx + Cout), where Cx is C2 +C3 and Cout = C1. We assume output is sitting at 1.2V. So V\* = 1.7 \* 1.2 / (0.6 + 1.7 + 0.3) = 0.785 V.

However this voltage is not possible at node 3 as Vmax = VDD – 2Vtn = 0.4V. We can find voltage at node 3 using Qfinal = Q3og – (Q1 + Q2), where Qfinal = 1.7 \* Vfinal , Q3og = 1.7 \* 1.2, Q1 + Q2 = C1 \* (VDD – VT) + C2 \* (VDD-2VT) = 0.3\*0.8 + 0.6\*0.4. So, Vfinal = 0.9176 V.

Thus, Vreduction = VDD – Vfinal = 1.2 – 0.912 = 0.3 V



**4**

**3**

**2**

**1**

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This is a transmission gate (tg) question. Assume R is the NMOS transistor equivalent resistance = 45nm, 34kohm. Ceff = 1fF/um, Cg = 2fF/um.

Here we first denote 5 nodes as seen in the diagram above (incl OUT). From observing the circuit, we can equate node 1 = node 3 and node 2 = node 4.

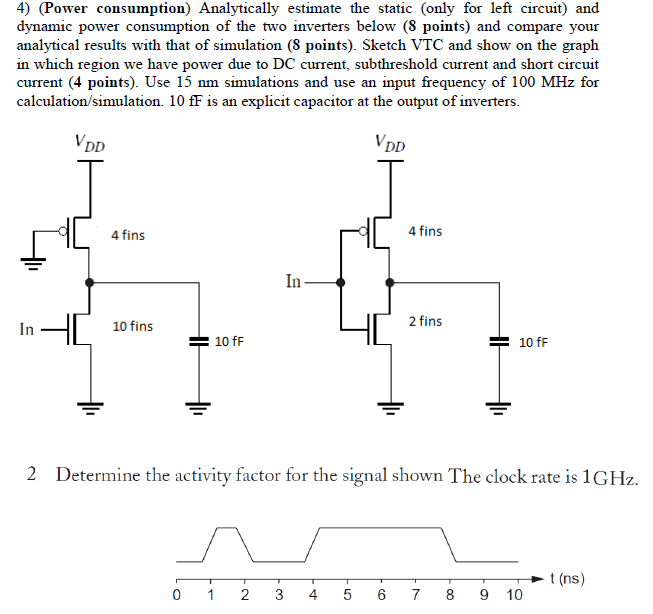
First we look at node 1/3. We see self capacitance of the inverter PMOS/NMOS + tg, and gate capacitance of tg. So, C1 = C3 = Ceff(W + 2W) + CeffW + CgW = 5CeffW + CgW

Second we look at node 2/4. We see self and gate capacitance of the 2 tg on left and 1 tg on right. So, C2 = C4 = 3(2CeffW + CgW) = 6CeffW + 3CgW

Lastly we look at OUT. We see self and gate capacitance of the 2 tg on left. So, COUT = 4CeffW + 2CgW

For minimum delay we go from ground at top tg (input 0 of B) to OUT. So this passes only through node 2 and OUT, Tmin = C2R + 2COUTR = R(6CeffW + 3CgW) + 2R(4CeffW + 2CgW) = RW(14Ceff + 17Cg) = 34k \* (14 + 17\*2) = 1.632 ns

For maximum delay we go from C to OUT. So this passes through both node 1 and 2 and OUT, Tmax = C1R + 2C2R + 3RCOUT = R(5CeffW + CgW) + 2R(6CeffW + 3CgW) + 3R(4CeffW + 2CgW) = RW(29Ceff + 13Cg) = 34k (29 + 13\*2) = 1.87 ns



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2\*lambda = 1 fin

Static power: P = IV.

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Activity Factor. 1Ghz = 1ns period = 10 clock cycles. Toggles (transition from high to low and low to high) at output = 4. Two toggles are required for power dissipation. So, activity factor = # of toggles / 2 / # of clock cycles = 4 / 2 / 10 = 1/5 = 20%

Text, letter

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R = (0.017 ohm-um) \* (0.8um) / (0.4 um \* 0.5 um) = 0.068 ohm / um

C\_area = E\_ox \* W / H = 3 \* 88.5E-4 fF/um \* 0.4/0.5 = 0.02124 fF/um

C\_lat = E\_ox \* T/S = 3 \* 88.5E-4 fF/um \* 0.8/2 = 0.01062 fF/um

C\_fringe = E\_ox \* ln(1 + T/H) = 3 \* 88.5E-4 fF/um \* ln(1 + 0.8/0.5) = 0.02537 fF/um

C\_int = 2(C\_area + C\_lat + C\_fringe) = 0.11446 fF/um

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Assuming 40nm -> 45nm R\_eqn = 34kohm. W = 0.1um. Assuming ramp input.

R\_wire = R \* 18mm = 0.068 ohm/um \* 18000um = 1224 ohm

C\_wire = C \* 18mm = 0.11446 fF/um \* 18000um = 2060.28 fF = 2.06 pF

R\_eff25 = R\_eqn/25 times = 12.5kohm/25 = 500 ohm

C\_self25 = C\_eff(2W + W)25x = 1 fF/um \* 0.6um \* 25 = 15 fF

C\_load = 50 fF

T\_elmore = 34kohm \* L/W \* C\_load = 34kohm \* ½ \* 50fF = 0.85 ns

T\_elmore25 = (500ohm)(2.06pF) + (500 + 1224 ohm)(2.06pF) = 4.58 ns

Notes:

* For T\_elmore, wire resistance can be ignored
* For T\_elmore25, C\_self and C\_load are small and can be ignored.

Appendix A: Netlist (Test 1)

// Generated for: spectre

// Generated on: Dec 4 20:21:48 2021

// Design library name: fsm\_tb

// Design cell name: fsm\_tb

// Design view name: schematic

simulator lang=spectre

global 0 VDD! VSS!

parameters T=1n

include "/ubc/ece/data/cmc2/kits/GPDK45/gpdk045\_v\_5\_0/gpdk045/../models/spectre/gpdk045.scs" section=mc

// Library name: gsclib045

// Cell name: NAND2X1

// View name: schematic

subckt NAND2X1 A B Y inh\_VDD inh\_VSS

mn1 (Y B n0 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f ad=36.4f \

ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n sd=160n \

sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn0 (n0 A inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mp1 (Y B inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp0 (Y A inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

ends NAND2X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: NOR2X1

// View name: schematic

subckt NOR2X1 A B Y inh\_VDD inh\_VSS

mn1 (Y B inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn0 (Y A inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mp1 (Y B net41 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f ad=54.6f \

ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n sb=140n \

sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp0 (net41 A inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

ends NOR2X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: OAI221X1

// View name: schematic

subckt OAI221X1 A0 A1 B0 B1 C0 Y inh\_VDD inh\_VSS

mn4 (Y C0 net132 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn0 (net128 A0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn1 (net128 A1 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn2 (net132 B0 net128 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn3 (net132 B1 net128 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mp3 (Y B1 net123 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp0 (net115 A0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp1 (Y A1 net115 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp2 (net123 B0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp4 (Y C0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

ends OAI221X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: DFFHQX1

// View name: schematic

subckt DFFHQX1 CK D Q inh\_VDD inh\_VSS

mn26 (n20 CKb n21 inh\_VSS) g45n1svt w=(205n) l=45n nf=1 as=28.7f \

ad=28.7f ps=690n pd=690n nrd=682.927m nrs=682.927m sa=140n sb=140n \

sd=160n sca=166.60249 scb=0.10864 scc=0.02069 m=(1)

mn25 (n21 D inh\_VSS inh\_VSS) g45n1svt w=(205n) l=45n nf=1 as=28.7f \

ad=28.7f ps=690n pd=690n nrd=682.927m nrs=682.927m sa=140n sb=140n \

sd=160n sca=166.60249 scb=0.10864 scc=0.02069 m=(1)

mn55 (Q qbint inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn50 (net172 qbint inh\_VSS inh\_VSS) g45n1svt w=(205n) l=45n nf=1 \

as=28.7f ad=28.7f ps=690n pd=690n nrd=682.927m nrs=682.927m \

sa=140n sb=140n sd=160n sca=166.60249 scb=0.10864 scc=0.02069 \

m=(1)

mn51 (n30 CKb net172 inh\_VSS) g45n1svt w=(205n) l=45n nf=1 as=28.7f \

ad=28.7f ps=690n pd=690n nrd=682.927m nrs=682.927m sa=140n sb=140n \

sd=160n sca=166.60249 scb=0.10864 scc=0.02069 m=(1)

mn30 (mout n20 inh\_VSS inh\_VSS) g45n1svt w=(205n) l=45n nf=1 as=28.7f \

ad=28.7f ps=690n pd=690n nrd=682.927m nrs=682.927m sa=140n sb=140n \

sd=160n sca=166.60249 scb=0.10864 scc=0.02069 m=(1)

mn36 (n20 CKbb net192 inh\_VSS) g45n1svt w=(205n) l=45n nf=1 as=28.7f \

ad=28.7f ps=690n pd=690n nrd=682.927m nrs=682.927m sa=140n sb=140n \

sd=160n sca=166.60249 scb=0.10864 scc=0.02069 m=(1)

mn20 (CKb CK inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn45 (qbint n30 inh\_VSS inh\_VSS) g45n1svt w=(205n) l=45n nf=1 as=28.7f \

ad=28.7f ps=690n pd=690n nrd=682.927m nrs=682.927m sa=140n sb=140n \

sd=160n sca=166.60249 scb=0.10864 scc=0.02069 m=(1)

mn40 (mout CKbb n30 inh\_VSS) g45n1svt w=(205n) l=45n nf=1 as=28.7f \

ad=28.7f ps=690n pd=690n nrd=682.927m nrs=682.927m sa=140n sb=140n \

sd=160n sca=166.60249 scb=0.10864 scc=0.02069 m=(1)

mn21 (CKbb CKb inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn35 (net192 mout inh\_VSS inh\_VSS) g45n1svt w=(205n) l=45n nf=1 \

as=28.7f ad=28.7f ps=690n pd=690n nrd=682.927m nrs=682.927m \

sa=140n sb=140n sd=160n sca=166.60249 scb=0.10864 scc=0.02069 \

m=(1)

mp26 (n20 CKbb n22 inh\_VDD) g45p1svt w=(310n) l=45n nf=1 as=43.4f \

ad=43.4f ps=900n pd=900n nrd=451.613m nrs=451.613m sa=140n sb=140n \

sd=160n sca=130.90642 scb=0.09728 scc=0.01590 m=(1)

mp25 (n22 D inh\_VDD inh\_VDD) g45p1svt w=(310n) l=45n nf=1 as=43.4f \

ad=43.4f ps=900n pd=900n nrd=451.613m nrs=451.613m sa=140n sb=140n \

sd=160n sca=130.90642 scb=0.09728 scc=0.01590 m=(1)

mp51 (n30 CKbb net123 inh\_VDD) g45p1svt w=(310n) l=45n nf=1 as=43.4f \

ad=43.4f ps=900n pd=900n nrd=451.613m nrs=451.613m sa=140n sb=140n \

sd=160n sca=130.90642 scb=0.09728 scc=0.01590 m=(1)

mp50 (net123 qbint inh\_VDD inh\_VDD) g45p1svt w=(310n) l=45n nf=1 \

as=43.4f ad=43.4f ps=900n pd=900n nrd=451.613m nrs=451.613m \

sa=140n sb=140n sd=160n sca=130.90642 scb=0.09728 scc=0.01590 \

m=(1)

mp55 (Q qbint inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp35 (net147 mout inh\_VDD inh\_VDD) g45p1svt w=(310n) l=45n nf=1 \

as=43.4f ad=43.4f ps=900n pd=900n nrd=451.613m nrs=451.613m \

sa=140n sb=140n sd=160n sca=130.90642 scb=0.09728 scc=0.01590 \

m=(1)

mp36 (n20 CKb net147 inh\_VDD) g45p1svt w=(310n) l=45n nf=1 as=43.4f \

ad=43.4f ps=900n pd=900n nrd=451.613m nrs=451.613m sa=140n sb=140n \

sd=160n sca=130.90642 scb=0.09728 scc=0.01590 m=(1)

mp45 (qbint n30 inh\_VDD inh\_VDD) g45p1svt w=(310n) l=45n nf=1 as=43.4f \

ad=43.4f ps=900n pd=900n nrd=451.613m nrs=451.613m sa=140n sb=140n \

sd=160n sca=130.90642 scb=0.09728 scc=0.01590 m=(1)

mp20 (CKb CK inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp40 (mout CKb n30 inh\_VDD) g45p1svt w=(310n) l=45n nf=1 as=43.4f \

ad=43.4f ps=900n pd=900n nrd=451.613m nrs=451.613m sa=140n sb=140n \

sd=160n sca=130.90642 scb=0.09728 scc=0.01590 m=(1)

mp30 (mout n20 inh\_VDD inh\_VDD) g45p1svt w=(310n) l=45n nf=1 as=43.4f \

ad=43.4f ps=900n pd=900n nrd=451.613m nrs=451.613m sa=140n sb=140n \

sd=160n sca=130.90642 scb=0.09728 scc=0.01590 m=(1)

mp21 (CKbb CKb inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends DFFHQX1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: AOI22XL

