module initialize\_scrambler (

input clk,

input reset,

input write,

input [31:0] lfsrdin,

input [11:0] addr,

output reg [63:0]dataselector,

output reg [449:0] Poly0,

output reg [184:0] Poly1,

output reg [42:0] Poly2,

output reg [72:0] Poly3,

output reg [85:0] Poly4,

output reg [300:0] Poly5,

output reg [527:0] Poly6,

output reg [211:0] Poly7,

output reg [69:0] Poly8,

output reg [126:0] Poly9,

output reg [49:0] Poly10,

output reg [52:0] Poly11,

output reg [146:0] Poly12,

output reg [197:0] Poly13,

output reg [63:0] Poly14,

output reg [115:0] Poly15

);

//////////////////////sequential////////////////////////////

always @ (posedge(clk) or posedge(reset))

begin

if (reset)

begin

dataselector[31:0]<= #1 0;

dataselector[63:32]<= #1 0;

Poly0[31:0]<= #1 0;

Poly0[63:32]<= #1 0;

Poly0[95:64]<= #1 0;

Poly0[127:96]<= #1 0;

Poly0[159:128]<= #1 0;

Poly0[191:160]<= #1 0;

Poly0[223:192]<= #1 0;

Poly0[255:224]<= #1 0;

Poly0[287:256]<= #1 0;

Poly0[319:288]<= #1 0;

Poly0[351:320]<= #1 0;

Poly0[383:352]<= #1 0;

Poly0[415:384]<= #1 0;

Poly0[447:416]<= #1 0;

Poly0[449:448]<= #1 0;

Poly1[31:0]<= #1 0;

Poly1[63:32]<= #1 0;

Poly1[95:64]<= #1 0;

Poly1[127:96]<= #1 0;

Poly1[159:128]<= #1 0;

Poly1[184:160]<= #1 0;

Poly2[31:0]<= #1 0;

Poly2[42:32]<= #1 0;

Poly3[31:0]<= #1 0;

Poly3[63:32]<= #1 0;

Poly3[72:64]<= #1 0;

Poly4[31:0]<= #1 0;

Poly4[63:32]<= #1 0;

Poly4[85:64]<= #1 0;

Poly5[31:0]<= #1 0;

Poly5[63:32]<= #1 0;

Poly5[95:64]<= #1 0;

Poly5[127:96]<= #1 0;

Poly5[159:128]<= #1 0;

Poly5[191:160]<= #1 0;

Poly5[223:192]<= #1 0;

Poly5[255:224]<= #1 0;

Poly5[287:256]<= #1 0;

Poly5[300:288]<= #1 0;

Poly6[31:0]<= #1 0;

Poly6[63:32]<= #1 0;

Poly6[95:64]<= #1 0;

Poly6[127:96]<= #1 0;

Poly6[159:128]<= #1 0;

Poly6[191:160]<= #1 0;

Poly6[223:192]<= #1 0;

Poly6[255:224]<= #1 0;

Poly6[287:256]<= #1 0;

Poly6[319:288]<= #1 0;

Poly6[351:320]<= #1 0;

Poly6[383:352]<= #1 0;

Poly6[415:384]<= #1 0;

Poly6[447:416]<= #1 0;

Poly6[479:448]<= #1 0;

Poly6[511:480]<= #1 0;

Poly6[527:512]<= #1 0;

Poly7[31:0]<= #1 0;

Poly7[63:32]<= #1 0;

Poly7[95:64]<= #1 0;

Poly7[127:96]<= #1 0;

Poly7[159:128]<= #1 0;

Poly7[191:160]<= #1 0;

Poly7[211:192]<= #1 0;

Poly8[31:0]<= #1 0;

Poly8[63:32]<= #1 0;

Poly8[69:64]<= #1 0;

Poly9[31:0]<= #1 0;

Poly9[63:32]<= #1 0;

Poly9[95:64]<= #1 0;

Poly9[126:96]<= #1 0;

Poly10[31:0]<= #1 0;

Poly10[49:32]<= #1 0;

Poly11[31:0]<= #1 0;

Poly11[52:32]<= #1 0;

Poly12[31:0]<= #1 0;

Poly12[63:32]<= #1 0;

Poly12[95:64]<= #1 0;

Poly12[127:96]<= #1 0;

Poly12[146:128]<= #1 0;

