```
//  C:\USERS\JEANCARLOS\DROPBOX\...\SQEMAC.v
//  \erilog created by Xilinx's StateCAD 6.1i
//  Sun Dec 07 17:42:18 2014

//  This \erilog code (for use with Xilinx XST) was generated using:
//  one-hot state assignment with boolean code format.
//  Minimization is enabled,  implied else is enabled,
//  and outputs are speed optimized.

`timescale 1s/1s

module shell_sqemac(VAR00,VAR01,VAR02,VAR03,VAR04,VAR05,VAR06,VAR07,VAR10,
    VAR1,VAR12,VAR13,VAR14,VAR15,VAR16,VAR17,VAR20,VAR21,VAR22,VAR23,VAR24,VAR25
    ,VAR26,VAR27,VAR30,VAR31,VAR32,VAR33,VAR34,VAR35,VAR36,VAR37,VAR40,VAR41,
    VAR42,VAR43,VAR44,VAR45,VAR46,VAR47,VAR50,VAR51,VAR52,VAR53,VAR54,VAR55,VAR56
    ,VAR57,VAR60,VAR61,VAR62,VAR63,VAR64,VAR65,VAR66,VAR67,VAR70,VAR71,VAR72,
    VAR73,VAR74,VAR75,VAR76,VAR77,M1Im0,M1Im1,M1Im2,M1Im3,M1Im4,M1Im5,M1Im6,M1Im7
    ,M1R0,M1R1,M1R2,M1R3,M1R4,M1R5,M1R6,M1R7,M2Im0,M2Im1,M2Im2,M2Im3,M2Im4,M2Im5,
    M2Im6,M2Im7,M2R0,M2R1,M2R2,M2R3,M2R4,M2R5,M2R6,M2R7,M3Im0,M3Im1,M3Im2,M3Im3,
    M3Im4,M3Im5,M3Im6,M3Im7,M3R0,M3R1,M3R2,M3R3,M3R4,M3R5,M3R6,M3R7,M4Im0,M4Im1,
    M4Im2,M4Im3,M4Im4,M4Im5,M4Im6,M4Im7,M4R0,M4R1,M4R2,M4R3,M4R4,M4R5,M4R6,M4R7,
    M5Im0,M5Im1,M5Im2,M5Im3,M5Im4,M5Im5,M5Im6,M5Im7,M5R0,M5R1,M5R2,M5R3,M5R4,M5R5
    ,M5R6,M5R7,M6Im0,M6Im1,M6Im2,M6Im3,M6Im4,M6Im5,M6Im6,M6Im7,M6R0,M6R1,M6R2,
    M6R3,M6R4,M6R5,M6R6,M6R7,M7Im0,M7Im1,M7Im2,M7Im3,M7Im4,M7Im5,M7Im6,M7Im7,M7R0
    ,M7R1,M7R2,M7R3,M7R4,M7R5,M7R6,M7R7,M8Im0,M8Im1,M8Im2,M8Im3,M8Im4,M8Im5,M8Im6
    ,M8Im7,M8R0,M8R1,M8R2,M8R3,M8R4,M8R5,M8R6,M8R7);

    input VAR00,VAR01,VAR02,VAR03,VAR04,VAR05,VAR06,VAR07,VAR10,VAR1,VAR12,
        VAR13,VAR14,VAR15,VAR16,VAR17,VAR20,VAR21,VAR22,VAR23,VAR24,VAR25,VAR26,VAR27
        ,VAR30,VAR31,VAR32,VAR33,VAR34,VAR35,VAR36,VAR37,VAR40,VAR41,VAR42,VAR43,
        VAR44,VAR45,VAR46,VAR47,VAR50,VAR51,VAR52,VAR53,VAR54,VAR55,VAR56,VAR57,VAR60
        ,VAR61,VAR62,VAR63,VAR64,VAR65,VAR66,VAR67,VAR70,VAR71,VAR72,VAR73,VAR74,
        VAR75,VAR76,VAR77;
    output M1Im0,M1Im1,M1Im2,M1Im3,M1Im4,M1Im5,M1Im6,M1Im7,M1R0,M1R1,M1R2,M1R3,
        M1R4,M1R5,M1R6,M1R7,M2Im0,M2Im1,M2Im2,M2Im3,M2Im4,M2Im5,M2Im6,M2Im7,M2R0,M2R1
        ,M2R2,M2R3,M2R4,M2R5,M2R6,M2R7,M3Im0,M3Im1,M3Im2,M3Im3,M3Im4,M3Im5,M3Im6,
        M3Im7,M3R0,M3R1,M3R2,M3R3,M3R4,M3R5,M3R6,M3R7,M4Im0,M4Im1,M4Im2,M4Im3,M4Im4,
        M4Im5,M4Im6,M4Im7,M4R0,M4R1,M4R2,M4R3,M4R4,M4R5,M4R6,M4R7,M5Im0,M5Im1,M5Im2,