// View name: schematic

subckt AOI22XL A0 A1 B0 B1 Y inh\_VDD inh\_VSS

mn3 (Y B1 net98 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn0 (net106 A0 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn2 (net98 B0 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (Y A1 net106 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp3 (Y B1 net89 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (net89 A0 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp1 (net89 A1 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (Y B0 net89 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends AOI22XL

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: OAI21XL

// View name: schematic

subckt OAI21XL A0 A1 B0 Y inh\_VDD inh\_VSS

mn2 (Y B0 n0 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f ad=20.3f \

ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n sd=160n \

sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (n0 A1 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn0 (n0 A0 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp0 (n1 A0 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (Y B0 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp1 (Y A1 n1 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f ad=30.1f \

ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n sd=160n \

sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends OAI21XL

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: XNOR2X1

// View name: schematic

subckt XNOR2X1 A B Y inh\_VDD inh\_VSS

mn1 (n2 B inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn2 (net145 n1 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn3 (n0 n2 net145 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn5 (Y n0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn0 (n1 A inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn4 (n0 B n1 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f ad=20.3f \

ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n sd=160n \

sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp0 (n1 A inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp4 (n1 n2 n0 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f ad=30.1f \

ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n sd=160n \

sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (net112 n1 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp1 (n2 B inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp3 (n0 B net112 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp5 (Y n0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

ends XNOR2X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: INVX1

// View name: schematic

subckt INVX1 A Y inh\_VDD inh\_VSS

mp0 (Y A inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mn0 (Y A inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

ends INVX1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: MX2XL

// View name: schematic

subckt MX2XL A B S0 Y inh\_VDD inh\_VSS

mn3 (n5 B inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn4 (n0 S0 n5 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f ad=20.3f \

ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n sd=160n \

sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn0 (S0b S0 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (n3 A inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn5 (Y n0 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn2 (n0 S0b n3 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f ad=20.3f \

ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n sd=160n \

sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp4 (n0 S0b n6 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f ad=30.1f \

ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n sd=160n \

sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp3 (n6 B inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp5 (Y n0 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (S0b S0 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (n0 S0 n4 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f ad=30.1f \

ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n sd=160n \

sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp1 (n4 A inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends MX2XL

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: OAI21X1

// View name: schematic

subckt OAI21X1 A0 A1 B0 Y inh\_VDD inh\_VSS

mn2 (Y B0 n0 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f ad=36.4f \

ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n sd=160n \

sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn1 (n0 A1 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn0 (n0 A0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mp0 (n1 A0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp2 (Y B0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp1 (Y A1 n1 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f ad=54.6f \

ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n sb=140n \

sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

ends OAI21X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: NAND2BX1

// View name: schematic

subckt NAND2BX1 AN B Y inh\_VDD inh\_VSS

mn2 (Y B n1 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f ad=36.4f \

ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n sd=160n \

sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn0 (n0 AN inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (n1 n0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mp1 (Y n0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp2 (Y B inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp0 (n0 AN inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends NAND2BX1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: AOI221X1

// View name: schematic

subckt AOI221X1 A0 A1 B0 B1 C0 Y inh\_VDD inh\_VSS

mn2 (net120 B0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn3 (Y B1 net120 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn4 (Y C0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn1 (Y A1 net128 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn0 (net128 A0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mp3 (net108 B1 net111 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp2 (net108 B0 net111 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp0 (net111 A0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp1 (net111 A1 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp4 (Y C0 net108 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

ends AOI221X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: AOI2BB1XL

// View name: schematic

subckt AOI2BB1XL A0N A1N B0 Y inh\_VDD inh\_VSS

mn2 (Y B0 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (net100 A1N inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn3 (Y net100 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn0 (net100 A0N inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp3 (Y net100 net79 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (net79 B0 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp1 (net100 A1N net87 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (net87 A0N inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends AOI2BB1XL

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: OA21X1

// View name: schematic

subckt OA21X1 A0 A1 B0 Y inh\_VDD inh\_VSS

mn1 (net107 A1 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn0 (net107 A0 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn3 (Y net95 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn2 (net95 B0 net107 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp1 (net95 A1 net98 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (net98 A0 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp3 (Y net95 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp2 (net95 B0 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends OA21X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: OAI31X1

// View name: schematic

subckt OAI31X1 A0 A1 A2 B0 Y inh\_VDD inh\_VSS

mn3 (Y B0 n0 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f ad=36.4f \

ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n sd=160n \

sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn0 (n0 A0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn2 (n0 A2 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn1 (n0 A1 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mp2 (Y A2 n2 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f ad=54.6f \

ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n sb=140n \

sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp1 (n2 A1 n1 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f ad=54.6f \

ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n sb=140n \

sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp3 (Y B0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp0 (n1 A0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

ends OAI31X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: AOI22X1

// View name: schematic

subckt AOI22X1 A0 A1 B0 B1 Y inh\_VDD inh\_VSS

mn3 (Y B1 net98 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn0 (net102 A0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn2 (net98 B0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn1 (Y A1 net102 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mp3 (Y B1 net89 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp0 (net89 A0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp1 (net89 A1 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp2 (Y B0 net89 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

ends AOI22X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: OR2XL

// View name: schematic

subckt OR2XL A B Y inh\_VDD inh\_VSS

mn2 (Y n0 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn0 (n0 A inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (n0 B inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp1 (n0 B n1 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f ad=30.1f \

ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n sd=160n \

sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (Y n0 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (n1 A inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends OR2XL

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: NOR2BX1

// View name: schematic

subckt NOR2BX1 AN B Y inh\_VDD inh\_VSS

mn1 (Y net76 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn2 (Y B inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn0 (net76 AN inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp2 (Y B net59 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f ad=54.6f \

ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n sb=140n \

sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp1 (net59 net76 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 \

as=54.6f ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m \

sa=140n sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 \

m=(1)

mp0 (net76 AN inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends NOR2BX1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: AND2X1

// View name: schematic

subckt AND2X1 A B Y inh\_VDD inh\_VSS

mn2 (Y n0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn0 (net127 B inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (n0 A net127 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp1 (n0 B inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (n0 A inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (Y n0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

ends AND2X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: AOI21XL

// View name: schematic

subckt AOI21XL A0 A1 B0 Y inh\_VDD inh\_VSS

mn2 (Y B0 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn0 (net74 A0 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (Y A1 net74 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp2 (Y B0 net70 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp1 (net70 A1 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (net70 A0 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends AOI21XL

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: OAI2BB1X1

// View name: schematic

subckt OAI2BB1X1 A0N A1N B0 Y inh\_VDD inh\_VSS

mn3 (Y n0 n2 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f ad=36.4f \

ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n sd=160n \

sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn2 (n2 B0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn0 (n1 A0N inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (n0 A1N n1 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f ad=20.3f \

ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n sd=160n \

sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp2 (Y B0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp1 (n0 A1N inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (n0 A0N inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp3 (Y n0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

ends OAI2BB1X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: AOI31X1

// View name: schematic

subckt AOI31X1 A0 A1 A2 B0 Y inh\_VDD inh\_VSS

mn3 (Y B0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn1 (net97 A1 net93 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn2 (Y A2 net97 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn0 (net93 A0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mp2 (net81 A2 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp3 (Y B0 net81 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp1 (net81 A1 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp0 (net81 A0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

ends AOI31X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: AOI21X1

// View name: schematic

subckt AOI21X1 A0 A1 B0 Y inh\_VDD inh\_VSS

mn2 (Y B0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn0 (net78 A0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn1 (Y A1 net78 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mp2 (Y B0 net62 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp1 (net62 A1 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp0 (net62 A0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

ends AOI21X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: AND2XL

// View name: schematic

subckt AND2XL A B Y inh\_VDD inh\_VSS

mn2 (Y net57 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn0 (net73 A inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (net57 B net73 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp1 (net57 B inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (net57 A inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (Y net57 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends AND2XL

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: OAI211X1

// View name: schematic

subckt OAI211X1 A0 A1 B0 C0 Y inh\_VDD inh\_VSS

mn1 (n0 A1 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn0 (n0 A0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn2 (n1 B0 n0 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f ad=36.4f \

ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n sd=160n \

sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn3 (Y C0 n1 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f ad=36.4f \

ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n sd=160n \

sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mp1 (Y A1 n2 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f ad=54.6f \

ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n sb=140n \

sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp0 (n2 A0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp3 (Y C0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp2 (Y B0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

ends OAI211X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: NAND3X1

// View name: schematic

subckt NAND3X1 A B C Y inh\_VDD inh\_VSS

mn1 (n0 B n1 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f ad=36.4f \

ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n sd=160n \

sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn2 (Y C n0 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f ad=36.4f \

ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n sd=160n \

sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn0 (n1 A inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mp0 (Y A inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp1 (Y B inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp2 (Y C inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

ends NAND3X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: OAI222X1

// View name: schematic

subckt OAI222X1 A0 A1 B0 B1 C0 C1 Y inh\_VDD inh\_VSS

mn5 (Y C1 n0 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f ad=36.4f \

ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n sd=160n \

sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn4 (Y C0 n0 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f ad=36.4f \

ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n sd=160n \

sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn3 (n0 B1 n1 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f ad=36.4f \

ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n sd=160n \

sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn2 (n0 B0 n1 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f ad=36.4f \

ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n sd=160n \

sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn0 (n1 A0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn1 (n1 A1 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mp5 (Y C1 n4 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f ad=54.6f \

ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n sb=140n \

sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp4 (n4 C0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp3 (Y B1 n3 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f ad=54.6f \

ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n sb=140n \

sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp2 (n3 B0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp1 (Y A1 n2 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f ad=54.6f \

ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n sb=140n \

sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp0 (n2 A0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

ends OAI222X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: NAND3BXL

// View name: schematic

subckt NAND3BXL AN B C Y inh\_VDD inh\_VSS

mn3 (Y C n1 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f ad=20.3f \

ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n sd=160n \

sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn0 (n0 AN inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn2 (n1 B n2 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f ad=20.3f \

ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n sd=160n \

sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (n2 n0 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp1 (Y n0 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp3 (Y C inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (n0 AN inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (Y B inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends NAND3BXL

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: NAND2BXL

// View name: schematic

subckt NAND2BXL AN B Y inh\_VDD inh\_VSS

mn2 (Y B n1 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f ad=20.3f \

ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n sd=160n \

sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn0 (n0 AN inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (n1 n0 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp1 (Y n0 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (Y B inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (n0 AN inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends NAND2BXL

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: XOR2XL

// View name: schematic

subckt XOR2XL A B Y inh\_VDD inh\_VSS

mn1 (n2 B inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn0 (n1 A inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn5 (Y n0 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn3 (n0 B net131 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn4 (n0 n2 n1 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f ad=20.3f \

ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n sd=160n \

sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn2 (net131 n1 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp3 (n0 n2 net130 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp1 (n2 B inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp4 (n1 B n0 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f ad=30.1f \

ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n sd=160n \

sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (n1 A inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp5 (Y n0 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (net130 n1 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends XOR2XL

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: OR3XL

// View name: schematic

subckt OR3XL A B C Y inh\_VDD inh\_VSS

mn3 (Y n0 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn0 (n0 A inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (n0 B inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn2 (n0 C inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp3 (Y n0 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp1 (n2 B n1 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f ad=30.1f \

ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n sd=160n \

sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (n0 C n2 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f ad=30.1f \

ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n sd=160n \

sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (n1 A inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends OR3XL

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: OR4X1

// View name: schematic

subckt OR4X1 A B C D Y inh\_VDD inh\_VSS

mn4 (Y n0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn3 (n0 D inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn0 (n0 A inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn2 (n0 C inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (n0 B inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp4 (Y n0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp0 (n1 A inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp3 (n0 D n3 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f ad=30.1f \

ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n sd=160n \

sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp1 (n2 B n1 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f ad=30.1f \

ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n sd=160n \

sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (n3 C n2 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f ad=30.1f \

ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n sd=160n \

sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends OR4X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: AND3XL

// View name: schematic

subckt AND3XL A B C Y inh\_VDD inh\_VSS

mn3 (Y net87 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (net107 B net103 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn0 (net103 A inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn2 (net87 C net107 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp1 (net87 B inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (net87 C inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (net87 A inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp3 (Y net87 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends AND3XL

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: OAI22X1

// View name: schematic

subckt OAI22X1 A0 A1 B0 B1 Y inh\_VDD inh\_VSS

mn0 (net102 A0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn3 (Y B1 net102 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn1 (net102 A1 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn2 (Y B0 net102 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mp3 (Y B1 net85 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp1 (Y A1 net93 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp0 (net93 A0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp2 (net85 B0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

ends OAI22X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: ADDHX1

// View name: schematic

subckt ADDHX1 A B CO S inh\_VDD inh\_VSS

mn8 (CO COb inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn7 (COb B n4 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f ad=20.3f \

ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n sd=160n \

sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn6 (n4 A inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn5 (S Sb inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn3 (Sb B n2 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f ad=20.3f \

ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n sd=160n \

sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn2 (n2 n0 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (n1 B inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn4 (Sb n1 n0 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f ad=20.3f \

ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n sd=160n \

sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn0 (n0 A inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp8 (CO COb inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp5 (S Sb inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp2 (n3 n0 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp3 (Sb n1 n3 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f ad=30.1f \

ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n sd=160n \

sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp4 (Sb B n0 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f ad=30.1f \

ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n sd=160n \

sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp1 (n1 B inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp7 (COb B inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (n0 A inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp6 (COb A inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends ADDHX1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: DFFQXL

// View name: schematic

subckt DFFQXL CK D Q inh\_VDD inh\_VSS

mn26 (n20 CKb n21 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn25 (n21 D inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn55 (Q qbint inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn50 (n35 qbint inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn51 (n30 CKb n35 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn35 (n25 mout inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn30 (mout n20 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn40 (n30 CKbb mout inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn45 (qbint n30 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn21 (CKbb CKb inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn36 (n20 CKbb n25 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn20 (CKb CK inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp26 (n20 CKbb n22 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp25 (n22 D inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp51 (n30 CKbb n36 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp50 (n36 qbint inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp55 (Q qbint inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp35 (n26 mout inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp36 (n20 CKb n26 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp21 (CKbb CKb inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp20 (CKb CK inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp45 (qbint n30 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp40 (n30 CKb mout inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp30 (mout n20 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends DFFQXL

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: MXI2XL

// View name: schematic

subckt MXI2XL A B S0 Y inh\_VDD inh\_VSS

mn3 (n5 B inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn4 (Y S0 n5 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f ad=20.3f \

ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n sd=160n \

sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn2 (Y S0b n3 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f ad=20.3f \

ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n sd=160n \

sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (n3 A inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn0 (S0b S0 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp4 (Y S0b n6 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f ad=30.1f \

ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n sd=160n \

sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp3 (n6 B inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (Y S0 n4 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f ad=30.1f \

ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n sd=160n \

sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp1 (n4 A inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (S0b S0 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends MXI2XL

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: AND4X1

// View name: schematic

subckt AND4X1 A B C D Y inh\_VDD inh\_VSS

mn3 (net116 D net132 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn2 (net132 C net128 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn4 (Y net116 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn1 (net128 B net124 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn0 (net124 A inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp3 (net116 D inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (net116 C inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp1 (net116 B inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp4 (Y net116 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp0 (net116 A inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends AND4X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: OAI32X1

// View name: schematic

subckt OAI32X1 A0 A1 A2 B0 B1 Y inh\_VDD inh\_VSS

mn3 (Y B0 n0 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f ad=36.4f \

ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n sd=160n \

sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn4 (Y B1 n0 inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f ad=36.4f \

ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n sd=160n \

sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn2 (n0 A2 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn0 (n0 A0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn1 (n0 A1 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mp2 (Y A2 n2 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f ad=54.6f \

ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n sb=140n \

sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp3 (n4 B0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp0 (n1 A0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp4 (Y B1 n4 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f ad=54.6f \

ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n sb=140n \

sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp1 (n2 A1 n1 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f ad=54.6f \

ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n sb=140n \

sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

ends OAI32X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: NOR4X1

// View name: schematic

subckt NOR4X1 A B C D Y inh\_VDD inh\_VSS

mn2 (Y C inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn3 (Y D inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn0 (Y A inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn1 (Y B inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mp1 (n1 B n0 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f ad=54.6f \

ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n sb=140n \

sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp3 (Y D n2 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f ad=54.6f \

ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n sb=140n \

sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp2 (n2 C n1 inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f ad=54.6f \

ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n sb=140n \

sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp0 (n0 A inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

ends NOR4X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: NAND4XL

// View name: schematic

subckt NAND4XL A B C D Y inh\_VDD inh\_VSS

mn1 (n1 B n2 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f ad=20.3f \

ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n sd=160n \

sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn3 (Y D n0 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f ad=20.3f \

ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n sd=160n \

sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn2 (n0 C n1 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f ad=20.3f \

ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n sd=160n \

sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn0 (n2 A inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp3 (Y D inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (Y C inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp1 (Y B inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (Y A inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends NAND4XL

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: NOR2XL

// View name: schematic

subckt NOR2XL A B Y inh\_VDD inh\_VSS

mn1 (Y B inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn0 (Y A inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp1 (Y B net41 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f ad=30.1f \

ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n sd=160n \

sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (net41 A inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends NOR2XL

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: AOI211XL

// View name: schematic

subckt AOI211XL A0 A1 B0 C0 Y inh\_VDD inh\_VSS

mn2 (Y B0 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn3 (Y C0 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (Y A1 net95 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn0 (net95 A0 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp3 (Y C0 net82 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (net82 B0 net91 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp1 (net91 A1 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (net91 A0 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends AOI211XL

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: INVXL

// View name: schematic

subckt INVXL A Y inh\_VDD inh\_VSS

mp0 (Y A inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mn0 (Y A inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

ends INVXL

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: OR3X1

// View name: schematic

subckt OR3X1 A B C Y inh\_VDD inh\_VSS

mn3 (Y n0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn0 (n0 A inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (n0 B inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn2 (n0 C inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp3 (Y n0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp1 (n2 B n1 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f ad=30.1f \

ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n sd=160n \

sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (n0 C n2 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f ad=30.1f \

ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n sd=160n \

sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (n1 A inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends OR3X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: NOR3XL

// View name: schematic

subckt NOR3XL A B C Y inh\_VDD inh\_VSS

mn0 (Y A inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (Y B inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn2 (Y C inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp1 (n1 B n0 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f ad=30.1f \

ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n sd=160n \

sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (Y C n1 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f ad=30.1f \

ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n sd=160n \

sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (n0 A inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends NOR3XL

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: OA22X1

// View name: schematic

subckt OA22X1 A0 A1 B0 B1 Y inh\_VDD inh\_VSS

mn3 (net128 B1 net124 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn2 (net128 B0 net124 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (net124 A1 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn0 (net124 A0 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn4 (Y net128 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mp3 (net128 B1 net115 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (net115 B0 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp1 (net128 A1 net119 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp0 (net119 A0 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp4 (Y net128 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

ends OA22X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: OR2X1

// View name: schematic

subckt OR2X1 A B Y inh\_VDD inh\_VSS

mn2 (Y n0 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 as=36.4f \

ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m sa=140n sb=140n \

sd=160n sca=144.98299 scb=0.10251 scc=0.01780 m=(1)

mn0 (n0 A inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn1 (n0 B inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp1 (n0 B n1 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f ad=30.1f \

ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n sd=160n \

sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp2 (Y n0 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mp0 (n1 A inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

ends OR2X1

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: DFFRX2

// View name: schematic

subckt DFFRX2 CK D Q QN RN inh\_VDD inh\_VSS

mn36 (n25 mout n27 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn35 (n27 RN inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn37 (n20 CKbb n25 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn26 (n20 CKb n21 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn25 (n21 D inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn57 (QN qint inh\_VSS inh\_VSS) g45n1svt w=(520n) l=45n nf=1 as=72.8f \

ad=72.8f ps=1.32u pd=1.32u nrd=269.231m nrs=269.231m sa=140n \

sb=140n sd=160n sca=98.28759 scb=0.08111 scc=0.01166 m=(1)

mn55 (Q qbint inh\_VSS inh\_VSS) g45n1svt w=(520n) l=45n nf=1 as=72.8f \

ad=72.8f ps=1.32u pd=1.32u nrd=269.231m nrs=269.231m sa=140n \

sb=140n sd=160n sca=98.28759 scb=0.08111 scc=0.01166 m=(1)

mn45 (n35 RN inh\_VSS inh\_VSS) g45n1svt w=(205n) l=45n nf=1 as=28.7f \

ad=28.7f ps=690n pd=690n nrd=682.927m nrs=682.927m sa=140n sb=140n \

sd=160n sca=166.60249 scb=0.10864 scc=0.02069 m=(1)

mn46 (qbint n30 n35 inh\_VSS) g45n1svt w=(205n) l=45n nf=1 as=28.7f \

ad=28.7f ps=690n pd=690n nrd=682.927m nrs=682.927m sa=140n sb=140n \

sd=160n sca=166.60249 scb=0.10864 scc=0.02069 m=(1)

mn51 (n30 CKb n40 inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn50 (n40 qbint inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn21 (CKbb CKb inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn40 (n30 CKbb mout inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn30 (mout n20 inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mn56 (qint qbint inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 \

as=20.3f ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m \

sa=140n sb=140n sd=160n sca=203.41795 scb=0.11509 scc=0.02523 \

m=(1)

mn20 (CKb CK inh\_VSS inh\_VSS) g45n1svt w=(145n) l=45n nf=1 as=20.3f \

ad=20.3f ps=570n pd=570n nrd=965.517m nrs=965.517m sa=140n sb=140n \

sd=160n sca=203.41795 scb=0.11509 scc=0.02523 m=(1)

mp26 (n20 CKbb n22 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp25 (n22 D inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp51 (n30 CKbb n41 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp50 (n41 qbint inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp57 (QN qint inh\_VDD inh\_VDD) g45p1svt w=(780n) l=45n nf=1 as=109.2f \

ad=109.2f ps=1.84u pd=1.84u nrd=179.487m nrs=179.487m sa=140n \

sb=140n sd=160n sca=80.49887 scb=0.07059 scc=0.00954 m=(1)

mp55 (Q qbint inh\_VDD inh\_VDD) g45p1svt w=(780n) l=45n nf=1 as=109.2f \

ad=109.2f ps=1.84u pd=1.84u nrd=179.487m nrs=179.487m sa=140n \

sb=140n sd=160n sca=80.49887 scb=0.07059 scc=0.00954 m=(1)

mp20 (CKb CK inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp21 (CKbb CKb inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp36 (n26 mout inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp30 (mout n20 inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp35 (n26 RN inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp37 (n20 CKb n26 inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp46 (qbint n30 inh\_VDD inh\_VDD) g45p1svt w=(310n) l=45n nf=1 as=43.4f \

ad=43.4f ps=900n pd=900n nrd=451.613m nrs=451.613m sa=140n sb=140n \

sd=160n sca=130.90642 scb=0.09728 scc=0.01590 m=(1)

mp40 (n30 CKb mout inh\_VDD) g45p1svt w=(215n) l=45n nf=1 as=30.1f \

ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m sa=140n sb=140n \

sd=160n sca=162.02845 scb=0.10751 scc=0.02009 m=(1)

mp45 (qbint RN inh\_VDD inh\_VDD) g45p1svt w=(310n) l=45n nf=1 as=43.4f \

ad=43.4f ps=900n pd=900n nrd=451.613m nrs=451.613m sa=140n sb=140n \

sd=160n sca=130.90642 scb=0.09728 scc=0.01590 m=(1)

mp56 (qint qbint inh\_VDD inh\_VDD) g45p1svt w=(215n) l=45n nf=1 \

as=30.1f ad=30.1f ps=710n pd=710n nrd=651.163m nrs=651.163m \

sa=140n sb=140n sd=160n sca=162.02845 scb=0.10751 scc=0.02009 \

m=(1)

ends DFFRX2

// End of subcircuit definition.

// Library name: gsclib045

// Cell name: TIEHI

// View name: schematic

subckt TIEHI Y inh\_VDD inh\_VSS

mp0 (Y net25 inh\_VDD inh\_VDD) g45p1svt w=(390n) l=45n nf=1 as=54.6f \

ad=54.6f ps=1.06u pd=1.06u nrd=358.974m nrs=358.974m sa=140n \

sb=140n sd=160n sca=114.89040 scb=0.09003 scc=0.01377 m=(1)

mn0 (net25 net25 inh\_VSS inh\_VSS) g45n1svt w=(260n) l=45n nf=1 \

as=36.4f ad=36.4f ps=800n pd=800n nrd=538.462m nrs=538.462m \

sa=140n sb=140n sd=160n sca=144.98299 scb=0.10251 scc=0.01780 \

m=(1)

ends TIEHI

// End of subcircuit definition.

