20181122

原始的port宣告

// ===================================================

module ltp\_controller(  
 iCLK, // LCD display clock  
 iRST\_n, // systen reset  
 // SDRAM SIDE   
 iREAD\_DATA1, // R and G  color data form sdram   
 iREAD\_DATA2, // B color data form sdram  
 oREAD\_SDRAM\_EN, // read sdram data control signal  
 //LCD SIDE  
 oHD, // LCD Horizontal sync   
 oVD, // LCD Vertical sync   
 oDEN, // LCD Data Enable  
 oLCD\_R, // LCD Red color data   
 oLCD\_G,             // LCD Green color data    
 oLCD\_B,             // LCD Blue color data    
 );

加入按鍵SW的port宣告

// ===================================================

module ltp\_controller(

iCLK, // LCD display clock

iRST\_n, // systen reset

// SDRAM SIDE

iREAD\_DATA1, // R and G  color data form sdram

iREAD\_DATA2, // B color data form sdram

iSW,

oREAD\_SDRAM\_EN, // read sdram data control signal

//LCD SIDE

oHD, // LCD Horizontal sync

oVD, // LCD Vertical sync

oDEN, // LCD Data Enable

oLCD\_R, // LCD Red color data

oLCD\_G,             // LCD Green color data

oLCD\_B,             // LCD Blue color data

);

input [3:0] iSW; // 記得加宣告

原始的影像輸出

//  ======================

always@(posedge iCLK or negedge iRST\_n)

begin

if (!iRST\_n)

begin

oHD <= 1'd0;

oVD <= 1'd0;

oDEN <= 1'd0;

oLCD\_R <= 8'd0;

oLCD\_G <= 8'd0;

oLCD\_B <= 8'd0;

end

else

begin

oHD <= mhd;

oVD <= mvd;

oDEN <= mden;

oLCD\_R <= read\_red;

oLCD\_G <= read\_green;

oLCD\_B <= read\_blue;

end

end

加入　Case 利用SW選擇影像處理方式

// =============================================

always@(posedge iCLK or negedge iRST\_n)

begin

if (!iRST\_n)

begin

oHD <= 1'd0;

oVD <= 1'd0;

oDEN <= 1'd0;

oLCD\_R <= 8'd0;

oLCD\_G <= 8'd0;

oLCD\_B <= 8'd0;

end

else

begin

oHD <= mhd;

oVD <= mvd;

oDEN <= mden;

case (iSW)

4'd1: begin

end

4'd2: begin

end

4'd3: begin

end

4'd4: begin

end

4'd5: begin

end

4'd6: begin

end

4'd8: begin

end

4'd9: begin

end

4'd10: begin

end

default: begin

oLCD\_R <= read\_red;

oLCD\_G <= read\_green;

oLCD\_B <= read\_blue;

end

endcase

end

end

Camera 主程式

// ==================================

ltp\_controller u1 ( .iCLK(LTP\_CTRL\_CLK),

.iRST\_n(DLY\_RST\_2),

// sdram side

.iREAD\_DATA1(Read\_DATA1),

.iREAD\_DATA2(Read\_DATA2),

.oREAD\_SDRAM\_EN(Read),

// lcd side

.oLCD\_R(lcd\_r),

.oLCD\_G(lcd\_g),

.oLCD\_B(lcd\_b),

.oHD(lcd\_hs),

.oVD(lcd\_vs),

.oDEN()

);

Camera 主程式

// ======= 加入按鍵  ===========================

ltp\_controller u1 ( .iCLK(LTP\_CTRL\_CLK),

.iRST\_n(DLY\_RST\_2),

// sdram side

.iREAD\_DATA1(Read\_DATA1),

.iREAD\_DATA2(Read\_DATA2),

.iSW(SW[10:7]),

.oREAD\_SDRAM\_EN(Read),

// lcd side

.oLCD\_R(lcd\_r),

.oLCD\_G(lcd\_g),

.oLCD\_B(lcd\_b),

.oHD(lcd\_hs),

.oVD(lcd\_vs),

.oDEN()

);