        M5Im3,M5Im4,M5Im5,M5Im6,M5Im7,M5R0,M5R1,M5R2,M5R3,M5R4,M5R5,M5R6,M5R7,M6Im0,
        M6Im1,M6Im2,M6Im3,M6Im4,M6Im5,M6Im6,M6Im7,M6R0,M6R1,M6R2,M6R3,M6R4,M6R5,M6R6,
        M6R7,M7Im0,M7Im1,M7Im2,M7Im3,M7Im4,M7Im5,M7Im6,M7Im7,M7R0,M7R1,M7R2,M7R3,M7R4
        ,M7R5,M7R6,M7R7,M8Im0,M8Im1,M8Im2,M8Im3,M8Im4,M8Im5,M8Im6,M8Im7,M8R0,M8R1,
        M8R2,M8R3,M8R4,M8R5,M8R6,M8R7;

    reg [7:0] L1;
    reg [7:0] L2;
    reg [7:0] L3;
    reg [7:0] L4;
    reg [7:0] L5;
    reg [7:0] L6;
    reg [7:0] L7;
    reg [7:0] L8;
    reg [7:0] M1Im;
    reg [7:0] M1R;
    reg [7:0] M2Im;
    reg [7:0] M2R;
    reg [7:0] M3Im;
    reg [7:0] M3R;
    reg [7:0] M4Im;
    reg [7:0] M4R;
    reg [7:0] M5Im;
    reg [7:0] M5R;
    reg [7:0] M6Im;
    reg [7:0] M6R;
    reg [7:0] M7Im;
    reg [7:0] M7R;
```

```
reg [7:0] M8Im;
reg [7:0] M8R;
reg [7:0] NL3;
reg [7:0] NL7;
reg [7:0] NVAR4;
reg [7:0] NVAR5;
reg [7:0] NVAR6;
reg [7:0] NVAR7;
reg L10,L11,L12,L13,L14,L15,L16,L17,L20,L21,L22,L23,L24,L25,L26,L27,L30,L31,
    L32,L33,L34,L35,L36,L37,L40,L41,L42,L43,L44,L45,L46,L47,L50,L51,L52,L53,L54,
    L55,L56,L57,L60,L61,L62,L63,L64,L65,L66,L67,L70,L71,L72,L73,L74,L75,L76,L77,
    L80,L81,L82,L83,L84,L85,L86,L87,M1Im0,M1Im1,M1Im2,M1Im3,M1Im4,M1Im5,M1Im6,
    M1Im7,M1R0,M1R1,M1R2,M1R3,M1R4,M1R5,M1R6,M1R7,M2Im0,M2Im1,M2Im2,M2Im3,M2Im4,
    M2Im5,M2Im6,M2Im7,M2R0,M2R1,M2R2,M2R3,M2R4,M2R5,M2R6,M2R7,M3Im0,M3Im1,M3Im2,
    M3Im3,M3Im4,M3Im5,M3Im6,M3Im7,M3R0,M3R1,M3R2,M3R3,M3R4,M3R5,M3R6,M3R7,M4Im0,
    M4Im1,M4Im2,M4Im3,M4Im4,M4Im5,M4Im6,M4Im7,M4R0,M4R1,M4R2,M4R3,M4R4,M4R5,M4R6,
    M4R7,M5Im0,M5Im1,M5Im2,M5Im3,M5Im4,M5Im5,M5Im6,M5Im7,M5R0,M5R1,M5R2,M5R3,M5R4
    ,M5R5,M5R6,M5R7,M6Im0,M6Im1,M6Im2,M6Im3,M6Im4,M6Im5,M6Im6,M6Im7,M6R0,M6R1,
    M6R2,M6R3,M6R4,M6R5,M6R6,M6R7,M7Im0,M7Im1,M7Im2,M7Im3,M7Im4,M7Im5,M7Im6,M7Im7
    ,M7R0,M7R1,M7R2,M7R3,M7R4,M7R5,M7R6,M7R7,M8Im0,M8Im1,M8Im2,M8Im3,M8Im4,M8Im5,
    M8Im6,M8Im7,M8R0,M8R1,M8R2,M8R3,M8R4,M8R5,M8R6,M8R7,NL30,NL31,NL32,NL33,NL34,
    NL35,NL36,NL37,NL70,NL71,NL72,NL73,NL74,NL75,NL76,NL77,NVAR40,NVAR41,NVAR42,
    NVAR43,NVAR44,NVAR45,NVAR46,NVAR47,NVAR50,NVAR51,NVAR52,NVAR53,NVAR54,NVAR55,
    NVAR56,NVAR57,NVAR60,NVAR61,NVAR62,NVAR63,NVAR64,NVAR65,NVAR66,NVAR67,NVAR70,
    NVAR71,NVAR72,NVAR73,NVAR74,NVAR75,NVAR76,NVAR77;


always @(VAR00 or VAR01 or VAR02 or VAR03 or VAR04 or VAR05 or VAR06 or
    VAR07 or VAR40 or VAR41 or VAR42 or VAR43 or VAR44 or VAR45 or VAR46 or VAR47
