

15-348: Embedded Systems

Fall 2022

Lab 5: CPU and Machine Code

Due: Beginning of lab time on Thursday, September 8, 2022

Introduction

This hardware lab consists of building a circuit that gets us started with wiring up a 6502 microprocessor and monitoring the address and data lines.

Your final circuit will be evaluated based on both its functionality and the cleanliness of the circuit layout and wiring.

Getting Started with the 6502

In order to build this circuit, please watch the following video and follow it as closely as possible. Make sure that your circuit is towards the left side of the breadboard – similar to the video, since we will be adding more components to the rest of the board.

<https://www.youtube.com/watch?v=LnzuMJLZRdU>

What to Demo

During your demonstration, we expect you to manually pulse the clock and show us the 7-cycle reset and then execution of NOP instructions on the Arduino serial monitor. (Just like Ben does in the video.)

Software

You will need to be able to program the Arduino in order to complete this lab. You can program it using the Arduino IDE from:

<https://www.arduino.cc/en/software>

The lab computers already have this installed.