

1 Introduction

For the final lab, you will continue exploring the DaVinci platform by creating a primitive digital video camera. This lab is derived from the Texas Instruments **DaVinci System Integration using Linux** workshop. We will be using the DSP core of the DM6446 as a codec engine to run our codecs. In doing so, we will observe how codecs are implemented in the extensive API provided by TI. We will also use their XDC command to dynamically create executables for both the ARM core and the DSP core.

The TA will present on the codec engine, XDC, codec availability, and summarize the procedure of the lab. It would help to skim chapters 11, 12, and 13 of the Workshop's slides (check your email for a link to the workshop's slides).

2 Lab Procedure

2.1 Setup

1. Setup the hardware as it was setup for lab09 (see lab09 for details).
2. Log into the host server and the DaVinci as performed in lab09
3. Use your customized workspace from lab09 to perform all of your work in.

2.2 Run the Programs

1. Read and understand the projects located inside of soln12a/b/c and soln13a/b/c
2. Ask questions about the software routines
3. Complete the workshop's lab assignment for each of the following projects and receive initials from a TA:

1. soln12a_build_server

TA Initial Lab10 Box 1

2. soln12b_tracing

TA Initial Lab10 Box 2

3. soln12c_challenge1

TA Initial Lab10 Box 3

4. soln13a_real_h264

TA Initial Lab10 Box 4

5. soln13b_h264_record

TA Initial Lab10 Box 5

6. soln13c_playback

TA Initial Lab10 Box 6

3 Lab Report

Answer the following questions:

1. What is XDC and what are its advantages (look for answer inside of workshop slides).
2. What are three major features of the H.264 codec?
3. What is a pthread and how was it used in this lab?
4. Describe what it would take to adapt this code to use a JPEG encoder.
5. Create a requirements form (see Ch1.3 of Computers as Components) for a digital video camera that uses the H.264 codec as well as a digital still camera that uses the JPEG codec. Compare these two forms.