     or L1)
begin
    L1= ( {VAR07,VAR06,VAR05,VAR04,VAR03,VAR02,VAR01,VAR00}  + {VAR47,VAR46,
        VAR45,VAR44,VAR43,VAR42,VAR41,VAR40}  );
    L10 = L1[0];
    L11 = L1[1];
    L12 = L1[2];
    L13 = L1[3];
    L14 = L1[4];
    L15 = L1[5];
    L16 = L1[6];
    L17 = L1[7];
end

always @(NVAR40 or NVAR41 or NVAR42 or NVAR43 or NVAR44 or NVAR45 or NVAR46
    or NVAR47 or VAR00 or VAR01 or VAR02 or VAR03 or VAR04 or VAR05 or VAR06 or
    VAR07 or L2)
begin
    L2= ( {VAR07,VAR06,VAR05,VAR04,VAR03,VAR02,VAR01,VAR00}  + {NVAR47,NVAR46,
        NVAR45,NVAR44,NVAR43,NVAR42,NVAR41,NVAR40}  );
    L20 = L2[0];
    L21 = L2[1];
    L22 = L2[2];
    L23 = L2[3];
    L24 = L2[4];
    L25 = L2[5];
    L26 = L2[6];
    L27 = L2[7];
end

always @(VAR20 or VAR21 or VAR22 or VAR23 or VAR24 or VAR25 or VAR26 or
    VAR27 or VAR60 or VAR61 or VAR62 or VAR63 or VAR64 or VAR65 or VAR66 or VAR67
     or L3)
begin
    L3= ( {VAR27,VAR26,VAR25,VAR24,VAR23,VAR22,VAR21,VAR20}  + {VAR67,VAR66,
        VAR65,VAR64,VAR63,VAR62,VAR61,VAR60}  );
    L30 = L3[0];
```

```
    L31 = L3[1];
    L32 = L3[2];
    L33 = L3[3];
    L34 = L3[4];
    L35 = L3[5];
    L36 = L3[6];
    L37 = L3[7];
end

always @(NVAR60 or NVAR61 or NVAR62 or NVAR63 or NVAR64 or NVAR65 or NVAR66
    or NVAR67 or VAR20 or VAR21 or VAR22 or VAR23 or VAR24 or VAR25 or VAR26 or
    VAR27 or L4)
begin
    L4= ( {VAR27,VAR26,VAR25,VAR24,VAR23,VAR22,VAR21,VAR20}  + {NVAR67,NVAR66,
        NVAR65,NVAR64,NVAR63,NVAR62,NVAR61,NVAR60}  );
    L40 = L4[0];
    L41 = L4[1];
    L42 = L4[2];
    L43 = L4[3];
    L44 = L4[4];
    L45 = L4[5];
    L46 = L4[6];
    L47 = L4[7];
end

always @(VAR10 or VAR1 or VAR12 or VAR13 or VAR14 or VAR15 or VAR16 or
    VAR17 or VAR50 or VAR51 or VAR52 or VAR53 or VAR54 or VAR55 or VAR56 or VAR57
     or L5)
begin
    L5= ( {VAR17,VAR16,VAR15,VAR14,VAR13,VAR12,VAR1,VAR10}  + {VAR57,VAR56,
        VAR55,VAR54,VAR53,VAR52,VAR51,VAR50}  );
    L50 = L5[0];
    L51 = L5[1];
    L52 = L5[2];
    L53 = L5[3];
    L54 = L5[4];
    L55 = L5[5];
    L56 = L5[6];
    L57 = L5[7];
end

always @(NVAR50 or NVAR51 or NVAR52 or NVAR53 or NVAR54 or NVAR55 or NVAR56
    or NVAR57 or VAR10 or VAR1 or VAR12 or VAR13 or VAR14 or VAR15 or VAR16 or
    VAR17 or L6)
begin
    L6= ( {VAR17,VAR16,VAR15,VAR14,VAR13,VAR12,VAR1,VAR10}  + {NVAR57,NVAR56,
        NVAR55,NVAR54,NVAR53,NVAR52,NVAR51,NVAR50}  );
    L60 = L6[0];