// Library name: fsm\_sch

// Cell name: fsm

// View name: schematic

subckt fsm clk rst bank\_card\_insert deposit\_withdrawal\_selection \

account\_selection amount\<13\> amount\<12\> amount\<11\> \

amount\<10\> amount\<9\> amount\<8\> amount\<7\> amount\<6\> \

amount\<5\> amount\<4\> amount\<3\> amount\<2\> amount\<1\> \

amount\<0\> pin\<13\> pin\<12\> pin\<11\> pin\<10\> pin\<9\> \

pin\<8\> pin\<7\> pin\<6\> pin\<5\> pin\<4\> pin\<3\> pin\<2\> \

pin\<1\> pin\<0\> open\_atm\_dispense open\_atm\_receive ready VDD! \

VSS inh\_VDD inh\_VSS

g5027 (n\_553 n\_191 n\_233 inh\_VDD inh\_VSS) NAND2X1

g5067 (n\_140 n\_168 n\_169 inh\_VDD inh\_VSS) NAND2X1

g5212 (n\_25 chequing\_local\<8\> n\_111 inh\_VDD inh\_VSS) NAND2X1

g5095 (n\_161 n\_364 n\_208 inh\_VDD inh\_VSS) NAND2X1

g5080 (amount\<11\> chequing\_local\<11\> n\_74 inh\_VDD inh\_VSS) NAND2X1

g4956 (state\<1\> state\<2\> n\_86 inh\_VDD inh\_VSS) NAND2X1

g5114 (amount\<10\> chequing\_local\<10\> n\_229 inh\_VDD inh\_VSS) \

NAND2X1

g5056 (n\_334 n\_140 n\_195 inh\_VDD inh\_VSS) NAND2X1

g5118 (amount\<9\> chequing\_local\<9\> n\_65 inh\_VDD inh\_VSS) NAND2X1

g5145 (amount\<8\> chequing\_local\<8\> n\_99 inh\_VDD inh\_VSS) NAND2X1

g4983 (n\_564 n\_111 n\_324 inh\_VDD inh\_VSS) NAND2X1

g5148 (amount\<4\> savings\_local\<4\> n\_54 inh\_VDD inh\_VSS) NAND2X1

g5158 (amount\<1\> savings\_local\<1\> n\_77 inh\_VDD inh\_VSS) NAND2X1

g5116 (amount\<6\> chequing\_local\<6\> n\_251 inh\_VDD inh\_VSS) NAND2X1

g5153 (amount\<2\> chequing\_local\<2\> n\_80 inh\_VDD inh\_VSS) NAND2X1

g5223 (amount\<9\> n\_37 n\_116 inh\_VDD inh\_VSS) NAND2X1

g5199 (n\_39 savings\_local\<9\> n\_115 inh\_VDD inh\_VSS) NAND2X1

g4978 (n\_116 n\_115 n\_378 inh\_VDD inh\_VSS) NAND2X1

g4974 (state\<1\> n\_296 n\_136 inh\_VDD inh\_VSS) NAND2X1

g5121 (amount\<10\> savings\_local\<10\> n\_82 inh\_VDD inh\_VSS) NAND2X1

g5208 (n\_146 n\_555 n\_157 inh\_VDD inh\_VSS) NAND2X1

g5193 (n\_24 savings\_local\<3\> n\_113 inh\_VDD inh\_VSS) NAND2X1

g5054 (n\_337 n\_141 n\_192 inh\_VDD inh\_VSS) NAND2X1

g5181 (amount\<0\> chequing\_local\<0\> n\_94 inh\_VDD inh\_VSS) NAND2X1

g5157 (amount\<4\> chequing\_local\<4\> n\_79 inh\_VDD inh\_VSS) NAND2X1

g5147 (amount\<8\> savings\_local\<8\> n\_98 inh\_VDD inh\_VSS) NAND2X1

g5037 (amount\<12\> savings\_local\<12\> n\_85 inh\_VDD inh\_VSS) NAND2X1

g5149 (amount\<2\> savings\_local\<2\> n\_46 inh\_VDD inh\_VSS) NAND2X1

g5084 (amount\<7\> chequing\_local\<7\> n\_70 inh\_VDD inh\_VSS) NAND2X1

g5155 (amount\<1\> chequing\_local\<1\> n\_84 inh\_VDD inh\_VSS) NAND2X1

g5079 (amount\<7\> savings\_local\<7\> n\_72 inh\_VDD inh\_VSS) NAND2X1

g5038 (amount\<12\> chequing\_local\<12\> n\_68 inh\_VDD inh\_VSS) NAND2X1

g4824 (state\<3\> state\<0\> n\_22 inh\_VDD inh\_VSS) NAND2X1

g5117 (amount\<6\> savings\_local\<6\> n\_253 inh\_VDD inh\_VSS) NAND2X1

g5182 (amount\<0\> savings\_local\<0\> n\_95 inh\_VDD inh\_VSS) NAND2X1

g4970 (n\_137 state\<1\> n\_120 inh\_VDD inh\_VSS) NAND2X1

g5218 (n\_38 savings\_local\<2\> n\_89 inh\_VDD inh\_VSS) NAND2X1

g4982 (n\_555 n\_113 n\_264 inh\_VDD inh\_VSS) NAND2X1

g5213 (n\_38 chequing\_local\<2\> n\_158 inh\_VDD inh\_VSS) NAND2X1

g4823 (n\_97 n\_402 n\_172 inh\_VDD inh\_VSS) NAND2X1

g5198 (amount\<11\> n\_33 n\_123 inh\_VDD inh\_VSS) NAND2X1

g5188 (amount\<10\> n\_30 n\_178 inh\_VDD inh\_VSS) NAND2X1

g5133 (n\_27 chequing\_local\<12\> n\_90 inh\_VDD inh\_VSS) NAND2X1

g5168 (n\_123 n\_178 n\_163 inh\_VDD inh\_VSS) NAND2X1

g5204 (n\_35 savings\_local\<5\> n\_108 inh\_VDD inh\_VSS) NAND2X1

g5186 (amount\<4\> n\_26 n\_131 inh\_VDD inh\_VSS) NAND2X1

g5176 (n\_108 n\_104 n\_285 inh\_VDD inh\_VSS) NAND2X1

g5183 (n\_40 chequing\_local\<6\> n\_246 inh\_VDD inh\_VSS) NAND2X1

g4979 (n\_148 n\_246 n\_306 inh\_VDD inh\_VSS) NAND2X1

g4987 (n\_563 n\_108 n\_304 inh\_VDD inh\_VSS) NAND2X1

g4976 (n\_569 n\_567 n\_243 inh\_VDD inh\_VSS) NAND2X1

g5221 (n\_25 savings\_local\<8\> n\_88 inh\_VDD inh\_VSS) NAND2X1

g4779 (rst n\_477 n\_497 inh\_VDD inh\_VSS) NOR2X1

g4764 (rst n\_479 n\_501 inh\_VDD inh\_VSS) NOR2X1

g4892 (state\<1\> n\_296 n\_150 inh\_VDD inh\_VSS) NOR2X1

g4767 (rst n\_451 n\_487 inh\_VDD inh\_VSS) NOR2X1

g4784 (rst n\_469 n\_481 inh\_VDD inh\_VSS) NOR2X1

g5227 (n\_39 chequing\_local\<9\> n\_96 inh\_VDD inh\_VSS) NOR2X1

g5112 (amount\<11\> chequing\_local\<11\> n\_75 inh\_VDD inh\_VSS) NOR2X1

g5115 (amount\<10\> chequing\_local\<10\> n\_335 inh\_VDD inh\_VSS) NOR2X1

g5092 (n\_335 n\_75 n\_140 inh\_VDD inh\_VSS) NOR2X1

g5064 (n\_64 n\_66 n\_334 inh\_VDD inh\_VSS) NOR2X1

g5154 (amount\<9\> chequing\_local\<9\> n\_66 inh\_VDD inh\_VSS) NOR2X1

g5082 (amount\<8\> chequing\_local\<8\> n\_64 inh\_VDD inh\_VSS) NOR2X1

g5150 (amount\<5\> chequing\_local\<5\> n\_48 inh\_VDD inh\_VSS) NOR2X1

g5146 (amount\<5\> savings\_local\<5\> n\_55 inh\_VDD inh\_VSS) NOR2X1

g5129 (amount\<4\> savings\_local\<4\> n\_61 inh\_VDD inh\_VSS) NOR2X1

g5130 (amount\<4\> chequing\_local\<4\> n\_78 inh\_VDD inh\_VSS) NOR2X1

g5152 (amount\<2\> chequing\_local\<2\> n\_81 inh\_VDD inh\_VSS) NOR2X1

g5123 (n\_44 n\_81 n\_50 inh\_VDD inh\_VSS) NOR2X1

g5128 (n\_44 n\_80 n\_45 inh\_VDD inh\_VSS) NOR2X1

g4785 (rst n\_330 n\_367 inh\_VDD inh\_VSS) NOR2X1

g5086 (n\_59 n\_82 n\_60 inh\_VDD inh\_VSS) NOR2X1

g5126 (n\_41 n\_46 n\_47 inh\_VDD inh\_VSS) NOR2X1

g4776 (rst n\_490 n\_510 inh\_VDD inh\_VSS) NOR2X1

g4778 (rst n\_489 n\_509 inh\_VDD inh\_VSS) NOR2X1

g4763 (rst n\_207 n\_245 inh\_VDD inh\_VSS) NOR2X1

g4958 (state\<1\> state\<2\> n\_52 inh\_VDD inh\_VSS) NOR2X1

g5120 (amount\<10\> savings\_local\<10\> n\_338 inh\_VDD inh\_VSS) NOR2X1

g5088 (n\_59 n\_338 n\_141 inh\_VDD inh\_VSS) NOR2X1

g5224 (n\_24 chequing\_local\<3\> n\_159 inh\_VDD inh\_VSS) NOR2X1

g5065 (n\_63 n\_62 n\_337 inh\_VDD inh\_VSS) NOR2X1

g5053 (amount\<12\> savings\_local\<12\> n\_193 inh\_VDD inh\_VSS) NOR2X1

g5156 (amount\<3\> chequing\_local\<3\> n\_44 inh\_VDD inh\_VSS) NOR2X1

g5119 (amount\<7\> savings\_local\<7\> n\_73 inh\_VDD inh\_VSS) NOR2X1

g5160 (amount\<3\> savings\_local\<3\> n\_41 inh\_VDD inh\_VSS) NOR2X1

g5083 (amount\<8\> savings\_local\<8\> n\_63 inh\_VDD inh\_VSS) NOR2X1

g5151 (amount\<9\> savings\_local\<9\> n\_62 inh\_VDD inh\_VSS) NOR2X1

g5179 (amount\<1\> savings\_local\<1\> n\_76 inh\_VDD inh\_VSS) NOR2X1

g5110 (amount\<11\> savings\_local\<11\> n\_59 inh\_VDD inh\_VSS) NOR2X1

g5055 (amount\<12\> chequing\_local\<12\> n\_196 inh\_VDD inh\_VSS) NOR2X1

g5122 (amount\<6\> chequing\_local\<6\> n\_256 inh\_VDD inh\_VSS) NOR2X1

g5111 (amount\<6\> savings\_local\<6\> n\_273 inh\_VDD inh\_VSS) NOR2X1

g5127 (amount\<7\> chequing\_local\<7\> n\_69 inh\_VDD inh\_VSS) NOR2X1

g5180 (amount\<1\> chequing\_local\<1\> n\_83 inh\_VDD inh\_VSS) NOR2X1

g4984 (n\_146 n\_145 n\_218 inh\_VDD inh\_VSS) NOR2X1

g5215 (n\_38 savings\_local\<2\> n\_145 inh\_VDD inh\_VSS) NOR2X1

g5226 (n\_38 chequing\_local\<2\> n\_212 inh\_VDD inh\_VSS) NOR2X1

g4988 (n\_107 n\_559 n\_392 inh\_VDD inh\_VSS) NOR2X1

g5042 (n\_231 n\_230 n\_232 inh\_VDD inh\_VSS) NOR2X1

g4955 (n\_120 n\_296 n\_121 inh\_VDD inh\_VSS) NOR2X1

g4975 (n\_400 state\<2\> n\_401 inh\_VDD inh\_VSS) NOR2X1

g4786 (rst n\_473 n\_496 inh\_VDD inh\_VSS) NOR2X1

g4772 (rst n\_493 n\_515 inh\_VDD inh\_VSS) NOR2X1

g4770 (rst n\_494 n\_512 inh\_VDD inh\_VSS) NOR2X1

g4774 (rst n\_491 n\_511 inh\_VDD inh\_VSS) NOR2X1

g4773 (rst n\_492 n\_513 inh\_VDD inh\_VSS) NOR2X1

g5163 (amount\<11\> n\_33 n\_147 inh\_VDD inh\_VSS) NOR2X1

g5200 (amount\<10\> n\_30 n\_224 inh\_VDD inh\_VSS) NOR2X1

g5136 (n\_27 savings\_local\<12\> n\_231 inh\_VDD inh\_VSS) NOR2X1

g5094 (n\_163 n\_177 n\_183 inh\_VDD inh\_VSS) NOR2X1

g5096 (n\_559 n\_231 n\_269 inh\_VDD inh\_VSS) NOR2X1

g5085 (n\_61 n\_55 n\_278 inh\_VDD inh\_VSS) NOR2X1