Poly13[31:0]<= #1 0;

Poly13[63:32]<= #1 0;

Poly13[95:64]<= #1 0;

Poly13[127:96]<= #1 0;

Poly13[159:128]<= #1 0;

Poly13[191:160]<= #1 0;

Poly13[197:192]<= #1 0;

Poly14[31:0]<= #1 0;

Poly14[63:32]<= #1 0;

Poly15[31:0]<= #1 0;

Poly15[63:32]<= #1 0;

Poly15[95:64]<= #1 0;

Poly15[115:96]<= #1 0;

end

else

begin

if (write)

begin

$display("I am inside");

$display("address is %h",addr);

$display("data is %h",lfsrdin);

case (addr)

12'h01e : dataselector [31:0] <= #1 lfsrdin;

12'h01f : dataselector [63:32] <= #1 lfsrdin;

12'h020: Poly0[31:0] <= #1 lfsrdin;

12'h021: Poly0[63:32] <= #1 lfsrdin;

12'h22: Poly0[95:64] <= #1 lfsrdin;

12'h23: Poly0[127:96] <= #1 lfsrdin;

12'h24: Poly0[159:128] <= #1 lfsrdin;

12'h25: Poly0[191:160] <= #1 lfsrdin;

12'h26: Poly0[223:192] <= #1 lfsrdin;

12'h27: Poly0[255:224] <= #1 lfsrdin;

12'h28: Poly0[287:256] <= #1 lfsrdin;

12'h29: Poly0[319:288] <= #1 lfsrdin;

12'h02a: Poly0[351:320] <= #1 lfsrdin;

12'h02b: Poly0[383:352] <= #1 lfsrdin;

12'h02c: Poly0[415:384] <= #1 lfsrdin;

12'h02d: Poly0[447:416] <= #1 lfsrdin;

12'h02e: Poly0[449:448] <= #1 lfsrdin;

12'h33: Poly1[31:0] <= #1 lfsrdin;

12'h34: Poly1[63:32] <= #1 lfsrdin;

12'h35: Poly1[95:64] <= #1 lfsrdin;

12'h36: Poly1[127:96] <= #1 lfsrdin;

12'h37: Poly1[159:128] <= #1 lfsrdin;

12'h38: Poly1[184:160] <= #1 lfsrdin;

12'h03e: Poly2[31:0] <= #1 lfsrdin;

12'h03f: Poly2[42:32] <= #1 lfsrdin;

12'h46: Poly3[31:0] <= #1 lfsrdin;

12'h47: Poly3[63:32] <= #1 lfsrdin;

12'h48: Poly3[72:64] <= #1 lfsrdin;

12'h04f: Poly4[31:0] <= #1 lfsrdin;

12'h50: Poly4[63:32] <= #1 lfsrdin;

12'h51: Poly4[85:64] <= #1 lfsrdin;

12'h54: Poly5[31:0] <= #1 lfsrdin;

12'h55: Poly5[63:32] <= #1 lfsrdin;

12'h56: Poly5[95:64] <= #1 lfsrdin;

12'h57: Poly5[127:96] <= #1 lfsrdin;

12'h58: Poly5[159:128] <= #1 lfsrdin;

12'h59: Poly5[191:160] <= #1 lfsrdin;

12'h05a: Poly5[223:192] <= #1 lfsrdin;

12'h05b: Poly5[255:224] <= #1 lfsrdin;

12'h05c: Poly5[287:256] <= #1 lfsrdin;

12'h05d: Poly5[300:288] <= #1 lfsrdin;

12'h65: Poly6[31:0] <= #1 lfsrdin;

12'h66: Poly6[63:32] <= #1 lfsrdin;

12'h67: Poly6[95:64] <= #1 lfsrdin;

12'h68: Poly6[127:96] <= #1 lfsrdin;

12'h69: Poly6[159:128] <= #1 lfsrdin;

12'h06a: Poly6[191:160] <= #1 lfsrdin;

12'h06b: Poly6[223:192] <= #1 lfsrdin;

12'h06c: Poly6[255:224] <= #1 lfsrdin;

12'h06d: Poly6[287:256] <= #1 lfsrdin;

12'h06e: Poly6[319:288] <= #1 lfsrdin;

12'h06f: Poly6[351:320] <= #1 lfsrdin;

12'h70: Poly6[383:352] <= #1 lfsrdin;