    L61 = L6[1];
    L62 = L6[2];
    L63 = L6[3];
    L64 = L6[4];
    L65 = L6[5];
    L66 = L6[6];
    L67 = L6[7];
end

always @(VAR30 or VAR31 or VAR32 or VAR33 or VAR34 or VAR35 or VAR36 or
    VAR37 or VAR70 or VAR71 or VAR72 or VAR73 or VAR74 or VAR75 or VAR76 or VAR77
     or L7)
begin
    L7= ( {VAR37,VAR36,VAR35,VAR34,VAR33,VAR32,VAR31,VAR30}  + {VAR77,VAR76,
        VAR75,VAR74,VAR73,VAR72,VAR71,VAR70}  );
    L70 = L7[0];
    L71 = L7[1];
    L72 = L7[2];
```

```
    L73 = L7[3];
    L74 = L7[4];
    L75 = L7[5];
    L76 = L7[6];
    L77 = L7[7];
end

always @(NVAR70 or NVAR71 or NVAR72 or NVAR73 or NVAR74 or NVAR75 or NVAR76
    or NVAR77 or VAR30 or VAR31 or VAR32 or VAR33 or VAR34 or VAR35 or VAR36 or
    VAR37 or L8)
begin
    L8= ( {VAR37,VAR36,VAR35,VAR34,VAR33,VAR32,VAR31,VAR30}  + {NVAR77,NVAR76,
        NVAR75,NVAR74,NVAR73,NVAR72,NVAR71,NVAR70}  );
    L80 = L8[0];
    L81 = L8[1];
    L82 = L8[2];
    L83 = L8[3];
    L84 = L8[4];
    L85 = L8[5];
    L86 = L8[6];
    L87 = L8[7];
end

always @(M1Im)
begin
    M1Im= 'h0;
    M1Im0 = M1Im[0];
    M1Im1 = M1Im[1];
    M1Im2 = M1Im[2];
    M1Im3 = M1Im[3];
    M1Im4 = M1Im[4];
    M1Im5 = M1Im[5];
    M1Im6 = M1Im[6];
    M1Im7 = M1Im[7];
end

always @(L10 or L1 or L12 or L13 or L14 or L15 or L16 or L17 or L30 or L31
    or L32 or L33 or L34 or L35 or L36 or L37 or M1R)
begin
    M1R= ( {L17,L16,L15,L14,L13,L12,L1,L10}  + {L37,L36,L35,L34,L33,L32,L31,
        L30}  );
    M1R0 = M1R[0];
    M1R1 = M1R[1];
    M1R2 = M1R[2];
    M1R3 = M1R[3];
    M1R4 = M1R[4];
    M1R5 = M1R[5];
    M1R6 = M1R[6];
    M1R7 = M1R[7];
end

always @(L40 or L41 or L42 or L43 or L44 or L45 or L46 or L47 or M2Im)
begin
    M2Im= ~{L47,L46,L45,L44,L43,L42,L41,L40} ;
    M2Im0 = M2Im[0];
    M2Im1 = M2Im[1];
    M2Im2 = M2Im[2];
    M2Im3 = M2Im[3];
    M2Im4 = M2Im[4];
    M2Im5 = M2Im[5];
    M2Im6 = M2Im[6];
    M2Im7 = M2Im[7];
end

always @(L20 or L21 or L22 or L23 or L24 or L25 or L26 or L27 or M2R)
begin
```

```
    M2R= {L27,L26,L25,L24,L23,L22,L21,L20} ;
    M2R0 = M2R[0];
    M2R1 = M2R[1];
    M2R2 = M2R[2];
    M2R3 = M2R[3];
    M2R4 = M2R[4];
    M2R5 = M2R[5];
    M2R6 = M2R[6];
    M2R7 = M2R[7];
end

always @(M3Im)
begin
    M3Im= 'h0;
    M3Im0 = M3Im[0];
    M3Im1 = M3Im[1];
    M3Im2 = M3Im[2];
    M3Im3 = M3Im[3];
    M3Im4 = M3Im[4];
    M3Im5 = M3Im[5];
    M3Im6 = M3Im[6];
    M3Im7 = M3Im[7];
end