g5113 (n\_55 n\_54 n\_56 inh\_VDD inh\_VSS) NOR2X1

g4780 (rst n\_498 n\_508 inh\_VDD inh\_VSS) NOR2X1

g4769 (rst n\_495 n\_514 inh\_VDD inh\_VSS) NOR2X1

g5203 (n\_34 chequing\_local\<7\> n\_106 inh\_VDD inh\_VSS) NOR2X1

g4977 (n\_557 n\_124 n\_308 inh\_VDD inh\_VSS) NOR2X1

g5177 (n\_557 n\_126 n\_289 inh\_VDD inh\_VSS) NOR2X1

g5124 (n\_48 n\_79 n\_49 inh\_VDD inh\_VSS) NOR2X1

g5090 (n\_48 n\_78 n\_103 inh\_VDD inh\_VSS) NOR2X1

g5214 (n\_35 chequing\_local\<5\> n\_124 inh\_VDD inh\_VSS) NOR2X1

g5216 (amount\<4\> n\_26 n\_125 inh\_VDD inh\_VSS) NOR2X1

g5166 (n\_106 n\_105 n\_165 inh\_VDD inh\_VSS) NOR2X1

g5195 (n\_40 chequing\_local\<6\> n\_105 inh\_VDD inh\_VSS) NOR2X1

g5190 (n\_40 savings\_local\<6\> n\_110 inh\_VDD inh\_VSS) NOR2X1

g4985 (n\_556 n\_110 n\_314 inh\_VDD inh\_VSS) NOR2X1

g5087 (n\_256 n\_69 n\_185 inh\_VDD inh\_VSS) NOR2X1

g5081 (n\_273 n\_73 n\_187 inh\_VDD inh\_VSS) NOR2X1

g4981 (n\_561 n\_159 n\_281 inh\_VDD inh\_VSS) NOR2X1

g4766 (rst n\_454 n\_478 inh\_VDD inh\_VSS) NOR2X1

g4783 (rst n\_468 n\_480 inh\_VDD inh\_VSS) NOR2X1

g4782 (rst n\_470 n\_482 inh\_VDD inh\_VSS) NOR2X1

g4781 (rst n\_471 n\_483 inh\_VDD inh\_VSS) NOR2X1

g4777 (rst n\_472 n\_484 inh\_VDD inh\_VSS) NOR2X1

g4775 (rst n\_447 n\_485 inh\_VDD inh\_VSS) NOR2X1

g4768 (rst n\_450 n\_488 inh\_VDD inh\_VSS) NOR2X1

g4771 (rst n\_448 n\_486 inh\_VDD inh\_VSS) NOR2X1

g4986 (n\_144 n\_143 n\_355 inh\_VDD inh\_VSS) NOR2X1

g5161 (n\_25 savings\_local\<8\> n\_143 inh\_VDD inh\_VSS) NOR2X1

g4791 (n\_458 n\_505 n\_301 state\<0\> n\_504 n\_507 inh\_VDD inh\_VSS) \

OAI221X1

g4989 (n\_194 n\_351 n\_193 n\_321 n\_85 n\_352 inh\_VDD inh\_VSS) OAI221X1

g4793 (n\_455 n\_505 n\_358 state\<0\> n\_504 n\_503 inh\_VDD inh\_VSS) \

OAI221X1

g4792 (n\_456 n\_505 n\_332 state\<0\> n\_504 n\_506 inh\_VDD inh\_VSS) \

OAI221X1

g4794 (n\_453 n\_505 n\_399 state\<0\> n\_504 n\_502 inh\_VDD inh\_VSS) \

OAI221X1

g5019 (n\_197 n\_323 n\_196 n\_250 n\_68 n\_341 inh\_VDD inh\_VSS) OAI221X1

g4788 (n\_441 n\_505 n\_238 state\<0\> n\_504 n\_476 inh\_VDD inh\_VSS) \

OAI221X1

g4790 (n\_434 n\_505 n\_303 state\<0\> n\_504 n\_474 inh\_VDD inh\_VSS) \

OAI221X1

g4789 (n\_435 n\_505 n\_313 state\<0\> n\_504 n\_475 inh\_VDD inh\_VSS) \

OAI221X1

g4796 (n\_449 n\_505 n\_411 state\<0\> n\_504 n\_499 inh\_VDD inh\_VSS) \

OAI221X1

g4795 (n\_452 n\_505 n\_386 state\<0\> n\_504 n\_500 inh\_VDD inh\_VSS) \

OAI221X1

chequing\_local\_reg\[11\] (clk n\_497 chequing\_local\<11\> inh\_VDD \

inh\_VSS) DFFHQX1

state\_reg\[3\] (clk n\_235 state\<3\> inh\_VDD inh\_VSS) DFFHQX1

chequing\_local\_reg\[10\] (clk n\_487 chequing\_local\<10\> inh\_VDD \

inh\_VSS) DFFHQX1

chequing\_local\_reg\[9\] (clk n\_481 chequing\_local\<9\> inh\_VDD \

inh\_VSS) DFFHQX1

savings\_local\_reg\[3\] (clk n\_507 savings\_local\<3\> inh\_VDD inh\_VSS) \

DFFHQX1

state\_reg\[1\] (clk n\_367 state\<1\> inh\_VDD inh\_VSS) DFFHQX1

savings\_local\_reg\[1\] (clk n\_510 savings\_local\<1\> inh\_VDD inh\_VSS) \

DFFHQX1

savings\_local\_reg\[2\] (clk n\_509 savings\_local\<2\> inh\_VDD inh\_VSS) \

DFFHQX1

state\_reg\[2\] (clk n\_268 state\<2\> inh\_VDD inh\_VSS) DFFHQX1

savings\_local\_reg\[11\] (clk n\_515 savings\_local\<11\> inh\_VDD \

inh\_VSS) DFFHQX1

savings\_local\_reg\[10\] (clk n\_512 savings\_local\<10\> inh\_VDD \

inh\_VSS) DFFHQX1

savings\_local\_reg\[13\] (clk n\_511 savings\_local\<13\> inh\_VDD \

inh\_VSS) DFFHQX1

savings\_local\_reg\[12\] (clk n\_513 savings\_local\<12\> inh\_VDD \

inh\_VSS) DFFHQX1

savings\_local\_reg\[6\] (clk n\_503 savings\_local\<6\> inh\_VDD inh\_VSS) \

DFFHQX1

savings\_local\_reg\[5\] (clk n\_506 savings\_local\<5\> inh\_VDD inh\_VSS) \

DFFHQX1

savings\_local\_reg\[4\] (clk n\_508 savings\_local\<4\> inh\_VDD inh\_VSS) \

DFFHQX1

savings\_local\_reg\[0\] (clk n\_514 savings\_local\<0\> inh\_VDD inh\_VSS) \

DFFHQX1

savings\_local\_reg\[7\] (clk n\_502 savings\_local\<7\> inh\_VDD inh\_VSS) \

DFFHQX1

chequing\_local\_reg\[0\] (clk n\_476 chequing\_local\<0\> inh\_VDD \

inh\_VSS) DFFHQX1

chequing\_local\_reg\[4\] (clk n\_474 chequing\_local\<4\> inh\_VDD \

inh\_VSS) DFFHQX1

chequing\_local\_reg\[3\] (clk n\_475 chequing\_local\<3\> inh\_VDD \

inh\_VSS) DFFHQX1

chequing\_local\_reg\[13\] (clk n\_478 chequing\_local\<13\> inh\_VDD \

inh\_VSS) DFFHQX1

chequing\_local\_reg\[12\] (clk n\_480 chequing\_local\<12\> inh\_VDD \

inh\_VSS) DFFHQX1

chequing\_local\_reg\[8\] (clk n\_482 chequing\_local\<8\> inh\_VDD \

inh\_VSS) DFFHQX1

chequing\_local\_reg\[7\] (clk n\_483 chequing\_local\<7\> inh\_VDD \

inh\_VSS) DFFHQX1

chequing\_local\_reg\[6\] (clk n\_484 chequing\_local\<6\> inh\_VDD \

inh\_VSS) DFFHQX1

chequing\_local\_reg\[5\] (clk n\_485 chequing\_local\<5\> inh\_VDD \

inh\_VSS) DFFHQX1

chequing\_local\_reg\[1\] (clk n\_488 chequing\_local\<1\> inh\_VDD \

inh\_VSS) DFFHQX1

chequing\_local\_reg\[2\] (clk n\_486 chequing\_local\<2\> inh\_VDD \

inh\_VSS) DFFHQX1

savings\_local\_reg\[9\] (clk n\_499 savings\_local\<9\> inh\_VDD inh\_VSS) \

DFFHQX1

savings\_local\_reg\[8\] (clk n\_500 savings\_local\<8\> inh\_VDD inh\_VSS) \

DFFHQX1

g4875 (n\_415 n\_439 n\_438 chequing\_local\<11\> n\_429 inh\_VDD inh\_VSS) \

AOI22XL

g4866 (n\_405 n\_439 n\_438 chequing\_local\<10\> n\_431 inh\_VDD inh\_VSS) \

AOI22XL

g4884 (n\_404 n\_439 n\_438 chequing\_local\<9\> n\_427 inh\_VDD inh\_VSS) \

AOI22XL

g4861 (n\_418 n\_265 n\_417 savings\_local\<3\> n\_301 inh\_VDD inh\_VSS) \

AOI22XL

g4862 (n\_280 n\_465 n\_464 savings\_local\<3\> n\_458 inh\_VDD inh\_VSS) \

AOI22XL

g4855 (n\_418 n\_176 n\_417 savings\_local\<1\> n\_234 inh\_VDD inh\_VSS) \

AOI22XL

g4857 (n\_418 n\_220 n\_417 savings\_local\<2\> n\_275 inh\_VDD inh\_VSS) \

AOI22XL

g4872 (n\_331 n\_465 n\_464 savings\_local\<6\> n\_455 inh\_VDD inh\_VSS) \

AOI22XL

g4869 (n\_316 n\_465 n\_464 savings\_local\<5\> n\_456 inh\_VDD inh\_VSS) \

AOI22XL

g4832 (n\_239 n\_418 n\_417 savings\_local\<0\> n\_240 inh\_VDD inh\_VSS) \

AOI22XL

g4864 (n\_418 n\_244 n\_417 savings\_local\<4\> n\_300 inh\_VDD inh\_VSS) \

AOI22XL

g4876 (n\_327 n\_465 n\_464 savings\_local\<7\> n\_453 inh\_VDD inh\_VSS) \

AOI22XL

g4886 (n\_398 n\_439 n\_438 chequing\_local\<13\> n\_426 inh\_VDD inh\_VSS) \

AOI22XL

g4878 (n\_369 n\_439 n\_438 chequing\_local\<8\> n\_428 inh\_VDD inh\_VSS) \

AOI22XL

g4836 (n\_385 n\_439 n\_438 chequing\_local\<12\> n\_440 inh\_VDD inh\_VSS) \

AOI22XL

g4834 (n\_237 n\_439 n\_438 chequing\_local\<0\> n\_441 inh\_VDD inh\_VSS) \

AOI22XL

g4835 (n\_237 n\_422 n\_421 chequing\_local\<0\> n\_238 inh\_VDD inh\_VSS) \

AOI22XL

g4849 (n\_422 n\_267 n\_421 chequing\_local\<4\> n\_303 inh\_VDD inh\_VSS) \

AOI22XL

g4851 (n\_299 n\_439 n\_438 chequing\_local\<4\> n\_434 inh\_VDD inh\_VSS) \

AOI22XL

g4844 (n\_422 n\_283 n\_421 chequing\_local\<3\> n\_313 inh\_VDD inh\_VSS) \

AOI22XL

g4847 (n\_282 n\_439 n\_438 chequing\_local\<3\> n\_435 inh\_VDD inh\_VSS) \

AOI22XL

g4854 (n\_422 n\_309 n\_421 chequing\_local\<5\> n\_342 inh\_VDD inh\_VSS) \

AOI22XL

g4859 (n\_329 n\_439 n\_438 chequing\_local\<5\> n\_433 inh\_VDD inh\_VSS) \

AOI22XL

g4838 (n\_182 n\_422 n\_421 chequing\_local\<1\> n\_236 inh\_VDD inh\_VSS) \

AOI22XL

g4840 (n\_181 n\_439 n\_438 chequing\_local\<1\> n\_437 inh\_VDD inh\_VSS) \

AOI22XL

g4867 (n\_422 n\_354 n\_421 chequing\_local\<7\> n\_387 inh\_VDD inh\_VSS) \

AOI22XL

g4871 (n\_375 n\_439 n\_438 chequing\_local\<7\> n\_430 inh\_VDD inh\_VSS) \

AOI22XL

g4860 (n\_422 n\_307 n\_421 chequing\_local\<6\> n\_340 inh\_VDD inh\_VSS) \

AOI22XL

g4863 (n\_328 n\_439 n\_438 chequing\_local\<6\> n\_432 inh\_VDD inh\_VSS) \

AOI22XL

g4841 (n\_422 n\_202 n\_421 chequing\_local\<2\> n\_263 inh\_VDD inh\_VSS) \

AOI22XL

