Project Proposal
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Topic: Desktop Video & Image Processing

The FPGA provided to students in the Embedded Systems CSEE W4840 course includes a Philips SAA7114H chip. This is a video capture device for applications at the image port of VGA controllers. Applications of this include capturing and scaling video images to be provided as digital video stream through the image port of a VGA controller, for display via the frame buffer, or for capture to system memory[1].

In this project, we will use the chip to capture and scale video images. We will use the video scaling feature of the chip to compress and decompress an image. While compression is taking place, it must be taken into consideration that there will be distortion as we are not evenly scaling the picture. Ultimately, our goal is to display an image onto the screen, horizontally compress the image about the center of the screen until the image is a width of one pixel (one vertical line), and finally decompress it until the output is a mirror image of the original input.

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[1] Philips Semiconductor SAA7114H Data Sheet. March 15, 2000. (pg. 4)