always @(L10 or L1 or L12 or L13 or L14 or L15 or L16 or L17 or NL30 or
    NL31 or NL32 or NL33 or NL34 or NL35 or NL36 or NL37 or M3R)
begin
    M3R= ( {L17,L16,L15,L14,L13,L12,L1,L10}  + {NL37,NL36,NL35,NL34,NL33,NL32,
        NL31,NL30}  );
    M3R0 = M3R[0];
    M3R1 = M3R[1];
    M3R2 = M3R[2];
    M3R3 = M3R[3];
    M3R4 = M3R[4];
    M3R5 = M3R[5];
    M3R6 = M3R[6];
    M3R7 = M3R[7];
end

always @(L40 or L41 or L42 or L43 or L44 or L45 or L46 or L47 or M4Im)
begin
    M4Im= {L47,L46,L45,L44,L43,L42,L41,L40} ;
    M4Im0 = M4Im[0];
    M4Im1 = M4Im[1];
    M4Im2 = M4Im[2];
    M4Im3 = M4Im[3];
    M4Im4 = M4Im[4];
    M4Im5 = M4Im[5];
    M4Im6 = M4Im[6];
    M4Im7 = M4Im[7];
end

always @(L20 or L21 or L22 or L23 or L24 or L25 or L26 or L27 or M4R)
begin
    M4R= {L27,L26,L25,L24,L23,L22,L21,L20} ;
    M4R0 = M4R[0];
    M4R1 = M4R[1];
    M4R2 = M4R[2];
    M4R3 = M4R[3];
    M4R4 = M4R[4];
    M4R5 = M4R[5];
    M4R6 = M4R[6];
    M4R7 = M4R[7];
end

always @(M5Im)
```

```
begin
    M5Im= 'h0;
    M5Im0 = M5Im[0];
    M5Im1 = M5Im[1];
    M5Im2 = M5Im[2];
    M5Im3 = M5Im[3];
    M5Im4 = M5Im[4];
    M5Im5 = M5Im[5];
    M5Im6 = M5Im[6];
    M5Im7 = M5Im[7];
end

always @(L50 or L51 or L52 or L53 or L54 or L55 or L56 or L57 or L70 or L71
    or L72 or L73 or L74 or L75 or L76 or L77 or M5R)
begin
    M5R= ( {L57,L56,L55,L54,L53,L52,L51,L50}  + {L77,L76,L75,L74,L73,L72,L71,
        L70}  );
    M5R0 = M5R[0];
    M5R1 = M5R[1];
    M5R2 = M5R[2];
    M5R3 = M5R[3];
    M5R4 = M5R[4];
    M5R5 = M5R[5];
    M5R6 = M5R[6];
    M5R7 = M5R[7];
end

always @(L80 or L81 or L82 or L83 or L84 or L85 or L86 or L87 or M6Im)
begin
    M6Im= ~{L87,L86,L85,L84,L83,L82,L81,L80} ;
    M6Im0 = M6Im[0];
    M6Im1 = M6Im[1];
    M6Im2 = M6Im[2];
    M6Im3 = M6Im[3];
    M6Im4 = M6Im[4];
    M6Im5 = M6Im[5];
    M6Im6 = M6Im[6];
    M6Im7 = M6Im[7];
end

always @(L60 or L61 or L62 or L63 or L64 or L65 or L66 or L67 or M6R)
begin
    M6R= {L67,L66,L65,L64,L63,L62,L61,L60} ;
    M6R0 = M6R[0];
    M6R1 = M6R[1];
    M6R2 = M6R[2];
    M6R3 = M6R[3];
    M6R4 = M6R[4];
    M6R5 = M6R[5];
    M6R6 = M6R[6];
    M6R7 = M6R[7];
end

always @(M7Im)
begin
    M7Im= 'h0;
    M7Im0 = M7Im[0];
    M7Im1 = M7Im[1];
    M7Im2 = M7Im[2];
    M7Im3 = M7Im[3];
    M7Im4 = M7Im[4];
    M7Im5 = M7Im[5];
    M7Im6 = M7Im[6];
    M7Im7 = M7Im[7];
end
```

```
always @(L50 or L51 or L52 or L53 or L54 or L55 or L56 or L57 or NL70 or