g4842 (n\_222 n\_439 n\_438 chequing\_local\<2\> n\_436 inh\_VDD inh\_VSS) \

AOI22XL

g4880 (n\_357 n\_465 n\_464 savings\_local\<8\> n\_452 inh\_VDD inh\_VSS) \

AOI22XL

g4883 (n\_384 n\_465 n\_464 savings\_local\<9\> n\_449 inh\_VDD inh\_VSS) \

AOI22XL

g5012 (n\_177 n\_347 n\_203 n\_343 inh\_VDD inh\_VSS) OAI21XL

g4996 (n\_230 n\_347 n\_271 n\_348 inh\_VDD inh\_VSS) OAI21XL

g4991 (n\_208 n\_310 n\_248 n\_350 inh\_VDD inh\_VSS) OAI21XL

g5002 (n\_143 n\_347 n\_88 n\_346 inh\_VDD inh\_VSS) OAI21XL

g4939 (n\_414 n\_388 n\_424 inh\_VDD inh\_VSS) XNOR2X1

g4950 (n\_414 n\_374 n\_415 inh\_VDD inh\_VSS) XNOR2X1

g4932 (n\_382 n\_365 n\_405 inh\_VDD inh\_VSS) XNOR2X1

g4905 (n\_382 n\_349 n\_383 inh\_VDD inh\_VSS) XNOR2X1

g4931 (n\_376 n\_320 n\_377 inh\_VDD inh\_VSS) XNOR2X1

g4948 (n\_376 n\_366 n\_404 inh\_VDD inh\_VSS) XNOR2X1

g4909 (n\_155 n\_180 n\_181 inh\_VDD inh\_VSS) XNOR2X1

g4927 (n\_156 n\_174 n\_175 inh\_VDD inh\_VSS) XNOR2X1

g4926 (n\_95 n\_174 n\_176 inh\_VDD inh\_VSS) XNOR2X1

g4929 (n\_218 n\_199 n\_220 inh\_VDD inh\_VSS) XNOR2X1

g4944 (n\_218 n\_217 n\_219 inh\_VDD inh\_VSS) XNOR2X1

g4934 (n\_264 n\_211 n\_280 inh\_VDD inh\_VSS) XNOR2X1

g4907 (n\_94 n\_180 n\_182 inh\_VDD inh\_VSS) XNOR2X1

g4924 (n\_392 n\_362 n\_406 inh\_VDD inh\_VSS) XNOR2X1

g4908 (n\_395 n\_345 n\_397 inh\_VDD inh\_VSS) XNOR2X1

g4922 (n\_392 n\_352 n\_393 inh\_VDD inh\_VSS) XNOR2X1

g4918 (n\_380 n\_322 n\_381 inh\_VDD inh\_VSS) XNOR2X1

g4913 (n\_552 n\_389 n\_425 inh\_VDD inh\_VSS) XNOR2X1

g4916 (n\_552 n\_360 n\_408 inh\_VDD inh\_VSS) XNOR2X1

g4912 (n\_395 n\_343 n\_396 inh\_VDD inh\_VSS) XNOR2X1

g4930 (n\_326 n\_312 n\_370 inh\_VDD inh\_VSS) XNOR2X1

g4941 (n\_353 n\_317 n\_375 inh\_VDD inh\_VSS) XNOR2X1

g4943 (n\_326 n\_286 n\_327 inh\_VDD inh\_VSS) XNOR2X1

g4915 (n\_314 n\_293 n\_331 inh\_VDD inh\_VSS) XNOR2X1

g4940 (n\_314 n\_279 n\_315 inh\_VDD inh\_VSS) XNOR2X1

g4906 (n\_304 n\_287 n\_316 inh\_VDD inh\_VSS) XNOR2X1

g4936 (n\_243 n\_294 n\_295 inh\_VDD inh\_VSS) XNOR2X1

g4904 (n\_243 n\_242 n\_244 inh\_VDD inh\_VSS) XNOR2X1

g4935 (n\_306 n\_291 n\_328 inh\_VDD inh\_VSS) XNOR2X1

g4933 (n\_306 n\_259 n\_307 inh\_VDD inh\_VSS) XNOR2X1

g4928 (n\_308 n\_288 n\_329 inh\_VDD inh\_VSS) XNOR2X1

g4925 (n\_308 n\_262 n\_309 inh\_VDD inh\_VSS) XNOR2X1

g4920 (n\_266 n\_261 n\_267 inh\_VDD inh\_VSS) XNOR2X1

g4923 (n\_266 n\_298 n\_299 inh\_VDD inh\_VSS) XNOR2X1

g4901 (n\_371 n\_350 n\_385 inh\_VDD inh\_VSS) XNOR2X1

g4903 (n\_371 n\_318 n\_372 inh\_VDD inh\_VSS) XNOR2X1

g4898 (n\_390 n\_363 n\_398 inh\_VDD inh\_VSS) XNOR2X1

g4951 (n\_390 n\_341 n\_391 inh\_VDD inh\_VSS) XNOR2X1

g4946 (n\_324 n\_368 n\_369 inh\_VDD inh\_VSS) XNOR2X1

g4945 (n\_324 n\_323 n\_325 inh\_VDD inh\_VSS) XNOR2X1

g4917 (n\_281 n\_213 n\_282 inh\_VDD inh\_VSS) XNOR2X1

g4914 (n\_281 n\_214 n\_283 inh\_VDD inh\_VSS) XNOR2X1

g4910 (n\_201 n\_198 n\_202 inh\_VDD inh\_VSS) XNOR2X1

g4911 (n\_201 n\_221 n\_222 inh\_VDD inh\_VSS) XNOR2X1

g4942 (n\_355 n\_347 n\_357 inh\_VDD inh\_VSS) XNOR2X1

g4902 (n\_378 n\_346 n\_384 inh\_VDD inh\_VSS) XNOR2X1

g5099 (n\_168 n\_139 inh\_VDD inh\_VSS) INVX1

g5258 (chequing\_local\<11\> n\_10 inh\_VDD inh\_VSS) INVX1

g5170 (n\_161 n\_162 inh\_VDD inh\_VSS) INVX1

g5046 (n\_323 n\_333 inh\_VDD inh\_VSS) INVX1

g5211 (n\_111 n\_58 inh\_VDD inh\_VSS) INVX1

g5265 (chequing\_local\<9\> n\_6 inh\_VDD inh\_VSS) INVX1

g4896 (n\_422 n\_421 inh\_VDD inh\_VSS) INVX1

g4893 (n\_417 n\_418 inh\_VDD inh\_VSS) INVX1

g4952 (n\_438 n\_439 inh\_VDD inh\_VSS) INVX1

g4899 (n\_465 n\_464 inh\_VDD inh\_VSS) INVX1

g5264 (state\<2\> n\_296 inh\_VDD inh\_VSS) INVX1

g5245 (savings\_local\<9\> n\_37 inh\_VDD inh\_VSS) INVX1

g5271 (chequing\_local\<4\> n\_26 inh\_VDD inh\_VSS) INVX1

g5260 (state\<3\> n\_402 inh\_VDD inh\_VSS) INVX1

g5263 (chequing\_local\<7\> n\_16 inh\_VDD inh\_VSS) INVX1

g5243 (savings\_local\<11\> n\_33 inh\_VDD inh\_VSS) INVX1

g5242 (state\<1\> n\_215 inh\_VDD inh\_VSS) INVX1

g5272 (chequing\_local\<13\> n\_93 inh\_VDD inh\_VSS) INVX1

g5250 (savings\_local\<10\> n\_30 inh\_VDD inh\_VSS) INVX1

g5217 (n\_89 n\_146 inh\_VDD inh\_VSS) INVX1

g4891 (n\_150 n\_51 inh\_VDD inh\_VSS) INVX1

g5102 (n\_189 n\_138 inh\_VDD inh\_VSS) INVX1

g5173 (n\_223 n\_203 inh\_VDD inh\_VSS) INVX1

g5167 (n\_163 n\_164 inh\_VDD inh\_VSS) INVX1

g4969 (n\_120 n\_71 inh\_VDD inh\_VSS) INVX1

g5070 (n\_347 n\_361 inh\_VDD inh\_VSS) INVX1

g5093 (n\_183 n\_230 inh\_VDD inh\_VSS) INVX1

g5044 (n\_351 n\_344 inh\_VDD inh\_VSS) INVX1

g5132 (n\_90 n\_91 inh\_VDD inh\_VSS) INVX1

g5165 (n\_165 n\_166 inh\_VDD inh\_VSS) INVX1

g5074 (n\_261 n\_204 inh\_VDD inh\_VSS) INVX1

g5189 (n\_110 n\_170 inh\_VDD inh\_VSS) INVX1

g5194 (n\_105 n\_148 inh\_VDD inh\_VSS) INVX1

g5076 (n\_242 n\_277 inh\_VDD inh\_VSS) INVX1

g5089 (n\_103 n\_255 inh\_VDD inh\_VSS) INVX1

g5072 (n\_310 n\_368 inh\_VDD inh\_VSS) INVX1

g5106 (n\_359 n\_248 inh\_VDD inh\_VSS) INVX1

g5060 (n\_249 n\_250 inh\_VDD inh\_VSS) INVX1

g5140 (n\_198 n\_135 inh\_VDD inh\_VSS) INVX1

g5220 (n\_88 n\_144 inh\_VDD inh\_VSS) INVX1

g4812 (n\_429 n\_442 n\_505 n\_477 inh\_VDD inh\_VSS) MX2XL

g4801 (n\_431 n\_420 n\_505 n\_451 inh\_VDD inh\_VSS) MX2XL

g4817 (n\_427 n\_410 n\_505 n\_469 inh\_VDD inh\_VSS) MX2XL

g4810 (n\_460 n\_234 n\_505 n\_490 inh\_VDD inh\_VSS) MX2XL

g4811 (n\_459 n\_275 n\_505 n\_489 inh\_VDD inh\_VSS) MX2XL

g4830 (open\_atm\_receive n\_402 n\_150 n\_149 inh\_VDD inh\_VSS) MX2XL

g4808 (n\_461 n\_416 n\_505 n\_491 inh\_VDD inh\_VSS) MX2XL

g4806 (n\_463 n\_443 n\_505 n\_493 inh\_VDD inh\_VSS) MX2XL

g4804 (n\_466 n\_419 n\_505 n\_494 inh\_VDD inh\_VSS) MX2XL

g4807 (n\_462 n\_413 n\_505 n\_492 inh\_VDD inh\_VSS) MX2XL

g4947 (n\_351 n\_344 n\_355 n\_356 inh\_VDD inh\_VSS) MX2XL

g4802 (n\_467 n\_240 n\_505 n\_495 inh\_VDD inh\_VSS) MX2XL

g4814 (n\_457 n\_300 n\_505 n\_498 inh\_VDD inh\_VSS) MX2XL

g4800 (n\_426 n\_423 n\_505 n\_454 inh\_VDD inh\_VSS) MX2XL

g4816 (n\_428 n\_373 n\_505 n\_470 inh\_VDD inh\_VSS) MX2XL

g4818 (n\_440 n\_409 n\_505 n\_468 inh\_VDD inh\_VSS) MX2XL

g4809 (n\_433 n\_342 n\_505 n\_447 inh\_VDD inh\_VSS) MX2XL

g4803 (n\_437 n\_236 n\_505 n\_450 inh\_VDD inh\_VSS) MX2XL

g4815 (n\_430 n\_387 n\_505 n\_471 inh\_VDD inh\_VSS) MX2XL

g4813 (n\_432 n\_340 n\_505 n\_472 inh\_VDD inh\_VSS) MX2XL

g4805 (n\_436 n\_263 n\_505 n\_448 inh\_VDD inh\_VSS) MX2XL

g4888 (bank\_card\_insert n\_296 state\<3\> n\_67 inh\_VDD inh\_VSS) OAI21X1

g4821 (state\<3\> n\_150 n\_505 n\_153 inh\_VDD inh\_VSS) OAI21X1

g4998 (n\_64 n\_323 n\_99 n\_320 inh\_VDD inh\_VSS) OAI21X1

g5100 (n\_66 n\_99 n\_65 n\_168 inh\_VDD inh\_VSS) OAI21X1

g5141 (n\_83 n\_94 n\_84 n\_198 inh\_VDD inh\_VSS) OAI21X1

g4999 (n\_63 n\_351 n\_98 n\_319 inh\_VDD inh\_VSS) OAI21X1

g4828 (n\_402 n\_150 n\_136 n\_151 inh\_VDD inh\_VSS) OAI21X1

g5014 (n\_145 n\_217 n\_89 n\_211 inh\_VDD inh\_VSS) OAI21X1

g5139 (n\_76 n\_95 n\_77 n\_199 inh\_VDD inh\_VSS) OAI21X1

g4995 (n\_192 n\_351 n\_321 n\_322 inh\_VDD inh\_VSS) OAI21X1

g5001 (n\_61 n\_242 n\_54 n\_260 inh\_VDD inh\_VSS) OAI21X1

g4992 (n\_78 n\_261 n\_79 n\_262 inh\_VDD inh\_VSS) OAI21X1

g4994 (n\_81 n\_135 n\_80 n\_214 inh\_VDD inh\_VSS) OAI21X1

g5050 (n\_225 n\_566 n\_191 inh\_VDD inh\_VSS) NAND2BX1

g5312 (chequing\_local\<1\> amount\<1\> n\_554 inh\_VDD inh\_VSS) NAND2BX1

g5318 (savings\_local\<1\> amount\<1\> n\_560 inh\_VDD inh\_VSS) NAND2BX1

g5324 (chequing\_local\<10\> amount\<10\> n\_566 inh\_VDD inh\_VSS) \

NAND2BX1

g5311 (amount\<10\> chequing\_local\<10\> n\_553 inh\_VDD inh\_VSS) \

NAND2BX1

g4967 (n\_75 n\_74 n\_414 inh\_VDD inh\_VSS) NAND2BX1

g5327 (savings\_local\<4\> amount\<4\> n\_569 inh\_VDD inh\_VSS) NAND2BX1

g5326 (savings\_local\<7\> amount\<7\> n\_568 inh\_VDD inh\_VSS) NAND2BX1

