`timescale 1ns/1ps

module gesture\_tb;

reg clk;

reg rst;

reg [7:0] acc\_x;

reg [7:0] acc\_y;

reg [7:0] acc\_z;

wire [2:0] gesture\_id;

wire gesture\_valid;

gesture\_recognition uut (

.clk(clk),

.rst(rst),

.acc\_x(acc\_x),

.acc\_y(acc\_y),

.acc\_z(acc\_z),

.gesture\_id(gesture\_id),

.gesture\_valid(gesture\_valid)

);

initial begin

clk = 0;

forever #5 clk = ~clk;

end

initial begin

$display("Time\tacc\_x\tacc\_y\tacc\_z\tGesture\_ID\tValid");

$monitor("%0t\t%d\t%d\t%d\t%03b\t\t%b", $time, acc\_x, acc\_y, acc\_z, gesture\_id, gesture\_valid);

rst = 1; acc\_x = 0; acc\_y = 0; acc\_z = 0;

#20; rst = 0;

// No gesture

acc\_x = 10; acc\_y = 10; acc\_z = 10; #20;

// Swipe

acc\_x = 60; acc\_y = 20; acc\_z = 30; #20;

// Tap

acc\_x = 20; acc\_y = 60; acc\_z = 30; #20;

// Shake

acc\_x = 10; acc\_y = 10; acc\_z = 120; #20;

// Threshold equality checks

acc\_x = 50; acc\_y = 49; acc\_z = 99; #20; // No gesture

acc\_x = 51; acc\_y = 49; acc\_z = 99; #20; // Swipe

acc\_x = 49; acc\_y = 50; acc\_z = 99; #20; // No gesture

acc\_x = 49; acc\_y = 51; acc\_z = 99; #20; // Tap

acc\_x = 49; acc\_y = 49; acc\_z = 100; #20; // No gesture

acc\_x = 49; acc\_y = 49; acc\_z = 101; #20; // Shake

// All gestures possible

acc\_x = 60; acc\_y = 60; acc\_z = 120; #20;

$finish;

end

endmodule

Rcscript file

set\_db init\_lib\_search\_path /home/install/FOUNDRY/digital/90nm/dig/lib

set\_db hdl\_search\_path /home/cadence/Desktop/093\_094/93\_94

set\_db library slow.lib

read\_hdl gesture.v

elaborate

read\_sdc /home/cadence/Desktop/093\_094/93\_94/constraints.sdc

set\_db syn\_generic\_effort medium

syn\_generic

set\_db syn\_map\_effort medium

syn\_map

set\_db syn\_opt\_effort medium

syn\_opt

write\_hdl > gesture\_netlist.v

write\_sdc > gesture\_block.sdc

report\_area > gesture\_area.rep

report\_gates > gesture\_gate.rep

report\_power > gesture\_power.rep

report\_timing > gesture\_timing.rep

gui\_show