DigiPortrait

Design Document

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Introduction

In earlier years, pictures were captured on photographic film and then dropped off for development. During the last couple of years, however, technology has significantly evolved making these procedures antique. Now, a digital camera is all that is needed to allow for images to be seen seconds later. Still, difficulties arise in attempting to share the captured images. Portable devices still need to be developed in order to allow for quick and easy access to them.
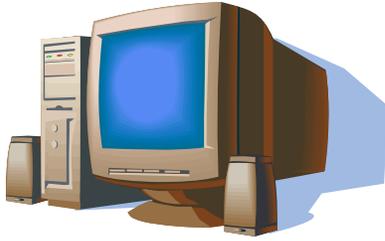
Therefore, we intend to build a digital picture frame that will use images sent to the FPGA board through the serial port. This is similar to a traditional picture frame that would allow for the images to be displayed on a LCD. Given the image from the serial port, the FPGA board, the JPEG decoder, and the video controller, we will be able to display the image at a 640x480 VGA resolution. This will not have a user-interface, thus making it a limited device.
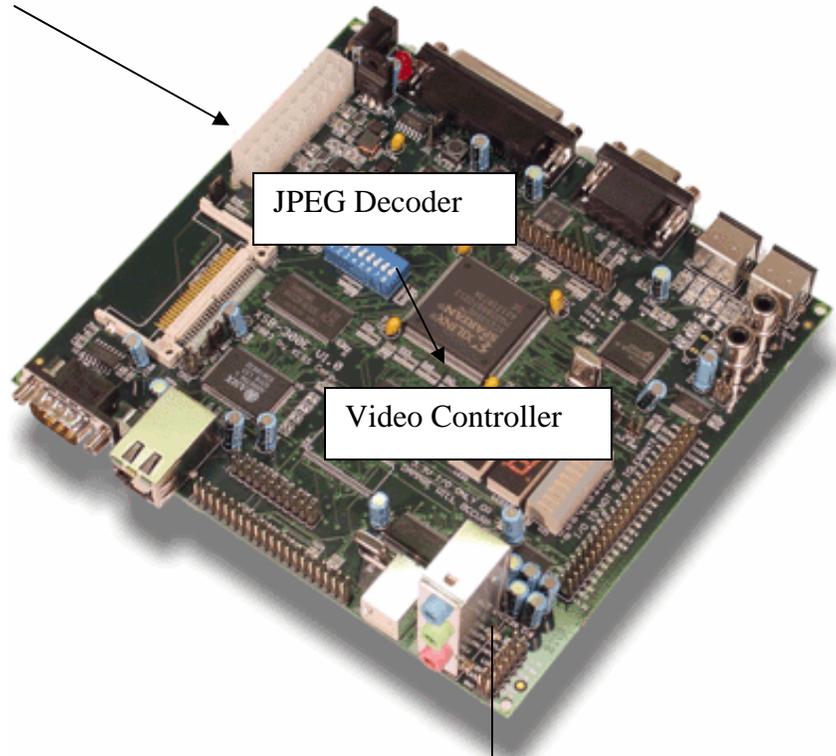
Implementation

We are assuming that the JPEG file will already be given on the FPGA board.

We will be using an open-source JPEG decoder found at the Independent JPEG group website and streamline the code to allow it to fit on the MicroBlaze processor.

We will be using the video controller to send the bytes from memory to video.

Host Computer

JPEG Decoder

Video Controller

VGA Display