g5325 (amount\<4\> savings\_local\<4\> n\_567 inh\_VDD inh\_VSS) NAND2BX1

g5322 (chequing\_local\<8\> amount\<8\> n\_564 inh\_VDD inh\_VSS) NAND2BX1

g5321 (savings\_local\<5\> amount\<5\> n\_563 inh\_VDD inh\_VSS) NAND2BX1

g5316 (chequing\_local\<12\> amount\<12\> n\_558 inh\_VDD inh\_VSS) \

NAND2BX1

g5313 (savings\_local\<3\> amount\<3\> n\_555 inh\_VDD inh\_VSS) NAND2BX1

g4973 (n\_66 n\_65 n\_376 inh\_VDD inh\_VSS) NAND2BX1

g5206 (n\_145 n\_555 n\_128 inh\_VDD inh\_VSS) NAND2BX1

g5138 (n\_143 n\_116 n\_177 inh\_VDD inh\_VSS) NAND2BX1

g5069 (n\_271 n\_269 n\_270 inh\_VDD inh\_VSS) NAND2BX1

g5097 (n\_559 n\_562 n\_101 inh\_VDD inh\_VSS) NAND2BX1

g4961 (n\_193 n\_85 n\_380 inh\_VDD inh\_VSS) NAND2BX1

g5205 (n\_567 n\_563 n\_104 inh\_VDD inh\_VSS) NAND2BX1

g4964 (n\_81 n\_80 n\_201 inh\_VDD inh\_VSS) NAND2BX1

g5075 (amount\<3\> chequing\_local\<3\> n\_50 n\_198 n\_45 n\_261 inh\_VDD \

inh\_VSS) AOI221X1

g5057 (amount\<11\> savings\_local\<11\> n\_141 n\_189 n\_60 n\_321 inh\_VDD \

inh\_VSS) AOI221X1

g5077 (amount\<3\> savings\_local\<3\> n\_43 n\_199 n\_47 n\_242 inh\_VDD \

inh\_VSS) AOI221X1

g4959 (deposit\_withdrawal\_selection state\<1\> bank\_card\_insert n\_215 \

state\<2\> n\_119 inh\_VDD inh\_VSS) AOI221X1

g5022 (n\_178 n\_223 n\_179 n\_361 n\_224 n\_360 inh\_VDD inh\_VSS) AOI221X1

g5051 (n\_205 n\_359 n\_206 n\_368 n\_184 n\_403 inh\_VDD inh\_VSS) AOI221X1

g5109 (n\_224 n\_123 n\_164 n\_223 n\_147 n\_271 inh\_VDD inh\_VSS) AOI221X1

g5024 (n\_170 n\_285 n\_171 n\_294 n\_556 n\_286 inh\_VDD inh\_VSS) AOI221X1

g5020 (n\_558 n\_359 n\_210 n\_368 n\_91 n\_363 inh\_VDD inh\_VSS) AOI221X1

g5000 (n\_195 n\_323 n\_249 n\_318 inh\_VDD inh\_VSS) AOI2BB1XL

g5175 (n\_159 n\_158 n\_561 n\_160 inh\_VDD inh\_VSS) AOI2BB1XL

g5009 (n\_255 n\_261 n\_258 n\_259 inh\_VDD inh\_VSS) OA21X1

g5013 (n\_212 n\_221 n\_158 n\_213 inh\_VDD inh\_VSS) OA21X1

g5142 (n\_212 n\_159 n\_221 n\_160 n\_298 inh\_VDD inh\_VSS) OAI31X1

g4874 (n\_422 n\_424 n\_421 chequing\_local\<11\> n\_442 inh\_VDD inh\_VSS) \

AOI22X1

g4799 (n\_446 state\<0\> n\_505 n\_87 n\_479 inh\_VDD inh\_VSS) AOI22X1

g4837 (n\_422 n\_383 n\_421 chequing\_local\<10\> n\_420 inh\_VDD inh\_VSS) \

AOI22X1

g4882 (n\_422 n\_377 n\_421 chequing\_local\<9\> n\_410 inh\_VDD inh\_VSS) \

AOI22X1

g5210 (n\_554 n\_155 n\_154 chequing\_local\<1\> n\_221 inh\_VDD inh\_VSS) \

AOI22X1

g5209 (n\_560 n\_156 n\_154 savings\_local\<1\> n\_217 inh\_VDD inh\_VSS) \

AOI22X1

g4881 (n\_418 n\_379 n\_417 savings\_local\<9\> n\_411 inh\_VDD inh\_VSS) \

AOI22X1

g4819 (n\_297 n\_505 state\<0\> n\_151 n\_330 inh\_VDD inh\_VSS) AOI22X1

g4856 (n\_175 n\_465 n\_464 savings\_local\<1\> n\_460 inh\_VDD inh\_VSS) \

AOI22X1

g4858 (n\_219 n\_465 n\_464 savings\_local\<2\> n\_459 inh\_VDD inh\_VSS) \

AOI22X1

g4798 (state\<0\> n\_149 open\_atm\_receive n\_505 n\_207 inh\_VDD inh\_VSS) \

AOI22X1

g4853 (n\_406 n\_465 n\_464 savings\_local\<13\> n\_461 inh\_VDD inh\_VSS) \

AOI22X1

g4852 (n\_418 n\_393 n\_417 savings\_local\<13\> n\_416 inh\_VDD inh\_VSS) \

AOI22X1

g4845 (n\_418 n\_425 n\_417 savings\_local\<11\> n\_443 inh\_VDD inh\_VSS) \

AOI22X1

g4846 (n\_408 n\_465 n\_464 savings\_local\<11\> n\_463 inh\_VDD inh\_VSS) \

AOI22X1

g4839 (n\_418 n\_397 n\_417 savings\_local\<10\> n\_419 inh\_VDD inh\_VSS) \

AOI22X1

g4843 (n\_396 n\_465 n\_464 savings\_local\<10\> n\_466 inh\_VDD inh\_VSS) \

AOI22X1

g4848 (n\_418 n\_381 n\_417 savings\_local\<12\> n\_413 inh\_VDD inh\_VSS) \

AOI22X1

g4850 (n\_394 n\_465 n\_464 savings\_local\<12\> n\_462 inh\_VDD inh\_VSS) \

AOI22X1

g4879 (n\_418 n\_356 n\_417 savings\_local\<8\> n\_386 inh\_VDD inh\_VSS) \

AOI22X1

g4870 (n\_418 n\_315 n\_417 savings\_local\<6\> n\_358 inh\_VDD inh\_VSS) \

AOI22X1

g4868 (n\_418 n\_305 n\_417 savings\_local\<5\> n\_332 inh\_VDD inh\_VSS) \

AOI22X1

g4833 (n\_239 n\_465 n\_464 savings\_local\<0\> n\_467 inh\_VDD inh\_VSS) \

AOI22X1

g4865 (n\_295 n\_465 n\_464 savings\_local\<4\> n\_457 inh\_VDD inh\_VSS) \

AOI22X1

g4873 (n\_418 n\_370 n\_417 savings\_local\<7\> n\_399 inh\_VDD inh\_VSS) \

AOI22X1

g5144 (n\_556 n\_568 n\_34 savings\_local\<7\> n\_134 inh\_VDD inh\_VSS) \

AOI22X1

g4831 (n\_422 n\_391 n\_421 chequing\_local\<13\> n\_423 inh\_VDD inh\_VSS) \

AOI22X1

g4877 (n\_422 n\_325 n\_421 chequing\_local\<8\> n\_373 inh\_VDD inh\_VSS) \

AOI22X1

g4885 (n\_422 n\_372 n\_421 chequing\_local\<12\> n\_409 inh\_VDD inh\_VSS) \

AOI22X1

g5159 (amount\<2\> savings\_local\<2\> n\_42 inh\_VDD inh\_VSS) OR2XL

g5039 (n\_193 n\_192 n\_194 inh\_VDD inh\_VSS) OR2XL

g5035 (n\_196 n\_195 n\_197 inh\_VDD inh\_VSS) OR2XL

g5323 (amount\<11\> chequing\_local\<11\> n\_565 inh\_VDD inh\_VSS) \

NOR2BX1

g5171 (n\_566 n\_565 n\_161 inh\_VDD inh\_VSS) NOR2BX1

g5320 (savings\_local\<12\> amount\<12\> n\_562 inh\_VDD inh\_VSS) NOR2BX1

g5319 (chequing\_local\<3\> amount\<3\> n\_561 inh\_VDD inh\_VSS) NOR2BX1

g5317 (amount\<13\> savings\_local\<13\> n\_559 inh\_VDD inh\_VSS) NOR2BX1

g5315 (chequing\_local\<5\> amount\<5\> n\_557 inh\_VDD inh\_VSS) NOR2BX1

g5314 (savings\_local\<6\> amount\<6\> n\_556 inh\_VDD inh\_VSS) NOR2BX1

g5137 (n\_564 n\_96 n\_364 inh\_VDD inh\_VSS) NOR2BX1

g4960 (n\_229 n\_335 n\_382 inh\_VDD inh\_VSS) NOR2BX1

g5131 (n\_42 n\_41 n\_43 inh\_VDD inh\_VSS) NOR2BX1

g4966 (n\_77 n\_76 n\_174 inh\_VDD inh\_VSS) NOR2BX1

g5091 (savings\_local\<13\> amount\<13\> n\_107 inh\_VDD inh\_VSS) NOR2BX1

g4962 (n\_84 n\_83 n\_180 inh\_VDD inh\_VSS) NOR2BX1

g4765 (n\_241 rst n\_268 inh\_VDD inh\_VSS) NOR2BX1

g4963 (n\_82 n\_338 n\_395 inh\_VDD inh\_VSS) NOR2BX1

g5049 (n\_178 n\_177 n\_179 inh\_VDD inh\_VSS) NOR2BX1

g5068 (n\_205 n\_208 n\_206 inh\_VDD inh\_VSS) NOR2BX1

g2 (n\_123 n\_147 n\_552 inh\_VDD inh\_VSS) NOR2BX1

g5098 (n\_558 n\_167 n\_205 inh\_VDD inh\_VSS) NOR2BX1

g4971 (n\_70 n\_69 n\_353 inh\_VDD inh\_VSS) NOR2BX1

g5164 (n\_568 n\_110 n\_227 inh\_VDD inh\_VSS) NOR2BX1

g5207 (n\_125 n\_124 n\_126 inh\_VDD inh\_VSS) NOR2BX1

g5169 (n\_131 n\_124 n\_290 inh\_VDD inh\_VSS) NOR2BX1

g4965 (n\_79 n\_78 n\_266 inh\_VDD inh\_VSS) NOR2BX1

g5041 (n\_558 n\_208 n\_210 inh\_VDD inh\_VSS) NOR2BX1

g4972 (n\_68 n\_196 n\_371 inh\_VDD inh\_VSS) NOR2BX1

g5172 (n\_563 n\_569 n\_292 inh\_VDD inh\_VSS) AND2X1

g5003 (n\_564 n\_368 n\_58 n\_366 inh\_VDD inh\_VSS) AOI21XL

g5005 (n\_292 n\_294 n\_285 n\_293 inh\_VDD inh\_VSS) AOI21XL

g5015 (n\_131 n\_298 n\_125 n\_288 inh\_VDD inh\_VSS) AOI21XL

g4825 (state\<2\> state\<3\> n\_86 n\_87 inh\_VDD inh\_VSS) OAI2BB1X1

g4822 (n\_67 n\_86 state\<0\> n\_173 inh\_VDD inh\_VSS) OAI2BB1X1

g5017 (n\_364 n\_368 n\_225 n\_365 inh\_VDD inh\_VSS) OAI2BB1X1

g4997 (n\_42 n\_199 n\_46 n\_200 inh\_VDD inh\_VSS) OAI2BB1X1

g5232 (n\_122 chequing\_local\<0\> n\_155 n\_237 inh\_VDD inh\_VSS) \

OAI2BB1X1

g5231 (n\_122 savings\_local\<0\> n\_156 n\_239 inh\_VDD inh\_VSS) OAI2BB1X1

g5174 (n\_144 n\_116 n\_115 n\_223 inh\_VDD inh\_VSS) OAI2BB1X1

g4827 (n\_51 open\_atm\_dispense n\_444 n\_445 inh\_VDD inh\_VSS) OAI2BB1X1

g5105 (n\_227 n\_285 n\_134 n\_228 inh\_VDD inh\_VSS) OAI2BB1X1

g5011 (n\_278 n\_277 n\_276 n\_279 inh\_VDD inh\_VSS) OAI2BB1X1

g5016 (n\_569 n\_294 n\_567 n\_287 inh\_VDD inh\_VSS) OAI2BB1X1

g5006 (n\_290 n\_298 n\_289 n\_291 inh\_VDD inh\_VSS) OAI2BB1X1

g5023 (n\_566 n\_364 n\_368 n\_233 n\_374 inh\_VDD inh\_VSS) AOI31X1

g5052 (n\_269 n\_183 n\_361 n\_311 n\_400 inh\_VDD inh\_VSS) AOI31X1

g5045 (n\_278 n\_187 n\_277 n\_254 n\_351 inh\_VDD inh\_VSS) AOI31X1

g5073 (n\_165 n\_290 n\_298 n\_247 n\_310 inh\_VDD inh\_VSS) AOI31X1

g5071 (n\_227 n\_292 n\_294 n\_228 n\_347 inh\_VDD inh\_VSS) AOI31X1

g5047 (n\_103 n\_185 n\_204 n\_252 n\_323 inh\_VDD inh\_VSS) AOI31X1

g4787 (n\_173 n\_153 rst n\_235 inh\_VDD inh\_VSS) AOI21X1

