

GEORGIA INSTITUTE OF TECHNOLOGY
SCHOOL of ELECTRICAL and COMPUTER ENGINEERING
ECE 8813A Spring 2018
Problem Set #0

Assigned: 2-April-18
Due Date: 11-April-18

PROBLEM 0.1:

Given: A block diagram (shown in Figure 1) is given for the file hw10.tb.v. This file reads a file and converts that Bitmap file to VGA format. VGA is defined by periods of Horizontal Sync and Vertical Sync as shown in Figures 2 and 3.

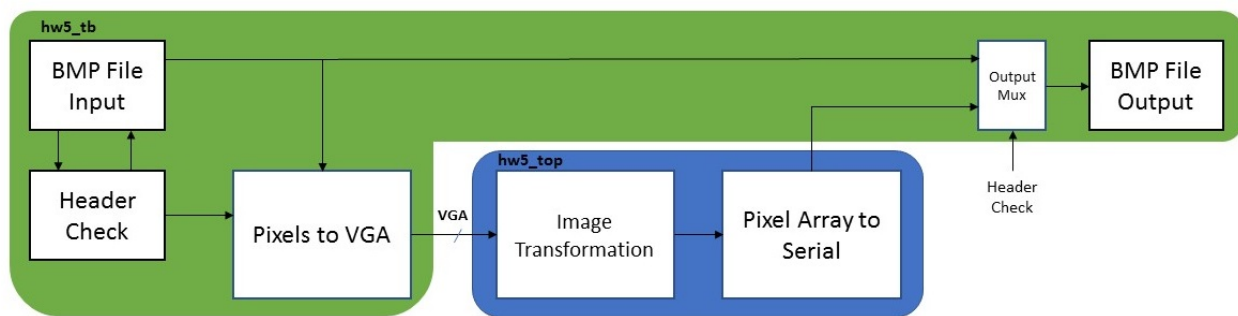


Figure 1: Top Level Block Diagram for Testbed

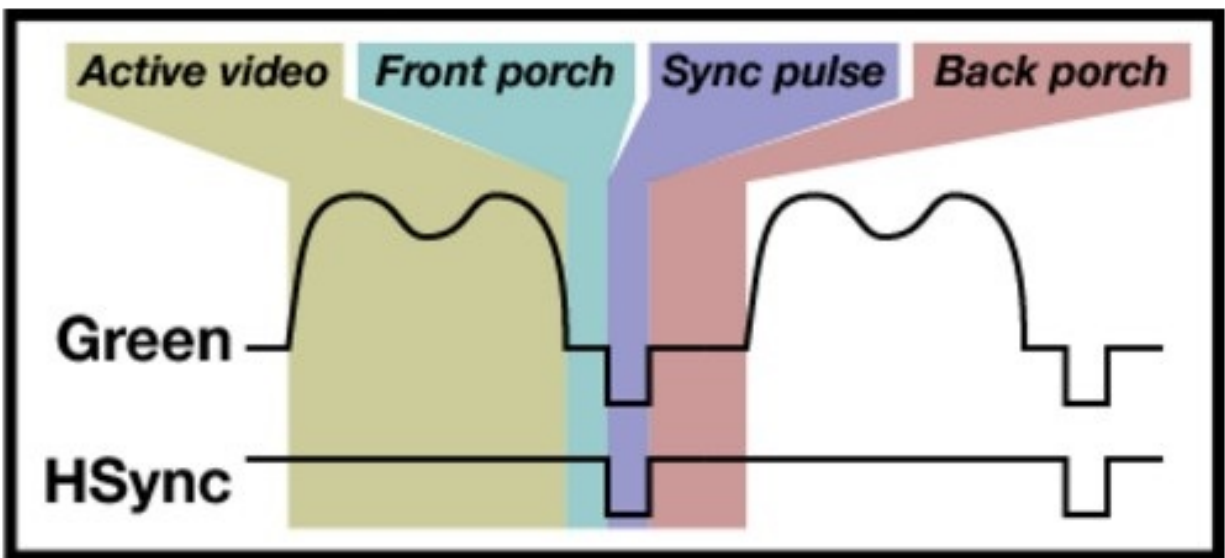


Figure 2: VGA Horizontal Sync.

Find: Create a detailed block diagram and ASM diagram to receive the signals generated from the testbench provided: HW10.tb.v file.

Modify the code in the HW5_top.v to read the pixels in from the VGA signals and then output the pixels, row first, one byte at a time. Ensure that the output file is the same as the original file. In the next homework we will add an image processing block to the code.

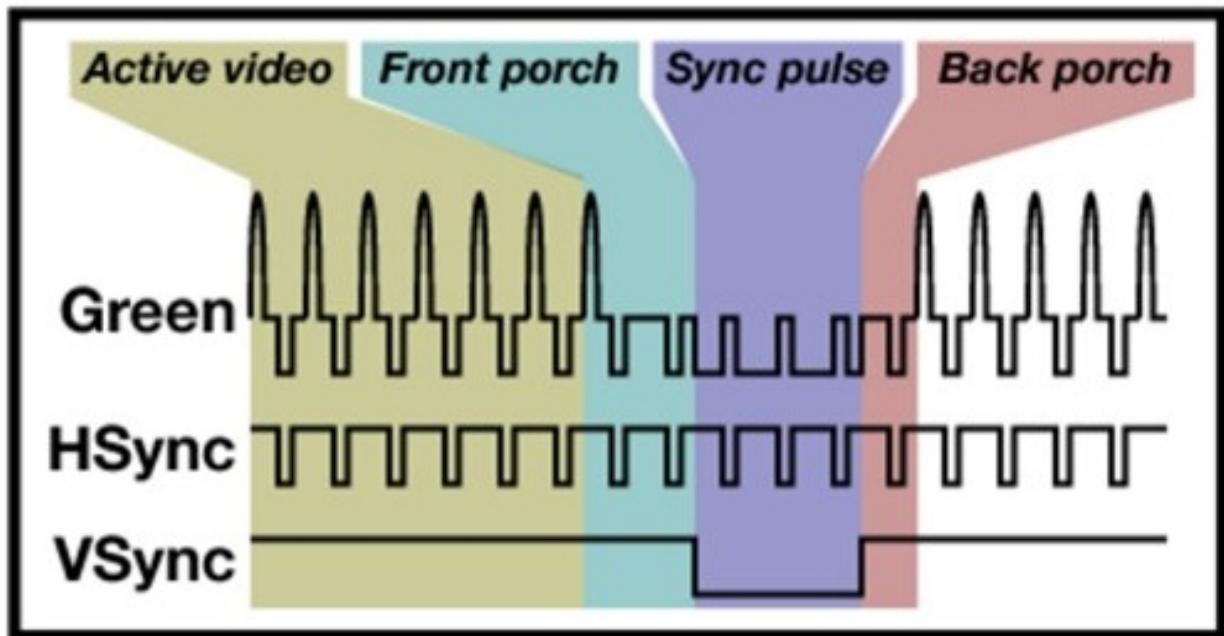


Figure 3: VGA Vertical Sync.

The VGA standard that is used for this homework is 800x600 non-interleaved. The VGA shown in class was 640X480 so the timing is slightly different. However your code should be parameterized so it can support any of the VGA standards.

Detailed information about the standard can be found at the following link:

<http://tinyvga.com/vga-timing/800x600@60Hz>