    NL71 or NL72 or NL73 or NL74 or NL75 or NL76 or NL77 or M7R)
begin
    M7R= ( {L57,L56,L55,L54,L53,L52,L51,L50}  + {NL77,NL76,NL75,NL74,NL73,NL72,
        NL71,NL70}  );
    M7R0 = M7R[0];
    M7R1 = M7R[1];
    M7R2 = M7R[2];
    M7R3 = M7R[3];
    M7R4 = M7R[4];
    M7R5 = M7R[5];
    M7R6 = M7R[6];
    M7R7 = M7R[7];
end

always @(L80 or L81 or L82 or L83 or L84 or L85 or L86 or L87 or M8Im)
begin
    M8Im= {L87,L86,L85,L84,L83,L82,L81,L80} ;
    M8Im0 = M8Im[0];
    M8Im1 = M8Im[1];
    M8Im2 = M8Im[2];
    M8Im3 = M8Im[3];
    M8Im4 = M8Im[4];
    M8Im5 = M8Im[5];
    M8Im6 = M8Im[6];
    M8Im7 = M8Im[7];
end

always @(L60 or L61 or L62 or L63 or L64 or L65 or L66 or L67 or M8R)
begin
    M8R= {L67,L66,L65,L64,L63,L62,L61,L60} ;
    M8R0 = M8R[0];
    M8R1 = M8R[1];
    M8R2 = M8R[2];
    M8R3 = M8R[3];
    M8R4 = M8R[4];
    M8R5 = M8R[5];
    M8R6 = M8R[6];
    M8R7 = M8R[7];
end

always @(L30 or L31 or L32 or L33 or L34 or L35 or L36 or L37 or NL3)
begin
    NL3= ~{L37,L36,L35,L34,L33,L32,L31,L30} ;
    NL30 = NL3[0];
    NL31 = NL3[1];
    NL32 = NL3[2];
    NL33 = NL3[3];
    NL34 = NL3[4];
    NL35 = NL3[5];
    NL36 = NL3[6];
    NL37 = NL3[7];
end

always @(L70 or L71 or L72 or L73 or L74 or L75 or L76 or L77 or NL7)
begin
    NL7= ~{L77,L76,L75,L74,L73,L72,L71,L70} ;
    NL70 = NL7[0];
    NL71 = NL7[1];
    NL72 = NL7[2];
    NL73 = NL7[3];
    NL74 = NL7[4];
    NL75 = NL7[5];
    NL76 = NL7[6];
    NL77 = NL7[7];
end
```

```
    always @(VAR40 or VAR41 or VAR42 or VAR43 or VAR44 or VAR45 or VAR46 or
        VAR47 or NVAR4)
    begin
        NVAR4= ~{VAR47,VAR46,VAR45,VAR44,VAR43,VAR42,VAR41,VAR40} ;
        NVAR40 = NVAR4[0];
        NVAR41 = NVAR4[1];
        NVAR42 = NVAR4[2];
        NVAR43 = NVAR4[3];
        NVAR44 = NVAR4[4];
        NVAR45 = NVAR4[5];
        NVAR46 = NVAR4[6];
        NVAR47 = NVAR4[7];
    end

    always @(VAR50 or VAR51 or VAR52 or VAR53 or VAR54 or VAR55 or VAR56 or
        VAR57 or NVAR5)
    begin
        NVAR5= ~{VAR57,VAR56,VAR55,VAR54,VAR53,VAR52,VAR51,VAR50} ;
        NVAR50 = NVAR5[0];
        NVAR51 = NVAR5[1];
        NVAR52 = NVAR5[2];
        NVAR53 = NVAR5[3];
        NVAR54 = NVAR5[4];
        NVAR55 = NVAR5[5];
        NVAR56 = NVAR5[6];
        NVAR57 = NVAR5[7];
    end

    always @(VAR60 or VAR61 or VAR62 or VAR63 or VAR64 or VAR65 or VAR66 or
        VAR67 or NVAR6)
