module VGADriver( input clk,

input WEN,

output HS,VS,

input [7:0]Data\_in,

input [3:0]VAdd,HAdd,

output reg [7:0]Data

);

parameter ImageWidth = 16;

parameter ImageHeight = 16;

parameter Zoom = 16;

parameter MargLeft = ((640-(ImageWidth\*Zoom))/2);

parameter MargRight = 640-((640-(ImageWidth\*Zoom))/2);

parameter MargTop = ((480-(ImageHeight\*Zoom))/2);

parameter MargBottom = 480-((480-(ImageHeight\*Zoom))/2);

parameter BackGround = 8'b00011100;

wire [9:0] HCOUNT,VCOUNT;

reg [7:0]mem[(ImageWidth\*ImageHeight)-1:0];

integer i,j;

integer Hmemadd,Vmemadd;

initial

begin

for(i=0;i<ImageHeight;i=i+1)

for(j=0;j<ImageWidth;j=j+1)

mem[(i\*ImageWidth)+j] = BackGround;

end

MyDispCtrl DispCtrl1(.ck(clk),.Hcnt(HCOUNT),.Vcnt(VCOUNT),.HS(HS),.VS(VS));

always@(posedge clk)

begin

if((HCOUNT < 640) && (VCOUNT < 480))

begin

if((HCOUNT >= MargLeft) && (VCOUNT >= MargTop) && (HCOUNT <= MargRight) && (VCOUNT <= MargBottom))

begin

Hmemadd = ((HCOUNT>>4)-7);

Vmemadd = ((VCOUNT>>4)-12);

Data = mem[(ImageWidth\*Vmemadd)+Hmemadd+75];

end

else

Data = BackGround;

end

else

begin

Data = 8'b00000000;

end

end

always@(posedge clk)

begin

if(WEN == 0)

mem[(ImageWidth\*VAdd)+HAdd] <= Data\_in;

end

endmodule