12'h71: Poly6[415:384] <= #1 lfsrdin;

12'h72: Poly6[447:416] <= #1 lfsrdin;

12'h73: Poly6[479:448] <= #1 lfsrdin;

12'h74: Poly6[511:480] <= #1 lfsrdin;

12'h75: Poly6[527:512] <= #1 lfsrdin;

12'h07a: Poly7[31:0] <= #1 lfsrdin;

12'h07b: Poly7[63:32] <= #1 lfsrdin;

12'h07c: Poly7[95:64] <= #1 lfsrdin;

12'h07d: Poly7[127:96] <= #1 lfsrdin;

12'h07e: Poly7[159:128] <= #1 lfsrdin;

12'h07f: Poly7[191:160] <= #1 lfsrdin;

12'h80: Poly7[211:192] <= #1 lfsrdin;

12'h84: Poly8[31:0] <= #1 lfsrdin;

12'h85: Poly8[63:32] <= #1 lfsrdin;

12'h86: Poly8[69:64] <= #1 lfsrdin;

12'h89: Poly9[31:0] <= #1 lfsrdin;

12'h08a: Poly9[63:32] <= #1 lfsrdin;

12'h08b: Poly9[95:64] <= #1 lfsrdin;

12'h08c: Poly9[126:96] <= #1 lfsrdin;

12'h08e: Poly10[31:0] <= #1 lfsrdin;

12'h08f: Poly10[49:32] <= #1 lfsrdin;

12'h96: Poly11[31:0] <= #1 lfsrdin;

12'h97: Poly11[52:32] <= #1 lfsrdin;

12'h09f: Poly12[31:0] <= #1 lfsrdin;

12'h0a0: Poly12[63:32] <= #1 lfsrdin;

12'h0a1: Poly12[95:64] <= #1 lfsrdin;

12'h0a2: Poly12[127:96] <= #1 lfsrdin;

12'h0a3: Poly12[146:128] <= #1 lfsrdin;

12'h0a7: Poly13[31:0] <= #1 lfsrdin;

12'h0a8: Poly13[63:32] <= #1 lfsrdin;

12'h0a9: Poly13[95:64] <= #1 lfsrdin;

12'h0aa: Poly13[127:96] <= #1 lfsrdin;

12'h0ab: Poly13[159:128] <= #1 lfsrdin;

12'h0ac: Poly13[191:160] <= #1 lfsrdin;

12'h0ad: Poly13[197:192] <= #1 lfsrdin;

12'h0af: Poly14[31:0] <= #1 lfsrdin;

12'h0b0: Poly14[63:32] <= #1 lfsrdin;

12'h0b2: Poly15[31:0] <= #1 lfsrdin;

12'h0b3: Poly15[63:32] <= #1 lfsrdin;

12'h0b4: Poly15[95:64] <= #1 lfsrdin;

12'h0b5: Poly15[115:96] <= #1 lfsrdin;

endcase

end

else

begin

dataselector [31:0] <= #1 dataselector [31:0];

dataselector [63:0] <= #1 dataselector [63:0];

Poly0[31:0] <= #1 Poly0[31:0];

Poly0[63:32] <= #1 Poly0[63:32];

Poly0[95:64] <= #1 Poly0[95:64];

Poly0[127:96] <= #1 Poly0[127:96];

Poly0[159:128] <= #1 Poly0[159:128];

Poly0[191:160] <= #1 Poly0[191:160];

Poly0[223:192] <= #1 Poly0[223:192];

Poly0[255:224] <= #1 Poly0[255:224];

Poly0[287:256] <= #1 Poly0[287:256];

Poly0[319:288] <= #1 Poly0[319:288];

Poly0[351:320] <= #1 Poly0[351:320];

Poly0[383:352] <= #1 Poly0[383:352];

Poly0[415:384] <= #1 Poly0[415:384];

Poly0[447:416] <= #1 Poly0[447:416];

Poly0[449:448] <= #1 Poly0[449:448];

Poly1[31:0] <= #1 Poly1[31:0];

Poly1[63:32] <= #1 Poly1[63:32];

Poly1[95:64] <= #1 Poly1[95:64];

Poly1[127:96] <= #1 Poly1[127:96];

Poly1[159:128] <= #1 Poly1[159:128];

Poly1[184:160] <= #1 Poly1[184:160];