g4993 (n\_334 n\_333 n\_168 n\_349 inh\_VDD inh\_VSS) AOI21X1

g5010 (n\_337 n\_344 n\_189 n\_345 inh\_VDD inh\_VSS) AOI21X1

g5101 (amount\<5\> savings\_local\<5\> n\_56 n\_276 inh\_VDD inh\_VSS) \

AOI21X1

g5104 (amount\<5\> chequing\_local\<5\> n\_49 n\_258 inh\_VDD inh\_VSS) \

AOI21X1

g5048 (n\_170 n\_292 n\_171 inh\_VDD inh\_VSS) AND2XL

g5018 (n\_335 n\_139 n\_229 n\_336 n\_388 inh\_VDD inh\_VSS) OAI211X1

g5061 (n\_75 n\_229 n\_74 n\_169 n\_249 inh\_VDD inh\_VSS) OAI211X1

g5143 (n\_128 n\_217 n\_113 n\_157 n\_294 inh\_VDD inh\_VSS) OAI211X1

g4820 (n\_52 state\<0\> n\_57 n\_172 n\_241 inh\_VDD inh\_VSS) OAI211X1

g4887 (bank\_card\_insert state\<1\> state\<2\> state\<3\> n\_57 inh\_VDD \

inh\_VSS) OAI211X1

g5004 (n\_338 n\_138 n\_82 n\_339 n\_389 inh\_VDD inh\_VSS) OAI211X1

g5007 (n\_256 n\_258 n\_251 n\_257 n\_302 inh\_VDD inh\_VSS) OAI211X1

g5059 (n\_69 n\_251 n\_70 n\_186 n\_252 inh\_VDD inh\_VSS) OAI211X1

g5058 (n\_73 n\_253 n\_72 n\_188 n\_254 inh\_VDD inh\_VSS) OAI211X1

g5008 (n\_273 n\_276 n\_253 n\_274 n\_312 inh\_VDD inh\_VSS) OAI211X1

g5025 (n\_105 n\_289 n\_246 n\_284 n\_317 inh\_VDD inh\_VSS) OAI211X1

g4895 (n\_412 state\<1\> n\_296 n\_444 inh\_VDD inh\_VSS) NAND3X1

g5028 (n\_148 n\_290 n\_298 n\_284 inh\_VDD inh\_VSS) NAND3X1

g5107 (n\_553 n\_565 n\_162 n\_225 amount\<11\> n\_10 n\_359 inh\_VDD \

inh\_VSS) OAI222X1

g4826 (n\_402 n\_32 n\_216 state\<2\> n\_215 n\_296 n\_297 inh\_VDD inh\_VSS) \

OAI222X1

g5108 (n\_246 n\_106 n\_166 n\_289 amount\<7\> n\_16 n\_247 inh\_VDD inh\_VSS) \

OAI222X1

g5030 (n\_335 n\_334 n\_333 n\_336 inh\_VDD inh\_VSS) NAND3BXL

g5062 (n\_107 n\_101 n\_270 n\_311 inh\_VDD inh\_VSS) NAND3BXL

g5029 (n\_338 n\_337 n\_344 n\_339 inh\_VDD inh\_VSS) NAND3BXL

g5032 (n\_273 n\_278 n\_277 n\_274 inh\_VDD inh\_VSS) NAND3BXL

g5040 (pin\<13\> pin\<7\> n\_21 inh\_VDD inh\_VSS) NAND2BXL

g5066 (n\_258 n\_185 n\_186 inh\_VDD inh\_VSS) NAND2BXL

g4968 (n\_73 n\_72 n\_326 inh\_VDD inh\_VSS) NAND2BXL

g5063 (n\_276 n\_187 n\_188 inh\_VDD inh\_VSS) NAND2BXL

g4919 (n\_378 n\_319 n\_379 inh\_VDD inh\_VSS) XOR2XL

g4937 (n\_264 n\_200 n\_265 inh\_VDD inh\_VSS) XOR2XL

g4921 (n\_380 n\_348 n\_394 inh\_VDD inh\_VSS) XOR2XL

g4949 (n\_353 n\_302 n\_354 inh\_VDD inh\_VSS) XOR2XL

g4938 (n\_304 n\_260 n\_305 inh\_VDD inh\_VSS) XOR2XL

g5031 (n\_256 n\_255 n\_261 n\_257 inh\_VDD inh\_VSS) OR3XL

g4953 (n\_120 n\_403 state\<2\> n\_402 n\_438 inh\_VDD inh\_VSS) OR4X1

g4897 (n\_71 n\_296 n\_402 n\_422 inh\_VDD inh\_VSS) AND3XL

g5103 (n\_62 n\_98 n\_39 n\_37 n\_189 inh\_VDD inh\_VSS) OAI22X1

g5026 (account\_selection n\_403 n\_137 n\_400 n\_412 inh\_VDD inh\_VSS) \

OAI22X1

g5078 (n\_167 n\_90 amount\<13\> n\_93 n\_184 inh\_VDD inh\_VSS) OAI22X1

g5230 (amount\<13\> n\_93 n\_167 n\_390 inh\_VDD inh\_VSS) ADDHX1

open\_atm\_receive\_reg (clk n\_245 open\_atm\_receive inh\_VDD inh\_VSS) \

DFFQXL

open\_atm\_dispense\_reg (clk n\_496 open\_atm\_dispense inh\_VDD inh\_VSS) \

DFFQXL

g4797 (n\_445 open\_atm\_dispense n\_22 n\_473 inh\_VDD inh\_VSS) MXI2XL

g4900 (account\_selection n\_401 state\<1\> state\<3\> n\_465 inh\_VDD \

inh\_VSS) AND4X1

g4889 (deposit\_withdrawal\_selection state\<2\> n\_215 state\<1\> n\_296 \

n\_97 inh\_VDD inh\_VSS) OAI32X1

g4829 (n\_119 n\_121 state\<3\> n\_444 n\_402 n\_446 inh\_VDD inh\_VSS) \

OAI32X1

g5034 (pin\<8\> pin\<9\> pin\<11\> pin\<12\> n\_28 inh\_VDD inh\_VSS) \

NOR4X1

g4990 (pin\<0\> pin\<2\> n\_21 n\_29 n\_142 inh\_VDD inh\_VSS) NOR4X1

g4954 (n\_23 n\_28 n\_142 n\_215 n\_216 inh\_VDD inh\_VSS) NAND4XL

g5033 (pin\<1\> pin\<10\> pin\<4\> pin\<6\> n\_29 inh\_VDD inh\_VSS) \

NAND4XL

g5043 (n\_231 n\_271 n\_272 inh\_VDD inh\_VSS) NOR2XL

g5036 (pin\<3\> pin\<5\> n\_23 inh\_VDD inh\_VSS) NOR2XL

g5021 (n\_232 n\_361 n\_562 n\_272 n\_362 inh\_VDD inh\_VSS) AOI211XL

g5259 (amount\<9\> n\_39 inh\_VDD inh\_VSS) INVXL

g5268 (amount\<8\> n\_25 inh\_VDD inh\_VSS) INVXL

g5239 (amount\<3\> n\_24 inh\_VDD inh\_VSS) INVXL

g5257 (amount\<12\> n\_27 inh\_VDD inh\_VSS) INVXL

g5251 (amount\<2\> n\_38 inh\_VDD inh\_VSS) INVXL

g5240 (amount\<6\> n\_40 inh\_VDD inh\_VSS) INVXL

g5270 (amount\<5\> n\_35 inh\_VDD inh\_VSS) INVXL

g5273 (amount\<0\> n\_122 inh\_VDD inh\_VSS) INVXL

g5269 (amount\<7\> n\_34 inh\_VDD inh\_VSS) INVXL

g5274 (rst n\_504 inh\_VDD inh\_VSS) INVXL

g5253 (amount\<1\> n\_154 inh\_VDD inh\_VSS) INVXL

g5310 (n\_52 n\_32 inh\_VDD inh\_VSS) INVXL

g5261 (account\_selection n\_137 inh\_VDD inh\_VSS) INVXL

g4894 (n\_137 state\<3\> n\_136 n\_417 inh\_VDD inh\_VSS) OR3X1

g4762 (state\<3\> n\_32 n\_505 ready inh\_VDD inh\_VSS) NOR3XL

g5178 (n\_96 n\_111 amount\<9\> n\_6 n\_225 inh\_VDD inh\_VSS) OA22X1

g5233 (n\_122 chequing\_local\<0\> n\_155 inh\_VDD inh\_VSS) OR2X1

g5234 (n\_122 savings\_local\<0\> n\_156 inh\_VDD inh\_VSS) OR2X1

state\_reg\[0\] (clk n\_501 n\_505 state\<0\> logic\_1\_1\_net inh\_VDD \

inh\_VSS) DFFRX2

tie\_1\_cell (logic\_1\_1\_net inh\_VDD inh\_VSS) TIEHI

ends fsm

// End of subcircuit definition.

// Library name: fsm\_tb

// Cell name: fsm\_tb

// View name: schematic

I0 (CLK RST CARD\_INSERT DW\_SELECT ACC\_SELECT amount\<13\> amount\<12\> \

amount\<11\> amount\<10\> amount\<9\> amount\<8\> amount\<7\> \

amount\<6\> amount\<5\> amount\<4\> amount\<3\> amount\<2\> \

amount\<1\> amount\<0\> pin\<13\> pin\<12\> pin\<11\> pin\<10\> \

pin\<9\> pin\<8\> pin\<7\> pin\<6\> pin\<5\> pin\<4\> pin\<3\> \

pin\<2\> pin\<1\> pin\<0\> ATM\_OUT ATM\_IN READY VDD! VSS! VDD! \

VSS!) fsm

I1 (0 VSS!) iprobe

C3 (READY 0) capacitor c=10f

C2 (ATM\_IN 0) capacitor c=10f

C1 (ATM\_OUT 0) capacitor c=10f

V1 (CLK 0) vsource dc=0 type=pulse edgetype=linear val0=0 val1=1 period=T \

rise=10p fall=10p width=T/2

V2 (RST 0) vsource type=pwl wave=[ 0 1 ((2\*T)) 1 ((2.01\*T)) 0 ]

V49 (VDD! 0) vsource dc=1 type=dc

V76 (pin\<13\> 0) vsource dc=0 type=dc

V75 (pin\<12\> 0) vsource dc=0 type=dc

V74 (pin\<11\> 0) vsource dc=0 type=dc

V63 (pin\<0\> 0) vsource dc=0 type=dc

V73 (pin\<10\> 0) vsource dc=0 type=dc

V64 (pin\<1\> 0) vsource dc=0 type=dc

V72 (pin\<9\> 0) vsource dc=0 type=dc

V65 (pin\<2\> 0) vsource dc=0 type=dc

V71 (pin\<8\> 0) vsource dc=0 type=dc

V70 (pin\<7\> 0) vsource dc=0 type=dc

V66 (pin\<3\> 0) vsource dc=0 type=dc

V67 (pin\<4\> 0) vsource dc=0 type=dc

V68 (pin\<5\> 0) vsource dc=0 type=dc

V69 (pin\<6\> 0) vsource dc=0 type=dc

V62 (amount\<0\> 0) vsource dc=0 type=dc

V61 (amount\<1\> 0) vsource dc=0 type=dc

V60 (amount\<2\> 0) vsource dc=0 type=dc

V59 (amount\<3\> 0) vsource dc=0 type=dc

V58 (amount\<4\> 0) vsource dc=0 type=dc

V57 (amount\<5\> 0) vsource dc=0 type=dc

V56 (amount\<6\> 0) vsource dc=0 type=dc

V55 (amount\<7\> 0) vsource dc=0 type=dc

V54 (amount\<8\> 0) vsource dc=0 type=dc

V53 (amount\<9\> 0) vsource dc=0 type=dc

V52 (amount\<10\> 0) vsource dc=0 type=dc

V51 (amount\<11\> 0) vsource dc=0 type=dc

V17 (amount\<13\> 0) vsource dc=0 type=dc

V50 (amount\<12\> 0) vsource dc=0 type=dc

V5 (ACC\_SELECT 0) vsource dc=1 type=dc

V4 (DW\_SELECT 0) vsource dc=1 type=dc

V3 (CARD\_INSERT 0) vsource dc=0 type=dc

simulatorOptions options psfversion="1.1.0" reltol=1e-3 vabstol=1e-6 \

iabstol=1e-12 temp=27 tnom=25 scalem=1.0 scale=1.0 gmin=1e-12 rforce=1 \

maxnotes=5 maxwarns=5 digits=5 cols=80 pivrel=1e-3 \

sensfile="../psf/sens.output" checklimitdest=psf

tran tran stop=10n errpreset=liberal write="spectre.ic" \

writefinal="spectre.fc" annotate=status maxiters=5

finalTimeOP info what=oppoint where=rawfile

modelParameter info what=models where=rawfile

element info what=inst where=rawfile

outputParameter info what=output where=rawfile

designParamVals info what=parameters where=rawfile

primitives info what=primitives where=rawfile

subckts info what=subckts where=rawfile

saveOptions options save=allpub