Project 2 - ISpy

EGR 426
Zack Peters

Introduction

In this project, the goal was to implement and design a videogame using VHDL. The game I chose was ISpy, a game where you had to keep wario in the spotlight until it was done moving, or else you lose.

Coding Components

In this section, I will give a brief explanation of each component of the code and how this was used in the game.

Yellow Circle

This source file displays a yellow circle and moves it in a set pattern across the screen. This then passes the x and y position of the circle center to title block and sets a flag high declaring the moving process is over.

Wario Display

In this source file, the wario is shown on the screen using read only memory and is controlled by the onboard buttons to move horizontally and vertically. The x and y position of the Wario image center are then passed to title block.

Title Block

In this source file, the x and y positions of both the wario display and yellow circle are passed in. It then determines if the wario is within the yellow circle. If it is within the bounds of the yellow circle, then a green square appears in the upper left hand corner of the screen, if not, the square is red. It waits until the circle has stopped moving to display the square.

Remainder of the code

The remainder of this code has been given to me, such as merging the displays, the VGA to HDMI and the static background.

Schematics

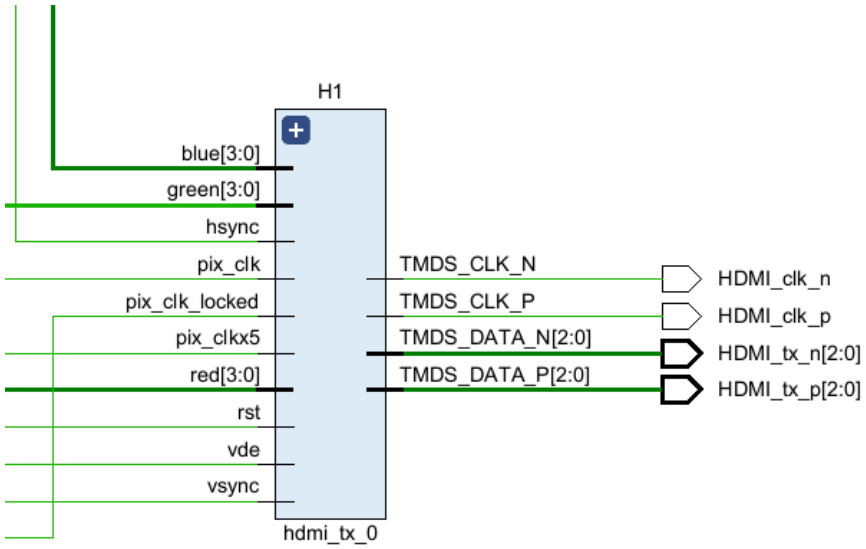

Figure 1: HDMI display schematic

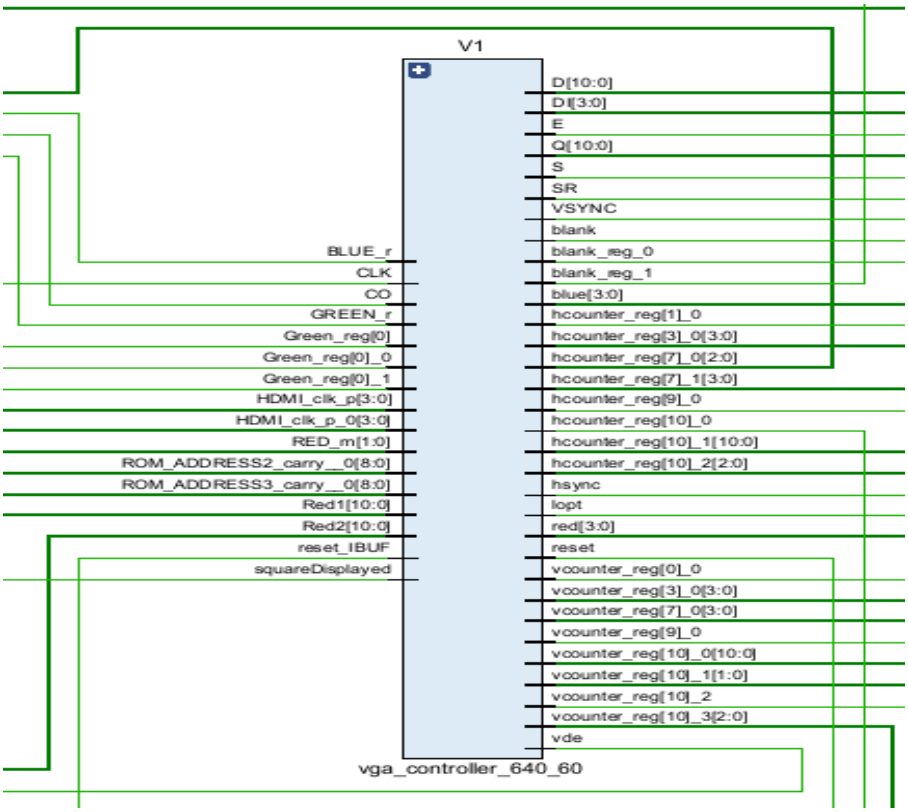

Figure 2: VGA Controller Schematic

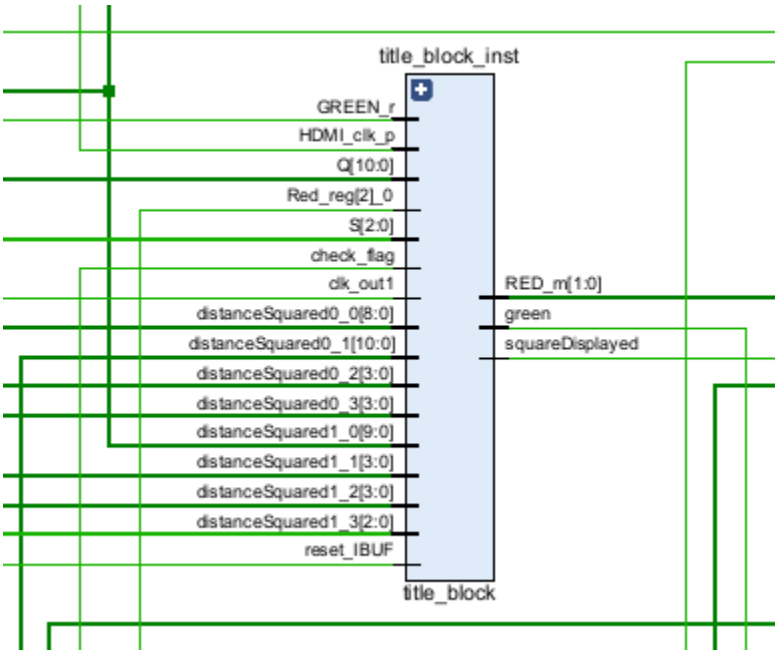

Figure 3: Title Block Schematic

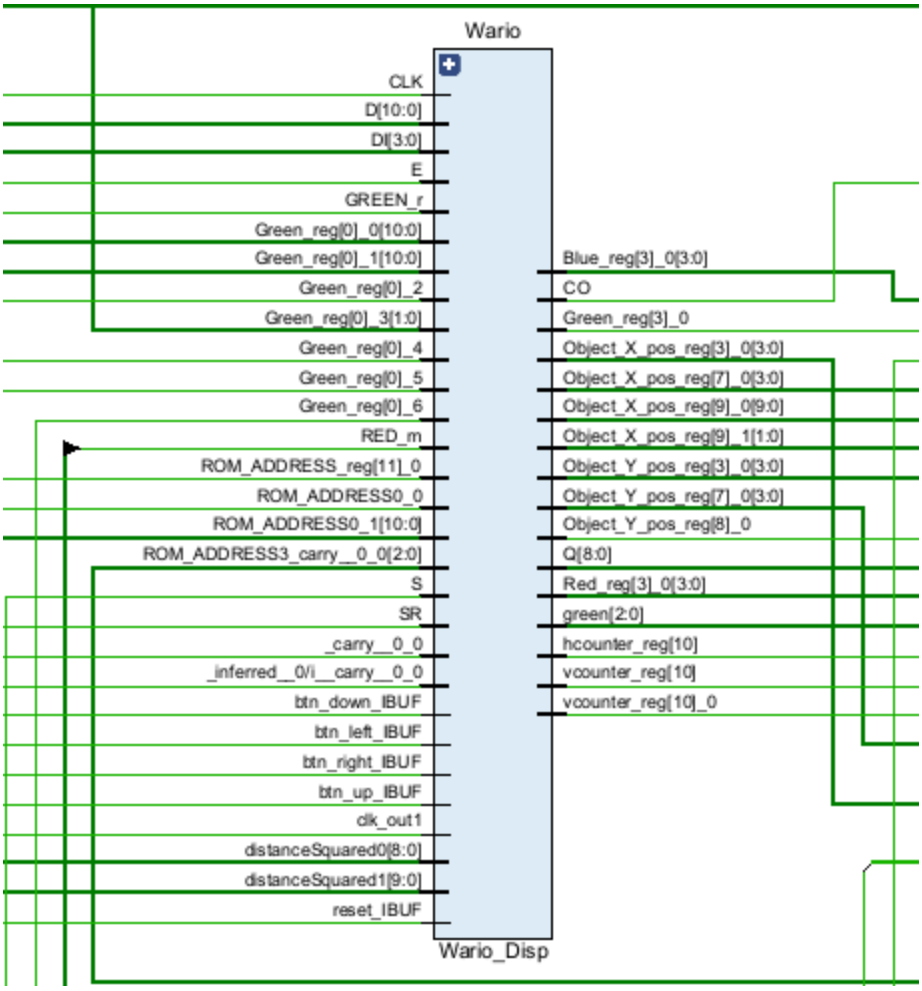

Figure 4: Wario Display Schematic

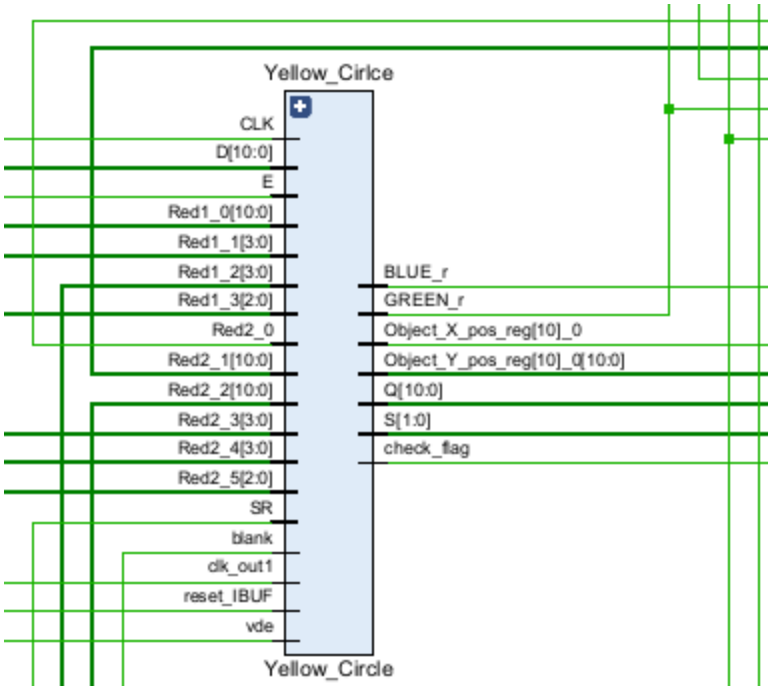

Figure 5: Yellow Circle Schematic

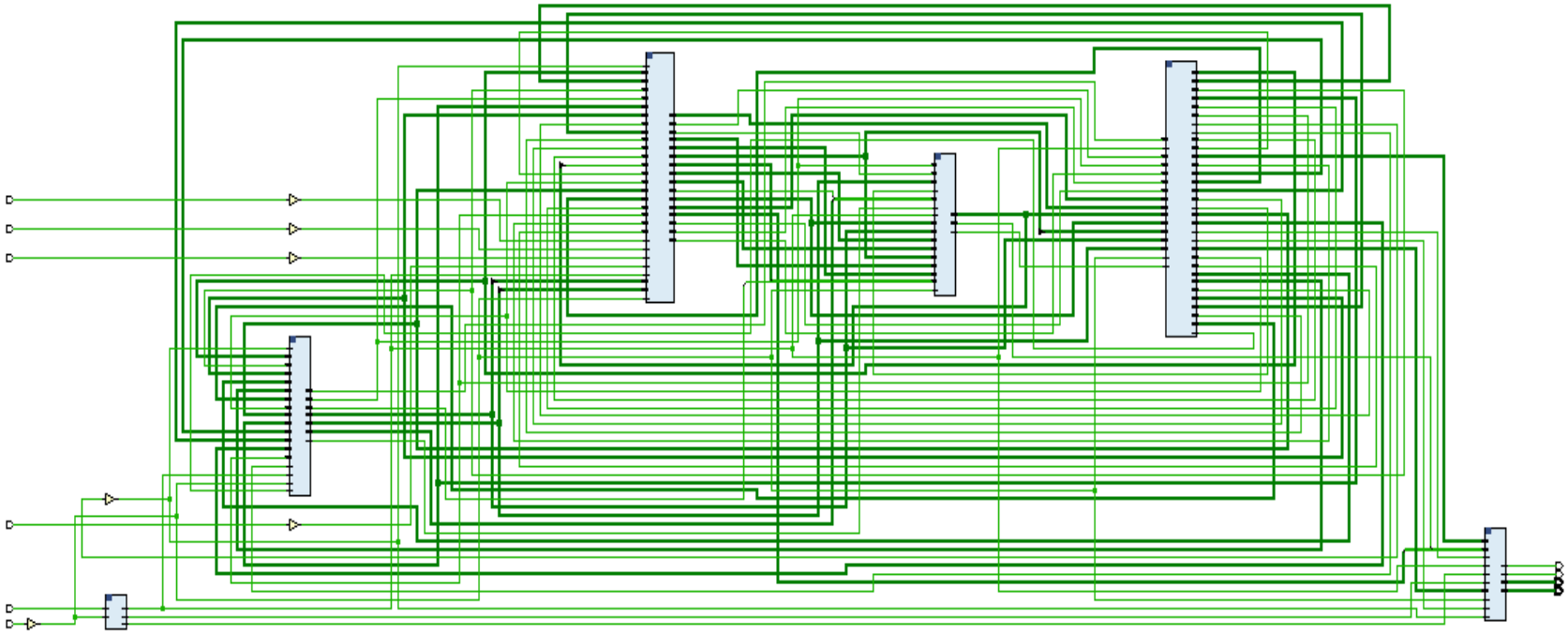

Figure 6: Top Level Schematic