    begin
        NVAR6= ~{VAR67,VAR66,VAR65,VAR64,VAR63,VAR62,VAR61,VAR60} ;
        NVAR60 = NVAR6[0];
        NVAR61 = NVAR6[1];
        NVAR62 = NVAR6[2];
        NVAR63 = NVAR6[3];
        NVAR64 = NVAR6[4];
        NVAR65 = NVAR6[5];
        NVAR66 = NVAR6[6];
        NVAR67 = NVAR6[7];
    end

    always @(VAR70 or VAR71 or VAR72 or VAR73 or VAR74 or VAR75 or VAR76 or
        VAR77 or NVAR7)
    begin
        NVAR7= ~{VAR77,VAR76,VAR75,VAR74,VAR73,VAR72,VAR71,VAR70} ;
        NVAR70 = NVAR7[0];
        NVAR71 = NVAR7[1];
        NVAR72 = NVAR7[2];
        NVAR73 = NVAR7[3];
        NVAR74 = NVAR7[4];
        NVAR75 = NVAR7[5];
        NVAR76 = NVAR7[6];
        NVAR77 = NVAR7[7];
    end
endmodule

module sqemac(M1Im,M1R,M2Im,M2R,M3Im,M3R,M4Im,M4R,M5Im,M5R,M6Im,M6R,M7Im,M7R,
    M8Im,M8R,VAR0,VAR1,VAR2,VAR3,VAR4,VAR5,VAR6,VAR7);

    output [7:0] M1Im;
    output [7:0] M1R;
    output [7:0] M2Im;
    output [7:0] M2R;
    output [7:0] M3Im;
```

```
output [7:0] M3R;
output [7:0] M4Im;
output [7:0] M4R;
output [7:0] M5Im;
output [7:0] M5R;
output [7:0] M6Im;
output [7:0] M6R;
output [7:0] M7Im;
output [7:0] M7R;
output [7:0] M8Im;
output [7:0] M8R;
input [7:0] VAR0;
input [7:0] VAR1;
input [7:0] VAR2;
input [7:0] VAR3;
input [7:0] VAR4;
input [7:0] VAR5;
input [7:0] VAR6;
input [7:0] VAR7;

wire [7:0] M1Im;
wire [7:0] M1R;
wire [7:0] M2Im;
wire [7:0] M2R;
wire [7:0] M3Im;
wire [7:0] M3R;
wire [7:0] M4Im;
wire [7:0] M4R;
wire [7:0] M5Im;
wire [7:0] M5R;
wire [7:0] M6Im;
wire [7:0] M6R;
wire [7:0] M7Im;
wire [7:0] M7R;
wire [7:0] M8Im;
wire [7:0] M8R;
wire [7:0] VAR0;
wire [7:0] VAR1;
wire [7:0] VAR2;
wire [7:0] VAR3;
wire [7:0] VAR4;
wire [7:0] VAR5;
wire [7:0] VAR6;
wire [7:0] VAR7;

shell_sqemac part1(.VAR00(VAR0[0]),.VAR01(VAR0[1]),.VAR02(VAR0[2]),.VAR03(
    VAR0[3]),.VAR04(VAR0[4]),.VAR05(VAR0[5]),.VAR06(VAR0[6]),.VAR07(VAR0[7]),
    .VAR10(VAR1[0]),.VAR11(VAR1[1]),.VAR12(VAR1[2]),.VAR13(VAR1[3]),.VAR14(
    VAR1[4]),.VAR15(VAR1[5]),.VAR16(VAR1[6]),.VAR17(VAR1[7]),.VAR20(VAR2[0]),
    .VAR21(VAR2[1]),.VAR22(VAR2[2]),.VAR23(VAR2[3]),.VAR24(VAR2[4]),.VAR25(
    VAR2[5]),.VAR26(VAR2[6]),.VAR27(VAR2[7]),.VAR30(VAR3[0]),.VAR31(VAR3[1]),
    .VAR32(VAR3[2]),.VAR33(VAR3[3]),.VAR34(VAR3[4]),.VAR35(VAR3[5]),.VAR36(
    VAR3[6]),.VAR37(VAR3[7]),.VAR40(VAR4[0]),.VAR41(VAR4[1]),.VAR42(VAR4[2]),
    .VAR43(VAR4[3]),.VAR44(VAR4[4]),.VAR45(VAR4[5]),.VAR46(VAR4[6]),.VAR47(