Poly2[31:0] <= #1 Poly2[31:0];

Poly2[42:32] <= #1 Poly2[42:32];

Poly3[31:0] <= #1 Poly3[31:0];

Poly3[63:32] <= #1 Poly3[63:32];

Poly3[72:64] <= #1 Poly3[72:64];

Poly4[31:0] <= #1 Poly4[31:0];

Poly4[63:32] <= #1 Poly4[63:32];

Poly4[85:64] <= #1 Poly4[85:64];

Poly5[31:0] <= #1 Poly5[31:0];

Poly5[63:32] <= #1 Poly5[63:32];

Poly5[95:64] <= #1 Poly5[95:64];

Poly5[127:96] <= #1 Poly5[127:96];

Poly5[159:128] <= #1 Poly5[159:128];

Poly5[191:160] <= #1 Poly5[191:160];

Poly5[223:192] <= #1 Poly5[223:192];

Poly5[255:224] <= #1 Poly5[255:224];

Poly5[287:256] <= #1 Poly5[287:256];

Poly5[300:288] <= #1 Poly5[300:288];

Poly6[31:0] <= #1 Poly6[31:0];

Poly6[63:32] <= #1 Poly6[63:32];

Poly6[95:64] <= #1 Poly6[95:64];

Poly6[127:96] <= #1 Poly6[127:96];

Poly6[159:128] <= #1 Poly6[159:128];

Poly6[191:160] <= #1 Poly6[191:160];

Poly6[223:192] <= #1 Poly6[223:192];

Poly6[255:224] <= #1 Poly6[255:224];

Poly6[287:256] <= #1 Poly6[287:256];

Poly6[319:288] <= #1 Poly6[319:288];

Poly6[351:320] <= #1 Poly6[351:320];

Poly6[383:352] <= #1 Poly6[383:352];

Poly6[415:384] <= #1 Poly6[415:384];

Poly6[447:416] <= #1 Poly6[447:416];

Poly6[479:448] <= #1 Poly6[479:448];

Poly6[511:480] <= #1 Poly6[511:480];

Poly6[527:512] <= #1 Poly6[527:512];

Poly7[31:0] <= #1 Poly7[31:0];

Poly7[63:32] <= #1 Poly7[63:32];

Poly7[95:64] <= #1 Poly7[95:64];

Poly7[127:96] <= #1 Poly7[127:96];

Poly7[159:128] <= #1 Poly7[159:128];

Poly7[191:160] <= #1 Poly7[191:160];

Poly7[211:192] <= #1 Poly7[211:192];

Poly8[31:0] <= #1 Poly8[31:0];

Poly8[63:32] <= #1 Poly8[63:32];

Poly8[69:64] <= #1 Poly8[69:64];

Poly9[31:0] <= #1 Poly9[31:0];

Poly9[63:32] <= #1 Poly9[63:32];

Poly9[95:64] <= #1 Poly9[95:64];

Poly9[126:96] <= #1 Poly9[126:96];

Poly10[31:0] <= #1 Poly10[31:0];

Poly10[49:32] <= #1 Poly10[49:32];

Poly11[31:0] <= #1 Poly11[31:0];

Poly11[52:32] <= #1 Poly11[52:32];

Poly12[31:0] <= #1 Poly12[31:0];

Poly12[63:32] <= #1 Poly12[63:32];

Poly12[95:64] <= #1 Poly12[95:64];

Poly12[127:96] <= #1 Poly12[127:96];

Poly12[146:128] <= #1 Poly12[146:128];

Poly13[31:0] <= #1 Poly13[31:0];

Poly13[63:32] <= #1 Poly13[63:32];

Poly13[95:64] <= #1 Poly13[95:64];

Poly13[127:96] <= #1 Poly13[127:96];

Poly13[159:128] <= #1 Poly13[159:128];

Poly13[191:160] <= #1 Poly13[191:160];

Poly13[197:192] <= #1 Poly13[197:192];

Poly14[31:0] <= #1 Poly14[31:0];

Poly14[63:32] <= #1 Poly14[63:32];

Poly15[31:0] <= #1 Poly15[31:0];

Poly15[63:32] <= #1 Poly15[63:32];

Poly15[95:64] <= #1 Poly15[95:64];

Poly15[115:96] <= #1 Poly15[115:96];

end

end

end

endmodule