    VAR4[7]),.VAR50(VAR5[0]),.VAR51(VAR5[1]),.VAR52(VAR5[2]),.VAR53(VAR5[3]),
    .VAR54(VAR5[4]),.VAR55(VAR5[5]),.VAR56(VAR5[6]),.VAR57(VAR5[7]),.VAR60(
    VAR6[0]),.VAR61(VAR6[1]),.VAR62(VAR6[2]),.VAR63(VAR6[3]),.VAR64(VAR6[4]),
    .VAR65(VAR6[5]),.VAR66(VAR6[6]),.VAR67(VAR6[7]),.VAR70(VAR7[0]),.VAR71(
    VAR7[1]),.VAR72(VAR7[2]),.VAR73(VAR7[3]),.VAR74(VAR7[4]),.VAR75(VAR7[5]),
    .VAR76(VAR7[6]),.VAR77(VAR7[7]),.M1Im0(M1Im[0]),.M1Im1(M1Im[1]),.M1Im2(
    M1Im[2]),.M1Im3(M1Im[3]),.M1Im4(M1Im[4]),.M1Im5(M1Im[5]),.M1Im6(M1Im[6]),
    .M1Im7(M1Im[7]),.M1R0(M1R[0]),.M1R1(M1R[1]),.M1R2(M1R[2]),.M1R3(M1R[3]),.M1R4
    (M1R[4]),.M1R5(M1R[5]),.M1R6(M1R[6]),.M1R7(M1R[7]),.M2Im0(M2Im[0]),.M2Im1(
    M2Im[1]),.M2Im2(M2Im[2]),.M2Im3(M2Im[3]),.M2Im4(M2Im[4]),.M2Im5(M2Im[5]),
    .M2Im6(M2Im[6]),.M2Im7(M2Im[7]),.M2R0(M2R[0]),.M2R1(M2R[1]),.M2R2(M2R[2]),
    .M2R3(M2R[3]),.M2R4(M2R[4]),.M2R5(M2R[5]),.M2R6(M2R[6]),.M2R7(M2R[7]),.M3Im0(
```

```
M3Im[0]),.M3Im1(M3Im[1]),.M3Im2(M3Im[2]),.M3Im3(M3Im[3]),.M3Im4(M3Im[4]),
.M3Im5(M3Im[5]),.M3Im6(M3Im[6]),.M3Im7(M3Im[7]),.M3R0(M3R[0]),.M3R1(M3R[1]),
.M3R2(M3R[2]),.M3R3(M3R[3]),.M3R4(M3R[4]),.M3R5(M3R[5]),.M3R6(M3R[6]),.M3R7(
M3R[7]),.M4Im0(M4Im[0]),.M4Im1(M4Im[1]),.M4Im2(M4Im[2]),.M4Im3(M4Im[3]),
.M4Im4(M4Im[4]),.M4Im5(M4Im[5]),.M4Im6(M4Im[6]),.M4Im7(M4Im[7]),.M4R0(M4R[0])
,.M4R1(M4R[1]),.M4R2(M4R[2]),.M4R3(M4R[3]),.M4R4(M4R[4]),.M4R5(M4R[5]),.M4R6(
M4R[6]),.M4R7(M4R[7]),.M5Im0(M5Im[0]),.M5Im1(M5Im[1]),.M5Im2(M5Im[2]),.M5Im3(
M5Im[3]),.M5Im4(M5Im[4]),.M5Im5(M5Im[5]),.M5Im6(M5Im[6]),.M5Im7(M5Im[7]),
.M5R0(M5R[0]),.M5R1(M5R[1]),.M5R2(M5R[2]),.M5R3(M5R[3]),.M5R4(M5R[4]),.M5R5(
M5R[5]),.M5R6(M5R[6]),.M5R7(M5R[7]),.M6Im0(M6Im[0]),.M6Im1(M6Im[1]),.M6Im2(
M6Im[2]),.M6Im3(M6Im[3]),.M6Im4(M6Im[4]),.M6Im5(M6Im[5]),.M6Im6(M6Im[6]),
.M6Im7(M6Im[7]),.M6R0(M6R[0]),.M6R1(M6R[1]),.M6R2(M6R[2]),.M6R3(M6R[3]),.M6R4
(M6R[4]),.M6R5(M6R[5]),.M6R6(M6R[6]),.M6R7(M6R[7]),.M7Im0(M7Im[0]),.M7Im1(
M7Im[1]),.M7Im2(M7Im[2]),.M7Im3(M7Im[3]),.M7Im4(M7Im[4]),.M7Im5(M7Im[5]),
.M7Im6(M7Im[6]),.M7Im7(M7Im[7]),.M7R0(M7R[0]),.M7R1(M7R[1]),.M7R2(M7R[2]),
.M7R3(M7R[3]),.M7R4(M7R[4]),.M7R5(M7R[5]),.M7R6(M7R[6]),.M7R7(M7R[7]),.M8Im0(
M8Im[0]),.M8Im1(M8Im[1]),.M8Im2(M8Im[2]),.M8Im3(M8Im[3]),.M8Im4(M8Im[4]),
.M8Im5(M8Im[5]),.M8Im6(M8Im[6]),.M8Im7(M8Im[7]),.M8R0(M8R[0]),.M8R1(M8R[1]),
.M8R2(M8R[2]),.M3R3(M8R[3]),.M8R4(M8R[4]),.M8R5(M8R[5]),.M8R6(M8R[6]),.M8R7(
M8R[7]));


endmodule
```